



ARTC

Melbourne-Brisbane
Inland Rail Alignment Study

Frequently Asked Questions

July 2010

Melbourne-Brisbane Inland Rail Alignment Study

Frequently Asked Questions

By moving your cursor to a particular question and (left) clicking, you will be taken direct to the answer.

The answers to some questions refer to sections of the study report and its appendices. Where this occurs, more information can be obtained from those sources, which can be found at <http://www.artc.com.au/Content.aspx?p=175>

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GROUP 1: FINANCIAL/ECONOMIC QUESTIONS

Q. What are the key findings of the study?

Answer:

- **The key findings from the study are:**
 - There is demand for the railway that would result in a freeing of capacity through Sydney (removing five northbound Melbourne-Brisbane services per day from the Main North Line by 2035 and around nine by 2050).
 - Through analysing a number of different alignments, representing over 50,000 different alternatives between Melbourne and Brisbane, a route has been identified that can achieve average Melbourne-Brisbane transit time (terminal-to-terminal) of 20 hours and 30 minutes over a distance of 1,731 kilometres (km); approximately 65% using existing corridors. The estimated capital cost of the railway is \$4.7 billion. A map of the route is in the study report, in the executive summary and in section 5.4.4.

- This alignment is estimated to provide freight in the Melbourne-Brisbane corridor with a rail option that is seven hours faster and around 170 km shorter than the current coastal route, with improved reliability and availability. In addition, it is expected to be more competitive on transit time, reliability, availability, and in particular freight door-to-door prices, relative to road via the Newell Highway.
- The financial assessment (prepared from the point of view of a track operator) is that Inland Rail does not appear viable on a standalone commercial basis.
- From the broader point of view of rail users and the wider community, economic analysis suggests Inland Rail will achieve a positive economic benefit cost ratio if operations commence around 2030-2035, or when total tonnage demanding the railway is above around 25-26 million tonnes per annum (mtpa). If demand volumes are stronger than the ACIL Tasman forecasts, economic viability could be reached sooner.
- Consequently, it would be appropriate to re-examine the project between about 2015 and 2020, or when tonnage approaches the level identified (and after results of initial coastal railway upgrades can be assessed in terms of actual levels of capacity, reliability and demand growth achieved).

Q. What is the difference between financial and economic analysis?

Answer. As described in Box 9 on page 79 of the study report, investment evaluations conducted from the wider economy or community's perspective are termed economic evaluations whereas those evaluations conducted from the producer's perspective only (e.g. the track operator) are known as financial evaluations. More specifically:

- Financial appraisal - Financial appraisals assess the financial viability of a project from the perspective of owners/operators (e.g. in this case, the potential track owner and operator of the inland railway). Financial appraisals are concerned only with the financial returns delivered to operator stakeholders and do not take into account the costs or benefits derived by other parties and the wider community. Financial costs (both debt and equity) and revenues include capital (railway construction), operating and maintenance costs; and operation. In the case of the Inland Rail analysis, these would include track access charges for the track operator (assuming separate track and train operations).
- Economic appraisal - Economic (cost benefit analysis) appraisals assess the total costs and benefits of a project to the community. As such, economic appraisals encompass the costs and benefits accrued and incurred by many different stakeholders, including the project proponents, users, government and the community in general. An economic appraisal takes into account costs and benefits that are not necessarily derived directly from market based transactions including, in this study of Inland Rail: value of freight travel time, reliability, accidents, and externalities and congestion. Economic evaluations also take into account the opportunity costs of resources used in the project.

Q. Why didn't the study look at a much faster railway which would compete with trucks, matching their transit time from Melbourne to Brisbane, and getting trucks off the Newell Highway?

Answer. There are four key factors in this choice: price, reliability, availability and transit time. The finding of the study was that, in the context of these four factors, a reduced transit time below the proposed inland railway's 20.5 hours terminal-to-terminal would involve substantial extra capital cost but would not result in a significant increase in market share. The volumes of freight requiring a faster transit time than proposed by

the study are relatively small, and typically less than a full container load. The issues which lead to a customer choosing between rail and road transport are discussed in detail in the study report, in section 3.2, page 10.

Q. Who would operate the inland railway if it is built?

Answer: The study was undertaken on the basis that the inland railway would be ‘vertically separated’, with the fixed infrastructure including the track, train control and signalling system owned by one organisation, and trains being run by other entities. This is the way that Australia’s interstate main lines are currently operated. Train operators would pay an access fee to use the track, as they do on other lines at present.

Q. Isn’t the inland railway just an expensive rail bypass around Sydney? Wouldn’t the money be better spent on duplicating, straightening and perhaps electrifying the existing coastal railway?

Answer: Whether or not an inland railway is built, there will be a need for improvements to the coastal railway, for Sydney-Brisbane and Melbourne Sydney freight. Together these account for 45% of intercapital rail freight on the North-South corridor (Melbourne-Sydney-Brisbane), and 77% of all intercapital freight (road and rail) on the corridor. All such improvements are subject to financial and economic assessment. The conclusions of the study, on page 105 of the study report, suggest that proposals for investment for rail freight capacity north of Sydney should be assessed on the basis that the north-south rail system is a network, with the potential inland railway being considered in parallel with plans for enhancement of the coastal route.

Q. Wouldn’t it be cheaper to reopen the existing line from Armidale up through Glen Innes to the Queensland border, and then standardise the Queensland line up to Toowoomba? That railway already exists and only needs some maintenance, and re-gauging on the Queensland side.

Answer: Consideration of this route would have been outside the terms of reference for the study, which required the identification of a route and alignment in the ‘far western corridor’, via Parkes, Dubbo and Moree. The selection of this corridor was a result of the conclusions of the North South Rail Corridor Study whose report was published in 2006. This study found that a far western corridor was preferable to other alternatives including the New England route, as it had the potential to achieve a faster journey time for a lower capital cost.

Q. Has the study considered freight terminals? Where will they be and what will they cost?

Answer: In the study it was assumed that the construction and operating costs of intermodal terminals would be met by train operators. This was on the basis that, as freight traffic grows, upgraded or new terminals will be required independent of a decision on building the inland railway. Work is already under way at Parkes and Acacia Ridge (Brisbane) to increase terminal capacity, and there are plans for new terminals in Melbourne and Sydney.

Q. How many jobs will the project generate?

Answer: As indicated in section 11.3, the inland railway is estimated to create an average of 2200 jobs over its five year construction period.

Q. Why not terminate the inland railway at Toowoomba? Or build it in stages, e.g. terminating at Toowoomba initially, and completing the line into Brisbane later on?

Answer. Termination at Toowoomba, either permanently or as a staging option, would defer a significant proportion of the initial capital cost because of the high cost of crossing the Toowoomba Range. However this option, for as long as it applied, would involve a longer pick up and delivery by road (approximately 125 km, or 2 to 3 hours) from Toowoomba to Brisbane. The truncated route results in a negative impact on estimated coal freight demand and half of the expected intercapital tonnage, resulting in a 60% reduction in below rail revenue. As a result the economic benefit-cost ratio decreases by around 80% relative to the full Melbourne-Brisbane scenario.

There are however some other staging options which have been considered in the study. Deferring the upgrade of some sections of track for higher speed and capacity, specifically between Parkes and Narromine, and Narrabri and Moree, would not compromise the performance of the railway in its early years of operation when train numbers are low. The same is true for the Illabo to Stockinbingal cut-off. The staging of these works has been factored into the economic and financial assessment of the project. Discussion of the staging options is contained in section 7.1 on page 51 of the report.

GROUP 2: REGIONAL QUESTIONS

Q. How will the inland railway benefit regional centres along the route?

Answer. A number of centres along the route could benefit from the railway's construction phase if and when a decision is taken to build it, particularly those close to 'greenfield' sections of new construction.

If and when the railway is in operation, benefits will depend largely on decisions made by the operating companies which run trains along the route. They are expected to focus on end-to-end trains, but some train operators may provide services to intermediate centres. Their decisions will depend on their assessment of the demand for, and viability of such services. Some examples of intermodal terminals on interstate rail corridors already exist – such as at Albury (Ettamogah) and Parkes and they may also be developed at other locations along the inland railway.

Some locations would also become crew change points leading to an employment benefit for those locations. Again, decisions on specific locations and arrangements for crew change would be dependent on train operating companies.

Q. Why isn't the route proposed to go through Shepparton, to provide transport from the Food Bowl?

Answer. The issue of whether the inland railway should follow the existing route through Albury, or adopt an alternative through Shepparton, is dealt with in section 5.2.1 on page 33.

As indicated in the report, the Shepparton route was investigated thoroughly. It was found that it would involve significantly higher capital expenditure (around \$900 million) with only a small potential revenue advantage. Accordingly it was concluded that the preferred route should use the existing line through Albury.

Q. Why isn't the route proposed to go through Warwick? Wouldn't that serve an important regional centre, and provide a shorter route to link up with the existing Sydney-Brisbane line near Rathdowney?

Answer: The issue of whether the inland railway should adopt a route via Toowoomba or via Warwick was closely examined in the study. The technical consultants explored a number of alternatives in each case. It was found that a route via Warwick would be considerably more expensive, to the extent of some \$450 million, involving more extensive tunneling and viaducts in its descent to the coastal region than is the case for Toowoomba. Although a route via Warwick would be slightly shorter in transit time, that benefit would not compensate for the higher cost; and transit time improvements, if desired, could be achieved more cheaply elsewhere along the route. Further, a route via Warwick would make it impractical for the inland line to carry coal to Brisbane from the region to the west of Toowoomba, which would be a valuable source of revenue for the railway.

Q. Will the line have a passenger service? Will there be a Toowoomba-Brisbane passenger service?

Answer: The study has developed a Melbourne-Brisbane route and alignment, with design parameters, and cost and revenue forecasts, based on the use of the railway for freight. It has been assumed that the inland railway would be a below-rail business with trains run by operating companies similar to the current use of the interstate network. Any decisions to run passenger trains, by government entities or the private sector, would be made by train operators rather than by the below-rail business.

If passenger services – particularly high frequency local passenger services – are proposed, additional infrastructure may be necessary over and above that analysed in this study. This may range from, for example, additional or modified platforms to altered ventilation arrangements in tunnels. These provisions would need to be analysed and addressed in conjunction with the consideration of the provision of passenger services and, if necessary, incorporated at the design stage.

GROUP 3: ENVIRONMENTAL QUESTIONS

Q. According to the map, the railway looks like it will go across my land. When is it going to happen? How am I going to be compensated? How am I going to get across the line from one side of my property to the other – not just me but tractors, harvesters, livestock?

In the event that an inland railway is eventually built, any compensation of affected land owners would be determined in accordance with relevant legislation at the time. For those whose properties are crossed by the line, if and when it is built, it is anticipated that access across the railway would be provided, to enable them to move farm equipment and livestock from one side of the line to the other.

The Inland Rail Alignment Study has identified a preferred alignment for the railway. The actual alignment would be subject to further detailed environmental and engineering studies as part of any future planning approval processes.

Q. According to the map, the railway looks like it will go through the Merriwindi, Quegobla and Bringalily state forests which are the habitat of a number of endangered species. What's going to be done about that? Surely there's a better route.

Answer: The railway has been subjected to a Preliminary Environmental Assessment with the aim of avoiding major environmental and land use constraints and to integrate ecologically sustainable development principles into the design of the alignment. Where possible, the alignment has been located to minimise impacts on, for example, protection areas, significant tracts of vegetation and residences.

If and when it is decided to proceed into a design phase for the railway, a full environmental impact assessment would need to be undertaken at that time. This could lead to adjustments to the alignment, as well as to the specification of mitigation measures required for identified adverse impacts, which may include offsetting of cleared native vegetation and habitat.

Q. What will the inland railway do for climate change?

Answer: The inland railway could be expected to reduce greenhouse gases and air pollution. This is due firstly to the inland railway diverting some freight that would otherwise travel on road, because the transport of freight by road results in higher gas emissions and air pollution relative to rail. Secondly, as the inland railway would result in rail freight travelling a shorter distance between Melbourne and Brisbane relative to the existing coastal route, freight that shifts from the coastal route to the inland railway will also reduce greenhouse gases and air pollution. This economic benefit is discussed in section 11.1.4 and in Appendix L.

Q. Will the line be fenced?

Answer: The study has allowed for fencing as follows:

- For greenfield sections – stock fencing is allowed for throughout
- For upgraded corridors – stock fencing is allowed for throughout
- For existing corridors not requiring upgrade – no alteration to the existing fencing has been allowed for

Fencing has only been allowed for where the railway borders on properties. Where the rail alignment runs adjacent to, for example, a road or highway that is currently fenced, no fencing has been allowed for on the side of the railway bordering the road or highway.

Q. The conclusions in the report talk about ‘reserving the route’. What does that mean exactly? If someone owns land along the route, what does that mean for them?

Answer.

‘Reserving the route’, in the context of the report, means to safeguard the proposed route/corridor to ensure the route, in particular new sections outside of existing rail corridors, is protected from future development that would detrimentally affect construction and/or operation of the project. This could be by way of land use conflict or future land use zoning within or adjacent to the proposed route that would facilitate such development.

As land use and planning controls are within State jurisdiction, safeguarding of the route will require statutory mechanisms within both the NSW and Queensland legislative frameworks.

GROUP 4: TECHNICAL QUESTIONS**Q. According to one of the report’s appendices (Appendix E), the line will have level crossings. Surely we shouldn’t be putting level crossings on a new railway. Why aren’t all crossings grade-separated?**

Answer. The cost of grade-separating every crossing on the inland railway would be very high. The proposed approach to road/rail crossings allowed for in the study is generally as follows:

- Highways are proposed to be grade separated.
- Local (sealed) roads are proposed to have active protection (flashing lights and bells, with boom barriers for more important roads).
- Unsealed roads are proposed to have passive protection (stop signs), where there are adequate lines of sight.

The proposed alignment incorporates the following road / rail crossings:

- 19 new grade separated crossings

- 51 upgrades to existing active level crossings
- 28 new active level crossings
- 198 new passive level crossings

Q. How long would it take to build the inland railway?

Answer. If and when a decision is taken to build the railway, the project is estimated to require three years of pre-construction activities (including preliminary design, approvals, tender and award period, land acquisition, etc.) followed by a five year construction period.

Q. It seems that the railway is going to be built to outdated standards. Trains in America have bigger locomotives and stronger track – in fact railways in the Pilbara are already built to those standards. Why isn't this line being built to modern standards?

Answer. The proposed design standards for the railway are consistent with those applying to the existing interstate network, extending from Brisbane to Perth. Locomotives and wagons which would run on the inland railway would also run elsewhere on the network, and therefore must conform to its requirements. There would be no point in increasing construction costs to build the line to heavier standards, since it is extremely unlikely that any operator would buy heavier equipment to run on it, when such equipment could not run on other lines.

It should be noted that the study has allowed for double-stacked trains, with containers stacked one on top of another. These trains already run on parts of the interstate network. Further, bridges on those sections of the Melbourne-Brisbane inland line involving new construction would be designed for heavier axle loads than are currently in use, in preparation for their possible introduction in the future. Other track components (e.g. sleeper spacing and ballast depth) could be upgraded for heavier trains if and when they are introduced, but it would be extremely costly to upgrade bridges which do not have this additional capacity built in at the outset.

A summary of the track standards adopted in the study is provided in section 4. A full analysis and description of the standards proposed for the inland railway and adopted for this study are contained in Appendix C.

Q. It seems that the railway is going to be built to outdated standards. I saw on TV that trains in China are running at 350km/h. Why isn't this line being designed for really high speed?

Answer. The Melbourne-Brisbane inland study is based on the requirements for a railway designed and built to appropriate standards for freight trains. Its route and alignment have been optimised to meet the operating requirements of those trains. The design standards for high speed passenger railways are very different, and would be quite inappropriate for the inland railway. For example, double-stacked freight trains could not run on a high speed passenger line.

A summary of the track standards adopted is provided in section 4. A full analysis and description of the standards proposed for the inland railway and adopted for this study are contained in Appendix C.

Q. Why would anyone build a single track railway in this day and age, where trains have to stop and wait for other trains to go past? Aren't we in the 21st century?

Answer. Many railways in Australia and around the world are single track, where trains run in both directions on the one line. This also applies to new lines currently being designed and built. The extra cost of double track (providing separate tracks for each direction of travel) is only justified for busy lines,

particularly those used for commuter services in cities. Modern signalling and control systems, such as the Advanced Train Management System (ATMS), planned to be introduced by ARTC and assumed for the inland railway, assist in managing passing movements on single track lines.

A more detailed discussion of the implications of single track operation are provided in Box 6 on page 29 of the report, with the operational assumptions and parameters allowed for the inland railway explained in sections 8 and 9 and in Appendix G.

Q. The study says that the reliability of trains on the inland railway will be only about 87%, not a lot better than the coastal line, whereas trucks have a reliability of 98%. Why isn't the inland railway being designed to match the performance of road freight?

Answer: For most of its length the inland railway will have a single track, with loops to allow trains to pass. The cost of building a double track railway would not be justified by the amount of traffic. Even with loops at fairly frequent intervals, a single-line railway will always experience delays when trains have to wait at loops for trains for oncoming trains to arrive and go past. It is these delays which adversely affect reliability.

However operators could choose to provide a higher level of service to customers by building slack into their timetables. For example a train could be scheduled to take 21 hours from Melbourne to Brisbane but customers could be offered a 23 hour delivery, which would be achieved with considerably higher reliability because of the buffer of two hours in the timetable.

It is important to remember that the competitive performance of a freight service depends on four factors: price, transit time, reliability and availability (the latter is a measure of whether a service is available at a time the customer needs it). The relative importance of these depends on the items being shipped. For some goods, transit time and reliability will be key factors, while for others price will be dominant.

Q. Why isn't the line electrified, so it doesn't rely on diesel fuel?

Answer: Electrification is estimated to add, as an order of cost figure, between \$2 billion and \$2.5 billion to the capital cost of the project. Such a cost could not be supported by the traffic volumes currently forecast for the railway, and therefore electrification is not considered financially or economically justified at present.

Q. The route between Gowrie and Grandchester is different from the route planned by the Queensland Government and Queensland Rail a few years ago. Why is this? Does this new route replace the 'Queensland' route?

Answer: As explained in section 5.4.3 on page 41 of the study report, the study developed a new route between Gowrie and Grandchester, to meet the requirements of the Melbourne – Brisbane inland railway. This route has been specifically developed to cater for the needs of interstate freight trains, taking into account train performance characteristics and the needs of Melbourne / Brisbane freight, and considering the best use of funds to achieve the optimum end-to-end performance.

In contrast, the route between Gowrie and Grandchester developed previously was designed for higher-speed passenger trains as well as for freight. This earlier route remains as an option, should a decision be made to build a new railway for this purpose.

Q. It seems there's going to be a lot more trains through many regional centres in the middle of the night. Won't they be noisy? Who's going to pay to soundproof my house?

Answer: The cost estimate for the project includes provision for modifications to residences affected by the railway. In other words it is anticipated that these costs would be met by the entity which builds the railway.