



Long-Term Transportation Plan

Implementation & Monitoring Strategy



December 2008

URBANSYSTEMS.

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1.0 INTRODUCTION

The City of North Vancouver adopted a Long-Term Transportation Plan in April 2008. The Long-Term Transportation Plan is intended to provide the City with a clear vision for the multi-modal transportation system over the next 20 years and beyond. The Transportation Plan presents a vision for each of the primary modes of travel – namely, walking, cycling, transit, the road network, and goods and services movement. In addition, the plan provides guidance regarding a Travel Demand Management (TDM) strategy. Each of these core components of the plan contains several inter-related features designed to achieve the overall policy objectives for the City. Many features are the responsibility of the City, while others are the responsibility of other agencies, such as the Ministry of Transportation & Infrastructure and TransLink. All features of the Plan are considered important to achieve a sustainable, multi-modal transportation network, however, significant costs are involved with implementing many of these features. As such, it is important to note that implementation of the Transportation Plan requires commitments of the City's resources, other partner agencies and the private sector to achieve the Plan's goals.

The Implementation and Monitoring Strategy in this report details a process to evaluate various transportation related initiatives relative to the OCP Policy Paths as well as their contribution to mobility in the community. This process will be used to evaluate projects for consideration by Council in the City's 10-year Capital Plan commencing in 2010 and continuing in subsequent years. The development of the implementation strategy started with a "snap shot in time" to identify various potential initiatives to support key features of the Plan, based on technical work, findings from previous studies, and feedback from the community during the development of the Transportation Plan. These ranged from the high-level initiatives that would serve the entire City, or particular neighbourhood, to more specific corridor or location related initiatives. Order-of-magnitude cost estimates were developed for these initiatives to gain a sense of potential overall future transportation investment for the City. However, the actual costs for implementation could vary significantly for each initiative, and many projects such as greenways and bicycle routes are already in other City plans. In addition, possible contributions from various agencies and the private sector are not possible to estimate at this time. Thus, it was decided to focus the implementation strategy on the evaluation process rather than the initiatives themselves, since the initiatives will evolve over the life of the Plan as the community evolves. The initially identified initiatives were used to test the evaluation process and to confirm that resulting priorities reflect the implementation priorities identified through the Transportation Plan development. This approach will assist in the City's capital planning process and ensure that projects proposed for Council consideration in the capital plans reflect the current transportation system needs and the broader City's priorities.

The implementation and monitoring strategy includes three components:

1. ***Responsibility and Methods of Implementation.*** The implementation of the Transportation Plan requires commitment of the City's resources, other partner agencies and the private sector to achieve the Plan's goals. This section of the strategy outlines the primary responsibility for each of the key features of the Plan (City of North Vancouver or other agency). In addition, it should be noted that there may be a role for the private sector to contribute to the implementation of many of the features identified in the Transportation Plan through land development projects. For each feature identified as a City responsibility, this section outlines the methods of implementation (policy development, capital projects and programming, or ongoing maintenance).

2. ***Evaluation Process.*** The implementation strategy includes an evaluation process for identifying priority improvements based on several criteria: alignment with the OCP Policy Paths, relative mobility and safety benefits, relative cost, and multi-modal integration. The purpose of the evaluation process is to objectively prioritize the relative importance of the various projects in terms of their contribution to the primary goals and the City's OCP and their contribution to improvements to the transportation network. The evaluation process described in this section will be used to develop a list of projects to be proposed for Council consideration in the City's 10-year Capital Plan commencing in 2010 and continuing in subsequent years. At that time, financial implications to the capital and operating budgets will be outlined including possible contributions from other agencies.

3. ***Monitoring Program.*** In order to ensure the Plan's success over the long-term in terms of both progress in implementing the initiatives, and in terms of the success in achieving the City's overall goals, a monitoring strategy has been developed. The elements of the monitoring strategy were selected to provide a balance between quantitative and qualitative measures, short-term and longer-term measures, and city-wide and location-specific measures. This approach also makes use, where possible, of data from external sources to make the most effective use of the City's resources.

2.0 IMPLEMENTATION PLAN

2.1 Responsibility and Methods for Implementation

This section outlines the primary responsibility for each of the key features of the Long-Term Transportation Plan. Many features are the responsibility of the City, while others are the responsibility of other agencies, such as the Ministry of Transportation & Infrastructure and TransLink. In addition, it should be noted that there may be a role for the private sector to contribute to the implementation of many of the features identified in the Transportation Plan through land development projects. For those features identified as the responsibility of the City, this section also outlines whether they will be implemented through policy development, capital planning and programming, or ongoing maintenance. **Table 1** outlines the primary responsibility and methods of implementation for each of the features identified in the Transportation Plan.

The features of the plan identified as being the City's responsibility and involving resources for capital infrastructure or programming are described in further detail below. For those features, initiatives will be developed for evaluation and prioritization in the City's future capital planning processes.

- ***Pedestrian Plan:***
 - ***Pedestrian treatments***, which include sidewalks, landscaped boulevards, curb extensions, bus bulges, median islands, curb letdowns, marked crosswalks and enhanced crosswalk treatments, accessible pedestrian signals, countdown timers, street furniture, and wayfinding signage.
 - ***Greenways***, which includes new multi-use pathways and connections for pedestrians, cyclists and other users.
- ***Bicycle Plan:***
 - ***Bicycle network***, including bicycle lanes, marked-wide curb lanes, and shared bicycle routes as well as crossing treatments.
 - ***Bicycle support strategies***, which includes short-term and long-term bicycle parking.
- ***Transit Strategy:***

- **Improved accessibility**, which is based on TransLink's *Universally Accessible Bus Stop Design Guidelines* and includes those activities that the Design Guidelines report indicates should be undertaken by municipalities, including: wheelchair pads, tactile guiding indicators, seating, and shelters and other furniture.
- **Transit priority treatments**, such as signal coordination, bus queue jumper lanes, and dedicated bus lanes.
- **Road Network Plan:**
 - **Major Road Network Improvement Strategies**, which includes safety and operational improvements along corridors and at specific locations. It should be noted that safety and operational improvements are not necessarily simply for vehicular traffic, but can also include improvements for pedestrians, bicycles, and transit.
 - **Arterials, Collectors, and Local Road Enhancements**, which includes safety and operational improvements along corridors and at specific locations. As noted above, safety and operational improvements are not necessarily simply for vehicular traffic, but can also include improvements for pedestrians, bicycles, and transit.
 - **Protect Neighbourhoods**, which refers to the development of traffic calming plans.
- **Goods & Services Movement Strategy:**
 - **Minimized delays along truck routes**, which includes safety and operational improvements along corridors and at specific locations.
- **Travel Demand Management Strategy:**
 - **Education & awareness**, such as developing TravelSmart programs for City of North Vancouver neighbourhoods as well as TDM programs for elementary schools, secondary schools, major businesses, and small employers.

Table 1: Primary Responsibility and Methods for Implementation

Features	Primary Responsibility		City Implementation		
	City	Other Agency	Policy	Capital / Program	Maintenance
Pedestrian Plan					
1. Pedestrian Areas & Generators	X		X		
2. Pedestrian Treatments	X			X	X
3. Greenways	X			X	
Bicycle Plan					
1. Bicycle Network	X			X	
2. Design Guidelines	X		X		
3. Bicycle Support Strategies	X		X	X	
4. Greenways	X			X	
Transit Strategy					
1. Improved Accessibility	X	X	X	X	
2. Increased Frequency & Coverage		X			
3. Expanded Frequent Transit Network		X			
4. Transit Priority Treatments	X	X		X	
5. U-Pass Program		X			
6. Expanded SeaBus & Terminal		X			
Road Network Plan					
1. Updated Roadway Classification System*	X		X		
2. Emergency and Disaster Response Routes	X		X		
3. Major Road Network Improvement Strategies	X			X	
4. Arterials, Collectors & Local Road Enhancements	X			X	
5. Parking Strategies	X		X		
6. Protect neighbourhoods	X			X	
Goods & Services Movement Strategy					
1. Minimized Delays Along Truck Routes	X			X	
2. Signage Strategy	X		X		
3. Effective Use of Freight Infrastructure		X			
Travel Demand Management Strategy					
1. Integrated Land Use & Transportation Planning	X		X		
2. Parking Management Strategies	X		X		
3. Leadership	X		X		
4. Education & Awareness	X	X	X	X	

* = Already complete

For each of the features of the plan identified as being the City's responsibility and involving resources for capital infrastructure or programming, the implementation strategy identified potential initiatives based on a current "snap shot in time". These potential initiatives were identified based on technical work, findings from previous studies, and feedback from the community during the development of the Transportation Plan. These ranged from the high-level initiatives that would serve the entire City, or particular neighbourhood, to more specific corridor or location related initiatives. These potential initiatives were used to test the evaluation process discussed in the following section. **Appendix A** summarizes those potential initiatives identified in the plan as a City responsibility and implemented through capital planning or programming, and categorizes these initiatives based on whether they serve the entire City or whether they focus on particular neighbourhoods, corridors or specific locations such as intersections.

2.2 Evaluation

This section provides a summary of the evaluation process that will be used to prioritize various initiatives to assist City staff in its future capital planning processes.

The purpose of the evaluation process documented in this section is to objectively prioritize the relative importance of the various initiatives identified in the Transportation Plan in terms of their contribution to the primary goals of the City's Official Community Plan (OCP) as well as their contribution to improvements to the transportation network. It should be emphasized that all features of the Plan are considered important to achieve a sustainable, multi-modal transportation network. As such, this evaluation process is used to prioritize these important features in order to select projects for implementation.

It should be noted that adjustments to the priority lists that will be developed using the evaluation process may be required to reflect factors not considered in the evaluation, such as to take advantage of a funding opportunity, land development projects and coordination with other City projects (such as street and utility projects, the Greenways program, the GHG Local Action Plan, and the TDM Program).

The following criteria will be used to evaluate transportation initiatives. These criteria have been developed based on feedback from City staff.

- ***Alignment with Official Community Plan Policy Paths.*** This criterion provides a measure of the degree to which each initiative aligns with each of the ten OCP Policy Paths. A binary scoring system was established for each Policy Path, whereby a score of 0 indicates that the initiative does not align with the respective Policy Path and a score of 1 indicates that the initiative does align with the respective Policy Path. The criteria that are used to assess each Policy Path were based on the goals and objectives outlined in the OCP and are described below:
 - ***A Sense of Place*** – whether the initiative provides pedestrian-friendly connections between neighbourhoods and to the core of the City.
 - ***Land Use*** - whether the initiative supports a variety of land uses, including residential, commercial, industrial, and institutional.
 - ***Transportation, Mobility & Access*** – whether the initiative encourages the safe, convenient, and efficient use of a variety of transportation choices, with priority given to walking, cycling, and transit.
 - ***Community Well-Being*** – whether the initiative supports mobility, accessibility, and safety for all members of the population, including youth, the elderly, and people with disabilities.
 - ***Environment*** – whether the initiative reduces energy needs and contributes to reduction of local Greenhouse Gas emissions.
 - ***Parks & Greenways*** – whether the initiative contributes to the development of the trail and/or greenways network.
 - ***Leisure & Culture*** – whether the initiative supports and provides access to community facilities, such as recreation centres, and cultural facilities.
 - ***Community Infrastructure*** – whether the initiative provides infrastructure that improves quality of life and protects the environment at an affordable cost.
 - ***Economy & Economic Development*** – whether the initiative supports major employment areas and businesses in the Town Centre.

- **Municipal Financial Planning** – whether the initiative ensures that sufficient funding is provided over the long-term so that infrastructure can be sustained.
- **Relative safety benefits.** This criterion provides a measure of the degree to which the treatment could improve road safety conditions for all user groups (pedestrians, cyclists, and vehicles). A subjective rating on a scale of 1 to 4 reflects expected safety benefits, as follows:
 - 1 = No safety benefit
 - 2 = Minor safety benefit
 - 3 = Moderate safety benefit
 - 4 = High safety benefit
- **Relative cost.** This criterion provides an assessment of the relative cost of each treatment. It should be noted that the intent of this criteria is to identify order or magnitude cost estimates to understand the relative cost difference between each initiative.
 - 1 = Cost of \$500,000 or more
 - 2 = Cost between \$250,000 and \$500,000
 - 3 = Cost between \$100,000 and \$250,000
 - 4 = Cost of \$100,000 or less
- **Multi-modal integration.** This criterion describes the opportunities for integration with multiple modes of transportation. A higher score would be assigned to a project that would benefit multiple modes of transportation, which could range, for example, from a bus bulge which presents benefits both to transit users and to pedestrians, to corridor improvements that follow a “complete streets” principle and provide improvements for all road users (pedestrians, cyclists, transit, and vehicles). A subjective rating on a scale of 1 to 4 reflects a range from initiatives that only benefit one mode of transportation to initiatives that benefit several modes of transportation, as follows:
 - 1 = Initiative benefits only one mode of transportation.
 - 2 = Opportunities to integrate with one other mode of transportation.

- 3 = Opportunities to integrate with two other mode of transportation.
- 4 = Opportunities to integrate with three or more other mode of transportation.

Weightings were applied to all criteria as summarized below, to reflect the relative importance of each criterion. These weightings have been developed in consultation with City staff to balance the effects of various criteria in the overall evaluation score.

- Alignment with Official Community Plan Policy Paths: 1
- Relative Safety Benefits: 3
- Relative Cost: 1
- Multi-Modal Integration: 3

The evaluation criteria, scoring system, and weighting scheme are summarized in **Table 2**. A detailed breakdown of each criteria used for the evaluation, including supporting goals, scoring system, and weighting, is provided in **Appendix B**.

Table 2: Evaluation Criteria, Scoring & Weighting				
Criteria	Scoring	Maximum Raw Score	Weight	Maximum Weighted Score
Alignment with Official Community Plan				
<i>A Sense of Place</i>	0, 1	1	1	1
<i>Land Use</i>	0, 1	1	1	1
<i>Transportation, Mobility & Access</i>	0, 1	1	1	1
<i>Community Well-Being</i>	0, 1	1	1	1
<i>Environment</i>	0, 1	1	1	1
<i>Parks & Greenways</i>	0, 1	1	1	1
<i>Leisure & Culture</i>	0, 1	1	1	1
<i>Community Infrastructure</i>	0, 1	1	1	1
<i>Economy & Economic Development</i>	0, 1	1	1	1
<i>Municipal Financial Planning</i>	0, 1	1	1	1
Total	0-10	10	1	10
Relative Safety Benefits	1-4	4	3	12
Relative Cost	1-4	4	1	4
Multi-Modal Integration	1-4	4	3	12
Total				38

The evaluation criteria, scoring, and weighting system yield possible scores ranging from a minimum of 3 to a maximum of 38. To test the evaluation process, the potential initiatives that were initially identified were evaluated (see **Appendix A**). In general, the results of the test of the evaluation process indicate that the highest weighted scores support alternative modes of transportation. In particular, several Travel Demand Management (TDM) programs received relatively high weighted scores, as did many bicycle improvements and pedestrian improvements. This is generally consistent with the implementation priorities that were identified through feedback from the Joint Advisory Committee during the Transportation Plan, where committee members indicated that the priorities for implementation should generally be directed towards pedestrian and transit improvements, the TDM strategy, and bicycle improvements.

The process described above is proposed to be used to evaluate projects for consideration by Council in the 2010 10-year Capital Plan and for use in the capital planning processes in subsequent years. This approach would ensure that projects proposed for Council consideration in the capital plans reflect the current transportation system needs and broader City's priorities.

It should be emphasized that the results of the evaluation process are intended to aid the City in its future decision-making and for capital budget planning. In some cases, an initiative with a lower evaluation score may be implemented prior to a one with a higher score if an opportunity presents itself (i.e. as redevelopment or grant opportunities arise). Conversely, a project with a higher evaluation score may be implemented later than one with a lower score if the costs are prohibitive and if cost-sharing opportunities are not available. In addition, the evaluation scores will also be used to guide future transportation initiatives, such as the Sidewalk Assessment and Streetlighting Strategy.

2.3 Financial Implications

Significant costs are involved with implementing many of the features of the Transportation Plan. However, it is planned that the City's contribution to the implementation would not be more than what is currently spent on transportation related initiatives in the City's current Capital program. Rather, the current funding level would be refocused to priorities as outlined in the Plan and prioritized by the implementation strategy.

Some features of the plan are the responsibility of other agencies, such as transit service that would not involve the City's funding, however they are very important to achieve a sustainable, multi-modal transportation network, and City staff will need to work with these the responsible agencies for design and implementation of projects through separate processes.

In respect to Plan features that are the City's responsibility, presently there are numerous opportunities for cost-sharing with various provincial and federal agencies through grant programs and the private sector through land development projects. In addition, some cost-saving could be achieved by coordinating projects, such as on-street bicycle facilities and sidewalks with existing programs such as pavement management and local area services programs. This may result in re-allocation of funding available for street and transportation improvements. Various initiatives could also be accomplished through coordination with the greenways programs.

The evaluation process as described in this report will be used to develop a list of projects to be proposed for Council consideration in the 2010 10-year Capital Plan and at that time financial implications to the capital and operating budgets over the next 10-years will be outlined, including possible contributions from other agencies.

3.0 MONITORING STRATEGY

A monitoring program is essential to ensure that the Transportation Plan is implemented as intended, and to determine whether the plan is achieving its goals. A monitoring program will also enable municipal staff to justify continued expenditures and allocation of resources to implement prioritized initiatives of the Transportation Plan. Monitoring also provides a means of identifying changing conditions which would require changes to the Transportation Plan.

The monitoring program needs to be:

- **Meaningful.** The monitoring program will need to outline a monitoring strategy that yields meaningful results and can point to the success in achieving the City's broad goals and objectives, such as the OCP Policy Paths, Greenhouse Gas Reduction, promotion of alternate modes of transportation, etc.
- **Measurable.** The monitoring program needs to establish criteria that are readily measurable and for which data or information can be readily obtained.
- **Manageable.** The monitoring program needs to take into account the resource limitations of the City and will identify measures where information is accessible or data is simple to collect.

The monitoring program will focus on two components: first, the degree of progress in implementing the plan, and secondly, the outcomes of the plan at various scales (city-wide, neighbourhoods, corridors, areas, and specific locations). **Table 3** on the following page outlines key outcomes of the monitoring strategy at the city-wide and neighbourhood outcomes, along with measures, existing baseline information, future targets, and data sources. Data for city-wide and neighbourhood outcomes is derived from other data sources, such as TransLik's Trip Diary Survey (conducted every 4-5 years) and Statistics Canada Census Data (conducted every 5 years). As such, these measures are manageable for the City to track, as there is no direct data collection required. Since these outcomes provide broad, aggregate-level data, the City can establish targets for each of these measures to track progress in achieving the goals of the plan over time.

Table 3: Monitoring Plan – City-Wide and Neighbourhood

Outcome	Measure	Existing	20-Year Target	Data Source
City-Wide Environmental Outcomes	<ul style="list-style-type: none"> Transportation-related GHG emissions (tonnes of CO₂e) 	<ul style="list-style-type: none"> To be determined based on best available data 	<ul style="list-style-type: none"> 33% reduction from 2007 levels (12 year target) 	<ul style="list-style-type: none"> TransLink fuel consumption data ICBC Vehicle Fleet data Air Care travel distance data
City-Wide Travel Patterns	<ul style="list-style-type: none"> Total number of daily trips Number of daily vehicle trips per capita % Internal Trips (within the City of North Vancouver) Transit Mode Share Bicycle Mode Share Walking Mode Share 	<ul style="list-style-type: none"> 228,000 (2004)* 3.9 (2004)** 26% (2004)* 9% (2004)* 1.6% (2004)* 9.3* (2004)* 	<ul style="list-style-type: none"> n/a 3.5 30% 15% 3% 12% 	<ul style="list-style-type: none"> TransLink Travel Diary Survey Statistics Canada Census
Neighbourhood Travel Patterns	<ul style="list-style-type: none"> Total number of daily trips Number of daily vehicle trips per capita Transit Mode Share Bicycle Mode Share Walking Mode Share Median Trip Distance 	<ul style="list-style-type: none"> To be determined for each neighbourhood 	<ul style="list-style-type: none"> To be determined for each neighbourhood 	<ul style="list-style-type: none"> TransLink Travel Diary Survey (Traffic Zone) Statistics Canada Census (Census Tract)
Travel Behaviour	<ul style="list-style-type: none"> Travel Demand Management 	<ul style="list-style-type: none"> To be determined based on survey results 	<ul style="list-style-type: none"> To be determined based on survey results 	<ul style="list-style-type: none"> Employer Surveys

* = 2004 Trip Diary Survey

** = based on 2004 population provided by BC Stats

In addition, **Table 4** outlines key outcomes for specific modes of transportation at various locations throughout the City. These outcomes will provide measures for City on a more frequent basis (ie every 2 years) and at specific locations. These outcomes will be measured through occupancy and classification counts for vehicles as well as pedestrian and bicycle counts. However, due to the variability of the data at this scale (ie counts at specific times and locations could vary significantly based on factors beyond the City's control, such as weather conditions or traffic conditions outside the City), existing baseline information has not been provided and targets have not been established for these outcomes. Targets will be established after two-three consecutive survey results.

As such, the monitoring strategy has been developed to combine external data sources which are available every 4-5 years (such as TransLink’s Regional Travel Diary Survey and Statistics Canada Census data) and which are useful to monitor broad trends over time, with City data collection that should be conducted every 1-2 years to provide more regular and more detailed results. The City should prepare a monitoring report every 1-2 years to summarize the data collection and results, and to track progress regarding these results over time. It is estimated that it will cost the City approximately \$30,000 to monitor the results on a bi-annual basis.

Table 4: Monitoring Plan – Specific Modes and Locations			
Measure	Data Source	Possible Locations	Duration
<ul style="list-style-type: none"> Number of vehicle trips entering/exiting City <ul style="list-style-type: none"> SOV Carpool/Vanpool Goods movement 	<ul style="list-style-type: none"> Automatic traffic volume counts Manual vehicle occupancy and classification counts 	<ul style="list-style-type: none"> Marine Drive west of Mackay 1st Street east of Mackay* Westview Drive south of Highway 1 Lonsdale Avenue south of Highway 1 Boulevard Crescent south of Lynn Valley interchange* Cotton Road east of Brooksbank Keith Road east of Brooksbank 	<ul style="list-style-type: none"> Automatic counts: 7 days, 24 hrs/day Manual counts: 1 day, 15 hrs
<ul style="list-style-type: none"> Number of bicycle trips at key locations 	<ul style="list-style-type: none"> Manual bicycle counts 	<ul style="list-style-type: none"> 1st Street east of Mackay* Low Level Road Esplanade St. west of Lonsdale Ave.* Marine Drive west of Hanes Ave. Boulevard Crescent south of Lynn Valley interchange* Chesterfield Avenue at 17th Street 	<ul style="list-style-type: none"> 1 day in summer months and 1 day in winter months, 15 hrs
<ul style="list-style-type: none"> Number of pedestrians at key locations 	<ul style="list-style-type: none"> Manual pedestrian counts 	<ul style="list-style-type: none"> Lonsdale Avenue north of Esplanade St. Lonsdale Avenue north of 13th St. Esplanade St. west of Lonsdale Ave.* Marine Drive west of Hanes Ave. Jones Ave. north of 21st St. Boulevard Crescent south of Lynn Valley interchange* 	<ul style="list-style-type: none"> 1 day in summer months and 1 day in winter months, 15 hrs
<ul style="list-style-type: none"> Number of transit trips 	<ul style="list-style-type: none"> TransLink 	<ul style="list-style-type: none"> TransLink transit ridership counts 	<ul style="list-style-type: none"> n/a

* = opportunity to coordinate counts for multiple modes of transportation

APPENDIX A: LIST OF INITIATIVES EVALUATED

Scale	Project ID	Name	Description	Treatment
City-Wide	1	TDM Coordinator/Program		TDM Measures
	2	TDM Education/Awareness Pamphlets		TDM Measures
	3	TDM Programs for elementary schools		TDM Measures
	4	TDM Programs for major employers		TDM Measures
	5	TDM Programs for secondary schools		TDM Measures
	6	TDM Programs for small businesses		TDM Measures
	7	TravelSmart programs for neighbourhoods	Lower Lonsdale East/Ridgeway	TDM Measures
	8	TravelSmart programs for neighbourhoods	Lower Lonsdale West	TDM Measures
	9	TravelSmart programs for neighbourhoods	Central Lonsdale West	TDM Measures
	10	TravelSmart programs for neighbourhoods	Central Lonsdale East	TDM Measures
	11	TravelSmart programs for neighbourhoods	Grand Boulevard/Loutet/Cedar Village	TDM Measures
	12	TravelSmart programs for neighbourhoods	Marine/Hamilton	TDM Measures
	13	TravelSmart programs for neighbourhoods	Cloverley	TDM Measures
	14	TravelSmart programs for neighbourhoods	Westview/Tempe	TDM Measures
Area	15	Lower Lonsdale East Traffic Calming Plan	As per Traffic Calming Policy	TCP design & implementation
	16	Westview Traffic Calming Plan	As per Traffic Calming Policy	TCP design & implementation
	17	Tempe Traffic Calming Plan	As per Traffic Calming Policy	TCP design & implementation
	18	Loutet Traffic Calming Plan	As per Traffic Calming Policy	TCP design & implementation
	19	Cedar Village Traffic Calming Plan	As per Traffic Calming Policy	TCP design & implementation
	20	Ped Precinct - Upper Lonsdale /Harry Jerome	Chesterfield - St. Andrew's (21st - Highway 1)	Pedestrian Precinct Treatments
	21	Ped Precinct - Central Lonsdale	Chesterfield - St. Georges (8th - 21st)	Pedestrian Precinct Treatments
	22	Ped Precinct - Lions Gate Hospital	St. Georges - Ridgeway (12th - 17th)	Pedestrian Precinct Treatments
	23	Ped Precinct - Lower Lonsdale	Chesterfield - St. Georges (3rd - 8th)	Pedestrian Precinct Treatments
	24	Ped Precinct - Esplanade	Carrie Cates Crt - 3rd (Forbes - St. Andrew's)	Pedestrian Precinct Treatments
	25	Ped Precinct - Marine Drive	Mackay to Bewicke (3rd - 16th)	Pedestrian Precinct Treatments
	26	Primary - Harbourside	Mackay - Bewicke (Rail - waterfront)	Primary Area Treatments
	27	Primary - Industrial/Commercial Precinct	Mackay - Fell (1st - 3rd)	Primary Area Treatments
	28	Primary - St. Thomas Aquinas	Bewicke - Forbes (6th - 14th)	Primary Area Treatments
	29	Primary - Carson Graham	Larson - Mahon (19th - Highway 1)	Primary Area Treatments
	30	Primary - Sutherland	W. Grand Blvd - William Ave. (17th - 21st)	Primary Area Treatments
	31	Primary - Keith Lynn	Brooksbank - Lynnmouth (south of Keith)	Secondary Area Treatments
	32	Secondary - Lucas Centre/Mackay Creek	Hamilton - Fell (16th - 21st)	Secondary Area Treatments
	33	Secondary - Mosquito Creek	Edgemont - Westview (20th - Highway 1)	Secondary Area Treatments
	34	Secondary - Larson	Westview - Jones (Highway 1 - 28th)	Secondary Area Treatments
	35	Secondary - Westview	Mosquito Creek - Wolfe (15th - 19th)	Secondary Area Treatments
	36	Secondary - Mahon Park/Confederation Field	Wolfe - Mahon (16th - 19th)	Secondary Area Treatments
	37	Secondary - Wagg Creek	Mahon - Chesterfield (18th - 23rd)	Secondary Area Treatments
	38	Secondary - Queen Mary	Jones - Chesterfield (6th - 14th)	Secondary Area Treatments
	39	Secondary - Queensbury	Ridgeway - W. Grand Blvd (18th - Highway 1)	Secondary Area Treatments
	40	Secondary - Loutet/Brooksbank	William - Highway 1 (north of 14th)	Secondary Area Treatments
	41	Secondary - Boulevard	Ridgeway - E. Grand Blvd (12th - 16th)	Secondary Area Treatments
	42	Secondary - Ridgeway	St. Andrew's - Queensbury/W. Grand Blvd (7th - 10th)	Secondary Area Treatments
	43	Secondary - Ridgeway Annex	St. David's - Moody (2nd - 7th)	Secondary Area Treatments
	44	Secondary - Cloverley	Sutherland - Heywood (3rd - 7th)	Secondary Area Treatments
	45	Secondary - Park & Tilford	Heywood - Brooksbank (3rd - 7th)	Secondary Area Treatments
	46	3rd St	Keith - Forbes	Bicycle lanes
	47	3rd St	Keith - Forbes	Safety and operational improvements
	48	3rd St	Keith - Forbes	Transit priority measures

Scale	Project ID	Name	Description	Treatment
Corridors	49	3rd St.	Chesterfield - Cotton Rd.	Bus stop accessibility treatments
	50	3rd St.	Chesterfield - Cotton Rd.	Transit priority measures
	51	3rd St./Forbes	3rd street	Transit priority measures
	52	4th St.	Forbes - Heywood	Shared bicycle route
	53	13th St.	Keith Rd - Sutherland	Marked wide curb lanes
	54	13th St.	Chesterfield - St. George's`	Safety and operational improvements
	55	15th St.	Jones - W. Grand Blvd	Bus stop accessibility treatments
	56	16th St.	Marine - Bewicke	Marked wide curb lanes
	57	16th St.	Marine - Bewicke	Pedestrian greenway improvements
	58	17th St.	E. Grand Blvd - Rufus	Shared bicycle route
	59	23rd St.	Westview - Larson	Pedestrian greenway improvements
	60	23rd St.	Chesterfield - St. Andrew's	Shared bicycle route
	61	25th St.	Westview - Jones	Pedestrian greenway improvements
	62	26th St.	Tempe Knoll - Wilding	Shared bicycle route
	63	27th St.	Jones - 25th	Shared bicycle route
	64	29th St.	Lonsdale - DNV	Bus stop accessibility treatments
	65	Bewicke Ave.	Larson - Marine	Bus stop accessibility treatments
	66	Bewicke Ave.	Larson - Marine	Marked wide curb lanes
	67	Brooksbank Ave.	Cotton - Keith	Bus stop accessibility treatments
	68	Cotton Rd.	Low Level Rd. - Lynn Creek	Bus stop accessibility treatments
	69	Cotton Rd.	Low Level Rd. - Lynn Creek	Pedestrian greenway improvements
	70	Cotton Rd.	Low Level Rd. - Lynn Creek	Safety and operational improvements
	71	Cotton Rd.	Low Level Rd. - Lynn Creek	Transit priority measures
	72	E. Grand Blvd./Queensbury	3rd - Lynn Valley	Bus stop accessibility treatments
	73	Edgemont Blvd. / Fell	Marine - 29th	Bicycle lanes
	74	Esplanade Ave.	Forbes - Lonsdale	Bus stop accessibility treatments
	75	Esplanade Ave.	Forbes - St. George's (1st - Carrie Cates Crt)	Enhanced bicycle parking
	76	Esplanade Ave.	Lonsdale - Low Level Rd.	Safety and operational improvements
	77	Esplanade Ave.	Forbes - Lonsdale	Pedestrian greenway improvements
	78	Esplanade Ave.	Forbes - Lonsdale	Safety and operational improvements
	79	Esplanade Ave.	Forbes - Lonsdale	Transit priority measures
	80	Fell Ave.	19th - Hwy 1	Pedestrian greenway improvements
	81	Fell Ave.	Marine Dr. - 15th	Pedestrian greenway improvements
	82	Fell Ave./Automall Dr.		Bus stop accessibility treatments
	83	Forbes Ave.	Esplanade - 3rd	Bus stop accessibility treatments
	84	Forbes Ave.	Esplanade - 3rd	Pedestrian greenway improvements
	85	Forbes Ave.	Esplanade - 3rd	Safety improvements and bicycle lanes
	86	Forbes Ave.	3rd - 4th	Shared bicycle route
	87	Grand Blvd/Blvd Crescent	Queensbury - Lynn Valley interchange (east and west Grand Blvd)	Safety and operational improvements
	88	Hamilton Ave.	15th - Marine	Marked wide curb lanes
	89	Hendry Ave.	3rd - Keith	Shared bicycle route
	90	Jones Ave.	13th - 15th	Bus stop accessibility treatments
	91	Jones Ave.	13th - Highway 1	Pedestrian greenway improvements
	92	Jones Ave.	3rd - Highway 1	Shared bicycle route
	93	Jones Ave.	Highway 1 - 29th	Shared bicycle route
	94	Keith Rd.	Bewicke - 13th St.	Bicycle lanes
	95	Keith Rd.	Hendry - Brooksbank	Bicycle lanes
	96	Keith Rd.	Bewicke - 13th St.	Bus stop accessibility treatments
97	Keith Rd.	St. Andrew's - Brooksbank	Bus stop accessibility treatments	
98	Keith Rd.	Bewicke - 13th St.	Transit priority measures	

Scale	Project ID	Name	Description	Treatment
	99	Larson Rd.	Bewicke - Jones	Marked wide curb lanes
	100	Larson Rd.	Bewicke - Jones	Safety and operational improvements
	101	Lonsdale Ave.	Highway 1 - 29th	Bus stop accessibility treatments
	102	Lonsdale Ave.	11th - 21st	Enhanced bicycle parking
	103	Lonsdale Ave.	Lonsdale - St George's (21st - Highway 1)	Enhanced bicycle parking
	104	Lonsdale Ave.	Highway 1 - 29th	Marked wide curb lanes
	105	Lonsdale Ave.	23rd - Highway 1	Marked wide curb lanes
	106	Lonsdale Ave.	Highway 1 - 29th	Safety and operational improvements
	107	Lonsdale Ave.	Highway 1 - 29th	Transit priority measures
	108	Lonsdale Ave.	Esplanade - Highway 1	Bus stop accessibility treatments
	109	Lonsdale Ave.	Esplanade - 4th	Enhanced bicycle parking
	110	Lonsdale Ave.	Esplanade - 4th	Safety and operational improvements
	111	Lonsdale Ave.	Esplanade - Highway 1	Transit priority measures
	112	Low Level Road	Esplanade to Kennard	Road re-profiling and slope stability
	113	Mackay Ave.	Marine Drive - 23rd	Bus stop accessibility treatments
	114	Mackay Ave.	1st - 18th	Pedestrian greenway improvements
	115	Marine Dr.	Mackay - Keith	Bus stop accessibility treatments
	116	Marine Dr.	Mackay - Keith	Enhanced bicycle parking
	117	Marine Dr.	Mackay - Keith	Safety, operational and bicycle improvements
	118	Marine Dr.	Mackay - Keith	Transit priority measures
	119	North side of Highway 1	Tempe Heights Park - Lynn Valley	Shared bicycle route
	120	Queensbury Ave.	19th - 22nd	Pedestrian greenway improvements
	121	Westview Dr.	Larson - 29th	Bicycle lanes
	122	Westview Dr.	Larson - 29th	Bus stop accessibility treatments
	123	Westview Dr.	23rd - 24th	Pedestrian greenway improvements
	124	Wolfe St.	17th - Fir	Pedestrian greenway improvements
Specific Locations	125	1st St. @ Fell		Safety and operational improvements
	126	1st St. @ Hanes		Safety and operational improvements
	127	1st St. @ Mackay		Safety and operational improvements
	128	3rd St. @ Queensbury		Safety and operational improvements
	129	4th St. @ Chesterfield		Bicycle crossing improvements
	130	4th St. @ St. George's		Bicycle crossing improvements
	131	23rd St. @ St. George's		Safety and operational improvements
	132	Grand Blvd/Keith/Queensbury	Intersection	Safety and operational improvements
	133	Pedestrian/Cyclist Highway 1 Crossing Improvements	Lynn Valley/Loutet Area	Bicycle/pedestrian overpass; greenway crossing
	134	Keith Rd @ Brooksbank		Safety and operational improvements
	135	Mackay Creek	Crossing	Pedestrian greenway connection
	136	Mackay Drive - Automall Drive	Crossing	Pedestrian/bicycle overpass
	137	Mosquito Creek	Crossing	Pedestrian greenway connection
	138	St. George's @ 17th		Safety and operational improvements
	139	St. George's @ 19th		Safety and operational improvements

APPENDIX B: EVALUATION CRITERIA

Source	Measure	Criteria	Supporting Goals (for OCP Policy Paths only)	Score	Weight
Official Community Plan Policy Paths	A Sense of Place	Provides pedestrian-friendly connections between neighbourhoods and to the core of the City	4.9.3 To encourage the development of the Lonsdale Regional Town Centre as an identifiable core of the City with two centres: Central and Lower Lonsdale 4.9.4 To enhance neighbourhoods outside of the Town Centre, as appropriate, with linkages to the Town Centre and neighbouring municipalities. 4.9.5 To create public gathering places and streets that are pedestrian-friendly, fun, attractive, safe, inclusive for all, that accommodate a range of public functions, and are compatible with the neighbourhood context.	0 = No 1 = Yes	1
	Land Use	Supports a variety of land uses, including residential, commercial, industrial, and institutional	5.6.1 To establish a land use pattern that supports the creation of a complete community. A balance of residential and employment growth is encouraged. 5.6.2 To provide suitable locations for various land uses, or mixes of land uses, while shielding residential and other sensitive areas from adverse effects.	0 = No 1 = Yes	1
	Transportation, Mobility and Access	Encourages the safe, convenient, and efficient use of a variety of transportation choices, with priority given to transit, cycling, and walking	6.11.1 To encourage the use of a variety of transportation choices to serve the needs of all residents and visitors, with priority given to transit, cycling and walking. 6.11.2 To co-ordinate land use planning and transportation planning, to reduce transportation demand. 6.11.3 To provide a safe, convenient and efficient network of roads, paths, greenways and pedestrian corridors to move goods and people, while minimizing disruptions to the community.	0 = No 1 = Yes	1
	Community Well-Being	Supports mobility, accessibility, and safety for all members of the population, including youth, the elderly, and people with disabilities.	7.3.1 To maintain and enhance well-being and quality of life for all community members. 7.3.3 To support the independence and well-being of older City residents. 7.3.5 To maximize opportunities for people with disabilities to be full and active members of the community.	0 = No 1 = Yes	1
	Environment	Reduces energy needs and contributes to reduction of local Greenhouse Gas emissions.	8.4.1 To demonstrate environmental leadership 8.4.2 To encourage the community to adapt to a sustainable lifestyle. 8.4.7 To encourage meeting the present and future energy service needs of the community in a manner that is efficient and cost-effective; that is environmentally responsible (locally, regionally, and globally); and that fosters local economic development.	0 = No 1 = Yes	1
	Parks & Greenways	Contributes to the development of the trail and/or greenways network	9.9 To create a linked system of parks and greenways that balances recreational use of parks and streets with sustainable ecological and transportation objectives.	0 = No 1 = Yes	1
	Leisure & Culture	Supports and provides access to community facilities, such as recreation centres, and cultural facilities	10.5.1 To support and enhance leisure, and culture as vital aspects of community life, including life-long learning, recreation, community events, and arts and culture.	0 = No 1 = Yes	1
	Community Infrastructure	Provides infrastructure that improves quality of life and protects the environment at an affordable cost	11.7.1 To provide the citizens, businesses and visitors with public infrastructure that improves the quality of life and protects the natural environment at an affordable cost. 11.7.2 To operate and maintain the infrastructure to acceptable standards.	0 = No 1 = Yes	1
	Economy & Economic Development	Supports major employment areas and businesses in the Town Centre	12.5 To maintain a strong and diverse local economy capable of supporting a complete community.	0 = No 1 = Yes	1
	Municipal Financial Planning	Ensures that sufficient funding is provided over the long-term so that infrastructure can be sustained	13.3 To ensure that sufficient funding is provided over the long-term so that services and infrastructure can be sustained at the required level to maximize value to the citizens of the City.	0 = No 1 = Yes	1
Other Criteria	Relative Safety Benefits	Degree to which the treatment will improve safety conditions for all user groups.	n/a	1 = Low 2 = Limited 3 = Moderate 4 = High	3
	Relative Cost	Assessment of the relative cost of each treatment	n/a	1 = >\$500,000 2 = \$250,000-\$500,000 3 = \$100,000-\$250,000 4 = <\$100,000	1
	Multi-Modal Integration	Opportunities for benefits to other modes of transportation	n/a	1 = No other modes 2 = 1 other mode 3 = 2 other modes 4 = 3 or more modes	3