Guidelines for Business Case Quality and Consistency

The Ministry of Transportation and Infrastructure (MoTI) relies on consultants in RISP categories 20-16 and 20-18 to prepare business cases in support of highway project development activities supporting the Transportation Investment Plan.

Business cases inform decision makers about the existence and causes of problems, and about the cost effectiveness of different improvement options. They guide the decision and design processes by linking the scope of improvements to the type and magnitude of the problem and summarize associated costs, benefits and external impacts.

Consultants are expected to diligently manage quality in all stages of business case preparation, and it is important to have consistency in how tools and methods are used, as well as in the format of business cases.

The purpose of these guidelines is to ensure that:

- Key basic information is provided clearly and unambiguously,

- Safety, mobility and reliability performance is measured using methods and data approved by MoTI, and

- Outputs are reported consistently.

MoTI expects that all business cases will adhere to the following principles.

A. Report Organization and Basic Data

1. The report format is designed such that the main body of the report is direct and to the point, and that appendices are used for all supporting data and assumptions.

2. An Executive Summary is provided, along with the name(s) of the author(s) and the date of the report.

3. Key information is organized in a manner such that it can be found quickly.

4. The project limits are clearly stated using the Landmark Kilometre Inventory (LKI) system.

5. The data sources are listed along with all assumptions used to make conversions, to account for any data gaps, and to process data to make it suitable for calculations.

6. Traffic data is clearly described along with all assumptions about how it was calculated. This includes but is not limited to:
   - average annual daily traffic (AADT) and truck traffic (AADTT)
   - design hour volume (DHV), K factor, Peak Hour Factor
   - intersection counts and turning movements
   - vehicle classification
   - forecast growth rates in urban and rural areas

B. Project Costs

1. MoTI's online Cost Estimating Guidance (CEG) is followed for all cost estimates.
   http://www.th.gov.bc.ca/publications/planning/index.htm

2. Three different representations of project costs are generally required, and each must be clearly labelled to avoid any confusion.

   i. *Project Cost Estimate* – This is the typical project cost estimate - the total anticipated cost of the entire project in "constant dollars" for the year that the estimate is being prepared. For example, an estimate prepared in 2012 is based on prices prevailing in 2012 (and therefore represents constant 2012 dollars) regardless of which years construction is anticipated to take place.

ii.   *Present Value of the Project Cost Estimate* – This is needed for benefit cost analysis and may be presented on its own or combined with other agency costs such as the present value of rehabilitation and maintenance costs. Determined by first determining which years construction will occur and what portion of the "project cost estimate" will be paid in each of those years. All future costs are then discounted to the present year using the ministry's discount rate.

iii.   *Project Budget* – The sum of the amounts expected to be paid each year to complete the project. The project budget is determined by first determining which years construction will occur and what portion of the "project cost estimate" will be paid in each of those years. "Constant dollar" cost estimates in each year are then escalated using the ministry's approved escalation rates to convert "constant dollars" to "current dollars" which represent the amounts expected to be paid.

3. All assumptions for converting past year cost estimates to present year cost estimates are stated. MoTI economic analysis staff (Planning & Programming Branch) can assist with this. Note that MoTI determines appropriate escalation rates (inflation factors) for future years through an annual policy update.

4. The major features of the consultant's cost estimating tool are explained. This applies to external proprietary tools and to in-house tools such as spreadsheets.

C. Benefit-Cost Analysis

1. The major features of the consultant's benefit-cost analysis tool are explained, unless it is MoTI's online ShortBEN tool.

2. Regardless of which tool or method is used for benefit-cost analysis, ShortBEN is also used for comparative purposes.   http://www.th.gov.bc.ca/publications/planning/index.htm

3. For safety analysis see section E3.

D. Mobility Measures and Calculations

1. Tools such as Emme, TransCAD, Dynameq, Synchro, Paramics, Vissim etc. are properly set up and calibrated, with key assumptions documented.

2. All conversions are explained (e.g. peak hour results to average days).

E. Safety Measures and Calculations

1. Problem identification can be done using MoTI's Collision Rate Table to calculate the critical rate, or by using Collision Prediction Models (CPMs). Base case and proposed case performance for the purpose of benefit-cost analysis should use CPMs and Collision Modification Factors (CMFs).

2. MoTI's online guidance for CPMs and CMFs is followed, along with provision of sufficient documentation and assumptions. http://www.th.gov.bc.ca/publications/planning/index.htm

3. MoTI's online Safety-BenCost tool is utilized to quantify the safety benefits of highway improvements. http://www.th.gov.bc.ca/publications/planning/index.htm

F. Reliability Measures and Calculations

1. Appropriate information (e.g. DriveBC) is used to show the frequencies, durations and causes of road closures. There is no specific MoTI format for reporting on highway reliability issues.

2. Regions may be able to provide information from the 2013 *Provincial Reliability Study*.

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