

September 30, 2011

David Langley
4040 Haro Rd
Victoria BC
V8N 4B2

Re: LRT Estimates and Projections

Dear Mr. Langley,

Thank you for attending the Victoria Regional Transit Commission meeting as a delegation on September 13, 2011. At this meeting you gave a presentation that raised a number of items requiring further clarification in regards to the rapid transit project. It was agreed that staff would meet with you to discuss in more detail.

On September 19th, we met with Mayor Christopher Causton, Manuel Achadinha, Robert Broe, and Bob Furber to review the items raised in your presentation. At this meeting you raised further questions that we agreed to respond to in a subsequent meeting that we held on September 23rd with Robert Broe and David Leather.

As we indicated in these meetings, we would like to thank you and Bob for coming to our office to go over the Rapid Transit Business Report and the technical documents. We appreciate your valuable feedback and input on the material.

The following provides a summary of our discussions of these meetings for your information.

Ridership Estimates in Table 3.6 and Appendix 3

The project team developed a high and low estimate for ridership for the LRT, BRT and BAU option. As you correctly identified, in the summary report presented in May the ridership levels presented for the LRT and BAU option, 13.3 million and 6.3 million, respectively, represent the high range of the estimated ridership. The high ridership values were reported because the cost estimates presented were the high range cost estimate and therefore, the corresponding ridership figures were used as well.

The figures provided on Table 3.6 of Volume 5 of the technical report represent the estimated low and high ridership for each of the options, BAU, BRT and LRT. The figures listed in the table for BAU were older estimates that were listed in error. The older figures were also listed in Appendix 3 which presented additional detail on the

ridership estimates. Both tables have been corrected and an addendum to the report has been issued. The updated reports have been placed on the project website. As stated in our meeting, the data used in the analysis for the multiple account evaluation were the proper figures and it was a publication error that was amended. I have enclosed in Attachment 1 the corrected Table 3.6 for your information.

As indicated on the corrected table, the ridership estimates for the BAU option range from 5.9 million to 6.3 million annual rides. The ridership estimates for the LRT option, as presented in the report, ranged from 10.4 to 13.3 million annual rides. The April and May reports compared the high estimates for the BAU case to the high estimates for LRT option.

Ridership Figures from MAE report

A comprehensive benefit cost analysis was completed as part of the Multiple Account Evaluation. The model used to complete the MAE is a spreadsheet format of the TransDec model developed for Transport Canada for analysis of transportation investments. The Ministry of Transportation and Infrastructure directed the project team to employ the TransDEC model in completing the MAE of the Victoria Rapid Transit Project. In order to account for the variability associated with developing transit ridership estimates, the MAE model was configured to use the mid-point between the low and high ridership estimates in calculating the level of benefits associated with the BAU and LRT options. The forecast average BAU ridership in 2038 is 6.1 million as compared to an average LRT ridership of 11.8 million resulting in an increase of 5.7 million annual rides for the LRT option over the BAU option in 2038.

During our discussion you pointed out that you had not been able to calculate the total ridership over the project life (235 million) contained in the HDR report presented in Appendix 1 of the Volume 5 report. Attachment 2 to this letter provides you with the calculation of the total project lifetime ridership figure for the LRT option as presented in the MAE report. The ridership figures used for the LRT option are the average between the high and low ridership. The LRT service does not commence until year four of the project timeline because of the time required for procurement, design, construction and commissioning. When conducting Benefit–Cost Analysis (BCA) the full transit ridership along the corridor over the entire project timeline is used (irrespective of technology operating during the procurement/design/build period), not just the ridership once the LRT system commences service. This is done to ensure the options are evaluated on an equal footing over the entire project timeline. The ridership on the existing bus system is counted for the 4 year period until the LRT system is completed. The BAU and BRT ridership is also calculated over the same time period.

CRD Transportation Model

The CRD's regional transportation model, TransCAD was used extensively in assessing the traffic impacts of the proposed rapid transit system. I refer you to Volume 4 of the technical report where the TransCAD model results are discussed. As we discussed, we did not employ the TransCAD model's estimates of transit ridership because the overall measure of model reliability calculated by TransCAD exceeded the recommended value. As a result, the ridership estimates were developed using a trend analysis based on

historical population and transit ridership experience for the Victoria Regional Transit System.

Safety Benefits

The model determines safety benefits employing statistical incident rates as provided in the HDR report. The benefit is comprised of projected changes in the accident rates for both users of the system and non-users of the system to estimate the overall safety benefit to the total community. Based on the results of the MAE model results a 19% reduction in total accidents (users and non-users) for the LRT option over the BAU option is projected.

Calculation of Benefit to Cost Ratio

As indicated during our discussions, the benefits calculated in the MAE model are the incremental benefits of the LRT or BRT option over the BAU option. For the LRT option the present value of the total incremental benefits is \$1,427 million and the present value of the total cost is \$794 million yielding a B:C ratio of 1.8. The MAE also calculated the B:C ratio for the PV of the incremental benefits and the PV of the incremental costs. For this analysis, the B:C ratio is \$1427 / \$386 or 3.7. The Volume 5 report presented the more conservative analysis of incremental benefits over total costs.

Thank you for your feedback and continued interest in the Victoria Regional Rapid Transit project.

Sincerely,



Erinn Pinkerton
Director, Corporate & Strategic Planning

Cc: Victoria Regional Transit Commission

Attachment 1

| Project Year | Calendar Year | BAU | | BRT | | LRT | |
|--------------|---------------|-----------|-----------|-----------|-----------|------------|------------|
| | | Low | High | Low | High | Low | High |
| 0 | 2012 | | | | | | |
| 1 | 2013 | 5,366,400 | 5,366,400 | | | | |
| 2 | 2014 | 5,433,587 | 5,500,506 | | | | |
| 3 | 2015 | 5,499,008 | 5,632,573 | | | | |
| 4 | 2016 | 5,562,576 | 5,762,123 | 6,489,600 | 6,489,600 | 6,976,300 | 6,976,300 |
| 5 | 2017 | 5,624,210 | 5,888,889 | 6,612,900 | 6,684,300 | 7,108,900 | 7,213,500 |
| 6 | 2018 | 5,683,826 | 6,012,556 | 6,738,500 | 6,884,800 | 7,243,900 | 7,458,800 |
| 7 | 2019 | 5,741,347 | 6,132,807 | 6,866,600 | 7,091,400 | 7,381,600 | 7,712,400 |
| 8 | 2020 | 5,796,693 | 6,169,604 | 6,997,000 | 7,304,100 | 7,521,800 | 7,974,600 |
| 9 | 2021 | 5,825,677 | 6,175,774 | 7,130,000 | 7,508,600 | 7,664,700 | 8,245,700 |
| 10 | 2022 | 5,831,502 | 6,181,949 | 7,265,500 | 7,703,800 | 7,810,400 | 8,526,100 |
| 11 | 2023 | 5,837,334 | 6,188,131 | 7,403,500 | 7,888,700 | 7,958,800 | 8,816,000 |
| 12 | 2024 | 5,843,171 | 6,194,319 | 7,544,200 | 8,062,300 | 8,110,000 | 9,115,700 |
| 13 | 2025 | 5,849,014 | 6,200,514 | 7,687,500 | 8,223,500 | 8,264,100 | 9,425,600 |
| 14 | 2026 | 5,854,863 | 6,206,714 | 7,833,600 | 8,371,600 | 8,421,100 | 9,736,700 |
| 15 | 2027 | 5,860,718 | 6,212,921 | 7,982,400 | 8,505,500 | 8,581,100 | 10,048,300 |
| 16 | 2028 | 5,866,579 | 6,219,134 | 8,134,100 | 8,624,600 | 8,744,100 | 10,359,800 |
| 17 | 2029 | 5,872,445 | 6,225,353 | 8,272,400 | 8,728,100 | 8,910,300 | 10,670,600 |
| 18 | 2030 | 5,878,318 | 6,231,578 | 8,396,400 | 8,815,400 | 9,076,000 | 10,980,000 |
| 19 | 2031 | 5,884,196 | 6,237,810 | 8,505,600 | 8,885,900 | 9,241,200 | 11,287,400 |
| 20 | 2032 | 5,890,080 | 6,244,048 | 8,590,600 | 8,939,200 | 9,405,700 | 11,592,200 |
| 21 | 2033 | 5,895,970 | 6,250,292 | 8,633,600 | 8,974,900 | 9,569,300 | 11,893,600 |
| 22 | 2034 | 5,901,866 | 6,256,542 | 8,642,200 | 8,992,900 | 9,732,000 | 12,190,900 |
| 23 | 2035 | 5,907,768 | 6,262,799 | 8,650,900 | 9,001,900 | 9,893,600 | 12,483,500 |
| 24 | 2036 | 5,913,676 | 6,269,061 | 8,659,500 | 9,010,900 | 10,053,800 | 12,770,600 |
| 25 | 2037 | 5,919,590 | 6,275,331 | 8,668,200 | 9,019,900 | 10,212,700 | 13,051,600 |
| 26 | 2038 | 5,925,509 | 6,281,606 | 8,676,900 | 9,028,900 | 10,370,000 | 13,325,700 |

Attachment 2

| System Year | Calander Year | High LRT Ridership Estimate | Low LRT Ridership Estimate | Average LRT Ridership Estimate | Annual % Growth Rate- Mean Ridership <small>(calculated from Avg LRT ridership - Column E)</small> | Daily LRT Ridership - MAE Model | Annual LRT ridership - MAE Model (daily*312) |
|-------------|---------------|-----------------------------|----------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------|
| 0 | 2012 | | | 5,241,600 | | 16,800 | 5,241,600 |
| 1 | 2013 | | | 5,241,600 | | 16,800 | 5,241,600 |
| 2 | 2014 | | | 5,241,600 | | 16,800 | 5,241,600 |
| 3 | 2015 | | | 5,241,600 | | 16,800 | 5,241,600 |
| 4 | 2016 | 6,976,320 | 6,976,320 | 6,976,320 | | 22,360 | 6,976,320 |
| 5 | 2017 | 7,213,515 | 7,108,870 | 7,161,192 | 2.7% | 22,954 | 7,161,575 |
| 6 | 2018 | 7,458,774 | 7,243,939 | 7,351,356 | 2.7% | 23,565 | 7,352,141 |
| 7 | 2019 | 7,712,373 | 7,381,573 | 7,546,973 | 2.7% | 24,193 | 7,548,182 |
| 8 | 2020 | 7,974,593 | 7,521,823 | 7,748,208 | 2.7% | 24,839 | 7,749,862 |
| 9 | 2021 | 8,245,730 | 7,664,738 | 7,955,234 | 2.7% | 25,504 | 7,957,356 |
| 10 | 2022 | 8,526,084 | 7,810,368 | 8,168,226 | 2.7% | 26,189 | 8,170,841 |
| 11 | 2023 | 8,815,971 | 7,958,765 | 8,387,368 | 2.7% | 26,893 | 8,390,500 |
| 12 | 2024 | 9,115,714 | 8,109,982 | 8,612,848 | 2.7% | 27,617 | 8,616,522 |
| 13 | 2025 | 9,425,649 | 8,264,071 | 8,844,860 | 2.7% | 28,348 | 8,844,512 |
| 14 | 2026 | 9,736,695 | 8,421,089 | 9,078,892 | 2.6% | 29,084 | 9,074,213 |
| 15 | 2027 | 10,048,269 | 8,581,089 | 9,314,679 | 2.6% | 29,825 | 9,305,356 |
| 16 | 2028 | 10,359,766 | 8,744,130 | 9,551,948 | 2.5% | 30,569 | 9,537,665 |
| 17 | 2029 | 10,670,558 | 8,910,268 | 9,790,413 | 2.5% | 31,311 | 9,769,120 |
| 18 | 2030 | 10,980,005 | 9,075,999 | 10,028,002 | 2.4% | 32,049 | 9,999,331 |
| 19 | 2031 | 11,287,445 | 9,241,183 | 10,264,314 | 2.4% | 32,782 | 10,227,901 |
| 20 | 2032 | 11,592,206 | 9,405,676 | 10,498,941 | 2.3% | 33,508 | 10,454,426 |
| 21 | 2033 | 11,893,603 | 9,569,334 | 10,731,469 | 2.2% | 34,226 | 10,678,498 |
| 22 | 2034 | 12,190,943 | 9,732,013 | 10,961,478 | 2.1% | 34,935 | 10,899,703 |
| 23 | 2035 | 12,483,526 | 9,893,564 | 11,188,545 | 2.1% | 35,633 | 11,117,627 |
| 24 | 2036 | 12,770,647 | 10,053,840 | 11,412,244 | 2.0% | 36,320 | 11,331,852 |
| 25 | 2037 | 13,051,601 | 10,212,691 | 11,632,146 | 1.9% | 36,993 | 11,541,964 |
| 26 | 2038 | 13,325,685 | 10,369,966 | 11,847,826 | 1.9% | 37,652 | 11,747,547 |
| Totals | | 231,855,672 | 198,251,292 | 236,019,882 | | | 235,419,414 |