

Terms of Reference for the Maldon to Dombarton Rail Link Feasibility Study

Introduction

The proposed Maldon-Dombarton rail link is a 35 kilometre standard gauge rail line connecting the Illawarra Line from Wollongong to the Main Southern Line running from Sydney via Campbelltown. The line was originally proposed and partially constructed by the NSW Government, commencing in 1983. Construction ceased in 1988 following a reassessment of the demand case by the NSW Government. The rail corridor is not believed to have been compromised.

Approximately two-thirds of earthworks along the rail corridor have been completed, as well as the entry cuts to the tunnel portals and construction access roads to the tunnel and catchment area. However some significant infrastructure has not been constructed, including a number of bridges.

Considerable changes to the legal framework for environmental assessment have occurred since the initial Environmental Impact Assessment was completed in 1983 and further environmental assessment would be required before construction could commence. Parts of the rail corridor now fall within the Sydney Water Catchment Metropolitan Special Area.

The *Maldon-Dombarton Rail Line Pre-Feasibility Study* was completed and released on 8 July 2009. The Australian Government announced a funding commitment of \$3 million towards a Feasibility Study of the Maldon to Dombarton Rail Line. The Study will examine the current and future demand for the line, determine the most appropriate alignment and technical requirements to meet the expected demand and provide a detailed costing for completing construction of the line. The timeframe for the feasibility assessment is to 2030.

The feasibility study will also provide advice and options on the most appropriate means of funding the construction of the line.

Objectives

The Feasibility Study will conduct a detailed analysis of existing structures, engineering requirements, demand for usage of the line, economic and financial modelling and land use and environmental planning issues.

The purpose of the study is to inform future Government decision-making about this project by:

- a. carrying out a detailed investigation of the layout, design and cost of remaining works;
- b. assessing the project's viability on environmental, social and economic criteria, including an economic cost benefit evaluation;
- c. identifying any preconstruction requirements (such as the environmental impact assessment) to guide the construction of the project, should it proceed; and
- d. examining and costing the implications of not pursuing the project.

Scope of Work to be Undertaken

In order to fulfil the study objectives and deliver key outputs, an indicative project task list is as follows:

1. Demand for usage of the line

The study will expand and test the analyses of the current and future freight markets conducted in the pre-feasibility study, with particular regard to:

- assessing and ‘stress testing’ the accuracy of trade predictions and forecast growth and the assumptions made in developing these forecasts;
- examining alternative freight routes to which future demand for freight services on this line might be concentrated in the event construction of the line does not proceed, and whether there is likely to be future capacity to absorb this demand on those routes;
- examining and assessing the line’s capacity to improve the connectivity of the freight rail network with existing and proposed intermodal terminals at Enfield, Eastern Creek, Moorebank, Minto, Ingleburn, Moss Vale and Wollondilly (and any others which the consultant deems appropriate as identified in the consultant’s submission);
- developing of train path modelling, with consideration of construction design updates and future demand on the intra and interstate networks of which Maldon to Dombarton would connect and
- engaging with key stakeholders, and in particular with relevant above rail operators and freight logistics organisations.

2. Engineering assessment

The study will assess the engineering requirements for the completion of the line. Tasks include the following.

- Identification of any alignment enhancements options and recommend an optimal alignment (if different from current alignment).
- A comprehensive construction gaps analysis from the original design to current standards.
- Refining and updating the design of bridges, tunnel, other rail infrastructure and associated signalling and road infrastructure to meet current legislative requirements and standards, with particular consideration to the following issues and the assumptions made about them in the pre-feasibility study.
 - a) technical aspects, including:
 - hydrological design;
 - the adequacy of the current tunnel design for diesel freight locomotives, including tunnel ventilation
 - locomotive capability to operate on a 1:30 gradient;
 - land use management issues including the impact of designs on potential future industrial and residential developments in areas adjacent to the corridor.
 - b) current and future operational requirements, including:
 - freight demand and supply developments in Illawarra, Sydney and other potential markets;

- train path modelling as undertaken under Scope 1 : Demand for the Line; and
- environmental and social concerns.

3. Land use and environmental assessment

The study will review any issues that associated with land use and environmental planning matters may impact the construction of the line, including clarifying and updating land use planning requirements related to integrating the line into the ARTC network.

The study will conduct an environmental assessment for the completion of the line, including an assessment against requirements in the *Environmental Protection and Biodiversity Conservation Act (Cth) 1999*. The study will have particular regard to:

- soil and water management;
- social and cultural heritage matters;
- incident management issues; and
- the Sydney Catchment Authority Metropolitan Special Area's Special Areas Strategic Plan of Management.

4. Economic and Financial Analysis

The study will undertake an economic analysis of the construction of the line. This will include:

- identification and quantification of all significant economic costs and benefits associated with completing and not completing the line, including but not limited to:
 - a) direct and indirect employment due to the construction and operation of the line;
 - b) improvements or constraints to the connectivity of the freight rail network, including between major intermodals such as Port Botany and Port Kembla;
 - c) impacts on industries that would use the Maldon to Dombarton rail link;
 - d) impacts on the demand and future capital expenditure requirements for the Illawarra line, the Main South line to Moss Vale and the Sydney to Melbourne interstate freight rail line; and
 - e) economic costs and benefits derived from environmental costs or benefits, including but not limited to impacts on greenhouse gas emissions.
- analysis of the financial and funding options, including consideration of options for private sector financing of construction of the line, such as public private partnerships and private finance initiatives;
- analysis of the economic costs associated with not constructing the line; and
- preparation of a discounted NPV with discount rates for:
 - a) a commercial organisation with a BBB+ investment grade rating; and
 - b) the Australian Government.

In preparing the NPV, the study will:

- identify and use industry best practice in determining discount rates and asset residual values; and
- provide separate NPV calculations for capital and operating results.

5. Benefit and Cost Estimation

The study will provide construction and operating cost estimations to +/-10% at P50 and P90 in accordance with the standard contained in the *Best Practice Cost Estimation for Publicly Funded Road and Rail Construction*. A detailed Benefit Cost Analysis (BCA) is also to be undertaken. In developing the cost estimates and BCA, the study will consider matters including:

- current engineering construction methodology in determining cost estimations
- comprehensive identification of project components for which design will be undertaken, and the likely cost of undertaking these design works
- integrating the line onto the existing rail network, with particular reference to Australian Rail Track Corporation requirements, and
- estimating the costs associated with obtaining the required planning and environmental approvals;
- a full risk assessment; and
- an indication of the likely annual below rail (infrastructure) operating and maintenance costs.

The BCA shall be consistent with Appendices D and E of the *Outline of Infrastructure Australia's Prioritisation Methodology*.

As well as economic costs and benefits, the study should include an examination of social and environmental costs and benefits and who will benefit / bear them.

Cost estimates are to be dissected and provided into discrete tender components, which are to be recommended in the study. Estimates should be provided at a minimum for the following:

- rail and sleeper acquisition
- rail installation including ballast
- bridge construction (show cost of each bridge)
- tunnel construction including tunnel lining
- earthworks including drainage
- signalling and electrical works
- remediation of existing works
- project management
- design and/or redesign of existing drawings
- commissioning
- contingency
- other as deemed relevant to the project