## Coquitlam

## City of Coquitlam

 Strategic Transportation Plan UpdateDiscussion Paper \#5:

Transportation

## Possibilities, Performance and Evaluation

City of Coquitlam - Strategic Transportation Plan Update

## TABLE OF CONTENTS

1.0 INTRODUCTION ..... 4
2.0 EVALUATION FRAMEWORK ..... 5
3.0 EVALUATION ..... 7
3.1 Walking ..... 7
3.2 CYcling ..... 15
3.3 Transit ..... 21
3.4 Vehicle Travel ..... 30
4.0 PREFERRED SCENARIO ..... 63

## APPENDICES

Appendix A - Sidewalk Priorities and Costs
Appendix B - Bicycle Network Priorities and Costs
Appendix C - Transit Facilities Priorities and Costs

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City of Coquitlam - Strategic Transportation Plan Update

### 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.

This is the fifth Discussion Paper being prepared as part of the STP Update. The purpose of this Discussion Paper is to evaluate the transportation improvement possibilities included in Discussion Paper \#4 based on the evaluation framework developed in Discussion Paper \#3, and to present the preferred scenario to be included in the final Strategic Transportation Plan.

This Discussion Paper begins by summarizing the evaluation framework developed in Discussion Paper \#3, and then includes a summary of the evaluation of the transportation possibilities for each mode of transportation, highlighting observations on key patterns and differences.

The results of the evaluation in this Discussion Paper will form the basis for the features that will be included in the final Strategic Transportation Plan.

### 2.0EVALUATION FRAMEWORK

As previously noted, Discussion Paper \#3 outlined an evaluation framework to be used to assess the transportation possibilities identified in Discussion Paper \#4. The evaluation framework has two main applications:

1. Major Projects. The evaluation is used to compare improvement options for major projects. The framework is used to compare project options relatively to each other and a base case scenario.
2. Transportation Scenarios. The evaluation is also used to compare the overall transportation scenarios for sustainable modes - namely walking, cycling and transit.

The framework includes indicators that are linked to the goals and objectives of the STP Update. Each indicator includes one or more measures that are assessed either qualitatively or quantitatively on a relative scale ranging from low, moderate, to high. The evaluation framework is goals oriented and is designed to deliver a balanced transportation system that achieves the City's vision and broad community goals. Descriptions of indicators and measures are summarized in Table 1.

The evaluation framework includes an assessment of the relative benefits and impacts of each of the transportation possibilities. A five-point scale was used for each assessment as shown below:


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Table 1: Evaluation Framework for Transportation Scenarios and Major Investments

| STP Goal | Indicators | Measures | Assessment |
| :---: | :---: | :---: | :---: |
| Goal \#1: <br> Build high quality multi-modal facilities within and between neighbourhoods | Network Coverage | Percent of City land area within 400 metres of bicycle facility | Quantitative |
|  |  | Percent of streets with sidewalks within 400 metres of identified pedestrian generators ${ }^{1}$ | Quantitative |
|  |  | Average residential and employment densities within 400 metres $^{2}$ of frequent transit corridors or within 800 metres of rapid transit stations ${ }^{3}$ | Quantitative |
| Goal \#2: <br> Develop transportation infrastructure and services to support a healthy environment | GHG Emissions | Percent change in GHG emissions reductions compared to baseline | Quantitative |
|  | Vehicle Kilometres <br> Travelled (VKT) | Percent change in VKT compared to future base | Quantitative |
| Goal \#3: <br> Maintain and improve the quality of streets as a place for people. | Quality of neighbourhood streets | Relative contribution to improving safety of neighbourhood streets | Qualitative |
|  | Quality of key urban centres ${ }^{4}$ | Relative contribution to making key urban centres more pedestrian, bicycle and transit friendly | Qualitative |
|  | Accessibility | Relative contribution toward enhancing access for people with physical and cognitive disabilities as well as the general public | Qualitative |
| Goal \#4: Move people and goods efficiently | Travel Time Savings | Person travel time reduction relative to base case condition | Quantitative |
|  | People Moving Capacity | Changes in delays at key intersections and along the major street network as measured in terms of people and vehicles | Quantitative |
| Goal \#5: <br> Prioritize walking, cycling, transit, and other sustainable modes of transportation | Transportation Choices | Mode shift to walking, cycling and transit | Quantitative |
|  |  | Attractiveness of sustainable modes of transportation | Qualitative |
|  | Safety | Relative contribution towards improving safety for all street users | Qualitative |
| Goal \#6: <br> Manage the transportation system efficiently as the community evolves | Financial | Class D cost estimates | Quantitative |

[^0]
3.0EVALUATION

This section presents the results of the evaluation of the transportation improvement possibilities for each mode of transportation based on the evaluation criteria presented in the previous section.
3.1 Walking

Walking currently accounts for approximately $8 \%$ of all trips made by City of Coquitlam residents. The STP includes an ambitious target to increase this mode share, so that walking would account for $12 \%$ of all trips by 2031 compared to $8 \%$ in 2008. To achieve these targets, significant investments in high quality pedestrian facilities will be required. To that end, the Pedestrian Plan for Coquitlam is intended to ensure high quality pedestrian facilities in key areas of the City where there is the greatest potential to increase walking trips.

Discussion Paper \#4 included three categories of potential pedestrian improvements that should be considered for the long-term in Coquitlam, including:

1. Increase Sidewalk Coverage
2. Enhance Pedestrian Quality
3. Develop Trails and Greenways

This section of the Discussion Paper examines how each of these key themes aligns with the vision and goals for the STP that have been outlined in previous Discussion Papers.

1. Increase Sidewalk Coverage

The City's current sidewalk network includes approximately 479 km of sidewalks. However, as noted in Discussion Paper \#4, there are several large areas of the City that do not meet the City's sidewalk standards, particularly in the older areas of the City. This improvement possibility recommends strategically increasing sidewalk coverage in areas that reflect higher pedestrian demand as well as areas that address safety concerns. The Pedestrian Plan recommends an additional 142 km of sidewalks throughout the City. It should be noted, however, that many of these new sidewalks could be implemented as redevelopment occurs in the City Centre and Neighbourhood Commercial Centres.

Using a unit cost estimate of $\$ 300$ per metre of sidewalk, it is estimated that the priority sidewalks will cost approximately $\$ 42.6$ million for the City to fully implement. This is much

City of Coquitlam - Strategic Transportation Plan Update
lower than the over $\$ 100$ million that it is expected to cost for a full build out of the sidewalk network.

Recognizing the significant cost to implement all priority sidewalks identified above, individual sidewalk needs were further prioritized based on their relative demand and safety benefits. In particular, recognizing that in order to work towards meeting the STP target of $12 \%$ of all trips made by walking, significant investment in pedestrian facilities is required, and this investment must be strategic to achieve the greatest return on investment. As such, the highest priority sidewalks were identified in those areas with the greatest potential to increase pedestrian trips based on their proximity to the City Centre or Neighbourhood Commercial Centres, schools, bus stops as well as safety based on road classification, as described below:

## Highest Priority Sidewalks:

- Within or directly connecting to the City Centre or a Neighbourhood Commercial Centre
- Within a Pedestrian Precinct and also adjacent to a bus stop or school
- Outside a Pedestrian Precinct, but on an arterial or collector road with no current sidewalks
- Connects to rapid transit stations


## Moderate Priority Sidewalks

- Outside a Pedestrian Precinct, but adjacent to a bus stop or school
- Outside a Pedestrian Precinct, but on an arterial or collector road with a sidewalk currently only on one side of the street


## Lower Priority Sidewalks

- Within a Pedestrian Precinct, but not within or connecting to the City Centre or Neighbourhood Commercial Centres and not adjacent to a bus stop or school
- Outside a Pedestrian Precinct, but on an arterial or collector road in a rural context

Costs to implement the higher, moderate, and lower priority sidewalks are shown in Table 2. Although all priority sidewalks will cost $\$ 42.6 \mathrm{M}$ to implement, the higher priority sidewalks will cost $\$ 13.9 \mathrm{M}$ and these should be the priority for implementation over the short-term.

Table 2: Sidewalk Priorities and Costs

|  |  | Higher <br> Priority | Moderate <br> Priority | Lower <br> Priority | Total |
| :--- | :--- | :---: | :---: | :---: | :---: |
| 1. |  <br> Neighbourhood <br> Commercial Centres | $\$ 11.3 \mathrm{M}$ | $\$ 6.0 \mathrm{M}$ | $\$ 13.7 \mathrm{M}$ | $\$ 31.0 \mathrm{M}$ |
| 2. | Adjacent to schools | $\mathrm{n} / \mathrm{a}$ | $\$ 4.1 \mathrm{M}$ | $\mathrm{n} / \mathrm{a}$ | $\$ 4.1 \mathrm{M}$ |
| 3. | Adjacent to bus stops | $\mathrm{n} / \mathrm{a}$ | $\$ 2.9 \mathrm{M}$ | $\mathrm{n} / \mathrm{a}$ | $\$ 2.9 \mathrm{M}$ |
| 4. | Other arterial roads | $\$ 2.3 \mathrm{M}$ | $\$ 0.7 \mathrm{M}$ | $\$ 1.3 \mathrm{M}$ | $\$ 4.3 \mathrm{M}$ |
| 5. | Other collector roads | $\$ 0.4 \mathrm{M}$ | $\$ 0.01 \mathrm{M}$ | $\mathrm{n} / \mathrm{a}$ | $\$ 0.4 \mathrm{M}$ |
|  | TOTAL | $\mathbf{\$ 1 3 . 9 M}$ | $\mathbf{\$ 1 3 . 8 M}$ | $\mathbf{\$ 1 4 . 9 M}$ | $\mathbf{\$ 4 2 . 6 M}$ |

Sidewalk priorities are summarized in Appendix A. It should be emphasized, however, that many of the sidewalks identified as priorities are in areas of redevelopment in the City Centre, new development in Northeast Coquitlam, and redevelopment in Austin Heights, Maillardville, and Burquitlam. Sidewalks in these neighbourhoods can and ought to be provided as redevelopment occurs in the future.

The assessment results for increased sidewalk coverage are shown in Table 3.

City of Coquitlam

## - Strategic Transportation Plan Update

Table 3: Evaluation Results - Increase Sidewalk Coverage

| Theme: Increase Sidewalk Coverage |  |  |
| :---: | :---: | :---: |
| Goal | Summary | Rating |
| 1: High Quality, Multi-Modal Facilities | - Sidewalk coverage increase by over 140 km <br> - Complete implementation will result in $100 \%$ of roads in Pedestrian Precincts with sidewalks | O |
| 2: Support a Healthy Environment | - Increasing sidewalk coverage will make walking a safer and more attractive option and encourage residents to walk for short and medium distance trips and reduce GHG emissions | $\bigcirc$ |
| 3: Maintain and improve the quality of streets | - By constructing new sidewalks on all collector and arterial roads, this will have a high contribution towards to improving safety of neighbourhood streets. <br> - By prioritizing sidewalk investments in the City Centre and Neighbourhood Commercial Centres, improvements will have a high contribution to making these key centres more pedestrian friendly. | - |
| 4: Move people and goods efficiently | - It is not anticipated that implementing the sidewalk network will provide significant travel time reductions or have any changes in delays at key intersections along the roadway network. | O |
| 5: Prioritize sustainable modes of transportation | - By ensuring that sidewalks are provided within walking distance to key destinations throughout the City, walking will be a significantly more attractive transportation option. This will also improve safety for pedestrians by ensuring that they have a safe place to walk near these key land uses. Increased sidewalk coverage also contributes to transit as all transit trips start and end as a pedestrian trip. However, despite these benefits, it is not anticipated that increasing the sidewalk coverage will have a significant effect on shifting travel modes, as most walking trips are relatively short trips. | $\theta$ |
| 6: Manage the transportation system efficiently | - Capital cost to implement all priority sidewalks is approximately \$43 million; cost for highest priority sidewalks is approximately \$14 million. | 0 |
| Overall Assessment | High Priority / Ongoing |  |

## 2. Enhance Pedestrian Quality

The Pedestrian Plan 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, other rapid transit station areas, and Neighbourhood Commercial Centres where walking will be most prominent, extraordinary treatments are required to make walking even more attractive. These will require treatments within and leading to those areas that make walking are attractive to all users and are accessible for all levels of mobility. In order to enhance pedestrian quality in key areas, the Pedestrian Plan identifies three key types of pedestrian areas in which to enhance pedestrian treatments - Pedestrian Precincts and People Streets, School Pedestrian Areas, and


Community and Recreation Pedestrian Areas. These areas were defined by a 400 metre radius around key pedestrian generators, equivalent to approximately a five-minute walk. The Pedestrian Plan identifies a range of treatments to make walking within each of these areas the most attractive mode of transportation. Treatments range from crossing treatments, accessibility improvements, and other amenities such as signage and wayfinding, landscaping, benches, and lighting. The assessment results for enhanced pedestrian quality are shown in Table 4.

Table 4: Evaluation Results - Enhanced Pedestrian Quality

| Theme: <br> Enhance Pedestrian | Quality | Rummary |
| :--- | :--- | :--- |$\quad$ Rating

City of Coquitlam
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 nonmotorized modes of transportation for recreational and commuting purposes. The plan includes a network of Citywide Greenways which 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 well as Neighbourhood Greenways, which will generally be shorter and will provide connections within the City Centre and Neighbourhood Commercial Centres as well as connections to the Citywide Greenway network. These greenways should have enhanced treatments to distinguish them from other routes such as enhanced sidewalk width, local street bikeways, multi-use pathways, landscaping, narrower crossings, design measures aimed at maintaining low traffic volumes and speeds, pedestrian amenities, street level lighting, public art, and alternative stormwater management. It should be noted that off-street trails will be implemented in accordance with an updated Trails Master Plan.

The STP identifies a network of approximately 60 km of Citywide Greenways as described below. It should be noted this Citywide Greenway network includes approximately 6 km of existing facilities.

- David Avenue would provide a direct east-west connection across Coquitlam from the Port Moody boundary in the west to Northeast Coquitlam in the east. A multi-use pathway already exists on the south side of David Avenue between Pinetree Way and Coast Meridian Way.
- Pinetree Way is a key north-south connection through the City Centre. In recognition of the Evergreen Line, the City has completed a conceptual design for Pinetree Way to be a multi-modal street with transit priority measures, promoting mixed use development, and creating a sense of place.
- Johnson Street is another key north-south connection and has sufficient right of way along the majority of the proposed route to provide a multi-use pathway on the west side of the street.
- Lougheed Highway would consist of a multi-use pathway adjacent to Lougheed Highway to provide a connection between the City Centre and Southwest Coquitlam. The City has completed a background study reviewing potential alignments for this multi-use pathway, with the preferred alignment running through the Province's Riverview property adjacent to Lougheed Highway. The grades along this alignment are appropriate for cycling and walking.
- Mariner Way would consist of a multi-use pathway on the west side of Mariner Way to provide a connection from Mundy Park and Como Lake Road to the Lougheed

Highway and Colony Farm greenways. A multi-use pathway already exists on the west side of Mariner Way between Como Lake Avenue and Austin Avenue.

- Colony Farm Road would be a local street bikeway or off-street pathway to provide a north-south connection between the Lougheed Highway and Mariner Way Greenways with the Waterfront Greenway.
- Waterfront, which is a long-term multi-use pathway adjacent to the Fraser River. The City has completed a background study reviewing potential alignments for this multi-use pathway.
- Clarke Road, which would consist of a multi-use pathway on Clarke Road in conjunction with the Evergreen Line.
- King Edward / Nelson / Porter, which would make use of the bicycle lanes and multi-use pathway currently being constructed as part of the King Edward Overpass, and would consist of a shared local bikeway and enhanced sidewalks and other pedestrian amenities along Nelson Street and Porter Street.
- Brunette, which would include an overpass over Highway to connect with the Braid Street SkyTrain station and would provide a connection to Maillardville using a combination of on-street and off-street facilities.
- King Albert / Austin, which would provide a direct connection between Lougheed Town Centre, Austin Heights, and Mundy Park, and would consist of a consist of a shared local bikeway and enhanced sidewalks and other pedestrian amenities along King Albert Avenue, including a new pedestrian and bicycle bridge between Gatensbury Street and Schoolhouse Street. This would also consist of a multi-use pathway on the north side of Austin Avenue between North Road and Roxham Street.
- Regan / Smith, which would provide a direct connection between Burquitlam Centre and Mundy Park and pointing east, consisting of a shared local bikeway and enhanced sidewalks and other pedestrian amenities along Regan Avenue and Smith Avenue. The greenway would continue along the existing multi-use pathway on the south side of Como Lake Avenue adjacent to Mundy Park as well as the existing Crosstown Bicycle Route between Mundy Park and Coquitlam City Centre.
- Dogwood / Fairview, which would provide a direct north-south connection through Burquitlam Centre using a shared local bikeway and new sidewalks.
- Poirier Street, which would provide a direct north-south multi-use pathway connection to the Poirier Sport and Leisure Complex, Poirier Library, Centennial School and other community facilities using a shared local bikeway and enhanced sidewalks.
- City Centre, which would provide an east-west connection between Ioco SkyTrain Station and Port Coquitlam and could be implemented in conjunction with the development of a finer-grained city centre road network. In addition, to connect the West Coast / Coquitlam Station to potential development lands on the south east

City of Coquitlam - Strategic Transportation Plan Update
quadrant of Lougheed Highway and Pinetree Way, a potential pedestrian/bicycle overpass is recommended over Lougheed Highway by the railway overpass.

The assessment results for trails and greenways are shown in Table 5. Costs for urban greenways were calculated based on a unit rate of $\$ 1,000,000 / \mathrm{km}$ for off-street pathways and $\$ 50,000 / \mathrm{km}$ for on-street improvements. Based on these unit costs, it is estimated that implementation of the complete network of Urban Greenways would cost approximately \$20 million, although it should be noted that these costs include improvements to bicycle facilities included in the following chapter. Recognizing the significant cost to implement all greenways identified above, individual greenways were prioritized based on their relative importance in connecting key destinations throughout the City. It is estimated that the highest priority greenways would cost approximately $\$ 6.6$ million to implement, as shown in Table 6.

Table 5: Evaluation Results - Develop Trails and Greenways

| Theme: Develop Trails and Greenways |  |  |
| :---: | :---: | :---: |
| Goal | Summary | Rating |
| 1: High Quality, MultiModal Facilities | - Citywide Greenway network increases from 6 km to 60 km in distance |  |
| 2: Support a Healthy Environment | - Citywide Greenways provide attractive, direct connections between major destinations throughout the City and will encourage people to walk or cycle between these destinations for commuting or recreational purposes. | $\bigcirc$ |
| 3: Maintain and improve the quality of streets | - By prioritizing pedestrians and cyclists along the Citywide Greenway corridors and designing for people, these connections will improve safety of neighbourhood streets and make key urban centres for pedestrian and bicycle friendly | - |
| 4: Move people and goods efficiently | - Citywide Greenways will likely be used primarily for recreation or utilitarian trips and will help move people particularly cyclists - efficiently. <br> - Design measures designated to keep traffic volumes and speeds low along neighbourhood streets | 0 |
| 5: Prioritize sustainable modes of transportation | - Citywide Greenways are intended to prioritize high quality, attractive pedestrian and bicycle facilities in order to see a significant increase in walking and cycling |  |
| 6: Manage the transportation system efficiently | - Approximately $\$ 20$ million capital costs for implementation of all urban greenways; approximately $\$ 6.6$ million to implement highest priority greenways. | O |
| Overall Assessment | High Priority / Ongoing |  |

Table 6: Greenway Priorities and Costs

| Urban Greenway | Priority | Cost |
| :--- | :--- | :--- |
| David Avenue | High | $\$ 1.3 \mathrm{M}$ |
| Pinetree Way | High | Implement with Pinetree Way improvements |
| Brunette | High | $\$ 1.0 \mathrm{M}$ |
| King Albert / Austin | High | $\$ 1.6 \mathrm{M}$ |
| Regan / Smith | High | $\$ 220,000$ |
| Dogwood / Fairview | High | $\$ 380,000$ |
| Clarke Road | High | $\$ 0.5 \mathrm{M}$ |
| Poirier | High | $\$ 1.7 \mathrm{M}$ |
| City Centre | High | To be determined based on final alignment |
| Lougheed Highway | Moderate | $\$ 3.7 \mathrm{M}$ |
| Mariner Way | Moderate | $\$ 1.8 \mathrm{M}$ |
| Johnson Street | Moderate | $\$ 1.1 \mathrm{M}$ |
| Nelson | Moderate | $\$ 70,000$ |
| Porter | Moderate | $\$ 60,000$ |
| Colony Farm Road | Low | $\$ 1.2 \mathrm{M}$ |
| Waterfront (Implement with Development) | Low | $\$ 5.4 \mathrm{M}$ |
| King Edward | Low | Implement with Waterfront road network |
| Colony Farm Road | Low | $\$ 1.2 \mathrm{M}$ |

3.2 Cycling

Although cycling currently accounts for less than $1 \%$ of all trips in Coquitlam, it is an increasingly important mode of transportation for both local and longer-distance trips. The STP includes ambitious targets that $3 \%$ of all trips made by Coquitlam residents be made by cycling. In addition, the Regional Cycling Strategy for Metro Vancouver has a set a target that 15\% of all trips less than 8 km in distance across the region be made by bicycle. Achieving these mode share targets locally and across the region will require a significant investment in cycling facilities and support initiatives, but most importantly, will require a market based approach to providing bicycle facilities to ensure that cycling is a safe, convenient and attractive option for cyclists of all ages and abilities. The Bicycle Plan includes strategies to provide 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" groups. The improvement concepts also include 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.

Discussion Paper \#4 included three categories of potential cycling improvements that should be considered for the long-term in Coquitlam, including:

1. Expand Bicycle Network Coverage
2. High Quality Bicycle Facilities
3. Develop Support Facilities, Policies \& Programs

This section of the Discussion Paper examines how each of these key themes aligns with the vision and goals for the STP that have been outlined in previous Discussion Papers.

## 1. Expand Bicycle Network Coverage

The recommended bicycle network identified in the Bicycle Plan includes approximately 150 km of bicycle facilities. This is an increase from approximately 40 km of bicycle facilities that already exist. 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 400 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 400 metres of a bicycle route. Assessment results for expanded bicycle network coverage are shown in Table 7.


Table 7: Evaluation Results - Expand Bicycle Network Coverage

| Theme: <br> Expand Bicycle Network Coverage |  |  |
| :---: | :---: | :---: |
| Goal | Summary | Rating |
| 1: High Quality, MultiModal Facilities | - Bicycle network increases from 40 km today to 150 km in the future - an increase of $275 \%$ <br> - Currently less than $30 \%$ of the urban area of the City is located within 500 metres of a bicycle route, and this will increase to $70 \%$ upon full build out of the bicycle network | $\bigcirc$ |
| 2: Support a Healthy Environment | - By providing increased network coverage and most residents within a short cycling distance to a designated bicycle route, cycling will be an attractive option to replace short and medium-distance trips. | $\bigcirc$ |
| 3: Maintain and improve the quality of streets | - Providing a complete network of bicycle facilities will help to ensure safety for cyclists and other road users on neighbourhood streets <br> - By providing connections within and between the City Centre and Neighbourhood Commercial Centres, improvements will have a high contribution to making these key centres more bicycle friendly. |  |
| 4: Move people and goods efficiently | - A dense network of bicycle routes will help move cyclists efficiently across the City and, with an increasing number of cyclists, will help reduce the number of vehicles on the road to ensure the efficient movement of goods and services. | $\theta$ |
| 5: Prioritize sustainable modes of transportation | - By implementing a complete network of bicycle facilities, bicycle facilities would be a very attractive mode of transportation in Coquitlam. |  |
| 6: Manage the transportation system efficiently | - It is estimated that full implementation of the bicycle network would cost approximately $\$ 27.1$ million. |  |
| Overall Assessment | High Priority / Ongoing |  |

## 2. High Quality Bicycle Facilities

As noted in the Bicycle Plan, 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. 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. TransLink's Regional Cycling Strategy estimates that the "Interested but Concerned" group represents approximately $41 \%$ of the population. The Regional Cycling Strategy notes that the single greatest deterred for this group is concern about cycling in motor vehicle traffic. To that end, the Bicycle Plan recommends focusing on implementing high quality cycling facilities that are attractive to this segment of the population,

- Class 1 Facilities which 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).
- Class 2 Facilities appeal to more limited group of cyclists including the "strong and confident" and "enthused and optimistic" groups and can include local street bikeways on busier roadways ( $3,000-6,000$ vehicles per day in both directions) or bicycle facilities on collector or arterial streets with moderate traffic volumes ( 6,000 - to 15,000 vehicles per day in both directions).
- Class 3 Facilities would appeal to a limited group of commuter cyclists and consist of bicycle facilities on collector or arterial streets with motor vehicle volumes greater than 15,000 vehicles per day.

Assessment results for high quality bicycle facilities are shown in Table 8. It is estimated that the cost of implementing the complete bicycle network would cost approximately $\$ 27.1$ million, not including any bicycle facilities that would be implemented as part of a road improvement or road construction project. This includes approximately $\$ 20$ million for urban greenways are described in the previous section, as many of the Class 1 cycling facilities are also classified as urban greenways. Recognizing the significant cost to implement bicycle facilities, bicycle routes were prioritized based on their network contribution, appeal, and implementability. The highest priority bicycle routes are estimated to cost approximately $\$ 9.6$ million. A detailed summary of bicycle network costs and priorities is shown in Appendix B.


Table 8: Evaluation Results - High Quality Bicycle Facilities

| Theme: High Quality Bicycle Facilities |  |  |
| :---: | :---: | :---: |
| Goal | Summary | Rating |
| 1: High Quality, MultiModal Facilities | - Focusing on high quality bicycle facilities will enhance the quality of the cycling experience. <br> - Although these high quality facilities will increase the attractiveness of cycling, they do not increase network coverage beyond what is recommended with increased bicycle network coverage | O |
| 2: Support a Healthy Environment | - By providing high quality facilities that are attractive to a large segment of the population, cycling will be an attractive option to replace short and medium-distance trips. | - |
| 3: Maintain and improve the quality of streets | - Providing high quality "Class 1 " cycling facilities will make a significant improvement to safety and quality of neighbourhood streets by prioritizing cycling, implementing design measures aimed at maintaining low traffic volumes and speeds, and installing other bicycle and pedestrian amenities on neighbourhood streets. | - |
| 4: Move people and goods efficiently | - A network of high quality bicycle routes will help move cyclists safely across the City and, with an increasing number of cyclists, will help reduce the number of vehicles on the road to ensure the efficient movement of goods and services. | O |
| 5: Prioritize sustainable modes of transportation | - By focusing on developing high quality, safe, and attractive bicycle facilities, there would be a significant opportunity to encourage the "interested but concerned" segment of the population to cycle. Since this group represents a significant share of the population (estimated at $41 \%$ of the Metro Vancouver population) there is significant potential to increase mode share by tapping into this market. |  |
| 6: Manage the transportation system efficiently | - It is estimated that full implementation of the bicycle network would cost approximately $\$ 27.1$ million, excluding routes constructed as part of other road improvement or road construction projects (and including costs for greenways identified in the previous section); highest priority bicycle routes would cost approximately $\$ 9.6$ million |  |
| Overall Assessment | High Priority / Ongoing |  |

City of Coquitlam - Strategic Transportation Plan Update

## 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. The Bicycle Plan includes a number of recommendations for support initiatives, including:

- Enhanced On-Street Bicycle Parking in Key Areas with additional bicycle parking recommended in key areas of Coquitlam, such as the City Centre, Neighbourhood Commecial Centres, SkyTrain stations and transit exchanges, Community centres, Schools, and Key parks.
- Enhanced Wayfinding and Signage to identify designated bicycle routes and guide cyclists throughout the bicycle network, and also to provide a visual cue to motorists that they are driving along a bicycle route.
- Public Bike Sharing. 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.
- Bicycle Parking Requirements, including amendments to the City's Zoning Bylaw to provide requirements for the bicycle parking and other end-of-trip facilities.
- Education and Awareness Programs 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 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.

A summary of assessment results for bicycle support strategies is shown in Table 9.

Table 9: Evaluation Results - Bicycle Support Facilities, Policies and Programs

| Theme: |  |  |
| :---: | :---: | :---: |
| Bicycle Support Facilities, Policies and Programs |  |  |
| Strategy | Key Directions | Overall Priority |
| Enhanced On- <br> Street Bicycle <br> Parking in Key <br> Areas | - Ensure on-street bicycle parking is provided in key areas such as the City Centre, Neighbourhood Commercial Centres, SkyTrain stations and transit exchanges, community centres, schools, and key parks <br> - Bicycle parking should range depending on the duration and anticipated to use and could include bicycle racks, bicycle 'corrals, bicycle shelters, or bicycle lockers. | High Priority / On-going |
| Enhanced Wayfinding and Signage | - Provide enhanced signage on designated bicycle routes to identify the bicycle network and help "brand" the network. Work with TransLink on using a common wayfinding system for cycling. | Moderate Priority / On-Going |
| Public Bike Sharing | - Work with partners to conduct a feasibility study of implementing a public bike share program in the City or the broader Northeast Sector | Low Priority / LongTerm |
| Bicycle Parking Requirements | - Amend the Zoning Bylaw to provide requirements for bicycle parking and other end-of-trip facilities | High Priority / Short-Term |
| Education and <br> Awareness <br> Programs | - Support a range of programs such as cycling skills programs, safe routes to school programs, and events such as Bike to Work Week and Bike Month | Moderate Priority / Ongoing |
| Marketing and Promotion Strategies | - Develop bicycle user map identifying key bicycle routes, destinations, transit routes, bicycle parking, and key retailers <br> - Develop a dedicated web presence and other social media tools to promote cycling in Coquitlam | Moderate Priority / Ongoing |

### 3.3 Transit

The Transit Strategy for Coquitlam is designed to take stock in the importance of transit the established and growing areas of the City, identify and assess the relative markets, examine conceptual long-term improvements to the transit system beyond the provision of the Evergreen Line and outline relative priorities based on local goals and aspirations for the transportation system and community plans.

City of Coquitlam - Strategic Transportation Plan Update
The outcomes and priorities of the STP Update process will serve as input into the Area Transit Planning process for the Northeast Sector to be undertaken by TransLink in the next few years. In addition to outlining the City's interests in local and regional transit services as well as supportive strategies, the process provides the City the opportunity to work through the key ingredients to a achieving many other objectives and the role of transit at a local level. TransLink can then work through these and other concepts at a sub-regional level within the Northeast Sector and evaluate potential improvements based on these aspirations and other performance indicators to ensure that investments in transit are beneficial to the community and the transit system as a whole.

The improvement concepts section in Discussion Paper \#4 outlined three categories of potential transit improvement strategies that should be considered in Coquitlam for the long-term as briefly highlighted below.

1. Increased local area frequencies \& coverage
2. Enhanced Regional Services
3. Transit Supportive Strategies and Policies

This section of the Discussion Paper broadly examines the relative alignment between these concepts and the City's aspirations not only for transit, but the other goals and objectives reflected in the evaluation criteria. In some cases, preliminary analysis of the concepts included very cursory modeling to provide general guidance on the potential changes in ridership that may occur in support of other qualitative measures to gauge relative support.

## 1. Increased Local Area Frequency and Coverage

Local service improvements in Coquitlam are designed to keep pace with the changing areas of the City over the next 20 years by increasing frequency along many of the major corridors (particularly in the Southwest area of the City and between the City Centre and Northeast Coquitlam) and providing enhanced local services between neighbourhoods such as the City Centre and north-south community services in Southwest Coquitlam. Overall, the improvement strategies identified in Discussion Paper \#4 broadly outline several key strategies to enhance local services within the City. An assessment of these strategies and associated priorities are briefly summarized below and in Table 10.
a. Enhance services in Southwest Coquitlam by increasing frequencies on existing routes, providing more direct services on Austin Avenue and north-south community
shuttle routes in the eastern and western areas of the City to connect the United Boulevard and Lougheed areas to other parts of the community. Overall, these improvement concepts support the significant level of planned growth in Southwest Coquitlam and are expected result in a moderate increase in transit ridership. Additionally, more frequent and direct east-west services along Austin will support growth and development in the area and provide a defined transit corridor for the community. Local service connections within the Southwest area will promote a grid system concept for transit where transfers can be facilitated to make local travel more attractive. In particular, local services will support mobility needs of an aging community as well as people with cognitive and physical disabilities. These improvement concepts are considered a high priority to support the growing Southwest Coquitlam area.
b. Frequent and direct transit service connections between Northeast Coquitlam and the City Centre area and Evergreen Line stations. A large proportion of travel generated by Northeast Coquitlam is going to the City Centre or other parts of the region. Frequent and direct services between these growing travel markets are essential to support the significant ridership that has may be generated. Previous forecasts for the Northeast Sector suggest that long-term build out of the community would support a frequent, direct service along the David Avenue corridor through the City Centre to Coquitlam Station to connect with the planned Evergreen Line. Intermodal connections for pedestrians and cyclists will be important. Introduction of this service is a high priority for the development of the Northeast and City Centre areas and is considered a high priority for the City. In the near term, there is a need to continue to increase local bus coverage as new areas develop.
c. Lower Lougheed Rapid Transit service connecting Coquitlam Station to Lougheed Station. This potential service was identified in the Livability Accord to be explored could include service frequencies of 5 to 10 minutes throughout the day with transit priority required to address areas of recurring delays and congestion. The preliminary assessment of a rapid or frequent transit service along the Lougheed corridor with priority treatments indicates that there would be a marginal increase in overall transit ridership in 2031. Similar to today's Route 169, much of the ridership projected for this service would originate in the City Centre and travel to the Braid Station with some boarding and alighting along the corridor. In this regard, the service would be redundant with the Evergreen Line without serving other significant development nodes along the corridor that would support rapid or frequent transit service levels. Unless there are plans for significant redevelopment of all or parts of the corridor with greater densities and mixture of uses at key nodes, a rapid transit or frequent transit service is considered a

City of Coquitlam - Strategic Transportation Plan Update
low priority for the area. It should be noted that local services providing direct connections between the lower areas of Southwest Coquitlam to the City Centre area and to Braid Station would however continue to be beneficial in the long-term.
d. City Centre Local Service Coverage to provide mobility choices for travel within the growing downtown area of Coquitlam. Travel within the City Centre is expected to increase significantly over the next 20 years as presented in the City Centre land use plan. However, the planned rapid transit service and bus integration strategy may not be designed to support the local travel market, and the physical size of the downtown area will not be conducive to walking between uses. In fact, many people will drive between commercial uses and/or residential areas and other activity nodes in the City Centre. The STP calls for a grid street system extending east-west and north-south throughout the area, significantly enhanced pedestrian corridors and facilities to entice people to walk from place to place, and tremendous growth in development that will extend to the boundaries of the City Centre area. A community shuttle operating may ensure that the City Centre is attractive not only to get around to by transit, but it is reasonable to take transit within the area where walking distances may be a deterrent. This option seeks to pursue enhancements to existing and new transit services in support of the City Centre. This improvement concept is considered a moderate priority as ridership may not be significant, but the costs of the service would be relatively modest to support mobility needs of a large City Centre.

Table 10: Evaluation Results - Increased Local Area Service and Coverage

| Goal | A Enhanced SW Service | B Frequent NE Service | Lougheed Rapid Transit | D <br> City Centre Shuttle |
| :---: | :---: | :---: | :---: | :---: |
| 1: High Quality, MultiModal Facilities | - Significantly improves coverage <br> - Supports accessibility needs of community | - Supports growing travel markets | - Marginal improvement | - Moderately improved accessibility |
| 2: Support a Healthy Environment | - Modest reduction in GHGs/VKT | - Modest reduction in GHGs/VKT | - Limited-No reduction in GHG/VKT | - Limited-No reduction in GHG/VKT |
| 3: Maintain and improve the quality of streets | - Supports planned densification \& live/work/play local | - Supports growth \& alternatives modes | - Limited-No improvement | - Important for accessibility needs |
| 4: Move people and goods efficiently | - Transit travel time benefits | - Modest travel time benefits with direct service | - No system travel time benefits | - No travel time benefits |
| 5: Prioritize sustainable modes of transportation | - Modest ridership increase | - Modest ridership increase | - Modest ridership for frequent transit <br> - Marginal increase in system ridership | - Marginal ridership increase |
| 6: Manage the transportation system efficiently | - Moderate system costs off-set by ridership growth $0$ | - Moderate system costs off-set by ridership growth $0$ | - Significant costs for rapid or frequent transit service | - Modest cost and ridership growth - |
| Overall Assessment | High Priority/ Short-term | Moderate Priority <br> / Medium-term | Low Priority/ Long-term Only if TOD occurs along Lougheed | Moderate Priority / Medium-term |

City of Coquitlam - Strategic Transportation Plan Update

## 2. Enhance Regional Services

The eastern areas of Metro Vancouver are among the fastest growing communities in the region. As presented in Discussion Paper \#4, transit service and subsequently ridership today and in future for Coquitlam residents and visitors is primarily directed toward the cities in the west such as New Westminster, Burnaby and Vancouver. Over the next 20 years, the importance of expanding inter-municipal services to the travel markets in the eastern parts of the region is vital. Direct, frequent and reliable transit services will be the cornerstone to providing an attractive alternative to driving between Coquitlam and communities such as Surrey and other Northeast Sector communities. With the planned growth in the City Centre of these communities and increased development along key corridors that may be transit-friendly, investments in transit will become a critical ingredient to achieving community, environmental, economic and overall transportation goals of the City.

The improvement strategies identified in Working Paper \#4 broadly outlined several key opportunities to enhance regional services between Coquitlam and other Northeast Sector communities as well as with the City of Surrey. A preliminary review of these possibilities and associated priorities are summarized below and in Table 11.
a. Integrate services with Port Coquitlam. As growth and development occur in both Coquitlam and Port Coquitlam, travel demands between the communities also increase. In particular, enhanced transit service connections between Port Coquitlam City Centre and the Coquitlam City Centre and Evergreen Line are important markets to serve in the future. Additionally, the importance of services between the City Centre and the western edges of Port Coquitlam has been identified by both municipalities as desired improvements. In general, the travel markets between the Coquitlam City Centre and Port Coquitlam are growing and expected to increase further in future. Integrating the western areas of Port Coquitlam with the previously identified City Centre shuttle/neighbourhood services that also connect with rapid transit in future will be important to local and regional mobility. Additionally, direct connections between North Port Coquitlam and the City Centre and Evergreen Line will draw on the growing travel markets to these nodes in Coquitlam. Improved integration and enhanced services between Port Coquitlam and Coquitlam as described are considered moderate-high priorities to be examined further in the Area Transit Plan.
b. Enhance the Coquitlam - Pitt Meadows/Maple Ridge Connection. This corridor is envisioned by the Provincial Transit Plan as providing a rapid bus
connection. Existing services across the Northeast include the \#701, which provides frequent transit service throughout the day and into the evening. With significant growth in this area of the region, investments in the Evergreen Line and aspirations for attractive transportation alternatives, significantly enhanced transit services are required to meet the future needs of Coquitlam residents and visitors. Increasing transit frequency, directness and reliability through transit priority strategies between Coquitlam and other Northeast Sector communities is essential not only to attract increased transit ridership, but to keep pace with and exceed the rate of growth in travel between these communities. A frequent express bus or rapid bus service should be considered through the Area Transit Planning process with adequate provision for transit accommodation and priority treatments. This service improvement is considered a high priority for Coquitlam to support aspirations for an accessible and transit oriented City Centre area along with connections to other regional transit services that can reduce the need for park-and-ride facilities.
c. New Coquitlam - South of Fraser Services. Today, travel between Surrey and Coquitlam represents approximately $3-5 \%$ of all vehicle trips (for the Coquitlam), and only $1 \%$ of transit trips. As these are among the highest growth communities in the region and changes to travel behaviour are necessary to achieve the aspirations of both communities, new and very attractive transit service connections must be considered for a sustainable future. In addition to the Rapid Bus connections along the Highway 1 corridor connecting with the Lougheed Town Centre Station, frequent express bus services connecting Surrey City Centre and Coquitlam City Centre will provide needed connection between these cities as well as connect with other services to increase mobility for other communities north and south of the Fraser River. Assuming a frequent service, consideration should be given toward the provision for transit priority treatments along the Lougheed Highway. Recognizing the projected growth in these communities and increases in travel, this service improvement is considered a high priority to be included in the Area Transit Plan.

Table 11: Evaluation Results - Enhanced Regional Services

| Goal | Integration with PoCo | B Enhance Coq - Maple Ridge/ Pitt Meadows | CNew Coquitlam - South <br> of Fraser |
| :---: | :---: | :---: | :---: |
| 1: High Quality, Multi-Modal Facilities | - Improves network coverage and attractiveness | - Significantly more attractive connections | - Significantly more attractive connection |
| 2: Support a Healthy Environment | - Limited reduction in GHG/ VKT | - Modest reduction in GHGs/VKT | - Modest reduction in GHG/VKT |
| 3: Maintain and improve the quality of streets | - Supports planned densification \& live/work/play local | - Supports growth \& alternatives modes | - Supports City Centre growth plans \& other regional connections |
| 4: Move people and goods efficiently | - Limited travel time benefits | - Moderate time benefits with direct service and transit priority | - Moderate time benefits with direct service and transit priority |
| 5: Prioritize sustainable modes of transportation | - Limited ridership increase | - Significant ridership increase from NE | - Significant ridership growth expected |
| 6: Manage the transportation system efficiently | - Moderate system costs offset by ridership growth | - Moderate to higher system costs off-set by ridership growth | - Moderate to higher system costs off-set by ridership growth |
| Overall Assessment | Moderate Priority / Medium-term | High Priority / Short-term | High Priority / Short-term |

## 3 Transit Supportive Strategies \& Policies

New and expanded local and regional transit services for Coquitlam are only one part of making transit more attractive to residents and visitors of the community. Transit supportive strategies and policies are essential to creating a transit oriented community and supporting significant investments in attractive transit services and facilities. Discussion Paper \#4 of the STP identified several potential support strategies and policies that are important to making transit more attractive in Coquitlam. This section of the Plan outlines some of the specific

directions and relative priorities for transit supportive actions. A summary of the assessment for transit supportive strategies and policies is shown in Table 12.

Table 12: Evaluation Results - Transit Supportive Strategies and Policies

| Theme: <br> Transit Supportive Strategies and Policies |  |  |
| :---: | :---: | :---: |
| Goal | Key Directions | Overall Priority |
| Transit Priority Treatments | - Review menu of transit priority treatments contained in the previous STP and Northeast Sector Area Transit Plan <br> - Identify priority treatments for specific frequent local and express transit corridors such as Austin Avenue and Lougheed east of Pinetree Way | Moderate / Medium-term |
| Transit Oriented Design | - Focus on the major corridors and nodes of development that can be served by attractive transit through increased scale, density, mixture and form of land uses. <br> - Support multi-modal connections to primary transit corridors and stations to easily connect communities to transit services and facilities | High / Ongoing |
| Enhanced Passenger Facilities | - For the most active transit stop locations, stations and exchanges, the City will strive to serve the passenger needs with comfortable seating, lighting and customer information. | Moderate / Ongoing |
| Improved Accessibility | - Provide accessible sidewalks, paths and crossings within 100 m of all bus stops, stations and exchanges in the City. Prioritize the most active stop locations as noted above. <br> - Improve on-street signage regarding the location of major transit nodes such as stations and exchanges | Moderate / Ongoing |
| Expanded Transit Pass Program | - Explore the potential of employer pass programs for new developments in close proximity to rapid transit stations. | High / Shortterm |

As TransLink is responsible for the provision of transit services throughout the City and Metro Vancouver region, costs to enhance local and regional transit services would be made by TransLink. However, the City does have role to play with regards to transit facilities and transit priority measures. As such, the transit strategy includes costs for transit passenger amenities (bus shelters and seating) as well as improved passenger information and transit signal priority on key corridors. The long-term transit strategy envisions all bus stops in the City having full bus shelters and seating, upgrading customer information to include digital messaging at all existing bus shelters, and provide transit priority measures on key corridors including Pinetree Way and Austin Avenue. The total estimated cost to implement all transit priority and passenger amenity improvements is approximately $\$ 19.1$ million. The highest priority projects include ensuring all bus stops on the highest frequency corridors have shelters - namely Austin Avenue, Mariner Way, Pinetree Way, and Como Lake Road, as well as including digital customer information at bus stops along these corridors and transit priority measures. The total short-term transit priority

City of Coquitlam - Strategic Transportation Plan Update
and amenity costs are estimated to be approximately $\$ 5.9$ million. The assumptions for transit costs and priorities are shown in Appendix C. It should be noted, however, that bus shelters are currently provided and paid for by an advertising agency on contract to the City. Although the transit strategy recognizes the costs for these shelters, it is anticipated that the majority of the transit shelters would be provided by a third party.

## $3.4 \quad$ Vehicle Travel

The roadway network plays a critical role in supporting vehicle travel and the movement of goods and services in the City. The Roadway Network Plan includes a review of roadway network improvements that essentially fall into three categories:

- New roadway connections in the growing areas of the City and to build more of a grid street network to provide capacity and greater support to the major roads for other functions such as access and circulation.
- Expansion of the existing roadway network to address issues of mobility and safety. Those improvements examined include increases in capacity for general purpose or high occupant vehicles and buses.
- Manage the existing roadway network in an effort to make better use of resources and minimize transportation costs.

It should be noted that the Roadway Network Plan will ultimately outline the multi-modal role and function of the street network in the City of which the network improvement concepts are only a portion of the Plan.

## 1. Major Network Improvement Concepts

All major network improvements examined in this section of the Discussion Paper include the provision of new links as well as major corridor widenings and/or the provision of gradeseparations at intersections to address existing and projected delays.

## 1) City Centre Network Improvements

a) Lougheed/Barnet Corridor Grade Separation

The Lougheed/Barnet Corridor grade seperation concept was identified in the 2001 Coquitlam STP to accommodate significant growth in the area and to address recurring congestion on the major roadways such as Lougheed, Barnet, Westwood, Pintree Way and Johnson. Today, each of these major roadways serve local access and circulation to adjacent properties, city-wide travel and regional traffic and as well as the movement of goods within and between communities of the Northeast Sector and other parts of the Lower Mainland.

Traffic volumes on the Lougheed/Barnet corridor between Johnson Street and Shaughnessy Street are forecast to increase by more than $20 \%$ by 2031 . It is projected that the Lougheed/Barnet corridor would generate up to 4,500 vehicles during the AM peak hour. Analysis of future base conditions indicate that each of the major intersections along the Lougheed and Barnet Highway at Westwood Street, Pinetree Way and Johnson Street would operate at a LOS F, as highlighted in Figure 1.1. These intersections will continue to experience significant queues and delays as the area continues to grow. Recognizing the many roles of these major roads, it is anticipated that corridor safety will continue to be a growing issue for the future without any changes.

In order to address the congestion and increased traffic growth along this corridor and at the key intersections, many improvement options have historically been considered in the 2001 STP and since that time. These concepts generally included grade-separated intersections such as diamond Interchanges at Westwood, Pinetree and Johnson as well as the lowering of the Barnet/Lougheed corridor beneath major cross-streets along with the provision of east-west frontage roads.

Figure 1.1: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service


An example of a grade separation concept along the Lougheed/Barnet corridor is highlighted in Figure 1.2. These grade-separated intersections would provide free flow traffic on Lougheed/Barnet Highway between Westwood and Johnson and would significantly reduce the delays and congestion.

Figure 1.2: Example Lougheed/Barnet Highway Grade Separation Concept


Despite the reduction in delays and congestion, grade-separation concepts are not consistent with Coquitlam's context of an urban setting for the City Centre area. Overall, this improvement would have a significant negative impact to the City Centre concept and the broader aspirations of the community and would require significant property acquisition to accommodate any forms of grade separation.

As part of the City Centre Plan, two land use structure plans were explored. The preferred concept included land use and development patterns that will create building frontages on all major roadways such as Johnson Street, Pinetree Way, Lougheed Highway and Barnet Highway. In support of this form of development, the City Centre Plan recommends a finer grid system of streets throughout the City Centre and managing the scale of major roads. In areas and
corridors with redevelopment, such as Pinetree Way and Barnet Highway, west of Johnson Street, 'Boulevard Streets' were identified as the preferred strategy to provide the environment where land uses could front onto lower traffic streets that run parallel to the major roadways within the same right-of-way.

In order to be consistent with the City Centre Plan, it is recommended that grade separation concept not be considered further in the STP update. However, the City will want to seek opportunities to achieve the preferred concept from the City Centre Plan through corridor planning and redevelopment. It should be noted that the previously described frequent or rapid transit along the Lougheed Highway east of Coquitlam City Centre should be accommodated through transit priority treatments in future corridor planning. As a minimum, dedicated bus lanes should be considered to provide attractive connections to the planned Evergreen Line.

## b) Grid Street System

As previously described, the City Centre Plan recommended the a network improvement concept that includes the potential grid street system with a finer grain of east-west and north-south roadways complementing the existing arterial road system in the City Centre area. While the arterial roadway system would continue to serve overall travel to, from and through the City Centre area, a support system of collector and local roads would provide needed access and circulation within the City Centre for all modes.

Figure 1.3: Potential City Centre Grid System Network


The potential grid street concept, as illustrated in Figure 1.3, includes a series of signalized and unsignalized intersections with two lane city collector roadways carrying traffic volumes of up to 600 vehicles per direction. Connections would be provided to all major roadways throughout the City Centre such as Pinetree Way, Barnet Highway and Johnson Street. The Falcon Overpass, Lincoln Avenue Crossing, Aberdeen Road and Westwood Street widening will also play an integral role in supporting the grid street system and are described in the next sections below. The Westwood Street widening is required on the east side which is under the jurisdiction of the City of Port Coquitlam.

Shown in Figure 1.4, the grid street system is expected to attract approximately 200-700 vehicles during the AM peak hour in 2031, with some of this traffic being diverted from Pinetree Way, Johnson Street, Barnet Highway and Lougheed Highway. By providing improved access and circulation to, from and through the City Centre area, traffic congestion/delays are slightly reduced at several major intersections.

Figure 1.4: Forecast (2031) AM Peak Hour Link Volumes - Grid System Improvement


## City of Coquitlam - Strategic Transportation Plan Update

Overall, the forecast travel patterns and traffic analysis indicate that the grid street system will provide significant benefits in improving local access and circulation within the City Centre. As expected, the grid system of streets is projected to support the major roads with better access and circulation with the City Centre area while maintaining regional travel along the Lougheed and Barnet Highways. The summary of benefits and impacts of the grid system of streets within the City Centre are summarized in Table 13. Overall, the grid system of streets is considered a high priority to achieve the transportation and land use goals for the City Centre. In fact, the City will need to work with land owners of the City Centre to encourage redevelopment patterns that are more conducive to a downtown area for block sizes ranging from 100 m to 150 m .


Table 13: Evaluation Results - City Centre Grid Street Network

| Goal | Summary | Rating |
| :---: | :---: | :---: |
| 1: High Quality, MultiModal Facilities | - Increased density of pedestrian and bicycle facilities for downtown area <br> - More direct connections and routes with shorter walking and cycling distances <br> - Improved access for specialized transit services | $\bigcirc$ |
| 2: Support a Healthy Environment | - Will support more walking within the City centre rather than driving between uses <br> - Modest reduction in GHG emissions with a slight decrease in delays on major roads <br> - Estimated reduction in GHGs of 3 tonnes/day, despite additional traffic on the network | $\bigcirc$ |
| 3: Maintain and improve the quality of streets | - Requires redevelopment through much of the City Centre to be implementable and most effective and can occur in stages <br> - Increased opportunity for place making for people in the downtown <br> - More street space and opportunity for commercial frontage <br> - Greater connectivity to buildings from the street and where possible, lanes may be used to service businesses (eg. Garbage, loading, etc.) <br> - Improved opportunity to integrate transportation with land use in terms of people space <br> - Encourages greater street activity during the day and night | $\bigcirc$ |
| 4: Move people and goods efficiently | - Improved local access and circulation for goods, services and traffic <br> - Network projected to accommodate more traffic/travel as a result of the planned growth and development <br> - Slight reduction in projected demands and delays on major roads such as Barnet \& Lougheed Highway as well as Lincoln Avenue <br> - Increased provision of shared, short-term on-street parking may enhance access to the city centre area | $\bigcirc$ |
| 5: Prioritize sustainable modes of transportation | - Walking within City Centre will contribute towards improving safety for all road users <br> - Grid system of streets that support different functions are generally safer than larger streets that support all functions | ( |
| 6: Manage the transportation system efficiently | - Slight reduction in delays on major roads that dissect the City Centre as well as investments that may be considered to address these issues <br> - Capital Costs for local and collector roads of $\$ 10-20$ mill of roadway construction may be off-set through redevelopment incentives and in partnership with land owners. | O |
| Overall Assessment | High Priority / Ongoing |  |

## c) Falcon Overpass

The Falcon Drive Overpass is identified as a potential connection between the Southwest and City Centre areas of Coquitlam located on the western edge of the City Centre. This new link would provide a grade-separated connection over the CP Rail tracks connecting Falcon Drive from Barnet Highway to Dewdney Trunk Road. Currently, the Johnson/Mariner Way overpass is the only

City of Coquitlam - Strategic Transportation Plan Update
north-south connection into Southwest Coquitlam that is west of City Centre in Coquitlam. All the traffic from Northwest Coquitlam and Port Moody connecting to Southwest Coquitlam is limited to using the Johnson Street overpass.

Shown in Figure 1.5, future base (2031) conditions without improvements indicate that the intersections on Barnet Highway at Lansdowne Drive and Johnson Street/Mariner Way are projected to operate at LOS F in the PM peak hour, while Falcon Drive would operate at LOS D. With limited north-south connections in the area, most of the traffic growth would be forced onto the existing network.

The potential Falcon Drive extension would include a new two-lane overpass over the CP Rail track. As shown in Figure 1.6, the conceptual design of the overpass would be equipped with sidewalks and bicycle facilities to provide enhanced north-south access, which supports other multi-modal strategies identified in this plan. The overpass will cross the proposed Evergreen Line with sufficient clearance and connect at Dewdney Trunk Road via an unsignalized t-intersection. The intersection configuration at Barnet Highway/Falcon Drive will require new northbound and southbound left-turns. Dedicated left-turns bays will be provided in both northbound and southbound in order to accommodate the increased traffic at the intersection. It should be noted that some property will be required between Dewdney Trunk Road and CP Rail to accommodate the overpass.


Figure 1.5: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service - No Improvements


Figure 1.6: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service with Falcon Overpass


Under future base conditions in 2031, the overpass is expected to attract approximately 600 vehicles in the PM peak hour. Much of this traffic would be diverted from other parallel northsouth routes such as Johnson Street. In addition, approximately 250 vehicles on Barnet Highway between Falcon Drive and Johnson Street will be diverted to Dewdney Trunk Road. As shown in Figure 1.7, forecasted V/C ratios along Dewdney Trunk Road is relatively low and would be able to accommodate the diverted traffic.

Analysis indicates that the traffic diversion, as a result of the overpass, will improve the intersections at Lansdowne Drive and Johnson Street to LOS D and E, respectively. However, Falcon Drive would operate at LOS F without any improvement. The provision of a single northbound and southbound left-turn lane on Falcon Drive would be required to improve the

intersection operation to LOS D. All the movements at the unsignalized t-intersection at Dewdney Trunk are expected to operate at an acceptable LOS D, with the exception of the southbound left-turn. The southbound left-turn would operate at LOS F, however, the provision of a signal will improve the operation of the southbound movement. Consideration may also be given toward the provision of a roundabout if grades are appropriate.

Overall, the forecasted travel patterns and traffic analysis indicate that the Falcon Overpass improvement will support access and circulation within the City Centre. This improvement is expected to alleviate current traffic congestion on parallel routes. Table $\mathbf{1 4}$ below summarizes the key benefits and impacts of the Falcon Overpass which is generally rated as a moderate-high priority for the City to work with TransLink and other municipalities.

Figure 1.7: Forecast (2031) AM Peak Hour Volume to Capacity (V/C) Ratio


City of Coquitlam

Table 14: Evaluation Results - Falcon Overpass

| Goal | Summary | Rating |
| :--- | :--- | :--- | :--- |
| 1: High Quality, <br> Multi-Modal <br> Facilities | - Local and inter-municipal travel accommodated on Falcon <br> - Overpass <br> Provides important pedestrian connections between <br> communities on the south side of the CP Rail tracks and the <br> City Centre area <br> - Supports bicycle plan connection as an attractive connection <br> to Dewdney Trunk Road <br> - Ensures improved pedestrian access to future Evergreen Line <br> and proposed Falcon Station for neighbouring communities to <br> the north and south |  |
| 2: Support a Healthy <br> Environment | - New north-south connection will provide modest reduction in <br> greenhouse gas emissions and/or vehicle kilometers travelled | - Estimated reduction in GHGs by 2 tonnes/day |

d) Lincoln Avenue Crossing

There are currently four east-west connections across the Coquitlam River including Pitt River Road, Mary Hill Bypass, David Avenue and Lougheed Highway. With continued growth in the Northeast Sector of Metro Vancouver, east-west travel demands will continue to increase, placing greater pressure on the existing connections.

Future base conditions highlighted in Figure 1.8 indicate that the Lincoln Ave/Pinetree Way and Lincoln Ave/Westwood Street intersections are projected to operate at LOS C, while Lougheed Highway at Westwood and at Shaughnessy operate at LOS F during the PM peak hour.

The previous Coquitlam STP and Port Coquitlam Master Transportation Plans identified the need for an additional crossing of the Coquitlam River at Lincoln Avenue. The potential Lincoln Avenue crossing includes a new 4-lane connection between Shaughnessy Street and Pinetree Way, with connection at Ozada Avenue as shown in Figure 1.9. The intersections at Shaughnessy Street and Pipeline Road would be signalized while Ozada Avenue would be a stop-controlled intersection. Lincoln Avenue between Pinetree Way and Pipeline Road would also be upgraded to a four-lane cross section, while maintaining the existing turn bays at Pinetree, Westwood and Pipeline. In order to accommodate the projected volumes south of Lincoln Ave, Westwood Street will require widening between north of Cabbe Avenue and Lincoln Ave. Some property impacts and additional right-of-way may be required in Coquitlam and Port Coquitlam to accommodate the 4-lane connection. In addition to property impacts, environmental impacts such as instream and riparian impacts with the crossing should be expected. Bridge construction will also require habitat compensation.

Figure 1.8: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service


Discussion Paper \#5 - Transportation Possibilities Performance and Evaluation

Figure 1.9: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service With Lincoln Avenue Crossing


The Lincoln Avenue Crossing is expected to attract approximately 1,600 vehicles in the PM peak hour in the future base, 2031. Approximately 400 vehicles would be diverted from both David Avenue and Lougheed Highway, between Shaughnessy and Pipeline. In addition, traffic volumes on Pipeline between Guildford and Lincoln are expected to decrease between 350 - 500 vehicles and divert over to Ozada Avenue. The new crossing is expected to provide some relief to parallel east-west connectors such as David Avenue, Barnet Highway and Lougheed Highway, as well as serving an alternate access into the City Centre.

Analysis shows that the new Lincoln crossing will reduce projected delays at the intersection of Lougheed Highway/Westwood Street to LOS E. Delays at Lincoln Avenue/Westwood Street are expected to remain similar to today with the planned configuration, while Lincoln Avenue/Pinetree Way will decrease slightly from a LOS C to LOS D.

Forecast 2031 V/C ratios indicate sections of David Avenue and Lougheed Highway, between Pipeline and Shaughnessy are operating at capacity in the peak direction during the AM peak hour. The improved east-west connection will provide some relief on these corridors and reduce the overall system delays. Overall, the forecasted travel patterns and traffic analysis indicate that the Lincoln Avenue crossing will moderately benefit access and circulation to and from the City Centre.

The Lincoln Avenue crossing is rated as a high priority in the STP as summarized below in Table
15.

Table 15: Evaluation Results - Lincoln Overpass

| Goal | Summary | Rating |
| :---: | :---: | :---: |
| 1: High Quality, Multi-Modal Facilities | - Crossing provides for enhanced vehicle and transit access across the Coquitlam River through to the City Centre area <br> - Lincoln Avenue is a planned bicycle corridor connecting Coquitlam and Port Coquitlam <br> - The new crossing will provide enhanced pedestrian access between both communities | $\bigcirc$ |
| 2: Support a Healthy Environment | - The Lincoln crossing will marginally reduce greenhouse gas emissions and/or vehicle kilometres travelled <br> - GHG estimated reduction of 4 tonnes/day, and reduction of 230 vehicles-kilometre travelled (VKT) daily | $\bigcirc$ |
| 3: Maintain and improve the quality of streets | - A new east-west connection through the City Centre will support the grid street concepts in the City Centre <br> - Additional ROW required on the west side of the Lincoln corridor nearby Hastings Street | $\bigcirc$ |
| 4: Move people and goods efficiently | - Generally improves access to and from the City Centre as well as east-west travel across the Coquitlam River <br> - Marginal change in travel times, however, some traffic relief to areas of congestion along Lougheed Highway and David Avenue <br> - A savings of 20 vehicle-hours travelled (VHT) is estimated | $\bigcirc$ |
| 5: Prioritize sustainable modes of transportation | - The Lincoln crossing is an important link proposed in the Bicycle section of the Plan <br> - Crossing supports the provision of community transit services between Port Coquitlam and the City Centre <br> - Building redundancy in the network and marginally reducing vehicle kilometres traveled will provide modest safety benefits | $\bigcirc$ |
| 6: Manage the transportation system efficiently | - Projected annual benefits in terms of travel time savings is \$4.5M/year <br> - Capital costs are estimated to be $\$ 14 \mathrm{M}$ (Class D), excluding any property requirements and habitat compensation ( $\$ 0.5 \mathrm{M}$ is typical for this type of project) | $\bigcirc$ |
| Overall Assessment | High Priority / Short-Term |  |

2) 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 intersections of these three roadways not only provide access from Coquitlam into Burnaby and New Westminster, but also allow connection to Highway 1. Figure 2.1 highlights the existing configuration of the Brunette/Lougheed/Blue Mountain intersections, as well as the AM and PM peak hour turn

volumes and levels of service. Lougheed Highway/Blue Mountain Street and Lougheed Highway/Brunette Avenue are signalized intersections while Blue Mountain Street/Brunette is a stop-controlled intersection. These three intersections are very close in proximity, with less than 100 metres spacing between Blue Mountain and Brunette on Lougheed and approximately 70 m between Lougheed and Brunette on Blue Mountain.

The traffic analysis suggests that there are moderate delays at the three intersections during the AM and PM peak hour. Overall, the three intersections are operating at a LOS D or better during both morning and afternoon peak hours. However, the queues and vehicle spillback into adjacent intersections created by the Highway 1 interchange with Brunette Avenue contribute to the overall delays experienced today and will be further exacerbated once the Gateway Program Port Mann/Highway 1 project is complete.

Applying the forecasts provided by the subarea model to existing AM peak hour volumes, the intersections at Lougheed Highway/Blue Mountain Street and Lougheed Highway/Brunette Avenue are projected to operate with significant delays (LOS F), as shown in Figure 2.2. This is also the case for the PM peak hour. In addition to the localized congestion and delay, the Brunette Interchange remains problematic for the area network in that the delays at the on- and off-ramps continue to increase vehicle queues and further impact the local area networks on either side of the Highway.

Figure 2.1: AM and PM Peak Hour Turn Volumes and Levels of Service


City of Coquitlam - Strategic Transportation Plan Update

Figure 2.2: Forecast (2031) AM and PM Peak Hour Turn Volumes and Levels of Service


The recommended concepts to address these issues identified in the 2001 STP included the King Edward Overpass to United Boulevard as well as the United Boulevard Extension to Brunette Avenue via a grade separated intersection. During the preparation of this STP update, three related initiatives unfolded to influence not only the future base conditions at the Brunette interchange, but the options to address the local area network issues along Brunette/Lougheed/ Blue Mountain as highlighted below:

1. United Boulevard Extension and grade separation with Brunette Avenue was removed as a planned project by TransLink as a consensus could not be achieved with the City of New Westminster. This decision not to proceed with the project will place more pressure on the Brunette Interchange and the Lougheed/Brunette and Blue Mountain network in Coquitlam.
2. The removal of the United Boulevard Extension will place more pressure on area roadways and the Brunette Overpass. However, as part of the Gateway Project for Highway 1, the Ministry of Transportation is currently reviewing options for the Brunette Interchange. It should be noted that pedestrian and cycling improvements across the Brunette Interchange are also being examined.

3. The City examined various strategies to divert traffic away from the Brunette Interchange and undertake modifications at the Lougheed/Brunette/Blue Mountain triangle with a Blue Mountain Overpass of Highway 1 with modifications to the highway connections. Even with the United Boulevard extension, these concepts did not generate sufficient benefits to offset the costs. Regardless of any future changes to the United Boulevard decision, this concept is not recommended for future consideration.

These three actions and assessments indicate that the Lougheed/Brunette/Blue Mountain will continue to experience the pressures previously noted and that the City must work with the Ministry of Transportation on improvements to the Brunette Interchange that reduce impacts on the local area network. In an effort to address the local area network challenge, the 2001 STP included a review of two grade separations between Lougheed highway, Brunette Avenue and Blue Mountain Street, as highlighted in Figure 2.3 and 2.4.

Figure 2.3: Brunette/Lougheed/Blue Mountain Grade Separation Concept


Figure 2.4: Brunette/Lougheed/Blue Mountain Tunnel Concept


For the purpose of this Strategic Plan Update and looking ahead, the potential solutions for the Brunette/Lougheed/Blue Mountain area will be largely shaped by the preferred concept for the
 complete grade-separation option with a depressed Lougheed Highway is less desirable than the tunnel concept for several reasons as briefly highlighted below:

- The overall capital costs to construct would be much higher for the grade-separation concept that could be anywhere from $\$ 40-\$ 50$ million due to the staging challenges in comparison to approximately $\$ 25-\$ 30$ million for the tunnel concept.
- The property impacts and costs will be more significant for the grade separation option.
- Property access along Lougheed Highway will be more problematic with the gradeseparation concepts.
- Depressing Lougheed Highway will be challenging to construct without significant costs and impacts.
- The tunnel concept addresses the principal westbound left-turn delays experienced today and in the long-term.

Because of the interrelationships with the Highway and uncertainty of additional capacity through the Brunette interchange, the tunnel concept remains a high priority for the medium-term that requires resolution and coordination with the Province and TransLink.

In addition, there is a need to conduct a business case study, as well as public consultation with subsequent corridor planning initiatives for the Brunette Interchange - Lougheed - Brunette Corridor. Corridor planning will clarify preservation needs assisting in the land development process.

Table 16: Evaluation Results - Lougheed/Brunette/Blue Mountain Grade Separation / Tu

| Goal | Summary | Rating |
| :---: | :---: | :---: |
| 1: High Quality, Multi-Modal Facilities | - Provisions for enhanced bicycle and pedestrian connections can be incorporated into the grade separated concepts and Brunette Interchange redesigns | $\bigcirc$ |
| 2: Support a Healthy Environment | - Moderate reduction in existing and forecast delays and congestion at the intersection with Lougheed and Brunette | - |
| 3: Maintain and improve the quality of streets | - Brunette Grade-separation of Lougheed at Brunette will have moderate impacts on the entry/exit for Maillardville (depressing Lougheed could minimize impact, but will significantly increase costs) <br> - Accesses along Lougheed would be restricted and require relationship with depression at a significant cost <br> - Modest impacts with left-turn lane tunnel <br> - Both improvement concepts would require property along Brunette and Lougheed Highway | $\bigcirc$ |
| 4: Move people and goods efficiently | - Moderate reduction in delay in the Lougheed/Brunette/Blue Mountain triangle | - |
| 5: Prioritize sustainable modes of transportation | - Enhanced cycling and pedestrian facilities could be incorporated into the concept to access an improved Brunette Interchange. | ( |
| 6: Manage the transportation system efficiently | - Capital costs are estimated to be approximately $\$ 25-\$ 30$ mil (Class D), excluding property costs. <br> - Property requirements would increase project costs significantly. <br> Travel time benefits can only be achieved with improvements to the Brunette Interchange which are not known at this time. | $\bigcirc$ |
| Overall Assessment | High Priority / Medium-Term |  |

3) Upper Lougheed Corridor Transit/HOV Lanes and Intersection Improvements

The Upper Lougheed Highway corridor (north of Colony Farm and south of Barnet) is a major north-south route connecting many Northeast Sector communities with other areas of Metro Vancouver to the west and south. This section of Lougheed Highway is projected to experience significant delays during the morning based on EMME modelling results, as shown in the 2031 AM peak hour volume-to-capacity ratios in Figure 3.1. Future base conditions shown in Figure 3.2 indicate the intersection of Barnet Highway and Pinetree Way will continue to operate at a LOS F, while Lougheed/Dewdney will operate with delays at LOS E in the PM peak hour. Both intersections at Como Lake and Pitt River Road are projected to operate at LOS D. It should be noted that train blockages at Pitt River Road have not been captured in the analysis. Historically, train blockages at Pitt River Road cause frequent delays and queues at the intersection for the northbound right-turn movement and all westbound traffic.

Rather than building additional capacity for single-occupant vehicles (SOV), the localized potential of an HOV/Transit Only lane in both directions is examined. This improvement concept includes the widening of Lougheed Highway between south of Barnet Highway and Colony Farm Road from four to six lanes with the curb lane in both direction designated for HOV/Transit only traffic. As shown in Figure 3.3, turning lanes at each of the intersections along this corridor will be maintained. This improvement also includes the grade separation upgrade at Pitt River Road, which will be discussed in the section below. Widening the Lougheed Corridor will have environmental impacts that are mitigable and significant property requirements on the west side of the corridor.

The widening of Lougheed Highway is expected to attract an additional 600 to 1,000 vehicles during the PM peak hour. This traffic would be generally diverted from Mariner Way, Mary Hill Bypass and Chilko Road. Traffic analysis shows that the new upgrade would improve the intersection operations on Lougheed Highway/Dewdney to LOS E, while Como Lake and Pitt River Road improves to LOS C. However, Barnet Highway/Pinetree Way intersection will remain operating at a LOS F.

As previously noted, the HOV / transit priority lane was intended to provide a preliminary assessment of the potential for supporting more sustainable modes. The initial results contained in the modeling analysis suggest that the HOV lanes as a 2+ facility would generate slightly less than 1,000 vehicles in the curb lane in the peak direction (many of which are diverted from other corridors). Further, the network level assessment demonstrates that the proportion of HOV trips generated by Coquitlam increases during the peak hour. While the $2+$ lane operation would appear to be taking away many of the advantages of a priority lane, it may be worthwhile

examining a broader HOV network in this section of Lougheed Highway as well as Lougheed Highway to the east connecting with the HOV lanes near the Pitt River Bridge.

With respect to the transit priority treatments, the benefits of the widening are examined in the Transit Strategy section of the Discussion Paper. It should be noted that the projected volumes of HOVs in the peak direction with a $2+$ occupancy restriction would not provide the necessary benefits for transit.

Figure 3.1 : Forecast (2031) AM Peak Hour Volume to Capacity Ratios Lougheed Corridor with No Improvements


Table 17: Evaluation Results - Lougheed Widening, HOV/Transit Lanes

| Goal | Summary <br> 1: High Quality, <br> Multi-Modal <br> Facilities | Could be incentive for HOV travel if 3+ and <br> connected within a broader network <br> - Does not work effectively as a 2+ lane <br> Transit priority would likely only benefit <br> from 3+ to manage lane volumes |
| :--- | :--- | :--- |
| - Potential for class 1 bicycle facility on the <br> west side of the corridor as part of project. | Rating |  |
| 2: Support a Healthy <br> Environment | - Estimated GHG reduction of 1 tonne/day <br> - Impacts environmentally sensitive areas <br> could be mitigable | - |

Figure 3.2: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service - No Improvements

Figure 3.3: Forecast (2031) PM Peak Hour Corridor Volumes and Levels of Service - with Lougheed Corridor Widening

4) Pitt River Road Grade Separation

The grade separation of the railway tracks and Lougheed Highway at Pitt River Road was identified in the 2001 STP and more recently examined in the South Shore Trade Area Study (SNC Lavlin, 2009). Historically, trains crossing the CP Railway tracks at Pitt River Road cause significant delays at the intersection for the northbound right-turn movement on Lougheed and the eastbound movement on Pitt River Road.

Figure 3.2 summarized the projected levels of service at the intersection of Pitt River Road and Lougheed Highway which is projected to operate at LOS D during the afternoon peak hour. Once again, it should be noted that these delays to not reflect the impacts of the train crossing on northbound right turn and westbound traffic. To address this recurring issue, two improvement options have been identified in the South Shore Trade Area Study that would provide grade separation at Pitt River Road to eliminate the existing at-grade crossing of the CPR tracks. The two options are shown in Figures 3.5 and 3.6. Both options include an overpass structure with a clearance that would allow for the addition of up to two tracks in the future. Option A provides a trumpet interchange allowing free flow in all directions, while Option B provides a tight diamond interchange consisting of an unsignalized intersection on the overpass. Both concepts allow for free flow movement on Lougheed Highway and offer the eastbound left-turn movement onto Pitt River Road.

This potential improvement is expected to generate an additional 350 vehicles in the PM peak hour on Pitt River Road (see Figure 3.2 for comparison). Much of this traffic is diverted from the Barnet Highway, between Westwood and Pinetree, and the Mary Hill Bypass. Shown in Figure 3.1, the projected V/C ratio on Pitt River Road in the peak direction in the AM peak hour is approaching capacity (0.97). The grade separation will significantly improve capacity and reduce congestion at this intersection, as well as improving travel time. In addition, safety benefits will also be provided by eliminating the existing queue spillbacks onto the rail tracks from Pitt River Road.

Despite the mobility and safety benefits, the grade separation concept will impact property and impact environmentally sensitive areas nearby. The ramp configuration of Concept A has a more significant impact on property, but both are expected to impact fish habitat and surrounding wetlands that are mitigable.


Figure 3.4: Forecast (2031) PM Peak Hour Corridor Volumes- with Grade Separation Option A
Source: South Shore Area Trade Study (SNC Lavalin, 2009)



Figure 3.5: Forecast (2031) PM Peak Hour Corridor Volumes-
with Grade Separation Option B
Source: South Shore Area Trade Study (SNC Lavalin, 2009)


Table 18: Evaluation Results - Pitt River Road

| Goal | Summary | Rating |
| :--- | :--- | :---: |
| 1: High Quality, Multi- <br> Modal Facilities | - Slightly improved transit benefits with reduced delays <br> for services between Coquitlam Centre and Surrey <br> - May be designed to incorporate planned multi-use <br> pathway along west side of Lougheed corridor | O |
| 2: Support a Healthy <br> Environment | - Grade separation will provide minimal reductions to <br> greenhouse gas emissions and/or vehicle kilometers <br> travelled <br> - Environmental impacts on fish habitat and wetlands are <br> mitigable <br> - Archeological risks have been identified | - |
| 3: Maintain and <br> improve the quality of <br> streets | - Significant contribution to improving the safety by <br> eliminating at-grade crossing at CP Rail tracks <br> - Accessibility to, from and within City Centre will provide <br> enhanced access for residents and visitors | - |

## 5) Westwood Grade Separation

Westwood Street between Dewdney Trunk Road and south of Lougheed Highway was identified as one of the candidate locations for improvements in the South Shore Trade Area Study (SNC Lavlin, 2009) in order to meet future Port and rail needs. Westwood Street is a north-south route that is part of the Major Road Network (MRN) in Coquitlam and crosses the CP Rail tracks south of Lougheed Highway. The at-grade rail crossing is one of the busiest train crossings in the South Shore Trade Area and frequently
interrupts traffic flow on Westwood Street and north-south access around the Lougheed Highway area.

Currently, the Lougheed Highway/Westwood Street intersection is operating under failing conditions and is projected to continue operating under a LOS of F in 2031. In addition to increased growth in the area, future train blockage is expected to increase due to longer trains.

To address the on-going challenge of an at-grade crossing, a concept for potential improvements have been proposed in the area in the South Shore Trade Area Study. This improvement includes an underpass structure that would eliminate the existing atgrade crossing at Westwood Street and the CPR tracks. As shown in Figure 4.1, this concept allows for north-south vehicle movement without loss of access to the commercial areas along Westwood Street. To retain access to Davies Avenue, it is also suggested that Shaftsbury Avenue be extended. However, significant property impacts to existing commercial property frontages north of the railway crossing are expected.

The mobility benefits expected from this improvement are significant, as the existing rail crossing experiences the highest number of trains per day. It has been observed that many accidents occurring at this location is a result of vehicles stopping or slowing down at the rail crossing and sliding on the metal grid plate between the tracks. Grade separation at this location will provide safety benefits by eliminating vehicle stops or slow downs at the rail crossing.

Figure 4.1: Potential Westwood Grade Separation
Source: South Shore Area Trade Study (SNC Lavalin, 2009)


Overall, this improvement will provide modest benefits by eliminating the crossing at the CPR tracks on Pitt River Road. In addition to improving the efficiency at the intersection, safety benefits can also be expected.

City of Coquitlam - Strategic Transportation Plan Update
Table 19: Evaluation Results - Westwood Street Grade Separation

| Goal | Summary | Rating |
| :--- | :--- | :---: |
| 1: High Quality, Multi- <br> Modal Facilities | - Multi-model network coverage is not impacted | - |
| 2: Support a Healthy <br> Environment | - Modest reductions to greenhouse gas emissions <br> and/or vehicle kilometers travelled | - |
| 3: Maintain and improve <br> the quality of streets | - Significant contribution to improving the safety of <br> neighbouring streets by providing new transit <br> facilities <br> Other modes of transportation are not impacted <br> - Enhanced accessibility for residents and visitors | - |
| 4: Move people and <br> goods efficiently | - Train related delays are eliminated |  |
| 5: Prioritize sustainable <br> modes of transportation | - Sustainable modes of transportation are not <br> impacted | Overall, will contribute towards improving safety |
| 6: Manage the <br> transportation system <br> efficiently | - \$29M in Construction Cost <br> - Travel time savings are expected, \$7.8M in road <br> user benefits over 25 years | Q |
| Overall Assessment | Moderate Priority / Medium-Term |  |

### 4.0 PREFERRED SCENARIO

This Discussion Paper presented a comprehensive assessment of the relative benefits and impacts of each of the key features of the STP Update. A summary of the overall assessment is provided in Table 20. Based on the assessment, two projects in particular were not recommended to be further considered as part of the STP Update - grade separation on the Lougheed / Barnet Corridor, and widening of the Lougheed Highway between Colony Farm Road and Barnet Highway to accommodate HOV lanes or rapid transit. Consistent with the vision and goals for the STP Update, the majority of the pedestrian, cycling, and transit improvements possibilities scored high, with the notable exception of rapid transit along the Lower Lougheed corridor which received a low overall rating. The highest priority road network improvements included improvements to the grid street network in the City Centre as well as the Lincoln Crossing, both of which scored high. The findings of the overall assessment will be used to develop the key features to be presented in the final Strategic Transportation Plan document.

City of Coquitlam - Strategic Transportation Plan Update
Table 20: Overall Assessment Summary

| Theme | Cost | Overall Rating |
| :---: | :---: | :---: |
| Pedestrians |  |  |
| 1. Increased Sidewalk Coverage |  | High |
| 2. Enhance Pedestrian Quality |  | High |
| 3. Develop Trails and Greenways |  | High |
| Cycling |  |  |
| 1. Expand Bicycle Network Coverage |  | High |
| 2. High Quality Bicycle Facilities |  | High |
| 3. Develop Support Facilities, Policies \& Programs <br> a. Enhanced On-Street Bicycle Parking in Key Areas <br> b. Enhanced Wayfinding and Signage <br> c. Public Bike Sharing <br> d. Bicycle Parking Requirements <br> e. Education and Awareness Programs <br> f. Marketing and Promotion Strategies |  | High <br> Moderate Moderate-Low High Moderate Moderate |
| Transit |  |  |
| 1. Increase Local Area Frequency and Coverage <br> a. Enhance Services in Southwest Coquitlam <br> b. Connections from Northeast Coquitlam to City Centre <br> c. Lower Lougheed Rapid Transit Service <br> d. Improve City Centre Mobility |  | High <br> High <br> Low Moderate |
| 2. Enhance Regional Services <br> a. Integrate with Port Coquitlam <br> b. Enhance Pitt Meadows - Maple Ridge Service <br> c. New Coquitlam - South of Fraser Service |  | Moderate High High |
| 3. Transit Supportive Strategies and Policies <br> a. Transit Priority Treatments <br> b. Transit Oriented Design <br> c. Enhance Passenger Facilities <br> d. Improve Accessibility to Transit <br> e. Expand Employer Transit Pass Programs |  | High <br> High <br> High <br> High <br> Low |
| Road Network |  |  |
| Major Network Improvement Concepts |  |  |
| a. City Centre Network Improvements <br> i. Grid Street System <br> ii. Grade Separation on Lougheed/Barnet Corridor <br> iii. Falcon Overpass |  | High <br> Low - n/a <br> Moderate |
| b. Blue Mountain. Lougheed and Brunette Improvements |  | High |
| c. Lincoln Crossing |  | High |
| d. Upper Lougheed Corridor Transit/HOV lanes <br> i. Widening for HOV/Transit Only Lanes <br> ii. Pitt River Road Grade Separation |  | Low - n/a Moderate |
| e. Westwood Street Grade Separation |  | Moderate |



## APPENDIX A

## Sidewalk Priorities and Costs

Bus Stop Priont

|  | High |
| :--- | :--- |
|  | High |
|  | High |
| High |  |





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| Priority | Notes |
| :--- | :--- |
| High |  |
| High |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |
| Low |  |











Total Austin Heights





Unnamed Road (North East of Coquitlam) $20.10070 \quad$ Northeast Coquitlam




## APPENDIX B

## Bicycle Network Priorities and Costs

\section*{(mem} | Urban Greenway |
| :--- |
|  | rban Greenway, Implement with Pinetree Way Road Improve | Implement with Falcon Overpass |
| :--- |
| Implement with City Centre Grid | $\square$









 | $1,345,500.00$ | High |
| ---: | :---: |
| $325,000.00$ | High |
| $24,315.00$ | High |
| $52,950.00$ | High |
| $\mathrm{n} / \mathrm{a}$ | High |
| $\mathrm{n} / \mathrm{a}$ | Moderate |
| $\mathrm{n} / \mathrm{a}$ | Moderate |
| $300,000.00$ | Moderate |
| $13,635.00$ | Moderate |
| $14,940.00$ | Moderate |
| $1,074,000.00$ | Moderate |
| $1,169,000.00$ | Moderate |
| $15,555.00$ | Moderate |
| $91,450.00$ | Moderate |
| $35,490.00$ | Moderate |
| n/a | Moderate |
| $30,945.00$ | Moderate |
| n/a | Moderate |
| $8,775.00$ | Moderate |
| $13,500.00$ | Moderate |
| $32,040.00$ | Moderate |
| $3,225.00$ | Low |
| $19,410.00$ | Low |
| $44,430.00$ | Low |
| $27,600.00$ | Low |
| $4,641,760.00$ |  |


 $\begin{array}{llll} & & & \\ \text { TOTAL } & \$ & \mathbf{2 , 5 0 4 , 0 6 0 . 0 0} & \end{array}$


| Northeast Coquitlam | Mason | North End | 1.017 | Local Bikeway |
| :--- | :--- | :--- | ---: | ---: |
| Oxford Way | North End | Coast Meridian | 1.152 | Local Bikeway |
| Oxford Way | Harper Road | David Avenue | 1.56 | Marked Wide Curb Lane |
| Dayton Street | Victoria Drive | David Av | 0.946 | Marked Wide Curb Lane |
| Soball Street | Victoria | Hazel | 2.417 | Bicycle Lane |
| Coast Meridian | Coast Meridian | Burke Mtn Extension | 2.414 | Marked Wide Curb Lane |
| Victoria Drive |  |  |  |  |
| Other Planned Roads |  |  |  |  |


| Southwest Coquitam |  |  |  | Smith |
| :--- | :--- | :--- | ---: | :--- |
| Fairview / Dogwood | Robinson | Dogwood | 0.82 | Local Bikeway |
| Fairview / Dogwood | Fairview | Denton | 0.03 | Off-Street Pathway |
| Fairview / Dogwood | Smith | Austin | 1.26 | Local Bikeway |
| Faiview / Dogwood | Denton | Elmwood/Garden | Harrison | 0.245 |
| Off-Street Pathway |  |  |  |  |
| Glenayre | Harrison | Thompson | 0.49 | Local Bikeway |
| Glenayre | Thompson | Pathway | 0.13 | Off-Street Pathway |
| Glenayre | Thompson | Chapman | 0.21 | Local Bikeway |
| Glenayre | North Road | Lougheed Hwy | 0.12 | Off-Street Pathway |
| Delestre | Westview/Whiting | Roxham | 1.084 | Local Bikeway |
| Austin | Braid | Jackson | 1.122 | Off-Street Pathway |
| Brunette Overpass | Jackson | Lougheed | 0.4 | Pedestrian/Bicycle Overpass |
| Brunette | Hickey | 0.36 | Local Bikeway |  |
| King Albert | Austin | End | 3.744 | Local Bikeway |
| King Albert Crossing | End | Harbour Dr | 0.11 | Pedestrian/Bicycle Overpass |
| Poirier | King Albert | Robinson | 1.718 | Off-Street Pathway |
| Regan | Emerson | Hillcrest | 0.498 | Local Bikeway |
| Regan / Smith | Clarke | 4.369 | Local Bikeway |  |




## APPENDIX C

## Transit Facilities Priorities and Costs

## Summary of Transit Estimates

| Short Term |  |  |  | High |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Unit | Unit Cost |  | Quantity | Cost |  |
| Bus Shelter | each | \$ | 15,000 | 70 | \$ | 1,050,000 |
| Passenger Information DMS with Shelter | each | \$ | 60,000 | 35 | \$ | 2,100,000 |
| Traffic Signal Priority | each | \$ | 60,000 | 13 | \$ | 780,000 |
| Sub-Total: |  |  |  |  | \$ | 3,930,000 |
| Contingency Allowance: |  |  | 30\% |  | \$ | 1,179,000 |
| Sub Total Direct Costs |  |  |  |  | \$ | 5,109,000 |
| Administration: |  |  | 5\% |  | \$ | 255,450 |
| Engineering: |  |  | 10\% |  | \$ | 510,900 |
| Total Estimated Cost: |  |  |  |  | \$ | 5,876,000 |
| Med Term |  |  |  | Med |  |  |
| Item | Unit | Unit Cost |  | Quantity | Cost |  |
| Bus Shelter | each | \$ | 15,000 | 50 | \$ | 750,000 |
| Passenger Information DMS with Shelter | each | \$ | 60,000 | 51 | \$ | 3,060,000 |
| Sub-Total: |  |  |  |  | \$ | 3,810,000 |
| Contingency Allowance: |  |  | 30\% |  | \$ | 1,143,000 |
| Sub Total Direct Costs |  |  |  |  | \$ | 4,953,000 |
| Administration: |  |  | 5\% |  | \$ | 247,650 |
| Engineering: |  |  | 10\% |  | \$ | 495,300 |
| Total Estimated Cost: |  |  |  |  | \$ | 5,696,000 |
| Long Term |  |  |  | Med |  |  |
| Item | Unit | Unit Cost |  | Quantity | Cost |  |
| Bus Shelter | each | \$ | 15,000 | 335 | \$ | 5,025,000 |
| Sub-Total: |  |  |  |  | \$ | 5,025,000 |
| Contingency Allowance: |  |  | 30\% |  | \$ | 1,507,500 |
| Sub Total Direct Costs |  |  |  |  | \$ | 6,532,500 |
| Administration: |  |  | 5\% |  | \$ | 326,625 |
| Engineering: |  |  | 10\% |  | \$ | 653,250 |
| Total Estimated Cost: |  |  |  |  | \$ | 7,513,000 |
| Total Estimated Cost: |  |  |  |  | \$ | 19,085,000 |

## Notes

Unit Cost taken from 200398 B-Line Rapid Transit Evaluation Study

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Unit Cost taken from 200398 B-Line Rapid Transit Evaluation Study

## Notes


[^0]:    ${ }^{1}$ Pedestrian generators include the City Centre, Neighbourhood Commercial Centres, rapid transit stations, post-secondary schools, community centres, cultural facilities, ice rinks, pools, schools, and parks.
    ${ }^{2} 400 \mathrm{~m}$ represents a 5 -minute walking distance, 800 m represents a 10 -minute walking distance
    ${ }^{3}$ Routes with 15 min or better service throughout the day and into the evening, 7 days per week
    ${ }^{4}$ Regional City Centres or Neighbourhood Centres as defined in the Official Community Plan

