Narrandera
Shire Council

The Office of the Mayor

Our ref: *JC/vkm: 10/35/116-132 & 90/15/1*
Your ref: ---

20 June 2014

Attention: Malcolm Southwell
Inland Rail Implementation Group Secretariat
GPO Box 594
CANBERRA ACT 2601

inlandrail@infrastructure.gov.au

Dear Sir

RE: Narrandera Shire Council Submission to Inland Rail Implementation Group

Thank you for the opportunity to provide this submission to the Inland Rail Implementation Group.

We at Narrandera Shire Council are deeply concerned that the Department of Infrastructure and Regional Development are ignoring the obvious logistic and economic advantage that the Shepparton/Tocumwal/Narrandera/Parkes rail route has over the proposed Albury to Wagga section of the Inland Rail Line.

By using the existing line from Melbourne to Mangalore, the Inland Rail Route could easily run via the flat countryside via Shepparton, Tocumwal, Narrandera and onto Parkes. No land acquisitions would be required between Melbourne and Narrandera. This inland route alternative would be approximately 1595 Km long between Melbourne and Brisbane and, due to the flat terrain, be capable of delivering 5000 Tonne double- stack trains from end to end in 19 hours. The route through Albury would be 1731km long.

The route via Narrandera would have 20 Equivalent Circles (the measure of curvature) as against the Albury route of 51 Equivalent Circles. This significantly higher number of Circles adds significant cost to the project. It is interesting to note that the existing coastal route has 267 Circles. It has also been established that northbound commercial load/tonnes could be 3400 Tonnes as against 2920 Tonnes via Albury.

The Narrandera route has a key attribute which neither the Albury route nor the existing route would ever be able to attain. It would enable an express freight train to operate between Melbourne and Brisbane in under 13 hours which would be an extremely viable alternative to both air and express road freight.

Narrandera Shire Council has a proactive history in promoting the virtues of the Tocumwal to Narrandera section of this rail route. It was the instigator of a joint rail committee consisting of representatives of Berrigan Shire Council, Urana Shire Council, Jerilderie Shire Council, Narrandera Shire Council, Leeton Shire Council and Griffith City Council. The enclosed attachment provides an example of the work carried out by this committee.

Our own council has made numerous representations and submissions to the NSW Government including a meeting with the State Transport Minister in February 2012. We are also investigating Public/Private Partnerships such as the Inland Corridor Foundation established on Vancouver Island, B.C. Canada. A Memorandum of Understanding between the participating councils is also being investigated. Clearly, Narrandera Shire Council and its neighbours are keen to tap into the unlimited economic potential which this upgraded rail line will generate.

We would welcome the opportunity for your group to visit us to investigate the economic and logistical advantage which the Narrandera route has over the current proposal.

Yours sincerely

J. L. Clarke.

Jenny Clarke
Mayor
Narrandera Shire Council

J M Charlton

Judy Charlton
General Manager
Narrandera Shire Council

Enc: Narrandera to Tocumwal Rail Line Infrastructure Revamp

NARRANDERA TO TOCUMWAL RAIL LINE INFRASTRUCTURE REVAMP

PREPARED BY:
COUNCILLOR WESLEY HALL (NARRANDERA SHIRE COUNCIL)
CHAIRMAN NARRANDERA TO TOCUMWAL INLAND RAIL COMMITTEE
ISSUED JANUARY 2012

Narrandera to Tocumwal Rail Line Redevelopment
Prepared by Cr Wesley M Hall
Narrandera Shire Councillor 2008-2012
Narrandera Shire Council Mayor 2009/10
Chairman Tocumwal to Narrandera Rail Working Committee

Introduction:

On 19th July 2011, Narrandera Shire Council passed a resolution to form a joint working committee with Urana Shire Council, Berrigan Shire Council and Jerilderie Shire Council to progress the reopening of the Tocumwal to Narrandera Rail Branch Line. Subsequent invitations have been sent to Strathbogie Shire Council, Greater Shepparton City Council, Moira Shire Council, Leeton Shire Council and Griffith City Council to join this committee. In 2012, these nine local government areas will meet with both NSW and Victorian Transport Ministers to state the strong case in reopening the Tocumwal to Narrandera Rail Line.

Background Information:

The Narrandera to Tocumwal line is a disused 180 kilometre long section of the New South Wales railway network. The line was constructed between 1884 and 1914 and provided transport for rural produce in the south west region of the state to Sydney and its ports. Passenger services were also provided on the line to the communities of Tocumwal, Berrigan, Finley and Jerilderie.

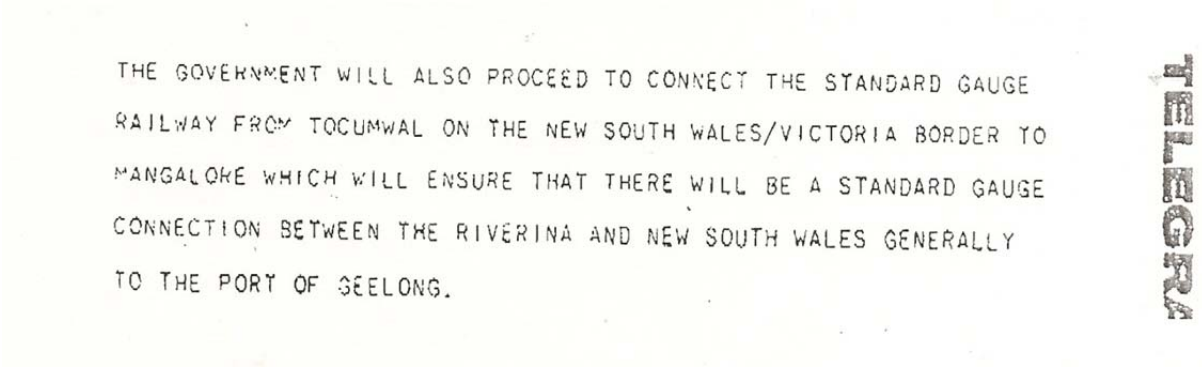
Improvements in the competitive performance of road transport led to a decline in demand for services on the line. This decline provided the justification for the progressive line closure between 1986 and 1988. The road transport option also provided the opportunity to re-orientate transport patterns away from Sydney and Port Kembla to the closer Melbourne and Geelong ports. Existing freight transport in the region still includes a relatively high rail utilisation through Victorian broad gauge facilities at Deniliquin in the west, Tocumwal in the south and Oaklands in the east. These lines provide direct rail services to Melbourne for those regions previously serviced by the Tocumwal line but with an increased road haulage from the farms.

The line is located immediately south of and links though existing rail infrastructure to major agricultural developments in the Murrumbidgee Irrigation Area (MIA). This provides the potential for a more direct rail route to Sydney or Melbourne via Junee. To provide this, the existing Victoria network line between Tocumwal and Mangalore would need to be converted to either standard or dual gauge operations.

The Mangalore to Tocumwal route is 142 kilometres in length and is of the broad Victorian gauge. Almost the whole of the Mangalore to Narrandera line is built on flat country and the grades are not severe. If there was no break-of-gauge at Tocumwal, a significant amount of freight could go by rail. Elimination of the break-of-gauge at Tocumwal and the opening of a standard gauge corridor to Geelong, the nearest cost effective seabound terminal of the nine participating local government areas, would see a significant revival of the economy of South

Western NSW. The savings in freight rates, road maintenance costs, road trauma and the environment would be significant. World War 2 demonstrated that the defence value of this line is also significant. An excellent opportunity exists to introduce double stack container trains through to Roto to provide a highly efficient East-West link.

It is of interest to read the following 1983 Telegram Copy sent by the Private Secretary to Mr Bruce Lloyd, Federal Minister for Transport. The telegram quotes the Prime Ministers Policy Statement stating that there would be a standard gauge link from Tocumwal to Mangalore. Alas for Mr Fraser, governments come and go, as do policy statements.


THE GOVERNMENT WILL ALSO PROCEED TO CONNECT THE STANDARD GAUGE RAILWAY FROM TOCUMWAL ON THE NEW SOUTH WALES/VICTORIA BORDER TO MANGALORE WHICH WILL ENSURE THAT THERE WILL BE A STANDARD GAUGE CONNECTION BETWEEN THE RIVERINA AND NEW SOUTH WALES GENERALLY TO THE PORT OF GEELONG.

TELEGRA

Summary of Infrastructure Work Required:

1 – Conversion to a standard or dual gauge between Tocumwal and Mangalore thereby saving transfer of freight at the border.

2 – Reopening of Tocumwal to Narrandera line.

Introduction to Economic Case:

The commissioning of a continuous standard gauge link to Melbourne and Geelong opens the catchment and serviced areas of the line to the highly developed MIA and beyond to Hillston. Freight likely to be carried southbound on the line would include wheat, rice (paddy and processed), citrus fruit, wine and processed vegetables. Imported to the region and transported northbound on the line would be fuel and general freight. The estimated annual freight tonnage on the line is 425,000 tonnes.

There is additional potential to use this high standard line in combination with existing rail infrastructure to attract road freight from the Newell Highway. The effectiveness of this alternative to road freight is extremely difficult to quantify.

The development of a standard gauge line south of Tocumwal will substantially change existing transport patterns.

Section 1

1.1 Feasibility Study:

The Tocumwal to Narrandera Rail Line is one of several disused rail lines in NSW. In June 2000, the Rail Access Corporation completed a comprehensive study of the line between Tocumwal and Narrandera. In 2007, Maunsell completed a report into the Melbourne to Brisbane Inland Rail Project. Information from these studies have been incorporated into this report. With regards to the financial data, all figures have been estimated at current values as at 31st December 2011.

1.2 Study Area and Line Description:

The disused rail line is a 180 kilometre long single line bi-directional track linking Narrandera on the Murrumbidgee River in the north with the border town of Tocumwal on the north bank of the Murray River. Constructed in stages between 1884 and 1914 the line linked the south west region of the state into the New South Wales rail network radiating from Sydney and in latter years provided direct rail access to the other states. The line provided passenger and freight services to the communities of Narrandera, Jerilderie, Finley, Berrigan, and Tocumwal and grain loading facilities at a number of intermediated locations. The line was progressively closed to services with the sector south of Jerilderie closed in 1986 and the remainder in 1988. At Tocumwal the line changes gauge to the Victorian broad gauge standard. It links into the Victorian rail network radiating from Melbourne.

At Narrandera the line joins the currently operating line to Junee which in turn joins the Main South Line linking Sydney and Melbourne and provides access to the major export ports of Port Kembla and Port Botany. Direct rail access to the north and west of Narrandera links the region with the major Murrumbidgee Irrigation Area (MIA) development areas of Leeton and Griffith and beyond extending north to Hillston. South from Tocumwal the line extends past the regional centre of Shepparton to Mangalore where it joins the Main South Line (with both standard and dual gauge tracks) to Melbourne and the port of Geelong.

The region is an important agricultural area for the state with production centred on wheat, rice, fruit and vegetables. Despite depressed market conditions there remains extensive broadacre livestock farming predominantly in wool but also in cattle for meat production.

If the Narrandera to Tocumwal line is to be re-opened and a standard gauge link developed between Tocumwal and Mangalore there is the potential to offer the region a direct and unbroken freight service to Melbourne and its ports. If developed this link will enable significant transport cost savings for the industries and towns along the line as well as for the Murrumbidgee region to the north and west of Narrandera A summary of travel distances to major destinations both with and without the standard gauge link are summarised in the following table.

Table 1.1: Approximate Rail Distances To and From Major Destinations (Kilometres)

Origin	Geelong via Tocumwal	Melbourne via Tocumwal	Melbourne via Junee	Sydney	Port Kembla
Hillston	689	616	748	747	661
Griffith	582	509	641	640	554
Leeton	535	462	594	613	527
Narrandera	505	432	564	583	497
Jerilderie	400	327	669	688	602
Tocumwal	324	251	NA	764	678

Section 2

Market Demand

2.1 Regional Economy

This western and southern Riverina region is one of the state's and nation's most important agricultural regions centred within the Murrumbidgee Irrigation Area (MIA). It includes the significant farm production of wheat, rice, citrus fruit, vegetables, grapes, wool, beef cattle and poultry. Developments within the region include the processing of this produce at rice mills, wineries and poultry plants plus fruit and vegetable processing (freezing, drying and canning). Supporting the region is a well developed and dynamic service infrastructure. These include road and rail freight, light industrial maintenance and manufacturing, financial, educational, government and commercial services. The primary and processed produce is supplied to markets throughout Australia with a high proportion also destined for export markets. The relative remoteness of the region from these markets makes the availability and efficiency of inland transport a key element of the health of the regional economy.

The potential market catchment of this line can be divided into three sub regions:

Narrandera to Tocumwal

This area traversed by the currently disused line extends between the Murrumbidgee and Murray River Valleys. Within these valleys are the three main irrigation areas identified as the Murrumbidgee Irrigation Are (MIA), Coleambally Irrigation Area (CIA) and the Murray Valley Irrigation District (MVID). It passes through the Local Government Areas of Narrandera, Urana, Jerilderie and Berrigan. East west the market catchment for freight transport is contained by the operating Victorian rail network broad gauge lines which terminate at Oaklands (57 kilometres east of Jerilderie) and at Deniliquin (62 kilometres west of Finley).

Agricultural activity is predominantly wheat in the north whilst from Urana south there is an increasing area of cultivated rice production. Livestock production is predominantly in sheep.

Operating grain storage and disused rail loading facilities are located adjacent to the rail line at Narrandera, Corobimilla, Morundah, Jerilderie, Berrigan, Finley and Tocumwal. Rice Storage facilities are also located approximately seven kilometres south of Jerilderie and Finley.

Hillston to Narrandera

This region to the north and west of Narrandera, identified as the Western Riverina, extends north to the Lachlan River Valley near Hillston. The region is a potentially significant source for freight for the Tocumwal line, particularly if a direct standard gauge link is provided through Victoria. Whilst these areas are currently services by standard gauge rail the

reduction in rail travel distances to Melbourne by up to 130 kilometres would potentially attract significant southbound traffic through the Tocumwal route.

The extensive irrigation developments are located along and generally to the west of the disused rail line. These properties use a unique rotation technique between irrigated rice, grains and sheep and cattle grazing. The non-irrigated areas along and east of the line adopt a more conventional cultivation of wheat and sheep livestock production.

Tocumwal to Mangalore

The development of the Narrandera to Mangalore line as a standard or dual gauge line has the potential to attract northbound traffic from Victoria to destinations within and beyond the south western New South Wales regions. This would be expected to include the import of containerised and bulk liquid goods from Melbourne and its ports.

The Tocumwal to Mangalore link is 142 kilometres long running from the Victorian border crossing the Murray River and passing through the agriculturally rich Goulburn and Murray Valleys. It joins the main north South Line (broad and standard gauges) at Mangalore 10 kilometres north of Seymour. The line passes through the regional centre of Shepparton approximately 70 kilometres south of Tocumwal. Lines from Toolamba to Echuca (67 kilometres) and Strathmerten to Cobram (15 kilometres) branch from this Victorian regional line providing a potential for small additional traffic into the New South Wales rail network.

If the Narrandera to Mangalore line is upgraded to a reasonably high standard there is also the potential for the line to attract business outside of these regions. This rail service would compete with the existing road freight on the Newell Highway which parallels the line. Freight commodities would be likely to include Victorian low grade grains destined for northern Feedlots and possible export grains for northern ports. A similar southbound route for primary products from the north of New South Wales to meet shipping schedules from Victorian ports is also anticipated. The ability to attract the through traffic business will heavily depend on the quality of the rail infrastructure (axle loads, speed and number and location of passing loops) and the competitive approach adopted by rail operators.

Section 3

Infrastructure Requirements

3.1 Background

The Narrandera to Tocumwal line was constructed and opened in sections between1884 and 1914. The operated as part of the New South Wales railways southern track system linking through Narrandera to the state and national standard gauge network. The line provided freight and passenger services with 12 stations originally constructed along the line. The line was contiguous with the Victorian broad gauge network at Tocumwal immediately north of the Victorian border.

Use of the line was discontinued in stages with the line south of Jerilderie closed in 1986 and the remainder in 1988. The line was last used for passenger services in 1986.

3.2 Line Description

The disused line extends from 583.4 km (south of Sydney) at Narrandera to 763.9 km at Tocumwal – a distance of approximately 181 kilometres. The line is a single track with bi-directional lines. Passing loops are limited to the loading sidings at the former stations Corobimilla, New Park, Morundah, Widgiewa, Coonong, Bundure, Jerilderie, Marjimmy, Green Swamp, Berrigan, Lenisten and Finley.

Since the closure of services the line has not been maintained. There are noticeable areas of deterioration, structural and formation damage and purposeful removal of railway infrastructure. Given the age of the line, the heavy dependence on non-durable construction such as timber structures and the lack of maintenance over an extended period the line is in remarkable good condition.

The natural flat terrain of the region has enabled near level grades over the majority of the route. The steepest sector of line is a 1 in 50 (2%) grade immediately north of and descending into the Murrumbidgee River flood plain at Narrandera plus a number of 1 in 60 grades up to Corobimilla (603.9km). South from Corobimilla the line maintains near level grades.

Similarly the horizontal alignment of the track reflects the excellent rail construction conditions of the region with relatively few large radius curves and with up to 30 kilometres long straights. There are however, a number of speed restricted curves near Jerilderie, Berrigan and Finley.

Trackwork documentation indicates that the line was originally constructed north of Jerilderie with 80lb/yd (40kg/m) rail and the remainder with 60lb/yd (30kg/m) rail. Subsequent replacement of rail, particularly at curves, has generally been with a heavier 47kg/m rail. Upgrades have also involved partial replacement of jointed lengths with continuous welded construction welded construction and the installation of sleeper plates.

Inspections have highlighted that the line is generally in a fair to good condition. Exceptions to this statement include:

- Areas of localised rail buckling;
- Areas of sleeper plate and junction plate removal;
- Approximately one in five sleepers which would require replacement initially and a similar additional number in the medium term;
- Loose spike fixings;
- Localised areas of ballast removal north of Jerilderie and almost complete lack of ballast to the south; and
- Weed cover over much of the line and periodic tree and shrub growth in the formation.

It is understood that the northern sector of line was maintained as a Class 4 Line (RAC Civil Engineering Standards) which would enable a maximum axle load of 19 tonnes (ie 76 tonne GVM of wagon) at a maximum operating speed of 50kph. South of Jerilderie the line was maintained to operate as a Class 5 track which is compatible with a 40kph maximum operating speed for similar sized freight wagons.

The line south of Tocumwal to Mangalore is 142 kilometres in length constructed in the broad Victorian (1,600mm) gauge. The line is operational, full length for freight and south from Shepparton for passenger services. It is therefore generally well maintained and of a standard suitable for 20 tonne axle loads (80 tonne GVM). Rail sections are:

- 80lb/yd (40kg/m) from Shepparton to Tocumwal;
- 94lb/yd (47kg/m) continuous welded rail from Murchison East to Shepparton; and
- 47kg/m jointed south to Mangalore

3.3 Line Reinstatement Works

3.3.1 Bridges and Viaducts

Bridge structures and viaduct structures across flood plains are generally of traditional hardwood timber construction. This includes ballasted trackwork on and contained within timber decking and longitudinal stringers supported on timber trestle piers and foundations. There is extensive evidence of past maintenance of the structures up until the closure of the line. This evidence includes the partial replacement of ballast support decking with steel trough construction and replacement stringers, transoms and pier columns.

In addition to these historical repairs there is evidence of damage or deterioration in these structures principally:

- The removal of multiple bridge spans at the Sturt Highway, Leeton Road and waterway crossings;

- Dry rot in all member types but particularly the decking where a number of sections had failed completely leaving unsupported rail;
- Corrosion of deck bolts;
- White ant attack – pre-closure drilling of major timber elements had identified some of these attacks and in the intervening period it is likely that deterioration would be more extensive; and
- Areas of localised structural collapse or damage from mechanical impacts or material deterioration.

The condition of and the required works on the most significant timber structures are summarised below:

Murrumbidgee River Viaducts

The river flood plains are crossed by four major viaducts.

Viaduct 1:
This is an 80 span bridge each of 7.92 metres. There appears a high level of variability in the structural quality of the bridge. Those elements that could be seen appear reasonably sound however deterioration was recorded including:

- Buckled decks in Span 4;
- Dry rot in transoms;
- Rotted decking and collapse in Span 14;
- Severe deterioration in Spans 37 and 38 decking and periodic damage evident in a number of the other spans;
- Severe deterioration in Spans 50 to 59;
- Corroded and displaced decking bolts; and
- Rotted and failed ballast containment timber.

In addition to the obvious white ant failure there is an expectation of unsighted deterioration including white ant attack and rotted decking and transoms. Most safety refuges will require strengthening or replacement.

Viaduct 2:
Located immediately south of the River Crossing this is a 57 span structure of a similar variable condition as Viaduct 1 particularly with failed decking, ballast containment and transoms. In addition there are three spans between piers 50 to 54 which have been removed as part of the realignment of the Sturt Highway. It is envisaged that a minimum 20% of this bridge will require major structural repairs.

Viaduct 3:
Located 600 metres south of Viaduct 2 this 340 metre long structure exhibits a similar level of deterioration as Viaducts 1 and 2 but without any spans removed.

Viaduct 4:
A further 1.5 kilometre south of Viaduct 3 this 300 metre structure exhibits a similar condition as Viaduct 2. This condition of the piers are assessed as relatively poor.

Murrumbidgee Crossing at Narrandera

This is a substantial steel and wrought iron structure located immediately south of the township at Narrandera between the above described Viaducts 1 and 2. The structure shows little evidence of corrosion deterioration or structural distress. There is also no evidence of hydraulic inadequacies or tendances to cause river bed scour in the flood event. The bridge appears to be sound and would be likely to require only minimal repair and upgrade works.

Bridges Over Billabong Creek – Jerilderie

There are two bridges immediately south of Jerilderie of 12 metres and 63 metres overall length. These bridges appear to be extremely deteriorated and will require substantial reconstruction or replacement. Damage includes both piers and superstructures. Reconstruction of the form nominated for the Murrumbidgee viaducts is envisaged.

Tocumwal Bridge Over Murray River

As for the Murrumbidgee this operating bridge appears structurally sound. Some modifications will be required to accommodate the Standard Gauge operations.

Irrigation Channel Bridge

It is understood that at least some of the original bridge has been removed to improve flood flow through one of the irrigation channels. This bridge was not identified during the inspection but will require replacement.

Minor Creek Crossings and Culverts

The minor hydraulic structures appear to be reasonably sound and likely to require relatively minor works. Some of the smaller bridges were of timber frame construction and of variable quality and are therefore likely to require from minor to significant repairs works.

3.3.2 Formations and Permanent Way

The absence of any major cuttings along the route and relatively low embankment height has meant that the rail formation has remained stable. Relatively minor earthworks are envisaged on the lines. The key initial task will be to remove generally low but at times dense vegetation along the formation and track. This will also involve the removal of shrub and occasional tree growth.

The ballast north of Jerilderie is generally of high quality and unlikely to require significant replacement. New ballast will be required in some localised areas of this sector. It was not possible to establish the adequacy of the depth of ballast in place of subgrade performance. It is anticipated that inadequate ballast depth or subgrade failures would be localised and relatively minor problem. To the south of Jerilderie extensive ballast placement is envisaged.

No significant areas of rail removal or damage was noted during the inspections although a number of localised rail buckling failures were identified. Similarly turnouts appear reasonable sound but would require some maintenance prior to recommissioning.

3.3.3 Road Crossings

The line is crossed by a number of at grade road crossings and a single grade separated crossing of the Newell Highway located between Narrandera and Jerilderie. Apart from this overbridge the trackwork and all traffic controls have been removed on the remaining major road crossings. These include the partially dismantled viaduct crossing of the Sturt Highway immediately south of Narrandera, the Urana Road near Jerilderie, the Riverina Highway near Berrigan and the Newell Highway near Tocumwal.

Given the traffic on the Newell and Sturt Highways it is proposed that these two crossings would be reinstated with grade separated road overbridges. For the remaining two crossings gated and signalised at grade crossings are proposed. Missing trackwork is to be reinstated at each location.

In addition there are a number of minor road crossings. These appear to be generally intact. The works required will involve removal of road pavement, replacement of timber retaining blocks and new and improved signage.

3.4 Capital Cost Estimates

A preliminary capital cost estimate of the likely works has been estimated and is included in Appendix A. Given the higher level of detail available for the New South Wales sector of the line the costs estimates for the work are considered to have a higher level of accuracy than the Victorian sector. Notwithstanding this the ultimate construction and reinstatement works can be considered as an order of costs only until the line is cleared of growth and a very extensive rail and structural survey can be undertaken.

A summary of the cost is shown in Table 3.1

	Costs - $ million
NSW Rail Network	35.1
Vic Rail Network	14.0
TOTAL	49.1

Appendix A
Table 1 – Reinstatement Capital Cost Estimate

Item Description	Unit	Quantity	Rate ($)	Total($)
Narrandera to Tocumwal Reopening Works				
1 Preliminaries		5%		1,428,566
2 Remove Vegetation	km	170.5	4,000	682,000
3 Reinstate Drainage				
3.1 Narrandera to Jerilderie	km	104.9	1,000	104,900
3.2 Jerilderie to Tocumwal	km	65.6	1,000	65,600
4 Re-sleepering, re-ballasting and tamping				
4.1 Narrandera to Jerilderie	km	104.9	50,000	5,245,000
4.2 Jerilderie to Tocumwal	km	65.6	60,000	3,936,000
5 Replacement Rail (2nd hand)				
5.1 Narrandera to Jerilderie	km	1.5	160,000	240,000
5.2 Jerilderie to Tocumwal	km	2.5	160,000	400,000
6 Refix existing rail connections				
6.1 Narrandera to Jerilderie	km	103.4	10,000	1,034,000
6.2 Jerilderie to Tocumwal	km	63.2	14,000	884,800
7 Reinstate Minor Road Crossings				
7.1 Narrandera to Jerilderie	No.	5	1,000	5,000
7.2 Jerilderie to Tocumwal	No.	12	1,000	12,000
8 Signalised At Grade Crossings				
8.1 Urana Road	Item	1	70,000	70,000
8.2 Riverina Highway	Item	1	70,000	70,000
9 New Road Overbridges & Approaches				
9.1 Sturt Highway	Item	1	1,500,000	1,500,000
9.2 Newell Highway Nth Tocumwal	Item	1	1,500,000	1,500,000
10 Major Rail Bridges				
Narrandera – Twynam St Underbridge	Item	1	40,000	40,000
Narrandera – Leeton Rd Underbridge	Item	1	170,000	170,000
Narrandera – Irrigation Channel Bridge	Item	1	40,000	40,000
Murrumbidgee R – No. 1 Viaduct	lin m	635	6,500	4,127,500
Murrumbidgee R – Main Bridge	Item	1	40,000	40,000
Murrumbidgee R – No. 2 Viaduct	lin m	450	6,500	2,925,000
Murrumbidgee R – No. 3 Viaduct	lin m	340	6,500	2,210,000
Murrumbidgee R – No. 4 Viaduct	lin m	300	6,500	1,950,000

Colombo Ck Bridge	lin m	44	6,500	286,000
Km 616.5 – 30m bridge	lin m	30	6,500	195,000
Billabong Ck Bridge #1	Item	12	6,500	78,000
Billabong Ck Bridge #2	Item	64	6,500	416,000
Replace Removed Bridge – Irrigation ch	Item	13	6,500	84,500
11 Upgrade Passing Loops	No.	4	40,000	160,000
12 Signalling – Inspect & Repair	Item	10	10,000	100,000
13 Allowance for Unmeasured Items		10%		2,999,986
14 Investigations & Design		7%		2,099,990
TOTAL Narrandera To Tocumwal				**$35,099,842**

Table 2 – Reinstatement Capital Cost Estimate

Item Description	Unit	Quantity	Rate ($)	Total($)
Tocumwal to Mangalore – Standard Gauge Implementation Works				
15 Preliminaries		5%		576,800
16 Third Rail – Main line	km	142	60,000	8,520,000
17 Third Rail – Passing loops	km	1.6	60,000	96,000
18 Dual gauge turnouts	No.	10	160,000	1,600,000
19 Broad gauge turnouts	No.	6	20,000	120,000
20 Adjustments to Bridges	Item	1	1,000,000	1,000,000
21 Revised Signalling	Item	1	200,000	200,000
Sub-total				12,112,800
22 Allowance for unmeasured Items		10%		1,153,600
23 Investigations & Design		7%		807,520
Sub-total				1,961,120
TOTAL – Tocumwal to Mangalore				**$14,073,920**
TOTAL – Narrandera to Mangalore				**$49,173,762**