

NSW Nthn Rivers Transport Expansion Strategy

Inner Northern Rivers Communities comprise an Integrated Polycentric/Distributed City

Collectively there is a sub-region of communities comprising those on the NSW inner Northern Rivers generally within the Richmond-Wilson, Brunswick, and Tweed River catchments. These are Casino and Lismore in the south heading north via Kyogle, Nimbin, Bangalow, Mullumbimby and Murwillumbah, and on the Far-North Coast from Evans Head in the south heading north via Ballina, Byron Bay, Brunswick Heads, Ocean Shores, the Tweed Coast / Kingscliff and to Tweed City. This highly integrated set of communities is described as an evolving conurbation, a rapidly growing “polycentric city” of approx., 300,000 people – this can also be demographically described as a “distributed city”.

This is how the present day Gold Coast City evolved over the past 50 years. 30 years ago the Gold Coast’s population was the same as that of Northern Rivers today, and it has more than doubled that over those 30 years. Qld’s Sunshine Coast is another example of a distributed city with its current a population approx., equal to that of the Northern Rivers.

Domestically and internationally the region is also now renowned as a major tourism destination. Byron Bay, a seaside town in the Byron Shire LGA, has a widely scattered permanent population of only 9,250, yet in 2019 it received 2.4 million visitors. On a daily basis Byron Bay’s major access road from the M1 Pacific Motorway, Ewingsdale Road, experiences heavy traffic congestion with a 2019 average of 22,500 vehicles per day. During peak tourism seasons this road experiences major grid-lock and even in daily morning and evening peak hours and on week-ends there are often significant delays. This is despite the opening of a new Nth-Sth bypass of the town, aligned with its CBD.

Strategy based upon 2 complementary Business Plans

A Strategic Plan has been developed to deliver 2 Innovative Rail Projects Servicing Communities, its based upon:

- a model Intermodal Supply Chain Logistics system, a *disruptor* network of mini-Hubs centred upon Lismore and servicing local/regional producers and retailers
- extension of the operational range of the existing, world’s best practice, globally leading edge technology, Byron Solar Train, to provide a much needed tourist and commuter rail service

Summary

There are two, recently developed and properly costed, highly complementary Business Plans that require revival of the Casino-Murwillumbah Railway line. They represent economically and environmentally viable, and sustainable, long-term community-based passenger and logistics transport solutions. They will also both complement any off-formation ‘rail trail’ - the elephant in the room - in fact they’ll greatly assist the creation, maintenance and utilisation of a rail trail and access for cyclists.

A. An Intermodal Supply-Chain Logistics Business Plan

This has also been developed allowing for the re-introduction of freight operations to and from Lismore City (and potentially the M1 at Bangalow). This is via Casino to the Port of Brisbane, in the north, and to Coffs Harbour (and potentially Kempsey), in the south. This proposal features:

1. environmental sustainability (with Lismore having the potential to be a NSW, or even east coast, technical, engineering, service, manufacturing and training centre) featuring:
 - a. battery electric locomotives (e.g., Wabtec and/or Progress Rail), battery electric and hydrogen fuel cell electric (e.g., Anglo-American/Aurizon), virtual hybrid, 2 locomotive sets, and battery electric and existing diesel, virtual hybrid, 2 locomotive sets
 - b. battery electric road delivery vehicles (e.g., GM Brightdrop and/or Arrival Van) circulating to and from low footprint intermodal micro-hubs; and
 - c. ability to dramatically decrease daily, passenger and freight, fossil fuel powered road vehicle movements, particularly on the Bruxner Hwy (east & west of Lismore), the Summerland Way, Bangalow-Lismore Road and the M1 Pacific Motorway
2. world's best practice supply chain logistic featuring 'disruptor' cross-docked trans-shipping, which, amongst other things, readily facilitates pick-up and delivery of local produce/production. Apart from potentially immense benefits for local and regional economies, this also offers risk mitigation against the shortages experienced when stretched supply-chains are disrupted i.e., contributing to as a Business Continuity Plan now seen a basic requirement for communities, institutions, businesses, transport infrastructure (road, rail, sea and air) & all of government
3. low 'footprint' technological simplicity with no requirement for centralised warehousing, cold stores and extensive rail sidings and road vehicle parking areas (typically all-up a minimum \$20 million – not necessary!)

Delivery of this project will also greatly complement the Passenger Rail Services, providing the ability to:

4. reinstate daily intra-state passenger services as far as Lismore Station i.e., the former daily Sydney-Murwillumbah XPT service which is currently terminating at Casino and also the current Grafton-Sydney set which overnights in Grafton.
5. attract increasingly popular up-market touring rail services to stable in Lismore (where they currently otherwise lack a suitable stabling location in either Casino or Brisbane):
 - a. Journey Beyond Rail Expeditions' 'The Great Southern' (also operators of 'The Indian-Pacific', 'The Ghan' and 'The Overlander')
 - b. Vintage Rail Journeys' 'The Aurora Australis' ('The Southern Aurora' rolling stock)
 - c. Cruise Express' 'The Spirit of Progress'

The operators of these services require train stabling, with appropriate rail technical/engineering and passenger supply services. The location must also though offer their passengers and crews accommodation of up to 350 bed-nights over up-to 5-7 days i.e., quite something for "rail trail" patronage to better!

6. seamless connections for regional tourism trains offering multiple daily round-trip services initially from Byron Shire LGA

7. inaugurate daily interstate Lismore-Brisbane passenger services, via Casino (Brisbane's Cross-River Rail, nearing completion, will free up slots on the dual gauge line into Roma Street Terminal - empty other than for the daily Sydney-Brisbane XPT early morning passenger drop-off and pick-up)

Project Feasibility Study

There is also Project Feasibility Study underway to augment the Business Plan. (Project Feasibility Studies enhance potential investor confidence and can even result in project 'bankability').

Ideal Location

Lismore is ideally positioned and equipped to host an Innovative, world's best practice, '*disruptor*', cross-docking, trans-loading, rail-road intermodal, freight system. World's best practice will be in terms of considerations promoting:

- sustainable economic growth - stimulating innovative spin-off business, educational and employment opportunities
- shortening, and defending from disruption, local/regional supply chains & inventory management, particularly just-in-time, as witnessed during the pandemic, bushfires and floods; and
- providing a critical community benefit with passenger transport servicing the needs of the communities of the NSW Northern Rivers region.
- local / LGA-wide / regional just-in-time inventory warehousing and delivery i.e., removing risk from flood prone showrooms and outlets with relocatable storage in side-loaded 20, 40 & 48ft containers on 48ft flat-top rail wagons
- provision for flood mitigation with rail wagons and containers, dry and refrigerated, also being readily available for rapid movement of records, libraries & galleries, stock & fittings, plant & equipment, and even entire households, from premises on the flood plain to higher ground e.g., to Naughtons Gap (and possibly later to Bex Hill)
- the ability of local produce to be readily picked-up and dropped-off via de-centralised intermodal micro-hubs at:
 - Lismore servicing the lower Wilson & Leicester valleys
 - Casino (Pacific Intermodal / CRFT) servicing the lower Richmond valley; and
 - Kyogle servicing the upper Richmond, Mann & upper Clarence valleys*

container freight trains 4 times per week connecting return to

- Bromelton (SCT Logistics near Beaudesert & Kagaru) intermodal hub servicing the Scenic Rim, nthn Gold Coast and Logan shires
- Acacia Ridge (Pacific National for Brisbane) and Tennyson (Toll Logistics for regional Qld) Brisbane intermodal hubs; and
- Port of Brisbane container shipping terminal

*also potentially at

- Booyung (within Lismore City LGA) servicing the upper Wilson valley and, via Eltham and Tintenbar Roads, Lennox Head (via Ross Lane) and then, via the M1, Ballina, Wardell, Broadwater (Sunshine Sugar mill), Woodburn & Evans Head
- Bangalow servicing Byron Bay and, via the M1, the Brunswick & Tweed valleys (Sunshine Sugar - Condong mill) and the Tweed & sthn Gold coasts
- Grafton servicing the Nymboida & lower Clarence valleys (Sunshine Sugar - Harwood mill), McLean & Yamba etc
- Coffs Harbour and, via the M1, servicing the upper mid-Nth Coast, the Nambucca, Bellinger & Orara valleys and the Dorrigo plateau; and
- Kempsey and, via the M1, servicing the lower mid-Nth Coast and the Macleay valley.

B. The Northern Rivers Tourist & Commuter Railway Business Plan

Consumer feedback is a strong tool to improve products, boosted by how modern society is linked, social networks being an example of that. We have identified, through the active role of consumers, the lack of acceptable transport services linking the major town centres of the Northern Rivers. Surveys have revealed that discontentment is due to the limited offering, namely lack of public transport, waiting times, travel times and road conditions and congestion.

A business model for rail transport service has been created that solves the identified mismatch. The business model is based on the concept of flexible transport service, which allows a service to adapt to demand, making its components flexible, decreasing the costs for passengers, and at the same time offers a service with the required features.

The business model is divided in two parts: which includes the geographic and operational study, alternative services and the identification of potential passengers' characteristics. The second part is modelling the operation of this new service, in order to know its costs, and then forecast the economic viability of each destination.

The model generated a Business Plan. The Business Plan is fully costed, using a staged approach providing for sustainable restoration of the track and re-introducing a passenger rail service on the Murwillumbah-branch line (with immediate emphasis on the track sections within Byron Shire LGA). Its predicated upon:

- extending the operational range of the existing, world's best practice, globally leading edge technology, Byron Solar Train
- extension costings based upon gaining ONRSR approvals for Level 3-4 (Light Rail) over the length of the track at each stage (below)
- a proposed Joint Venture that would assume all of Byron Bay Railway Company's existing track maintenance, compliance and operating costs:

1. Stage 1, fully costed at \$9 million, is for Elements/North Beach Station (Bayshore Drive, Sunrise) to Mullumbimby (also facilitating a Mullumbimby to Byron Bay Park'n'Ride venture to be operated by Northern Rivers Rail Ltd)
2. Stage 2, fully costed at \$8 million, is for Byron Bay Station to Bangalow Station

Under the plan Stages 1 & 2 are the 2 core standalone operations that could be operated using BBRC's one 600/700 series DMU set plus one backup rail-motor e.g., a 400 series

Acceptance of this service would deem further extensions, both north and west, to warrant consideration.

3. Stage 3 is for Mullumbimby Station to Yelgun (North Byron Parklands major events venue - the proprietors support the return of a rail service. Also a new Station at Ocean Shores)
4. Stage 4 is for Bangalow Station to Lismore Station (see an outline for an Intermodal Logistics Freight Business Plan below)

These stages would require an additional 600/700 (or 620/720 or 660/760) set or even a 900/800 (or 950/800) DEB set

5. Stage 5 is for rehabilitation of the line and services to Murwillumbah/Condong and is already costed at \$20 million to do so. This will connect to the nationally acclaimed Tweed Gallery and the road to Wollumbin; and
6. an aspirational, yet logical, Stage 6 extension to Banora Point (under a NSW Govt and Qld Govt MoU the termination point of the final stage of the Gold Coast Light Rail) via Kingscliff (and the \$725 million new Tweed Valley Hospital and medical precinct).

Information Memorandum

An Information Memorandum (IM) will also be produced to assist with attracting funding for Stages 1 & 2 of the Business Plan – equity, debt and donations. It will also explain an MoU, currently being finalised between NRRL and the Byron Shire based Sustainability Research Institute (SRI), that can allow NRRL to utilise SRI's ATO approved Deductible Gift Recipient (DGR) status (effectively SRI attracting tax deductibility for the benefit of NRRL). This is under what's termed an Auspice Agreement to attract funding for SRI to conduct a transport study focused upon rehabilitation of the railway line and implementation of services from Mullumbimby to Byron Bay with a Park'n'Ride car park at Mullumbimby.

Potential Leverage

These endeavours, and the strategy's promoters, might greatly assist LGAs on the Nthn Rivers, and their respective educational and business communities, with tailored policy & advocacy submissions for:

- Northern Rivers Reconstruction Corporation (NRRC)
- NSW Govt Special Activation Precincts (SAPs) & Regional Job Precincts – distributions of Snowy-Hydro Legacy Fund proceeds. Note:
 - the only recipient on the Nthn Rivers, or anywhere along the coast Nth of Williamtown (Newcastle), is the Casino area for the latter, see <https://www.nsw.gov.au/snowy-hydro-legacy-fund/special-activation-precincts/regional-job-precincts/richmond-valley-regional-job-precinct>; also
 - there is a plethora of intermodal terminals throughout NSW with a glaring deficit, again north of Newcastle and all along the coast to the Qld border (other than in Casino with CRFT which is principally designed to cater for bulk agricultural commodities and construction materials rather

than supply chain logistics, and Pacific Intermodal which is maybe best described as "aspirational" - both being start-ups still seeking funding), see <https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/Intermodal%20terminals%20by%20local%20government%20area.pdf>

- A Business Continuity Plan ('BCP') for each LGA (as part of one for the region that would logically be integrated with long-term Flood Mitigation Strategies)
- An enhanced Economic Development Strategy for each LGA
- The National Freight and Supply Chain Strategy
- National Recovery and Resilience Agency
- Infrastructure Australia

'Rail Trails'

The principal focus of both Business Plans is the restoration of rail services on Murwillumbah-branch line. None-the-less both provide for the inclusion of a bicycle pathway along the railway corridor - but off-formation. We suggest that any "economic business case" for a so-called 'rail trail' (where curiously on-formation means no rail!) would be substantially enhanced in with a "win-win" involving a complementary resurrection of the railway (and regular services on it):

- railway line vehicle access tracks are suited to upgrading as dual use light road vehicle and bike pathways (even for a dedicated bike path it will need to be capable of carrying the axle load of emergency services' vehicles)
- necessary rehabilitation works on railway ballast and sleepers creates a suitable road base material, see railway refurbishment undercutting at <https://youtu.be/bXN24eFH5pY>
- in Tweed Valley Shire's Rail Trail construction tender process, the winning submission, from Hazell Bros, explicitly stated that an off-formation bicycle track was cheaper to construct than one on-formation which requires destruction of the rail track (see accompanying an attached jpeg image of a page extracted from the submission)
- if the railway and rail trail mutually assumed responsibility for fencing (along with adjacent landholders) this would result in the sharing of a significant cost burden
- frequent rail traffic effectively delivers a close monitoring of a bike path increasing public safety and property security for adjacent landholders
- cyclists could carrying their bikes onto trains wherever local passenger trains are re-introduced. A system of classic rail "halts" (short platforms) could be introduced allowing for hailing of a local train to pick-up and set-down. This would assist cyclists where hills/tunnels and bridges/watercourses otherwise impede their way or whenever they tire or are dissuaded by inclement weather; rain, sun, heat etc
- rail corridor maintenance and surveillance mitigates against bio-security risks (see the NSW Local Land Services Risk Assessment for the Tweed Valley Shire Rail Trail therein outlining potential Catastrophic Biosecurity Risks <https://ehq-production-australia.s3.ap-southeast->

Economic Business Cases vs Viable Sustainable Business Plans

Project's requiring capital, whether that is via investment, donations, loan or grant, generally require a supporting Business Plan. A Business Plan revolves around sustainable profitable operations with revenue exceeding costs i.e., profit:

- even a not-for-profit company, or association, must be profitable to the extent it doesn't make a loss
- investment capital requires greater profit in order to make a return to investors or to increase the value of their investment
- If donation or grant funding isn't assured, an enterprise can only develop a viable Business Plan if:
- total grant funding equals the amount required to achieve positive cash-flow i.e., profitable revenue; or
- total donations received are in excess of a nominated escrow amount required to achieve positive cash-flow.

Governments routinely commission studies to explore the "Economic Business Case" often then for justifying subsidising a project (via any of, govt expenditure, grants or provision of subsidised services). Economic Business Cases:

- are not Business Plans
- are not based upon a project being profitable in its own right and in many cases assume they won't be; and
- if positive, in terms of the net economic welfare of a given LGA, Metropolitan area, State, Nation, or sector, they are generally only viewed as providing a Business Case for the Subsidising of a Project.

Specifically, there has never been a publicly circulated Business Plan for the Northern Rivers Rail Trail. There have often been referrals to Economic Business Cases supporting 'rail trails' (routinely 'on-formation' bicycle paths replacing railway tracks i.e., eliminating rail). Assumptions underlying the conjectures in those Business Cases have been questioned. There have been further wild off-the-cuff assertions of visitor numbers and for the profitability of rail trail operator enterprises. These have been provided by various rail trail proponents, all of them are unsustainable when subjected to even cursory scrutiny.

Controversy around the Rail Trail in Tweed Shire

Landholders with properties adjoining the rail corridor, or in its immediate vicinity, assert that they haven't been consulted properly (if at all) about Tweed Shire Council's (TSC) actions to construct TSC's 'Northern Rivers Rail Trail' from Murwillumbah to Crabbes Creek.

They assert that the Rail Trail will impact their properties and have joined a broad cross-section of the community in stating their concerns to TSC. Yet they assert that TSC hasn't provided any indication that they have genuinely listened to long voiced and ongoing expressions of concern.

Significant numbers have stated that they are deeply disturbed about the way they've been treated. They also are concerned by the possible threat to their quality of life, and property values, if the issues they've outlined are not comprehensively addressed by TSC.

Even recognising that there is broader community support for the logical co-existence of the railway and an off-formation bike path, apart though from the regional community's urgent need for restoration of its passenger rail services (level 3-4 light rail where freight trains don't return), the entire community, including landholders, have concerns around there being constructed any bike path that is not of a best practice design. These concerns include:

- Landowners' stated not-negotiable requirement for TSC to provide appropriate fencing & signage, and its maintenance. This is in order to deal with compliance obligations and duty of care associated with:
 - Biosecurity - the risk of introducing exotic animal disease, currently specifically Cattle Tick Fever, that are all spread by horses, dogs, footwear and clothing and blankets etc.; and
 - Livestock containment, safety, and animal welfare
 - Landholder private property rights, protection, and privacy (mindful of increased risk of theft, rowdy behaviour, and vandalism)
 - Who funds fencing & signage, and its maintenance? There apparently is as yet no budget!
- Regulations regarding hours of public access, noise, alcohol, commercial concessions, camping, fires, horses, dogs, motorbikes, 4WDs, and ablutions etc
- Public health & safety - sanitation and rubbish collection & removal, policing for unlawful activity, access & communication in emergencies e.g., snake bites or medical episodes
- Public Liability & Property Damage Insurance – will the TSC obtain cover for the trail and any claim resulting from encroachments from the trail e.g., distress or injury to livestock? (There's reports from Tasmania that along a rail trail there cattle were spooked by a motor bike and 7 cows died in a dam that they ran into in a panic)
- Maintenance & repairs along the corridor – mowing, weeds, vermin, rubbish, drainage, and clean-ups after fires, floods, washouts, landslips, and storms (and again who funds this?)
- Environmental controls regarding run-off to watercourses, wetlands, catchments, and dams, particularly resulting from disturbance of the rail formation (herbicide & pesticide residue, asbestos and oil), and any other earthworks, plus the protection of native fauna, flora and ecosystems.
- These are just some of the obvious major long-term issues apparently not addressed, and publicly oft-asserted as not aired, or consulted upon, by TSC with the Tweed community.

There is also a perceived lack of appropriate planning and operational risk management:

1. A section of the railway has already been lifted. TSC asserts that, as the Consent Authority, they can proceed without being subject to the rigour of processes that all other land-holders are subject to under the NSW Environment, Planning and Assessment Act. TSC have merely accepted a **Review of Environmental Factors (REF)** contained in a Nov 2018 Report to Council. That followed an earlier discussion around the **EP&A Act Part V** in a Jun 2018 Report to Council. See **Guidelines for preparing a Review of Environmental Factors** at https://www.lgnsw.org.au/Public/Public/Policy/REM-pages/REF_Templates-Resources.aspx.
2. It's understood that cattle tick infestation has resulted in properties adjoining or nearby the rail corridor, currently being under quarantine. TSC's contractors, Hazell Bros, are ripping up tracks with reports of workers entering properties adjacent to the rail corridor without landholder permission.
3. In the eyes of concerned citizens there is a lack of comprehensive environmental remediation controls in place in order to deal with potential hazards associated with stormwater runoff and erosion. Erosion has

already occurred in areas on the rail formation that have been disturbed. This could also result also in soil, water and ground-water contamination.

Reference links

- Wabtec Corporation <https://www.wabteccorp.com/locomotive/alternative-fuel-locomotives>
- Progress Rail <https://www.progressrail.com/en/Segments/Engines/CatRailEngines.html>
- Anglo-American/Aurizon <https://www.angloamerican.com/media/press-releases/2021/13-12-2021>
- GM Brightdrop <https://www.gm.com/brightdrop>
- Arrival Van <https://arrival.com/>
- Descriptors applying to ideal sustainable cities of the future <https://islandpress.org/blog/distributed-city> & <https://www.gensler.com/blog/polycentric-cities-new-normal-manila-finance-centre>
- The National Freight and Supply Chain Strategy <https://www.austlogistics.com.au/policy-advocacy/national-freight-and-supply-chain-strategy/>
- Infrastructure Australia <https://www.infrastructureaustralia.gov.au/>
- NSW Govt Special Activation Precincts (SAPs) & Regional Job Precincts <https://www.nsw.gov.au/snowy-hydro-legacy-fund/special-activation-precincts> & <https://www.nsw.gov.au/snowy-hydro-legacy-fund/special-activation-precincts/regional-job-precincts>
- Qld Govt Business Continuity Planning e.g., <https://www.business.qld.gov.au/running-business/protecting-business/risk-management/continuity-planning/plan>
- A new Economic Development Strategy for Lismore <https://lismore.nsw.gov.au/a-new-economic-development-strategy-for-lismore>
- 2022 NSW Flood Inquiry <https://www.nsw.gov.au/nsw-government/projects-and-initiatives/floodinquiry>
- National Recovery and Resilience Agency <https://recovery.gov.au/>
- Journey Beyond Rail Expeditions <https://www.journeybeyondrail.com.au/>
- Vintage Rail Journeys <https://vintagerailjourneys.com.au/>
- Cruise Express <https://cruiseexpress.com.au/spirit-of-progress/>
- Pacific Intermodal <https://sales35458.wixsite.com/pacificintermodal/>
- CRFT <https://www.crft.com.au/>
- SCT Logistics <http://www.sctlogistics.com.au/>
- Pacific National <https://pacificnational.com.au/pacific-national-welcomes-high-court-of-australia-decision/>
- Toll Logistics <https://www.tollgroup.com/>
- Sunshine Sugar <https://www.sunshinesugar.com.au/>

Credentials

Chris Sheridan	LinkedIn	https://www.linkedin.com/in/chris-sheridan-3b29476a/
Mitren Rail	C Sheridan principal	http://mitren.com.au/
Nigel Kirwan	LinkedIn	https://www.linkedin.com/in/nigel-kirwan-48304b22/
Prema Capital Limited	N Kirwan principal	https://www.premacapital.net/
Northern Regional Railway Company Pty Ltd	Stephen Joyce, Jason Russell, Neale Battersby, Kaleb Peart, Directors	https://www.nrrc.com.au/