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## BACKGROUND

On 30 November 2016 the Minister for Infrastructure and Transport, Hon. Darren Chester MP, announced that there would be an assessment of four alternative corridor options for Inland Rail between Yelarbon and Gowrie in Queensland (shown in Figure 1):

- **Base Case Modified** - via Inglewood and Millmerran (based on the corridor identified in the 2010 Inland Rail Corridor Study and endorsed with qualification by the Inland Rail Implementation Group in 2015, with minor variations);
- **Wellcamp and Charlton** - a variation of the Base Case Modified corridor, via the Wellcamp-Charlton industrial precinct;
- **Karara and Leyburn** - as broadly proposed by consultants SMEC in a 2016 report to the Queensland Department of Transport and Main Roads; and
- **Warwick** - a corridor travelling close to Warwick, broadly along the existing Goondiwindi-Toowoomba rail corridor.

The Wellcamp-Charlton, Karara-Leyburn and Warwick options all pass adjacent to the Wellcamp-Charlton industrial precinct.

AECOM Australia Pty Ltd and Aurecon Australia Pty Ltd / Golders Associates ('the consultants') were appointed by ARTC to undertake an independent assessment on a like-for-like basis of the four corridor options.

Links to the *Corridor Options Report* of the consultants and the extensive appendices to the Report are provided (Attachment 1) for the information of the Steering Committee.

Concurrently the Minister established the Yelarbon to Gowrie Project Reference Group (PRG), chaired by Mr Bruce Wilson AM, to review the assessment process and provide local community input. The PRG met on seven occasions, with a final meeting on 10 April 2017. Mr Wilson delivered his report to the Minister on 27 April 2017. ARTC has not sighted Mr Wilson's report but understands it provides advice to the Minister on the transparency of the corridor review process and on community engagement issues across each of the corridor options.

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## DISCUSSION

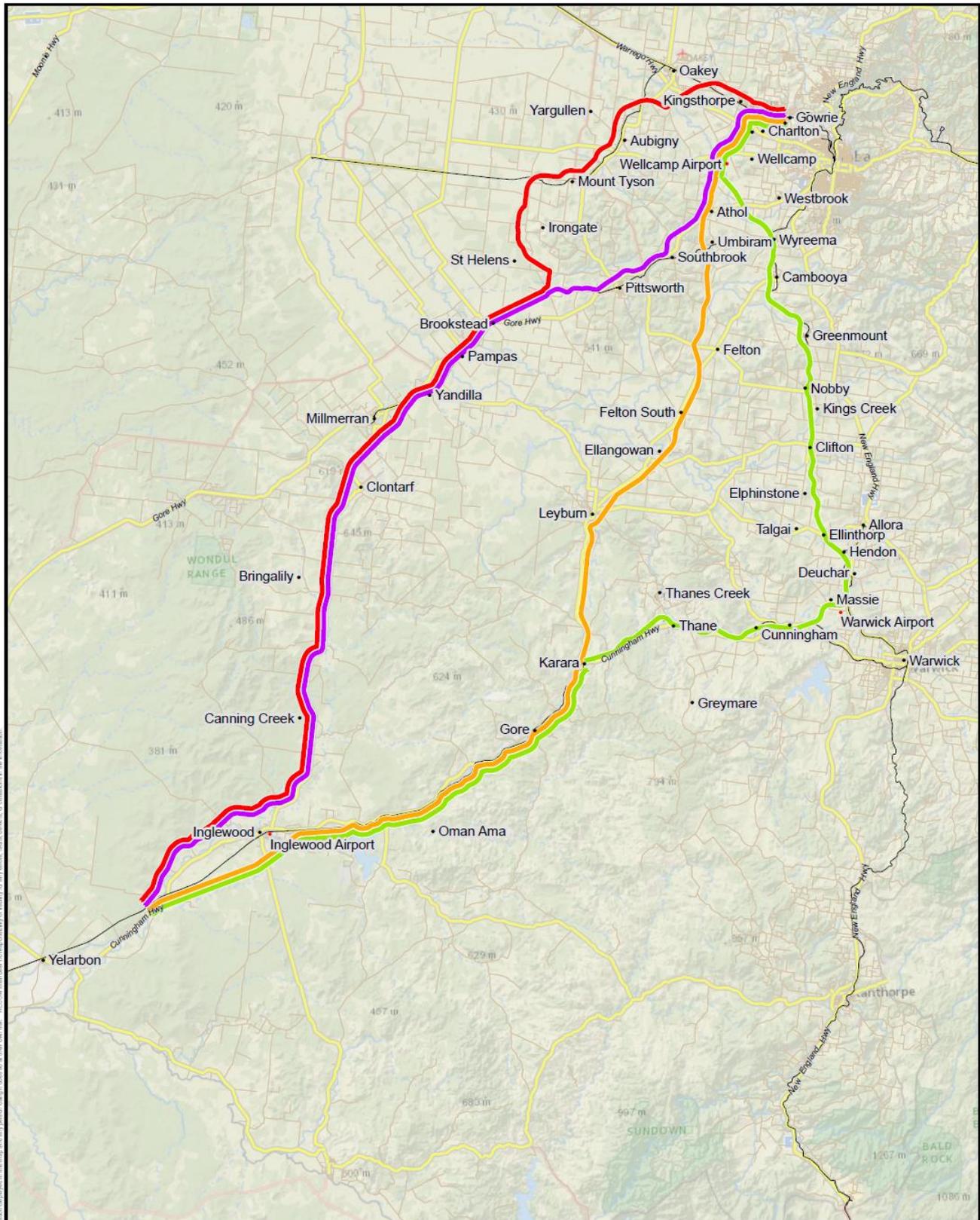
ARTC has considered the *Corridor Options Report* and pursuant to its internal governance procedures, recommends [§.47C](#). ARTC provided advice to this effect to the Steering Committee at its meeting of 11 May 2017. The Steering Committee accepted ARTC's recommendation and requested ARTC and the Department work together to provide further information in support of the recommendation.

The recommended Yelarbon to Gowrie corridor is based on the corridor refinement process previously endorsed by the Steering Committee for all Inland Rail corridor reviews (Attachment 2). In this instance, by responding to issues raised by PRG Members, significantly more detailed analysis was undertaken as part of the multi-criteria analysis (MCA) than would normally be the case for a corridor refinement process.

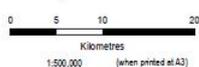
However, the consultants make no recommendations in the *Corridor Options Report* as to which of the corridors assessed should be taken forward into a formal project assessment and approvals process. Consequently, ARTC's recommendations to the Steering Committee are based upon its consideration of the Report, including the potential impact on the Inland Rail Service Offering, results of the MCA and construction cost estimates, and further consideration of the strategic opportunities each corridor may provide.

A summary of these considerations are provided below, followed by more detailed underlying analysis to support these views.

**Figure 1 – Corridor options**



AECOM does not warrant the accuracy or completeness of information disclosed in this map and any reliance shall be based on a third party's data. AECOM shall bear no responsibility for any errors, false, omissions, or obsolescence of the information.

 <p>www.aecom.com</p> <p>Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator</p>  <p>1:500,000 (when printed at A3)</p>	<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">●</span> Place_names_gazetteer</li> <li><span style="color: red;">—</span> Base Case Modified</li> <li><span style="color: purple;">—</span> Wellcamp-Charlton</li> <li><span style="color: orange;">—</span> Karara-Leyburn</li> <li><span style="color: green;">—</span> Warwick</li> <li><span style="color: black;">—</span> Existing Railway</li> <li><span style="color: grey;">—</span> Main Roads</li> </ul>	<p><b>PRELIMINARY. NOT FOR CONSTRUCTION. FOR INFORMATION PURPOSES ONLY. ROUTES ARE APPROXIMATE ONLY.</b></p> <p>This map was produced by AECOM/Aurecon for the Australian Rail Track Corporation (ARTC). Any differences between this map and previous maps are due to corridor refinements or for clarity purposes. It should also be noted that each route option is under development and may change slightly as the design evolves.</p> <p>The Warwick route may appear different to previous maps (e.g. version 2, 15/12/2018). Previous versions offset the route adjacent to the existing railway so that the existing railway line is visible. To more accurately represent the corridor this route is now overlain on the existing railway corridor.</p> <p><small>Data sources: © State of Queensland Department of Natural Resources and Mines, 2018 Source: © 2014, Pitney Bowes, Software Pty Ltd. All rights reserved.</small></p>	<p><b>ARTC</b></p> <p><b>PROJECT OVERVIEW</b></p> <p><b>CONCEPTUAL CORRIDOR ROUTES</b></p> <p><b>Yelarbon to Gowrie (Y2G) Project</b></p> <table border="1" style="width: 100%;"> <tr> <td>PROJECT ID</td> <td>60492124</td> <td rowspan="3" style="text-align: center; vertical-align: middle;"><b>Map</b> <b>1</b></td> </tr> <tr> <td>CREATED BY</td> <td>MF</td> </tr> <tr> <td>LAST MODIFIED</td> <td>hym - 29/03/2017</td> </tr> <tr> <td>VERSION:</td> <td>2</td> <td></td> </tr> </table>	PROJECT ID	60492124	<b>Map</b> <b>1</b>	CREATED BY	MF	LAST MODIFIED	hym - 29/03/2017	VERSION:	2	
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## Overview of Results

Table 1 provides a summary of ARTC’s interpretation of the relative merits of the alternate options against the Base Case Modified corridor.

**Table 1: Summary of the relative merits of the alternate corridors against the Base Case Modified Corridor**

<b>CORRIDOR</b>	<b>Service Offering</b>	<b>MCA Overall</b>	<b>MCA TECHNICAL</b>	<b>MCA NON-TECHNICAL</b>	<b>CONSTRUCTION COST ESTIMATE</b>
<b>Wellcamp - Charlton</b>	Not significantly different	Not significantly different	Not significantly different	Not significantly different	8% more cost
<b>Karara-Leyburn</b>	Not significantly different	Not significantly different	Not significantly different	More favourable option	23% more cost
<b>Warwick</b>	Significantly longer transit time.	Least favourable option	Least favourable option	Least favourable option	34% more cost

All four corridors provide service characteristics consistent with the Inland Rail Service Offering and no corridor was ruled out of the assessment on this basis. However, it should be noted that the significant additional transit time associated with the Warwick corridor (approximately 24 minutes) adversely impacts the transit time element of the service offering.

The MCA did not show a significant difference in the overall comparative result that would support choosing a preferred corridor. However, the Warwick option was shown to be the least favourable option on both technical and non-technical criteria.

With respect to construction costs, all alternative corridors to the Base Case Modified are likely to be more expensive. In particular, the Karara-Leyburn and Warwick corridors are likely to be approximately \$285 million and \$415 million more costly, respectively.

On the basis of the assessment of the potential impact on the Inland Rail Service Offering, the results of the MCA, relative construction costs and noting that the review did not identify any unique strategic considerations that would outweigh the relative short comings of the Warwick option, the Warwick corridor should be considered the least favourable option.

The Karara-Leyburn option was considered to be the second least favourable option primarily on the basis of the additional construction costs (+23%) without any clear benefit to offset that cost. The Karara-Leyburn corridor also would require construction along a significant proportion of greenfield corridor (71% of the total corridor) that, until the tabling of the SMEC report, had not been previously considered as a potential Inland Rail corridor.

The relative merits of the two remaining options – Base Case Modified and Wellcamp-Charlton – are harder to distinguish. This is understandable as the corridors share a significant length of corridor. The identified key differentiating features in favour of the Wellcamp-Charlton option are:

- The long-term strategic potential of the Wellcamp-Charlton option; and
- The avoidance of construction through the town of Kingsthorpe.

It is ARTC’s view that these features in favour of the Wellcamp-Charlton option are of sufficient merit to outweigh the additional \$102 million in construction costs.

Based on the assessment above, Table 2 provides ARTC’s ranking of the four Yelarbon to Gowrie corridor options.

**Table 2: Ranking of the Yelarbon to Gowrie Corridor Options**

<b>Ranking</b>	<b>CORRIDOR</b>
1	Wellcamp - Charlton
2	Base Case Modified
3	Karara-Leyburn
4	Warwick

**Discussion of Results**

Assessment against the Inland Rail Service Offering

All corridors will be constructed to the Inland Rail standard engineering design. Consequently, in terms of the Inland Rail Service Offering, the key potential differentiator between options is transit time. While the Wellcamp-Charlton option showed a small benefit in transit time (4-5 minutes northbound) relative to the Base Case Modified corridor, the Warwick option was modelled as 24 minutes slower.

Table 3 provides the underlying parameters associated with the transit time of each of the four corridors, noting that northbound is the primary flow and southbound is the backhaul leg.

**Table 3: Assessment against the Inland Rail Service Offering – Transit Time**

<b>Element</b>	<b>Base Case Modified</b>	<b>Wellcamp-Charlton</b>	<b>Karara-Leyburn</b>	<b>Warwick</b>
Corridor Length (km)	181.3	168.1	171.9	208.3
<i>Difference (km)</i>	-	-13.2	-9.4	27
Length of grade impacting speed (km)	26	39	35	45
<i>% of total</i>	14%	23%	20%	22%
Transit Time (northbound)	2:09:23	2:05:20	2:14:44	2:33:48
<i>Minutes</i>	129	125	135	154
<b>Time difference</b>	<b>-</b>	<b>-4</b>	<b>5</b>	<b>24</b>
<i>Average speed (km/h)</i>	84	80	77	81
Transit Time (southbound)	1:56:02	1:48:51	1:53:34	2:18:04
<i>Minutes</i>	116	109	114	138
<b>Time difference</b>	<b>-</b>	<b>-7</b>	<b>-2</b>	<b>22</b>
<i>Average speed (km/h)</i>	94	93	91	91

While all corridors are capable of delivering the Inland Rail Service Offering, the Warwick option is the least favourable due to the increased transit time.

## The Results of the Multi-Criteria Analysis

Table 4 provides the results of the MCA.

**Table 4: Comparative MCA scoring of three corridor options as against the Base Case Modified corridor**

Assessment Criteria	Weighting	Wellcamp-Charlton	Karara-Leyburn	Warwick
Technical viability	17.0%	-0.043	0.595	-0.298
Safety assessment	16.5%	0.041	-0.289	-0.784
Operational approach	16.5%	0	-0.817	-0.545
Constructability and schedule	12.5%	-0.125	0.094	-0.188
<b>Technical Sub-total</b>		<b>-0.126</b>	<b>-0.417</b>	<b>-1.815</b>
Environmental and heritage impacts	12.5%	0.094	0.281	-0.844
Community and property impacts	12.5%	-0.250	0.625	-0.375
Approvals and stakeholder risk	12.5%	0	0	0
<b>Non-Technical Sub-Total</b>		<b>-0.156</b>	<b>0.906</b>	<b>-1.22</b>
<b>TOTAL</b>	100%	<b>-0.283</b>	<b>0.490</b>	<b>-3.03</b>

Note: MCA criteria are scored on the basis of either being significantly different (+/-10), clearly different (+/-5) or neutral (0) to the Base Case Modified corridor. A negative score indicates a less favourable option and positive score indicates a more favourable option to the Base Case Modified corridor.

The process of developing the inputs into MCA assessment was reviewed by the Y2G PRG. The MCA workshop and scoring day (held on 17 March 2017) was also observed by representatives of the PRG including its Chair, Mr Bruce Wilson AM. Mr Wilson reported back to the PRG at its next meeting that he was satisfied that the MCA workshop and scoring was conducted in a transparent and fair manner. Mr Wilson also informed the PRG at its last meeting that he intended to advise Minister Chester that he considered the overall MCA process to have been conducted in transparent and fair manner.

The inputs to the MCA were separately reviewed for internal consistency by the consultants, and elements of the MCA criteria of particular interest to the PRG were also put through sensitivity testing, namely hydrological and community impacts.

The hydrological sensitivity testing consisted of increasing the relative impact of flooding for the Wellcamp-Charlton corridor and decreasing the impact on the Karara-Leyburn and Warwick corridors. This testing was undertaken to reflect the views of some PRG Members that the hydrological complexities of the Base Case Modified and Wellcamp-Charlton corridors had been understated.

The hydrological sensitivity tests did not change the ranking of the three corridor options.

Sensitivity testing of the relative community impacts along the Karara-Leyburn and Warwick corridors was undertaken to reflect the views of some PRG Members that:

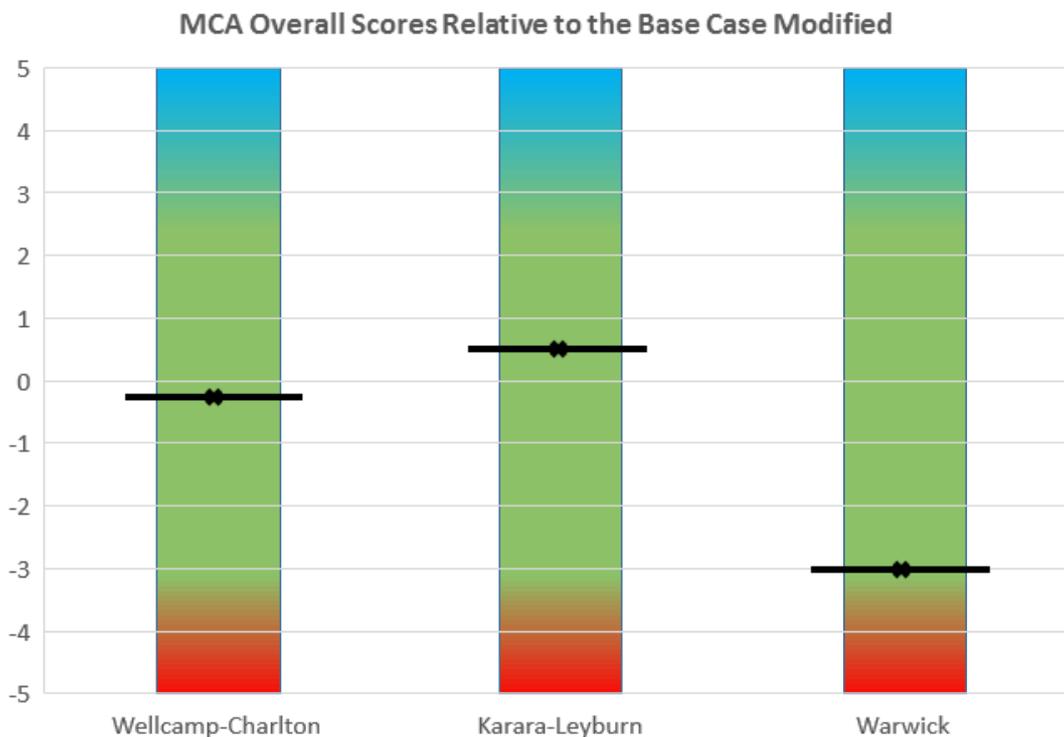
- using the number of residential receptors within 200m of the notional construction corridor as an indicator of community impacts was not likely to reflect community sentiment based on the fact the corridor had not previously been identified as a potential route for Inland Rail; and
- there was some community support for Inland Rail in the Warwick region.

The community impacts sensitivity testing significantly reduced the result for the Karara-Leyburn corridor such that it was effectively no different from the Base Case Modified corridor (a sensitivity score of +0.01) in terms of community impacts. The reduced community impacts of the Warwick corridor did not significantly alter the relative merit of this option when compared to the Base Case Modified corridor (the original score was reduced from -3.03 to a sensitivity score of -2.41).

The consultants explained the methodology and rationale for the sensitivity testing in a presentation to the PRG at its meeting on 22 March 2017.

The relative merits of the corridors as shown in Table 4 are illustrated visually at Figure 2 to demonstrate that while no corridor was shown to be significantly different overall, the Warwick option was clearly the least favourable. At the same time, the other two corridors are not demonstrably different overall from the Base Case Modified corridor.

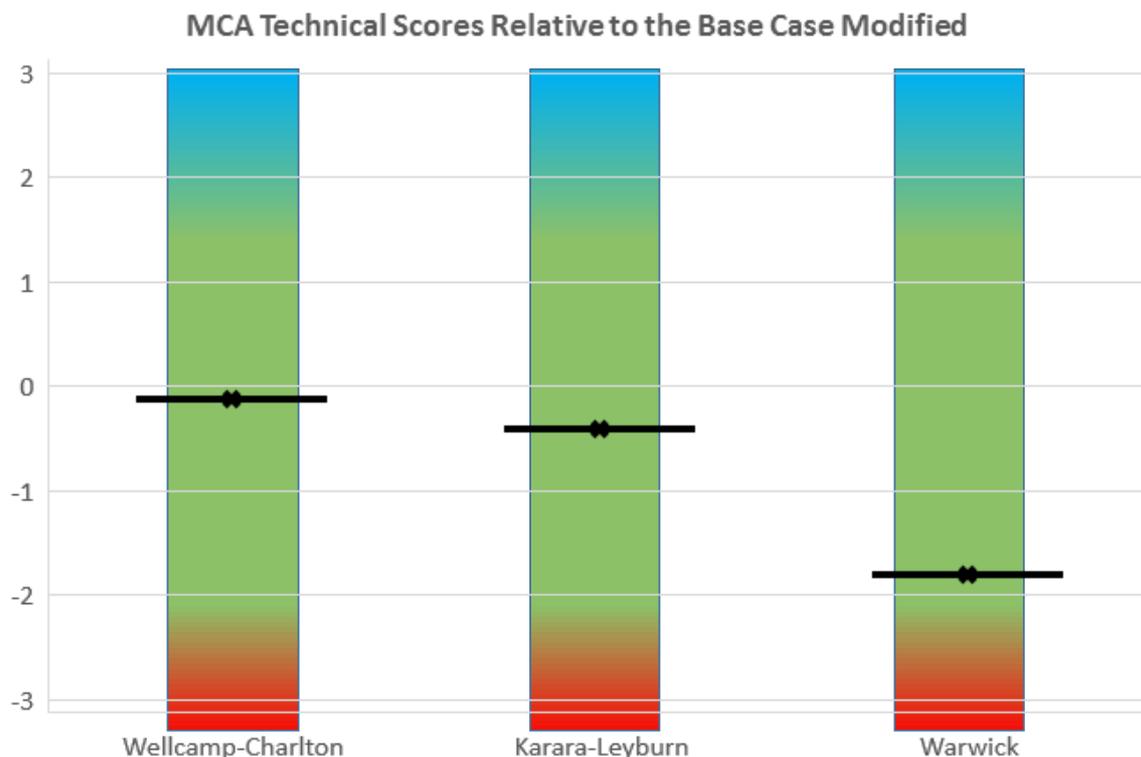
**Figure 2: MCA Overall Scores Relative to the Base Case Modified**



Note: A positive score overall of 5 would reflect that the corridor was clearly more favourable than the Base Case Modified for each of the seven MCA criteria. A negative score overall of 5 would reflect that the corridor was clearly less favourable than the Base Case Modified for each of the seven MCA criteria.

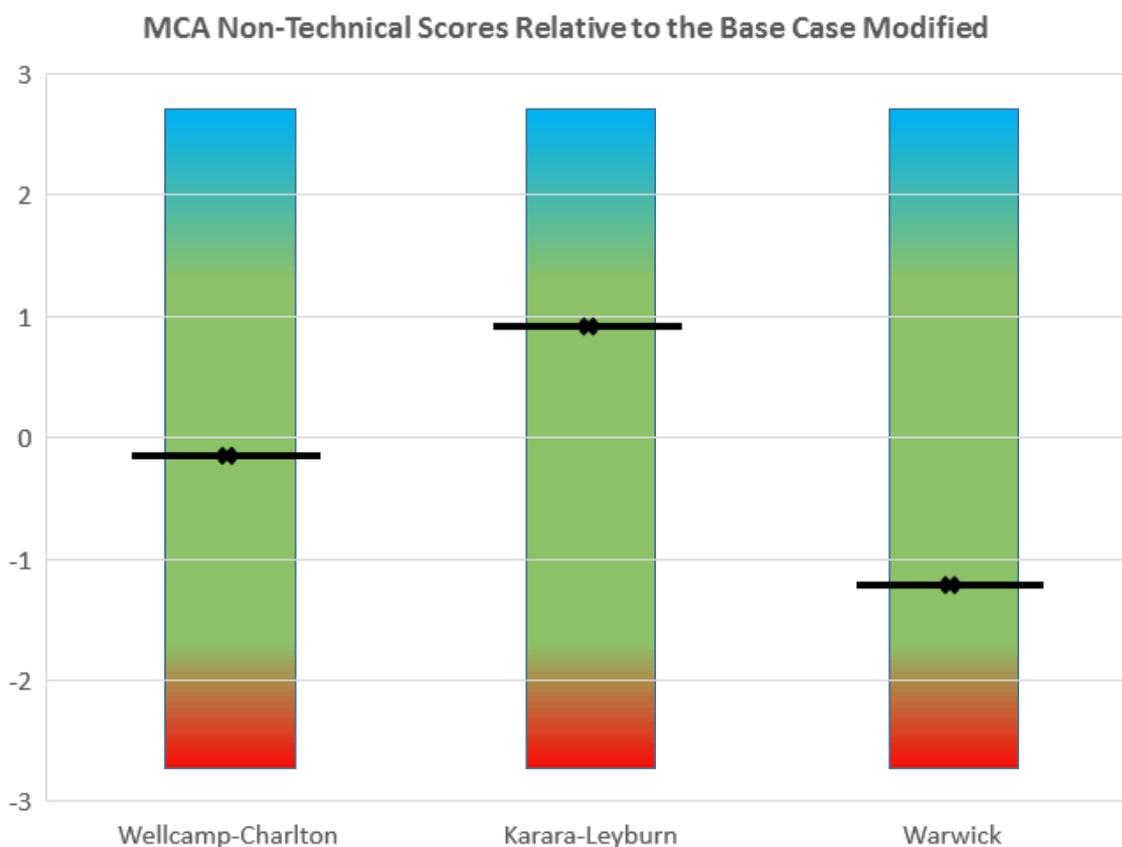
Figure 3 and Figure 4 similarly show the results for the MCA technical and non-technical criteria, and further highlight that there is little difference in the Base Case Modified and the Wellcamp-Charlton corridors, and that the Warwick corridor was least favourable against both the technical and non-technical criteria.

**Figure 3: MCA Technical Scores Relative to the Base Case Modified**



Note: A positive technical score of 3.125 would reflect that the corridor was clearly more favourable than the Base Case Modified for each of the technical MCA criteria. A negative technical score of 3.125 would reflect that the corridor was clearly less favourable than the Base Case Modified for each of the technical MCA criteria.

**Figure 4: MCA Non-Technical Scores Relative to the Base Case Modified**



Note: A positive non-technical score of 1.875 would reflect that the corridor was clearly more favourable than the Base Case Modified for each of the non-technical MCA criteria. A negative non-technical score of 1.875 would reflect that the corridor was clearly less favourable than the Base Case Modified for each of the non-technical MCA criteria.

## Assessment of Comparative Construction Costs

Table 5 provides the comparative construction costs of each corridor. The key cost differentiators are based on the length of the corridors, and in particular the earthworks required, as well as the structures required for waterway crossings. The three alternative corridors all require a significant increase in earthworks quantities above the Base Case Modified corridor. The Wellcamp-Charlton corridor option presented the smallest percentage cost difference (8% above the Base Case) and the Warwick corridor option the largest cost differential (34% above the Base Case).

**Table 5: Comparative construction capital cost estimates for the three corridor options as against the Base Case Modified corridor**

Corridor option	Construction cost estimate	Difference compared to Base Case Modified	% Difference
Base Case Modified	\$ 1,232,743,893	\$ -	0%
Wellcamp-Charlton	\$ 1,334,949,841	\$ 102,205,948	+8%
Karara-Leyburn	\$ 1,518,129,385	\$ 285,385,493	+23%
Warwick	\$ 1,647,485,972	\$ 414,742,079	+34%

Notes: Base Case Modified is the control corridor. Included in the construction estimate: direct job costs, construction overheads, clients supply and property costs.

### ***Assessment of the Warwick and Karara-Leyburn corridors***

The Warwick corridor should be considered the least favourable option on the basis of the assessment of its potential impact on the Inland Rail Service Offering, the results of the MCA, relative construction costs and noting that the review did not identify any unique strategic considerations that would outweigh the lower relative ranking of the Warwick option.

The Karara-Leyburn option was considered to be the second least favourable option primarily on the basis of the additional construction costs (+23%) without any clear benefit to offset that cost. It should also be noted that the Karara-Leyburn corridor would require construction along a significant proportion of greenfield corridor (71% of the total corridor) that, until the tabling of the 2015 SMEC report, had not been previously considered as a potential Inland Rail corridor.

### ***Differentiating the Base Case Modified and Wellcamp-Charlton Corridors***

The relative merits of the two remaining options – Base Case Modified and Wellcamp-Charlton – are harder to distinguish. This is understandable as the two options share a significant length of corridor. The identified key differentiating features in favour of the Wellcamp-Charlton corridor are:

- The long-term strategic potential of the Wellcamp-Charlton option; and
- The avoidance of construction through the town of Kingsthorpe.

### Wellcamp-Charlton industrial precinct

The Wellcamp-Charlton corridor was proposed on the basis that this region has seen significant new industrial development since consideration of the Base Case corridor in 2015. More industrial infrastructure is being developed and proposed.

The continued development of the Wellcamp Airport industrial precinct and other industrial service infrastructure such as the InterlinkSQ intermodal (the first sod-turning for which occurred on Wednesday 10 May 2017) have been significant additions to, and changes in, the region since the Inland Rail Implementation Group (IR-IG) issued its report on the Inland Rail corridor in 2015.

Not all of the industries being established in this area will seek a rail service as part of their supply solution. For example, few air freight supply chains, particularly those with low volume consignments, are expected to find rail suitable to meet their just-in-time requirements.

However, given the asset life of Inland Rail, an additional \$102 million of cost now to provide a more direct access to rail services for a region that will continue to grow for decades to come could be considered a strategic investment for the future.

It should be noted that a detailed assessment of the potential demand for rail services in the Wellcamp-Charlton region cannot be undertaken until such time as the characteristics of the industrial precinct are known. However, it is clear that the potential is real and probable based on the scale of infrastructure that has been built to date, the significant availability of land for future development, and the progressive concentration of industrial activity in this precinct.

### The Township of Kingsthorpe

The Base Case Modified corridor proposes that Inland Rail joins the West Moreton Line to the west of the town of Kingsthorpe. All three alternate corridors are a more favourable solution with respect to the impact on Kingsthorpe as they connect to the West Moreton Line to the east of Kingsthorpe.

As the Yelarbon to Gowrie corridor review progressed it became evident that the Wellcamp-Charlton corridor was not clearly different to the Base Case Modified corridor. Consequently, ARTC undertook further assessment of the Base Case Modified corridor's connectivity to the West Moreton Line.

This further assessment indicated that transiting Kingsthorpe would potentially require claiming an additional 7 – 10m wide strip of land through the township in order to maintain existing coal train operations while constructing the Inland Rail track. In addition, there is a sizeable molasses storage facility and ancillary infrastructure adjacent to the existing rail corridor that would prove problematic to either relocate or work around.

Also, based on advice from the Toowoomba Regional Council, Kingsthorpe and the nearby community are forecast to experience significant population growth over the next 10 – 20 years. Developments are being planned on either side of the existing railway which would require connectivity, possibly including unimpeded access across the railway by way of grade separation.

The Base Case Modified corridor could be optimised through a deviation built south of the existing West Moreton Line. Should a bypass south of the existing line be adopted, based on a recommendation from the Department of Main Roads, approximately 7.2 km of new track would be required with an addition of three (3) new level crossings. This is a greenfield environment and additional land acquisition would be required, further impacting landowners. In addition, there would be the potential isolation of land trapped between the existing rail corridor and the bypass.

As a result, ARTC is of the view that the Wellcamp-Charlton corridor is a more favourable option to avoid the impact on the Kingsthorpe community.

### ***Other Issues***

#### State Forest (Inglewood – Millmerran)

A variation to the Base Case Modified corridor was raised by some PRG members during the PRG process. This proposed corridor departs the Base Case Modified corridor to go via the Whetstone, Bulli, Western Creek and Dunmore State Forests, connecting to the non-operational Cecil Plains branch line where it re-joins the Base Case Modified corridor at Mount Tyson.

A high-level assessment of this alternative corridor by the consultants shows an increased length of 19 km, including an additional 6.5kms that traverses endangered remnant vegetation communities, and an estimated cost increase of \$130 million over the Base Case Modified corridor. It is estimated there will also be an increase of about 15 minutes to the overall transit time as a result of the increased corridor length. These estimates are based on a very preliminary corridor (without a concept or feasibility design) and adopting the average per kilometre construction cost utilised for the Base Case Modified estimate and applying that to the proposed forestry corridor.

This estimate also does not include any allowance for greenfield/brownfield differences plus any potential environmental impacts and possible offset requirements.

It is ARTC's view that the additional cost coupled with the additional transit time is unlikely to be offset by sufficient benefits in adopting this option.

**Next Steps**

Corridor refinement

It is considered important that the Steering Committee note that determination of the preferred corridor to take forward into formal assessment and planning approval processes does not preclude opportunities for future refinement of the corridor. It is often the case that a particular corridor is refined as a result of feedback received from landowners, community or other stakeholders during the preparation of an Environmental Impact Statement (EIS). ARTC envisages that it is highly likely that such refinements will occur in respect of the recommended preferred **Wellcamp – Charlton** corridor as engineering work and associated studies (e.g. geotechnical, social-economic, ecological) progress.

Land access for seasonal environmental studies

To minimise flow-on delays to the construction program, it is strongly desirable that seasonal environmental assessments (for the spring/summer growing season) commence by 1 September 2017. Delays to this date potentially flow on to cause an eight month delay to commissioning this section of Inland Rail.

The timely endorsement by the Minister of a preferred corridor as recommended in this paper will enable ARTC to commence engagement with landowners with a view to securing the land access agreements necessary for environmental studies to commence from 1 September 2017.

Border to Gowrie Community Consultation

In light of the feedback received from the community prior to and throughout the PRG process, it is important that ARTC demonstrates an enhanced level of landowner, community and stakeholder engagement and consultation in respect of the recommended corridor.

Once the Minister has endorsed a preferred corridor, ARTC will adopt an enhanced program to ensure appropriate consultation with – and, where appropriate, input from – the community. It is proposed that ARTC establishes a Border to Gowrie Community Consultative Committee (BGCCC) that would operate both prior to and throughout the EIS process. It is envisaged that this Committee will be established as a matter of priority. A draft Terms of Reference for the BGCCC has been endorsed by ARTC.

**Budget implications**

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**ATTACHMENTS**

- Attachment 1: Links to AECOM/Aurecon *Corridor Options Report and Appendices***
- Attachment 2: Process to refine the corridor**

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## **Attachment 1: Links to AECOM/Aurecon *Corridor Options Report and Appendices***

Click links to download:

[Yelarbon to Gowrie Corridor Options Report Rev2 - Main Report.pdf](#)

6.47 MB, Fingerprint: 0b39a2d1951ca71fb71fd09cb5222743

[Yelarbon to Gowrie Corridor Options Report Rev2 - Appendices.pdf](#)

246.78 MB, Fingerprint: d3a5435900054da3666c103e9ecc819d

# PROCESS TO REFINE THE ROUTE

This document describes how ARTC undertakes a 'like for like' comparison of alternative route options and is applied along the entire Inland Rail route. There are three elements.

## Alternatives are compared on their ability to meet the SERVICE OFFERING



**TRANSIT TIME**  
requires a transit time from Melbourne to Brisbane in less than 24 hours



**RELIABILITY**  
requires 98 per cent reliability to freight customers



**COMPETITIVE PRICING**  
requires competitive pricing for freight customers



**AVAILABILITY**  
requires suitable train paths at the times that suit the needs of the market

This is the level of service required by rail operators and freight customers

## Alternatives are compared on basis of COSTS



**CONSTRUCTION ESTIMATE**



**OPERATING COSTS**

This is the construction estimate, and track maintenance and train operating costs for customers

## And a range of factors is considered in a MULTI-CRITERIA ANALYSIS



**TECHNICAL VIABILITY (17%)**  
considers the alignment, impact on public utilities, geotechnical conditions, impacts on existing road and rail networks, flood immunity and hydrology and future proofing



**ENVIRONMENTAL IMPACTS (12.5%)**  
considers the ecological impacts (flora, fauna and habitats), visual impacts, noise and vibration impacts, flooding and waterway impacts and the effect on air quality and greenhouse gas emissions



**SAFETY ASSESSMENT (16.5%)**  
considers construction safety, operational safety, public safety, road safety interfaces and emergency response



**COMMUNITY & PROPERTY IMPACTS (12.5%)**  
considers property impacts, Indigenous and non-Indigenous heritage, impact on community, community response and current and future land use and links to economic impacts



**OPERATIONAL APPROACH (16.5%)**  
considers the impact on travel time, reliability and availability, and network interoperability and connectivity including interfaces with rail terminals and network



**APPROVALS & STAKEHOLDER ENGAGEMENT (12.5%)**  
considers planning and approval requirements, State and Federal agency buy-in, Local government buy-in, other statutory and regulatory approvals and service authorities, such as utilities etc.



**CONSTRUCTABILITY & SCHEDULE (12.5%)**  
considers construction duration, access, and complexity, resources, interface with operational railway and staging opportunities

This is a broad range of qualitative and quantitative criteria that is considered as part of the Multi-Criteria Analysis (MCA). The MCA process is recognised as an industry standard and is widely used in Australia and internationally.

The final step in the process is that ARTC makes a recommendation to the Minister for Infrastructure and Transport through the Melbourne to Brisbane Inland Rail Steering Committee.

This approach is considered to represent industry best practice. It is applied across the entire Inland Rail Programme to ensure a consistent approach to the 'like for like' comparison of all alternative route options.