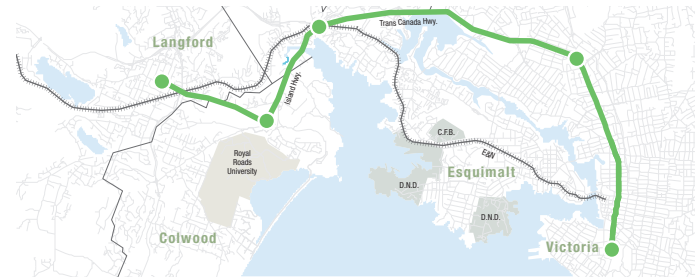


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Victoria Regional Rapid Transit Project

Linking Victoria with the West Shore
Recommendations | May 2011



Executive Summary

Introduction

This report outlines the results of BC Transit's study on the transit improvement requirements between downtown Victoria and the West Shore. It recommends the corridor that should be developed and the most effective technology for use within it.

BC Transit's Victoria Regional Rapid Transit Project has been undertaken in response to the goals set out by the Provincial Transit Plan, the Capital Regional District's 2003 Regional Growth Strategy and 2005 Travel Choices Strategy, the Regional Network Plan, Official Community and Major Street Network Plans and the Victoria Region Transit Future Plan. All these strategic plans call for reduced reliance on cars and improved transit service.

Rationale for the Victoria Regional Rapid Transit Project

Increased congestion on the transportation corridors between downtown Victoria and the West Shore is a major issue in the Capital Region. This issue will get even worse as population in the West Shore continues to experience the fastest growth rate in the CRD. By 2038, travel between the West Shore and the Core (Victoria, Saanich, Oak Bay and View Royal) is forecast to grow by 69% – the largest increase in the Region.

Improvements to increase road capacity are not viable – even if the existing lanes were expanded, they could not alleviate the congestion problem. The only viable solution is to dramatically increase transit ridership using a more sustainable form of transportation. This situation is tailor-made for a rapid transit solution that meets the following guiding principles:

- Develop transit options that offer an alternative to the single occupancy vehicle
- Deliver more attractive, convenient transit
- Link regional growth centres that encourage transit oriented development
- Support an integrated transportation network
- Develop an environmentally responsible solution
- Design a sustainable and affordable transit system

By operating in its own, exclusive right of way, rapid transit allows users to bypass traffic congestion. The proposed rapid transit project linking downtown Victoria and the West Shore will deliver a significant travel time advantage and can carry up to ten times more people than one lane of vehicle traffic. This will enable more efficient use of existing corridors. A rapid transit solution will also link and promote regional growth centers. Further, it will provide the backbone required for a regional transit system.

Progress to Date

After establishing an agreed to set of goals for the Victoria Regional Rapid Transit Project, extensive and comprehensive consultation and analysis has been undertaken during the project’s three year Planning Stage. The analysis includes a review of regional traffic data, traffic analysis, cost estimating, conceptual level design studies and drawings, real estate and property impact evaluations, a preliminary scan of potential First Nations’ interests, and a multiple account evaluation – which included environmental implications. This comprehensive review provided the groundwork for the recommendations put forward in this report.

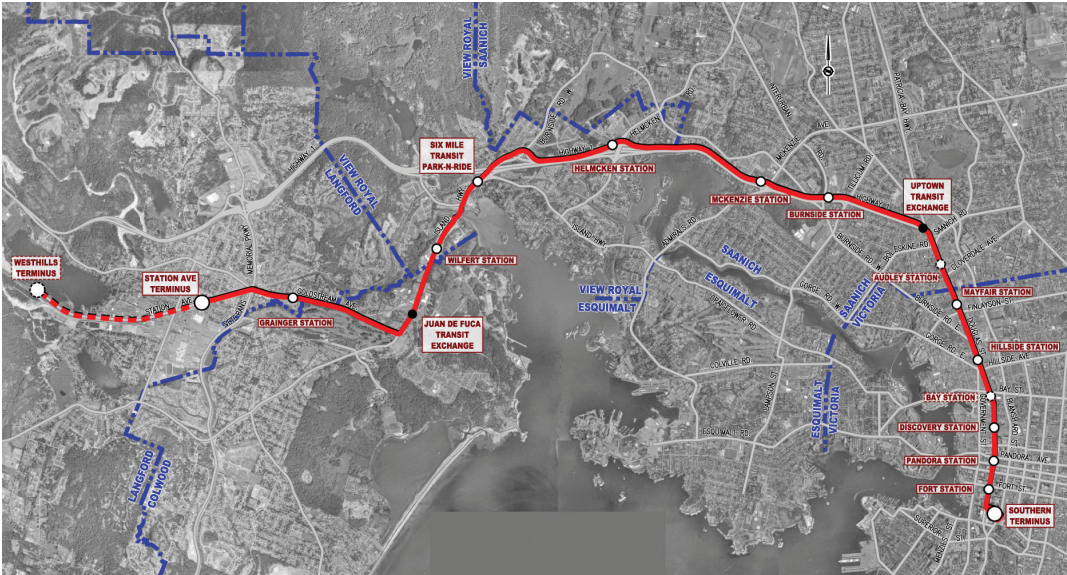
Key achievements delivered during this Planning Stage, all of which are outlined in this report, include:

- Identification of the approved alignment
- A recommendation with respect to vehicle technology
- Extensive consultation as the foundation for the project, highlighting broad public support
- Preliminary capital and operating costs
- Funding sources, including implementation options

Approved Alignment

The approved, exclusive 16 kilometre transit alignment starts at the Station Avenue transit exchange in Langford. From the exchange it runs east between Station Avenue and the E&N railway, crosses over Veteran’s Memorial Parkway and follows Goldstream Avenue to Island Highway where it turns north to the Juan de Fuca Recreation Centre. From there, the alignment follows the Old Island Highway to the Colwood Interchange, runs between the Galloping Goose and the Trans Canada Highway to Uptown, and then follows Douglas Street from Uptown into Victoria’s downtown. Figure 1 below illustrates the approved alignment.

Figure 1: Victoria Rapid Transit Approved Alignment



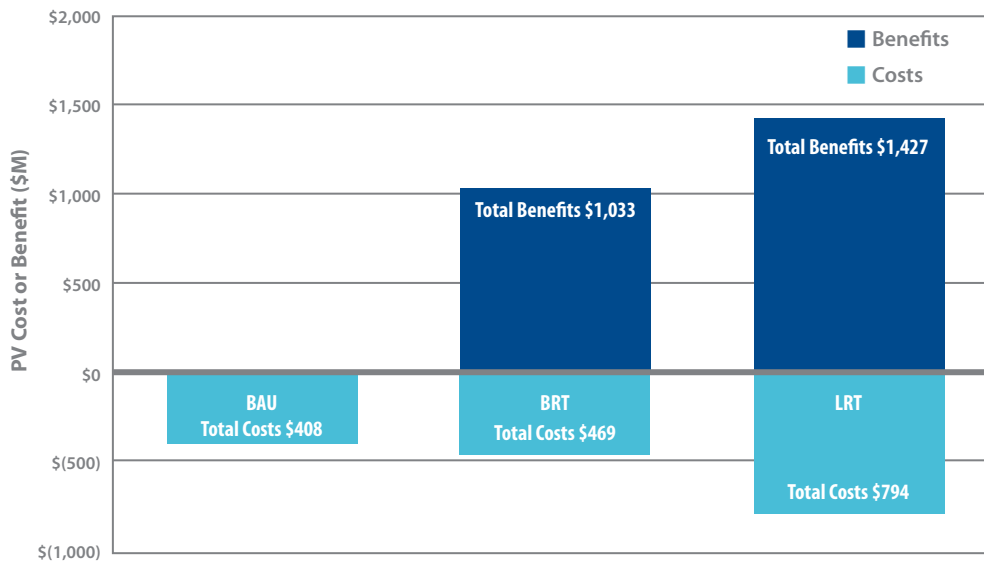
Recommended Technology

Based on the results of the project's Multiple Account Evaluation (MAE), Light Rail Transit is the recommended technology solution.

Three technology options were developed and evaluated against the project's goals and objectives. "Business as Usual" (BAU) was used as a base case and was compared to (1) Bus Rapid Transit (BRT) employing high capacity articulated buses operating on the exclusive transit way, and (2) Light Rail Transit (LRT) employing 40m electric light rail vehicles operating on the exclusive transit way.

Figure 2 below illustrates the overall costs and benefits for each of these options. The "Business as Usual" option provides no additional benefit for its additional costs, as it just maintains the status quo. Within 10 to 15 years ridership demand is forecast to exceed the carrying capacity of the BRT option.

Figure 2: Benefit – Cost Evaluation (all figures in present value 2010 \$)



Other quantitative results of the multiple account evaluation are presented in Table 1. The benefit cost ratio for the recommended LRT system is 1.8.

Table 1: MAE Sensitivity Analysis (All figures are in 2010\$)

MAE Result	Discount Rate	
	6%	10%
Benefits Cost Ratio	1.8	1.14
Present Value – Total Benefits (\$Mil)	\$1,427	\$784
Net Present Value (\$Mil)	\$1,040	\$423

Table 2 summarizes the advantages delivered by the LRT technology.

Table 2: Advantages Delivered by LRT Technology

LRT Advantages	Description
Delivery of Provincial Transit Plan Targets	<ul style="list-style-type: none"> Only LRT has the capacity to achieve the Plan's ridership goals LRT will deliver the greatest reduction of green house gas at 480,000 tonnes, or 10% of the Provincial Transportation Plan target (145,000 tonnes more than BRT)
Greatest Ridership Growth	<ul style="list-style-type: none"> LRT is forecast to generate 13.3 million annual rides by 2038, 45% more than BRT and 110% more than BAU
Long Term Solution	<ul style="list-style-type: none"> LRT will be able to accommodate the ridership growth forecast for the busy Douglas Street Corridor, whereas a BRT solution would reach its capacity limits within 10 –15 years
Long Term Operating & Maintenance Costs	<ul style="list-style-type: none"> With its high capacity and ability to provide expanded, higher quality services, the operating cost per passenger for LRT will decrease over time. It is common for LRT vehicles to remain in service for 30 – 40 years; unlike a bus-based solution, no replacement of LRT vehicles will be required over the life of the project. These costs are estimated at \$230M (2010\$) until 2038
Greater Community Support	<ul style="list-style-type: none"> LRT has higher level of community support than BRT. It provides the greatest comfort and safety and will be the most effective vehicle technology at reducing roadway congestion
Improved Shaping of Urban Development	<ul style="list-style-type: none"> LRT provides the best support for the CRD's emphasis on transit-oriented development and delivers \$85 million more land development benefits than would BRT
Highest Return on Investment	<ul style="list-style-type: none"> LRT has a positive benefit cost ratio and the highest transportation benefits (\$1 billion more than BRT over 27 years)
Job Creation	<ul style="list-style-type: none"> LRT will generate 4,500 more job years of employment

Preliminary Cost Estimate

Costs to deliver an LRT System, Linking Victoria's Downtown to the West Shore

The preliminary cost estimate to construct the new LRT system from Victoria's downtown to Station Avenue on the West Shore is \$950M. This amount includes all the infrastructure to create the dedicated alignment, the relocation and reinstallation of existing utilities, the new roadway, the stations, sidewalks and landscaping, new electrical distribution and supply for the rail vehicles, procurement of light rail vehicles, a new maintenance facility, all the engineering, project management, construction supervision, approval costs and property acquisition. The preliminary estimate does not include any sunk costs, HST or allowance for compensation to businesses.

Table 3 summarizes the capital and the operating and maintenance costs for the LRT system for the entire project planning life cycle from 2011-2038.

Table 3: LRT Lifecycle Cost (All figures are in 2010\$)

Cost	LRT
Capital cost to construct	\$950,000,000
Capital cost for vehicle growth & replacement	\$48,000,000
Operating & Maintenance cost	\$229,000,000
Total lifecycle costs (2011–2038)	\$1,227,000,000

Further engineering and risk evaluation is required to develop a detailed budget.

Implementation Options

An exclusive right of way should be established for the entire alignment from the outset. Recognizing the significant investment required, the LRT system to the West Shore could be built in stages that enable expansion over time, spread the capital investment over many years and best match capacity to demand. There are three options for implementation that end at different points on the West Shore, as follow:

Option 1: Downtown to Station Avenue (\$950M)

Option 2: Downtown to Juan de Fuca (\$860M)

Option 3: Downtown to Six Mile (\$770M)

Each option provides the capacity to meet the Provincial Transit Plan's ridership targets. Truncating the LRT line as indicated for options 2 or 3 would increase reliance on the West Shore bus system. These options, however, provide flexibility to stage extensions of the LRT in a more affordable method by reducing the upfront capital cost.

Funding Sources

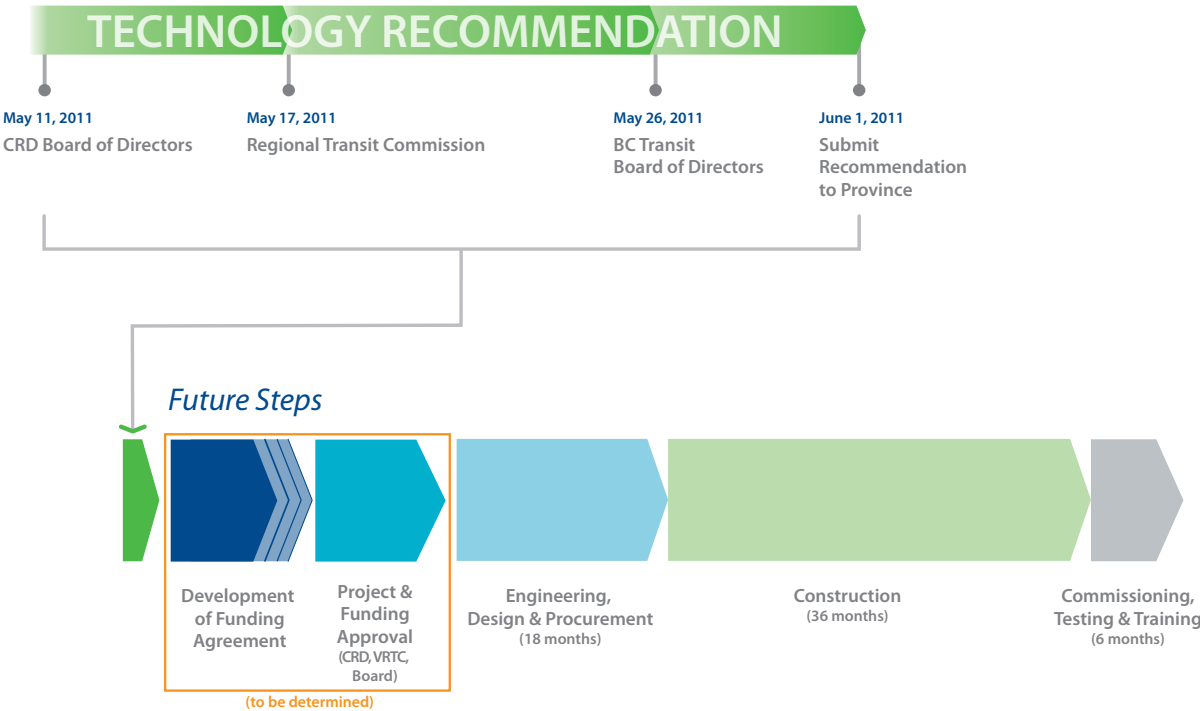
Now that the Victoria Regional Rapid Transit Project’s Planning Stage is complete, the next stage will be to initiate discussions between the Federal, Provincial and Local governments aimed at developing a funding agreement for implementation of the rapid transit system. Confirmation of funding will also necessitate a close examination of the funding mechanisms already in place, such as fuel tax, fare revenue and property tax as well as examining potential alternative mechanisms, such as vehicle levies or a “community pass”.

Next Steps

The next steps in the finalization of the recommendation and submission to the Province for its review are outlined in Figure 3.

Figure 3: Timeline for next steps

Next Steps





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VICTORIA REGIONAL RAPID TRANSIT PROJECT

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Victoria Regional Rapid Transit Project

1. Purpose

This report outlines the strategic context for the Victoria Regional Rapid Transit Project. It provides the principles developed at the outset to guide it and to evaluate options, an overview of the process followed, analysis completed and the extensive consultations undertaken.

This report also outlines the study methodology, discusses its results and their implications, and provides the rationale and preliminary costing for the recommended option – Light Rail Transit.

This report also summarizes the three years of comprehensive review undertaken during the project's Planning Stage, which is fully documented in six comprehensive volumes of detailed technical analysis.

2. Strategic Context

The overarching strategic and policy direction for this project has been provided by the following plans, all of which call for reduced reliance on cars and improved transit service:

Provincial Transit Plan (2007)

Sets the stage for improving transportation throughout B.C. by:

- Providing the vision for an inter-connected transit grid, made up of a range of green travel options including rapid transit, cycling and walking
- Providing a source of funding from all levels of government in a partnership approach
- Calling for an increase of transit's market share in the capital region from 7% to 12% by 2030, more than doubling ridership to 55 million passengers per year
- Requiring a contribution to the Provincial target to reduce greenhouse gas emissions and other air contaminants from cars by 4.7 million tonnes cumulatively by 2020

CRD Growth Strategy (2003)

This strategy, currently being updated as the Regional Sustainability Strategy:

- Defines the distribution of growth in the Region
- Identifies the key high density growth areas
- Recommends the shape and mix for development

CRD Travel Choices Strategy (2005)

This long-range transportation plan seeks to realize a balanced, accessible, and affordable transportation system by:

- Integrating land use and transportation policies
- Enhancing alternatives to driving alone
- Managing transportation systems to maximize the mobility and safety of priority modes
- Managing transportation investments in a fiscally responsible, strategic manner

It projects an additional 400,000 daily person trips by 2026, and targets 75% of these to be made by walking, cycling, taking transit, or ridesharing. It also identifies potential high-capacity transit corridors, including connections from downtown Victoria to UVic, the West Shore, and the Saanich Peninsula via Uptown.

Official Community and Major Street Network Plans

- These plans define how each community will develop under the overarching regional growth strategy.

Transit Future Plan

BC Transit's 25 year, long-term plan for the Victoria Regional Transit System establishes a vision of transit in the region and guides transit improvement.

Over the life of the plan it includes:

- Four distinct layers of transit service (Rapid, Frequent, Local and Targeted) to better match transit service to demand
- Development of a Rapid Transit Network (RTN) linking regional centres
- Development of a Frequent Transit Network (FTN) providing frequent, reliable, safe service on the regions primary corridors
- Expanded Local Transit Network (LTN) linking communities to local services & village centres
- Development of critical transit facilities including exchanges at Uptown and UVic and new operations and maintenance centres
- Construction of an expanded park and ride network
- Development of transit priority measures
- Investments to improve customer information and accessibility

3. Guiding Principles

The guiding principles for the Victoria Regional Rapid Transit Project were established at its initiation both to provide it with direction and to define the measures for its success. They represent a blend of the goals of the Provincial Transportation Plan, local transportation plans and the Capital Regional District and have been confirmed through extensive consultation with local government and stakeholder groups. These guiding principles also provided the framework for the Multiple Account Evaluation conducted for this project. They are to:

- Develop transit options that offer an alternative to the single occupancy vehicle
- Make transit more attractive and convenient
- Link regional growth centres that encourage transit oriented development
- Support an integrated transportation network
- Develop an environmentally responsible solution
- Design a sustainable and affordable transit system

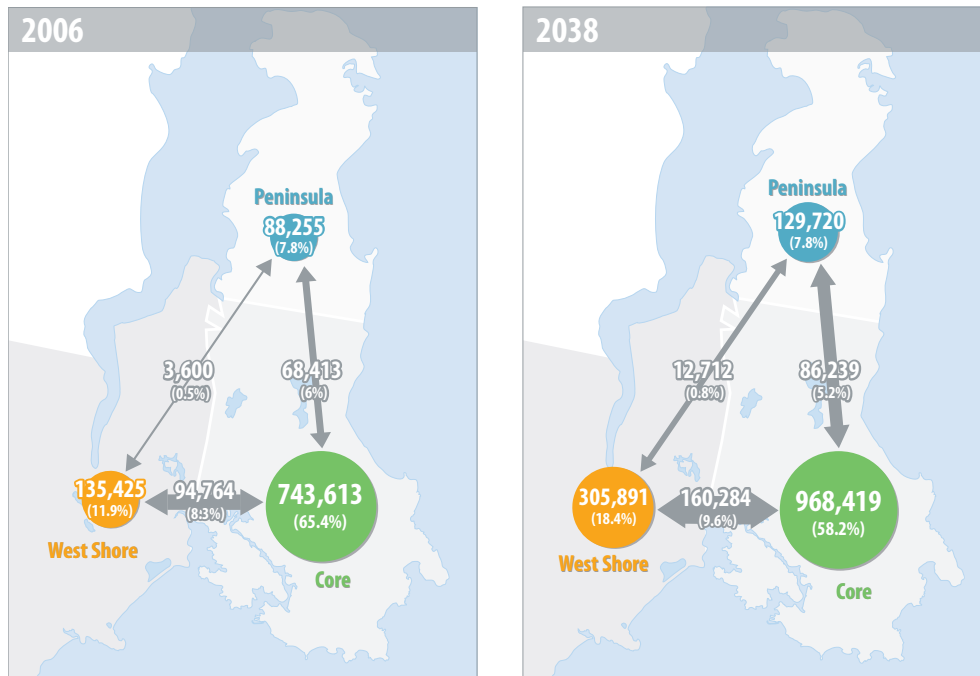
4. Demographic and Geographic Context

By 2038, the CRD’s population is forecast to increase by 31% from 364,000 in 2008 to 475,000 in 2038. The West Shore will continue to experience the fastest population growth in the CRD, growing from 65,000 residents in 2008 to 122,000 residents by 2038 – an 88% increase.

By 2038, travel between the West Shore and the Core is forecast to increase by 69% to over 160,000 daily trips. Figure 4 illustrates the two-way traffic flow projections as follows:

Figure 4: Two Travel Flow Projections

Two-way travel flow projections –all trips by all modes*



* CRD 2006, Origin and Destination Household Travel Survey

Of the more than 160,000 daily trips between the West Shore and the Core area forecasted for 2038, approximately 80% are forecast to take the Trans Canada Highway (Highway 1) route through Saanich. Additionally, only 14% of trips between the West Shore and the Core area have downtown Victoria as the destination. Demand for transit will continue to grow throughout the day. Already, 50% of trips are made outside the AM and PM peak periods.

5. Transportation Network Context

The CRD’s transportation network is limited by the shape of the land and sea, resulting in very limited transportation corridors in a relatively compact region, which restricts the ability to add new corridors.

A study of the transportation network in the Capital Region, and specifically the Highway 1 corridor, was completed for the Ministry of Transportation and Infrastructure in 2007. It concluded that because of the lack of an alternative east-west road network, traffic demands are beyond the capacity of Highway 1, even if this highway were expanded. Furthermore, expanding the highway’s capacity would offer only a marginal, short-term benefit.

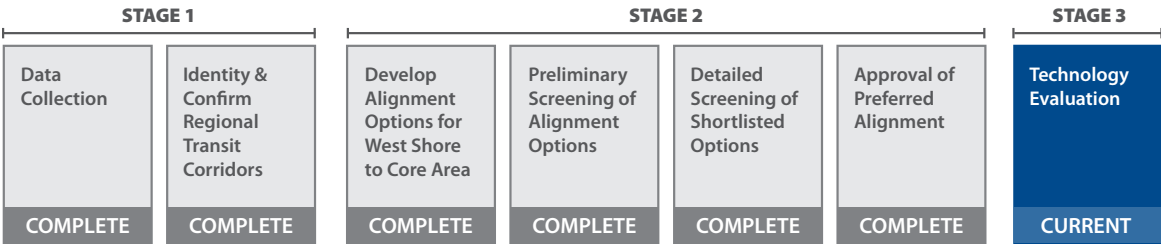
Regional traffic data show that travel between the West Shore and the Core will increase by 69% by 2038, the Core will continue to have the highest number of jobs relative to population, and the trend toward higher demand in the peak hours will continue.

Rapid transit is the most viable solution for the Capital Region’s current and future transportation requirements. The Region’s limited roadway network generates transit ridership numbers capable of sustaining an LRT system. Moreover, a rapid transit solution is required to achieve the 12% mode share targets set in the Provincial Transportation Plan. All other North American Cities that have achieved a 12% mode share have required rapid transit in order to do so.

6. Study Methodology

Process

The process established at the project’s outset to develop its recommendations is outlined in the following graphic:



At each major milestone the public was invited to open house forums to review the materials and provide feedback to the project team on the information presented as well as on the proposed next steps.

The Planning Stage has included extensive and comprehensive analysis. An overview of the breadth and depth of this analysis is as follows:

Stage 1: Analysis of the regional traffic data collected as part of the 2006 Journey to Work Survey and the CRD's Regional Growth and Travel Choices Strategies. The data was analyzed to identify the transportation corridor which will provide the highest market demand now and in the future and would most benefit from rapid transit.

Stage 2: Identified potential alignment options and completed the detailed analysis and evaluation to support identification of the approved alignment. Intensive engagement with the staff of all municipalities was undertaken to ensure compatibility of the options with each Municipality's Official Community Plan. Three different configurations of the rapid transit running way within the alignment were developed and a preliminary evaluation of the configurations was completed.

Stage 3: Identified the technology options to be considered in order to arrive at an option that would best address the project's goals.

Key Analyses

The analyses completed in the planning phase included:

- Review of regional traffic data and land use plans
- Selection of the alignment
- Traffic and parking analysis
- Conceptual design drawings
- Property impact assessment
- Development of a preliminary cost estimate
- Preliminary scan of potential First Nations' interests, and
- Multiple account evaluation – which included environmental implications.

This comprehensive suite of studies and analyses provided the groundwork for the recommendations put forward in this report. A brief overview of each of these key analyses is provided as follows:

Regional Traffic Data and Land Use Planning Review

The detailed data provided by:

1. CRD's Origin Destination Survey
2. Statistics Canada Journey to Work data
3. Regional and municipal traffic data
4. CRD's Regional Growth Strategy, and
5. The Official Community Plans of the area Municipalities

were reviewed and analyzed to determine the travel patterns in the Capital Region. This enabled the project to determine the demand for transit services now and in the future.

Selection of the Alignment

A detailed alignment identification and selection process was conducted using regional traffic and land use planning data to develop the alignment approved for the rapid transit system. Extensive consultation with a broad range of stakeholders was conducted as part of the alignment development.

Traffic & Parking Analysis

An analysis of the impacts on traffic of changing demand and roadway configuration was completed. Regional scale assessment employing the CRD's regional transportation planning model and corridor level assessments using the City of Victoria's traffic model were completed to evaluate the proposed changes to the configuration of the roadway required to accommodate the rapid transit alignment, stations and wider sidewalks. Proposed changes in the configuration of the roadway impact only 2 km of the 16 km total length of the alignment.

All on-street parking (154 stalls) on the portion of the alignment along Douglas Street between Uptown and Victoria's downtown will need to be removed, necessitating collaboration with the City of Victoria to develop options for mitigation.

Conceptual Design Drawings

Conceptual design drawings were developed for 3 different transit way configuration options (side running, median and curbside) and included the following details:

- Rapid transit alignment
- Exchanges
- Park-N-Rides
- Station locations
- Traffic lane configuration
- Bike lanes
- Sidewalk improvements
- Landscaping improvements

While the alignment has been approved, the configuration, or placement of the LRT running way along Douglas Street, the Island Highway and Goldstream Avenue, has not been confirmed.

Property Impact Assessment

The potential impacts of the approved alignment and the conceptual designs associated with property requirements were evaluated. One of the criteria in selecting the preferred right of way has been to minimize the need to acquire private property. All required property along the length of the alignment has been identified and some private property will need to be purchased. Based on the preliminary assessments completed, less than 1.5 ha of property are required along the entire alignment.

Preliminary Cost Estimate

A preliminary cost estimate was developed based on the conceptual design drawings. Conceptual quantity estimates were completed for the civil infrastructure; preliminary load studies were completed to determine the electrical distribution and supply requirements for powering the LRT vehicles and indicative pricing for the LRT vehicles was obtained from a number of manufacturers.

An independent review of the cost estimate was completed. The review supported the methods employed to develop the estimate and concluded that the estimate is reasonable based on the conceptual design information.

Preliminary First Nations Interests Scan

A preliminary review of possible First Nations' interests potentially impacted by the approved alignment were evaluated. Based on the findings of the assessment, the rapid transit alignment may impact four registered archaeological sites along the highway right-of-way. Future consultation with the First Nations should be undertaken to ensure that proper archaeological assessments are carried out in association with representatives of the First Nations.

Multiple Account Evaluation

A Multiple Account Evaluation (MAE) examining the benefits, costs and economic impacts of the potential options for achieving the project goals and objectives was completed following Ministry of Transportation and Infrastructure guidelines. The MAE is based on the TransDec modeling platform developed by Transport Canada. Completion of a multiple account evaluation is a requirement for seeking project funding from senior levels of government.

Key Achievements

Key achievements delivered during this Planning Stage, each of which is outlined in this report, include:

- Identification of the approved alignment
- A recommendation with respect to vehicle technology
- Extensive consultation as a foundation for the project, highlighting broad public support
- Preliminary capital and operating costs
- Funding sources, including implementation options

The technical report volumes documented the analysis completed in delivering the above achievements.

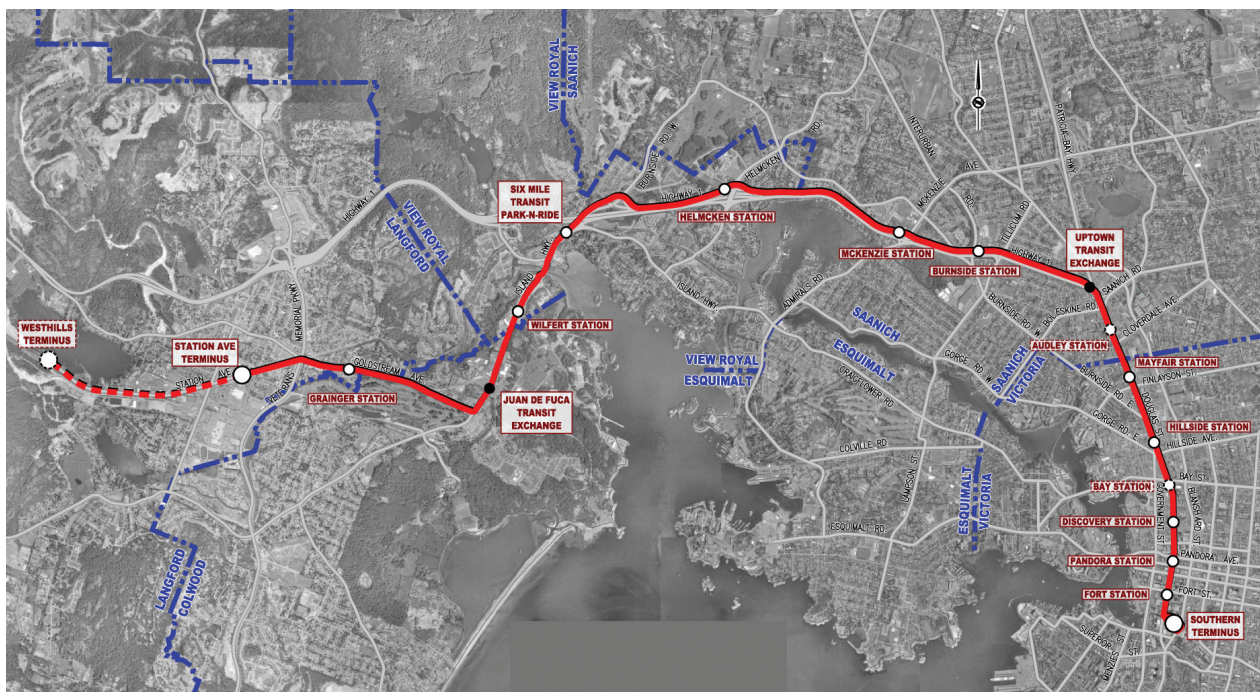
7. Approved Alignment

Fourteen alignment options for the rapid transit corridor were identified. Two rounds of evaluation were performed assessing the options against multiple considerations including:

- Ability to maximize people movement (present and future)
- Ability to create an efficient, integrated and balanced system
- Connection to regional growth centres
- Ability to serve all four trip purposes (work, shopping, educational and personal)
- Maximization of connectivity to other modes (cycling, walking and driving)
- Mitigation of impacts to green space
- Creation of an urban form (pedestrian friendly)
- Cost to construct
- Amount of property acquisition required
- Number of at grade crossings and new bridges required
- Impact during construction

Based on this comprehensive analysis, the approved rapid transit alignment, presented on Figure 5, starts at the Station Ave. transit exchange in Langford. From the exchange it runs east between Station Ave. and the E&N railway, crosses over Veteran's Memorial Parkway and follows Goldstream Avenue to Island Highway where it turns north to the Juan de Fuca Recreation Centre. From there, the alignment follows the Old Island Highway to the Colwood Interchange, runs between the Galloping Goose and the Trans Canada Highway to Uptown, and then follows Douglas Street from Uptown into Victoria's downtown

Figure 5: Victoria Rapid Transit Approved Alignment



Additional information related to the basis of design and features of the approved alignment includes:

- The alignment improves safety and connectivity of the cycling network. It includes a complete refresh of the entire right of way, delivering new pavement and extensive landscaping. As well, a significant portion of the preferred alignment includes safer, wider sidewalks.
- Fourteen stations are proposed for construction along the alignment with provisions for an additional two in the future. While the general proximity of the stations has been identified in consultation with planners and engineers from the local municipalities, the precise details of station locations will be determined in future stages of the project.
- The treatment at all the major urban intersections will be at grade with the rapid transit vehicles receiving signal priority at intersecting roadways. Along the Trans Canada Highway grade separation at the four major arterial road intersections (Tillicum, Mackenzie, Helmcken and Burnside) has been included for the rapid transit alignment and the Galloping Goose Regional Trail.
- A portion of the rapid transit alignment along Goldstream Avenue from Langford to the Colwood City Centre will be mixed use (the rapid transit vehicle will be in the roadway with the general purpose traffic) as per the direction of the City of Langford.
- The alignment maintains the existing number of traffic lanes in the 14 km segment between Station Avenue to the intersection of Hillside Ave. and Douglas Street. South of Hillside Ave. the elimination of one general purpose traffic lane in each direction is required on Douglas Street to accommodate the rapid transit alignment, stations and wider sidewalks. This change in the configuration of the roadway impacts 2 km of the 16 km total alignment length.
- Traffic assessments demonstrated that there is sufficient capacity in the road network and on the parallel Government Street and Blanshard Street corridors to service the demand that will be re-allocated from Douglas St.
- Removal of 154 on-street parking stalls is required along Douglas St between Uptown and downtown to accommodate the alignment, stations and wider sidewalks. The City of Victoria Parking Strategy issued in 2007 identified over 11,000 parking stalls in the downtown and surrounding area. Loss of 154 on-street parking spaces represents less than 1.5% of the parking spaces in the area.

8. Evaluation of Vehicle Technology Options

Three technology options were identified to address the projects goals:

1. Business As Usual (BAU): This option uses incremental improvements to the existing bus service to increase ridership. Employing the existing fleet of conventional single and double-decker buses, additional service hours would be achieved potentially through the implementation of new routes and express services. This option also includes some limited transit priority improvements along Douglas Street and the Trans Canada Highway.

2. Bus Rapid Transit (BRT): This option includes the development of the exclusive transit way for transit service along the approved alignment identified above and the use of high capacity articulated buses.
3. Light Rail Transit (LRT): This option includes the development of the exclusive transit way for transit service along the approved alignment identified above and the use of high capacity light rail vehicles.

The key characteristics and features of the three options are summarized on Table 4 below:

Table 4: Characteristics of Technology Options

	Business As Usual (BAU)	Bus Rapid Transit (BRT)	Light Rail Transit (LRT)
Description	Continues the use of existing conventional bus service increasing service on routes along the alignment	A rapid transit system with road-based technology using specialized buses on an exclusive right-of-way from Downtown to the West Shore	A rapid transit system using rail-based technology on an exclusive right-of-way from Downtown to the West Shore
Running way and operational Characteristics	<ul style="list-style-type: none"> • Transit priority measures like bus lanes, bus on shoulder and signal priority where feasible • On-board fare collection • Scheduled service at regular bus stops 	<ul style="list-style-type: none"> • Operates in exclusive right-of-way, segregated from other traffic • Off-board fare collection • High-frequency service does not require knowledge of schedule • Stops at stations with enhanced boarding 	<ul style="list-style-type: none"> • Operates in exclusive right-of-way, segregated from other traffic • Off-board fare collection • High-frequency service does not require knowledge of schedule • Stops at stations with level boarding
Vehicle type and capacity	12m Conventional Bus (80 passengers); system capacity is limited by bus size and number of vehicles able to operate on congested roadway and at bus stops	20m Articulated Diesel Hybrid Bus (120 passengers); increases system peak-hour carrying capacity by 20% over conventional bus	40m Electric Light Rail vehicle (230 passengers); more than doubles the system peak-hour carrying capacity of conventional bus
Potential Service opening	2013	2015	2016
Transit Fleet requirement (at Opening)	48	23	13
(in 2038)	90	48	20
Peak hr passenger capacity	2000	2400	4600
Annual Ridership Opening year	5.4 Million	6.5 Million	7.0 Million
Annual Ridership 2038	6.3 Million	9.0 Million	13.3 Million
Annual service hrs – Opening year	120,000	76,000	55,000
Annual service hrs – 2038	224,000	137,000	76,000
Travel time West Shore to Downtown – Opening year	60 minutes	40 minutes	40 minutes
Travel time West Shore to Downtown – 2038	95 minutes	45 minutes	45 minutes

A Multiple Account Evaluation (MAE) was undertaken, directly linked to the project's guiding principles. This evaluation was conducted to identify the best of three vehicle technology solutions in terms of meeting the project's goals and objectives. A MAE provides a detailed benefit/cost analysis to help reach an "all things considered" decision as to the best solution. It looks at all the costs and benefits over a planning horizon from 2011 to 2038.

The data summarized on Table 4 above along with other information including the estimated ridership, traffic demand, and inflation estimates formed the input data for the MAE model. The MAE model was developed on the basis of the TransDec model developed for Transport Canada for the evaluation of transportation infrastructure projects.

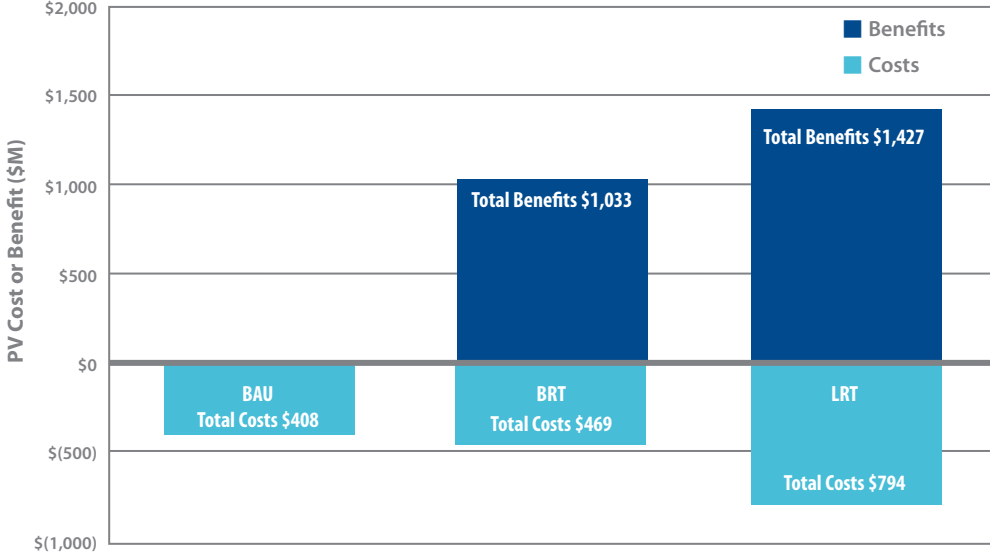
The MAE compared the Bus Rapid Transit and Light Rapid Transit technologies to the "Business as Usual approach." "Business as Usual" formed the base case – what would be done in the absence of carrying out this project.

The MAE framework evaluated the options against the base case under a suite of accounts. The following accounts were used in the MAE:

- Land Use / Urban Development: examines land use potential and property uplift that result from the implementation of rapid transit.
- Transportation: analyzes the efficiency for users and non-users through travel time and vehicle cost savings and reviews other factors including the reliability of service, supply and demand characteristics, ease of future expansion and connection with the regional network, and the comfort and safety of passengers.
- Financial: assesses the capital and operating costs and evaluates the benefit-cost of the project.
- Deliverability: reviews the impacts the construction of the systems will have on the surrounding environment and the willingness and public support of the public and stakeholders for the project.
- Economic Development: examines the financial impacts of construction and operations on employment, income, and gross domestic product as well as the tax effect.
- Social /Community: analyzes the expected impacts that the rapid transit project will have on health, and the local communities.
- Environment: studies the reductions in emissions of green house gases (GHG's) and Common Air Contaminants (CAC's), the impacts on noise and vibration during construction and operation, and any impacts on green space.

The overall results of the MAE are summarized on Figure 6 below.

Figure 6: Total Cost and Benefits (All figures in present value 2010 \$)



In terms of total costs and benefits, LRT provides the greatest return in present value of benefits generated by the system. Slightly less than \$1.5 billion of total benefits are realized with the LRT option. The largest portion of the total benefits realized is derived from the transportation benefits which include savings in:

- time
- vehicle operating costs
- reduced collisions and accidents.

The overall benefit to cost ratio for the LRT option is 1.8 indicating the benefits delivered by the project are significantly higher than the costs over the planning horizon.

A sensitivity analysis on the MAE results was completed using two discount rates. The primary discount rate used in the analysis was 6%. The MAE model was also run using an alternate discount rate of 10%. The two discount rates conform to guidelines from the Provincial and Federal Governments for conducting benefit cost analysis for major projects. Table 5 summarizes the impact of varying the discount rate on the results of the MAE.

Table 5: MAE Sensitivity Analysis (All figures are in 2010\$)

MAE Result	Discount Rate	
	6%	10%
Benefits Cost Ratio	1.8	1.14
Present Value – Total Benefits (\$Mil)	\$1,427	\$784
Net Present Value (\$Mil)	\$1,040	\$423

A comprehensive summary of all the accounts evaluated in the MAE is provided on Table 6. The result for each account is determined by comparing the results for the particular option (i.e. BRT or LRT) to Business as Usual. A five point rating system was used as summarized on Figure 7.

Figure 7 – MAE 5 point rating

Symbol Legend	
✓✓	Significant improvement compared to BAU
✓	Improvement compared to BAU
–	No significant change or neutral compared to BAU
✘	Worse/higher compared to BAU
✘✘	Significantly worse/higher compared to BAU

For quantitative accounts like the overall benefit to cost ratio, the quantitative values were evaluated against the five point system. For example, the benefit cost ratio for BRT (B:C ratio 2.2) is graded as “significant improvement compared to BAU” and the benefit cost ratio for LRT (B:C ratio 1.8) is graded as “improvement compared to BAU” based on the numeric values calculated by the MAE model.

For qualitative accounts, the evaluation was undertaken by qualified professionals employing their objective skill, expertise and judgment to determine the rating.

MAE Account	Aspect or Sub-account	BRT	LRT	Comments
Land Use and Urban Development	Land use and urban development	✓	✓✓	LRT will generate greater increases in property values and create more incentive for new development along the alignment than BRT. This is consistent with experience in many other communities where rapid transit systems have been built.
Transportation	Transportation Benefits	✓	✓✓	The increased ridership attracted to LRT results in significantly more transportation benefits than BRT. Transportation benefits include items like travel time savings, reduced accidents, lower costs for operating and maintaining vehicles and roadways.
	Reliability	✓✓	✓✓	Reliability is the ability of the systems to maintain the service schedule day in, day out avoiding service interruptions. Both BRT and LRT are considered significantly more reliable than BAU given the exclusive transitway.
	Connections to the regional network	✓	✓	Both BRT and LRT follow the same alignment and the connections to the regional network are the same. The revised regional network including rapid transit is an improvement over the existing.
	User comfort and ease of use	✓	✓✓	LRT provides a more comfortable travel experience than BRT because of the superior quality of its ride in terms of quietness and smoothness. LRT has a higher passenger capacity resulting in lower crowding on the vehicles than BRT improving the environment for the passengers.

MAE Account	Aspect or Sub-account	BRT	LRT	Comments
Financial	Total capital and operating costs	x	x x	Total lifecycle capital and operating costs of BRT are lower than LRT.
	Benefits/cost ration	✓ ✓	✓	Both BRT and LRT have positive benefit cost ratios, well over 1.0. Over the life time assessed the ratio of benefits to costs for BRT is higher than the ratio for LRT.
Deliverability	Constructability	x	x x	Because LRT requires the additional construction associated with the electrical power systems to drive the LRT vehicles it is considered more complex to construct than BRT.
	Acceptability	✓	✓ ✓	Feedback from the extensive consultation has indicated a consistent preference for LRT over BRT.
Economic development	Economic development	✓	✓ ✓	LRT generates significantly more jobs and income for the region than BRT.
Social / Community	Safety benefits	✓	✓ ✓	There is a significantly greater reduction in collisions with LRT than BRT resulting in a much higher savings in accidents costs.
	Health effects	✓	✓ ✓	Increased use of transit is associated with increased walking and cycling. It has been demonstrated that a small increase in the amount of physical activity (as little as 30 min. per day) yield health benefits. Because LRT generates significantly more trips to be made using transit, LRT generates significantly more beneficial health effects than BRT.
	Community barrier perception	-	x	The requirement for an overhead cable system to power the LRT system created more of a visual barrier than the BRT.
Environment	Reduction of GHG and CAC emissions	✓	✓ ✓	LRT results in significantly greater reductions of greenhouse gases and criterion air contaminant than BRT.
	Noise and vibration impacts during construction	x	x	The construction impacts of building a BRT or LRT system are seen as worse than the BAU alternative.
	Potential effects on vegetation	x	x	The alignment for both BRT and LRT is the same. Although both options result in the need to acquire some land that is green space, the amount required is small; however, more than BAU that does not require any acquisition.

Based on the comprehensive MAE, Light Rail Transit (LRT) has been identified as the preferred vehicle technology for the Victoria Regional Rapid Transit system for the following reasons:

LRT Advantages	Discount Rate
Delivery of Provincial Transit Plan Targets	<ul style="list-style-type: none"> Only LRT has the capacity to achieve the Plan's ridership goals LRT will deliver the greatest reduction of green house gas at 480,000 tonnes, or 10% of the Provincial Transportation Plan target (145,000 tonnes more than BRT)
Greatest Ridership Growth	<ul style="list-style-type: none"> LRT is forecast to generate 13.3 million annual rides by 2038, 45% more than BRT and 110% more than BAU
Long Term Solution	<ul style="list-style-type: none"> LRT will be able to accommodate the ridership growth forecast for the busy Douglas Street Corridor, whereas a BRT solution would reach its capacity limits within 10 – 15 years
Long Term Operating & Maintenance Costs	<ul style="list-style-type: none"> With its high capacity and ability to provide expanded, higher quality services, the operating cost per passenger for LRT will decrease over time. It is common for LRT vehicles to remain in service for 30 – 40 years; unlike a bus-based solution, no replacement of LRT vehicles will be required over the life of the project. These costs are estimated at \$230M (2010\$) until 2038
Greater Community Support	<ul style="list-style-type: none"> LRT has higher level of community support than BRT. It provides the greatest comfort and safety and will be the most effective vehicle technology at reducing roadway congestion
Improved Shaping of Urban Development	<ul style="list-style-type: none"> LRT provides the best support for the CRD's emphasis on transit-oriented development and delivers \$85 million more land development benefits than would BRT
Highest Return on Investment	<ul style="list-style-type: none"> LRT has a positive benefit cost ratio and the highest transportation benefits (\$1 billion more than BRT over 27 years)
Job Creation	<ul style="list-style-type: none"> LRT will generate 4,500 more job years of employment

9. Preliminary Cost Estimate

Costs to Deliver an LRT System, Linking Victoria's Downtown to the West Shore

Table 7 summarizes the preliminary cost estimate to construct the LRT system from Victoria's downtown to Station Avenue on the West Shore is \$950M. This amount includes the infrastructure to create the dedicated alignment, the relocation and reinstallation of existing utilities, the new roadway, the stations, sidewalks and landscaping, new electrical distribution and supply for the rail vehicles, the vehicles themselves, a maintenance facility, the engineering and design, approval costs and property acquisition.

Table 7: LRT Lifecycle Cost (All figures are in 2010\$)

Cost	LRT
Capital cost to construct	\$950,000,000
Capital cost for vehicle growth & replacement	\$48,000,000
Operating & Maintenance cost	\$229,000,000
Total lifecycle costs (2011 – 2038)	\$1,227,000,000

Cost to Construct

Preliminary construction cost estimates were developed based on the conceptual design of the system from downtown right through to Station Ave. in Langford. The construction cost estimate includes:

- the infrastructure associated with the development of the exclusive right of way (running surface, stations)
- re-construction of the entire road right of way along the urban sections alignment (10 Km of the 16 Km total length) including new wider sidewalks (where achievable), new roadway and improved landscaping
- electrical power supply and distribution to power the LRT vehicles
- control, signaling and communications for operation of the system
- procurement of LRT vehicles
- construction of a maintenance centre for the LRT vehicles
- the engineering, management, approvals, legal, survey and other professional services cost
- interest costs during construction
- contingencies based on the conceptual state of the design

Table 8 provides a breakdown of the construction costs.

Table 8: LRT Preliminary Construction Cost Estimate (All figures are in 2010\$)

Item	Amount	% of Total
Construction	\$457,000,000	48%
Vehicles	\$90,000,000	9%
Indirect costs	\$117,000,000	12%
Escalation	\$72,000,000	8%
Contingency	\$118,000,000	12%
IDC	\$96,000,000	10%
Total	\$950,000,000	100%

Note: IDC refers to interest during construction

The construction cost of \$457 million includes the infrastructure, stations, track work, electrical power supply and distribution, land purchase, maintenance facility construction, hazardous materials management costs. Stations represent \$8 million of the construction cost.

The preliminary estimate does not include any sunk costs, HST or allowance for compensation to businesses.

The preliminary total cost estimate of \$950M yields an average construction cost of \$62 million per kilometre. This estimate is in line with the experience of other jurisdictions as presented on Table 9 as follows. Other systems were grouped on the basis of the type of technology used (LRT vs BRT), the degree of exclusive right of way vs. operation in mixed traffic and the extent of grade separated crossings used for the system. On the above basis, the range for comparable LRT systems (Calgary, Edmonton, Tacoma) is from \$42 to \$94 million per kilometer, with an average of \$68 million. The preliminary estimate for Victoria at \$62 million per kilometre is well within the range of expected cost and below the average for comparable systems.

Table 9 Cost per Km – Rapid Transit Systems (All figures adjusted to 2010\$)

Rapid Transit System	Cost per KM
Edmonton North LRT	\$233,870,968
Ottawa HRT/Metro	\$175,000,000
Vancouver Canada Line HRT	\$109,375,000
Edmonton South LRT	\$90,432,503
Edmonton South Extension LRT	\$94,444,444
Calgary West LRT	\$90,909,091
Rail/LRT Average Cost	\$67,552,445
Calgary NW Extension LRT	\$44,000,000
Tacoma Streetcar	\$56,429,042
Calgary NE Extension LRT	\$41,379,310
Waterloo LRT/BRT	\$22,571,429
Los Angeles Orangeline BRT	\$21,475,497
Cleveland Healthline BRT	\$16,711,874
Seattle Streetcar	\$27,817,455
Streetcar/BRT Average	\$20,877,586
Cleveland Healthline BRT	\$34,083,782
Seattle Streetcar	\$18,526,743
Eugene Oregon Greenline BRT	\$4,352,644
Mississauga BRT	\$13,631,579
Victoria	Cost/Km
BRT Preliminary Estimate	\$33,427,654
LRT Preliminary Estimate	\$61,975,907

Fleet Growth and Replacement Costs

As ridership grows over the lifecycle of the project, additional vehicles will be required to maintain service. By the end of the planning horizon in 2038, an additional seven LRT vehicles will be required. In addition, the lifecycle capital cost includes an allowance for a mid-life refit of the LRT vehicles.

No replacement of LRT vehicles will be required over the 27 year planning horizon.

Operating Maintenance Costs

Annual incremental operating and maintenance costs (O&M) over the current transit costs for bus delivery have been estimated for a 27-year planning horizon. The total incremental operating and maintenance cost estimates are \$230 million until 2038. The O&M costs include:

- Staffing costs (salaries, benefits, tools and uniforms)
- Administration costs (operations, training, administration, insurance)
- Power (electrical power for the vehicles)
- Maintenance of vehicles
- Maintenance of infrastructure (running, stations, facilities)

The annual incremental operating and maintenance costs for the LRT system, over the maintenance costs already expended for the bus service delivered today, range from \$8 million in the opening year to \$12 million in 2038. The additional maintenance associated with the infrastructure, the running way and the facilities as well as the additional insurance are key drivers of the incremental cost

- On a cost per service hour basis, the O&M cost for the system averages \$336 per service hour, well in line with industry experience. A review of the operating costs for LRT in 2002 found the median cost per service hour for LRT system of \$310 per hour. (*Calgary Transit, 2002*)
- On a cost per rider basis, the cost per rider of LRT decreases over the project lifecycle from \$2.87 per rider in the opening year to \$1.78 per rider in 2038.
- The conventional bus fleet replaced by installation of the rapid transit service will be re-allocated to other parts of the transit network.
- Further engineering and risk evaluation is required to develop a detailed budget.

10. Implementation Options

It is recommended that regardless of the implementation option selected, the exclusive right of way should be established from downtown Victoria to the Juan de Fuca / Colwood City Centre exchange from the outset. Recognizing the significant investment required, the LRT system to the West Shore could be built in stages that enable expansion over time, spread the capital investment over many years and best match capacity to demand. There are three options for implementation that end at different points on the West Shore, as follow:

Option 1: Downtown to Station Avenue

Option 2: Downtown to Juan de Fuca

Option 3: Downtown to Six Mile

Table 10 below summaries the arguments in favor and against the three options.

The project team considered the following aspects in developing the implementation options:

- Making the end point an exchange or destination
- Proposed location for rail maintenance centre
- Ability to create a transit network that reduces the number of transfers
- Affordability
- Matching capacity to demand
- Potential land use development

Table 10: Implementation Options – Advantages and Disadvantages**Option 1: Downtown to Station Avenue (\$950M)**

- Full integration of West Shore
- Connects all identified regional growth centres
- Benefit – cost ratio of 1.8
- Low capacity utilization (50%) between 6 Mile and Juan de Fuca and even lower utilization (<25%) between Juan de Fuca and Station Avenue
- Highest cost to construct

Option 2: Downtown to Juan de Fuca (\$860M)

- End point is major destination in West Shore
- Excellent stimulus for land use development along Island Highway
- Benefit cost ratio of 1.74
- Low utilization (50%) between 6 Mile and Juan de Fuca
- Higher reliance on the conventional bus system to service the West Shore
- Less efficient integration with the transit system

Option 3: Downtown to Six Mile (\$770M)

- Lowest cost option
- Benefit cost ratio of 1.8
- End point located at multi-modal exchange point of Trans Canada Highway, E&N and Galloping Goose Trail
- Poorest integration with the transit system
- Highest reliance on the conventional bus system in the West Shore
- Limited stimulus for increased land development in the West Shore

Each option provides the capacity to meet the Provincial Transit Plan's ridership targets. Truncating the LRT line as indicated for options 2 or 3 would reduce the development stimulus in the West Shore and increase reliance on the conventional bus system to service the West Shore. These options, however, provide flexibility to stage extensions of the LRT in a more affordable method by reducing the upfront capital cost.

11. Consultation

Community Consultation

Community consultation has been extensive and continuous throughout the entire Planning Stage. It has included:

- Six rounds (12 individual sessions) of public open houses in Victoria and the West Shore, attracting nearly 1,500 visitors
- Mobile information sessions employing BC Transit's mobile consultation vehicle, the Transit Future Bus, which has greeted 4,200 visitors
- Over 40 meetings and working sessions with municipal and CRD representatives, including staff and councils of all 13 Capital Region municipalities
- Social media and BC Transit's website have been used extensively to provide public information

A Community Liaison Committee comprised of 36 representatives from communities, the business sector, transportation groups, schools, cycling and other groups has met regularly with the project team throughout the planning and development to provide input, act as a “sounding board” for the project team, and report back to their communities.

In total, information has been shared and input received in over 100 meetings and information sessions with business organizations, municipalities, community associations, other interest groups and the general public.

Recurring themes in feedback received are:

- Strong support for the concept of rapid transit, particularly for a rail based solution
- Most participants, although not regular users of transit, would be more likely to use it if rapid transit were available
- Service convenience and frequency, safety and maintaining a balanced transportation network that supports the various modes available are raised frequently
- The most common comment has been “Get on with it.”

Business Engagement

In July 2010, BC Transit undertook a major consultation effort to better understand the implications for businesses of establishing a rapid transit alignment on Douglas Street. Over 500 businesses and 400 customers between Victoria’s downtown and Uptown participated in a major survey of all business and property owners along the Uptown to Downtown section of the rapid transit corridor. This survey, developed in cooperation with the Greater Victoria Chamber of Commerce, the Association of Douglas Street Businesses, the Downtown Victoria Business Association and the Canadian Federation of Independent Business provided valuable information about the expected implications of introducing a rapid transit route on Douglas Street in Saanich and Victoria.

The survey results confirmed strong support for a rapid transit system providing high frequency, all day, every day service to help meet high travel demand between Victoria, Uptown and the West Shore. Overall, 73% of businesses and 87% of their customers indicated they are supportive or very supportive of the development of a rapid transit system between downtown Victoria and the West Shore. Businesses highlighted several factors to be considered in implementing such a system, including the need to recognize a continuing role for the automobile. Customer responses suggest that the overall impact of rapid transit on the Douglas Street corridor would be positive. Although business is concerned about loss of parking, this concern was not shared by their customers.

Municipal Engagement

BC Transit directly engaged each of the five municipalities along the alignment requesting support for the recommended alignment. All the municipalities supported or endorsed the approved alignment and some expressed a preference for rail technology. Their council resolutions are as follow:

City of Langford

September 20, 2010

"That Council:

- 1. Show support for the proposed Regional Rapid Transit alignment of Goldstream Avenue to Station Avenue/E&N Rail Corridor with future consideration of Goldstream Avenue/Peat Road as another option for connections; and*
- 2. Reiterate Langford's position that Goldstream Avenue be used for Regional Rapid Transit in mixed use traffic; and*
- 3. Direct staff to continue to work closely with BC Transit on the proposed Regional Rapid Transit Project.*
- 4. Write a letter to the BC Transit Commission to request additional representation for the West Shore, and in particular Langford to the BC Transit Board. "*

City of Colwood

October 26, 2010

"That Council supports in principle the proposed VRRTP alignment as the preferred routing for Rapid Transit using the TCH/Goose, Island Highway, route to Colwood Corner and the proposed transit exchange at Colwood Interchange"

"That Council ask VRRTP to work with Colwood staff to undertake a detailed investigation of using Goldstream or Sooke/Goose as the route west from the Island Highway rather than Wale Road as this would better service the centre of gravity of density in the Colwood Town Centre"; and

"That Council support in principle maintaining and improving interregional rail service on the existing E&N corridor as a low carbon means of moving goods, tourists and an important segment of commuter."

District of Saanich

November 1, 2010

"That Saanich Council convey its support for rail-based transit as the preferred technology or modal choice for the Douglas Street – Island Highway rail transit project between downtown and the West Shore, noting in particular the importance of rail to the redevelopment of the Douglas Street Corridor, to BC Transit, the Victoria Regional Transit Commission, the Capital Regional District Board, the Ministry of Transportation and Infrastructure, and Members of the Legislative Assembly and Members of Parliament representing Saanich".

December 13, 2010

"That council endorses the selection of Douglas Street as the corridor for rapid transit between Uptown and Downtown"

Town of View Royal

November 16, 2010

"That a letter be provided to BC Transit, endorsing the Victoria Regional Transit Future Network vision and goals

(NOTE: this included the rapid transit network and alignment)

That the Town of View Royal Council convey its support for rail-based transit as its preferred technology or modal choice."

City of Victoria

December 16, 2010

1. *"Provide a letter of endorsement addressed to the Victoria Regional Transit Commission in support of the Transit Future Vision, Goals and Network, including rapid transit on Douglas Street;*
2. *Direct staff to continue to work with BC Transit to:*
 - a. *Identify and support the Transit Future Network and facilities in City of Victoria's transportation and land-use plans*
 - b. *Finalize the detailed Rapid Transit configuration on Douglas Street comparing side running and curb options.*
 - c. *Finalize details regarding the south terminus"*

December 20, 2010

"Be is resolved, that Victoria Council convey its support for rail-based transit as the preferred technology or modal choice for the Douglas Street – Island Highway rapid transit project between downtown"

Regular Status Reporting: Victoria Regional Transit Commission, BC Transit's Board of Directors and the CRD

The project team provided regular status reports to the CRD as its partner (and member on the Steering Committee) in delivering this project. It also provided ongoing updates to the Victoria Regional Transit Commission and BC Transit's Board of Directors.

In October 2009, the recommended rapid transit alignment was endorsed by the Victoria Regional Transit Commission and approved by BC Transit's Board of Directors.

CRD regional planning staff has participated in the planning studies. In April 2011 CRD's regional planning staff reported to the CRD's Planning, Transportation and Protective Services Committee stated that:

"The development of rapid and frequent transit commuter networks is a necessary condition for advancing regional growth initiatives such as building compact and complete communities and giving effect to focused growth."

Then further states;

"The implementation of rapid transit connecting downtown, uptown and west shore as the first stage in developing a rapid transit network in the CRD is critical to achieving the sustainable vision of the RGS, to be carried forward as a foundation pillar for the upcoming RGS."

12. Funding Sources

The funding structure for this project cannot be confirmed until an agreement on project funding is developed between senior and local governments.

In 2010/11, transit was funded in Victoria from fares and advertising (35.7%), the Province (34.1%), property taxes (18.7%) and fuel taxes (11.5%).

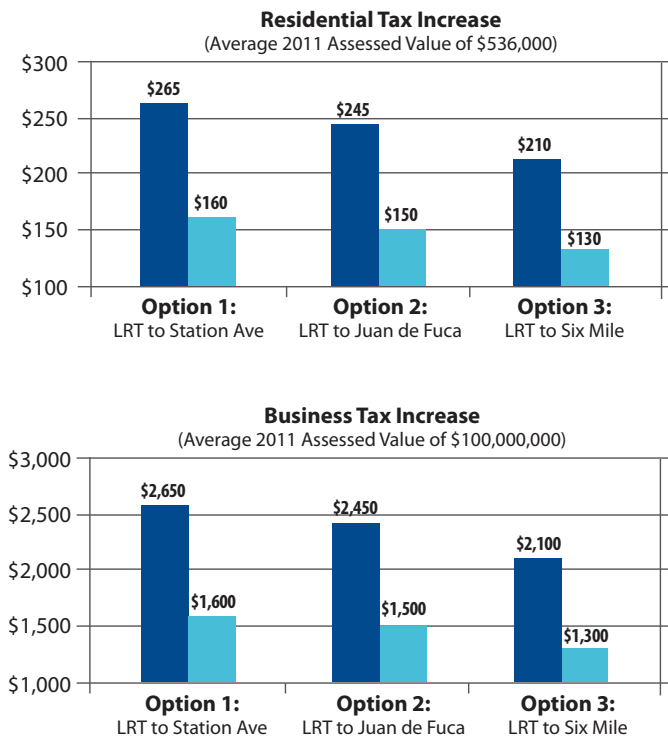
BC Transit recommends that both the provincial and federal governments be approached to develop a cost sharing agreement for the rapid transit project.

Potential Property Tax Implications

An actual increase in property tax cannot be confirmed until a funding agreement is developed. To give an order of magnitude, two local funding scenarios have been created. The first is based on a traditional funding formula, where local government (the Victoria Regional Transit Commission) funds 68.3% of the capital costs. The second scenario assumes additional funding partners are secured and the local share of capital costs is reduced to 40%. Figure 8 illustrates the impact of the funding scenarios. Based on these scenarios the impact on property taxes paid by the average home ranges from \$130 to \$265 depending on the funding formula and the implementation option.

Figure 8: Local Funding Scenarios

- **Scenario 1:**
Local Funding required for 68% of costs (traditional funding formula)
- **Scenario 2:**
Local Funding required for 40% of costs (assuming additional funding partners are secured)



Alternative Local Funding Options

Reducing the local share funded through property taxes may be achieved through alternative funding sources. A \$10 reduction in property taxes, for example, requires generating \$2 million from other means. Many of the alternatives outlined in Table 11 below require legislative changes and/or provincial government approval:

Table 11: Alternative funding options

Local Fuel Tax	This tax on fuel is collected at the pump at all gas stations in Victoria. Currently, Victoria Regional Transit receives 3.5 cents a litre. For every additional cent per litre fuel surcharge, approximately \$3 million could be generated.
Community Pass	Each household would receive an annual transit pass. Each household is charged approximately ½ of the cost of an annual pass (\$565) as part of their property taxes. This could generate approximately \$10 to 30 million annually.
Parking Tax	A parking tax could be used to offset transit costs. It acts as an incentive to decrease parking demand, which in turn can make transit more attractive.
Capital Reserve	A portion of property taxes could be put aside each year while the rapid transit system is being built. For example, a \$20 increase in residential property taxes will increase the reserve by \$4 million annually.
Vehicle Levy	An annual vehicle levy could be collected when vehicle insurance is renewed. A \$30 vehicle levy could generate approximately \$6 million.

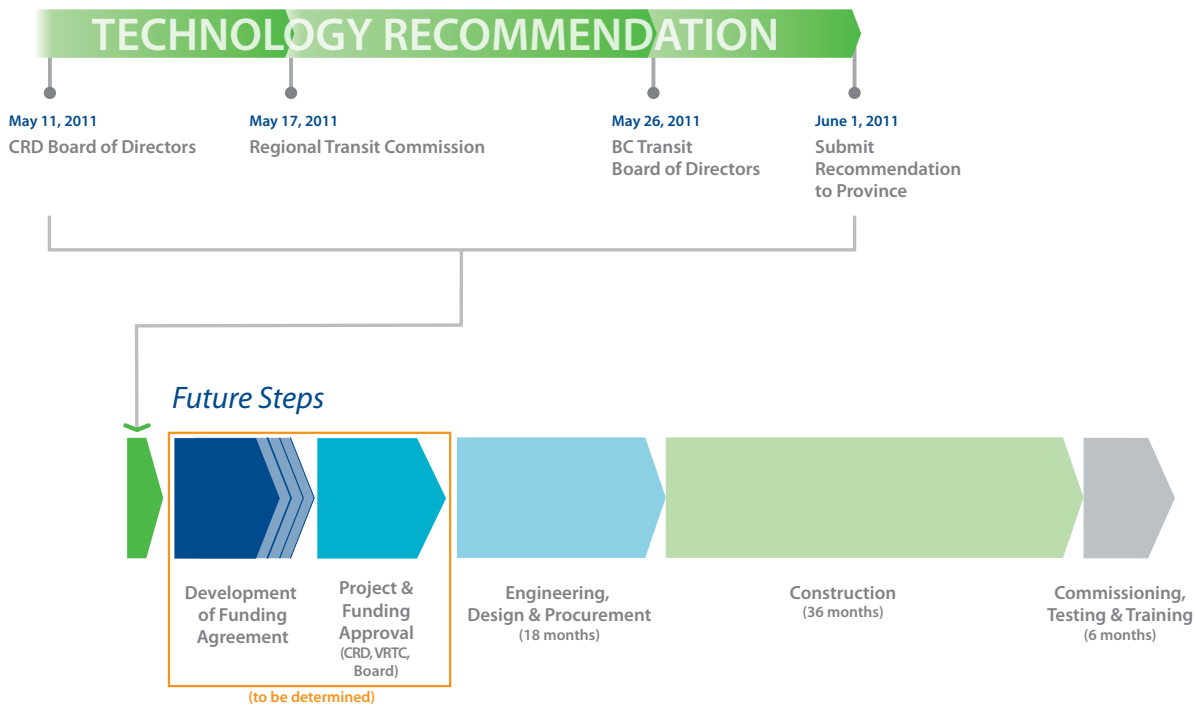
13. Next Steps

The timelines for development of a funding agreement and approval by all participating organizations is unknown at this time. Figure 9 outlines the potential timeline for delivery of the recommended LRT system. This timeline is only a preliminary view and is subject to change given the complexity of the project and the ability of the various participating organizations to complete their work.

Figure 9: Preliminary Timeline – Rapid Transit Project Next Steps

Rapid Transit Project

Next Steps



14. Procurement Options

The evaluation of procurement is primarily concerned with identifying the method of delivering a project that will result in the greatest value for taxpayer dollars on both a financial and qualitative basis.

In quantitative terms, value for taxpayer dollars is established by calculating the estimated present value cost of a project, based on a particular procurement method, and comparing it to the anticipated present value cost if the project were procured entirely by the public sector using traditional methods. Qualitative value for taxpayer dollars is achieved when a particular procurement method is best able to support the goals and objectives of a project and/or program, within established affordability or funding constraints.

The Provincial capital standard requires that, for all capital projects in which the provincial contribution exceeds \$50 million, a public private partnership (or Partnership structure) be considered as the base case for procurement unless there is a compelling reason to do otherwise (e.g. a different procurement model will generate better value for taxpayer dollars). In accordance with this requirement, a preliminary review of the characteristics of the Victoria Regional Rapid Transit Project against various criteria that assess whether the Project has the potential to generate value for taxpayer dollars if procured as a Partnership Project was undertaken.

The following procurement models could be considered:

- Design Bid Build (DBB)
- Design Build (DB)
- Design Build Finance (DBF)
- Design Build Finance Maintain (DBFM)
- Design Build Finance Operate Maintain (DBFOM)

These options represent a spectrum with increasing participation by the private sector from DBB to DBFOM. The options of DBF to DBFOM are considered to be Partnership structures.

The Provincial Capital Asset Management Framework (CAMF) provides the following guiding principles that should be considered for all public sector capital procurement:

- Fairness, Openness and Transparency
- Allocation and Management of Risk
- Value for Taxpayer Dollars and Protecting the Public Interest
- Competition

In addition, to determine if a project is a potential candidate for consideration as a public private partnership project (P3), the following attributes are assessed:

- The value of the project (greater than \$50 million)
- The ability to readily define performance and service outcomes, to form the basis of a performance-based payment system
- The opportunity for innovation and for the transfer of key risks to the partner in areas such as design, schedule, budget, and asset performance
- The existence of precedent projects
- The expectation that there will be sufficient market interest in the project

The LRT option for the Victoria Regional Rapid Transit Project is compatible with P3 delivery and meets all the required screening attributes required for P3 delivery. A detailed multiple criteria assessment and quantitative procurement analysis would be required prior to proceeding with a P3 delivery approach.