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Western Rail Corridor (Bangalow to Shire Boundary) Report

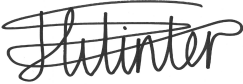
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Executive Summary

This Report discussed the constraints, provides a high level cost estimate, outlines the benefits and opportunities and provides a high level project plan associated with the development of a shared use recreational rail trail between Bangalow and Booyong (recreation grounds) within the Byron Shire Council local government area. This Report is intended to form a discussion point on that section of the broader Northern Rivers Rail Trail and the likelihood of traditional rail ever progressing in that section, potentially giving the elected Council confidence to pursue a rail trail only in that section.

This report is not a feasibility study, which may be required to support a funding application, however it does discuss some of the benefits and provides a high level estimate of cost for construction of a rail trail in this section. A feasibility study would include an assessment of the full range of possible issues and potential opportunities in greater detail, likely with a cost-benefit assessment included, discussing the feasibility in terms of actual costed benefits.

A Bangalow to Booyong Rail Trail – with a length of 12.8 km - would be attractive to local visitors and more broadly visitors from the Northern Rivers and South East Queensland. The appeal to visitors would be further increased if and when the trail is linked either through to Casino when Lismore Council progress the Lismore to Booyong section, or further into the Byron Shire, should Council choose to progress a rail trail from Bangalow to Byron or further.

The report found that the key constraints of progressing with traditional rail use in conjunction with a rail trail include land ownership and tenure, tunnels, bridges, cuttings and embankments, and road crossings. These constraints, if a rail trail was progressed 'off alignment', would add substantially to the cost which would very likely push the cost benefit assessment into being considered not feasible. As an example constraint, the image below depicts the ecological and physical constraints of bypassing an overbridge on this alignment. Constructing an off alignment rail trail in locations such as this would deem the overall rail trail project not feasible with respect to a cost-benefit ratio that must consider the options and additional cost of off-alignment construction.





Bypassing such an overbridge would be required for a rail trail if rail services were utilising the embankment. There are major constraints in this situation due to insufficient space under the overbridge for a rail trail, extensive amount of earthworks and clearing would be required and either an extension of the existing bridge or a new bridge for the rail trail being required. These constraints would make to dual uses of the corridor unfeasible.

A high-level, indicative project cost estimate has been completed as part of this Report. The cost estimate was based on the initial NRRT estimate, with appropriate escalation and updated bridge reconstruction costings applied to the estimate. The project cost at this time is estimated to be in the order of \$11M, noting the current volatile construction market makes it difficult to accurately estimate construction costs.

Some of the benefits to the community are discussed, including general opportunities, opportunities for businesses, benefits to individual residents including health and wellbeing, cultural, education and liveability. A feasibility study would further explore these benefits with the goal of quantifying those benefits.

In summary, this Report presents information that supports the benefits of a rail trail between Bangalow and Booyong and outlines the constraints if such a rail trail was to be considered 'off alignment' to preserve the deteriorated rail infrastructure for potential re-use for traditional rail services. A high level project plan is presented to give an indication of the timing for progressing this project, which from this point is likely to be a number of years.



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1. Introduction

1.1 Background

Byron Shire Council have been considering multi modal use of the shire's rail corridor since late 2016, when a mayoral minute was adopted to commence investigations into the feasibility of such multi use. Over the past 6 years, Council have been progressing those investigations which have had multiple internal and external factors change and affect such feasibility. Such changes included Council elections, adjacent shires removing their rail infrastructure, state and federal funding specifically for rail trails being available and COVID reducing the tourism visitation to the Byron shire.

The net result of some of these changes is such that Council is now considering the feasibility of rail with trail for the externally connection sections of the shire (Bangalow to the shire boundary, and Mullumbimby to the shire boundary), because the adjoining Councils do not show support for reinstatement of rail services and hence the consideration of rail services might be best served as a focused effort within the shire's major towns only.

Byron Shire Council's rail corridor comprises a total length of 54.2km from Booyong at the Lismore shire boundary, to Crabbes Creek at the Tweed shire boundary. Byron's section is almost half of the total length of the Northern Rivers Rail Trail, which is 128.6km. The section considered in this report is the Western section from Bangalow to Booyong at the Lismore shire boundary (the trail would finish at the old Booyong station/recreation reserve), which is 12.8km. The user experience and functionality of the Western section will be improved if a longer trail to Booyong (or perhaps even extending to Eltham) is completed, although cost versus benefit must be considered, which is explored in a preliminary nature within this report.

1.2 Purpose of this Report

The primary purpose of this Report is to provide information outlining the constraints, costs, benefits and rail mode interest for the rail corridor (and a constructed rail trail) between Bangalow and Booyong. The costing component is broken down into four sections and the benefits talks to the potential benefit of each section including the overall benefit of a longer, function rail trail. The presentation of this information will ideally assist Byron Shire Council in deciding the future of this section of the rail corridor within the shire.

1.3 Scope

Byron Shire Council on 25 August 2022, resolved that Council:

1. Notes the previous unanimous support of council for the utilisation of the Rail Corridor through Bangalow from Rifle Range Road for bike and pedestrian travel.
2. Receives a report on the rail corridor from Bangalow station through to Binna Burra:
 - a. Identifying known constraints of a trail beside the rail for the length of this section.
 - b. Detailing any offers or interest received from commercial or other operators to reinstate a form of rail transport in this section.
 - c. Provide a cost estimate for implementing and maintaining annually a bike and pedestrian track along the rail corridor:
 - i. from the Bangalow Station to Rifle Range Road



- ii. from the Bangalow Station to the Bangalow Industrial Estate
- iii. from the Bangalow Station to Binna Burra
- d. Detailing any benefits to the community of building a bike and pedestrian track as above.

The scope of this report is intended to address the above requirements and provide the information that is the subject of this resolution, which is for the rail corridor between Bangalow and Binna Burra (although it is noted that this report talks to the rail corridor to the shire boundary at Booyong with the intention of linking to Lismore's potential future development of a rail trail from Lismore to Booyong. The rail line itself between Bangalow and Booyong is a distance of 12.8km.

Whilst this report provides a level of current costing with the benefit of Burchills' involvement in the recently constructed Tweed Rail Trail from Murwillumbah to Crabbes Creek, it does not provide the level of detail that would be involved with the detailed design of a construction ready project. This would be the logical next step, if Council chooses to proceed in developing a rail trail in this section of the corridor. Potentially beginning with a detailed feasibility/cost benefit analysis and then commencing to detailed design either before or after funding for the project is determined.

The brief issued by Byron Shire Council sets out the requirements for this Report. The Report will outline the constraints identified in this section of corridor, offers from rail operators, cost estimates for various lengths of this section of the corridor, and the community benefits and economic impact of developing this section as a rail trail. The economic impact of such a project would include direct and indirect job creation, tourism benefits that flow on from the new facility due to the increased use and creation of related opportunities (which are based on real examples such as the Brisbane Valley Rail Trail and New Zealand's extensive rail trail network).

This Report will adopt a concept design for the purposes of demonstrating the constraints and costings for the rail trail. Typical interactions/interfaces with existing road infrastructure, cycle and footpath networks will be used. The preliminary assessment will identify opportunities for trail heads (start and end) and nominate suitable locations however these trail heads and the associated embellishments can form a large component of the costings and hence our experience with Tweed's section will again be useful in providing an approximate cost however embellishment at trail heads is typically agreed late in the project construction cycle. The trail surface will likely change depending on topography, the potential use of each section and the ease for maintenance and accommodation of various end users including pedestrians, cyclists, disabled users and potentially horse riders.

The report will also identify and evaluate any social, economic and environmental benefits and opportunities for community involvement as a result of the project:

- Estimate the cost of the works necessary to develop a rail trail in this section of corridor.
- Estimate maintenance costs and identification of a suitable maintenance regime.
- Identify whether there will be a demonstrated benefit to trail users and how it can be quantified.
- Identify the number of users the trail could attract, what is a reasonable forecast and what is the estimated economic benefit (average spend) of a rail user using the trail.



- Identify what markets the rail trail could attract. Provide user scenarios for day-trippers, local use, special events and so on.
- Identify opportunities for encouraging visiting trail users to stay longer within the shire.
- Identify potential new business opportunities and how the rail trail contributes to the visitor economy.
- Outline any other quantifiable health benefits, environmental benefits or culture and learning experiences.

1.4 Methodology

The first step in examining this section of the rail corridor will be the identification of various factors that influence the practicality / constraints of building a trail along a disused railway including building it 'off alignment', i.e. maintaining the rail infrastructure for potential future use. Some of the constraints identified will make construction difficult and/or far more expensive. These factors could be grouped under "Issues" or "Opportunities". Some of these issues can of course be resolved through design, negotiation or by the spending of funds to mitigate the problem however in the bigger picture would impact on the feasibility of developing a rail trail at this location.

In progressing this report, the following tasks were undertaken:

- An inception meeting, involving staff from the Byron Shire Council and Burchills Engineering Solutions.
- Assessment of the entire disused railway corridor between Bangalow and Booyong (refer Appendix A).
- General observations made of the terrain and topography through which the railway corridor passes.
- An estimate of the likely costs expected for construction of the infrastructure works required along the corridor, utilising recent construction information obtained for the Tweed section.
- An assessment of the likely social and economic benefits of developing the trail.

In this report, the community is defined not just as the local community, but people living in the wider region as well as visitors to the region, as these numbers may be significant.

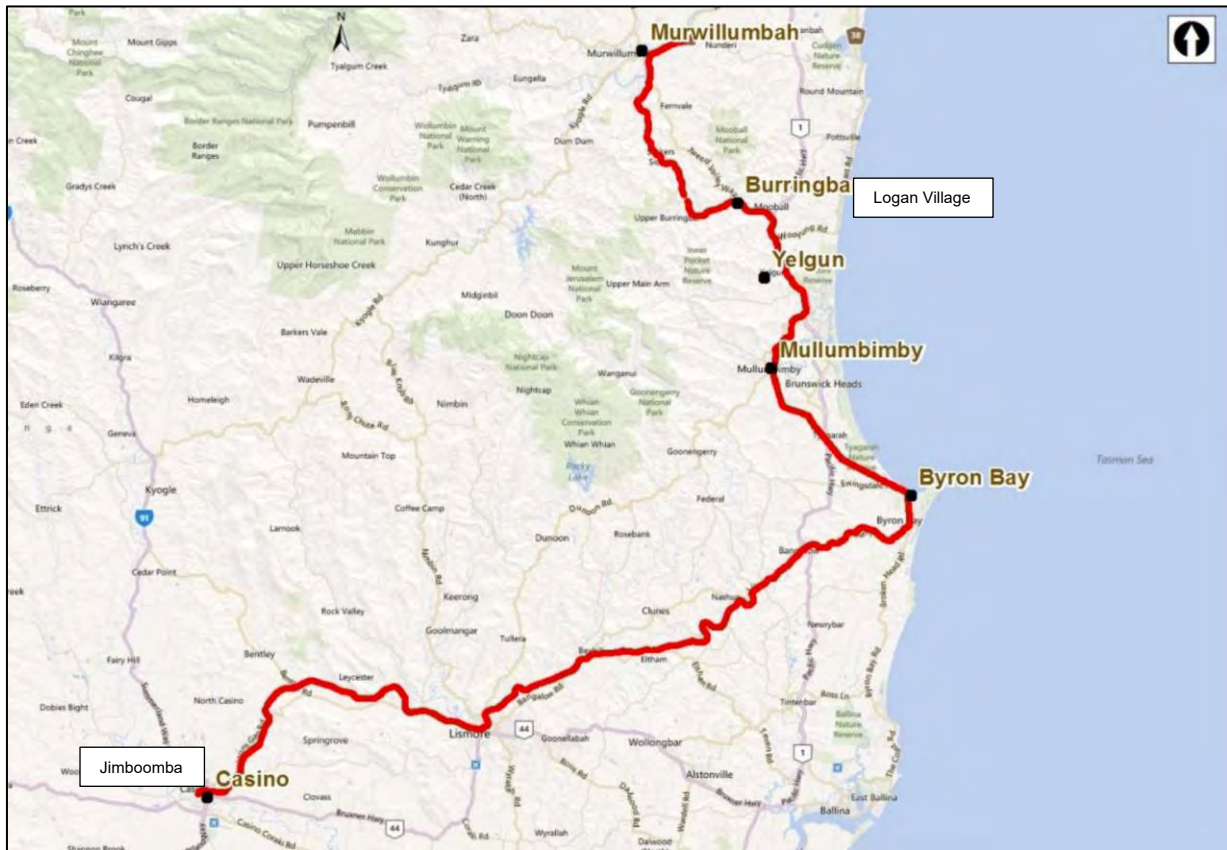
Naturally, those living alongside the corridor have a direct and often very personal interest in the corridor and believe that they may be negatively impacted out of any conversion to a rail trail due to a perception of impacts on lifestyle and amenity and loss of access to currently public land. The beneficiaries from such a project are often a much more diverse and geographically spread group – local users, visitors, and local businesses. This is a typical pattern for the impacts of most public infrastructure projects. It is important that such a project be cognisant of all these interests and concerns.



2. The Current Situation

2.1 History of the Railway

The railway from Casino to Murwillumbah was opened in 1894 and operated in various capacities until its closure in 2004. The line remained disused and has featured in a series of studies investigating the viability of reinstating services, whilst the Northern Rivers Rail Trail community group have advocated to establish a rail trail along the route.



Casino to Murwillumbah Rail Trail Route

2.2 Recent Developments

Richmond Valley Council are currently working on their section from Casino to Bentley, with Lismore City Council also undertaking detailed design that would extend this section from Bentley to South Lismore. Burchills have been engaged to undertake the detailed design of both the Richmond Valley and initial Lismore stages.

There is currently no detailed design for rail trails occurring between Lismore and Crabbes Creek. Some of these sections are quite costly and would require significant funding to progress.

Tweed Shire Council have recently opened their rail trail that extends throughout the full extent of their rail corridor from Murwillumbah to Crabbes Creek with an overwhelmingly positive response throughout the majority of the community.





Dignitaries cutting the ribbon during the opening of the first section of the NRRT at Murwillumbah.

Tweed Council have advised that in the first two weeks of opening, their rail trail had over 8,000 visitors. On the community celebration weekend, it was over 2,500. Conservative estimates at this early stage is in the order of 80 users per day. Data is being collected monthly and can be made available to support any future business case preparation.



The first official users of the Northern Rivers Rail Trail.

2.3 Removal of Rail Infrastructure

All other NRRT shires have, or at least plan to, remove some or all of the rail infrastructure within their respective rail trail sections. This means trains are extremely unlikely to be re-established from Casino to Murwillumbah. Notwithstanding this, Byron Shire Council may still choose to pursue the re-establishment of train services, although the constraints would need to be considered against a cost-benefit ratio for the feasibility of any such undertaking.



2.4 Northern Rivers Rail Trail Business Case Funding

Recently the Northern Rivers Joint Organisation (NRJO) were successful in obtaining grant funding of \$481K for a business case for the remaining unfunded section of the Northern Rivers Rail Trail, being Lismore to Crabbes Creek, including an extension to Ballina. The NRJO have engaged Muller Enterprise to prepare this business case, compliant with the Department of Regional NSW format, addressing the following components:

- the infrastructure project delivering the 'Lismore to Crabbes Creek' and the 'Bangalow to Ballina Connector' sections of the Northern Rivers Rail Trail;
- the optimal models for the successful management of governance, operation, maintenance, and promotion of the NRRT; and
- the identification, analysis and recommendations relating to a wide set of other community uses (for example communications/utility infrastructure) of the NRRT.

This work is due for completion by September 2023. It is currently considering a number of options including the following:

- A Rail Trail (on-formation) from Lismore to Crabbes Creek for all but the existing 3km of solar train (that section will be costed as off alignment);
- A Rail Trail (on-formation) from Lismore to Byron Bay and from Mullumbimby to Crabbes Creek, with the remainder being costed as Trail-besides-Rail (Byron to Mullumbimby);
- A Rail Trail (on-formation) from Lismore to Bangalow and Mullum to Crabbes Creek, with the remainder being costed as Trail-besides-Rail (Bangalow to Mullumbimby);
- A Rail Trail (on-formation) from Mullumbimby to Crabbes Creek, with the remainder being costed as Trail-besides-Rail (Lismore to Mullumbimby);
- A Trail-besides-Rail for the entire currently unfunded portion of the corridor (Lismore to Crabbes Ck); and
- An additional specific analysis of the proposed 'Bangalow to Ballina Connector Loop' (NB: this would be a roadside route and not in the rail corridor).

This project will significantly improve the chance of funding for the Lismore to Crabbes Creek section of the Northern Rivers Rail Trail, subject to the constraints being satisfactorily addressed with regards to option selection and cost-benefit.



3. Constraints Assessment

This section discussed the constraints of implementing a rail trail beside the rail (off-formation). When these constraints are imposed on such a project, it introduces additional cost, safety or asset resilience complications. An investigation into these constraints was undertaken. A project of this magnitude will always have a number of issues to overcome. Consideration has been given to the following constraints that were evident in this section of Byron Shire's rail corridor:

- Tenure and land ownership;
- Bridges;
- Cuttings and Embankments; and
- Road Crossings.

It is worth noting that there may be other potential constraints involved with establishing a rail trail adjacent to the rail line that were not part of the scope of this constraints assessment, which could include;

- Environmentally significant vegetation outside the rail alignment that may require removal
- Poor geotechnical conditions outside the rail alignment that would increase costs
- Additional costs associated with construction a new embankment for a rail trail
- Potential flooding associated with constructing a new embankment
- Additional cost for dividing fencing between the rail and trail uses
- Land topography
- Potential land contamination

3.1 Tenure & Land Ownership

The rail corridor requires a lease for tenure agreement for the use as a rail trail, and the current format of these agreements does not allow concurrent use with an active rail. If Council chose to proceed in obtaining the lease in its current format, it would preclude any active rail use in that section or sections of the rail corridor.

Furthermore, and as discussed below, there are some instances where a bypass may be considered to overcome a constraint and that deviates outside the rail corridor. If any such bypass does not have the ability to utilise a road corridor or council owned land or an easement, then that right of carriageway or acquisition would be required which may prove either costly or difficult to negotiate, or both.

3.2 Bridges

Bridges are another significant physical constraint to the *rail with trail* concept although far easier to overcome than the tunnels. The most likely outcome for the bridges would be to construct an alternative low level bypass trail including a small bridge or culvert structure for waterway crossings and an at-grade crossing for any road or driveway crossings. Where this proves difficult, a reconstruction or replacement bridge would be suggested and a mixture of these options has proved successful in the Tweed section and is proposed in both the Richmond Valley and Lismore sections.



We identified 13 existing rail underbridges and three (3) overbridges on our inspection of the western corridor although not all of these were able to be physically accessed due to the extensive vegetation along the rail corridor. It is possible that there are more bridges along the section south of Bangalow Road to Nashua than what we have been able to identify.

The overbridges all cross deep cuttings that would be very difficult to bypass although the Granuaille Road overbridge has an existing pedestrian path alongside the rail.

There were two (2) road crossing underbridges that have been completely removed at Rifle Range Road and Lismore-Bangalow Road while the Cudgerie Gully Bridge is in very poor condition and should be at least partially demolished where the bridge crosses Booyong Road.

The other bridges were typically timber trestle construction, some with longer steel plate girder main spans but all appeared to be in a similar condition to the timber bridges in the Tweed section, which were determined to be Condition State 5 and unsuitable for re-use without substantial renovation. This meant they were either bypassed or rebuilt using only the concrete components. Refer Appendix A.

3.3 Cuttings and Embankments

There are several locations where the rail corridor follows a steep and narrow cutting or embankment that would need to be widened to allow a trail adjacent to the existing rail line. The embankments were constructed to provide flood immunity to the rail line. Unless an adjacent trail was constructed at the same height, it would be a risk of closure and/or damage during flood events. Whilst not impossible to achieve it would be another significant cost affecting the feasibility of dual use of the corridor. These cuttings were not assessed at length, but pending the adjacent land uses it may also require land acquisitions or easements which would further increase the cost (Refer Appendix A).

3.4 Road Crossings

Road crossings can be dealt with in a number of ways, and this may depend on the speed of the road and/or traffic numbers. When considering a rail trail adjacent to the rail line for this section, these crossings would need to be expanded to suit both uses and in particular the signage and lighting requirements would be substantially different and potentially confusing for motorists and trail users.

3.5 Funding

It is worth noting that the reconstruction of the rail embankment/alignment and rail assets to a standard suitable for rail transport would cost significantly more than the construction of a rail trail. Furthermore, there is a current appetite for rail trails, as seen in the funding being made available through grants for the Tweed, Lismore and Casino sections of the NRRT. There is no such current funding apparent for the implementation of rail. If there was such funding, and if the embankment was utilised for rail services, it would substantially increase the cost of implementing a rail trail off-alignment as explained in these constraints and demonstrated in the photos. Likely the business case would no longer stack up and a rail trail would not proceed.



4. Offers / Interest to Reinstate Rail Transport

On the 1st of December 2022, Byron Shire Councillors and some key staff were presented a business plan for reinstatement of rail services within Byron Shire. The presentation was delivered by three people representing Mitren Rail, PREMA capital and the Northern Regional Railway Company Pty Ltd. For the purposes of the 'Western' section of the corridor as discussed in this report, the presentation and business plan has not been included, as the plan only mentions a services extension to the township of Bangalow, whereas this report is considering the rail corridor west of Bangalow. There is very little population density along the corridor west of Bangalow station, excepting the industrial estate and the Rifle Range Road subdivision and extensive residential development along the western part of Bangalow, east and west of Rifle Range Road.

On the 4th of May 2023, the Northern Regional Railway Company (NRRC) contacted Byron Shire Council to advise that they were successful in obtaining a license to enter the rail corridor from Bangalow to Yelgun for the purpose of infrastructure assessment only. Based on the condition of assets in all other sections of the NRRT, it is almost certain that all bridges would require reconstruction for the purposes of any use (including lightweight passenger transport), which will become evident once the NRRC undertake their inspections. Furthermore, these licenses often have a clause within for the purposes of establishing a rail trail and required amendments to the licensed area accordingly. See example of such a clause below (from Byron Bay Bypass Level Crossing license agreement). Furthermore, confusion or lack of clarity on the intended use in each section would put at risk any applications for potential state or federal funding.

<p>15. Rail Trails</p> <p>15.1 Use of Rail Trails</p> <p>(a) The Licensee acknowledges and agrees that:</p> <p>(i) all or part of the Licensed Area, and/or areas adjacent to the Licensed Area, may be required for the purpose of a Rail Trail at any time before or during the Term and as a consequence the Licensed Area may be varied or reduced pursuant to clause 15.2, or this Licence may be terminated pursuant to clause 15.4; and</p> <p>(ii) if all or part of the Licensed Area, and/or areas adjacent to the Licensed Area are required for a Rail Trail as contemplated in clause 15.1(a)(i) then to the extent required by TNSW, the use of the Licensed Area (or relevant part thereof) as a Rail Trail will take priority over the Licensee's use of the Licensed Area under this Licence (which may include the termination of this Licence or a variation or reduction in the Licensed Area).</p> <p>(b) If all or part of the Licensed Area, and/or areas adjacent to the Licensed Area, are required for a Rail Trail as contemplated in clause 15.1(a)(i), the Licensee must:</p> <p>CRN Property Licence Version 1.3. 270519</p>
<p>- 32 -</p> <p>(i) do all things necessary to ensure that the use of the Licensed Area by the Licensee does not interfere with the use of the Rail Trail;</p> <p>(ii) co-operate with TNSW and any other relevant Authority or entity or individual to formulate, implement and enforce appropriate protocols or agreements to ensure the safe use and operation of the Rail Trail (which may include the termination of this Licence or a variation or reduction in the Licensed Area); and</p> <p>(iii) otherwise comply with any directions given by TNSW, an Authority or relevant party in relation to the Rail Trail.</p> <p>(c) The Licensee may not make any Claim in connection with TNSW's exercise of its rights under this clause 15.1, including any Claim for Costs incurred by the Licensee.</p>

Example Rail Trail clause within rail corridor license agreement.



5. Capital and Operational Cost Estimates (Western Section)

5.1 Capital Cost Estimate

As part of the Northern Rivers Rail Trail business case, NRRT Inc prepared cost estimates for each section of the rail trail, which has been reproduced here. Unfortunately, construction cost escalation is as high as 30% since when this estimate was prepared in 2015. This, in combination with the recent cost information from Tweed Shire Council's completed Murwillumbah to Crabbes Creek section, has informed an updated, indicative cost estimate for this section of the rail trail.

Table 5.1 NRRT Estimate for Bangalow to Booyong Section

Item	Description	Quantity	Unit	Rate (\$)	Cost (\$)	Sub total
Preliminaries						
1	Site Establishment	1.00	no.	10,000	10,000	
2	Clearance of Vegetation	9.81	km	8,450	82,895	
3	Removal of Rubbish	1.00	nom	12,000	12,000	
4	Erosion and Sediment Control	9.81	km	750	7,358	
5	Remove Rails and Sleepers	9.81	km	20,833	204,372	
6	Dispose of Unusable Sleepers	1.00	nom	60,000	60,000	372,624
Bridges and Culverts						
7	Timber Bridge Replacement, Steel Refurbish	14	-	-	3,744,174	
8	Drainage	9.81	km	10,000	98,100	3,842,274
Pavement						
9	Provision for Traffic Control	20	days	600	12,000	
10	Power Line Observer	20	days	240	4,800	
11	Grade off Ballast, Prepare Subgrade	9.81	km	15,000	147,150	
12	Supply/Place/Compact Basecourse Pavement	9.81	km	50,000	490,500	
13	Final trim	9.81	km	10,000	98,100	
14	Two-Coat Spray Seal	9.81	km	46,000	451,260	
15	Connect to level crossing 054 at Booyong	0.5	km	106,000	53,000	1,256,810
Trail Furniture						
17	Fencing New	9.81	km	14,000	137,340	
18	Fencing Repair	9.81	km	9,000	88,290	
19	Signage and Linemarking	9.81	km	2,400	23,544	
20	Handrails	1,000	m	160	160,000	
21	Road Crossings	1	no.	5,500	5,500	414,674
Subtotal						5,890,382
Survey and Design					6%	353,423
Planning and Environmental Analysis/Approvals					5%	294,519
Contingency					20%	1,178,076
TOTAL						7,716,400



It must be noted that the NRRT Inc methodology for bridge treatment in this section was to repair or replace bridges in all scenarios, which is the highest cost option. Each of the other NRRT sections have undertaken a detailed multi criteria analysis when deciding whether to repair, replace or bypass bridges to obtain the best outcome for the project considering both cost and user experience.

There are three basic treatment options for the bridges being repair, replace, or bypass. The ultimate decision on the preferred treatment method depends on a range of factors such as capital and maintenance budgets, design life, physical and environmental constraints, amenity, and the desired user experience.

Given the age and condition of the existing structures it is reasonable to assume that the best option is to replace all the bridges with new structures however that would come at a considerable cost. In some cases, and where it is physically possible to do so, it may be significantly cheaper to bypass a bridge rather than repair or replace, however sometimes it may not be the preferred option from an ecological, hydraulic, or user experience perspective. Some treatment of the existing bridge may also be required to make the structure safe for rail trail users. This could range from full demolition to simply fencing off the structure to prevent access. Bypassing a bridge can also add a complementary perspective of the heritage structures while the trail is being used. This is evident in the Tweed section, which has recently gained a NSW & Act Heritage award for the project.

For the purposes of this estimate, it has been assumed that all bridges will be repaired or replaced. These rates are based on actual construction costs for the 10 low level bypasses and 16 timber and pre-fab bridges that have been constructed on the Tweed section of the Northern Rivers Rail Trail. A 30% contingency has been applied to all costs in the absence of level 3 condition reports and detailed design information.

To estimate the indicative costs for this section of the rail trail, we have broadly applied escalation of 30% to the original estimate that was prepared in 2015. This amount for escalation was developed in consultation with Hazell Bros, the contractor that constructed the Tweed section. It also aligns with the average cost per kilometre of trail for the non-bridge sections, plus around 20% contingency for further escalation (if the project wasn't to proceed for a number of years). The 30% escalation was applied to all items, with the bridges being calculated separately at a rate of \$12,000 per lineal meter which is the best estimate we have available based on the Tweed section data for full reconstruction of a timber bridge.

Table 5.2 Capital Estimate for Each Section

Section	Length	Capital Estimate
Bangalow Station to Rifle Range Road	0.9km	\$774,457
Bangalow Station to Industrial Estate	1.9km	\$1,723,718
Bangalow Station to Binna Burra	4.2km	\$3,771,526
Bangalow Station to Booyong	12.8km	\$10,930,432

Note the above costs are subject to significant variability as more detailed investigations are carried out. The estimate also includes assumptions about the final surfacing and bridge treatments which are the most significant components of the project.



5.2 Operational Cost Estimate

Ongoing trail maintenance is a crucial component of an effective management program – yet it is often neglected until too late. Countless quality trails have literally disappeared because no one planned a maintenance program, and no one wanted to fund essential ongoing repairs. It is therefore essential that funds be set aside in yearly budgets for maintenance of any trail - to ensure user safety and enjoyment, and to minimise liability risks for land managers.

Evidence of actual trail maintenance costs for individual items along a rail trail, or any trail for that matter, are scarce. In Victoria, the Murrindindi Shire Council manages and maintains approximately 85% of the (134km) Great Victorian Rail Trail. It spends around \$2,000/km on maintenance activities each year which the trail manager believes is insufficient. A 2016 Great Rides of New Zealand report examined the 22 “great bike rides” of New Zealand and reported an average maintenance cost of \$1,285 per kilometre (adjusted for exchange rates and inflation). This figure is based on the actual reports of 9 of the 22 trails. It is difficult to know precisely what items have been included in these figures as the 9 individual trail reports are not available.

There are therefore significant variations across the available research costs and it is not clear from available data what has been included and what has not been included in consideration of costs. The biggest maintenance costs involved are obviously maintenance of the items that initially cost the most to install – surfacing and bridges. Whilst it is impossible to provide an estimate of ongoing maintenance at this stage, an allowance of \$6,750/km/year has been estimated with a more comprehensive allowance for maintenance as shown in the estimate. The per kilometre rate does not include major asset renewal for surfacing and bridges.

Ongoing maintenance costs can be minimised by building a trail well in the first place. A well-constructed trail surface will last considerably longer than a poorly built trail. Signs, gates, posts and bollards installed in substantial footings stand less risk of being stolen or damaged. Well designed, built well and thoughtfully placed management access gates and trail user gates will keep motor vehicles and motorised trail bikes off the trail with a consequent lesser need for surface repairs. Most minor repairs (bridges, fences and gates) are largely labour intensive rather than capital expensive.

In general, Maintenance Plans are based around regular inspections, at which time simple maintenance activities should take place concurrently. More time-consuming maintenance activities should take place every six months, while detailed Hazard Inspections should occur annually. Further, the capacity to respond immediately to random incoming reports of hazards or major infrastructure failures should be built into the Plans.

One of the most frequent maintenance tasks will be attending to fallen branches and limbs, repairing trail surfaces, replacing stolen or damaged signs (including road signs), clearing culverts and under bridges and ensuring gates and fences are functioning as intended.

It is difficult estimating the costs involved in maintaining a trail until a detailed design has been adopted. Table 5.3 provides a very preliminary estimate of the amounts that may be required on an annual basis for maintaining a rail trail between Bangalow and Booyong for regular “day to day” maintenance.



Table 5.3 Estimate of “Day to Day” Maintenance Costs

Task	Frequency/note	Possible Costs
Inspect and check trailhead facilities/ parking and infrastructure: <ul style="list-style-type: none"> - interpretive panel - picnic table/s - trailhead signage & map panel - trail directional marker posts 	1 trailhead at Bangalow - average repairs of \$1,800 per site/year	\$1,800
Check side vegetation growth and overhead vegetation and cut back where required. Clearing of fallen trees and branches.	Allowance of 3 person days per year (@ \$900/day).	\$2,700
Slash corridor both sides of trail to reduce weeds and fire load/risk.	Allowance for 80% corridor, both sides of trail (= 21 km) (@ \$100/hr). Corridor slashed 5 times a year.	\$4,000
Inspection of bridges (all timber components, decking, handrails, etc.). Check for obstructions and clearing under bridges.	Allowance of 60 hours for inspections and minor repairs (14 bridges)	\$11,325
Inspection of culverts. Check for obstructions and clearing under culverts.	Allowance of 10 hours for inspections, clearing and minor repairs.	\$8,000
Check road crossings. Replace damaged and/or missing signs and undertake other tasks: <ul style="list-style-type: none"> - Give Way and Road Ahead signs - Trail Crossing warning signs - Road name signs - Regulatory signs - Clear vegetation if req'd for site distance 	2 crossings at average repairs of \$1000 per crossing/year	\$2,000
Allowance for replacement of trail directional marker logo/arrow plates and trail kilometre posts.	2 replacements/year (i.e. 2 signs @ \$400 ea.)	\$800
Allowance for repairs to trailside furniture and occasional replacements (when required).	Inspection and minor repairs every 6 months. 1 replacement per year.	\$5,800
Check miscellaneous signs along trail (e.g. trail name, distance signs, “No Trespassing”, bridge load signs, etc).	5 replacements/year i.e. 5 signs @ \$200 ea.)	\$1,000
Check gates, other barriers and fences at road crossings. Make repairs where necessary.	Allowance of \$2,000 per year for repairs.	\$2,000
Check interpretation along trail for damage and structural stability.	Allowance for repair of 1 panel per year.	\$4,900
Additional weed management	Annual allowance	\$5,000
One-off debris clean-up after flood events	Allowance for 1 event/year	\$10,000
Callout requests for local sections of erosion	Allow 4 visits/year	\$4,000
Rubbish and litter collection	Including illegal dumping and rubbish	\$9,375
Maintenance of unsealed trail and table drains	Allow bobcat crew 3 days/year	\$10,000
Inspection of rail trail (3 times/year).	Allowance for 3 inspection trips per year.	\$2,700
Preparation of annual Hazard Inspection Report.	1 person days @ \$1,000/day.	\$1,000
	\$ excl GST (per annum)	\$86,400



This equates to a rate of approximately **\$6,750** per kilometre per annum. **The per kilometre rate does not include major asset renewal for surfacing, bridges, and fencing.** Asset renewal provisions should be provided for separately and cover replacement of surfacing, fencing and bridges. These provisions would have separate timeframes for replacement with fencing and surfacing requiring renewal in a shorter time than bridges. An estimate of maintenance for the three sections outlined in the Council resolution is therefore provided below in Table 5.4.

It should be noted that there are usually efficiencies in a longer section, i.e. the operational estimate using the per km rate for the shorter (Bangalow to Rifle Range Road/Industrial Estate) sections may not be sufficient. The frequency of the bridge inspections is typically higher, to mitigate the manager’s risk associated with the use of the trail (and dependant on the bridge treatments adopted). Furthermore, the final design of the project will affect the operational budget i.e. bitumen surfacing vs. crushed gravel considerations and how many bridges/bypasses are implemented.

Table 5.4 Operational Estimate for Each Section

Section	Length	Operational Estimate
Bangalow Station to Rifle Range Road	0.9km	\$6,075
Bangalow Station to Industrial Estate	1.9km	\$12,825
Bangalow Station to Binna Burra	4.2km	\$28,350
Bangalow Station to Booyong	12.8km	\$86,400



6. Benefits to the Community

6.1 Introduction

It is always difficult to predict the economic and social impacts of a new trail. The economic impact of the proposed trail is primarily dependent on the extent to which the trail is marketed and promoted. As a relatively short trail (as it currently would not be connected to any other regional towns), the primary benefits of a Bangalow to Booyong rail trail will come from local users but marketing the trail would still be important to broaden the benefits. The key benefits can be broadly summarised:

- General opportunities created by the establishment of a rail trail;
- Opportunities for local business;
- Events;
- Health related benefits to the wider economy; and
- Benefits to individual residents.

These themes are explored in more detail below.

6.2 General Opportunities

Rail trails provide several notable opportunities for visitors, residents and the town and villages through which they pass. There are a number of specific elements within the area encompassed by the proposed trail route that provide opportunities and reasons for why a trail should be built.

A Bangalow to Booyong Rail Trail – with a length of 12.8kms - would have attraction to visitors from elsewhere in Byron Shire and possibly from elsewhere in the Northern Rivers and Southeast Queensland. Combined with any future extension through to Lismore (and Casino), a rail trail would have more appeal to visitors (though it is difficult to estimate the precise difference).

Key opportunities are:

- Providing connections between Bangalow and residents near the area, potentially through to Lismore and Casino in time;
- Broadening the recreation offerings. Demand for this type of opportunity will only increase as the population ages. *Walking in Queensland 2019* identifies that 24% of people are looking for smooth even-surfaced paths as an incentive to start walking (the top response). A rail trail provides this facility.
- Trails for local residents. Trails can improve community connectivity and provide increasing recreational options for local people thus contributing to both physical and mental health of communities through which they pass. The *Queensland Walking Strategy 2019-2029* identifies that walking tracks (which a rail trail is) in nature reserves close to towns can support local people to get out and be active while also being a tourist drawcard.
- Showcasing local artists' outdoor art, potentially using rail hardware, tracks and sleepers in innovative ways both along the route and more obviously at the trailhead/old railway sidings.
- Community involvement in the design process and the trail marketing process;
- Community support.
- Grade of rail corridors are gentle and therefore attractive to majority of users;



6.3 Opportunities for Business

Rail trails provide an additional tourism asset to the communities through which they pass. This in turn creates a number of economic opportunities both for existing businesses and new businesses.

Direct economic benefits – in terms of user expenditure - are likely to be delivered by a rail trail. A rail trail can provide increased employment opportunities in tourism and hospitality by offering niche tourism experiences.

A rail trail generally offers the opportunity for existing businesses to expand and new businesses in this sector (and other sectors) to develop and employ more people in the region. Some success stories from other trails are worth considering.

The completion of a trail would not simply provide an injection of funds to stabilise and grow existing and new businesses. The psychological impact on businesses can also be very important. The Riesling Trail included some qualitative research using focus groups consisting of business operators (*Market Equity 2004*). The key responses included:

- A belief amongst business providers that the trail contributes to economic activity in the region.
- The trail is seen to attract a variety of visitor types to the region, with wine as well as non-wine interests.
- The trail is seen as highly important to businesses in the area. Businesses were passionate about the trail and believed it contributed to their businesses as well as helping to position the area as an authentic leisure holiday destination. The exact impact in measurable terms could not be clearly ascertained, as it is so intrinsically linked to businesses in the region, but there was a definite opinion that the Clare Valley would not be the same without the trail and that it had contributed to business formation as well as business growth.

A trail increases the opportunities offered to existing businesses that currently provide relevant services to provide such services on a more regular basis. These types of examples are critical economic opportunities to diversify and solidify the sub-region's economic base.

The experience of the Tumbarumba Rosewood Rail Trail is particularly worth noting in this respect. The *Rail Trails for NSW Evaluation Summary* (June 2022) identified 9 new or expanding businesses in the rail trail's area since the opening of the rail trail (in a period of 12 months). Businesses included accommodation, food and beverage, and bike hire.

Recent research on New Zealand's Great Rides network (*Angus and Associates 2022*) showed that 47% of the 200 businesses surveyed had been established since the opening of a trail nearby with 16% opening solely because of the trail and the trail's presence being a factor in the formation of another 75% of businesses. Existing businesses also benefitted: 66% of existing businesses (i.e. those that existed when the trail opened) had expanded or added new services solely or partly because of the trail.



Identifying specific business opportunities along a trail that may take years to develop is not a simple task. Businesses that have succeeded elsewhere are in the fields of:

- Equipment Hire;
- Supported Tour Opportunities;
- Guided Walking/Cycle Touring;
- Off-trail Accommodation; and
- Food and Beverages.

Interestingly, the *Rail Trails for NSW Evaluation Summary* found that spending on consumer staples increased 14% in Tumbarumba once the Tumbarumba Rosewood Rail Trail opened. The evaluation report identified that it was likely that the rail trail contributed to this increase due to visitors staying in the town, visiting the supermarket and similar outlets. It is not only the obvious businesses (accommodation, cafes, bike hire businesses) that take positive outcomes from a rail trail.

6.4 Health Related Economic Benefits to the Wider Economy

Some benefits to the wider economy have been researched and published as follows;

- Data from the USA indicates that every \$1 of funds spent on recreational trails yield direct medical benefits of \$2.94 (*Wang et al 2005*).
- The 2021 evaluation of the Great Rides of New Zealand showed an associated \$11.1 million in health benefits (from user numbers in excess of 1.065 million people) (*Angus and Associates 2022*).
- The trail will encourage people to exercise – the economic benefit to society of getting an inactive person to walk or cycle is between \$5,000 and \$7,000/year. The economic benefit to society of getting an active person to walk or cycle is between \$850 and \$2,550/year (*Institute of Transport Economics 2002*). Increasing recreational options for local communities will aid overall community wellbeing.
- Participation in trail activities can improve physical and mental health, assisting with disease prevention particularly cardiovascular, musculoskeletal, respiratory, nervous and endocrine systems as well as reducing obesity, hypertension, depression and anxiety. The obesity epidemic alone is now estimated to cost Australia \$1.3 billion/year (*Australian Bicycle Council*). One heart attack is estimated to cost in the vicinity of \$400,000 in direct and indirect costs.

6.5 Benefits to Individual Residents

There are numerous benefits that accrue to residents of the region from a trail development over and above those that accrue to the regional economy (and therefore a select number of people) and to the wider economy (health benefits in particular), those include:

- Medical research has shown that 1 hour of moderate exercise can add more than 1 extra hour of high-quality life to an individual.
- Cycling and walking as recreation activities can be cheaper than alternative forms of exercise such as gym classes. Yearly memberships to gyms are around \$600 in many instances – the cost of a good hybrid bike, which has a life of more than one year.



- The grade of rail lines (due to locomotive limitations) are always gentle and, besides steep bypasses, are attractive to majority of users, including DDA compliance where appropriate.

6.5.1 Health and Wellbeing

Rail trails are an accessible form of recreation. Trail-based recreation is generally free, self-directed and available to all people, all day, every day. Good quality, accessible trails encourage physical activity and improved health. Increasing recreational options for local communities will aid overall community wellbeing.

Physical activity has also been shown to improve mental health and help relieve stress. The economic cost of mental illness is high in Australia - estimated to be approximately \$20 billion per year.

People can use trails in a variety of ways, depending on their abilities and preferences. Physical health benefits are discussed above. Social health benefits include:

- Trail activities facilitate participation and social interaction between a diversity of community members, age groups, individuals and families e.g. community walking groups, voluntary trail maintenance and conservation work;
- The 2021 evaluation of the Great Rides of New Zealand showed that 56% of users felt that their wellbeing or mental health had improved, 47% said their physical health had improved and 44% said they had developed closer relationships with the people they were with (*Angus and Associates 2022*);
- Market Equity (2004), in its report on trails in South Australia, found that using trails to get a sense of well-being (95% of survey respondents) and using trails as a means to unwind and relax (91% of respondents) were the two main drivers getting people out on recreation trails. The psychological health benefits of trails remain under-estimated;
- Trails can introduce participants to other recreational and participation offerings in the community; and
- Trails help to connect people and places and to develop community pride.

6.5.2 Liveability

Quality recreational facilities, such as trail networks, can help create attractive places to live and visit – important in small regional communities. Almost half of the representatives of business groups who responded to the New Zealand survey mentioned above (*Angus and Associates 2022*) believed that the development and promotion of a trail in their area attracted new people to that area. The same report showed that 62% of respondents from these business groups felt that the trail had attracted people to do business with and/or invest in the area of the trail.

Walking and cycling are relatively cheap modes of transport. Trails also provide a low impact means of travelling through the landscapes and play an important role in connecting people with nature.

Local users of the trail will enjoy social interaction within the community and with greater social interaction, the social capital of the area may be boosted. There are a number of benefits of



enhanced social capital. It improves the capacity for people to trust others (*ABS 2012 cited in SGS 2013*). This strengthens the social cohesion in a community as it provides the opportunity for socially isolated individuals to integrate into the community. Greater social capital also facilitates networking, thus creating more efficient economic networks.

Trail projects help build partnerships among private companies, landowners, and local government. Each trail contains elements of local character and regional influence, and reflects the hard work, enthusiasm, and commitment of individuals, organisations and elected officials. In addition, when residents are encouraged to become involved in a trail project, they feel more connected to the community (*Warren 1998 cited in SGS 2013*).

The opportunity for local schoolchildren to ride bikes on a safe off-road facility is a wise use of community resources, with the benefit of providing a safe off-road facility within easy access of schools for use by the schools for activities.

Other rail trails (such as the Brisbane Valley Rail Trail and the Kilkivan Kingaroy Rail Trail) host a number of events each year – fun runs covering a range of distances, ParkRuns, mass rides – and these bring economic and non-economic benefits to the communities through which they run. 15 rail trails across Australia are currently being used as venues for ParkRuns. ParkRuns are free, weekly, community events all around the world.

6.5.3 Education

Trails present a unique opportunity for education. People of all ages can learn more about nature, culture or history along trails. Of particular importance, trails provide firsthand experience that educate users about the importance of the natural environment and respect for nature by leading users into a natural classroom. A Rail Trail offers a unique opportunity to safely engage and promote environmental and cultural education to its users, ensuring their protection from potential hazards such as trains, cars, or buses.

Enhanced, active education along trails is achieved through the use of comprehensive trail guides and signage to encourage awareness of the natural, cultural and historical attributes of the trail. Trails have the power to connect users to their heritage by preserving historic places and by providing access to them, giving people a sense of place and an understanding of the enormity of past events. The Tweed section has achieved this well, having awarded the 2023 ACT & NSW Heritage Award for its exceptional cultural contribution to preservation.

6.5.4 Environmental and Cultural Benefits

Trails provide a number of environmental and cultural benefits. These include:

- Opportunities for the community to experience natural and cultural environments;
- Protection of the adjacent environments by localising impacts and facilitating management of visitation effects;
- Educational and interpretive opportunities and increased environmental and cultural awareness and appreciation;
- Increased community ownership which helps to preserve natural and cultural values;
- Corridor revegetation opportunities; and
- Opportunities for community participation in conservation and revegetation work.



7. Next Steps – Project Plan

A high-level outline of the next steps to progress a rail trail in this section of the corridor (should Council choose to proceed with that option) is below, including indicative timing. This is based on the more recent Casino to Lismore sections methodologies for progressing their respective projects. Richmond Valley Council are undertaking construction themselves, barring a design and construct bridge contract. Lismore are still considering options but will potentially follow the same method. Tweed tendered for design and construct which has a number of advantages and disadvantages.

7.1 Preliminary Studies and Investigations

Byron Shire Council would be considered to be in this phase, at least for this section of the rail corridor. A more detailed investigation could be engaged, but it is most likely more advantageous to incorporate any such investigation into the Concept Design / Masterplanning phase. Subject to that decision, Byron Council could adopt to move into that phase when considering this report at the August meeting.

Anticipated completion date AUGUST 2023 (this report).

7.2 Business Case

The Northern Rivers Joint Organisation have engaged Muller Enterprise to undertake a business case of the unfunded (Lismore to Crabbes Creek) section of the Northern Rivers Rail Trail. There are a number of options being assessed, as outlined in this report. This business case would directly support funding applications for the projects, subject to community and Councillor support of a suitable alignment option. This would also be the appropriate timing to obtain a license in both sections of the corridor to progress the following stages.

Anticipated completion SEPTEMBER 2023 (already commissioned).

7.3 Concept Design / Masterplan, Feasibility and Funding Application/s

Should Council adopt to do so at their August meeting in 2023 (including appropriate allocation of funding), staff would engage a consultant to undertake a masterplan and/or concept design of the rail corridor including community consultation and further refined costing for funding applications. This design would resolve the ideal bridge and/or tunnel treatments, ideally incorporate an early works package and would identify the required permits and approvals to be acquired at the next step. This would also be supported by the business case outlined above.

ALLOW approximately 12 months for completion.

7.4 License, Permit/s and Approvals

After the concept design is complete, it is recommended to move immediately into negotiations to obtain the license agreement allowing the activities for detailed design and construction of the rail corridor. Pending treatments and requirements, other permits and approvals would be undertaken at this step and may include Heritage, Fisheries, LALC consultation and incorporation of such approvals into a Review of Environmental Factors.



ALLOW approximately 12 months for completion after masterplan is completed.

7.5 Detailed Design

Ideally in tandem with the above stage, Council could progress the detailed design of a rail trail with the intent of completing simultaneously with any final approvals. The detailed design would prepare early works packaging, a full construction issue package for tendering and reference designs for the bridge treatments that could either be incorporated as a separable D&C portion of the overall contract, or contracted separately if Council chose to construct the main civil works themselves. Additional community consultation would be undertaken. The completion date is earlier than the approvals above, but this would commence after the license is obtained to allow access for survey and detailed inspections of the corridor.

ALLOW approximately 12 months for completion, can be undertaken concurrently to 7.4.

7.6 Construction Phase

A comprehensive tendering process would support and de-risk the eventual construction of the rail trail. If Council chose to construct the main civil works themselves, a tender would still be required for construction of any bridge treatments as a design and construct project utilising the reference designs produced during detailed design. Project staff would be required to manage the internal or external resources throughout this phase.

ALLOW approximately 18 months for construction.

7.7 Official Opening

Council and its funding partners could hold an official opening event of the rail trail in Bangalow, further promoting the broader NRRT and ideally supporting further funding applications to link the (then) existing section of Casino to Lismore. Note the Lismore to Booyong section is estimated to be the most expensive section of the NRRT, but the value of a Bangalow to Casino rail trail would strongly support a business case for that section (which is Lismore City Council's responsibility).

Please note that this high level project plan assumes that funding is made available efficiently and without delay, to keep the project progressing towards users on a rail trail. The biggest hurdle (and unknown) being overall funding of the project, being approximately \$11M in value should Council choose to pursue a trail all the way to Booyong, setting up and supporting the eventual link to Casino. Any delays to funding throughout this plan would delay all subsequent phases.

It should also be noted that combining the Northern and Western sections together would provide economy of scale for any/all of the above stages and Council should strongly consider combining both sections together when progressing to any other stages.



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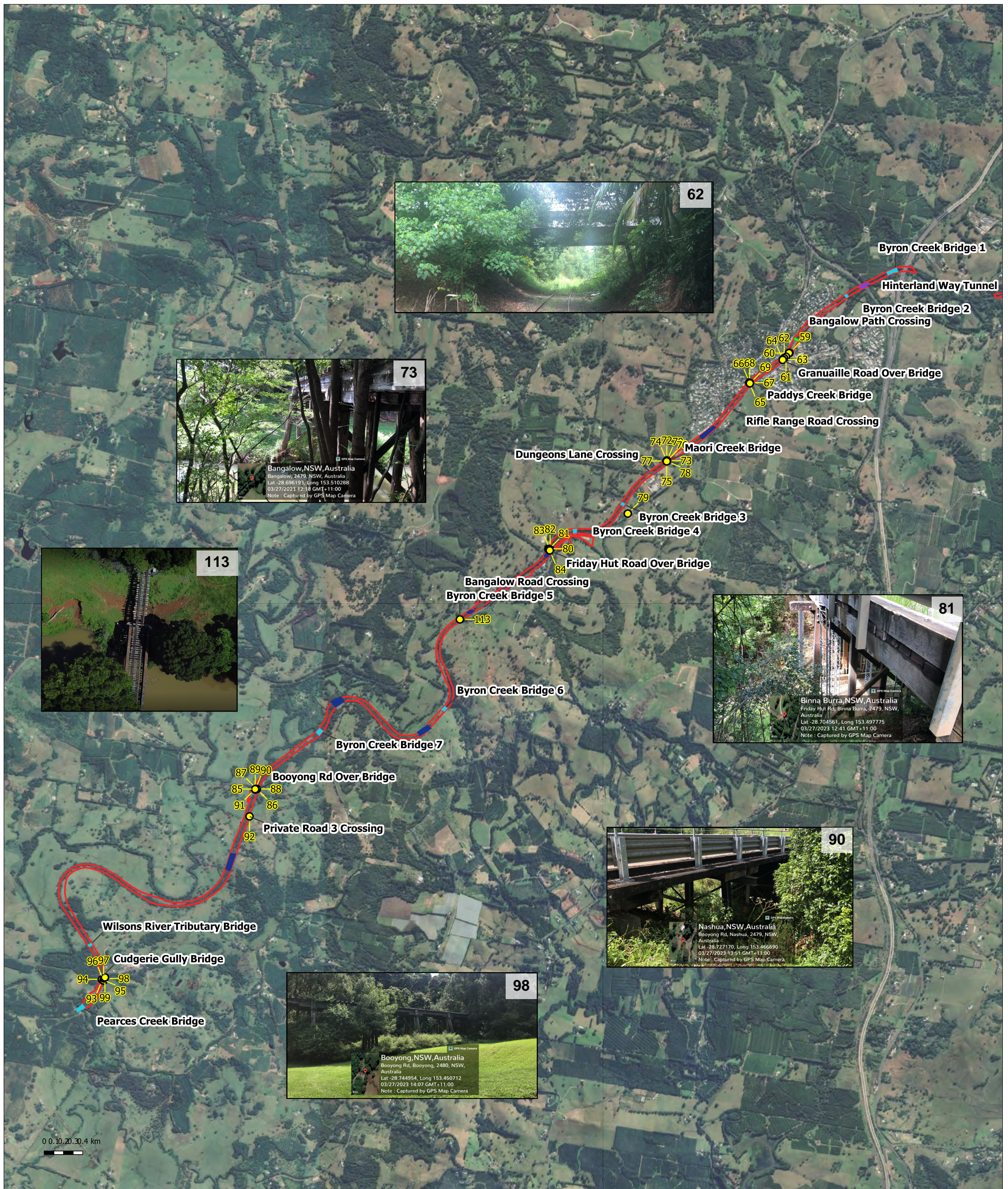
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Appendix A – Byron Shire Western Rail Corridor Constraints Mapping



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Client: Byron Shire Council
Doc No.: BE220709-RP-WEST-01
Doc Title: Byron's Western Rail Corridor Multi Modal Constraints Report



Bangalow to Booyong Road Rail Trail Investigation	
Site Inspection Photo Locations Southern Section	
Project: BE220709	Date 5/04/2023
Scale: 1:37000 at A3	Projection: GDA94 / MGA zone 56
Data Sources:	

Legend

- Photo
- Railway Corridor

Constraints

- Path Crossing
- Road Crossing
- Over Bridge
- Bridge
- Tunnel
- Steep Embankment

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Appendix B – Schedule of Images

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65	 <p>Bangalow, NSW, Australia Green Frog La, Bangalow, 2479, NSW, Australia Lat -28.688868, Long 153.519039 03/27/2023 11:53 GMT+11:00 Note : Captured by GPS Map Camera</p>
66	 <p>Bangalow, NSW, Australia Green Frog La, Bangalow, 2479, NSW, Australia Lat -28.688849, Long 153.519065 03/27/2023 11:53 GMT+11:00 Note : Captured by GPS Map Camera</p>




67	 <p>Bangalow, NSW, Australia Green Frog La, Bangalow, 2479, NSW, Australia Lat -28.688849, Long 153.519065 03/27/2023 11:53 GMT+11:00 Note : Captured by GPS Map Camera</p>
68	 <p>Bangalow, NSW, Australia Green Frog La, Bangalow, 2479, NSW, Australia Lat -28.688906, Long 153.519063 03/27/2023 11:53 GMT+11:00 Note : Captured by GPS Map Camera</p>



69	 <p>Bangalow, NSW, Australia Green Frog La, Bangalow, 2479, NSW, Australia Lat -28.688902, Long 153.519094 03/27/2023 11:54 GMT +11:00 Note : Captured by GPS Map Camera</p>
70	 <p>Bangalow, NSW, Australia Bangalow, 2479, NSW, Australia Lat -28.696202, Long 153.510318 03/27/2023 12:18 GMT +11:00 Note : Captured by GPS Map Camera</p>





71	 <p>Bangalow, NSW, Australia Bangalow, 2479, NSW, Australia Lat -28.696194, Long 153.510304 03/27/2023 12:18 GMT+11:00 Note : Captured by GPS Map Camera</p>
72	 <p>Bangalow, NSW, Australia Bangalow, 2479, NSW, Australia Lat -28.696179, Long 153.510304 03/27/2023 12:18 GMT+11:00 Note : Captured by GPS Map Camera</p>




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81	 <p>GPS Map Camera Binna Burra, NSW, Australia Friday Hut Rd, Binna Burra, 2479, NSW, Australia Lat -28.704561, Long 153.497775 03/27/2023 12:41 GMT + 11:00 Note : Captured by GPS Map Camera</p>
82	 <p>GPS Map Camera Binna Burra, NSW, Australia Friday Hut Rd, Binna Burra, 2479, NSW, Australia Lat -28.704563, Long 153.497940 03/27/2023 12:42 GMT + 11:00 Note : Captured by GPS Map Camera</p>





83	 <p>GPS Map Camera Binna Burra, NSW, Australia Friday Hut Rd, Binna Burra, 2479, NSW, Australia Lat -28.704576, Long 153.497927 03/27/2023 12:42 GMT+11:00 Note : Captured by GPS Map Camera</p>
84	 <p>GPS Map Camera Binna Burra, NSW, Australia Friday Hut Rd, Binna Burra, 2479, NSW, Australia Lat -28.704644, Long 153.497897 03/27/2023 12:43 GMT+11:00 Note : Captured by GPS Map Camera</p>





85	 <p>GPS Map Camera</p> <p>Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727124, Long 153.466848 03/27/2023 13:50 GMT+11:00 Note : Captured by GPS Map Camera</p>
86	 <p>GPS Map Camera</p> <p>Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727134, Long 153.466863 03/27/2023 13:50 GMT+11:00 Note : Captured by GPS Map Camera</p>



87	 <p>GPS Map Camera Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727108, Long 153.466830 03/27/2023 13:50 GMT+11:00 Note : Captured by GPS Map Camera</p>
88	 <p>GPS Map Camera Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727178, Long 153.466688 03/27/2023 13:51 GMT+11:00 Note : Captured by GPS Map Camera</p>



89	 <p>Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727123, Long 153.466791 03/27/2023 13:50 GMT+11:00 Note : Captured by GPS Map Camera</p>
90	 <p>Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW, Australia Lat -28.727170, Long 153.466690 03/27/2023 13:51 GMT+11:00 Note : Captured by GPS Map Camera</p>



91	 <p>Nashua, NSW, Australia Nashua, 2479, NSW, Australia Lat -28.729699, Long 153.466094 03/27/2023 13:55 GMT+11:00 Note : Captured by GPS Map Camera</p>
92	 <p>Nashua, NSW, Australia Booyong Rd, Nashua, 2479, NSW Australia Lat -28.727144, Long 153.466681 03/27/2023 13:51 GMT+11:00 Note : Captured by GPS Map Camera</p>





95	 <p data-bbox="989 705 1125 728">GPS Map Camera</p> <p data-bbox="686 739 1061 772">Booyong, NSW, Australia</p> <p data-bbox="686 779 1061 806">Booyong, 2480, NSW, Australia</p> <p data-bbox="686 810 1061 837">Lat -28.745038, Long 153.450448</p> <p data-bbox="686 842 1061 869">03/27/2023 14:05 GMT+11:00</p> <p data-bbox="686 873 1061 900">Note : Captured by GPS Map Camera</p>
96	 <p data-bbox="989 1332 1125 1355">GPS Map Camera</p> <p data-bbox="686 1361 1061 1395">Booyong, NSW, Australia</p> <p data-bbox="686 1402 1061 1451">Booyong Rd, Booyong, 2480, NSW, Australia</p> <p data-bbox="686 1458 1061 1485">Lat -28.745127, Long 153.450627</p> <p data-bbox="686 1489 1061 1516">03/27/2023 14:06 GMT+11:00</p> <p data-bbox="686 1520 1061 1547">Note : Captured by GPS Map Camera</p>



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98	



99



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