VICTORIAN FREIGHT & LOGISTICS COUNCIL

Infrastructure Upgrade Priority Study for Victorian Freight Routes: Investment in Major Bridges

Synopsis

Road and highway projects in Victoria have typically been characterised by broad overall goals. For the road freight sector and for heavy vehicle operators, in particular, the identification of clear project objectives which can specifically deliver specific revenue gains and/or operating cost reductions is recognised by the VFLC to be fundamental.

The overarching goals of improved freight supply chains throughout Victoria relate to: (i) increasing efficiency of operators across all modes including road freight, (ii) ensuring availability of capacity to handle growth in specific transport tasks, and (iii) enhancing the sustainability of the State's freight network by ensuring that the freight services are delivered in an environmentally and community acceptable form. Each of these three key goals have been explicitly highlighted in **Freight Futures**, the 2008 Victorian Freight Network Strategy.

In March 2010, the VFLC began a detailed series of freight industry consultations across Victoria to identify priority road freight corridors. How industry productivity improvements could be generated, if specific infrastructure improvements were made, was an overarching objective. A series of questionnaires were sent to a broad range of Victorian freight corridors and consignors. Specific origin - destinations were listed, against which infrastructure deficiencies were to be identified, the use of high productivity vehicles, and the upper limits of tonnages associated with specific routes. VicRoads was requested to generate a range of engineering costs associated with improving the weight limits of bridges on key routes. A prioritised list of bridge upgrading/bridge strengthening was developed and discussed with VFLC. A final program or package of works was prepared, reflecting a series of price and physical contingencies. Fifty six (56) individual bridge upgrading projects were identified, to cost a total of $213.0 million, on nine priority road freight corridors.

At issue was (i) the extent to which heavy vehicle operators were constrained in maximising freight volumes to 68 tonnes per vehicle, and (ii) the degree to which an additional 10 tonnes of cargo would be carried if 77.5-tonne vehicle loads were permitted.

A broad range of responses were obtained and analysed. A total of 239 high productivity vehicles were covered in the survey, involving a total vehicle fleet of 882 B-doubles and 1,063 rigid semi-trailers. Specific industry response also covered the extent to which industry operations were constrained by maximum volumetric limits (where upper weight limits were not met) and the potential for significant increases in the volumes of motor vehicles that could be carried if the overall length of vehicle transporters was increased from 30 metres to 33 metres.

Following the receipt of the email industry questionnaires, a detailed series of direct interviews with industry respondents/senior management was undertaken. These interviews focussed on the identification and estimation (in dollar terms) of the ranges of increased productivity/revenue gains which could be achieved on specific corridors and the extent to which operating cost savings could be achieved. Both generic groups of benefits were directly capturable by the road vehicle industry. This 'quarantining' of benefits to the road freight sector was seen as being unique to the experience of road and highway funding across Australia. Industry representatives could see how public investment in bridge strengthening on routes of high priority to the operators was to be of direct relevance to them. Of immediate perceived benefit was the opportunity to transport two (2) forty-foot (40') TEUs on all high performance vehicles This was widely regarded as being highly beneficial in the movement of containers to and from the Port of Melbourne.

The range of specific industry gains which were identified and converted into monetary benefits included:

- Increased vehicle productivity, in terms of additional weight and revenue, per freight movement.

- Savings in fuel and driver time costs with more direct routes.
- Savings in levels of vehicle acquisition and replacement over 4-year periods.
- Savings in the costs of drivers and in driver training costs for new drivers.
- Savings in Intelligent Access Program (IAP) reporting and fleet management and reporting costs (vehicle will be able to move to 77.5T with lesser operational and compliance administration).

In addition, a range of less tangible, broader economic, social and environmental benefits were also identified from individual industry interviews. These covered:

- Reductions in the future rates of escalation of freight charges.
- Reductions in the overall levels of fuel imports.
- Increased direct employment with expanded road transport operations, particularly to rural areas.
- Increased job training/job skilling with the HPV fleet.
- Increased levels of road safety; potential reductions in personal and commercial accident costs.
- Reduced levels of urban truck movements/reductions in urban road congestion.
- Reduced levels of emissions of greenhouse gases (carbon dioxide [CO_2], carbon monoxide [CO], nitrogen oxides [NO]) and particulate emissions.
- Reduced noise pollution (noise pollution index) with newer vehicle technologies.

It was broadly recognised by industry respondents that all of these intangible benefits, whilst important at the regional/state level, were gains which could not be 'captured' and brought to their 'bottom lines' for financial reporting. It was only the direct productivity gains associated with revenue increases and/or operating cost reductions which were of material benefit to the freight and logistics industry.

Using earlier Auslink and COAG Guidelines, and consistent with current DTF practices, an economic analysis has been completed for the proposed upgrading of nine (9) priority routes across Victoria's arterial road network. The approach which was adopted has been to compare the costs and the benefits 'with' and 'without' the proposed investment over a 20-year life.

All costs and benefits were quantified and monetised in 2010 constant prices to avoid problems of forecasting future inflation rates. The strategic objectives '(Strategic Fit)' of the proposed upgrading were relied upon to estimate the range of benefits, as discussed in VFLC's March 2010 paper.

A series of discounted cash flow (DCF) spreadsheet models were developed to estimate the level of project investment viability. A range of sensitivity tests were also completed by varying the assumptions underlying the project's costs and benefits. The results of the sensitivity testing provide the basis for the risk assessment.

Based on an upper cost estimate of $213.0 million, the overall economic viability of the proposed package of bridge upgrading/bridged strengthening was established. An economic internal rate of return (EIRR) of 16 per cent was estimated. The net present value (NPV) was $145.9 million and the benefit-cost ratio (BCR) was 1.75. All sensitivity results indicated that the program of works remained viable, under all adverse potential conditions.