

10.1 River Street Lane Duplication - Public Exhibition

From: Peter Saunders <pasaunders@gmail.com>
Sent: Sunday, 1 December 2019 5:55 PM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: River Street duplication

Congratulations council. Fantastic plan. I've only been in Ballina for just over a year but I know enough to see this is just what is required for CBD businesses and residents. Thank you so much for not letting us end up like Byron bay!

Hope in time the same can be done for Tamarind Drive

Regards

Peter Saunders

Beachfront Parade, east Ballina

Adrian & Gloria Britton

22nd Nov 2019

2 Bagot St
Ballina NSW 2478.

Dear Councillors,

After attending the meeting at 2pm. Tues 19-11-19. We would like to support the construction of the Western Bypass Proposal, as it would decrease the amount of traffic that is flowing through River street, and then when the extra lanes added in River street, when needed would cut down on the volume of traffic when Road Works are in construction.

As we feel at the moment putting in extra lanes would still not get the traffic through any quicker. If traffic is backed up now to get passed River bend, 2 lanes would mean the traffic would still be backed up well over Fishery Creek Bridge. Lights at Brunswick street are urgently needed now, but would also make the double lanes clogged also as the lights in Kerr St is what is holding up the traffic now.

So by agreeing to make the Western Bypass, but passed Bunnings the first priority, it would cut down on current traffic congestion and allow traffic to flow out to Tamworth Dyre.

We strongly support this Western Bypass Proposal, it is the only option to go at this time.

We hope you all make this decision.
ADRIAN AND GLORIA BRITTON
A Britton G Britton.

10.1 River Street Lane Duplication - Public Exhibition

From: Mason Home <djhippas@gmail.com>

Subject: River Street Duplication - Brunswick Street Intersection

Dear All,

River Street Duplication – Brunswick Street Intersection

I recently attended the community update given by the Mayor, Development Engineer and team held in the council chambers.

I am resident in Camoola Ave and strongly support the upgrading of the Brunswick Street Intersection to traffic lights.

Whilst I appreciate that the traffic flow does not yet fully meet the RMS traffic count, the opinion is that the traffic count figures are underrepresented as a lot of the traffic using the Kerr/Riverside Street intersection comes down Camoola Ave, that would otherwise have utilised a Brunswick Steer/Riverside intersection if traffic signals were included.

If the Camoola Ave traffic movements were included in the sample taken at the Brunswick Steer/Riverside intersection I have no doubt the RMS threshold would be met.

Camoola Ave currently struggles to meet the current traffic flow safely, and is in-fact dangerous and needs to be addressed as vehicles speed down the road and overtake on the pavement (Due to the narrowness of the lane), an older lady riding on the pavement was recently knocked off her bicycle, not mention the many times that your residents have to dodge cars when they step out of their gates onto the pavement. This is only going to deteriorate as more density housing evolves in this area, currently the residents of more than 130 properties use Camoola Ave as their primary means of crossing Riverside Road or turning East down Riverside Road.

Many thanks to the Mayor, Patrick Knight and the council team for giving the community update and any help you can give us by making *Camoola Ave safe* by reducing the traffic flow (particularly large trucks such as Woolworths Delivery Trucks and Petrol Tankers), stopping vehicles from driving on the pavement and calming the speed travelled down the road would be most appreciated.

Enclosed a PDF of Camoola Ave .. please view.

Many Thanks,

Don McQuoid-Mason

Camoola Ave

Ballina

Camoola Ave – Ballina



Two narrow for two cars to pass simultaneously .. maybe should be a one way ?



Entrance to Camoola Ave from Kerr Street maybe should be signage advising drivers the speed limit has changed from 60 to 50 ?

10.1 River Street Lane Duplication - Public Exhibition

From: Tara McGready <Tara.McGready@ballina.nsw.gov.au>
Sent: Tuesday, 29 October 2019 12:33 PM
To: Patrick Knight <Patrick.Knight@ballina.nsw.gov.au>
Subject: RE: River St Ballina Lane Duplication - Draft Concept Design

Hi Patrick,

Thank you for sharing the draft concept design and the opportunity for feedback.

For your reference, the comments forwarded to you from the strategic planning team in May are reproduced below in black, and additional comments received from the team this time around are in red:

- The proposal also represents an opportunity to consider pedestrian and cycle connectivity between those areas north and south of River Street. Given the high traffic volumes in River Street it is becoming increasingly difficult for pedestrians to cross from one side of River Street to the other side.
- Pedestrian / cycle linkages could also be provided to the residential areas behind Emmanuel College and Bunnings, as well as the Burns Point Ferry Rd area (considering the potential live/work precinct adjoining this part of River Street) to the rest of River Street going toward the town centre. Additionally linking the northern residential precinct of West Ballina with the southern commercial and residential precinct. There are no easy points along River Street in West Ballina for pedestrians to cross.
- There is an opportunity to incorporate a public art element/ **lighting/ flag poles** to the balustrading of the proposed new pedestrian bridge element over Fishery Creek.
- When considering the road design level in the vicinity of the proposed new access road near the West Ballina caravan park (to service the potential Burns Point live- work development site) the proposed building height allowance level (fill level) of AHD RL 2.7 for this site should be considered.
- In terms of the retaining wall impacting the car park for the boat harbour boat launching facility some survey work may be needed to determine what this part of the car park is used for and how frequently. A car park redesign may be required if used for boat and trailer car parking.
- **Refer to Ballina Marina Master Plan (see https://www.ballina.nsw.gov.au/cp_themes/default/page.asp?p=DOC-JOA-42-36-07) for a future use option for site -incorporates amenities, boat storage, Car trailer parking etc.**
- **Does this consider the Entry Treatment Master Plan 2013 and associated projects (street plantings/ public art, bridge painting ect). Not sure if this plan has been superseded?**
- **Are there opportunities for wider street verges and centre road island between Bunnings and Barlows Rd roundabout for additional street tree plantings to shade pedestrian footpaths and screen car yards, caravan parks, etc. along this strip.**
- **Would like to see more street tree planting right up river street to Kerr Street and using median strip for additional planting wherever possible. To provide more pedestrian friendly pathways and mitigate heat island effect.**

A number of people in the team thought that this might be a good opportunity to implement the Ballina Entry Treatment Masterplan 2013 for that area and to construct these works together with the lane duplication.

Let me know if you would like to discuss these points in more detail.

Thanks
Tara

Tara McGready
Manager Strategic Planning

From: Kieran Mann <kieranmann94@gmail.com>
Sent: Sunday, 3 November 2019 11:53 AM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: River Street Duplication Submission

To Whom it May Concern,

I have listed a number of comments relating to the concept design of the River Street duplication in no particular order:

- The use of low angle slip lanes at signalised/unsignalised intersections is not supported. This is due to the limited lengths of some of these lanes and the low speed environment of the area. Additionally, the requirement of drivers to check their blind spots (twisting their heads considerably) does not fit with the demographics of Ballina (a larger population of older people) who may find it more difficult to twist their heads to check their blind spots when merging. The use of high-angle slip lanes allows for a simple check for a gap in traffic. Sites such as: both slip lanes at the western arterial, the slip lane at the proposed West Ballina urban expansion site slip lanes and Boatharbour Road are applicable.
- The predominate focus of designing the corridor with the aim of moving through traffic is an outdated method and should be revisited. I am very much across the congestion issues experienced along this corridor during peak periods and sometimes outside of them, as well as all publicised transport plans for Ballina. However, current transport planning/ engineering is moving towards a model of Multi-modal planning where each corridor is designated a priority to transport different modes. This is applicable to an extent for this corridor with the designation of some alternative roads in West Ballina as bike priority roads however it appears pedestrians have been given little priority in the design for this upgrade other than providing paths alongside the upgrade. Modern transport planning acknowledges major/busy roadways can act as social barriers separating demographics from others isolating them. Although there is limited pedestrian volumes crossing River Street in West Ballina (inadequate to meet RMS warrants for a signalised crossing) currently this may be due to a number of factors such as a perception of not being safe to cross, pedestrians crossing at a number of locations or limited mobility and not being able to find a safe gap. The nature of the corridor as well limits gaps (being roundabouts) however the installation of one signalised pedestrian crossing may lead to a number of pedestrians utilising this crossing as opposed to other ones due to improvements to safety and this will also lead to breaks in traffic creating gaps for other pedestrians at other locations.
- No shoulders are provided on the proposed duplicated bridge across the Canal. A median and left shoulder should be provided as it is a new structure with adequate space to fit a shoulder. Shoulders are provided for a number of reasons such as allowing for vehicles to stop should they break down, providing a forgiving road environment should a driver make an error, encouraging vehicles to travel at the designated speed and allow for cyclists to travel separate to vehicles should they chose to utilise the road.
- The proposed left in / left out at Boatharbour Road is not supported. This arrangement makes access difficult for the future redevelopment of the area requiring a significant detour to the Barlows Road roundabout should they intend to travel east from the development. Provision for a future all movement intersection should be provided here.

10.1 River Street Lane Duplication - Public Exhibition

- The provision of signals at Brunswick Street should occur with this project saving money as they would be able to be constructed as a part of the one project. Additionally, it could be argued that future volumes will meet the requirements of the RMS warrants especially if Camoola Avenue is changed to one way.
- Can the retaining wall along River Street at the proposed bridge be painted with some artwork due to the bland nature and potential for future graffiti.

Kind Regards,

Kieran Mann

Transport Engineer

0421669017

10.1 River Street Lane Duplication - Public Exhibition

From: Peter and Judith Hatfield <flamingo1@tpg.com.au>
Sent: Tuesday, 12 November 2019 9:58 PM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: River Street Reduplication

Ballina Council

I am writing to ask that planning for the reduplication cover the provision of safe cycling for the length of the works from the M1 cycling lanes to Kerr Street.

This will :

- assist in assist in meeting "Council's priorities in regards to the planning, delivery and maintenance of a well-connected cycle network are: † to address the gaps in existing provision "
- † meeting the Plan's Objective One - Plan, deliver and maintain a well-connected cycle network and† Objective Two - Improve safety for cyclists.
- be consist with identified funding sources for major road projects of local roads † and Section 94 and/or 94A contributions .

I ask that the plans explicitly show on-road or shared path provision for the length of the works.

Peter Hatfield

0466 581 281

10.1 River Street Lane Duplication - Public Exhibition

From: Ken K <ken_kramer@outlook.com>
Sent: Friday, 15 November 2019 12:37 PM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: Submission - River Street Duplication - Concept Design Consultation

I wish to record my protest about Councils's River St Duplication proposal.

I recognise that ever increasing traffic on Ballina Island is an issue but feel this proposal is a very expensive, temporary, shortsighted, and an unsatisfactory solution.

The River St proposal,

- is hugely expensive; this money would be far better be allocated to the two (2) western arterial road proposals (one recent, the other planned for a decade or more),*
- will cause huge disruption to traffic, and increase noise and pollution during the construction of 2 bridges, and the widening of kilometres of road,*
- brings more traffic onto Ballina Island; this is not a solution, it will be a headache for residents affected by increased noise, increased vehicle pollution, greater difficulty for local vehicles to enter or cross the the traffic flow, and similarly for pedestrians.*

I request that:

- the River St proposal be scrapped in favour of immediate construction what has been described as the mini western arterial road,*
- an immediate start be made on acquisition of land and detailed planning of the main Western Arterial Road bypass. After all, this option has been seen as the solution for many years, and some progress must have been made with this concept.*
-

*D K Kramer
8/168-170 Tamar St
Ballina*



River Street Duplication Concept Design Consultation

1: Agree Ballina is well overdue for Western Arterial Road, but where council & Engineers have proposed are my concerns:

1: Option to plough through mangrove swamps & fish habitats at Fishery Creek. I think councils proposal is insane connecting up with Brampton Ave when there are clearly other options available that want destroy Crucial Mangrove Swamps and precious fish habitats. To have any benefit at all the Western Arterial Road must be further West at Burns Point Ferry Road Round about to maximize traffic congestion.

I am not green but common sense needs to be prevailed.

Regards Tom O'Grady

10.1 River Street Lane Duplication - Public Exhibition

From: Demara Gates <demarag@icloud.com>
Sent: Friday, 15 November 2019 4:38 PM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: Concept Design for River Street Duplication

To Whom It May Concern,

I hope this email finds you well.

I am writing to make a suggestion re: the River Street Duplication.

I currently live on River Street and the amount of traffic is ridiculous, especially the amount of trucks! Most of the traffic that goes from River Street into Kerr Street to either go towards Lennox Head or the industrial areas. What I don't understand is why is there only a suggestion to widen River Street when Tamarind Drive Southerly entry and exit could be opened up instead? This would eliminate a lot of traffic on River Street and you wouldn't have to widen it. The traffic would be more spread over Ballina. I'm sure that the truck drivers and everyone else that wants to travel South of Ballina would appreciate this. I understand that this is under government funding, not council funding.

I also wonder if you widen River Street and Kerr Street, then Tamarind Drive cuts down to single lane East and West so you would have to widen all streets wouldn't you? Where would the traffic go?

I understand that all avenues are looked over, I'm just hoping that you have thought of this idea and something more realistic would be beneficial. Talking to locals of the area and Northern River residents, it has always been a struggle to get into Ballina. A lot of trades that just want to get to the industrial estate for supplies avoid Ballina as it's so hard to navigate, there is no direct way into Ballina.

Kind Regards,
Demara

I wish to make a submission to the River St duplication review

I note from your publication Community Connect that traffic flow shows 26103 vehicles at Fishery Creek Bridge.

The vital information needed is what happens to that traffic.

We need to know the traffic count flowing east after Brunswick then Tweed Streets then what traffic enters Kerr Street to the north and what traffic continues along River Street. Also counts on Kerr Street after Fox Street and then east and west of the traffic lights on the corner of Tamarind Drive.

The purpose of this information is to try to determine where the traffic is going.

My feeling is that most of the traffic is turning North at Tweed Street (to miss the traffic lights) or at Kerr Street then proceeding either to Fox Street for the shopping malls or Tamarind Drive for the Industrial Estate, airport and residential or east for the beaches, East Ballina, Skennars Head, Lennox Head and Byron Bay.

If this is the case duplication to improve flow on River Street will do nothing for the congestion that will occur on Kerr Street.

Obviously we also need to know these flows travelling south and west as well.

I await the publication of these traffic flows and if it shows the majority of River Street traffic is flowing through to Tamarind Drive and Fox Street I think the duplication of River Street is not the answer to our traffic woes.

John Hollingsworth

76 Headlands Dr

Skennars Head 2478

0400779040 johnhol13@gmail.com

10.1 River Street Lane Duplication - Public Exhibition

Feedback for Documents on Exhibition

Submitted At

2019-11-26 08:29:23

Name of exhibited document you want to make comment on.

Concept Design Plans for River Street Duplication

Your Name: Robert Barlow

Phone Number: 0431650480

Your email?: barlows@palmlake.net.au

Having read the document, is it easy to read and understand?

Yes

Please provide any suggestions for improvement.

The River Street duplication should not be the priority. The priority should be the western arterial road from the "Aldi roundabout" to West Ballina. This would minimise the costs of traffic management and the completed project would relieve a lot of the traffic on both River Street and Tamarind Drive. However it seems that council is determined to proceed with options other than this. I submit that River Street is not the priority. Rather the priority should be Tamarind Drive from Kerr Street to North Creek Road including the duplication of the bridge over The Canal. The reasons for prioritising this duplication are as follows:

* There are very heavy traffic flows on this section of road particularly in the morning peak and the afternoon peak which starts about 3 pm. During the day, the traffic flows remain heavy towards and from the Southern Cross Industrial Estate and Airport. Building Airport Boulevard and extra industrial sites will only exacerbate this.

* There is an urgent need to duplicate the bridge over The Canal. The Fire Station is located north of the bridge and if the bridge becomes blocked due to an accident this would mean that appliances would not be able to service fires on Ballina Island. and West and East Ballina in time to minimise damage and loss of life. Also, if a blockage of the Canal bridge occurred, access to and from the airport becomes more difficult with the need to make a long round trip to the airport via Alstonville and Tintenbar.

I feel that council needs to do a careful reassessment of the priorities for this project.

Do you support the overall objectives and content of the document?

No

I agree to Ballina Shire Council collecting my Name, Email, and Phone Number

I agree

Submission ID

5ddc47b3fe2082742007efd8

2-12-2019

RE: CONCEPT DESIGN FOR RIVER STREET DUPLICATION.

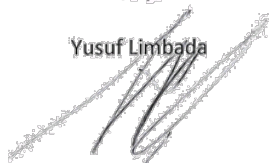
We appreciate that the sole reason to construct the 4-Lane Road is to alleviate congestion along River Street however further consideration needs to be given to the greater effect these plans have on the area:

Points of consideration we believe the plans overlook and fail to address include:

- A. There is an existing culvert 'Ch185' whose main purpose was to ensure that water is drained to avoid floods in the area. Your plan has removed the existing culvert and the designer has assumed that in future 3 X 3.6m box culverts will be 'built by others'. One can only assume council is referring to developers of the land to the north of River Street.
- B. This position is a perplexing one as the removal of the existing culvert will greatly exacerbate flooding and drainage issues in the area as there is no guarantee that even 1 culvert, let alone 3, will be funded by any development activity.
- C. The plans do not outline any provision by council, in the very likely scenario that no developer is able to make any project stack up, for the replacement of the existing culvert. Logic would dictate that this culvert should be replaced at the time of the road widening.
- D. The removal of the culvert from the plans presented raises the questions:
 - a. Did Council undertake any flood mitigation modelling before the plans were designed?
 - b. Have drainage requirements been overlooked?
 - c. Is it council's intention to try to pass on the cost of the replacement of the existing culvert to developers, with no guarantee that the work will ever happen, at a cost to the community?
- E. The service station approval, which has not gone ahead for several years, has already demonstrated it is financially unfeasible for the project to absorb the cost of 3 culverts and the property is now being marketed extensively off market for sale.
- F. The service station developers had to undertake flood mitigation studies, which we have also had to undertake, at a cost of tens of thousands of dollars. The outcome for the service station site was an approval burdened with a financially unfeasible condition of needing to construct 3 culverts across the dual lane road. Our investigations have shown this work was costed by the service station at \$3.8million dollars.
- G. It is now almost a certainty that the service station will not proceed as:
 - i. The property is being marketed extensively off market for sale
 - ii. The construction of the massive service site on the other side of the freeway means that the need for the site has now been reduced considerably. Two such centres so close to each other, with such easy access from both sides of the freeway is very unlikely sustainable.
- H. Our initial studies, based on flood modelling by councils own consultants which has costed us thousands of dollars, also suggest that no development of the vacant land owned by Riverbend will be economically feasible as any extension of the footprint of the park triggers the need for culverts according to council.
- I. If these culverts were costed at \$3.8 million dollars by the service centre over 2 lanes, the cost for us to do this over 4 lanes will certainly be in excess of this. There is no way this sort of cost can be financially viable for any developer.
- J. With the above considerations in mind, if "the others" (developers) do not proceed and the existing culvert is removed by council and not replaced by council, council will be responsible for any resultant flooding and drainage issues.
- K. The attempt by council to push exorbitant costs on to the private sector is a massive impediment to job growth and economic growth, particularly in this very tough economic climate, as development of any of the land to the north of River street will be extremely unlikely given the estimated cost of these culverts.
- L. We hope that council is willing to engage in productive and constructive discussions with land owners and developers to ensure that future development of this area is not destroyed.

Sincerely,

Yusuf Limbada



for Riverbend Ballina PT LTD

From: Yusuf Limbada <ylimbada45@gmail.com>

Jenny & Greg Clark
107 Martin Street,
Ballina NSW 2478

P: Jenny 0413 255 443 Greg 0412 753 370

E: jenny@gregclarkbuilding.com.au greg@gregclarkbuilding.com.au

1st December 2019

Ballina Shire Council
40 Cherry Street,
Ballina, NSW 2478

RE: Concept Design for River Street Duplication

Owner – 28 Norlyn Avenue Ballina

I strongly object to the proposal of the road widening on the following points:

- Firstly the Highway by pass was made due to the point that traffic was required to be diverted from coming through town, this proposal is about enticing more traffic through town again.
- The By Pass from west Ballina North to the Industrial Estate should be a common sense approach to alleviate traffic through town first priority.
- A four lane carriageway is only going to take street side beautification & open space feel away from the Towns approach
- What design considerations to be implemented to contain noise for residences.
- In consideration of type of noise barriers & retain wall to be constructed carefull attention to design of these needs to be followed so as not to be detrimental to the existing open space & aesthetics of these structures.

Regards,



Jenny Clark

10.1 River Street Lane Duplication - Public Exhibition

Feedback for Documents on Exhibition

Submitted At

2019-12-04 11:15:28

Name of exhibited document you want to make comment on.

Concept Design Plans for River Street Duplication

Your Name: Margaret Fryer

Phone Number: 66869370

Your email?: margaretfryer@bigpond.com

Having read the document, is it easy to read and understand?

No

Please provide any suggestions for improvement.

The maps which appeared in the Advocate were too minute. Certainly weren't meant to catch the publics attention.

Do you support the overall objectives and content of the document?

No

Please provide further comments if you wish.

I attended the community information session. I feel Council has put a lot of time and effort into their concept plan. I believe Council should of received the public input before

doing the plans. Putting the cart before the horse one might say. I believe the western arterial road starting at roundabout near Aldi and going across country to roundabout near Good Guys is a better option depending on land acquisition. Unfortunately the people who live in North Ballina/Cumbulum are too busy in their daily lives to take an interest in these decisions. I live in East Ballina so one would say the River Street Duplication won't affect me. I believe in traffic diversion and have witnessed this with the road and second bridge from the coast road to roundabout near Ballina Central. It gives people an alternative and an option. The arterial road would divert a lot of traffic from the River Street Concept without interruptions. eg I have a friend who lives in Pimilco and runs a business in the industrial estate near airport. He would turn off roundabout at Good Guys with no need to go along River Street to Kerr street and back to industrial estate. It is a no brainer!

I can't believe the Ballina Bypass didn't include on/ off roads south at Tamarind Drive. That is another option. For the good of all. Kind regards Margaret Fryer

I agree to Ballina Shire Council collecting my Name, Email, and Phone Number

I agree

Submission ID

5de6faa00807da25356720b6



Date: 29th November 2019

The General Manager
Ballina Shire Council
PO Box 450
BALLINA NSW 2478

ATTN: Patrick Knight

Dear Patrick,

RE - Concept Design for River Street Duplication

We have reviewed the concept plans exhibited for the River Street Duplication between the Pacific Highway to Burns Point Ferry Drive. We make the following observations on the concept design:

The plans note that the existing culvert at approximately CH185 is to be removed. It is thought that the designer has assumed that this culvert will be replaced by the 3x 3.6m box "culverts by others" (associated with DA2016/93). Has consideration been given to the installation of the "culverts by others"? If these culverts are not installed until sometime after the road upgrade, significant drainage issues will be encountered as the area to the north of River Street will not be able to drain. The works proposed by Council should include provision for drainage of this area separate to works undertaken by others. Any culvert installed by Council in this location should be compatible with the future construction of the West Ballina Flood Relief Strategy adopted by Council.

Typical Section 2 on plan C100-18-573 issue E shows filling on the northern side of River Street and a change in Road profile. Has Council undertaken any modelling to check possible flood impacts and any necessary mitigation measures?

Yours sincerely,
NEWTON DENNY CHAPELLE

CHRIS PICKFORD
Civil Engineer

JOHN NEWTON B. Surv. M.I.S. Aust. TONY DENNY B. Surv. (Hons) M.I.S. Aust. DAMIAN CHAPELLE BTP CPP
Office: Suite 1, 31 Carrington Street, Lismore, Postal Address: PO Box 1138 Lismore NSW 2480
Phone (02) 6622 1011 Fax (02) 6622 4088 Email office@newtondennychapelle.com.au
Also at: Cassino Court, 100 Barker Street, Casino NSW 2470 Phone/Fax (02) 6662 5000
ABN 18 094 689 845

3rd December, 2019

Att: Patrick Knight

The General Manager
Ballina Shire Council
PO Box 450
BALLINA NSW 2478

Dear Sir,

Re: River Street Duplication - Submission for Residence 1/312 River Street & Business Ballina Chiropractic

The proposed duplication impacts heavily on our property by removing both residential and patient parking and making access to and from our driveway dangerous.

It is a major concern for us which will impact on our livelihood. Our concern is not only the reduced parking for our patients but also the safety of getting in and out of vehicles, with the lanes being in such close proximity to our property.

As we do not have rear access to our property, we currently park on River Street, as getting in and out of our driveway is currently dangerous enough. By introducing the proposed removal of current parking and replacing it with a lane so close to our property, we will be forced to only use our driveway; therefore we will be unable to reverse out of our driveway safely. Do we reverse out of our driveway directly on to the outside lane, slowing down or stopping traffic, as in peak times the gap created by the traffic lights is non-existent by the time it reaches our driveway. Or do we reverse out on to the footpath then merge? Is this safe for our community members using the footpath? We own 2 vehicles which will need to be parked in our driveway (due to the removal of the current parking space) so the suggestion of a 3 point turn in our front yard is not only absurd but now impossible.

In reference to the above duplication, we would like to put forward to Council the following:-


To maintain the current parking in front of our property and on the easterly side and to remove garden beds which unnecessarily occupy even more parking spaces.

We are the only property from the current merging lane that has a driveway and NO rear access thus making our business/residence the only property along this section that will be severely affected by these proposed changes. We are asking that you please keep the current parking and start the changes just west of our property. The proposed duplication has kept the parking spaces directly across from us even though those businesses have customer parking at the rear, how is this fair?

We know you have a job to do but we are asking that you put yourself in our shoes and do the right thing and work with us in trying to come up with a solution. We have worked hard to build up our business and never imagined that when we purchased our property years ago that our own council could be responsible for possibly reducing the value of our property by removing street parking and making access to our property so unsafe for our family.

We are asking that you take this in to consideration. We would like to request a meeting with planners to show the extent of the problem and to discuss possible solutions.

Regards,


Rick & Renee Endres
1/312 River Street
BALLINA NSW 2478
0407 202 857

10.1 River Street Lane Duplication - Public Exhibition

From: Tamerlaine Oxford <tamerlaine@iinet.net.au>
Sent: Sunday, 8 December 2019 5:57 PM
To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>
Subject: River St Duplication

Hi There,

We own a house in Brunswick St Ballina. Both my husband and I work in the Byron Shire and prefer to leave Ballina via the West Ballina exit. As it is far quicker.

At the moment it is near impossible to turn right from Brunswick St heading over the bridge and towards West Ballina (see image 1). The traffic lights along River St do cause breaks in the traffic. However the constant flow of traffic coming from West Ballina through the roundabouts coupled with the new second lane created in front of the Metro Petrol station and the terribly placed tree (see image 2) on the footpath make it impossible to exit during peak periods. Our particular situation is compounded by the fact we are also fenced in by the Tamer/Kerr St block (see image 3).

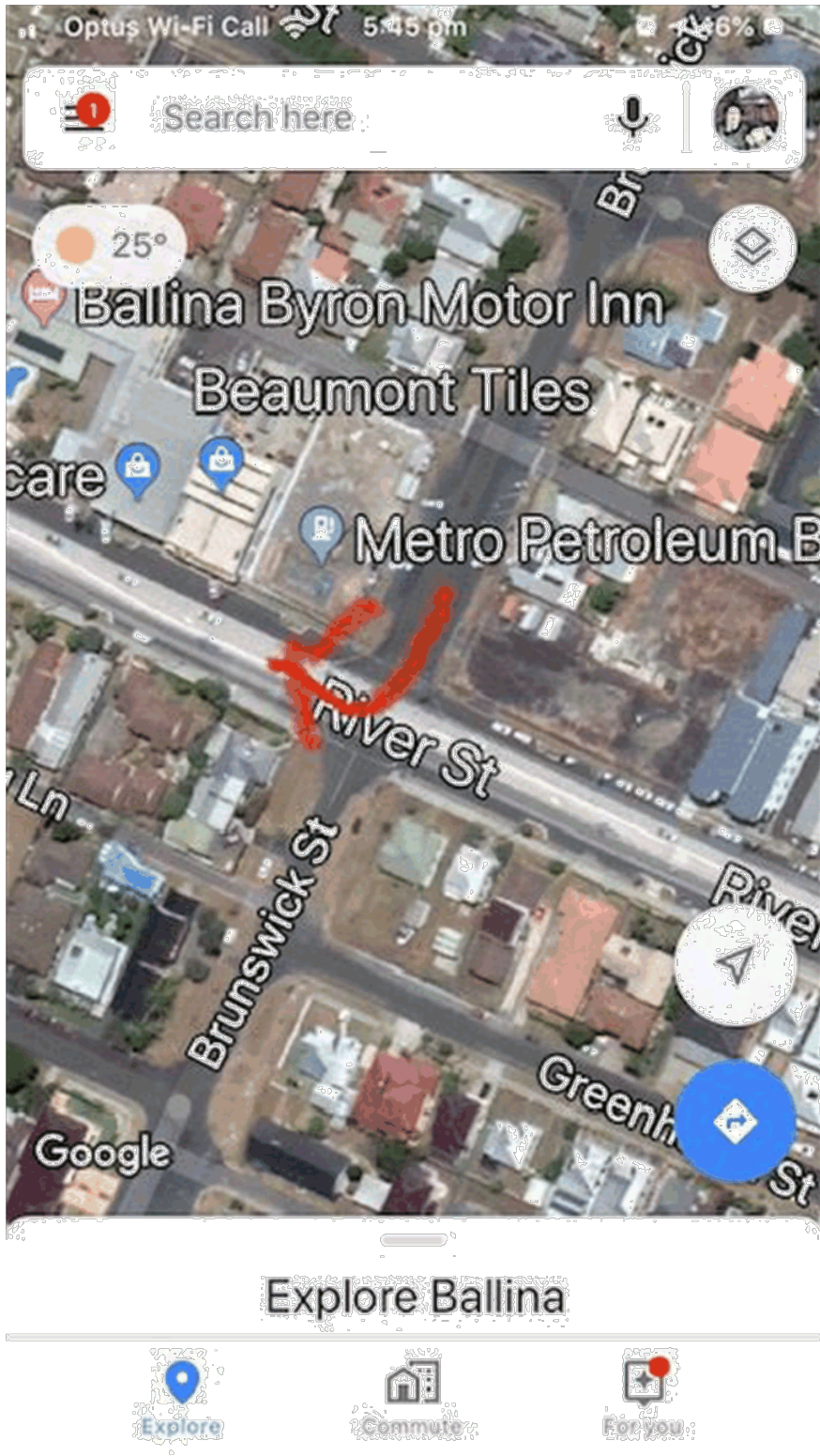
The new lane in front of Metro is probably the biggest culprit which means added lanes will undoubtedly cause even more issues.

I do look forward to hearing from someone ASAP.

Thanks,

Tamerlaine
0419 803 004







Feedback for Documents on Exhibition

Submitted At

2019-12-06 16:48:20

Name of exhibited document you want to make comment on.

Concept Design Plans for River Street Duplication

Your Name

John Heaton

Phone Number

0448934663

Your email?

johnheaton56@gmail.com

Having read the document, is it easy to read and understand?

Yes

Please provide any suggestions for improvement.

I do not believe in commencing with the River Street duplication. The priority and resources should be directed in constructing the Western Arterial Road FIRST.

Do you support the overall objectives and content of the document?

No

Please provide further comments if you wish.

I do not believe in commencing with the River Street duplication. The priority and resources should be directed in constructing the Western Arterial Road FIRST.

I agree to Ballina Shire Council collecting my Name, Email, and Phone b Number

I agree

Submission ID: 5de9eba4fe20922d8406d42c

General Manager
Ballina Shire Council

3/12/2019

Re: River Street Duplication

SUBMISSION

Please allow me to make a submission relating to the "River Street Duplication" proposal at Ballina.

I believe the proposal to duplicate River Street from the Pacific Highway to Kerr Street, is supposed to reduce the traffic congestion on and around Ballina Island.

It must be obvious that by duplicating River Street from two lanes to four lanes and duplicating the bridge over Fishery Creek will not relieve congestion.

The flow of traffic on any road is governed by the number of vehicles the traffic lights can process at any one period.

Presently, just on River Street, there are two sets of lights.

One major set at the intersection of Kerr Street and one set of pedestrian crossing lights in the C.B.D.

According to the proposal another set of traffic lights is proposed near Barlows Road intersection.

My understanding from previous information is that Kerr Street has already reached its maximum of approximately 9,000 vehicles per day.

Because Kerr Street already has four lanes and four sets of traffic lights it is very unlikely that anything can be done to improve the traffic flow.

Council's report advises that River Street has already reached its maximum of 16,000 vehicles per day and is expected to reach 36,000 vehicles into the future.

River Street Duplication/2

It must be obvious that extra lanes and an extra bridge will be attempting to force 36,000 vehicles per day along a street which will always only carry 9,000 vehicles per day.

Rather than wasting \$20-\$30 million dollars of rate payers money on this proposal, it would be better to spend the money and time on forming a bypass across West Ballina.

It must be realised that even if extra vehicles can some how find their way into the C.B.D. there is absolutely no parking available.

Denis Magnay



148 Tamar Street
BALLINA N.S.W. 2478

10.1 River Street Lane Duplication - Public Exhibition

From: shane fraser <frasenu1@gmail.com>

Sent: Wednesday, 18 December 2019 12:07 PM

To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>

Subject: Re West Arterial Bypass

To Whom it may concern.

My wife and I are fairly recent members of the Ballina community, we love Ballina, we see the day to day work the council does to maintain the area to a very high standard, in my opinion, recently I've been following the concern of some people about the River St, Kerr St and Tamarin St widening etc, we live on Kerr St, it's a great central location, we can walk or ride our bicycles to the shops, RSL, the beach, we don't really need to drive the car too much.

The main issue we have is the amount of trucks that use Kerr St, our house and car are constantly covered in dust, these trucks have to use Kerr St to cross the island to West Ballina and beyond, development at the Airport, Shennars Heads and many other areas north of Ballina in the future will only increase the amount of Trucks using Kerr St, not just the increase in normal vehicle traffic, I support the construction of a bypass first, not just to decrease the amount of traffic but also safety to kids and the aged who try to cross Kerr St, I would still support the Bypass even if we lived elsewhere.

Thank you

Shane Fraser

10.1 River Street Lane Duplication - Public Exhibition

From: marilyn kent <mazzer13@hotmail.com>

Sent: Wednesday, 18 December 2019 12:18 PM

To: Ballina Shire Council <BallinaShireCouncil@ballina.nsw.gov.au>

Subject: Western Arterial Bypass

Dear Councillors

We am wiring to council to object to the building of 2 new bridges over the canal and Fishery Creek plus the duplication of River, Kerr and Tamarind drive.

We would prefer to see the money go towards the building of the Western arterial bypass instead. Our reasons for this is that since moving here in 2014 we have already observed an increase in traffic flow over Prospect bridge and the subsequent line of traffic trying to get around the roundabout near Ballina Central.

Lennox Head and Skennars Head have had huge housing developments go ahead in that time and are only growing creating so much more traffic on Angels Beach drive that will continue to increase when Aureus is all built. Most households these days have 2 cars, we can't imagine how horrific traffic will be then.

The duplication of River and Kerr st is only going to move the bottle neck north into Kerr Street as the traffic lights will not allow traffic to flow faster through there

2 more bridges is a huge expense which is not needed if the Western arterial bypass goes ahead as a lot of that traffic now flowing through River and Kerr Street would have no need to be there if the bypass was built

We desperately need another river crossing over North Creek to take the traffic pressure off along Angels Beach drive that the new housing developments have contributed to.

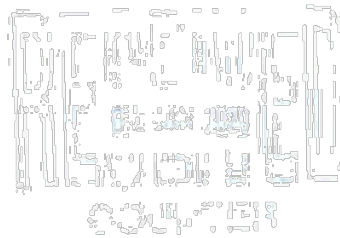
We see the duplication as a waste of money and major disruption of traffic for as you are saying 6 years while it's being build for something that we think quite frankly will not work

Start the Western Arterial bypass now. Be pro active.

Please present our objection to the relevant councillors and inform us of any open meeting that is likely to take place to discuss this.

Please also acknowledge receipt of this letter. Thanking you Marilyn Kent and Graeme Drew
64 Eyles Dr, East Ballina.

The Mayor,
Ballina Shire Council



189 Fox Street,
Ballina 2478
30.12.19
66816158
tongeprs@gmail.com

Dear Mayor Wright,

I was originally unaware of the time limitation for comments in relation to the proposed duplication of River Street, however the proposed project has raised other issues, including adjacent road conditions.

I am addressing these submissions to you, as they deal with issues over and above the technical and engineering factors of the duplication, though I will submit the project is flawed, I believe the abandonment of the project is essential, in that it is a direct extension of the anti public transport and promotion of the road policies of both levels of Government, which include the abandonment of both passenger and freight rail services and the introduction of road trains on to our highways.

Though heavy transport vehicles are involved in sixteen times more fatal collisions and improved safety aspects are being ignored, Australia, already regarded as the most intensive user of road transport, is making every effort to accommodate more motor vehicles upon our highways and into our townships, obviously increasing the number of deaths and serious injuries.

The enormity of the impact of a road death appears to have become accepted as a part of everyday living, when each level of our administrations should be striving to actively reduce this self imposed area of mortality, Council having the capacity to save many lives by the alteration of existing policies.

The reintroduction of public transport and rail freight is essential, not only as many lives would be saved, but I will demonstrate that each activity can be established and maintained at considerably less cost and damage to our environment and ecology than existing practices.

The Sydney Morning Herald issue of 27.12.19 quoted a 'road safety expert and trauma surgeon', John Crozier who called on Government to spend \$3 billion each year making our roads safer, where a fraction would provide renewed rail systems.

It should be patently obvious to all that even the provision of 10 lane highway will not be effective in prevent collisions, as mankind and the motor vehicle can never mix, the attitude, criminality, incompetency and disregard for the safety of others can never be eliminated, each State's 'Towards Zero' campaign akin to a dog chasing it's tail, particularly with the recent increase in driving whilst under the influence of drugs and the continuing use of mobile phones whilst driving.

The destruction of fauna and flora is a necessary component of the bypasses in Byron Bay, Port Macquarie, Coffs Harbour, all brought about by the increasing levels of traffic, at the same time directly adding to the profit of overseas suppliers, as, apart from some mechanical establishments, almost all supplies within the automotive industry profit foreign interests, this duplication achieving the same purpose.

I recently visited Shellharbour, a town with a similar profile as Ballina and was shocked at the over development and how motor vehicles had ruined the once peaceful village in which I spent an afternoon at their annual rural show in the mid 1950's, experiencing a major traffic jam, a fate that awaits Ballina, should the main focus be on access for motor vehicles.

Traffic has increased substantially since we moved to Ballina some 20 years ago and will continue to do so. A common day scenario for almost all Australians, once you leave your home you are at immediate risk, surely this cannot be cited as being progress?

I have provided a submission to reestablish a rail line between Ballina and Lismore, this service, together with the provision a fleet of commuter buses which would lessen the flow of traffic along River Street, particularly at peak times, negating the need for duplication.

I have detailed the various forms of pollution that will be increased, including tyre residue, additions to global warming and the damaging influence of fumes from one world's dirtiest petrol and the increase use of diesel powered vehicles, though diesel fumes have been declared as being carcinogenic by the World Health Organisation.

You may be alarmed by the volume of my submission, however I find it necessary to outline drawbacks of our road policies, chiefly from page 4 to page 22.

I appeal to you, as we respect as a man of integrity and suggest that the abandonment of this project would be a step forward, not only for the people of Ballina, but the support of public transport would be the first step in reversing the damaging policies of our Governments.

At this stage, these submissions are exclusively for your judgment, however, should you disregard what I propose, I will seek the support of others, including the residents of the Horizon Drive and Tamar Steet west estates and rail supporters.

At the end of the day, these proposals are intended to save some, if not many lives on our roads.



Philip Tonge

THE PROPOSED DUPLICATION OF RIVER STREET, BALLINA

Ballina Shire Council appears have already committed to the duplication of River Street from Smith Drive to Tweed Street, these comments will most like be ignored, however, I will demonstrate that this duplication is neither necessary or desirable for the following reasons.

The design concept of the project is flawed, in that:-

1. The greatest burden on society is the scourge of our road toll and cost of our overuse of motor vehicles. At a time when the individual use of motor vehicles should be discouraged, the project will encourage road transport, particularly along the Bruxner Highway, Council making no provision of public transport, such as commuter buses and rail.

The 41,000 residents of Ballina Shire are each sharing the estimated \$10.2 billion (2016) cost of road fatalities, injuries and damage resulting from collisions on our roads, which equates to more than \$54 million for Ballina Shire and \$26 million if we include Lismore residents, for 2016, alone.

2. Council estimates an increase of traffic using River Steet throughout the carriageway proposed form 26,103 per day in 2019 to 29,501 by 2036, yet experts estimate the number of motor vehicles, worldwide, to double by 2040!?

On the basis of this increase, we will have reached the 2036 figure by September, 2022, what then? Add two more lanes to River Street?

3. Provision of public transport would negate the need for this duplication.

4. The duplication can only be viewed as being consistent with and an extension of the damaging policies of both the Commonwealth and New South Wales Governments, policies that are both substantially more expensive and unsustainable.

5. As with all many road development projects, no provision is being or can for the parking of the growing number of motor vehicles with Ballina's Central Business District, the availability of parking already posing a major problem for most.

6. The \$23 million allocated for this project is part of the \$85 million/ 4 years roads and bridges expenditure proposed by Ballina Shire Council and considering Ballina Shire is approximately one two hundredth of the State's population, an extrapolation of this expenditure equates to \$4.4 billion and \$17 billion, the last

amount exceeding the projected cost of the nation's largest construction project, the WestConnex, and almost twice the projected cost of the Inland Rail project.

7. The provision of a roundabout and the proposed roadway adjacent to Emigrant Creek Lane is not necessary, as Barlows Road should be redeveloped, in lieu, the existing roundabout at the intersection of River Street and Barlows Road, would negate the need to construct another roundabout.

8. The proposed installation of traffic lights at the intersection of Brunswick Street would negate any of the intended time savings in travelling to and from the central business district.

The alteration to traffic arrangements would substantially reduce the necessity to access River Street via Brunswick Street, negating the need for traffic lights.

9. There is little provision for pedestrians along the existing route, duplication will only add to the danger of any person attempting to cross River Street.

10. Air pollution via vehicle exhaust is a problem being ignored by all of our administrations, together with motor vehicle residue, including the recently recognised damaging residue from car and truck tyres, said to be the most significant polluting element being deposited into our waterways, the duplication would increase all of these pollution levels via inflows into the Richmond River and the ocean.

IN SUMMARY

The previously unattained increase in traffic movement within Ballina Island and its approaches can only be seen as an increased risk of adding to our road toll, the further pollution of our waterways, the increase in air pollution and a further contribution to global warming by the discharge of CO₂.

I believe Council has a unique opportunity in recognising the benefit of reducing traffic movements and to adopt means of public transport.

I will hereafter outline sustainable commuter bus and rail projects that would prevent the need for this duplication, schemes that are entirely practical, at considerably less immediate expense, and greater long term savings.

At the end of the day, these schemes would achieve what each of our administrations should be striving for, the reduction of our road toll.

NEGLECT OF DUTY

It is incumbent for any level of public administration is to ensure the safety and well being of each citizen, yet our administrations are providing for and supporting the use of private motor vehicles and the transport of freight by road, in turn increasing our road toll and substantially adding to each household's living expenses, virtually obliging each home to rely on the ownership or ready access to a motor car, almost all forced to depend upon car transport to travel to and from their place of employment, young people obliged to own their own car for this purpose, yet they first need employment to pay for a car!

The 2016 Census indicated that 73.9% of Ballina people travelled to work by car, 68.5% as a driver, figures in excess of the NSW average and only 1% by public transport, NSW being 16% and 11.5% nationally.

The savings of the provision of a fleet of commuter buses, both within the shire and nationally are staggering. I will outline these savings within a dedicated section.

I term this lack of provision of public transport a neglect of duty by our administrations, as the safe and affordable means of transport within our nation is an obligation, where today, almost all of the rapidly increasing cost to maintain a motor car serve to only profit overseas corporations, an area I will later expand upon.

A FLAWED PROJECT

Apart from the cost, as illustrated in the Ballina Advocate, Council intends to construct a roundabout to access and construct a future road opposite Emigrant Creek Lane, presumably to link with Tamarind Drive at the intersection of Flathead Lane, a distance of 2.85 kms, to allow access for Cumbalum and Ballina Heights residents.

I question the validity of this proposal, as the redevelopment of 2.65 kms of Barlows Road, from the same intersection of Tamarind Drive and Flathead Lane to Horizon Drive would provide a more serviceable access, negating the cost of opening a new road and constructing an additional roundabout, as the existing roundabout at at Barlows Road and River Street would suffice for any additional traffic.

Not only would this provide immediate access for residents of the Horizon Drive estate to areas north, but would reduce the distance travelled for those travelling from Deadmans Creek Road to the central area of West Ballina, at Riverview Drive to 4.35 kms, whilst access from adjacent to Emigrant Creek Lane would be 5.2 kms.

An additional roundabout would slow traffic, and the proposed installation of traffic lights at the intersection of Brunswick Street and River Street would further negate any time saving of the duplication, however, I will later outline a valid proposal that would significantly reduce traffic at this intersection.

Within current road policies, pedestrians appear to be expendible, the existing access for pedestrians between the Pacific Highway and River Street is almost none existent, duplication would only increase the danger of a person attempting to cross.

During the Council's presentation of the project, the presenter made no commitment for the access for pedestrians to cross the Fishery Creek Bridge during construction, commenting that has been left to the contractor to provide access, apparently there being no contractual obligation to provide access, anticipating there will be none will be provided, each pedestrian, cyclist or wheelchair bound person will be obliged to cross in a motor vehicle.

The presenter justified the duplication by stating increased traffic flow called for greater access to negate the waste of time and fuel costs for motorists and to improve delivery times for commercial delivery vehicles, echoing statements made, firstly in relation to the Woolgoolga to Ballina Pacific Highway development and secondly, the \$391.6 million allocated to widen the M1 north of the Hawkesbury River bridge.

The widening of the M1 has been justified on the basis of improving traffic flow and the better movement of freight, featuring an image of an articulated vehicle, the M1 being the part of the Pacific Highway with direct access to and from Sydney.

Improving the flow of traffic into a city that is nearing gridlock, similarities exist between the M1 widening and the proposed duplication of River Street, as parking a car in Ballina is already difficult, how can more cars be accommodated ?

It is apparent that every endeavour should be made to decrease vehicle numbers, not to accommodate for their increase.

BRUXNER HIGHWAY

The duplication would encourage the use of cars between Ballina and Lismore via the Bruxner Highway, numerous fatal collisions having occurred on this section, Council, and both levels of Government, are ignoring the dire need for the provision of public transport, via community buses and rail services, both levels of Government displaying marked bias against any form of passenger rail services.

I will detail a proposal to reestablish a rail service between Lismore and Ballina, a proposal that will be met with derision, a project that will save lives, in turn, the project will prove to be both financially and environmentally beneficial.

The rail project would require the upgrading of 20 kilometres of track from Lismore to Booyong Junction which may raise fears of the reopening of the Casino to Murwillumbah line, a recent referendum showed 76% were in favour of the 133 kilometre upgrade.

DETAILS

I may appear to be departing from commenting on the proposed duplication, however, as this project is an extension of the NSW and Commonwealth Governments' road policies, it is necessary to address all of the issues involved, my endeavour is to limit the number of motor vehicles, not to eliminate and to save many lives on our roads.

FOREIGN OWNERSHIP

Almost all areas of our economy depend upon the supply of goods from overseas.

Many appear to unaware of the extent to which foreign investors have in our economic structure, in which their share in our big four banks, one example, limits Australian based shareholders to an average of just 1.76% of the top twenty shareholders, foreign interests making up an average of 54.58% of the balance.

Almost all of our major corporations show similar levels of investment, whilst our housing market will soon come under their control, via the sale of, initially, one more than one million foreclosed homes to the aptly named group of foreign investors, the 'super rich'.

This may also appear to be a departure from commenting on the validity of the proposed duplication, however, I contend that the motor industry is the final step in the overseas domination of our economy.

Before dismissing these comments as being fanciful, consider the following.

Formerly, Australia manufactured our own car, today we are forced to rely totally on the importation of all types of motor vehicles, be it cars, four wheel drives or heavy road transport vehicles.

Since the abandonment vehicle manufacture, the provision of components by local suppliers has largely been withdrawn, overseas suppliers, such as Ford patenting parts to prevent local supply, limiting the 'after market' automotive supply.

To ensure continuity of a vehicle's warranty, it is generally necessary to have repairs or servicing carried out by a vehicle's manufacturer controlled (or owned) franchise.

As a result, we are forced to rely on the often excessive cost of imported parts, the servicing and supply of parts are the main source of revenue of suppliers, competition keeping new car prices relatively under control.

The cost to own and operate a motor vehicle is a new area of price escalation.

Three years ago I purchased a new battery for our car for \$119, recently replacing with the same battery for \$199, the same price being quoted by others, except for a large local automotive supplier, \$249 for the same battery.

I recently replaced the rear brake discs and rotors on our car, obtaining three quotations. One a Ford agent, another an independent mechanic, the lowest at \$441 being the Kmart service centre.

Each quoted on the basis of using only genuine imported Bendix components. I asked what labour rate made up the \$441, being told that \$120 per hour had been their hourly rate for some time, an apparently excessive charge as the award wage of a motor mechanic is only \$26 per hour.

The Kmart service centre was one of 206 similar facilities in Australia, all having been sold to a German investor.

Australian companies originally manufactured batteries, though it is not clear to what extent we now make, the only local batteries available, Century batteries are now owned by a Japanese group, Marshall and Exide batteries now being part of Ramcar, a Phillipines corporation.

All of our tyres are now imported, Dunlop originally supplying locally made.

Australia once had seven productive oil refineries, today only three, Sydney's Kurnell Refinery is now only a fuel terminal, reconstructed to unload processed fuel from overseas shipping, Australia being almost totally reliant on overseas supply.

ALL PROFITS TO FOREIGN INTERESTS

Once, our automotive industry provided jobs, and contribution of company tax and that of their employees, and the ensuing independence, such as the ownership of their own home.

The NSW Government has elected to award multi million dollar contracts for the supply of fleet of all trains and buses to overseas supplies, apparently causing the the liquidation of a long established Sydney buse builder, Custom Buses, since rescued by the Dunn Group, a British investment group.

The independent mechanical workshop is clearly becoming a thing of the past, the automotive sector now being almost totally reliant on foreign interests.

Along with other sections of our economy, almost all of the profits, at a level foreign investors designate, currently leave our shores.

ASSISTING COMMERCE

Safety issues raised by myself and others, such as the danger and undesirability of four wheel drives and the reduction of their import duty to 5%, the increase in the use of diesel fuelled vehicles, the proposed introduction of road train type road freight vehicles, the need to reduce speeds, the increased hazard of dark coloured vehicles, the increase of car importations which must mean additional road deaths, our administrations' disregard for the increase in pollution levels and their failure to provide adequate public transport.

As each of these issues would reduce our road toll,our Governments' inaction can only be seen to be assisting the suppliers to the automotive industry.

PROVISION FOR MOTOR VEHICLES

The damage to the environment and, in some cases, the loss of homes and farm land to provide access for our increasing use of motor vehicles, such as the highway diversion from Glenugie to Tyndale at the loss of 532 farms and the bypasses in Coffs Harbour, Byron Bay, Port Macquarie and within Sydney are negative to the welfare of our communities, as with this project and the \$23 million cost could be spent to provide more positive outcomes, including public transport.

The provision of access for motor vehicles is by far the most costly issue within modern day society, the motor car dominating all aspects of our lives,

unnecessarily so, as the ample provision of public transport would negate many of the problems generated by our overuse of motor vehicles.

Just one example, the former tranquility and access to Byron Bay is now a thing of the past, though a bypass is proposed, I recently witnessed a 1.5 kilometres bank up of vehicles on the Pacific Highway of vehicles attempting to turn into the northern highway entrance to Byron Bay, vehicles having another six kilometres, thereafter to travel, perhaps a daily occurrence.

The Byron Bay bypass will have little effect on traffic flows, the sheer volume of traffic generated by current Government transport policies will only increase these numbers, where the reintroduction of rail would potentially relieve these problems and provide a more economical method of travel.

Access is not the problem, overuse of the motor car is, together with the road toll and the substantial air pollution and it's contribution to global warming, a noted journalist, Phillip Adams, said 'Freeway building continues with little being done to upgrade our railways. Australia is one of the most intensive users of road freight in the World.' Another journalist stating 'Rail transport is a crucial aspect of the Australian transport network'.

The lessening of deaths and injuries on our roads would be relieve our hospitals of the need to treat the many road victims, all self inflicted, and be more readily able to treat others. Less cars, less need for Police , paramedics and rescue personnel to attend to road collisons.

A shark victim or a terrorist attack create world news, there being regular reports of the danger of faulty air bags, following one fatality, yet society appears to be some what immune to a road fatality.

As drug use is become the norm amongst many drivers and other dangerous attitudes and habits such as mobile telephone use has been institutionalised, driving has become a more traumatic and dangerous practice, akin to Russian roulette, and we should each acknowledge that the next road fatality may be ourselves.

PARKING

The provision of parking for vehicles has and continues to be a major environmental and financial liability, beginning with a substantial area within each home to garage two or three cars and the construction of a driveway and access for the standard home, increasing building costs accordingly.

The increase in the personal use of a motor car is posing a monumental problem for society, parking being but one.

It is difficult to get to summarise the extent to which our community is forced to, to accommodate a car, shopping centres, sports arenas, clubs and even churches are forced to dedicate valuable land for this purpose, airports, city parking and hospitals having paid parking areas, a new source of revenue for administrations.

A major consideration in the construction of premises is the allowance for parking, adding considerably to the cost of construction.

Sydney Airport is reputed to have the most expensive parking in the world, other city and regional airports not far behind and it was recently revealed that a couple spent \$50,000 in parking fees within 12 months to visit their son in a hospital.

Two hours within a Queensland Hospital parking area cost us \$13.50, the hospital car park accommodating 2,000. Consider the additional cost to the taxpayer, yet all profits made are credited to a Japanese management group.

Though garage parking is available within homes in our street, increasing number of cars are being parked on the nature strip and on the road. Formerly, there were no cars parked on the road surface, today, I counted 19 vehicles within our 190 metre block, either parked on the road or upon nature strips, there being reports of the blockage of access for emergency vehicles due to parked cars, within urban areas.

The increase in car numbers has created a parking crisis, a crisis our administrations are disregarding.

ROAD FREIGHT

I quote David Hill, the Chairman of the Australasian Railway Association Inc in 2002 *'Australia is excessively reliant on road transport, Australia having the highest volume of road freight carried per capita in the World and over 90% of urban passenger travel is by car.'* and this imbalance has worsened since 2002.

Government committees and local governments appear to have their head in the sands in relation to the overall effect of our growing use of motor vehicles, committees deliberately ignoring the 'on costs' heavy road transport vehicles, such as road damage, congestion, pollution and increases in road deaths, all at a considerably greater cost.

The shortfall in the levying of 'on costs' is estimated to be almost \$70,000 for each of the approximately 100,000 articulated vehicles, without considering the cost and communal impact of 500,000 rigid trucks, almost all being diesel powered.

Over and above these shortfalls, a rebate of 16 cents is allowed for each litre of diesel consumed when transporting goods on public roads, using the Australian Bureau of Statistics estimates, 100,000 articulated vehicles travelled an average of 79,400 kilometres in 2018, consuming 550 litres per 1000 kilometres, the diesel rebate would have totalled almost \$700 million for articulated vehicles alone.

Despite the overwhelming evidence of the increased danger posed by the use of articulated vehicles on our highways, national figures reveal that each B double or similar vehicle is 16 times more likely to be involved in a fatal collision than other road vehicles, yet the NSW Government expended \$298 million strengthening 17 bridges to accommodate A double and similar road transport vehicles, each with a carrying capacity exceeding 90 tonnes and 36.5 metres in length, and legislating for the use of 107 tonne, 53.35 metre road trains to transport grains products, in lieu of rail transport.

The NSW Government has documented the introduction of these vehicles onto our highways and other States will presumably follow, 99% of freight between Sydney and Melbourne now being carted by road, and the completion of the Pacific Highway will see the commencement of a new era of road transport, considerably more dangerous than previously imposed.

Though the Western Australian Government have proclaimed that an articulated freight carrier takes 185 metres to stop on a dry road and 277.5 metres on a wet road, when travelling at the allowed speed of 100 kph, the only restriction to the speed of these vehicles is a 10kph reduction on a 110kph highway.

Fully laden heavy vehicles are permitted to travel at 60kph in a built up area , though they cannot stop as near as readily as a car, this allowance alone must be the reason for fatal collisions, yet my appeals to the NSW Transport Minister to reduce the speed of these vehicles fell on deaf ears.

The movement of heavy vehicles, including articulated freight units are a constant risk to other road users. A study carried out for the United States Senate showed that each nine axle transporter, a B double, created an impact on the road surface equivalent to 9,600 cars.

Another site confirms that twice the weight increases the impact 16 times, the effect increasing exponentially. Australia is credited with the highest load ratio in the World and many argue that these vehicles should be limited to a lesser speed.

In Germany, heavy vehicles are limited to 60kph on rural roads and 80kph on autobahns, despite the three lane access, each way.

THE DANGER OF OUR ROADS

The term 'constructing safer roads' is an anomaly, as 55% of road fatalities are single vehicles, the provision of an uninterrupted journey by recent highway developments potentially increase fatigue levels. The percentage of deaths will remain constant, even if a ten lane highway is provided, as the driver never safely operate a motor vehicle, rendering 'Towards Zero' programmes and the enormous expenditure on roads, policing and law enforcement a waste of time and money, akin to a dog chasing it's tail.

Particularly when road trains type transport vehicles will soon be introduced on to our highways, undoubtedly increasing our road toll.

In any case, Australia, and indeed the rest of the motoring world are entering areas never before encroached upon, by the increased use of motor vehicles, thereby increasing road deaths and injuries, damage to the environment and additions to air pollution and global warming.

The danger for each member of society begin upon leaving their home, either by motor vehicle or on foot, imposed by passing motor vehicles, each road being the dominion of the motor vehicle, all pedestrians and other intruders being at risk of death or injury, yet our administrations continue to provide for the increase of our use of these vehicles.

THE GLOBAL NEGATIVE IMPACT OF THE MOTOR CAR

The introduction of cars, a little more than a century ago, has resulted in our World has been subjected to unacceptable changes in our lifestyles and to our environment, the greatest assault on our environment in mankind's 200,000 years on this planet.

It appears the individual use of motor cars has been permanently installed and is considered a vital part of modern living, a monumental error, this overuse must be reversed to limit the physical and economical harm that we are forced to endure.

The withdrawal of public transport by Governments, obliges many to travel by motor car, hence the car has become an integral part of our lives, placing financial burdens on individuals as well as all forms of Government to provide adequate facilities for travelling and associated facilities.

In Australia, the individual costs of owning a car are governed, almost exclusively, by overseas corporations, some 28 new car suppliers consistently advertising on our television sets, urging us to buy a new vehicle. Many are besotted by the motor car, often regarded as an extension of the owner's personality, and in some cases, a symbol of their status in life but something I have always considered as merely a means of transport.

Mankind's adoption of the motor car is clearly the greatest mistake ever made, since 1900, more than 100 million have died, violently, on our roads, current levels of pollution, the majority created by motor vehicle exhausts, now said to account for twice as many deaths as the 1.35 million annual road world road toll. Australian statistics reveal that more than 186,000 have died on our roads since 1925, more than twice the number of loses in all of our wars.

Road deaths and our use of motor vehicles are so ingrained into our psyche that a fatal collision is considered to be an unavoidable, every day occurrence that may only rate a short news report, whilst a single shark attack is World news.

Let alone the amount of wildlife that is killed, daily on our roads, such as four Tasmanian devils that were killed within one week of being released as part of a trial of some 24 devils in northern NSW, and the continuing deaths of many of our iconic koalas.

Since the introduction of the motor car in Detroit in the early part of the 20th century, there has been allowances made for motorists, when large numbers of pedestrians were killed on Detroit's streets, drivers were originally charged with murder, however a former executive of Ford Motors took up a political position, thereafter declaring that pedestrians were as much to blame as the driver's, hence forth charges were dropped and less stringent action was taken against driver's, displaying what I suggest to have been brought about by commercial influences, as is the case today.

FOUR WHEEL DRIVES

A good deal of new vehicle advertising relate to 4WDs, official statistics show that the sales of this type of vehicle throughout Australia exceeds that of the standard

motor car., though 4WDs are considerably more expensive to buy, to operate and to maintain, surveys revealing that only 10% are ever used off road and alternatives, such as a family station wagon, are no longer offered.

An American web site stated that 4WDs were not safer, being a threat to the environment, were intimidating to other road users, including pedestrians and cyclists and were associated with 2.5 times the risk of fatality or injury. A Monash University study found that in a collision between a small sedan and a 4WD resulted in a 412 times more likelihood of death or injury to the occupants of the sedan, and that 4WD's were 3 times more likely to roll over. And the unfortunate incidence of vehicles reversing over children in driveways, almost invariably a 4WD.

TAINTED FUEL

Though the World Health Organisation has declared diesel fumes to be carcinogenic, the purchase of diesel powered vehicles increases, together with petrol powered vehicles, fuelled by the dirtiest fuels in the western world, rated to be of the lowest quality of the 36 OECD nations, described by 'Wheels' as being filthy.

European administrations recognise the threat to the health of its citizens, many major cities, including Paris, Madrid, Brussels and Hamburg banning the use of diesel fuelled vehicles from their roads, 24 cities in total, having a total population of 62 million, planning similar bans, 13 others intending to ban internal combustion powered vehicles by 2030.

Despite this, the use of diesel fuelled vehicles is increasing and the Government policies are providing for the increase of road transport of almost all of our inter urban and interstate goods, the construction of the WestConnex and NorthConnex tunnel appear to be primarily constructed for easier access for road freight vehicles from Port Botany to the highways, substantially increasing the level of air pollution within Sydney and significantly increasing CO2 levels and our contributing to global warming, I outlined these issues, along with the concern of the discharge of motor vehicle fumes close to housing estates to the NSW Transport Minister, my suggestions were refuted, the Minister replying these projects were to improve access for motorists to Sydney, a city already nearing gridlock.

A television feature showed the interior of the North Connex tunnel, commenting the road surface had been levelled to provide better operative facilities for heavy transport vehicles, comments made in relation to the the Pacific Highway upgrade and the widening of the M1 conveying that each project would benefit road freight transport.

TOTAL RELIANCE

Though Australia is rich in alternative energy resources, our Governments have forced our nation to become almost totally reliant on overseas supplied oil based products.

Australia is said to be the nation least encouraging for the introduction of electric motor cars, whilst other nations are offering subsidies, apparently in recognition of the lessening of air pollution, 10% and up to 33% import duty is being applied to these vehicles, compared with the standard 10%, SUV's or four wheel drives levy being only 5%.

Apart from the increase in the use of diesel fuelled passenger vehicles and the low quality of our petrol, our nation is in breach of the prescribed level of fuel storage, recently estimated to be 18 days of petrol, 22 of diesel and 23 days of aviation fuel.

EMISSION GENERATED AIR POLLUTION

Air pollution is a silent killer, something that is causing many deaths in our society and a problem not being addressed in any way by our Governments.

The horror of the loss of lives by road collisions is overshadowed by many more deaths that result from the effects of motor vehicle air and environmental pollution.

Air pollution, resulting from motor vehicle exhaust fumes is the greatest problems facing the World today, in view of the World Health Organisation's reporting that three million die early deaths, worldwide each year, from the effects of ambient air pollution, the Organisation of Economic Co-operation and Development (OECD) forecasting the number of deaths by all forms of air pollution to reach 9 million by 2060.

In view of the rapid increase of the numbers of road vehicles, I believe these figures will increase accordingly, as here is little action is being taken by Governments to alleviate the conditions that are creating motor vehicle pollution.

Both the WHO and OECD refer to air pollution, in general, and it is difficult to determine the percentage that results from motor vehicle pollution, an Australian Government web site states that 55% of air pollution results from motor vehicle fumes, which I feel is being conservative.

The OECD declares that 80-90% of this form of pollution results from diesel fumes, commenting that diesel is, by far the most toxic of vehicle emissions, reporting that 91% and 95% of two noxious gases recorded in London in 2009 originated from diesel powered vehicles and the European Union Research Centre declares that traffic is the biggest source of air pollution.

Diesel fumes are described as being particularly toxic, WHO recently upgrading the risk of these discharges from probably carcinogenic to carcinogenic, diesel soot containing 40 harmful chemicals.

The Daily Mail newspaper, Australia, has featured a front page article headlined 'Diesel exhaust fumes are 'major cancer risk' and as deadly as asbestos and mustard gas, according to the World Health Organisation.'

An internet article, a copy of a submission made to the Australian Federal Senate, outlined the health effects on babies and children from maternal exposure to air pollution resulting in low birth rates, foetal growth restriction and pre term deliveries, and that more early deaths are caused in Australia, by pollution than road deaths.

Not only directly effecting people, but our environment must be negatively effected by the unspent fuel and diesel soot that is being deposited, continually on our roads, our parking areas, nearby buildings and plant life, all of which must eventually drain into our oceans, via creeks, river and canals, some entering our drinking water dams.

And the unnatural distribution of billions of rubber particles being left on our roadways by each motor vehicles via wearing tyres.

Each time a motor vehicle passes, these deposits are being redistributed, the overall effect on humans of this may well be the reason for the increase in cancers throughout the World, and as motor vehicles are relatively new to this world, who knows what the long term effects will be?

Sydney researchers have linked motor vehicle fumes to reduced birthrates.

2008, the University of Brisbane carried out a survey of 15,000 women residing within 14 kilometres of the centre of Brisbane over 10 years and found that these women carried smaller babies, each having a lower IQ, at the age of seven than normal sized babies, plus their babies bore conditions that made them at higher risk of cardiovascular disease and diabetes.

MY AIR POLLUTION EXPERIENCES

I have apparently been effected by motor vehicle air pollution since I was a child, though I enjoy good health, exposure to motor vehicle fumes necessitated our move from Sydney to a regional area, as exposure was effecting my health and having significantly negative influences on my level of physical performance, including competitive cross country running and my employment.

PEDESTRIANS

Current policies cater for the sheer slaughter of pedestrians on our roads, 27 of the 45 dying in NSW this year were of an age that rendered each incapable of safely crossing a road because of either their tender or advanced years, national figures being 68 of 142, figures including six ninety years old, one aged 99!, these figures confirm these policies do not take into account, the inability of these ages groups nor those of the physically or mentally handicapped.

SPEED

The need for speed is an illogical concept, being applied to all forms of transport, be it an aircraft, a train or travel on our highways, the additional risk of death and injury is exaggerated by the increase of sheer velocity, generally called speed, but my call for reductions, within urban areas and along our highways, have been ignored.

As a young man, I spent a few years within the NSW Police Force, immediately recognising that excessive speed was by far the main reason for collisions on our roads.

As a junior Detective, seconded to a senior role, I charged a man with two counts of manslaughter, senior Police expressing misgivings, as manslaughter was difficult to prove, yet the driver went to trial but was subsequently found not guilty by a sympathetic jury, though, in my and others opinion, the charges were proven.

Since the introduction of the motor car in Detroit, our courts have displayed sympathy for car drivers, many fatalities are caused by a driver who has recklessly displayed a disregard for human life, clearly fall into the auspices of the definition of murder. Though drivers were originally charged with murder in Detroit, even the most serious cases of this form of negligence and disregard, I am confident in stating a charge of murder has never been laid in relation to even one road death.

A detailed report made by the European Federation for Transport and Environment dispels many myths about a reduction in speed limits, proposing that all Countries within the European Union reduce the limit within towns and cities to 30kph, giving examples of Belgian figures show that 45% of pedestrians hit by a car travelling at 50kph, died, whilst only 5% when hit by a car being driven at 30kph.

Further, the number of people seriously injured in the German city of Munster dropped by 72% when a limit of 30kph was introduced.

A study by the Australasian College of Road Safety found that the risk of a casualty crash doubles for each 10kph over the speed limit.

In 2012, the College, with the cooperation of national freight carriers, Simon together with Scania and Mercedes Benz conducted a trail each of 100 trucks travelling on our highways at 90 kph v 100 kph, Scania registering a fuel saving of 6%, \$10,000 per vehicle, \$1 million for their fleet by travelling at 90kph.

Mercedes Benz, 6.6%, \$16,000 - \$1.6 million and Scania 7% fuel saving, Scania, a time loss of 15-20 minutes, their reduction in speed created a 'niche' market in the transport of fragile goods and lower insurance premiums.

The College concluded by the 10KPH reduction would reduce the number of road deaths by 34, each year.

The results of this survey were ignored by the Federal Government

Tasmania reduced urban speed limits from 60kph to 50 kph in 2002,

The South Australian Government reduced the speed limit on their rural roads from 110kph to 100kph, resulting in 45% less casualty collisions, a survey conducted over several years.

The savings of 7.7 US gallons, being more than 29 litres of fuel, the difference of driving between 75mph and 55mph would save in excess of \$33 for this journey.

The American site states that if the national speed limit were to be reduced to 55mph, it would save the consumption of one billion barrels of oil.

Australia consumes about 7.5% of the amount of oil consumed on USA roads, which calculates to an annual savings of \$4.5 billion, should our speed be similarly limited, but I have never heard of a driver taking this saving into consideration.

.This benefit of the limitation of speed is acknowledgement of the danger of the additional speed, accentuated by the 40kph limit in school zones, during school arrival and departure times.

A Government web site warns of the danger of speed, stating that a pedestrian is twice more likely to die when struck by a motor car at 50kph, than at 40kph.

Regularly, the matter of seconds gained by driving fast are negated by other means, particularly in urban areas, where a set of lights precludes any gain in time.

Others complain of getting behind a car being driven at only 90kph, when the time lost over 5 kms, when the driver wanted to travel at 100kph is only 20 seconds, yet I hear drivers complaining bitterly of the behaviour of the slower driver, proclaiming that they should not be allowed on the road.

A driver is entitled to drive below the speed limit as they may feel comfortable in doing so.

VEHICLE COLOURS

A 20 year study, carried out by Monash University showed that black vehicles are 47% more likely to be involved in a collision, followed by the colours grey, silver and blue, these four colours making up 55.76% of registered vehicles in NSW.

And the NRMA found that black vehicles incurred 30% more damage in a collision than the balance of other coloured vehicles, yet 661,538 are currently registered in NSW.

It is obvious that the continued use of cars, primarily other than white, are responsible for the increase in collisions, causing deaths and injuries on our roads, yet there are no restrictions to colour in any part of the motoring world.

Despite a direct approach to the responsible Minister, Duncan Gay, by a concerned group and my writing of this problem with road safety in a published book, the Minister did not taken any steps to restrict or to eliminate the use of these dangerous vehicles.

It appears that the control of what colour a vehicle is sold is a benefit to the manufacturer, in that purchasers desire a vehicle of a certain colour, which takes priority over the safety of other road users, resulting in deaths and injuries.

My suggestion that all motor vehicles operate their headlights during daylight hours would lessen the danger of these vehicles to others was disregarded, however, the sale of dangerously coloured cars and others is continuing, their presence being a proven peril on our roads, yet our Governments are failing to warn motorists of the impending danger of those colours, nor directing new car distributors to eliminate dangerously coloured vehicles from the market place.

ASSUMPTIONS

Upon the introduction of the road train type transporters, I have little doubt that the NSW Government will declare the North Coast Rail Line between Sydney and Brisbane, north of Broadmeadow to be no longer necessary.

I make this assumption on the basis that this line has been almost totally neglected since first opened in 1932, the ARTC declaring the line was in poor condition and deteriorating further some years ago, the Government allocating \$421.6 million to upgrade and realign its course in 2005, this project was immediately abandoned, a similar upgrade, together with rolling stock would cost in the vicinity of \$1 billion, since that time only maintenance to enable daily use has been conducted.

Over the past few years, more than \$1 billion dollars has been spent on the upgrade of rail lines for access of coal trains through the Hunter Valley to Port Waratah Coal Terminal, despite up to 90% of coal mines being foreign owned.

Rail access is continuing to be upgraded, currently one fully laden coal train depart for the port every 24 minutes, 24 hours a day, 7 days a week, yet not one cent has been allocated to provide rail services between Sydney and Brisbane.

The bridge across the Clarence River at Grafton has been replaced but the new bridge does not cater for rail.

About three years ago, nine areas, in need of major repair within the existing bridge were identified, the ARTC informing me that their Area Manager has inspected the bridge and deemed it structurally sound.

Only one passenger train travels to Brisbane and one other back to Sydney, each day and rail freight services have been substantially curtailed.

I believe, after the new Clarence River bridge is completed and the Pacific Highway upgrade completed, the old bridge will be declared unsafe, permanently cutting the North Coast Line, north of Broadmeadow.

Damage to the rail bridge across the Hawkesbury River remains unrepaired, restricting the crossing of only one freight train at a time.

Upon completion of the Pacific Highway upgrade in 2020, I believe only passenger rail services will be permitted to cross the Hawkesbury, and that all general freight will be carted by road.

The cost of repair to the bridge should not be an issue, as \$391.6 million has been allocated for the widening of the nearby M1, *'to reduce travelling time and to improve road freight efficiency'*

Despite extensive preparations since circa 2005, only one section of the Inland Rail project has been undertaken, the upgrading of 106 kilometres of track from Parkes to Narromine.

The now quoted \$10 billion project has always been a political football and I anticipate the proposed use of road train vehicles onto the Pacific and Hume Highways will give the Federal Government justification, in their eyes, to permanently abandon the project.

After years of calculations and negotiations, in 2012 a large team estimated the final cost to complete the 1731 km project to be \$4.7 billion, which now inflated to \$5.4 billion, however the Federal Government thereafter appointed Arup, an overseas based consultancy group, who reestimated the cost to be \$10.7 billion in 2016, today inflated to \$11.45 billion.

BIAS AGAINST RAIL

Government policies are increasing our reliance on the overseas supply of fuel and motor vehicles, institutionalising the use of motor transport by overspending on roads and providing for road freight vehicles, at the same time displaying marked bias against rail, a policy that is the opposite to world's best practice, the expansion of rail systems.

Both side of politics, particularly in NSW have displayed extraordinary levels of bias against rail, suggesting that they are catering for other interests, as it is apparent that many lives would be saved in the reestablishment of both or rail and freight transport systems, at considered less cost.

I could itemise a host of examples of this bias, the quoting of \$953 million (by Arup) to upgrade the Casino to Murwillumbah line, inflated to more than \$1 billion being but one.

As much of the track remains, a qualified rail engineer recently confirmed \$50 million would suffice to upgrade the 133 kilometre track.

Road transport from Port Botany, via the WestConnex and NorthConnex projects appears to be the main purpose of those projects.

Development within Port Botany continue to favour road transport, I believe that goods that cannot be transported by road is the only reason for the maintenance of existing tracks.

Originally the NSW Government set a target of 40% transport by rail, the target falling to 28%, October's rate was 15.8%.

A regional 1948 newspaper article reported a Lismore carrier was fined ten pounds (inflated to \$600) for carrying goods in competition to the railways . Circa 1962, the same offence attracted a fine of one hundred pounds which inflates to \$3.000, an indication of the value formerly placed on our rail system.

Our overuse of motor vehicles has rendered both Governments and personal economy subjected to the cost of the operation of, in the main, motor cars, the provision of bridges, roads, highways and other costs including parking are ongoing costs in the order of billions, a report by Infrastructure Australia in 2014 deemed the \$20 billion being spent on roads as being '*hideously inefficient*', this report being withdrawn shortly after publication.

AVIATION

Aviation is put forward as a viable alternative to rail travel.

Air travel to and from our regional town is notoriously unreliable, three aircraft being required to transport as many passengers as one passenger train.

The cost to establish, maintain and operate an aviation terminal and to operate aircraft far exceed the cost to provide an equivalent rail service.

Air travel offers little in the comfort of passengers and the weight restrictions being placed on carry on luggage has lessened to a point where only essential items can be transported.

I will later provide comparisons of amortised and associated costs.

As each terminal is required to be remote from established areas, additional transport is required to access each terminal.

Only high speed rail can match travelling time, however many prefer to avoid the stress incurred by many passengers and travel by rail.

Those wishing to save time will always travel by air, but air travel, no bus transport, can never fulfil the potential role of passenger rail.

Pollution from Los Angeles airport covers an area of 60 square kilometres, the particle component of air pollution was twice that of other urban areas and pollution said to far exceed even heavy traffic freeway pollution.

According to Rolls Royce, a full laden A380 aircraft uses as much energy as 3,500 family cars, long hauls twice as much emissions per kilometre travelled per passenger and short haul flights, three times more.

FOREIGN INVESTMENT

In 2015, 23,430 foreign investors applied, our Government granting permission to 99.9915% of applications, Chinese investing \$47.3 billion, \$31.9 billion in real estate, Sydney home prices being cheaper than China's capital cities, Shanghai's rental yields 1.5%, half of what a landlord would in Sydney (The Sydney Morning Herald and the ABC News).

There can be no other explanation for non implementation of not one of these safety recommendations, which I will itemise, other than our administrations appear to be acting in support of the motor industry

PROVISION OF PUBLIC TRANSPORT

I propose that infrastructure spending on roads be diverted to the far safer, cleaner and considerably less costly provision of rail passenger and freight transport, supported by the provision of what I term 'saturation' commuter bus services, a proven concept.



THE MOST DANGEROUS ROAD ON BALLINA ISLAND

The 1.3 km stretch of Canal Road from Tamar Street to Fox Street is undoubtedly the most dangerous road on Ballina Island.

A right hand bend immediately past Bagot Street, travelling west has resulted in the deaths of 3 people, 2 in a collision with a tree in late 2005 and a similar collision resulting in another death in 2012.

This section of the roadway was resurfaced in recent years under the guise of the Government's Black Spot programme which has done nothing to prevent similar collisions as no protection has been provided, other than the placement of 15 one metre reflective posts along 650 metres to Fox Street, the edge of the roadway falling towards existing trees along the bend.

Canal Road passes several recreational areas, including Saunders Oval and Ballina's soccer grounds, a reserve, the site of Ballina markets, Fripp Oval, Ballina's sporting field, Ballina scouts hall and grounds, a boat ramp and a church.

The 650 metres from Bagot Street on the western side contain parkland fronting the Canal Road, being the most picturesque area on Ballina Island, a natural attraction, walking and cycling groups frequent the western end of Fox Street and Canal Road.

All pedestrians are obliged to walk on these roadways, access being restricted near Vera Street.

Several curves along the road add to the danger of collision, increased by night driving as Canal Road is poorly lit along the entire route.

Speeding along this route is not uncommon, most vehicles turning off River Street, left via Tweed Street and via Brunswick Street are using Canal Road as a high speed short cut to travel to and past Ballina Fair in Fox Street, seemingly to avoid traffic lights and at the same time adding 650 metres to the journey, speeding along both Canal Road and Fox Street as these roads are devoid of any means of detection.

Speed statistics obtain via the Metrocount system in 2006 detected a top speed of 111.9kph, and more than 50% exceeding the speed limit, the average speed being 57.18kph in a 50kph zone.

This route is clearly showing that it is being used as a through road, almost all commuters having no purpose other than to travel through, having no interest in the immediate area.

PROPOSALS

Council's proposal to install traffic lights at the intersection of Brunswick Street and River Street as part of the River Street duplication not practical, nor can the installation and maintenance costs be justified, the alleviation of this proposal being part of my suggested traffic alterations.

As traffic islands prevent traffic from crossing Kerr Street at the intersection of Tamar Street, those travelling to Saunders Oval or the market area adjacent to Fripp Oval from the northern end of Kerr Street are required to turn right into Fox Street access these sites via Fox Street and Canal Road, a distance of 2.15kms or a less practical route of turning right at River Street, right into Brunswick Street, then right into Tamar Street, a distance of 1.85kms.

Should a roundabout be constructed at the intersection of Kerr Street and Tamar Street, those travelling from the north would be able to turn right into Tamar Street, a distance of 1.07km, each measured to the intersection of Tamar Street and Canal Road, I enclose a copy of an American article which portrays the advantages a roundabout has over traffic lights.

I suggest the majority of traffic seeking access to these areas travel from north of Fox Street, those coming from northern locations such as East Ballina and Lennox Head would most likely continue across Kerr Street, in Fox Street to Canal Road.

West Ballina residents would not be advantaged, however Ballina Island residents, east of Kerr Street are being disadvantaged, for example, travelling from the intersection of Cherry Street and Tamar Street currently travel 1.90km, 1.15km should a roundabout be constructed.

Roundabouts are provided along Tamar Street at three intersections, nearby Grant Street being about 15 metres in diameter, the intersection of Kerr Street and Tamar Street allows enough area to construct an even more substantial roundabout.

The residents of the estate west of Kerr Street, adjacent to Canal Road would be greatly advantaged by the access afforded by the regaining direct access.

The provision of this roundabout would negate the need to install traffic lights at the intersection of River Street and Brunswick Street as traffic within the estate will no longer be restricted.

Since access was restricted, thousands of additional kilometres have been travelled, unnecessarily, not only to access areas in Canal Road, an additional 920 metres travel is required to return to the intersection of Kerr Street and Fox Street from Tamar Street.

CYCLIST ACCESS

Though Council has agreed with the rerouting of a cycle track along Canal Road from Fox Street to Bagot Street and along Bagot Street, \$153,175 has been allocated for the construction of a 1105m, under the PAMP Works ID BCW25.

I again suggest a painted pathway along this course would suffice, similar to accesses provided by other Council's, such as a cycle access painted along Whyralla Road in Lismore.

The alteration of traffic movement within Canal Road to one way traffic, travelling south, between Fox Street and the intersection of Bagot Street would serve a number of beneficial purposes.

Should a roundabout be constructed at Tamar Street, there would no need for cars to use the western end of Fox Street or Canal Road to access the market area or sports grounds within Saunders Oval, at the same time preventing drivers accessing Ballina Fair, via Marshall Street or Tamar Road west, Bagot Street and Canal Road by turning left at Brunswick Street, which the recent lane widening appears to encourage.

Not only will the one way traffic eliminate one lane, thereby allowing access for a cycle lane, but it eliminate the danger of vehicles currently regularly travelling along Canal Road, effectively opening up the areas of park land along the Canal foreshores, areas that we undoubtedly initially established for recreational purpose, but now areas spoilt by the growing influx of motor vehicles and would eliminate the dangerous bend near the Scouts Hall, a bend where three people have died in two collisions with trees in recent years.

I propose that the cycle lane be provided on the western side of Canal Road, which will relieve the impact of the encroachment of the canal near Vera Street, where the canal is continually widen, one area now being only 2.35 metres from the road surface.

The elimination of the laying of a pathway and a median in Canal Road would reduce the length of the provision of a laid pathway to 325 metres from the intersection of Bagot Street and Canal Road, along the western side of Bagot Street to the laneway accessing the River Street underpass, reducing costs by more than \$100,000.

ESSENTIAL ENERGY

Essential energy's larger vehicles appear to access Kerr Street via Canal Road and Fox Street, from the rear gate of the Temple Street Depot in Canal Road, a distance of 1.25 kms.

If Canal Road was converted to one way traffic, travelling south, these vehicles would be required to access Kerr Street via Canal Road and Tamar Street, able to turn right into Kerr Street, should a roundabout be constructed.

Currently, these heavy vehicles and occasionally long vehicles create a danger of collision with vehicles travelling in both directions in Canal Road when turning right from the depot as forward vision is limited by the existing road bends, a hazard that would be eliminated by one way traffic.

DANGER TO RESIDENTS

Essential Energy's large vehicles currently pass a church, 74 residences and the main entrance to Ballina Fair shopping complex, posing an increased danger to residents, motorists and pedestrians, enroute along Canal road and Fox Street.

My proposed route of these vehicles, south in Canal Road and along to the intersection of Tamar Street and Kerr Street would only pass 21 homes in Canal Road and Tamar Street, the ten homes in Canal Road set back from the roadway, a route used by considerably less vehicles than the current route.

The out basket: Doug Bear of Kitsap County Public Works says a cost analysis comparing the Silverdale roundabout with signals there says the roundabout would be less expensive in the first place, \$1.35 million to \$1.4 million.

I don't know how persuaded Robert and others who dislike roundabouts will be that signals would cost \$1.4 million. You can look at that cost analysis at http://www.kitsapgov.com/pw/pdf/SWay_design_rptapp.pdf and judge for yourself.

Either option includes contingency allowances running into the hundred of thousands of dollars, but those amounts are about the same for both.

Nearly a quarter of the signals' cost - \$199,500 - would go to constructing a soldier pile wall, nearly as much as the \$300,000 for the signal equipment itself.

Doug says "The variables in considering costs are numerous which makes a direct comparison challenging. (Besides the initial construction costs), ongoing maintenance costs are generally higher for a signalized intersection than the cost of maintaining a roundabout.

"Where long-term costs are considered, roundabouts eliminate hardware, maintenance and electrical costs associated with traffic signals, which can cost between \$5,000 and \$10,000 per year.

"Engineers also consider how the improvement affects the capacity of the intersection, and how the improvement affects traffic flow. Every intersection is unique, and the particular characteristics of each project are considered as the project is developed.

"What is clear in almost every roundabout application is that roundabouts are safer for motorists than signalized intersections. At a four-way intersection there are, at least, 32 possible vehicle-to-vehicle conflicts. At a four-way roundabout there are only eight.

"Roundabouts reduced injury crashes by 75 percent at intersections where stop signs or signals were previously used for traffic control, according to a study by the Insurance Institute for Highway Safety (IIHS). Studies by the IIHS and Federal Highway Administration have shown that roundabouts typically achieve:

- A 37 percent reduction in overall collisions
- A 75 percent reduction in injury collisions
- A 90 percent reduction in fatality collisions
- A 40 percent reduction in pedestrian collisions

The combination of lower speeds through the intersection, no light to beat, and one-direction travel improve safety in the intersection. In addition they also generally reduce delays and improve traffic flow. Roundabouts promote a continuous flow of traffic which allows the intersection to handle more traffic in the same amount of time."

More information can be seen at www.kitsapgov.com/pw/pdf/silvway_Roundabout_V_Signal.pdf

COSTING DETAIL OF RAIL BETWEEN LISMORE AND BALLINA

	Millions \$
Upgrade 20 kms rail Lismore to Booyong @ \$1.5 million per kilometre	30
Reestablishing 17.5 kms rail Ballina to Booyong @ \$3.5 Million per km.	53
Station at Ballina	10
Bridge over Emigrant Creek	3
Passing loop, points and turntable	3
Land acquisition and surveying	5
Road crossings, culverts and highway overpass	9
Rolling stock	20
Crossing at Tintenbar Road (joint Council?)	5

TOTAL **\$138 million**

PER ANNUM

\$138 MILLION AMORTISED OVER 30 YEARS	\$4,600,000
Amortisation of rolling stock over 30 years -	\$670,000
Maintenance – track and rolling stock	\$1,330,000
Salary of staff 15 x \$80,000	\$1,200,000
Administration	\$500,000
Fuel and on costs	\$1,000,000
TOTAL OPERATIONAL AND AMORTISATION COSTS	\$9,600,000

PASSENGERS

**624 cars each 1.57 passengers – 978 witnessed entering Ballina via
Bruxner Highway (excluding cars entering at Alstonville) between 8am and 9am
one week day.**

LISMORE TO BALLINA AND RETURN BY CAR

Trains to replace 1000 cars – 1570 passengers.

Cost via Bruxner Highway – 1000 x 66kms x 80c per kilometre - \$52,800 day -by 300 days - \$15,840,000 year.

BUSINESS TRAVELLERS

1570 passengers @ \$20 fare by 300 days - \$9,420,000.

PROJECTED SAVINGS

\$15,840,000 less \$9,420,000 train and bus travel - \$6,420,000 - \$6,420 per car.

ADDITIONAL TRIPS

1570 passengers @ \$20 fare by 300 days - \$9,420,000.

RAIL COST

To transport 3,140 passengers, 1570 each way – 8 trains- 4 each way – Total kilometres per day – dedicated trips – 300kms – by 275 days - 82,500 kilometres.

Additional services – 82,500 kilometres. - Daily total 600 kms – 165,000 kms per annum by \$40 per kilometre:-

OPERATIONAL COST:- \$6,600,000 PLUS \$3 Million amorisation \$9,600,000

POTENTIAL FARE REVENUE

6,000 passengers per day – average fare \$10 by 350 days - \$21,000,000.

But consider 3,000 per day - \$10,500,00, which covers the operational costs.

OTHER RAIL SERVICES

Rail motors, similar to those formerly used on the Casino to Murwillumbah line could be used as hourly service vehicles.

This line was operating at considerable profit at the time of withdrawal of services and transported passengers to Byron Bay and on to Murwillumbah, providing access to Gold Coast resorts.

Rail parcel delivery was a beneficial service conducted throughout NSW until withdrawn in favour of road transport, a similar service could be reestablished between Lismore and Ballina.

Rail transport of stock, such as cattle was provided up to the mid 1980's, though rail was the preferred means of stock carriage and was operating at a profit, these services were withdrawn.

Queensland producers claim rail is \$30 per head cheaper to transport than road and largely eliminates bruising and other injuries sustained by road freight.

ROUTE

The original line was 20.64kms, terminating within the area named Saunders Oval.

I propose the new line travel from Lismore, along the former Casino to Murwillumbah rail line, branching off at Booyong Junction, en route to Ballina.

The former service stopped at six stations and the line may have been diverted to these station sites. As these station stops are not currently required, perhaps a more direct route could be taken.

I propose a new rail station be established on a vacant site 250 metres north of Horixon Drive, on the western side of Barlows Road, the rail line travelling one kilometre west, crossing the Pacific Highway, a further 225 metres to Teven Road then follow the former route, visible via aerial photographs, for 6.25km to Tinterbar Road.

The Pacific Highway crossing would require the construction of 200 metre compacted earth approaches and a 35-40 metre fabricated span, similar to the access bridge recently constructed at Whytes Lane, Pimlico, which provides for 5.3 metres clearance. The 3 in 1 gradient is within the limits of a passenger or light haulage train.

The pylons to support the former bridge over Emigrant Creek remain. If may be no longer servicable, however, perhaps the foundations will assist.

The 6.25km is virtually open country and track ballast could be sourced from two quarries, several hundred metres distance, midpoint.

Thereafter, some areas of track access are visible, however the former route is difficult to determine, some apparently travelling through established farms.

It may be necessary to create corridors through private land, however the route traverses almost entirely unoccupied, and largely used land allotments.

Rerouting may be necessary, modern day excavation equipment may enable better access.

PASSENGER ACCESS

My commuter bus proposal would provide transportation to and from the Ballina’s central business district for both business employees and other passengers, it being necessary for Lismore City Council to provide a similar service, particularly for business passengers.

VIABILITY

The populations of both Lismore and Ballina have tripled since the line was abandoned in 1948.

Whilst motor vehicle travel was considered to be a viable substitution, today the cost to operate a motor car far exceeds that of public transport, let alone the savings of many lives on our roads.

Compressed natural gas (CNG) has been successfully introduced to fuel rail locomotives in the USA, saving up to 50% in fuel costs and producing less in greenhouse gases.

SYDNEY TO BRISBANE RAIL SAVINGS

Should the sadly neglected North Coast line to the Queensland border be upgraded and passenger and freight services between Sydney and Brisbane be renewed, many lives would be saved on our roads, the main consideration, though rail is considerable cheaper to construct and operate, our administrations are further providing for both passenger and road transport.

COMPARATIVE COSTS	PER ANNUM
RAIL	
Cost to upgrade North Coast line - \$1 billion over 40 years	250,000,000
Cost of rolling stock \$580 million over 30 years	195,000,000
Operational costs – passenger rail	73,000,000

10.1 River Street Lane Duplication - Public Exhibition

Operational costs of rail freight	525,673,584
TOTAL ROAD	\$1,043,673,584
Road haulage costs of 6,000 B doubles or similar 2,100 cars per day	\$3,815,400,000 \$651,525,000
TOTAL	\$4,466,925,000
TOTAL ANNUAL SAVINGS OF RAIL -	\$3,423,251,416

LISMORE TO BALLINA AND RETURN

Trains to replace 1000 cars – 1570 passengers.

CARS

CO2 DISCHARGE

1000 x 66kms - 66,000 kms – discharge 2.3kg per litre – average 7.5 kms/litre - 8,800 litres – 20,240kg per day x 6.5 days x 50 weeks – 6,578 tonnes/year.

TRAIN

8 TRAINS DAILY – TOTAL 37kms by 8 – 296 kms by 7.97 litre – say 2500 litres

Discharge 2500 x 2.66 kg – 6650 kg per day- 43225 per week – 2,161 tonnes/year.

Compressed natural gas said to save 50% on fuel costs and is less pollutant.

COSTS

Cost via Bruxner Highway – 1000 x 66kms x 80c per kilometre - \$52,800 day -by 300 days -\$15,840,000 year.

Equivalent 1,570 passengers – 8 trains – 296 kms x \$40 x 300 days= \$3,552,000.

Saving for drivers of 1000 cars - \$12,288,000 - \$12,288 per car/ per annum.

RAIL V AIR

Maximum 180 passengers by 3 aircraft– 750km Sydney to Brisbane -

178grams/km/passenger – 24.03 tonnes CO2. - 540 passengers – 72 tonnes.

26,280 tonnes per annum.

Rail – 8 carriages x 65 – 520 – 7.97 litres per kilometre x 2.66 kg/litre x 1000kms

21.2 tonnes. - 7,738 tonnes per annum.

Air flights up to 463 kms = 257grams/km/passenger.

EQUIVALANT COSTS

Air fares \$150x 520 passengers - \$78,000, one way per day - \$28,470,000 per year

Rail fares \$90 x 520 passengers- \$46,800, \$17,082,000 per year

330 cars x 1000 kms x 80c - \$264,000 \$96,360,000 per year

CAR V RAIL

Sydney to Brisbane.

4 trains- 2,100 passengers – 84.8 tonnes CO2.

2,100 passengers – 1338 cars (1.57) – efficiency 7.5 km per litre – 135 litres.

135ltrs x 2.3 kgx 1338 -415 tonnes.

FREIGHT

Forty freight trains each hauling 1,875 tonnes – 2 locomotives- \$50 per kilometre- \$521,950,000

Diesel consumption of 40 freight trains– 40000kms x 365 x 7.97 litres by two locomotives per km – 23,272,400 litres.

DIESEL REBATE – 23.272,400 litres BY 16C = \$3,723,584

TOTAL RAIL FREIGHT COST \$525,673,584

ROAD FREIGHT

Road haulage by 3,000 B doubles or similar each carrying 25 tonnes -\$3.30 per km by 365 days x 1000kms - \$3,613,500,000.

Additional cost of road maintenance and other costs of 10c per kilometre x 1,095,000,000 kilometres travelled. \$109,500,000

Plus diesel rebate – 3000x550 ltrs x 350 days x 16c \$92,400,000

TOTAL ROAD COST \$3,815,400,000

PASSENGER RAIL SYDNEY TO BRISBANE

Four passenger trains (2 each way) between Sydney and Brisbane, replaces 2100 cars (info Australasian Rail Association)- 2,100 x 1000kms x 85c per km x 365 days - \$651,525,000.

These four trains operate at \$50 per km, – an all up cost 4 x 1000kms x \$50 x 365 days - \$73,000,000.

CO2 EMISSIONS SYDNEY TO BRISBANE AND RETURN

ROAD – 550 litres per 1000 kms – 577,500,000 litres by 2.66kg =1,536,150 tonnes

RAIL- 7.97 litres per kilometre – 14600 trips by 1000 km – 14,600,000 kms -

116,362,000 litres by 2.66 kg – 309,523 tonnes of CO2.

Total weight hauled- 3000x25x365 = 27,375,000 tonnes.

OPERATING COSTS (Information Professor Laird) (NOT INFLATED)

	URBAN	RURAL
Road	\$4.40c	\$3.17c
Rail	\$0.69c	\$0.27.5c

CAPITAL COSTS – SYDNEY TO BRISBANE

COST OF PASSENGER ROLLING STOCK- 8 LOCOMOTIVES – 40 CARRIAGES

\$100,000,000.

COST OF FREIGHT HAULAGE ROLLING STOCK- 40 LOCOMOTIVES–

2000 WAGONS

\$580,000,000.

COST OF 3,000 B DOUBLE CARRIERS

\$1,110,000,000

COST OF 100 BUSES

\$45,000,000

COST OF AIRCRAFT TO BRISBANE

\$2,058,000,000

Amortised rates for each:

Passenger rail	over 30 years -	\$3.33 million per annum
Rail freight haulage	over 30 years	\$19.33 million per annum
B double carriers	over 11.5 years	\$96.5 million per annum
Buses	over 10 years	\$45 million per annum.
Aircraft	over 25 years	\$83.32 million per annum.

Figures represent the cost of each mode of transportation for 3300 passengers between Sydney and Brisbane.

ROLLING STOCK – LISMORE TO BALLINA

5 LOCOMOTIVES - \$15 MILLION

20 CARRIAGES - \$5 MILLION

MANUFACTURING

All petroleum products rely on overseas supply and heavy haulage vehicles and aircraft and support are also totally reliant on overseas manufacturers.

The majority of rail rolling stock, the rails and buses should and can be built in Australia.

MISCELLANEOUS STATISTICS

Road fatalities – 2016 – 1293 – Government -ANU = cost \$10.2 billion

Inflated to \$8,430,000 (NOV 2019) by 1300 road toll - \$438 each citizen

44 18

81.2% 16 and over - \$539.

TONNAGE CALCULATION – Australian Bureau Statistics

**Average 79,400 kms – 99705 – 165336 million tonne kilometre divided by
7,916,577,000 kilometres – 20.88 tonnes – 20 tonnes some smaller than B double**

Budget Direct 13,301 kms per year – ABS \$22,000 per annum - \$1.65 per km.

An A double – 12 axles – 36.5 metres – 90.5 tonnes.

B double 9 axle – 9 axles – 25 metres-68 tonnes.

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COMMUTER BUSES

Costs are based on the use of an electric powered 14 seat bus, proposed to be manufactured within Australia.

The former car manufacturing plants of Holden, Ford and Toyota are now unused, a Chinese manufacturing group proposed the building of electric powered cars within Australia, indicating that it is possible to economically produced electric vehicles locally.

A major component of today's electric vehicle's batteries is lithium, Australia the world's No.1 producer, with 47% of global output.

The Toyota corporation may be a viable manufacturer, as I have based the design of a commuter bus on the 14 seat Toyota commuter bus, perhaps each bus could be mass produced for \$80,000.

Each commuter bus seat should be fitted with a retentive seat belt, currently deemed unnecessary in existing school buses or standard bus services.

COSTS OF OPERATION OF 25 COMMUTER BUSES

Driver's salaries x \$80,000	\$2,000,000
Depreciation (20%) less residual	\$200,000
Maintenance and cleaning	\$100,000
Insurance and registration	\$150,000
Ticketing and signwriting	\$12,500
Power provision	\$60,000
Sub total	\$ 2,522,500
Plus 10% administration	\$252,250
TOTAL COSTS	\$2,774,750

Anticipating that each bus travels 150 kms per day, 6 days per week plus 15 buses each Sunday.



BUS INCOME

Operating 23 buses 6 days per week and 15 each Sunday would realise an income of \$2,900,000, based on each bus transporting 110 passengers per day, at an average fare of \$3, averaged in consideration that the 32 km trip between Ballina and Lismore should be charged at \$5 per trip.

A bus industry web site boasts of the capacity of Australian bus manufacturing sector, stating that it employs almost 10,000 people and that 90 per cent of buses are manufactured in Australia, perhaps this section of manufacturing could be involved in the commuter bus production, and that we rely on our local industry for future production.

BALLINA COUNCIL

'BASED ON THE FIGURES YOU HAVE PROVIDED IT WOULD MAKE SENSE FOR A PRIVATE OPERATOR TO DELIVER THE SERVICES YOU MENTION AND I WOULD ENCOURAGE YOU TO DISCUSS YOUR PROPOSAL WITH THESE OPERATORS AS COUNCIL IS NOT IN A POSITION TO INVEST PUBLIC MONIES IN SUCH A VENTURE WITH THIS LEVEL OF RISK.' - David Wright, Mayor of Ballina 1.10.15.

COMMUNITY APPLICATION

- overall cost to operate each bus - \$110,000 per annum.
- Based on Ballina one in 180 of NSW population – 4,500 buses.
- Annual cost \$495,000,000 for NSW.

COMMUTER BUS ALTERNATIVE

NSW passenger vehicles number 4,470,000 of 6,644,402.

If one in ten of the 3.2 million households in NSW(average 2.5 household occupancy), exchanged their car for commuter bus transport each would save \$12,000 in car ownership costs, i.e. 320,000 x \$12,000 totalling \$3,840,000,000.

An estimated commuter bus annual fares of \$1,250 for each of 320,000 would total \$400,000,000.



320,000 cars account for about 2.2% of 14,500,000, nationally which in theory may reduce the 2016 estimated national cost of \$33.16 billion created by our use of motor vehicles by \$780 million and theoretically prevent 26 fatalities within NSW and 90 nationally, each year.

These costs do not reflect these cost of road maintenance, deaths via additional air pollution, congestion costs, the provision of additional parking areas and road costs, nor the contribution to global warming, an estimated \$100 per vehicle -

COSTS SUMMARY

Cost of operation of 4,500 commuter buses	\$495,000,000
Less collection of fares -	\$396,000,000
Less percentage of road toll	\$780,000,000
Less other various road costs	\$32,000,000
BALANCE	CREDIT
	\$713,000,000

Car ownership savings- 320,000 X \$12,000	\$3,840,000,000
Less fares	400,000,000
TOTAL BENEFIT	\$3,975,000,000

APPLIED NATIONALLY **\$12,322,500,000**

POTENTIAL LOSS OF FUEL EXCISE REVENUE

13,302 KMS DIVIDED BY 7.5 KM PER LITRE = 1174 LTRS BY 41.6C = \$488 PER CAR by 320,000 cars- \$156,160,000.

Electronic tracking systems could provide the time of arrival of the next available bus, and each bus should be fitted with a series of light to enhance visibility and should have right of way when pulling from the kerb.

Corporations and similar groups such as clubs and Councils should consider the supply commuter buses for employees and patrons and the provision of commuter buses would lessen the incidence of drink driving.

