



# ATTACHMENTS EXCLUDED FROM AGENDA INFRASTRUCTURE AND LIVEABILITY COMMITTEE 12 JULY 2021

MEMBERSHIP: Councillors J Diffey, V Etheridge, D Grant, D Gumley, A Jones, S Lawrence, G Mohr, K Parker and J Ryan.

The meeting is scheduled to commence at .

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**Dubbo Regional Council**  
**New South Dubbo Bridge**  
**Strategic Business Case**

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17 May 2021

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## Strategic Business Case

### 1. Project Background

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<b>Project Name</b>	New South Dubbo Bridge
<b>Project Date and Version</b>	17 May 2021. Version 1
<b>Project Location</b>	<b>Location:</b> Dubbo City, Central West/Orana, New South Wales <b>State Electorate:</b> Dubbo <b>Federal Division:</b> Parkes
<b>Lead Agency</b>	Dubbo Regional Council
<b>Other Organisations</b>	[ ]

The Strategic Business Case has been prepared by Balmoral Group Australia on behalf of Dubbo Regional Council and outlines the case for change and economic rationale for a New South Dubbo Bridge for the purpose of determining which, if any, of the proposed alternative designs may constitute 'value for money', and therefore warrant further investigation in a future Detailed Business Case. The document has been constructed in line with the guidance from the NSW Treasury for Business Cases, in order to support the arguments for a potential future funding application.

The data and information used in the Strategic Business Case to form its positions and conclusions are, necessarily, of a preliminary and high-level nature. Therefore, any of the results or information provided by this report are bound by the same limitations and caveats placed upon their inputs. The Strategic Business Case has been constructed with the intent of ultimately being superseded by a Detailed Business Case, informed where necessary, by more accurate and detailed engineering and modelling data.

## **2. Acronyms**

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ABS – Australian Bureau of Statistics

ASGS – Australian Statistical Geography Standard

CBD – Central Business District

DoS – Degree of Saturation

GHG – Green House Gas

LGA – Local Government Area

LoS – Level of Service

NSW – New South Wales

REF – Review of Environmental Factors

RMS – Roads and Maritime Services

SA2 – Statistical Area Level 2

URA – Urban Release Area

## 1. Executive Summary

Dubbo is a growing regional city in Central NSW of approximately 40,000 people situated on either side of the Macquarie River. The Dubbo Regional LGA is expected to grow to a population of 45,600 people by 2035, and 55,000 people by 2055. In order to accommodate future growth, residential development will be increasingly focused on West Dubbo, placing additional pressure on the existing two bridges (the LH Ford and Emile Serisier bridges) to accommodate flows to and from the CBD, and the future Health and Wellbeing Precinct (on the eastern side of the river), and the Dubbo Airport Precinct (on the western side).

At present, the two existing bridges and the Whylandra-Victoria Street intersection that feeds them on the western side of the Macquarie River are under pressure, with congestion and safety a current and growing issue. The draft *Dubbo Transport Strategy 2020*<sup>1</sup> outlines that without a new South Dubbo Bridge, average trip times in the City will increase by 1.1% compared to the base case in 2030, contributing to an additional 90,000 hours of travel time over the year – placing Dubbo's reputation as a '10-minute city' at risk. Data from Transport for NSW shows that between 2014 and 2018 there were 21 recorded crashes at the Whylandra-Victoria Street intersection, a rate of 5.25 per year. Despite current upgrades to the intersection, without works to manage future traffic growth, the intersection will soon experience unacceptable levels of saturation (projected to reach 0.92 by 2036 with current upgrades underway) and risk to commuters.

The aims of the proposed new South Dubbo Bridge are to:

- Reduce average travel times through the Dubbo City road network by an average of 4.3s/trip (a total of 89,700h/year) by 2030 in order to maintain the City's '10 minute' character
- Reduce the number of traffic incidents at the Whylandra-Victoria Street intersection by ensuring the Level of Service Target of the intersection does not fall below 'C' (where Control delay per vehicle in seconds is less than 29 to 42)
- Reduce the isolation and increase connectivity of West Dubbo to the CBD, including to emergency and essential services
- Increase the percentage of commuters choosing active transport in West Dubbo
- Facilitate the development of 6,050 properties in the West Dubbo URA

A total of four options for the location and alignment of the proposed new bridge are outlined, following preliminary investigations in a *Strategic Concept Design Report*, prepared by GHD. Strategic costs are also provided, indicating total project costs between \$32.1 and \$41.4 million, including upgrades to the wider road network that will be necessary for the proposed Bridge to operate as intended.

The strategic business case identifies a number of measurable benefits of the proposed new South Dubbo Bridge, including reduce travel time costs and reduced vehicle operating costs, which are expected to deliver net benefits of \$3.84 million and \$1.4 million per year at 2035, respectively. Option 3 was found to deliver the greatest net benefits, amounting to a net present value of \$12.0 million with a benefit cost ratio of 1.22.

Preliminary stakeholder consultation was undertaken between November 2020 and March 2021 in order to inform the outcomes of the Strategic Business Case. A wide range of stakeholders who may be impacted by the construction of the proposed new Bridge, as well as a summary of their concerns and positions of support or otherwise are provided. Where possible, the outcomes of the stakeholder analysis were incorporated in the economic cost-benefit analysis.

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<sup>1</sup> A of this report the draft Dubbo Transport Strategy 2020 is yet to be formally adopted by Council. The strategy will be presented to Council for consideration, following the presentation of this report.

### 3. The Case for Change

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#### 3.1 Background and Case for Government Intervention

Dubbo is a growing regional city of approximately 40,000 people situated on either side of the Macquarie River. By 2035 the population of the Dubbo Regional LGA is expected to increase by 5,600 people<sup>2</sup>, with the majority concentrated in Dubbo City itself. By 2055, the City is expected to reach a population of approximately 55,000 people<sup>3</sup>. Part of the attraction of Dubbo fuelling this growth is its reputation as a '10-minute city' – under which most trips can be made with minimal delay and congestion. However, there is a need to plan for future growth in a way that preserves the amenity and attractiveness of Dubbo so that it remains an attractive, efficient, and sustainable City in the decades to come.

In order to accommodate historical population growth, residential areas of Dubbo have continued to expand, primarily in the west and south (defined by the ABS ASGS SA2s: West Dubbo and –South Dubbo), which have increased in population by 1,400 and 1,630 respectively between 2013 and 2018<sup>4</sup>. By comparison, the resident population of East Dubbo has declined slightly, by approximately 510 people over the same period, as the CBD has developed as the employment engine of the City and wider region. While the CBD will continue to grow as an employment attractor, the new Health, Education and Wellbeing Precinct and Dubbo Airport Precinct will also attract new employment, with the number of jobs increasing in these areas by 2,108 and 572 by 2050 respectively<sup>5</sup>. The changing distribution of jobs and the expansion of Dubbo suburbia will change traffic conditions, and place additional pressure on existing road infrastructure.

Because Dubbo City is divided by the Macquarie River (see Figure 1), an increasing number of residents of Dubbo – West are forced to commute via the two existing bridges to the CBD:

- The LH Ford Bridge on the Mitchell Highway, which feeds traffic directly onto Cobra Street
- The Emile Serisier Bridge, on the Newell Highway to the north of the CBD

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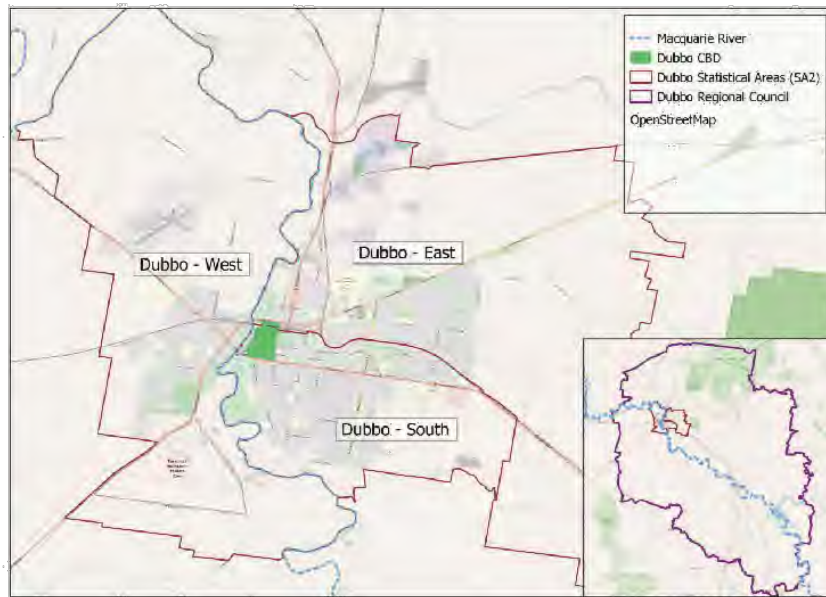
2. NSW Department of Planning and Environment: Central estimate for Dubbo Regional LGA: 56,600, Low estimate: 53,950, High estimate: 59,750 by 2035

3. Dubbo Regional Council: Dubbo Transport Strategy 2020, p9.

4. Australian Bureau of Statistics: 1410.0 - Data by Region, 2013-18 for SA2s

5. Dubbo Regional Council: Dubbo Transport Strategy 2020, p23

*Figure 1: Map of Dubbo City, illustrating the geographic separation between West Dubbo and the rest of the City, including the CBD by the Macquarie River.*



Using either bridge requires residents of West Dubbo to use the Whylandra-Victoria Street intersection, which becomes heavily congested during peak hours. Therefore, a need has been identified to provide a third bridge crossing the Macquarie River, connecting West Dubbo residents to the CBD and the wider City.

While the RMS is responsible for major State roads, including the Newell and Mitchell highways that feed into the Whylandra-Victoria Street intersection, and a number of current and future upgrades to the highway network continue to improve the overall efficiency of those roads, they do not address all of the aims of the project at hand. It is the role of Dubbo Regional Council to ensure that upgrades to the City's municipal road network meet the needs of current and future residents.

### **3.2 Understanding the Magnitude of the Problem**

The New South Dubbo Bridge project seeks to address a number of issues which are discussed in detail here. In summary these are:

- Increasing total travel times in Dubbo
- High number of traffic incidents at the Whylandra-Victoria Street intersection
- Increasing congestion at the Whylandra-Victoria Street intersection leading to increased risk of isolation from vital and emergency services for residents of West Dubbo
- Relatively low level of active transport for residents of West Dubbo, due in part to a lack of connectivity
- Lack of road connectivity in West Dubbo likely to constrain development in the West Dubbo URA



Increasing Total Travel Time in Dubbo

The *Dubbo Transport Strategy 2020* outlines the existing evidence on the key drivers of road network stress in Dubbo and provides a timeline for a series of proposed upgrades to the road network, including for the new South Dubbo Bridge. Table 1 is derived from data from the Transportation Strategy outlining how trip durations within the Dubbo road network will increase over the project horizon, with and without the proposed intervention. The transportation strategy indicates that without the proposed new South Dubbo Bridge, the total annual travel time on local roads will increase substantially.

*Table 1: Average trip duration and total annual travel time spent by commuters in 2018, 2025, and 2030 with and without the new South Dubbo Bridge.*

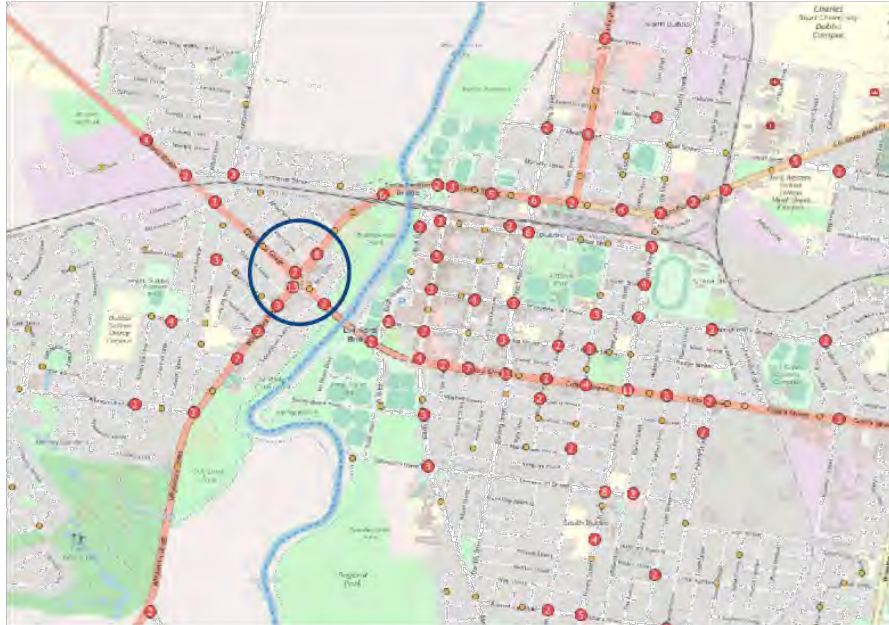
Year	Option	Daily Trip (no.) (% increase since 2018)	Average Trip Length (min.)	Trip Duration change since 2018 (%)	Total Annual Travel Time ('000 h/year)
2018	Base Case	177,999	6.58	-	7,125
2025	Base Case	194,014 (+9.0%)	6.64	+0.9%	7,841
	New South Dubbo Bridge		6.55	-0.4%	7,733
2030	Base Case	205,758 (+15.8%)	6.72	+2.1%	8,411
	New South Dubbo Bridge		6.65	+1.0%	8,322

While the average trip duration appears to increase by only a modest amount by 2030 under the base case without any new bridge crossing the Macquarie River, +2.1% (equivalent to 8.4s/trip) – in aggregate the increase in travel time throughout the year accumulates to a substantial amount, an additional 645,000 hours, driven by both new trips and increases in congestion.

High Number of Traffic Incidents at the Whylandra-Victoria Street Intersection

The Whylandra-Victoria Street intersection is currently an unsignalised roundabout intersection that experiences a high number of traffic incidents a year. In the four years between 2014 and 2018, there were 21 recorded crashes at the intersection<sup>6</sup>, with many more in the immediate vicinity (see Figure 2).

Figure 2: Counts of recorded traffic incidents within Dubbo, with emphasis on the Whylandra-Victoria Street intersection



Works to upgrade and signalise the Whylandra-Victoria Street intersection are underway and will increase the function of the intersection to an overall peak hour Level of Service of 'C' and Degree of Saturation of 0.92 by 2036<sup>7</sup>.

However, the construction of the New South Dubbo Bridge is projected to alleviate approximately 18% of traffic on the intersection by 2030, 23% by 2040. If no bridge is constructed, it is likely that the intersection will once again quickly become saturated over and above acceptable levels, increasing wait times at the intersection as well as the risk of traffic incidents.

6. Transport for NSW: Centre for Road Safety – Crash and casualty statistics – LGA view – Data for Dubbo Regional Council. [https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/lga\\_stats.html?tblga=4](https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/lga_stats.html?tblga=4)

7. Roads and Maritime Services – Newell and Mitchell Highways Intersection Upgrade – Review of Environmental Factors

*Increasing Congestion at the Whylandra-Victoria Street Intersection Leading to Increased Risk of Isolation from Vital and Emergency Services for Residents of West Dubbo*

Because the Whylandra-Victoria Street intersection carries most of the demand for both the LH Ford and Emile Serisier bridges, any traffic accident at the intersection, regardless of whether or not it has been signalled or not, is likely to lead to heavy congestion and long queues if they occur during peak hour. Additionally, the Emile Serisier Bridge is closed when it is impacted by flooding, which occurs during events larger than the 8 year Average Recurrence Interval (ARI), equivalent to 1-2 days per year. During the 2010 flood event, Emile Serisier Bridge was closed for 2 weeks, during which time congestion at the LH Ford Bridge and the Whylandra-Victoria Street intersection caused long delays and increased the risk of West Dubbo becoming isolated from critical services for a prolonged period.

Heavy congestion at the intersection is undesirable and dangerous on at least two counts:

- Residents who require emergency services, such as fire and rescue services, an ambulance or police assistance are potentially cut off or face unnecessary delays. Dubbo Base and Private hospitals, and the Dubbo Police Station are both located on the eastern side of the Macquarie River. Dubbo Fire and Rescue is located on western side, but on Whylandra Street directly north of the Victoria Street intersection.
- Residents of West Dubbo who work in Healthcare and Social Assistance (14.5%, – 570 people) or Public Administration and Safety (7.3%, – 285 people<sup>8</sup>) or perform other essential services potentially face long delays commuting to work given the unpredictability of the intersection.

Events and incidents that cause long delays at the Whylandra-Victoria Street intersection and throughout the Dubbo road network also result in large travel time costs for road users, which are described separately in the report.

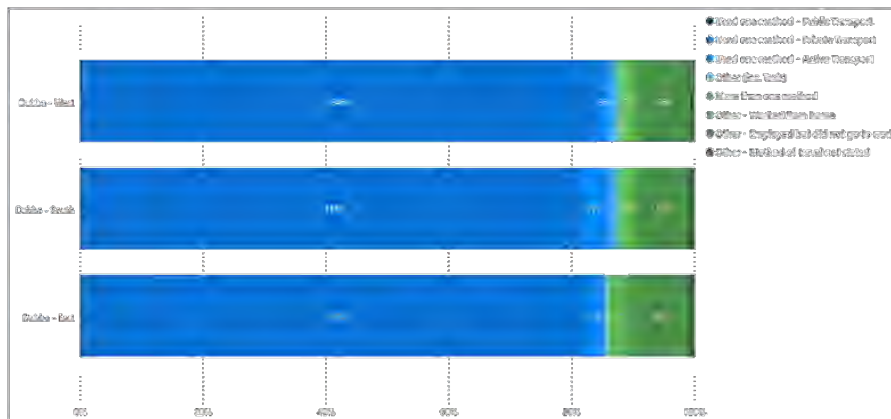
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8. Australian Bureau of Statistics: 1410.0 - Data by Region, 2013-18 for SA2s – 2016 Census

Relatively Low Level of Active transport for Residents of West Dubbo

While West Dubbo is connected to the City's 'Green Ring' and cycleway network, the heavy traffic on the LH Ford Bridge, as well as the Whylandra-Victoria Street intersection acts as a deterrent to people who choose to walk or cycle from West Dubbo using the most direct routes to the CBD. Dedicated pedestrian/cyclist paths exist at the Emile Serisier Bridge to the north, and at Tamworth Street far to the south of the CBD – significant detours for people who currently avoid the direct path across the LH Ford Bridge to the CBD. Consequently, only 2.54% of West Dubbo residents choose active transport as their main method of commuting to work, compared to 4.59% of their South Dubbo counterparts<sup>9</sup> (see Figure 3).

Figure 3: Proportionally fewer people in West Dubbo choose active transport for their commute to work compared to residents of South Dubbo.

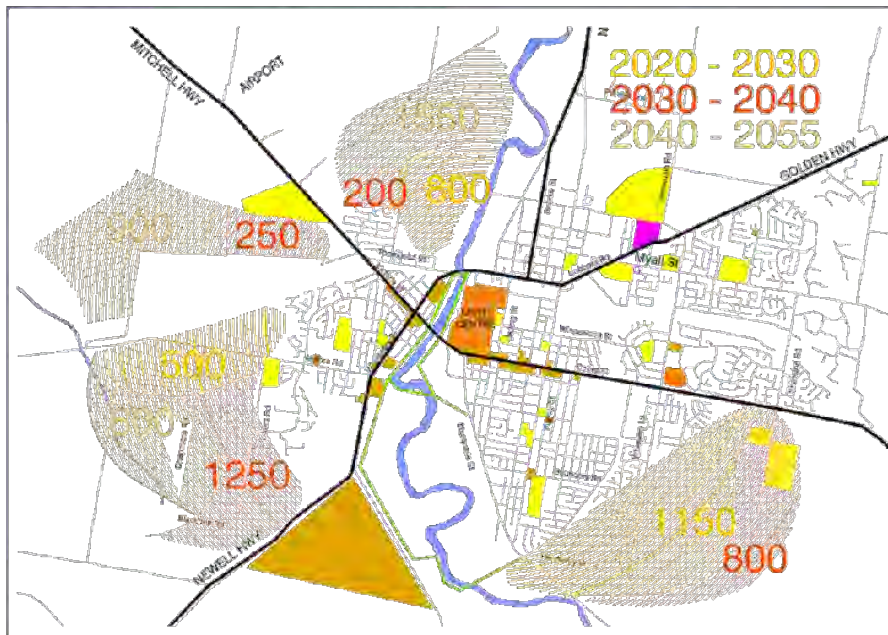


Lack of Road Connectivity in West Dubbo likely to Constrain Development in the West Dubbo URA

Residential development in Dubbo since 2011 has concentrated primarily on the south east, with only limited development occurring west of the Macquarie River. The trend of development concentrated in South Dubbo is expected to continue to 2040, delivering approximately 2,000 additional units with no further capacity for residential development beyond that period. By comparison, residential zones in the north west and south west sub-districts of the West Dubbo Urban Release Area (URA) are projected to begin development in earnest between 2020-30, account for the majority of new residential development between 2030-40, and all of the new development between 2040-50 and beyond as the south east district reaches full capacity (see Figure 4). Total new residential development in West Dubbo will bring 6,050 new dwellings to areas west of the Macquarie River by 2050, a substantial increase (197%) on the 3,060 households that currently reside there.

9. Australian Bureau of Statistics: 1410.0 - Data by Region, 2013-18 for SA2s – 2016 Census

Figure 4: Expected Residential Staging in Dubbo by Decade<sup>10</sup>

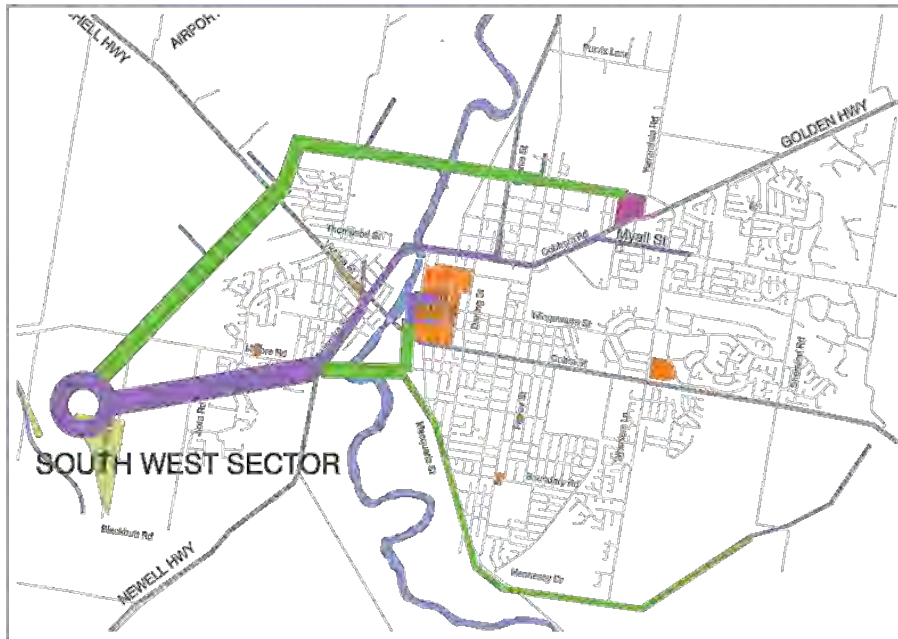


Development, particularly in the south west sub-district will rely heavily on a new South Dubbo Bridge to allow traffic to move to and from the CBD as well as the future Health, Wellbeing and Education Precinct, as illustrated in Figure 5. Without the South Dubbo Bridge, traffic from the south west district will be forced to use the LH Ford Bridge via the Whylandra-Victoria Street intersection, which is already close to capacity, and even with slated upgrades, will experience a high degree of stress during peak hours by the mid-2030s.

In order to accommodate future growth in West Dubbo, it is imperative that alternative river crossings to the LH Ford and Emile Serisier bridges are developed, and that demand for the Whylandra-Victoria Street intersection is managed. Failure to do so will likely constrain development in West Dubbo as new and existing residents of the neighbourhood lose the '10Minute City' feel that makes Dubbo an attractive place to live and work.

10. Dubbo Regional Council: Dubbo Transport Strategy 2020, p10.

Figure 5: Relative Demand for a New South and North Dubbo Bridge from the South West Residential Sub-district<sup>11</sup>



11. Dubbo Regional Council: Dubbo Transport Strategy 2020, p25.

**3.3 The Business-as-Usual Scenario**

The preceding section of the Case for Change outlines in detail the consequences for inaction, which are summarised again in Table 2.

*Table 2: Summary of the Business-as-usual Scenario*

<b>Business as Usual</b>	<b>Driver of Change</b>	<b>Consequence of Inaction</b>
<i>Increasing total travel times in Dubbo</i>	Average trip length to increase from 6.58 minutes in 2018, to 6.64 minutes in 2025, and 6.72 minutes by 2030. Number of trips made in Dubbo to increase by 9% by 2025, and 15% by 2030.	Increasing number of commuters and average trip durations to add an additional 1,286,000 hours per year to time spent commuting in Dubbo by 2030.
<i>High number of traffic incidents at the Whylandra-Victoria Street intersection</i>	The intersection currently experiences 5.25 traffic incidents on average per year. Current upgrades to the intersection are expected to bring the peak-hour LoS to 'C' and the Degree of Saturation to 0.92 by 2036. Beyond 2036, residential development and traffic pressure is expected to increase around the intersection.	Increased development around the intersection is expected to place the intersection under stress beyond 2036, potentially lowering the peak hour LoS to 'D' or lower and increasing the DoS beyond 0.92 – increasing the risk of traffic incidents.
<i>Increasing congestion at the Whylandra-Victoria Street intersection leading to increased risk of isolation from vital and emergency services</i>	The intersection is the sole means of access to the LH Ford and Emile Serisier bridges. Any traffic incidents and floods can potentially delay access to vital and emergency services to and from the entire West Dubbo area. Access across the Macquarie River is reduced to 1 bridge during 1 in 8-year flood events	The lack of alternative routes to and from West Dubbo means congestion can rapidly multiply and access is cut off. Congestion at the intersection is undesirable and dangerous because residents may be cut off from essential and emergency services during these periods.
<i>Relatively low level of active transport for residents of West Dubbo</i>	The lack of connectivity in West Dubbo means that fewer people (2.5%) choose active transport as their main method of commuting compared to South Dubbo (4.6%).	As residential development in Dubbo moves to the west, a lack of desirable access to direct routes to the CBD means that there is no incentive to increase the rate of public transport from a baseline of 2.5%.
<i>Development in West Dubbo URA likely to be constrained</i>	New residential development areas in South Dubbo will be exhausted by 2040, concentrating further developed in the West Dubbo URA. By 2050, the number of houses in West Dubbo will increase by 6,050 to 9,110.	A 197% increase in the number of traffic generating properties in West Dubbo will place existing infrastructure under considerable stress, increasing congestion and potentially increasing average travel times over 10 minutes for some commuters.

**3.4 Objectives of the Proposal**

The principal objective of the proposal is to reduce congestion at the Whylandra-Victoria Street intersection by providing an alternative bridge crossing the Macquarie River, in order to:

- I. Reduce average travel times through the Dubbo City road network by an average of 4.3s/trip (a total of 89,700h/year) by 2030 in order to maintain the City's '10 minute' character
- II. Reduce the number of traffic incidents at the Whylandra-Victoria Street intersection by ensuring the Loss of the intersection does not fall below 'C'
- III. Reduce the isolation and increase connectivity of West Dubbo to the CBD, including to emergency and health services
- IV. Increase the percentage of commuters choosing active transport in West Dubbo
- V. Facilitate the development of 6,050 properties in the West Dubbo URA

### 3.5 Strategic Alignment

Table 3 outlines how the objectives of the new South Dubbo Bridge supports the overarching government policies, including the 2019-20 State Outcomes and relevant departmental and local planning policies and strategic plans.

Table 3: Strategic Alignment of the New South Dubbo Bridge Project with State Outcomes, Policies, and Strategic Plans.

#	Business case objective	Relevant State Outcomes	Relevant State Outcome indicators <sup>12</sup>	Other Government priorities, regulations or policies
1	I, V.	<b>Sustainable and productive regional industries and communities</b> Supporting strong and resilient regional communities through economic development, investment in infrastructure.	Creation of new jobs across all regions in NSW	<p><b>INSW State Infrastructure Strategy 2018-2038:</b> Overcome local constraints on regional roads that limit the use of high productivity freight vehicles</p> <p><b>Transport for NSW, Freight and Ports Plan 2018 - 2023:</b> Enhance productivity, efficiency, connectivity and access by investing in road infrastructure.</p> <p><b>Department of Industry, Regional Development Framework:</b> provide quality services and infrastructure in regional NSW</p> <p><b>NSW Government, 20 Year Vision for Regional NSW:</b> Make regional travel faster and easier within regional centres and improve freight networks.</p> <p><b>NSW Government, Our Regions, Central West Orana:</b> Deliver quality infrastructure to improve productivity and make the region a more attractive place to live and work.</p> <p><b>Dubbo City Economic Development Strategy:</b> maintain transport infrastructure to sustain Dubbo's distinctive economic and geographical advantages to the business community.</p> <p><b>Transport for NSW, Future Transport 2056, Tourism and Transport Plan:</b> Improving Regional Roads with:</p> <ul style="list-style-type: none"> <li>• First and last mile road network improvements for regional visitor destinations</li> <li>• Main/High Street improvements in regional towns</li> </ul> <p>Regional road upgrades to visitor destinations can further enhance the visitor experience, drive more visitors to local destinations and benefit local businesses.</p>
2	V.	<b>Create a strong and liveable NSW</b> Planning for attractive places that create the conditions for prosperity, economic development, innovation and jobs.	Increase Housing supply across NSW: deliver more than 50,000 approvals every year Deliver 61,000 housing	<p><b>Transport for NSW, Future Transport 2056, Regional NSW Services Infrastructure Plan:</b> Sustaining and enhancing liveability by enabling people and goods to move efficiently and ensuring changes in population are served by the transport system.</p> <p><b>Central Orana Regional Economic Development Strategy 2018-2022:</b> Establish Central Orana as an effective and interconnected business destination – make the Central</p>

12. As of the 2019-20 Budget Estimates, no measures or projections of existing indicators have been included for the revised set of 38 State Outcomes. Where possible, outcome indicators from the 2018-19 Budget Estimates have been adopted as interim measures.



		delivering infrastructure and a diverse housing mix which responds to the needs of communities.	completions on average per year to 2021	Orana region an attractive place to live and work by delivering essential services to the business community including improved road network, affordable housing and public transport. <b>NSW Department of Planning and Environment, Central West and Orana Regional Plan 2036:</b> coordinate infrastructure delivery across residential land and improve transport in regional cities. <b>Dubbo Transport Strategy 2020</b> maintain quality of life for 20,000 new residents by ensuring new transport infrastructure supports growth without decreasing amenity.
3	II, III.	<b>Resilient to disasters and emergencies</b> Delivering emergency management to enhance response and recovery efforts and build community resilience.	Fires and other incidents attended by the RFS requests for assistance completed by the SES	<b>Transport for NSW, Future Transport 2056, Regional NSW Services Infrastructure Plan:</b> ensure transport systems are resilient to significant weather events including floods, fog and bushfires.
	I, II, III, IV.	<b>Accessible transport</b> Enabling and enhancing the equity and accessibility of the transport system for all customer groups.	<i>No relevant Outcome Indicator in 2018-19 Budget Estimates</i>	<b>Transport for NSW, Road Safety Plan 2021:</b> liveable and safe urban communities – enhance safety around busy areas and cater to the increased number of people on local roads including trucks and pedestrians.
4	I, II, III, IV	<b>Safe and reliable travel</b> Delivering ongoing operation, maintenance and overall performance of transport networks, to ensure journey reliability and customer satisfaction.	Road journey time reliability Road fatalities per 100,000 population	<b>INSW State Infrastructure Strategy 2018-2038:</b> embedding safety and resilience <b>Transport for NSW, Future Transport 2056, Regional NSW Services Infrastructure Plan:</b> Ensure a safe transport system for every customer with zero deaths or serious injuries on the network by 2056. <b>Transport for NSW, Road Safety Plan 2021:</b> saving lives on country roads. <b>NSW Government, Our Regions, Central West Orana:</b> improve the efficiency, capacity and safety of regional roads. <b>Dubbo Regional Council Community Strategic Plan 2018:</b> safe, convenient and efficient road transportation
5	I, II, III, IV.	<b>Successful places</b> Enhancing liveability and connectivity by delivering city-shaping infrastructure projects, activating precincts and expanding network capacity.	<i>No Relevant Outcome Indicator in 2018-19 Budget Estimates</i>	<b>INSW State Infrastructure Strategy 2018-2038:</b> Complete missing links in the regional network, creating travel time savings and safety benefits that increase productivity. <b>Transport for NSW, Future Transport 2056, Regional NSW Services Infrastructure Plan:</b> Ensure customers enjoy improved connectivity. <b>NSW Department of Planning and Environment, Central West and Orana Regional Plan 2036:</b> Enhance regional roads particularly for heavy vehicle access, bridge crossings and traffic access during flood events. <b>Dubbo Regional Council Community Strategic Plan 2018:</b> Ensure the transport system supports connection within and outside the region – provide additional flood-free road access over the Macquarie River at Dubbo

### 3.6 Benefits and KPIs

Table 4 outlines how the aims and objectives of the proposed new South Dubbo Bridge deliver benefits to the community, and how they will be tracked through key performance indicators over the lifetime of the project.

*Table 4: Benefit Register, Linking the Key Business Case Objectives to Benefits and KPIs*

#	Business case objective	Business Case Benefit	Relevant Program KPI
I	Reduce average travel times through the Dubbo City road network by an average of 4.3s/trip (a total of 89,700h/year) by 2030 in order to maintain the City's '10 minute' character.	Limit the additional number of hours spent commuting in Dubbo by 2030 from the 645,000 h/year increase experienced without government intervention.	<ul style="list-style-type: none"> <li>• Average trip duration decreased by 4.3s by 2030.</li> <li>• Total annual trip times reduced by 89,700 h/year by 2030.</li> <li>• Average trip times for existing residents of Dubbo do not exceed 10 minutes.</li> </ul>
II	Reduce the number of traffic incidents at the Whylandra-Victoria Street intersection by ensuring the LoS of the intersection does not fall below 'C'.	Reduced number of traffic incidents at the Whylandra-Victoria Street intersection leading to fewer: <ul style="list-style-type: none"> <li>• Property damage incidents</li> <li>• Moderate and severe injuries</li> <li>• Fatalities</li> </ul>	<ul style="list-style-type: none"> <li>• Peak hour LoS at the intersection does not fall below 'C'.</li> <li>• Peak hour DoS at the intersection does not increase above 0.92.</li> <li>• The number of incidents (all types) at the intersection do not increase following current upgrades and increasing traffic.</li> </ul>
III	Reduce the isolation and increase connectivity of West Dubbo to the CBD, including to emergency and health services	When traffic incidents and floods do occur at critical areas, such as the Whylandra-Victoria Street intersection, or the existing bridges, West Dubbo is not isolated and cut off from vital and emergency services.	<ul style="list-style-type: none"> <li>• Incidents and floods at the Whylandra-Victoria Street intersection do not cause excessive network wide delays or isolate West Dubbo from vital and emergency services.</li> <li>• Flood access across the Macquarie River increases from 1 bridge during a 8 year ARI, to 2 bridges during a 20 year ARI flood.</li> </ul>
IV	Increase the percentage of commuters choosing active transport in West Dubbo.	Active transport provides a number of benefits including those to health, congestion, vehicle operating cost, GHG emission and other pollution, and roadway provision costs.	<ul style="list-style-type: none"> <li>• The percentage of commuters in West Dubbo choosing active transport increases from a baseline of 2.5%.</li> </ul>
V	Facilitate the development of 6,050 properties in the West Dubbo URA	Dubbo continues to grow as an engine economy of the Central Orana Region of NSW, with households to support growing industries.	<ul style="list-style-type: none"> <li>• The West Dubbo URA is able to develop without contributing undue stress to the existing road network.</li> <li>• Average trip times for new and future residents of Dubbo do not exceed 10 minutes.</li> </ul>

The following subsections outline the evidence base supporting the benefits that are expected to flow from the proposed new South Dubbo Bridge.

Reduce the Travel Time and Vehicle Operating Cost for Commuters in Dubbo

The principal benefit that arises as a result of limiting the number of hours spent commuting in Dubbo are the reduced travel time costs. While much of the increase in the total number of hours spent per year commuting in Dubbo is driven by the increase in population, the increase in the average trip duration from 6.58 minutes to 6.72 minutes over the entire city leads to unnecessary congestion.

The *Transport for NSW Economic Parameter Values*, used in Cost-Benefit Analysis in NSW to evaluate transportation projects, recommends the following values for the Value of Travel Time (VTT):

- VTT (private) = \$17.72 per person hour
- VTT (business) = \$57.48 per person hour

Using the standard parameters for vehicle occupancy and fleet composition for a rural road network<sup>13</sup> the weighted average Value of Travel Time per vehicle hour is \$41.73. If the total number of trip hours is decreased, relative to the base case by 89,700 hours per year in 2030, this amounts to an annual benefit of \$3.75 million in that period.

Reducing congestion and increasing the average vehicle speed for commuters in Dubbo also has a positive impact on vehicle operating costs, as spending more time cruising in a free-flow environment places less strain and uses less fuel than driving in a stop-start environment. As a result of building the new South Dubbo Bridge, the average trip speed will increase from 44.0km/h in the base case to 44.6km/h with the Bridge in 2030.

The *Transport for NSW Economic Parameter Values* provide urban vehicle operating costs at different speeds<sup>14</sup>, which have been extrapolated to provide a cost per vehicle kilometre travelled (vkt) of 45.24c/vkt in the base case, compared to 44.91c/vkt with the new South Dubbo Bridge. Over the total number of trips made on Dubbo's road network in 2030 (205,758), the reduced vehicle operating costs amount to \$853,620 in that period.

Reduce the Number of Traffic Incidents at the Whylandra-Victoria Street Intersection

The high number of crashes occurring at the Whylandra-Victoria Street intersection, approximately 5.25/year, is well above acceptable bounds and represents an urgent service need. While current works to upgrade the intersection may reduce the rate of traffic incidents in the near-term, rates may rise again if the intersection once again becomes stressed due to congestion. While the precise number of crashes that may be avoided if the new South Dubbo Bridge is constructed is unknown, even a conservative decrease may lead to significant benefits over the project life.

The *Transport for NSW Economic Parameter Values* provides the value (measured through the Willingness-to-Pay to avoid) per crash in a Town Centre environment where speed limit is up to 80km/h<sup>15</sup>:

- WTP (Fatal crash) = \$7,808,768 per incident
- WTP (Serious injury) = \$507,553 per incident
- WTP (Moderate injury) = \$85,296 per incident
- WTP (Minor injury) = \$78,389 per incident
- WTP (Property damage only) = 10,338 per incident

Of the crashes recorded at the Whylandra-Victoria Street intersection between 2014 and 2018, 48% were non-casualty events, 14% were minor/other injury events, and 38% were moderate injury events.

13. Transport for NSW – Economic Parameter Values 2019, Table 5, p13. All values in 2019 AUD.

14. Ibid, Table 12, p18.

15. Ibid, Table 28, p32.

Published crash risk reduction factors indicate that staggered junctions that allow traffic to join a roadway at multiple places as opposed to funnelling all traffic through a single intersection could reduce crash incidence rates by 25-35%. Therefore, the CBA assumes that crashes at the Whylandra-Victoria Street intersection will decrease by 25% as a result of the proposed works.

However, since the proposed works will enable a greater amount of road traffic, it is also appropriate to include an estimate of the increased number of crashes. The number of crashes were estimated from data published in the Transport for NSW Economic Parameter Values.

Reduce Isolation and Increase Connectivity to Vital and Emergency Services

The ability to respond in a timely manner to emergencies is a fundamental feature of services such as NSW Fire and Rescue, the NSW Police, and ambulance services. Failure to do so may have dire consequences, such as aggravated injury or even loss of life. The values used to estimate the cost of different types of crashes (above) are derived in part from the Value of a Statistical Life (approximately \$5.86 million<sup>16</sup>), which can be used to estimate the avoided social costs of death or injury as a result of providing emergency care.

However, while the precise number of emergency incidents that are unable to be attended to in a timely manner is unknown and is likely to remain unquantified in the CBA, qualitative evidence in the form of letters of support from NSW Fire and Rescue, NSW Police, and Dubbo Base Hospital emphasising the need to maintain congestion-free intersections, and alternative routes to and from West Dubbo, were sought as part of this detailed business case.

Increase the Percentage of Commuters in West Dubbo Choosing Active Transport

The *Transport for NSW Economic Parameter Values* provides a list of benefits (and costs) of walking and cycling, relative to using a car as the main method of commuting. Benefits include health, air pollution, GHG emissions, noise, water pollution, nature and landscape, urban separation, roadway provision cost savings, and parking cost savings per kilometre travelled using active transport<sup>17</sup>.

It is unlikely that an increase in the number of residents of West Dubbo choosing active transport will be directly attributable to a new South Dubbo Bridge, especially given that the proposed Bridge is only one of a number of upgrades to the City's road and active transport network. However, qualitative evidence from stakeholder groups such as the Dubbo Cycle Club will be sought as part of a detailed business case.

Facilitate the Development of 6,050 Properties in the West Dubbo URA

While the new South Dubbo Bridge is not required to 'unlock' new land for new residential development in the West Dubbo URA per se, it is required as a *direct* response to changes in traffic flows and generation patterns in the City as a result of it.

The direct benefits of the proposed new Bridge to new and existing residents of Dubbo City will be broadly monetised or described by the items above, and any resulting changes in the value of new developments or existing homes as a result are – in economic terms – second round or 'flow-on' effects.

However, the ability for Cities such as Dubbo to provide new housing with adequate services is a State Outcome. Therefore, the ability for Dubbo to continue to provide new residential housing, while maintaining its '10 minute city' feel which is a significant attractor for new residents, is an objective and benefit of the proposed new South Dubbo Bridge. Qualitative evidence to support the project from stakeholder groups such as new and existing residents of Dubbo, as well as property developers, will be sought as part of a detailed business case.

16. Ibid, Table 36, p36.

17. Ibid, Table 47, p44.

**3.7 Risks to Project Benefits**

The key dependencies, and risks, for each of the benefits described above are analysed in Table 5.

*Table 5: Risks to Project Benefits*

Objective	Business Case Benefit	Key Dependencies and Risks
I	Limit the additional number of hours spent commuting in Dubbo by 2030 from the 645,000 h/year increase experienced without government intervention.	<ul style="list-style-type: none"> <li>• Dependent on the accuracy of assumptions used in the modelling undertaken in the <i>Dubbo Transport Strategy 2020</i></li> <li>• Risks of miss-quantification of benefits/costs to be managed by taking sensitivity tests within reasonable confidence intervals on key parameters.</li> </ul>
II	Reduced number of traffic incidents at the Whylandra-Victoria Street intersection leading to fewer: <ul style="list-style-type: none"> <li>• Property damage incidents</li> <li>• Moderate and severe injuries</li> <li>• Fatalities</li> </ul>	<ul style="list-style-type: none"> <li>• Dependent on traffic diverted from the Whylandra-Victoria Street intersection onto a proposed new South Dubbo Bridge not exacerbating risk of crashes elsewhere in the network.</li> <li>• Crash risks of a proposed new bridge to be identified, managed and quantified in a Detailed Business Case.</li> </ul>
III	When traffic incidents and floods do occur at critical areas, such as the Whylandra-Victoria Street intersection, or the existing bridges, West Dubbo is not isolated and cut off from vital and emergency services.	<ul style="list-style-type: none"> <li>• Dependent on traffic incidents at the Whylandra-Victoria Street intersection causing congestion and long delays which cause issues for vital and emergency services.</li> <li>• Risks managed by obtaining strong evidence and support from stakeholder groups.</li> </ul>
IV	Active transport provides a number of benefits including those to health, congestion, vehicle operating cost, GHG emission and other pollution, and roadway provision costs.	<ul style="list-style-type: none"> <li>• Dependent on a new South Dubbo Bridge presenting an attractive alternative for people who would otherwise drive to choose active transport.</li> <li>• Risks managed by obtaining strong evidence and support from stakeholder groups.</li> </ul>
V	Dubbo continues to grow as an engine economy of the Central Orana Region of NSW, with households to support growing industries.	<ul style="list-style-type: none"> <li>• Dependent on historical demand for new housing in Dubbo continuing on projected trends</li> <li>• Risks managed by obtaining strong evidence and support from stakeholder groups.</li> </ul>

Ensuring that the CBA covers the fullest possible range of costs and benefits that will arise as a result of the proposed new South Dubbo Bridge will ensure that as many positive and negative impacts to stakeholders are quantified, and ultimately, reduce the risk that the project will not have community support. Additional potential costs of the proposed new South Dubbo Bridge are outlined in the following paragraphs.

*Increased Road Maintenance and Environmental Externality Costs*

Further to the specific risks outlined in Table 5, any new road infrastructure that increases the volume of traffic or increases trip distances has the potential to increase costs, both to the owner of the road network in the form of increased road maintenance costs, and in the form of negative externalities.

The *Transport for NSW Economic Parameter Values* outline road maintenance costs, and environmental externality costs associated with an increase in vkt as a result of any given project. These costs are:

- Road maintenance costs = 4.39c/vkt <sup>18</sup>
- Total environmental externality costs (Base Case) = 12.86c/vkt <sup>19</sup> including,
  - Air pollution = 3.37c/vkt
  - GHG emissions = 2.66c/vkt
  - Noise = 1.1c/vkt
  - Water pollution = 0.51c/vkt
  - Nature and landscape = 0.23c/vkt
  - Urban separation = 0.46c/vkt
  - Upstream/downstream costs = 4.53c/vkt

Additional road maintenance costs, as well as the total environmental externality costs will impose additional costs to society at large as a result of the new South Dubbo Bridge. However, the costs are unlikely to be substantial, amounting to \$33,836 in additional road maintenance costs, and \$147,602 in additional environmental externality costs in 2035.

However, as a result of stakeholder feedback obtained during consultations (see section 2.10 for details), it was noted that the landscape values of the significant Sandy Beach and Macquarie River surrounds would potentially be impacted by the proposed new Bridge. In particular, Option 1 was identified by stakeholders as having a particularly negative impact on the visual amenity of Sandy Beach. Therefore, a higher range value for the cost of impacts to nature and landscape was applied to Option 1 (0.62c/vkt), and a midrange between the two values applied to Options 2, 3 and 4 (0.43c/vkt).

In addition, stakeholders indicated that Option 4, which bisects the Lady Cutler Ovals, would have a particularly detrimental effect. Stakeholders especially noted pedestrian safety concerns as a result of high-speed traffic interfering with sports teams. Although stakeholders registered concern for all the options presented. Therefore, a higher value for urban separation was chosen and applied to Option 4 (1.1c/vkt), and a midrange between the two values applied to Options 1, 2, and 3 (0.078c/vkt).

Incorporating the costs of noise pollution, urban separation, and nature/landscape impacts in the CBA will also help to address the risk that potential unintended consequences of the new South Dubbo Bridge have not been accounted for. For example, concerns that the Bridge may increase traffic in South Dubbo suburban streets that are currently relatively free of traffic, as outlined in Figure 6, in the following sections. Alternative economic values, such as impacts of neighbourhood character, landscape and walkability explored by Litman<sup>20</sup>, and the UK Department of Transport<sup>21</sup> were extensively reviewed and it was determined that there are currently no other readily transferrable values in the literature to more accurately estimate the impact of the current proposal on Sandy Beach, the Lady Cutler Ovals, or other environmental impacts, than those already identified by and adopted from the Transport for NSW economic parameters.

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18. Ibid, Table 50, p46

19. Ibid, Table 37, p38

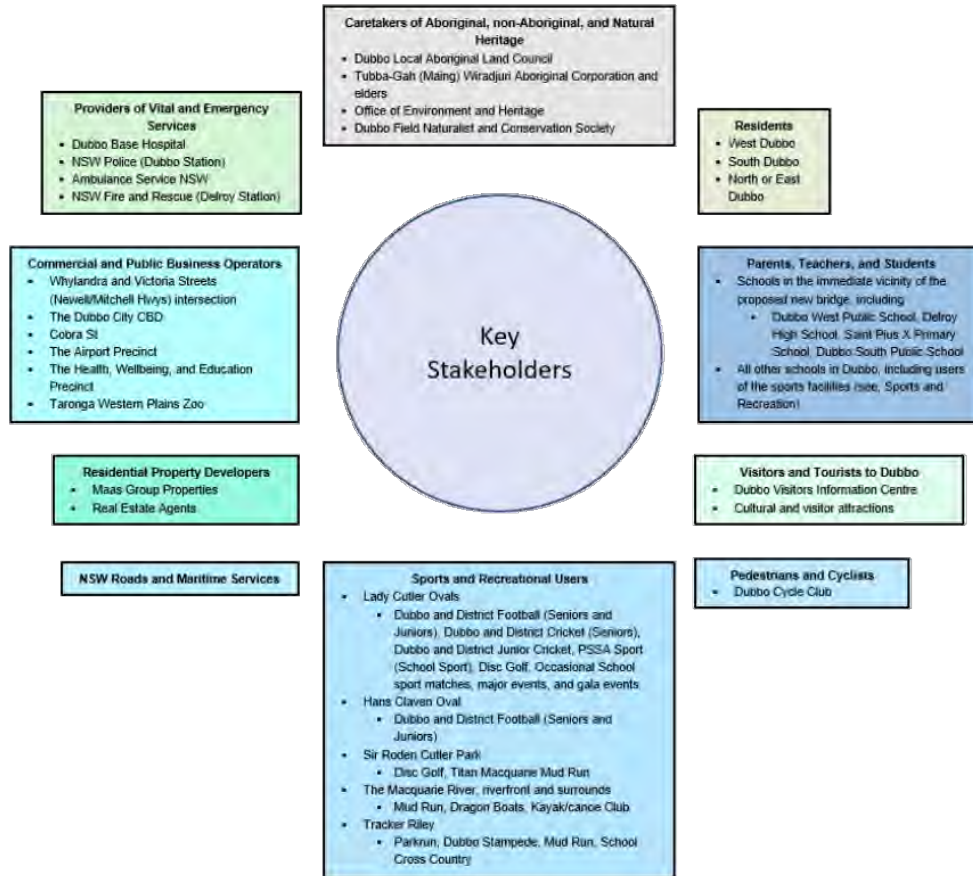
20. Litman, Todd (2003) Economic Value of Walkability, Transportation Research Record 1828, pp 3-11, Vol 10(1)

21. Department for Transport (2019) Valuation of landscape impacts of transport interventions and mitigations using and ecosystem services approach. Report.

**3.8 Key Stakeholders**

Several key stakeholders have been identified over the course of considerable community consultation and planning towards a new South Dubbo Bridge, Figure 6. These include, but are not limited to:

Figure 6 Key Stakeholders for New South Dubbo Bridge





### 3.9 Stakeholder Engagement & Management Plan

Table 6 outlines the perceived impact of the proposed new South Dubbo Bridge on each of the key stakeholders, whether they have support, mixed support, or concerns regarding the project, how each of the stakeholders were consulted throughout the planning process, and details of consultation and potential or identified risks. A detailed stakeholder management plan will outline the actions taken, and to be continued as the project develops, in a Detailed Business Case.

Community consultation for the proposed new South Dubbo Bridge was carried out between November 2020 and March 2021. Consultation included:

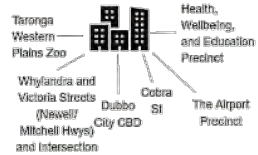

- Holding four focus group workshops specific to sports and recreation, business operators, traditional land owners, and emergency services transport
- Eliciting and collecting survey responses from 195 members of the Dubbo community to identify key areas of community support or concern
- Workshop with Councillors from Dubbo Regional Council
- Feedback submitted by representatives from 11 different organisations in Dubbo accepted via the Public Input option on the Dubbo Regional Council Website through mid-February





A detailed analysis of community feedback received is provided as Appendix A to the Strategic Business Case. Where relevant and possible, community feedback and concern has been incorporated into the economic cost-benefit analysis.

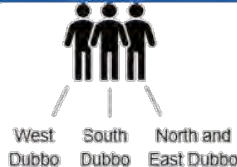

Insights have also been gathered from previous consultation reports for bridge options carried out by Transport for NSW with regard to a potential North Dubbo Bridge, and reports in the local media. In addition to the above consultation, *TfNSW, New Dubbo Bridge – Display of six options for a new bridge over the Macquarie River – Community Consultation Summary Report (2016/17 engagement activities)* and the *TfNSW New Dubbo Bridge Submissions Report December 2019* were used for additional information.



Table 6: Summary of Stakeholder Views and Consultation Plan

Stakeholder Group: Commercial and Public Business Operators					
Stakeholder Group		Indication of Support/Concern		Consultation Plan	Business owners were invited to offer feedback to plans as they were developed at regular intervals
Details/Evidence of Support/Concern	<p>Consultations to date show that business owners require access to established shopping districts in the CBD, Cobra Street, and along Whylandra and Victoria Streets to remain congestion free in order to maintain amenity for shoppers.</p> <p>In previous consultations, RDA Orana (representing regional industry interests) identified that a new bridge should ideally service businesses primarily located in Dubbo's north, and be incorporated into a ring road.</p> <p>Stakeholder feedback from December mirror past concerns regarding congestion, impacts on current developments including the Alkane Mine and Taronga Western Plains Zoo as well as traffic impacts of people wanting to stay at hotels in West Dubbo.</p>				
Potential Risks	<ul style="list-style-type: none"> <li>• Changes in traffic flows may adversely impact the amenity of or access to certain businesses.</li> <li>• Some properties may have to be acquired in order to complete the project.</li> <li>• Aesthetics to natural surrounds of the City, such as Tracker Riley Cycleway could be disrupted</li> <li>• Increased vehicle movements could impact the proposed mining development</li> <li>• Housing prices could be impacted</li> <li>• South Dubbo Bridge may not help road users get to the future proposed Health Precinct</li> </ul>				

Stakeholder Group: Traditional Land Owners					
Stakeholder Group	 <p>Traditional Land Owners Elders</p>	Indicator of Support/Concern	 <p>Mixed Support/Concern</p>	Consultation Plan	Traditional Land Owners and Elders were invited to offer feedback to plans
Details/Evidence of Support/Concern	<p>Objectives centred around the cultural impact of any proposed option on Sandy Beach, and an impacts study was suggested</p> <p>Concerns were also raised regarding congestion, parking, and alternative options. A higher bridge could mitigate for cultural impacts, as well as traffic and safety dangers</p> <p>Members of the group provided alternate, informal ways to get additional feedback, including presenting at the Working Parties</p>				
Potential Risks	<ul style="list-style-type: none"> <li>Particularly with regards to Option 1, the bridge could threaten the cultural importance and heritage at Sandy Beach</li> <li>A new bridge could increase traffic congestion at Boundary Road-Macquarie Street intersection, and at school drop off locations</li> <li>Parking at the sporting ovals could be severely impacted</li> </ul>				
Stakeholder Group: Residential Property Developers					
Stakeholder Group	 <p>Maas Group Properties Real Estate Agents</p>	Indicator of Support/Concern	 <p>Support</p>	Consultation Plan	Property developers and real estate owners were invited to offer feedback to plans. Evidence was sought regarding potential for a new South Dubbo Bridge to facilitate the development of new residential housing in West Dubbo
Details/Evidence of Support/Concern	<p>Previous consultations suggest that real estate agents generally support a new bridge across the Macquarie River.</p>				
Potential Risks	<ul style="list-style-type: none"> <li>Real estate agents may have concerns that a bridge connecting to Tamworth Street has the potential to negatively affect property prices in a desired neighbourhood.</li> </ul>				





Stakeholder Group: Residents					
Stakeholder Group		Indicator of Support/Concern		Consultation Plan	Residents were invited to offer feedback to plans at a Community Consultation Session and via survey
Details/Evidence of Support/Concern	Media reports and consultations to date show that residents of South Dubbo are concerned about the potential for traffic to be directed into suburban streets.				
	Residents of West Dubbo generally support a bridge but have raised concerns regarding significant congestion at the Whylandra-Victoria Street intersection impeding commuting, especially during peak hours.				
	Themes discussed ranged from the need for additional analysis, increased and shift of traffic issues, negative environmental impacts, lack of access to areas for recreation, and negative impacts to the Lady Cutler Oval sporting precinct				
Potential Risks	Most respondents opposed the two options presented in the survey and provided many alternative options for Dubbo Regional Council to consider				
	<ul style="list-style-type: none"> <li>• A new bridge has the ability to hurt the local sporting facilities and access to Sandy Beach</li> <li>• Increased traffic as well as pressure on roads from heavier vehicles, and limited parking.</li> <li>• Safety impacts, particularly to children attending sporting fields/events, as well as safety concerns for residential area, pollution, etc.</li> <li>• Potential negative impacts to Lady Cutler Oval, cricket and soccer grounds, recreational activities like running, walking, cycling and simply spending time by the river.</li> <li>• Impacts to community events such as Parkrun, Dubbo Stampede, etc.</li> <li>• Environmental concerns include ecological, accessibility, and recreational impacts on Sandy Beach, noise, air, and light pollution for environment, loss of trees and other biodiversity in the area, impacts to access points, river bank degradation, green space, and connection to land/river, as well as flooding issues</li> <li>• Community impacts include affecting residential culture and older areas that do not lend themselves to infrastructure updates, taking away from community character, as well as events that may no longer be viable.</li> <li>• Residents might feel that the Council is apathetic to their preferences if Option 1 or 2 is selected. Approximately a third of participants noted their preference for alternative options other than the two provided.</li> </ul>				

Stakeholder Group: Providers of Vital and Emergency Services					
<b>Stakeholder Group</b>		<b>Indicator of Support/Concern</b>		<b>Consultation Plan</b>	Providers of vital and emergency services were invited to offer feedback to plans as they were developed at regular intervals
<b>Evidence of Support/Concern</b>	<p>Previous consultation has indicated that emergency service providers (Ambulance NSW and NSW Police) support options to decrease gridlock in the City in the event of incidents or flooding.</p> <p>Members of the Emergency Services and Transport focus group were primarily concerned with access onto Tamworth Street, congestion and flood immunity concerns</p> <p>Members stated any idea which eases congestion would be a positive one</p>				
<b>Potential Risks</b>	<ul style="list-style-type: none"> <li>• Access points could be assessed which deny access for another essential area (i.e. no access point from the bridge onto Tamworth Street)</li> <li>• Flooding</li> <li>• Providers of emergency services have expressed concerns that a new South Dubbo Bridge will divert traffic to areas where the risk of accidents to pedestrians or other road users are exacerbated, such as near residential property and playing fields. A need has also been identified to provide overtaking lanes for emergency services.</li> </ul>				

Stakeholder Group: Parents, Teachers, and Students					
Stakeholder Group		Indicator of Support/Concern		Consultation Plan	Parents, Teachers and Students were invited to offer feedback to plans at a Community Consultation Session and via survey (roughly 44% of participants)
Evidence of Support/Concern	<p>Previous consultations suggest that there is community concern regarding any bridge option that has the potential to increase traffic around areas frequented by children, such as school and sports fields</p> <p>Concerns were raised in the community survey about how much consideration was given to school drop offs – many attendees felt they would benefit from a southern link road during school drop off times, for residents living in West Dubbo but kids schooling on the eastern side of the river, and vice versa</p> <p>Congestion during school days – have students catch the bus instead of being driven</p>				
Potential Risks	<ul style="list-style-type: none"> <li>Local sport may suffer as parents would be deterred by lack of parking options</li> <li>Major safety issues with kids chasing balls close to, and potentially onto the road</li> <li>Increased congestion during school drop off could cause safety hazards and/or increased wait times</li> <li>Parents, teachers, and students of local West Dubbo schools may have concerns regarding the movement of traffic around certain streets, especially during school zone hours when an increased number of students may be travelling by foot</li> </ul>				

Stakeholder Group: Pedestrians and Cyclists					
Stakeholder Group		Indicator of Support/Concern		Consultation Plan	Pedestrians and cyclists were invited to offer feedback to plans as they were developed including via a Community Consultation Session, organisation feedback, and via survey (roughly 61% of participants)
Evidence of Support/Concern	<p>Previous consultations suggest that the community supports a new bridge that can accommodate pedestrian and cycleway traffic with dedicated bike lanes provided.</p> <p>Investment in 1) pedestrian and cycling infrastructure and 2) public transportation</p> <p>Many cited concerns for the negative impacts to Lady Cutler Oval, cricket and soccer grounds, and recreational activities along the river such as running, walking, cycling, etc.</p> <p>More respondents in the survey disagree that either option will encourage more people to walk or cycle to work or other destinations (41% for Option 1, 47% for Option 2)</p> <p>Repurpose the old rail corridor from Macquarie Street to Wingewarra Street with an extension on the Tracker Riley Cycleway with further multi-purpose walking and cycling track</p>				
Potential Risks	<ul style="list-style-type: none"> <li>Increased risk traffic safety and health concerns for children and pedestrians</li> <li>Could cut into access for running, pedestrian, and cycling community, as well as community culture of Dubbo</li> <li>Future access and degradation to river loop, Sir Roden Cutler Park, Tracker Riley Cycleway, and Macquarie River</li> <li>Bridge construction will impact recreation, particularly the Tracker Riley Cycleway, which is the centre of many community activities</li> </ul>				

Stakeholder Group: Sports and Recreational Users					
Stakeholder Group		Indicator of Support/Concern		Consultation Plan	Users of local recreational parks and facilities were invited to offer feedback to plans as they were developed at regular intervals. This included stakeholder sessions, a Community Consultation Session, organisation feedback, and via survey (roughly 64% of participants)
Evidence of Support/Concern	<p>Concerns regarding the impact either option would have on competitions and training as people are training on ovals constantly and certain bridge options may cause disruptions disruption of the sporting and recreation amenities. Some respondents reference the iconic nature of Sandy Beach and accessibility of the riverfront, and concerns for public acceptance, safety, and access, given this initiative</p> <p>Major safety issues for kids, as well as parking impacts; Dubbo residents are strongly against funnelling traffic through the Lady Cutler Ovals sporting area. This was one of the most common reasons for opposing the options</p> <p>Either option may be detrimental to Sandy Beach, by increased traffic in close proximity to the area</p> <p>Traffic impacts due to moving traffic from one place to another</p> <p>Questions were raised for alternative options, as well as additional analysis</p>				
Potential Risks	<ul style="list-style-type: none"> <li>• May not attract sporting carnivals or large sporting events</li> <li>• Increased traffic could cause safety and health hazards</li> <li>• Could impact recreation within Sandy Beach such as fishing, boating, and exercising; Could potentially cause relocation of boaters</li> <li>• Could negatively impact Lady Cutler Ovals and Pavan Ovals Sporting Precinct; Could cause reduction in the number of people using the area for recreation and impact the overall liveability of Dubbo</li> <li>• They believe the increased traffic will make the area unsafe for children, families and other users of the facilities</li> </ul>				

Stakeholder Group: Visitors and Tourists to Dubbo					
Stakeholder Group	 Dubbo Visitors Information Centre Cultural and visitor attractions	Indicator of Support/Concern	 Mixed Support/Concern	Consultation Plan	Facilities that cater to visitors and tourists to Dubbo were invited to offer feedback to plans as they are developed at regular intervals; Internal and Business Group focus group feedback was obtained regarding this area
Evidence of Support/Concern	Taronga Western Plains Zoo representatives said the usage of Tracker Riley Cycleway by visitors should not be 'downplayed' – there's evidence that visitors to Dubbo would use the track to ride bikes from their hotel to the Zoo, or just use the track itself while visiting for a weekend, to take in the natural surrounds of the city. The concern was that either option would dramatically impact the aesthetics and character of Tracker Riley Cycleway The River Precinct will get higher volumes of visitors, with a number of new developments in the city, which will mean more people along the river during these events. This must be taken into consideration when building a large piece of infrastructure across the river. Traffic impacts of people wanting to stay at hotels in West Dubbo.				
Potential Risks	<ul style="list-style-type: none"> <li>• May deter visitors/tourists from the use of bikes, pedestrian walkways, etc.</li> <li>• Increased traffic could cause safety and health hazards</li> <li>• Could impact recreation within Sandy Beach such as fishing, boating, and exercising; Could potentially cause relocation of boaters</li> <li>• Could negatively impact Lady Cutler Ovals and Pavan Ovals Sporting Precinct; Could cause reduction in the number of people using the area for recreation and impact the overall liveability of Dubbo</li> </ul>				
Stakeholder Group: Transport for New South Wales					
Stakeholder Group	 Roads Maritime Services	Indicator of Support/Concern	 Support	Consultation Plan	Transport for NSW were invited to offer feedback to plans as they were developed at regular intervals, including a stakeholder session
Evidence of Support/Concern	Reduces traffic. Believes project is urgently important Provide an east– west Connection Further development of the new South Dubbo Bridge should consider the broader implications to the local and state classified road network.				



Potential Risks	<ul style="list-style-type: none"> <li>None provided</li> </ul>			
<b>Stakeholder Group: Caretakers of Aboriginal, non-Aboriginal, and Natural Heritage</b>				
Stakeholder Group		Indicator of Support/Concern		Consultation Plan
Evidence of Support/Concern	<p>Previous consultations and assessments taken on a proposed North Dubbo Bridge indicate that it is likely that Aboriginal Heritage will be found to be impacted by any new South Dubbo Bridge. Dubbo's Aboriginal community might have some questions about the desecration of Sandy Beach and its historically significant heritage</p> <p>Aboriginal sites were brought up as an additional concern in survey responses; Sandy Beach is an important recreational area for citizens of our town and has important aboriginal history and heritage; a comprehensive study needs to be completed</p> <p>Concerns for remnant riparian vegetation, which is habitat flora and fauna will be impacted, including significant River Red Gums.</p>			
Potential Risks	<ul style="list-style-type: none"> <li>Previous consultations for a Dubbo Bridge project sponsored by Transport for NSW indicate that the Dubbo Local Aboriginal Land Council does not necessarily represent all Aboriginal interests in the area, particularly the Tubba-Gah (Maing) Wiradjuri Nation. Consultation will need to accommodate all relevant Aboriginal Parties</li> <li>Loss of historically and culturally significant heritage site</li> <li>Risk alienating relevant Caretakers of Aboriginal, non-Aboriginal and Natural Heritage parties as they may feel that the Council is apathetic to their preferences</li> </ul>			

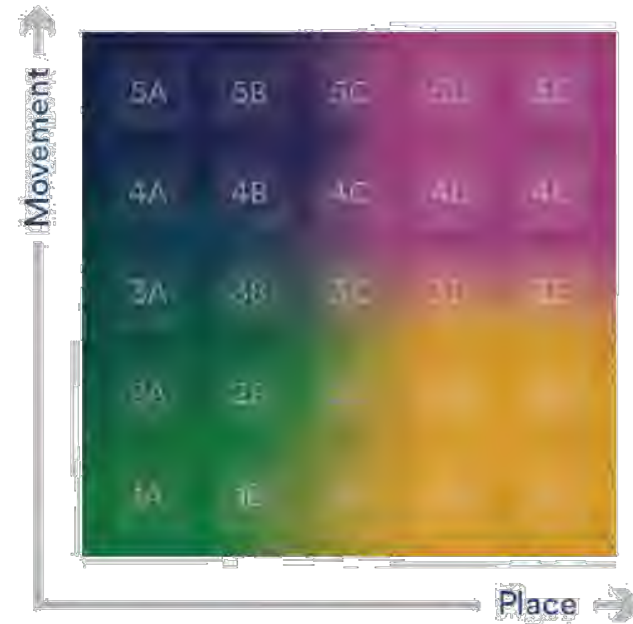
**3.10 NSW Movement and Place Framework – Alignment with Stakeholder Views**

Throughout the consultation process, stakeholders mentioned potential and likely impacts on several key places and movement corridors throughout Dubbo as a result of the proposed new South Dubbo Bridge. The *NSW Movement and Place Framework* provides a standard methodology to categorise places based on their function<sup>22</sup> (see Figure 7) and evaluate how a change in transport or other civil infrastructure will potentially impact them<sup>23</sup>. Places and movement corridors of importance were identified from the stakeholder consultation and ordered by number of times each was mentioned as an indicator of importance to the general community. Responses were then classified under the seven themes of the Movement and Place Framework, and assessed based on the perceived, and intended design characteristics of the proposal, as shown in Table 7.

The most often identified places of interest include the Lady Cutler Sporting Ovals and sports fields, Macquarie River, Sandy Beach, and Tamworth Street, and perceptions on the impacts under all of the themes were overwhelmingly negative. However, stakeholders did agree that traffic issues on other movement corridors, including Whylandra Street, Cobra Street, and the Mitchell Highway needed to be addressed.

While the design and development of the Bridge is currently at a concept phase, and therefore, the assessment of impacts under the Movement and Place Framework is also at a strategic phase – the findings and the framework itself will be useful in guiding the future development and stakeholder consultation of the proposed works following the Strategic Business Case.

Figure 7: Movement significance by mode or combination and place intensity, plotted on a 5x5 matrix. The quadrants from top left, clockwise represent main roads, main streets, civic spaces, and local streets.



22. Government Architect NSW and TfNSW (2020) Practitioner’s Guide to Movement and Place NSW Government

23. TfNSW (2020) Movement Place Evaluator’s Guide – A guide to evaluating built environment projects and place that balance movement and place in NSW

Table 7: Evaluation of stakeholder feedback and design intent of the proposed new South Dubbo Bridge against Movement and Place 'Better Placed' objectives.

Location	Times Mentioned	Street / Place Environment	Movement / Place Significance	Movement and Place Framework - Evaluation Themes						
				Better Fit: contextual, local and of its place	Better Performance: sustainable, adaptable and variable	Better for Community: inclusive, connected and diverse	Better for People: safe, comfortable and liveable	Better Working: for people, efficient and fit for purpose	Better Value: creating and adding value	Better Look and Feel: engaging, inspiring and attractive
Lady Cutler Sporting Oval and Sport Fields	148	Civic Space	2D	↓	↓	↓	↓	↓	↓	↓
Macquarie River	111	Civic Space	2D	↓	↓	↓	↓	↓	↓	↓
Sandy Beach or Beach	91	Civic Space	1E	↓	↓	↓	↓	↓	↓	↓
Tamworth Street	80	Local Street	2C	↓	↓	↓	↓	↓	↓	↓
School (MAGS, West East, Senior Campus, St Johns, etc.)	44	Civic Space	1E	↓	↓	↓	↓	↓	↓	↓
Dilgh St	43	Main Street	4D	↓	↘	↘	↘	↘	↘	↘
Macquarie Street	31	Main Street	5E	↘	↘	↘	↘	↑	↘	↘
Sir Roden Culter Park or park	26	Civic Space	2D	↓	↓	↓	↓	↓	↓	↓
Minore Rd	23	Main Street	4C	↘	↘	↘	↘	↘	↘	↘
LJ Ford Bridge	22	Main Road	4B	↘	↘	↘	↘	↘	↘	↘
Tracker Runy Clyde Way	21	Civic Space	3D	↓	↓	↓	↓	↓	↓	↓
Whyandra Street	21	Main Road	4B	↑	↑	↑	↘	↑	↑	→
Cobra Street	18	Main Road	4B	↑	↘	↘	→	↘	↘	→
Margaret Cres	11	Local Street	2B	↓	↘	↘	↘	↘	↘	↘
Victoria Street	10	Main Road	4B	↑	↘	↘	→	↑	↘	→
Parkrun Track	10	Civic Space	1E	↓	↓	↓	↓	↓	↓	↓
Sereiter Bridge	9	Main Road	4B	↑	↘	↘	→	↑	↘	→
Michell Hwy	8	Main Road	5A	↘	↑	↘	↘	↑	↑	→
Western Plains Zoo	5	Civic Space	1E	↘	↘	↘	↘	→	→	↘
Tamworth Street footbridge	4	Civic Space	3D	↓	→	→	↘	↘	↘	↓

Overall decline  
 Mostly decline  
 No change  
 Mostly improve  
 Overall improvement

#### 4. Cost Benefit Analysis

Section 4 outlines the preliminary options analysis which will inform a Cost-Benefit Analysis (CBA) in a full strategic business case for a new South Dubbo Bridge. The estimates, parameters, and assumptions used in this analysis are based on early or generalised work to support the case for the proposal. Therefore, the purpose of this CBA is to provide a reasonable picture as to whether any or all of the proposed alternatives **are likely to** ultimately provide a Benefit-Cost Ratio (BCR) greater than one, or positive net benefits. Costs or benefits which are unmonetised at this stage may materially alter the results, and therefore cannot be relied upon to conclusively identify a preferred option. A detailed CBA will further refine the parameters used in the CBA in a later Detailed Business Case.

##### 4.1 Options Analysis

The options used in this strategic business case are adapted from the options described in the *Dubbo South New Bridge Strategic Concept Design Report*<sup>24</sup>. Therefore, all the limitations and caveats on the assumptions, figures, and results adopted from the Design Report apply where they have been used here, and to all calculations and results derived from their use.

The Design Report narrows down a long-list of engineering options for bridge design and outlines the reasons for excluding them from further analysis. A subsequent Council workshop was held to review the remaining strategic options, with a preference for Options 1 and 4 indicated. All of the proposed alignments are shown in Figure 8 to Figure 11.

*Figure 8: Option 1, identified as Option A in the Design Report. Provides a connection from Minore Road on the west, to Macquarie Street at Bligh Street on the east.*



*Figure 9: Option 2, identified as Option B in the Design Report. Provides a connection from Minore Road on the west, to Macquarie Street at Tamworth Street on the east.*



24. Prepared for Dubbo Regional Council by GHD, January 2020 – Draft document.

Figure 10: Option 3, identified as Option C in the Design Report. Provides a connection opposite the entrance to the Dubbo Golf Club on the west, to Macquarie Street via Tamworth Street on the east.



Figure 11: Option 4, identified as Option D in the Design Report. Provides a connection from Minore Road on the west, to Bligh Street on the east, curving north towards the CBD.



This Strategic Business Case only examines those strategic options in the Design Report which are identified as meeting the design criteria.

The options considered are:

Base case

A 'do nothing' scenario that involves no investment from the Government in a new bridge across the Macquarie River. The issues identified in previous sections of the report continue unabated, at a significant cost to the community.

Option 1 (Figure 8)

Provides an east-west connection from the Minore Road intersection with the Newell Highway on the western side of the river, across to Sandy Beach Road and Bligh Street, terminating at the intersection of Bligh Street and Macquarie Street, with the Bridge located adjacent to Sandy Beach. The Newell Highway-Minore Road and Macquarie Street-Bligh Street intersections would require upgrading to signalised intersections. The location where the Sandy Beach Road-Bligh Street-South Street intersection currently exists would be reconfigured to a signalised T-intersection with through priority given to the new collector road. The South Street leg would not be part of the new T-intersection. South Street would instead be accessed via Tamworth Street and terminate in a cul-de-sac just south of the new T-intersection. A reconfiguration of existing access roads to Sandy Beach would also need to be accommodated.

The Bridge crossing at Sandy Beach Road would significantly impact the recreational amenity and access to the popular community asset of Sandy Beach, which is a significant negative impact associated with this option.

Option 2 (Figure 9)

Provides an east-west connection from the Minore Road intersection with the Newell Highway on the western side of the river, terminating at the Macquarie Street-Tamworth Street intersection with the bridge located adjacent to the existing Yabang Gee pedestrian bridge. Minore Road-Newell Highway and Macquarie Street-Tamworth Street intersections would require upgrading to signalised intersections. The southern end of South Street and the eastern leg of Macquarie Street-Tamworth Street intersection would be closed to improve traffic flow and minimise impacts to residents on Tamworth Street, east of Macquarie Street.

The main differentiator between this option and Option 3 is the route taken through private land to the west of the river, and the Newell Highway tie in point. This option minimises impact to the land parcel and more closely follows the tree line and minimises land to be acquired.

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Option 3 (Figure 10)

Option 3 provides an east-west connection between the Dubbo Golf Club entrance-Newell Highway intersection on the western side of the river, terminating at the Macquarie Street-Tamworth Street intersection with the bridge located close to the existing Tamworth Street carpark.

Similar to Option 2, the Minore Road-Newell Highway and Macquarie Street-Tamworth Street intersections would require upgrading to signalised intersections. The southern end of South Street and eastern leg of Macquarie Street-Tamworth Street intersection would be closed to improve traffic flow and minimise impacts to residents on Tamworth Street, east of Macquarie Street.

Comparing the route taken through private land to the west of the river with Option 2, this option effectively severs and quarantines the portion of land between the new bridge approach road and the river. DRC would likely need to acquire the whole parcel of land between the new road alignment and the river.

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Option 4 (Figure 11)

Option 4 provides an east-west connection via a curved bridge located to the south of the existing Yabang Gee pedestrian bridge. The bridge is fully contained within a horizontal curve with a consistent crossfall for driveability, design speed, sight distance, safety and constructability reasons. The western tie in of the route is from the Minore Road intersection with the Newell Highway on the western side of the river. The route then follows north along South Street and Bligh St terminating at the intersection of Bligh Street, South Street and Sandy Beach Road.

Motorists would also have an option to utilise the Bligh Street-South Street-Sandy Beach Road intersection to access Macquarie Street at the intersection of Bligh Street-Reakes Avenue. Both these existing intersections would be reconfigured to new signalised intersections.

Due to the curvature of the alignment in order to achieve design speed, there is some encroachment onto the southern edge of the sporting fields on the eastern side of the river.

It should be noted that the installation of traffic signals at the Newell Highway tie in location may cause additional traffic congestion on the Newell Highway. Traffic impacts would be further investigated in the detailed design phase in consultation with Transport for NSW.

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**4.2 High-Level Costs**

The Strategic Design Report outlines high level-costings for each of the options. However, while the strategic costings for Option 2 account for additional upgrades to Bligh Street, if a new South Dubbo Bridge connects at Macquarie Street, it is reasonable to expect that upgrades to Macquarie Street or other works within the CBD may become necessary in order to compensate for adding traffic to a road that already experiences significant congestion.

The Dubbo Transport Strategy 2020 identified strategic costs of \$5.076 million for necessary upgrades to the wider network that would have to be undertaken to allow a potential new South Dubbo Bridge to operate as intended. In addition to the capital costs, a 30% contingency has been chosen as appropriate for a strategic design. Furthermore, nominal proportions of the estimated capital costs have been given for site investigations (3%), REF and other approvals (0.5%), concept and detailed design works (5%) as well as contract and project management (5%). The total project costs estimated for the new South Dubbo Bridge, as well as the wider network costs, are outlined by component and totalled in Table 8.

It should also be noted, that while Option 3 has the lowest overall total project costs, it also accounts for the greatest area of land to be quarantined and purchased by Council. The value of land acquisitions is, as yet, unquantified as no estimates of the amount of land, and the associated compensatory rates, are currently available.

*Table 8: Strategic costings for each of the bridge options, values in \$'000s. Source, GHD, Strategic Concept Design Report*

Item	Option 1	Option 2	Option 3	Option 4
Preliminaries	2,846.8	2,693.4	2,106.9	2,955.4
Roadworks	7,320.2	11,549.7	8,851.9	13,709.1
Bridge	12,816.9	7,146.4	5,694.0	7,526.6
Contingency 30%	6,895.2	6,416.9	4,995.8	7,257.3
Site investigations	896.4	834.2	649.5	943.5
REF and approvals	149.4	139.0	108.2	157.2
Concept and Detailed Design	1,494.0	1,390.3	1,082.4	1,572.4
Contract and Project Management	1,494.0	1,390.3	1,082.4	1,572.4
<b>Total Bridge Costs</b>	<b>33,912.7</b>	<b>31,560.3</b>	<b>24,571.2</b>	<b>35,693.9</b>
Upgrades to the Wider Network	7,489.6	7,489.6	7,489.6	-
<b>TOTAL PROJECT COSTS</b>	<b>41,402.3</b>	<b>39,049.9</b>	<b>32,060.8</b>	<b>35,693.9</b>

**4.3 Strategic Cost-Benefit Analysis**

The purpose of the Strategic Cost-Benefit Analysis (CBA) is to identify which, if any, of the proposed alternatives to the Base Case (the Options) may deliver Net Benefits to the community and therefore, should be investigated and pursued further in a later Detailed Business Case.

The CBA was undertaken over a 30-year analysis period, at a 7% discount rate, consistent with NSW Treasury Guidelines, the results of which are summarised in Table 9. The main drivers of benefits across all four options are the decreased travel time and vehicle operating costs, totalling \$51.0 million and \$18.6 million respectively. The main driver of the difference in Net Benefits between the alternatives are the capital costs of delivering the projects, with Option 3 having the highest Net Present Value (NPV) of \$36.5 million, due to lower overall capital costs.

However, Option 3 also involves the greatest area of land that would need to be quarantined and likely purchased compared to any of the other Options. The value of land acquisitions is, as yet, unquantified in the CBA as no estimates of the amount of land, and the associated compensatory rates, are currently available.

*Table 9: Results of the CBA at a 7% discount rate, 30-year analysis period. Values in \$'000s*

	Benefits	Costs	NPV	BCR
Base case: No change	0.0	7,801,849.5		
Option 1	66,969.0	72,369.7	-5,400.7	0.93
Option 2	66,668.5	61,208.3	5,460.2	1.09
Option 3	66,325.7	54,307.4	12,018.3	1.22
Option 4	66,860.3	71,253.9	-4,393.6	0.94

Table 10 outlines the details of the CBA for the proposed new South Dubbo Bridge, illustrating the primary drivers of costs and benefits. Full detailed CBA sheets are provided in Appendix B.

It should be noted that, where applicable, negative costs have been totalled as benefits, such as the WTP to avoid traffic incidents. However, while there is an overall decrease in traffic incidents, there is also upward pressure on traffic incidents as a result of increasing vehicle kilometres travelled in Dubbo, as well as unquantified safety risks and impacts on the sports fields and other places identified by stakeholders. The costs and benefits under each of the alternative options are presented relative to the Base Case, that is, net of impacts that would occur if the project did not progress.



*Table 10: Details of CBA for the proposed new South Dubbo Bridge. 7% discount rate, 30-year analysis period. Values in \$000s*

Options	Base Case	Option 1	Option 2	Option 3	Option 4
<b>Direct Costs</b>					
Capital Costs for New Bridge	0.0	22,232.0	20,688.9	16,106.1	23,399.8
SID & Management Costs for New Bridge	0.0	3,901.7	3,631.1	2,827.0	4,106.7
Contingency for New Bridge	0.0	6,669.6	6,207.0	4,832.4	7,019.9
Maintenance for New Bridge	0.0	1,238.7	690.7	550.3	727.4
Capital Costs for Wider Network Upgrade	0.0	4,910.0	4,910.0	4,910.0	0.0
SID & Management Costs for Wider Network Upgrade	0.0	861.7	861.7	861.7	0.0
Contingency for Wider Network Upgrade	0.0	1,473.0	1,473.0	1,473.0	0.0
<b>Indirect Costs</b>					
Value of Travel Time	4,679,171.7	-46,397.0	-46,397.0	-46,397.0	-46,397.0
Vehicle Operating Costs	2,263,023.5	-17,788.7	-17,788.7	-17,788.7	-17,788.7
WTP to avoid Traffic Incidents – Property Damage Only	423.8	-53.8	-53.8	-53.8	-53.8
WTP to avoid Traffic Incidents – Injury	2,515.9	-319.2	-319.2	-319.2	-319.2
WTP to avoid Traffic Incidents – Fatality	4,292.8	-544.7	-544.7	-544.7	-544.7
Road Maintenance Costs	216,935.2	184.4	184.4	184.4	184.4
<b>Non-Market Costs</b>					
Environmental Externalities	635,486.6	30,898.6	22,560.7	22,560.7	35,815.9
<b>Direct Benefits</b>					
Residual Value	0.0	1,865.7	1,585.1	1,222.4	1,757.0
<b>Total Costs (inc. lost benefits)</b>	<b>7,801,849.5</b>	<b>72,369.7</b>	<b>61,205.3</b>	<b>54,307.4</b>	<b>71,253.9</b>
<b>Total Benefits (inc. avoided costs)</b>	<b>0.0</b>	<b>66,969.0</b>	<b>66,668.5</b>	<b>66,325.7</b>	<b>66,860.3</b>
<b>Total Net Benefits</b>		<b>6,400.7</b>	<b>5,460.2</b>	<b>12,018.3</b>	<b>-4,393.6</b>
<b>Benefit-Cost Ratio</b>		<b>0.93</b>	<b>1.09</b>	<b>1.22</b>	<b>0.94</b>

**4.4 CBA Results**

The results of the CBA indicate that Options 2 and 3 are the most likely to deliver net benefits over the analysis period, with positive net benefits of \$5.5 million and \$12.0 million respectively. On the assessed economic criteria these options would likely represent the greatest value for money, although Option 3 is the most likely at this stage to be the preferred option. Therefore, Options 2 and 3 should be investigated further in a Detailed Business Case on economic criteria. Although the CBA does not conclusively rule any particular option out, due the sensitivity of the results to unquantified impacts, and the values chosen for those that have been quantified.

A number of qualitative and unquantified factors should also be considered:

- While the upgrades to the wider road network required to realise the full benefits of the bridge have been fully identified in Option 4, the costs to upgrading the wider network under each of the options is based on strategic costs in the Dubbo Transport Strategy, and may reasonably affect the outcome of the CBA.
- Since the land acquisition costs are likely to be highest with respect to Option 3, the outcome of a final CBA may depend on the value of land that will be quarantined.
- The CBA has attempted to capture and account for factors, such as community preferences, or impacts on the recreational or aesthetic values. However, the results of the CBA are highly sensitive to the values for environmental externalities chosen, and reasonable disagreements regarding the appropriate monetary values could affect the outcome of the CBA.

**4.5 Sensitivity Testing**

Discount Rates

Table 11 outlines the Net Benefits of each of the proposed options under various discount rates. The results indicate that all of the proposed alternatives for the new South Dubbo Bridge are likely to deliver positive Net Benefits under a 3% discount rate. However, only Option 3 delivers positive net benefits under a 10% discount rate. Therefore, only Option 3 is resilient to changes in the time value of money.

Table 11: Net Present Value and BCR (italics) of the proposed options at varying discount rates. Values in \$000s.

	3%	7%	10%
Option 1	15,991.4 <i>1.17</i>	-5,809.7 <i>0.91</i>	-13,552.9 <i>0.69</i>
Option 2	32,107.8 <i>1.41</i>	5,460.2 <i>1.09</i>	-4,916.7 <i>0.97</i>
Option 3	38,190.8 <i>1.54</i>	12,018.3 <i>1.22</i>	1,704.7 <i>1.04</i>
Option 4	13,985.3 <i>1.15</i>	-4,393.8 <i>0.94</i>	-11,354.4 <i>0.80</i>

Traffic Modelling

Traffic modelling is an inexact practice, and the actual outcomes may reasonably vary by as much as ±25% of the estimated changes. Table 12 outlines the outcomes of the CBA under a 7% discount rate, with changes in the travel times saved between the Developed and Base Case. Under varying travel time saving scenarios only Option 3 delivers positive net benefits under the most pessimistic scenario, whereas all of the proposed options deliver positive net benefits under the most optimistic travel time saving scenario.

Table 12: Net Present Value and BCR (italics) of the proposed options at varying levels of travel time savings. Values in \$000s.

	-25%	-10%	Central Est	+10%	+25%
Option 1	-16,899.0 <i>0.77</i>	-10,040.9 <i>0.90</i>	-5,400.7 <i>0.93</i>	703.6 <i>0.99</i>	0,198.0 <i>1.00</i>
Option 2	-0,139.1 <i>0.90</i>	820.5 <i>1.01</i>	5,460.2 <i>1.09</i>	10,099.9 <i>1.17</i>	17,059.4 <i>1.28</i>
Option 3	419.1 <i>1.01</i>	7,378.8 <i>1.14</i>	12,018.3 <i>1.22</i>	18,858.0 <i>1.37</i>	23,617.6 <i>1.43</i>
Option 4	-15,982.9 <i>0.78</i>	-9,033.5 <i>0.87</i>	-4,393.6 <i>0.94</i>	246.1 <i>1.00</i>	7,205.6 <i>1.10</i>

However, traffic modelling may also vary with respect to vehicle kilometres travelled. Table 13 outlines the outcomes to the CBA under a 7% discount rate with changes to the total vehicle kilometres travelled between the Base and Developed case. The results indicate that the outcomes of the CBA are generally insensitive to large changes in the

Table 13: Net Present Value and BCR (italics) of the proposed options at varying levels of average travel distances. Values in \$000s.

	-25%	-10%	Central Est	+10%	+25%
Option 1	-3,869.7 <i>0.95</i>	-4,787.9 <i>0.93</i>	-5,400.7 <i>0.93</i>	-7,013.4 <i>0.90</i>	-6,932.0 <i>0.90</i>
Option 2	6,987.9 <i>1.11</i>	6,071.3 <i>1.10</i>	5,460.2 <i>1.09</i>	4,849.1 <i>1.08</i>	3,932.5 <i>1.06</i>
Option 3	13,546.0 <i>1.25</i>	12,629.4 <i>1.23</i>	12,018.3 <i>1.22</i>	11,407.2 <i>1.21</i>	10,490.6 <i>1.19</i>
Option 4	-2,859.2 <i>0.96</i>	-3,779.9 <i>0.95</i>	-4,393.6 <i>0.94</i>	-5,007.4 <i>0.93</i>	-5,928.1 <i>0.92</i>

Environmental values – nature and landscape, and urban separation

Non-market values, especially where they are derived from stated preference survey data, are subject to considerable uncertainty. The practice of ‘value transfer’ is also sensitive to the project specifics, and it is possible that the impacts to the natural amenity to Sandy Beach and the Macquarie River, or the separation caused by diverting traffic through sports fields or onto Macquarie Street may be over- or understated.

Therefore, Table 14 outlines the sensitivity of the outcomes of the CBA to reasonable variations in the values to the impacts on nature and landscape, and urban separation. The results indicate that if the values for nature and landscape, and urban separation are 25% lower, relative to the Base Case, all of the proposed alternatives would deliver positive net benefits. However, even if the landscape and urban fabric impacts are 50% higher than what have been estimated, Option 3 would still deliver positive net benefits.

*Table 14: Net Present Value and BCR (italics) of the proposed options at uncertainty on values for nature and landscape, and urban separation relative to the base case. Values in \$000s.*

	-50%	-25%	Central Est	+25%	+50%
Option 1	9,778.6 <i>1.17</i>	2,189.0 <i>1.03</i>	-8,400.7 <i>0.93</i>	-12,990.3 <i>0.84</i>	-20,280.0 <i>0.78</i>
Option 2	16,470.5 <i>1.33</i>	10,965.3 <i>1.20</i>	5,460.2 <i>1.09</i>	-45.0 <i>1.00</i>	-5,550.2 <i>0.98</i>
Option 3	23,028.6 <i>1.53</i>	17,523.5 <i>1.36</i>	12,018.3 <i>1.22</i>	6,513.1 <i>1.11</i>	1,008.0 <i>1.02</i>
Option 4	13,244.3 <i>1.25</i>	4,425.3 <i>1.07</i>	-4,393.6 <i>0.94</i>	-13,212.6 <i>0.83</i>	-22,031.5 <i>0.75</i>

In light of the sensitivity to impacts to environmental values and the urban fabric, further development of the proposal should continue to carefully monitor the strategic alignment of the proposed works with community needs and expectations. Utilising the Movement and Place Framework (see Section 2.11) for planning and evaluation may minimise the risks and impacts to these values, and therefore broaden the range of infrastructure solutions available to Council in planning for a new South Dubbo Bridge.

## 5. Financial Analysis

The financial impact to Council as a result of the project over time are derived from the initial capital costs of construction, and the ongoing maintenance costs associated with both the bridge itself and changing driver behaviour on the wider road network. Table 15 summarises the Net Financial Impact over a 30-year analysis period at a 3% discount rate. Option 3 has the lowest financial impact to Council, with a NPV of \$33.4 million over the 30 year analysis period.

*Table 15: Financial impact of the proposed new South Dubbo Bridge to Council, NPV over 30 years, 3% discount rate, Values in \$000s*

Item	Option 1	Option 2	Option 3	Option 4
Total Capital Costs	41,402.3	39,049.9	32,060.8	35,693.9
Ongoing Maintenance of New Bridge	2,032.5	1,133.3	903.0	1,193.6
Ongoing Maintenance of Wider Road Network	406.2	406.2	406.2	406.2
<b>Total Financial Impact (30 year NPV, 3% Discount Rate)</b>	<b>43,841.0</b>	<b>40,589.4</b>	<b>33,369.9</b>	<b>37,293.6</b>

Most of the financial costs are upfront and relate to the capital costs of construction.

It should also be noted that while the ongoing road maintenance costs increase over 30 years, due to changes in driver behaviour, in the short term from approximately 2025 the average number of vehicle kilometres travelled, and therefore, the damage costs to roads, will actually be lower than the Base Case. In this initial period, Council will save approximately \$31,100 per year. Although the financial situation will reverse after 2030, with Council paying approximately \$33,000 per year additional to the Base Case. However, the exact timing, and magnitude of the potential savings/costs is sensitive to the level of detail in the Dubbo Transport Strategy 2020. The impact is, however, relatively minor.

The ongoing costs to maintain the bridge infrastructure have been calculated on a straight line depreciation over an expected useful economic life of 120 years. After this period, it is expected that Council may face significant renewal costs associated with refurbishing the bridge. However, appropriate management will ensure that costs are minimised over the long run.

## 6. Short list

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### 6.1 Short list

The Strategic Business Case indicates that on cost-benefit and financial metrics, Option 3 is the most likely to maximise Net Benefits over a 30-year analysis period, with an NPV of \$12.0 million (BCR: 1.22). Additionally, Option 2 is also likely to achieve positive net benefits, with a NPV of \$5.5 million (BCR: 1.09). However, the costs associated with Option 3 may be understated, since it will potentially quarantine the largest area of land, which have not been valued to date. Therefore, Options 2 and 3 should be shortlisted for future consideration in a Detailed Business Case.

Options 1 and 4 by comparison delivered negative net benefits of around -\$5 million. Sensitivity testing indicated that lower environmental costs, with regards to impacts on nature and landscape values, and urban separation, could make these options economically viable. Further investigations and stakeholder consultations to more accurately determine the economic cost of the proposed work, such as a bespoke willingness-to-pay study, could reveal lower impacts than what have been used here. Therefore, while the Strategic Business Case indicates that these options are less likely to deliver net benefits, it cannot conclusively rule them out as not delivering value-for-money at this stage.

### 6.2 Further qualitative considerations

As summarised in section 3.10, during stakeholder consultations, numerous concerns were raised regarding the suitability and function of the proposed new bridge. These concerns included, but are not limited to:

- The safety impacts of the bridge, especially where proposed alignments would significantly alter the walkability and function of local sports fields and other places of interest.
- The visual and other amenity impacts, especially where proposed alignments would significantly alter the visual amenity and accessibility to Sandy Beach and the Macquarie River environments.

While these impacts have been incorporated as fully as possible into the CBA, there remain possible unmeasured and therefore unmonetised impacts. For example, while benefits to a reduction in traffic incidents (property damage only, injury, and fatality) at the Whylandra Street-Victoria Street intersection have been quantified in the CBA, the possible excess number of incidents that may occur as a result of additional traffic through areas of heavy pedestrian activity, such as sports fields, have not.

A future Detailed Business Case should therefore examine the possible adverse impacts of the proposed works in greater detail. Aligning the strategic outcomes of the Dubbo Transport Strategy 2020 (to maintain Dubbo's '10 minute' character) with the Movement and Place Framework (which seeks to balance the need to provide an efficient transportation network with attractive and functional places), may also help to ensure that the proposals brought to a final detailed business case maximise benefits to the community, and have strong stakeholder support.

Stakeholders also identified a number of specific actions for Council that may improve stakeholder buy-in and support for the proposed works before a proposal progresses to a final Detailed Business Case, summarised below.

### 6.3 Stakeholder-Identified Action Items and Additional Information

In addition to the feedback specific to stakeholder groups outlined in section 3.10, stakeholders also provided general feedback, which has been summarised here. Where necessary, additional context regarding the development of the Strategic Business Case are provided in **bold**. Relevant insights from stakeholders include that future development of the proposal by Council should include:

1. Supply more information that would assist the public and government to make an informed decision, including a model of traffic impacts, and a cost-benefit analysis.  
**Information from stakeholder consultations were incorporated into the Cost Benefit Analysis for the development of this Strategic Business Case report. It is envisaged that further community feedback and comment will inform the development of a Detailed Business Case at a later date, including a detailed cost-benefit analysis.**
2. Present information on all four bridge options to the public, including detailed information and supporting evidence for each option presented. Participants in feedback overall agree that a new bridge that would ultimately reduce isolation and increase connectivity of West Dubbo to the CBD. However, some individuals felt that those presented were not the two best options for consideration.  
**The stakeholder consultation included only 2 options, following feedback received, the Strategic Business Case has been developed to include 4 options.**
3. Consider modelling traffic impacts under each option. If one of the objectives of the new bridge is to reduce the average travel times through Dubbo City road network by an average of 4.3s/trip, a traffic analysis should be completed to provide evidence that the bridge will ensure the city's '10 minute' commute character will remain intact.  
**Traffic modelling from the Dubbo Transport Strategy 2020 was used in the development of the Strategic Business Case and indicates that the proposed new bridge will improve traffic movement throughout Dubbo. However, traffic modelling specific to each of the design options has not been completed and is not within scope of the current study. However, if further work is done to quantify the precise effects of different bridge alignments on traffic behaviour, those results may form part of the input into a later Detailed Business Case and Cost Benefit Analysis.**
4. Include analysis on other impacts to the community, including environmental impacts, when assessing each option. While stakeholders using active transport indicated that the proposal is not likely to impact use of active transport, completing an analysis on personal versus active transport will identify opportunities for incentives to incorporate this transportation into the lifestyle and culture of South Dubbo. There should also be research completed and conveyed on the positive environmental impacts of choosing active transport while commuting in the city. Any additional analysis will ultimately provide guidance in the development of 6,050 properties in the West Dubbo URA.  
**Where possible, environmental impacts including air and noise pollution, and urban separation have been accounted for in the Cost Benefit Analysis. While effects on pedestrian movement and active transport have not been modelled and are therefore not quantified in the Cost Benefit Analysis at this stage, should later research indicate the magnitude of these or other community impacts, they should be included in a Detailed Business Case and Cost Benefit Analysis.**
5. Consider additional options suggested by respondents and discussed herein including options that don't implicate the Sandy Beach, Lady Cutler or Macquarie River areas. Listing additional options would provide stakeholders and community members, with a voice and platform and assure them their voices were heard.  
**It is noted that the Dubbo Transport Strategy more fully considers the range of possible and planned transport (including road) infrastructure options for the City over the planning horizon, and it should continue to be developed in consultation with the community.**
6. Additionally, Traditional Land Owners, as well as caretakers of Aboriginal, non-Aboriginal, and Natural Heritage are an underrepresented group in all of the survey, feedback, stakeholder group, community consultation processes. Aboriginal sites were brought up as a concern in the community survey response as well as stakeholder groups. Therefore, it is recommended that, in order to accurately capture this information, Council staff provide a brief in an informal setting, as well as a presentation at one of the Working Parties.

## **7. Appendix**


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### **7.1 Appendix A: South Dubbo Bridge Consultation Feedback Analysis**

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7.2 Detailed Cost-Benefit Analysis Sheets

Benefit:Cost Analysis Summary							
Base Case: No Change from Status Quo							
12 Year Horizon							
Direct Costs	Units	Quantity	Cost			Comments	
			One Time Annual Cost	Total Cost 3%	Total Cost 7%		Total Cost 10%
Capital Costs for New Bridge	lump sum		\$0	\$0	\$0	\$0	No capital costs under the base case
SID & Management Costs for New Bridge	lump sum		\$0	\$0	\$0	\$0	No project costs under the base case
Contingency for New Bridge	lump sum		\$0	\$0	\$0	\$0	No contingency under the base case
Bridge Maintenance Costs	annual		\$0	\$0	\$0	\$0	No bridge maintenance costs under the base case
Capital Costs for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	No capital costs under the base case
SID & Management Costs for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	No project costs under the base case
Contingency for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	No contingency under the base case
<b>Direct Cost Sub-Total:</b>			<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
Indirect Costs	Units	Quantity	Cost			Comments	
			One Time Annual Cost	Total Cost 3%	Total Cost 7%		Total Cost 10%
Value of Travel Time	hr		\$260,237,027	\$7,344,323,268	\$4,679,171,658	\$3,894,918,068	Annual trip hours developed from the Dubbo Transportation Strategy 2023, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2025 and taken as the average over the analysis period.
Vehicle Operating Costs	vit		\$174,017,730	\$3,690,714,351	\$2,250,020,591	\$1,735,057,293	Annual trip hours developed from the Dubbo Transportation Strategy 2023, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2025 and taken as the average over the analysis period.
WTP to Avoid Traffic Incidents - Property Damage Only	incident		\$31,320	\$69,727	\$421,019	\$320,208	The Whyandra Street intersection experiences 8.22 crashes on average per year, which have been distributed between property damage only, injury, and fatality crashes based on NSW crash rate averages.
WTP to Avoid Traffic Incidents - Injury	incident		\$185,025	\$3,304,438	\$2,515,895	\$1,948,307	
WTP to Avoid Traffic Incidents - Fatality	incident		\$317,259	\$6,962,164	\$4,292,822	\$3,324,336	
Consequences of Isolation from Emergency Services in West Dubbo	unquantified		\$0	\$0	\$0	\$0	Unquantified in the CIA
Road Maintenance Costs	vit		\$16,681,476	\$340,374,154	\$216,535,168	\$165,711,336	Annual trip hours developed from the Dubbo Transport Strategy 2023, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2025 and taken as the average over the analysis period.
<b>Indirect Cost Sub-Total:</b>			<b>\$442,067,517</b>	<b>\$11,169,401,814</b>	<b>\$6,603,023,474</b>	<b>\$5,200,021,477</b>	


Non-Market Costs	Units	Quantity	Cost			Comments	
			One Time/ Annual Cost	Total Cost 3%	Total Cost 7%		Total Cost 10%
Environmental Externalities	vit	75 96457	\$48,865,464	\$937,087,043	\$625,486,521	\$488,361,277	Annual trip hours developed from the Dubbo Transport Strategy 2021, Table 6.3 (Daily Trips) and Table 6.5 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
<b>Non-Market Cost Sub-Total:</b>				\$997,087,048	\$635,486,521	\$488,361,277	
<b>Costs Total:</b>				\$12,243,725,240	\$7,801,649,518	\$5,994,688,704	
<b>Benefits</b>							
Direct Benefits	Units	Quantity	Benefit			Comments	
			One Time/ Annual Value	Total Cost 3%	Total Cost 7%		Total Cost 10%
Residual Value	lump sum		\$0	\$0	\$0	\$0	No residual benefit under the base case.
<b>Direct Benefits Sub-Total:</b>				\$0	\$0	\$0	
Non-Market Benefits	Units	Quantity	Benefit			Comments	
			One Time/ Annual Value	Total Cost 3%	Total Cost 7%		Total Cost 10%
Benefits of Active Transport	unquantified		\$0	\$0	\$0	\$0	Unquantified in the CEA.
<b>Non-Market Benefits Sub-Total:</b>				\$0	\$0	\$0	
<b>Benefits Total:</b>				\$0	\$0	\$0	
<b>Results</b>							
<b>Net Benefits:</b>				(\$12,243,725,240)	(\$7,801,649,518)	(\$5,994,688,704)	
<b>Benefit:Cost Ratio:</b>				-	-	-	

Benefit:Cost Analysis Summary							
Alternative 1: Alignment A							
Direct Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	
			One Time/ Annual Cost				
Comments							
Capital Costs for New Bridge	lump sum		\$22,983,845	\$22,649,133	\$22,232,041	\$21,839,129	Jubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
SID & Management Costs for New Bridge	lump sum		\$4,038,665	\$3,974,925	\$3,901,723	\$3,860,317	Jubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
Contingency for New Bridge	lump sum		\$6,825,158	\$6,734,740	\$6,662,612	\$6,581,739	Jubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
Bridge Maintenance Costs	annual		\$106,607	\$2,032,498	\$1,238,671	\$915,330	Annual maintenance costs for bridge works calculated on the basis of a standard rate depreciation. Maintenance costs for roadworks are calculated separately.
Capital Costs for Wider Network Upgrade	lump sum		\$5,076,000	\$5,002,078	\$4,905,983	\$4,815,273	Jubbo Transport Strategy 2020, Page 33.
SID & Management Costs for Wider Network Upgrade	lump sum		\$850,838	\$877,865	\$861,608	\$850,348	Strategic Costs proportional to capital costs. Site Investigation = 3%, REF and approvals = 0.5%, Concept and Detailed Design = 5%, Contract and Project Management 5%
Contingency for Wider Network Upgrade	lump sum		\$1,522,000	\$1,500,623	\$1,472,909	\$1,450,602	Assuming a contingency of 30%, appropriate for a strategic costing.
<b>Direct Cost Sub-Total:</b>			<b>\$42,831,859</b>	<b>\$41,286,897</b>	<b>\$40,435,715</b>		
Indirect Costs	Units	Quantity	Cost One Time/ Annual Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
Value of Travel Time	hr	1,214,300	\$356,306,104	-\$75,147,796	-\$46,296,954	-\$34,531,607	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
Vehicle Operating Costs	lit	96,129,861	\$172,615,430	-\$22,402,054	-\$17,708,657	-\$13,417,620	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
WTP to Avoid Traffic Incidents - Property Damage Only	incident	7	\$26,680	-\$90,936	-\$50,774	-\$39,079	An aim of the project is to reduce the number of traffic accidents in Dubbo, especially around the Whylandia Street-Victoria Street intersection. However, no modeling for how improvements in the road network as a result of the bridge on the incidence rate has been carried out. Therefore, US\$ benefits analysis quantified in the Strategic CBA. The average number of annual incidents at the intersection have been reduced by a factor of 25%, based on risk reduction factors published by Austroads.
WTP to Avoid Traffic Incidents - Injury	incident	7	\$188,400	-\$623,782	-\$215,214	-\$235,887	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the LH Ferdi or Emilio Scialoja Bridges, or the Whylandia Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this item, and it remains unquantified in the Strategic CBA.
WTP to Avoid Traffic Incidents - Fatality	incident	7	\$270,274	-\$893,731	-\$544,669	-\$402,490	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the LH Ferdi or Emilio Scialoja Bridges, or the Whylandia Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this item, and it remains unquantified in the Strategic CBA.
Consequences of Isolation from Emergency Services in West Dubbo	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the LH Ferdi or Emilio Scialoja Bridges, or the Whylandia Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this item, and it remains unquantified in the Strategic CBA.
Road/Maintenance Costs	lit	1,000,000	\$16,715,312.37	\$406,170	\$184,350	\$100,844	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
<b>Indirect Cost Sub-Total:</b>			<b>\$500,110</b>	<b>-\$184,350</b>	<b>-\$100,144</b>		

Non-Market Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Environmental Externalities	veh	10,000	\$81,669,972	\$81,458,996	\$80,898,522	\$82,680,976	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2019, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period. Upper range environmental costs due to impact on Sandy Beach and Macquarie River, and mid-range values associated with urban separation due to impacts on sports fields have been applied to Option 1.
<b>Non-Market Cost Sub-Total:</b>				\$81,458,996	\$80,898,522	\$82,680,976	
<b>Costs Total:</b>				\$64,697,026.58	\$72,369,670	\$63,116,836	
Direct Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Residual Value	lump sum		\$13,272,752.00	\$5,632,244	\$1,855,655	\$836,706	Value of the works remaining after 30 years, assuming a 120 year economic life for the bridge and a 60 year economic life for roadworks.
<b>Direct Benefits Sub-Total:</b>				\$5,632,244	\$1,855,655	\$836,706	
Non-Market Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Benefits of Active Transport	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to increase the connectivity of West Dubbo to the rest of the city and therefore increase the incentive to use active transport such as walking or cycling. However, no modelling exists to estimate how active transport may increase as a result of a new South Dubbo Bridge, and it remains unquantified in the Strategic Business Case.
<b>Non-Market Benefits Sub-Total:</b>				\$0	\$0	\$0	
<b>Benefits Total:</b>				\$5,632,244	\$1,855,655	\$836,706	
Results							
<b>Net Benefits:</b>				\$15,991,422	(\$5,000,667)	(\$13,502,883)	
<b>Benefit:Cost Ratio:</b>				1.17	0.93	0.79	


Benefit:Cost Analysis Summary							
Alternative 2: Alignment B							
Direct Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Capital Costs for New Bridge	lump sum		\$21,329,545	\$21,078,051	\$20,585,851	\$20,417,297	Dubbo South New Bridge Strategic Concept Design Report-GHD - Jan 2020, Page 53.
SID & Management Costs for New Bridge	lump sum		\$3,753,866	\$3,639,198	\$3,631,076	\$3,583,236	Dubbo South New Bridge Strategic Concept Design Report-GHD - Jan 2020, Page 53.
Contingency for New Bridge	lump sum		\$6,416,868	\$6,323,455	\$6,206,937	\$6,126,189	Dubbo South New Bridge Strategic Concept Design Report-GHD - Jan 2020, Page 53.
Bridge Maintenance Costs	annual		\$9,550	\$1,533,272	\$690,653	\$513,361	Annual maintenance costs for bridge works calculated on the basis of a straight line depreciation. Maintenance costs for roadworks are calculated separately.
Capital Costs for Wider Network Upgrade	lump sum		\$6,076,500	\$6,002,078	\$4,505,953	\$4,515,273	Dubbo Transport Strategy 2020, Page 33.
SID & Management Costs for Wider Network Upgrade	lump sum		880,536	\$877,865	\$861,638	\$850,346	Strategic Costs proportional to capital costs. Site Investigation = 3%, REF and approvals = 0.5%, Concept and Detailed Design = 5%, Contract and Project Management 5%
Contingency for Wider Network Upgrade	lump sum		\$1,522,500	\$1,530,623	\$1,472,939	\$1,450,602	Assuming a contingency of 30%, appropriate for a strategic costing.
<b>Direct Cost Sub-Total:</b>			<b>\$39,614,501</b>	<b>\$38,461,237</b>	<b>\$37,795,288</b>		
Indirect Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Value of Travel Time	hr		\$356,306,104	-\$75,147,796	-\$46,296,934	-\$34,531,601	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
Vehicle Operating Costs	ukt		\$172,015,430	-\$93,402,654	-\$57,708,637	-\$13,417,629	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
WTP to Avoid Traffic Incidents - Property Damage Only	incident		\$26,593	-\$58,236	-\$63,774	-\$39,737	An aim of the project is to reduce the number of traffic accidents in Dubbo, especially around the Whylandra Street-Victoria Street intersection. However, no modeling for how improvements in the road network as a result of the bridge on the incidence rate has been carried out. Therefore, this item remains unquantified for the Strategic CBA. The average number of annual incidents at the intersection have been reduced by a factor of 25%, based on field reduction factors published by Austroads.
WTP to Avoid Traffic Incidents - Injury	incident		\$160,400	-\$620,793	-\$515,214	-\$235,007	
WTP to Avoid Traffic Incidents - Fatality	incident		\$270,274	-\$833,731	-\$644,659	-\$402,490	
Consequences of Isolation from Emergency Services in West Dubbo	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the (1) Flood or Embankment Bridges, or the Whylandra Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this item, and it remains unquantified in the Strategic CBA.
Road Maintenance Costs	ukt		\$16,755,912.37	\$406,170	\$104,351	\$100,046	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
<b>Indirect Cost Sub-Total:</b>			<b>\$506,170</b>	<b>-\$154,351</b>	<b>-\$100,841</b>		

Non-Market Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Environmental Externalities	veh	10,000	\$80,925,793	\$37,662,677	\$22,660,700	\$19,169,865	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period. Upper range environmental costs due to impact on Sandy Beach and Macquarie River, and mid-range values associated with urban separation due to impacts on sports fields have been applied to Option 1.
<b>Non-Market Cost Sub-Total:</b>				\$37,662,677	\$22,660,700	\$19,169,865	
<b>Costs Total:</b>				\$77,673,316	\$51,309,298	\$51,309,298	
Direct Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Residual Value	ump.sum		\$11,134,648.80	\$4,724,548	\$1,855,113	\$701,922	Value of the Bridge remaining after 20 years, assuming a 12% year economic rate.
<b>Direct Benefits Sub-Total:</b>				\$4,724,548	\$1,855,113	\$701,922	
NonMarket Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Benefits of Active Transport	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to increase the connectivity of West Dubbo to the rest of the city and therefore increase the incentive to use active transport such as walking or cycling. However, no modelling exists to estimate how active transport may increase as a result of a new South Dubbo Bridge, and it remains unquantified in the Strategic Business Case.
<b>Non-Market Benefits Sub-Total:</b>				\$0	\$0	\$0	
<b>Benefits Total:</b>				\$4,724,548	\$1,855,113	\$701,922	
Results							
<b>Net Benefits:</b>				\$32,107,806	\$5,160,177	(\$1,216,722)	
<b>Benefit:Cost Ratio:</b>				1.41	1.09	0.91	

Benefit:Cost Analysis Summary							
Alternative 2: Alignment C							
Direct Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Capital Costs for New Bridge	lump sum		\$16,682,775	\$15,410,259	\$16,108,058	\$15,895,831	Dubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
SID & Management Costs for New Bridge	lump sum		\$2,922,562	\$2,880,000	\$2,826,984	\$2,789,718	Dubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
Contingency for New Bridge	lump sum		\$4,925,830	\$4,923,078	\$4,892,417	\$4,768,749	Dubbo South New Bridge Strategic Concept Design Report- GHD - Jan 2020, Page 33.
Bridge Maintenance Costs	annual		\$47,450	\$902,952	\$550,259	\$405,649	Annual maintenance costs for bridge works calculated on the basis of a straight line depreciation. Manganese costs for roadworks are calculated separately.
Capital Costs for Wider Network Upgrade	lump sum		\$5,076,500	\$5,002,078	\$4,505,953	\$4,515,273	Dubbo Transport Strategy 2020, Page 33.
SID & Management Costs for Wider Network Upgrade	lump sum		\$850,938	\$877,865	\$861,620	\$850,348	Strategic Costs proportional to capital costs. Site Investigation = 3%, REF and approvals = 0.5%, Concept and Detailed Design = 5%, Contract and Project Management 5%
Contingency for Wider Network Upgrade	lump sum		\$1,522,500	\$1,500,623	\$1,472,939	\$1,450,602	Assuming a contingency of 30%, appropriate for a strategic costing.
<b>Direct Cost Sub-Total:</b>			<b>\$32,496,855</b>	<b>\$31,562,378</b>	<b>\$31,010,141</b>		
Indirect Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Value of Travel Time	hr		\$256,305,104	-\$75,147,795	-\$86,896,934	-\$34,631,607	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2010, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
Vehicle Operating Costs	vk		\$172,615,430	-\$23,402,654	-\$17,782,657	-\$13,417,626	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2010, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
WTP to Avoid Traffic Incidents - Property Damage Only	incident		\$90,500	-\$38,206	-\$50,774	-\$39,739	An aim of the project is to reduce the number of traffic accidents in Dubbo, especially around the Whylandra Street-Victoria Street intersection. However, no modelling for how improvements in the road network as a result of the bridge on the incidence rate has been carried out. Therefore, this line item remains unquantified for the Strategic CDA. The average number of annual incidents at the intersection have been reduced by a factor of 25%, based on risk reduction factors published by Austroads.
WTP to Avoid Traffic Incidents - Injury	incident		\$158,400	-\$823,789	-\$210,214	-\$235,857	
WTP to Avoid Traffic Incidents - Fatality	incident		\$270,274	-\$893,734	-\$644,659	-\$402,490	
Consequences of Isolation from Emergency Services in West Dubbo	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the LH Ford or Elm's Strickler Bridges, or the Whylandra Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this line item, and it remains unquantified in the Strategic CDA.
Road Maintenance Costs	vk		\$16,716,312.37	\$406,170	\$184,351	\$102,844	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2010, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
<b>Indirect Cost Sub-Total:</b>			<b>\$406,170</b>	<b>\$184,351</b>	<b>\$102,844</b>		

Non-Market Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Environmental Externalities	vid	10,000	\$80,925,493	\$37,662,677	\$22,660,700	\$19,169,865	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period. Upper range environmental costs due to impact on Sandy Beach and Macquarie River, and mid-range values associated with urban separation due to impacts on sports fields have been applied to Option 1.
<b>Non-Market Cost Sub-Total:</b>				\$37,662,677	\$22,660,700	\$19,169,865	
<b>Costs Total:</b>				\$70,555,701	\$51,307,439	\$47,570,643	
Direct Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Residual Value	lump sum	1	\$8,695,437.00	\$3,690,301	\$1,222,396	\$548,218	Value of the Bridge remaining after 20 years, assuming a 12% year economic rate.
<b>Direct Benefits Sub-Total:</b>				\$3,690,301	\$1,222,396	\$548,218	
Non-Market Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Benefits of Active Transport	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to increase the connectivity of West Dubbo to the rest of the city and therefore increase the incentive to use active transport such as walking or cycling. However, no modelling exists to estimate how active transport may increase as a result of a new South Dubbo Bridge, and it remains unquantified in the Strategic Business Case.
<b>Non-Market Benefits Sub-Total:</b>				\$0	\$0	\$0	
<b>Benefits Total:</b>				\$3,690,301	\$1,222,396	\$548,218	
Results							
<b>Net Benefits:</b>				\$38,190,802	\$12,013,343	\$1,704,722	
<b>Benefit:Cost Ratio:</b>				1.54	1.22	1.04	



Benefit:Cost Analysis Summary							
Alternative 4: Alignment D							
Direct Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Capital Costs for New Bridge	lump sum		\$24,151,052	\$23,838,755	\$23,599,756	\$23,091,459	Dubbo South New Bridge Strategic Concept Design Report - GHD - Jan 2020, Page 53.
SID & Management Costs for New Bridge	lump sum		\$4,245,830	\$4,183,702	\$4,106,687	\$4,062,650	Dubbo South New Bridge Strategic Concept Design Report - GHD - Jan 2020, Page 53.
Contingency for New Bridge	lump sum		\$7,267,245	\$7,150,627	\$7,019,937	\$6,827,438	Dubbo South New Bridge Strategic Concept Design Report - GHD - Jan 2020, Page 53.
Bridge Maintenance Costs	annual		\$62,722	\$1,133,564	\$727,357	\$537,519	Annual maintenance costs for bridge works calculated on the basis of a straight line depreciation. Manganese costs for motorcyles are calculated separately.
Capital Costs for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	Dubbo Transport Strategy 2020, Page 33.
SID & Management Costs for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	Strategic Costs proportional to capital costs. Site Investigation = 3%, REF and approvals = 0.5%, Concept and Detailed Design = 5%, Contract and Project Management 5%
Contingency for Wider Network Upgrade	lump sum		\$0	\$0	\$0	\$0	Assuming a contingency of 32%, appropriate for a strategic costing.
<b>Direct Cost Sub-Total:</b>				<b>\$36,267,647</b>	<b>\$35,250,717</b>	<b>\$34,608,966</b>	
Indirect Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Value of Travel Time	hr		\$356,306,104	-\$75,147,706	-\$46,896,934	-\$34,631,601	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
Vehicle Operating Costs	vit		\$172,615,430	-\$93,402,654	-\$57,788,637	-\$10,417,629	Annual trip hours developed from the Dubbo Transportation Strategy 2019, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
WTP to Avoid Traffic Incidents - Property Damage Only	incident		\$26,693	-\$20,226	-\$53,774	-\$39,737	An aim of the project is to reduce the number of traffic accidents in Dubbo, especially around the Whylandra Street-Victoria Street intersection. However, no modelling for how improvements in the road network as a result of the bridge on the incidence rate has been carried out. Therefore, this line item remains unquantified for the Strategic GBA. The average number of annual incidents at the intersection have been reduced by a factor of 25%, based on the reduction factor published by Austroads.
WTP to Avoid Traffic Incidents - Injury	incident		\$158,100	-\$523,783	-\$315,214	-\$235,887	
WTP to Avoid Traffic Incidents - Fatality	incident		\$270,274	-\$893,731	-\$544,659	-\$402,490	
Consequences of Isolation from Emergency Services in West Dubbo	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to reduce the social and health consequences of West Dubbo becoming isolated in the event of the LH Ford or Emira Sentler Bridges, or the Whylandra Street-Victoria Street intersection becoming un-navigable due to traffic incidents or flood. However, no valuation method exists to quantify this line item, and it remains unquantified in the Strategic GBA.
Road Maintenance Costs	vit		\$16,715,312	\$406,170	\$184,351	\$100,842	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2018, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period.
<b>Indirect Cost Sub-Total:</b>				<b>\$400,170</b>	<b>-\$184,241</b>	<b>\$100,842</b>	

Non-Market Costs	Units	Quantity	Cost	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Cost				
Environmental Externalities	vid	10000	\$32,105,845	\$39,601,186	\$36,815,363	\$29,189,915	Annual trip hours developed from the Dubbo Transport Strategy 2020, Table 6.2 (Daily Trips) and Table 6.3 (Minutes per Trip). The number of daily trips in 2019, 2025, 2030 have been extrapolated to 2035 and taken as the average over the analysis period. Upper range environmental costs due to impact on Sandy Beach and Macquarie River, and mid-range values associated with urban separation due to impacts on sports fields have been applied to Option 1.
<b>Non-Market Cost Sub-Total:</b>				\$59,601,186	\$36,815,363	\$29,189,915	
<b>Costs Total:</b>				\$96,175,005	\$71,353,845.78	\$60,899,723	
Direct Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Residual Value	lump sum	1	\$12,492,470	\$5,304,104	\$1,756,961	\$787,959	Value of the Bridge remaining after 20 years, assuming a 12% year economic rate.
<b>Direct Benefits Sub-Total:</b>				\$5,304,104	\$1,756,961	\$787,959	
NonMarket Benefits	Units	Quantity	Benefit	Relative to Base Case 3%	Relative to Base Case 7%	Relative to Base Case 10%	Comments
			One Time/ Annual Value				
Benefits of Active Transport	unquantified		\$0	\$0	\$0	\$0	An aim of the project is to increase the connectivity of West Dubbo to the rest of the city and therefore increase the incentive to use active transport such as walking or cycling. However, no modelling exists to estimate how active transport may increase as a result of a new South Dubbo Bridge, and it remains unquantified in the Strategic Business Case.
<b>Non-Market Benefits Sub-Total:</b>				\$0	\$0	\$0	
<b>Benefits Total:</b>				\$5,304,104	\$1,756,961	\$787,959	
Results							
<b>Net Benefits:</b>				\$13,985,202	(\$4,383,889)	(\$11,391,118)	
<b>Benefit:Cost Ratio:</b>				1.15	0.94	0.81	

# New South Dubbo Bridge Community Feedback Analysis

March 2021



Balmoral Group Australia Pty Ltd  
Economics, Analytics and GIS Consultants

Disclaimer

*The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Dubbo Regional Council*

*Prepared in cooperation with the Dubbo Regional Council*

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Prepared for



Dubbo Regional Council

## Executive Summary

In order to accommodate future growth in Dubbo, reduce average travel times and traffic incidents, increase connectivity, housing development and percentage of commuters choosing active transport, options for a new South Dubbo Bridge have been proposed by the Dubbo Regional Council. Feedback was collected from five different groups of participants and themes within each of these groups were examined. This report provides a detailed analysis of the feedback provided by group.

While key findings across all five groups indicate strong support for another crossing of the Macquarie River; there remains strong disagreement that the two options presented (Options 1 and 4 in the Strategic Business Case)<sup>1</sup> are the best options to achieve that outcome. Sentiment analysis revealed fear, anger, and disappointment regarding these options. The principal reasons people disliked the presented options were safety risks at the sports fields, primarily among children, environmental damage to Sandy Beach and flood risks. Respondents from each group offered alternative solutions.

- Altering Option 4 in a number of ways including 1) onto/adjoining Tamworth Steet; 2) connecting to the Newell Highway further south
- A bridge further south either 1) into or along Macquarie Street; 2) by Tamworth Street and Hennessy Drive; or 3) near Dundullimal
- Adding a ring road, which may be more suitable for heavy vehicles, around the CBD
- The use of Option 2 or 3 (as labelled in the Strategic Business Case)<sup>2</sup> present in the Council commissioned GHD report
- Investment in 1) pedestrian and cycling infrastructure and 2) public transportation

These options were not investigated further or checked for feasibility before being summarised in this report.

Brief summaries of the feedback received from each group are below.

Survey Respondents – Dubbo Residents - 195 members of the Dubbo community took part in a 23 question survey to identify key areas of community support or concern. The majority of respondents were not in favor of either of the proposed Bridge 1 or 4 options; However, more of the participants did prefer Option 4 to Option 1 and cited concerns for the negative impacts to Lady Cutler Oval, cricket and soccer grounds, and recreational activities along the river such as running, walking, cycling, etc., and impacts to Sandy Beach. Major issues brought up revolved around traffic, safety (especially for young children), recreation, and the environment. Additional information regarding results from this survey can be found in the Dubbo Survey Analysis section of this report.

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<sup>1</sup> Although survey options were presented to community members as Option 1 and 2, these are Options 1 and 4 respectively within the accompanying Strategic Business Case and henceforth will be labelled as Options 1 and 4 throughout the document for clarity.

<sup>2</sup> Survey Options 3 and 4 are labelled as Options 2 and 3 within the accompanying Strategic Business Case and henceforth will be identified as Options 2 and 3 throughout this document for clarity.

Focus Groups - In addition to the comments raised by Dubbo residents, four focus groups met to discuss issues and impacts and provide feedback. Specific information regarding these comments can be found in the

Summary of New South Dubbo Bridge Focus Groups Feedback section of this report.

1. The Sports and Recreation group shed light on sports training, kids, parking impacts, as well as the economic benefits that sports and other events bring into the facilities at and around Lady Cutler Ovals sporting precinct. Additionally, recreation within Sandy Beach such as fishing, boating, and exercising were mentioned, as were vegetation impacts.
2. The Business Members group wanted to see other options besides the two proposed options. This group mentioned impacts on the Taronga Western Plains Zoo and mine developments, as well as traffic impacts of people wanting to stay at hotels in West Dubbo.
3. Traditional Land Owners objectives centered around the cultural impact of any proposed option on Sandy Beach, and an impacts study was suggested. Additional themes included congestion, parking and alternative options
4. The Emergency Services and Transport focus group was primarily concerned with access onto Tamworth Street, congestion and flood immunity concerns.

Organisations (online feedback) - 12 individuals submitted feedback on behalf of 11 organisations. Respondents discussed potential traffic issues, negative impacts to the environment, impairment of river accessibility, loss of amenity value, negative impacts to the Lady Cutler Oval sporting precinct and the need for more analysis and information in their responses. All but three organisations opposed all bridge options. These three organisations were okay with Options 1, 2 or 4. See Table 21 and the Organisation Responses section for more details.

Individuals (online feedback) - 56 individuals submitted feedback online. Themes discussed ranged from the need for additional analysis, increased and shift of traffic issues, negative environmental impacts, lack of access to areas for recreation, and negative impacts to the Lady Cutler Oval sporting precinct. Most respondents opposed all options and provided many alternative options for Council to consider (Table 23). See the Individual Responses section for more details.

Council Members (internal feedback) - Feedback was gathered from several key internal members from Dubbo Regional Council. Overall themes include possible loss of future events, concerns about the report, and suggestions for consideration. In addition to the themes presented by residents and other stakeholders, internal members suggested more studies may need to be completed to adequately reflect flood immunity, traffic modelling, and property price impacts. This is similar to what the business owner focus group recommended. Additional information on feedback from members of the Dubbo Regional Council can be found in the

Summary of New South Dubbo Bridge Internal **Feedback** section of this report.

Overall findings from the analysis indicate that Council should:

1. Present information on all four bridge options to the public, including detailed information and supporting evidence for each option presented.
2. Consider modelling traffic impacts, as well as environmental, economic, cultural, and property impacts under each option.
3. Consider additional options suggested by respondents and discussed herein including options that don't implicate the Sandy Beach, Lady Cutler Oval sporting precinct or Macquarie River areas.



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## Dubbo Survey Analysis

### Survey Summary

- 195 members of the Dubbo community took part in a 23-question survey to identify key areas of community support or concern. The average time spent taking the survey was 16m: 55s.
- 15 of these questions provided text boxes for additional comments.
- Most respondents were not in favour of either of the proposed bridge options; However, more of the participants did prefer Option 4 to Option 1 and cited various environment and safety risks as the reasoning behind their choice.
- Other options were provided for consideration by many of the respondents
- Major issues brought up revolved around traffic, safety (especially for young children), recreation, and the environment

### Survey Responses

**Question 1: For each option please rate whether or not the proposed alignment will provide better access to the CBD**

Responses are mixed for whether or not Option 1 or Option 4 will provide better access to the CBD. However, more tend to favour Option 4, with only 25% of participants either agreeing or strongly agreeing with Option 1 and 40% either agreeing or strongly agree that Option 4 provides better access. The approximate percentages in agreeance with each option are provided in Table 1.

*Table 1: Likert Responses in % rated from Strongly Disagree to Strongly Agree – better access to CBD*

	Option 1 - %	Option 4 - %
1. Strongly disagree	45%	32%
2. Disagree	14%	14%
3. Neutral	17%	15%
4. Agree	14%	22%
5. Strongly agree	11%	18%

Source: BGA Work Product

**Question 2: For each option please rate whether or not the proposed alignment will provide better traffic flow crossing the existing LH Ford and Emile Serisier Bridges**

When considering whether or not the proposed alignment will provide better traffic flow crossing the existing LH Ford and Emile Serisier Bridges, more responds either agree or strongly agree (44% of respondents) that Option 4 provides better traffic flow as opposed to 35% of respondents feeling the same for Option 1. Table 2 shows that more respondents disagree or strongly disagree with Option 1 than with Option 4 (48% to 39%).

*Table 2: Likert Responses in % rated from Strongly Disagree to Strongly Agree - better traffic flow*

	Option 1 - %	Option 4 - %
1. Strongly disagree	40%	31%
2. Disagree	8%	8%
3. Neutral	16%	17%
4. Agree	23%	28%
5. Strongly agree	12%	16%

Source: BGA Work Product

**Question 3: For each option please rate whether or not the proposed alignment will create a more convenient routing for freight and commercial bridges**

The majority of respondents disagree that either option will create more convenient routing for freight and commercial vehicles with only 10% agreeing or strongly agreeing with Option 1 and 21% agreeing or strongly agreeing with Option 4 (Table 3).

*Table 3: Likert Responses in % rated from Strongly Disagree to Strongly Agree - more convenient routing*

	Option 1 - %	Option 4 - %
1. Strongly disagree	53%	45%
2. Disagree	23%	21%
3. Neutral	14%	13%
4. Agree	6%	11%
5. Strongly agree	4%	10%

Source: BGA Work Product

**Question 4: For each option please rate whether or not the proposed alignment will create more convenient routing for locals and residents**

More respondents disagree (54%) than agree (34%) that Option 1 will create more convenient routing for locals and residents. This statement is also true for Option 4 (Table 4). However, the margin between those that disagree versus those that agree is considerably less (with 47% disagreeing versus 44% who agree that Option 4 will create more convenient routing for locals and residents).

*Table 4: Likert Responses in % rated from Strongly Disagree to Strongly Agree - more convenient routing*

	Option 1 - %	Option 4 - %
1. Strongly disagree	44%	38%
2. Disagree	10%	9%
3. Neutral	13%	9%
4. Agree	19%	26%
5. Strongly agree	15%	18%

Source: BGA Work Product

Question 5: Please provide any comments or context you wish to add to questions 1-4

Survey respondents that provided comments for *Question 5* seem to prefer neither option, either citing concerns with hurting the local sporting facilities and access to recreation, or concerned with traffic, environmental, and safety issues. Participants voiced their concerns for the negative impacts to the Lady Cutler Oval sporting precinct, cricket and soccer grounds, recreational activities like running, walking, cycling and simply spending time by the river. Additionally, they noted the negative impacts the options would have on Sandy Beach, as well as community events, such as Parkrun, Dubbo Stampede, etc. Approximately a third of participants noted their preference for alternative options other than the 2 provided. A few of their recommendations are outlined below:

- Possible alternative alignment including
  - Bridge connecting to Tamworth St and Macquarie St
  - Bridge connecting to Macquarie St near Margaret Cres, or onto Hennessy Dr
  - Bridge connecting Wheelers Ln to Boundary Rd
  - Bridge connecting to Macquarie Street and diverting traffic south
  - Bridge connecting Minore Rd to Tamworth St
  - Bridge connecting Obley Rd to Hennessy Dr
  - Adjusting Option 4 so that Tamworth St is closed, preventing traffic from the proposed bridge from entering Tamworth St directly
- Other solutions including
  - Making Cobra St dual land each way between Sheraton Rd to Jannali Rd
  - New distributor or bypass

These options were not investigated further or checked for feasibility before being summarised in this report.



Figure 1. Response Word Cloud –  
Question 5

Sentiment analysis revealed a mixed array of emotions.<sup>3</sup> Most of the terms brought up include those pertaining to the various options that the Council is either providing, or not providing to survey participants, as well as concerns for traffic in Dubbo and concerns for sporting or environmental areas.

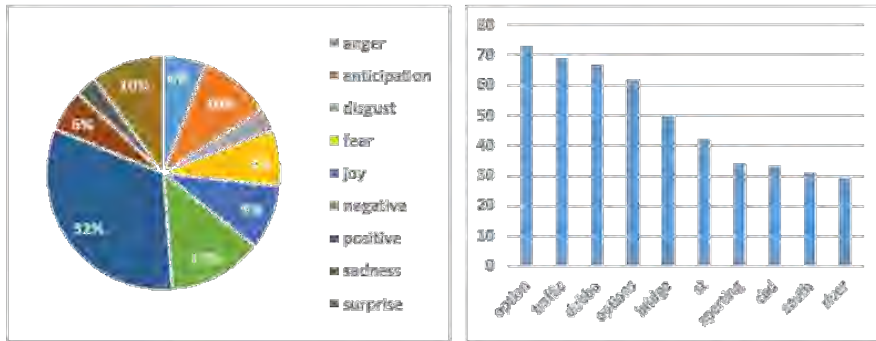


Figure 2. Sentiment Analysis and Top 10 Word Count – Comment Response Question 5

<sup>3</sup> It is important to note that while lexicon non-stop words are each attached to an emotion; it must also be considered how the emotion was used. For example, the words “bad”, “disruption”, “loss” are clear indicators of negative emotions. However, “option” and “beach” are considered with the emotions positivity and joy. Even though in this case, “option” is being used by participants to understand the various alternatives offered and the term “beach” is used to discuss concerns for the beach in each of these proposals.

**Question 6: Agreement with objective to increase safety at the Whylandra Street-Victoria Street intersection**  
 Respondents also indicated their level of agreement with a) the importance of traffic safety at the Whylandra Street-Victoria Street intersection (Table 5) and b) the requirement of an alternative crossing across the Macquarie River to reduce congestions and increase road traffic safety (Table 6). The majority of respondents either agreed or strongly agreed with each of these statements (62% and 72%, respectively).

*Table 5: Level of Agreement with the statement "Traffic safety at the Whylandra-Victoria Street intersection is of high concern to me"*

Traffic safety at the Whylandra-Victoria Street intersection is of high concern to me.	% - Traffic Safety
1. Strongly disagree	10%
2. Disagree	8%
3. Neutral	19%
4. Agree	38%
5. Strongly agree	24%

Source: BGA Work Product

*Table 6: Level of Agreement with the statement "An alternative crossing across the Macquarie River is required to reduce congestion and increase road traffic safety"*

An alternative crossing across the Macquarie River is required to reduce congestion and increase road traffic safety.	% - Alternative Crossing
1. Strongly disagree	10%
2. Disagree	7%
3. Neutral	10%
4. Agree	32%
5. Strongly agree	40%

Source: BGA Work Product

Participants that used the comment feature from *Question 6* did so to voice their dissatisfaction with either of the options. Nearly half of the 67 comments made here focused on proposing some form of alternative solution to the options proposed on the survey. Some of the alternative's contestants proposed were incentivising public transport, a bypass, moving trucks and buses to alternative roads, and adding modifications to the current options such as Option 4 + a ring road (from Rifle Range Road to the Mitchell Highway at Dubbo City Regional Airport then on to Troy Bridge). It is also worth highlighting that some of the contestants thought things were fine without the need of an additional bridge and some others did think that the bridge will solve safety issues.

Some of the contestants said they considered Options 2 and 3 better options and were concerned about not been given the option of commenting on them.

Emotions revealed in responses to *Question 6* include anger, anticipation, and fear, with the mix of negative and positive sentiments. Frequent terms used pertain to concerns with congestion, children crossing through the sporting grounds, and crossing alternatives across various streets or intersections (Figure 4).

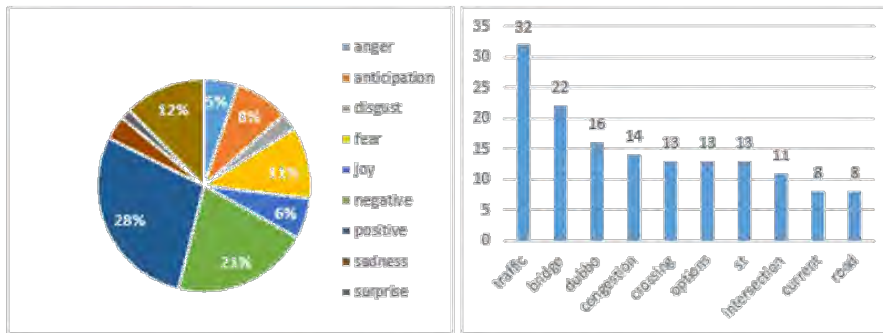


Figure 3. Sentiment Analysis and Top 10 Word Count – Comment Response Question 6

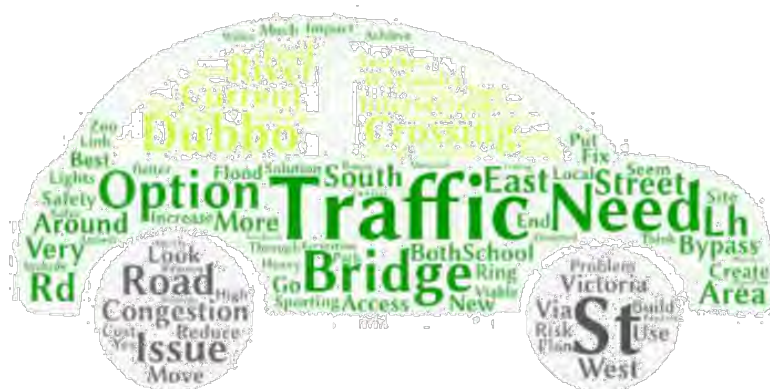


Figure 4. Response Word Cloud – Question 6

Question 7: For each of the options please indicate whether or not you are concerned that proposed river crossing will increase road safety risks in other areas of Dubbo

As is shown in Table 7, the majority of respondents are concerned that the proposed Option 1 river crossing will increase road safety risks in other areas of Dubbo, with 58% of them agreeing or strongly agreeing that there will be increased safety risks. Likewise, 55% of them feel the same regarding Option 4. However, a greater number of participants strongly agree that Option 1 will increase risks than Option 4 (39% to 33%).

Table 7: Level of Agreement with concern for safety risks in other areas of Dubbo across options

	Option 1 - %	Option 4 - %
1. Strongly disagree	10%	9%
2. Disagree	13%	18%
3. Neutral	18%	18%
4. Agree	19%	22%
5. Strongly agree	39%	33%

Source: BGA Work Product

Those that agree with increased risk of safety aspect of bridges options tend to point out in the comments section for *Question 7* the safety risks for the sporting fields and recreational zones along Bligh Street, as well as the increased risk of traffic safety concerns for children and pedestrians. Other claims state the new bridges would empty into small roads unable to meet traffic flow or hold heavy vehicles. Participants point out the additional congestion of traffic Option 1 would contribute to, as well as various forms of pollution and lastly the loss of the functionality, safety, amenity and cultural environment of the existing multisport precinct.

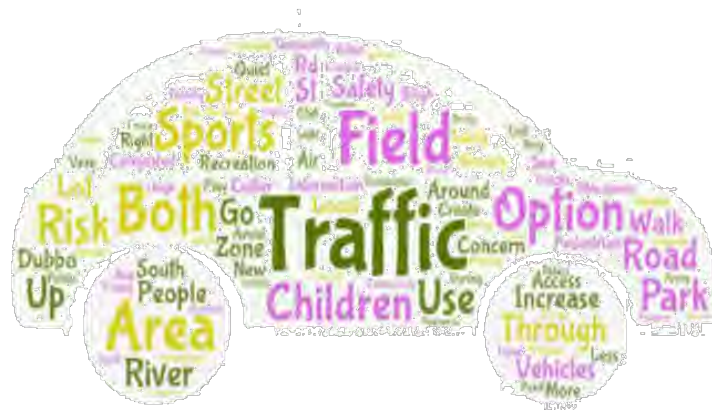


Figure 5. Response Word Cloud – Question 7



Those that disagree that there would be an increased safety risk for either option and left comments cite the net benefit to safety. However, many also call for another solution, including investigating further Options 2 and 3. Figure 6 outlines key terms and sentiments associated with them for *Question 7*. As seen here, traffic is a major concern among participants. It is important to note how often the word risk comes up in comments and that it is tied to not only safety risk (especially with youths) but risk to the Lady Cutler Oval sporting precinct, traffic, and the environment.

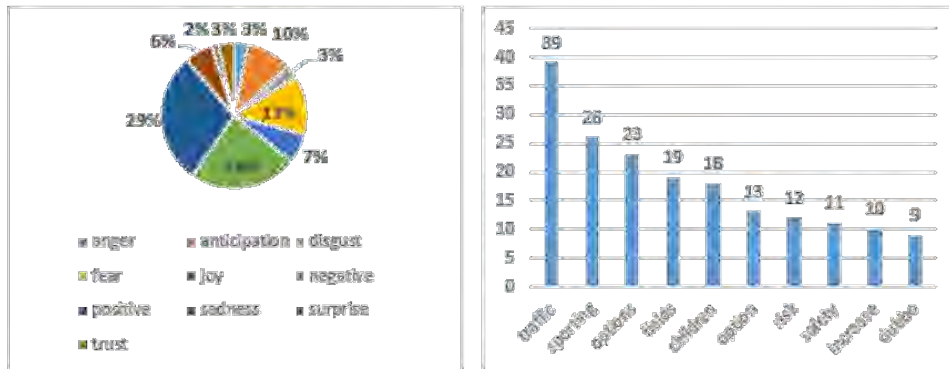


Figure 6. Sentiment Analysis and Top 10 Word Count—Comment Response Question 7

Question 8: Agreement with objectives to increase the connectivity of West Dubbo to the CBD and reduce isolation during emergency events

Nearly half of respondents disagree (with 36% of those strongly disagreeing) that Option 1 will provide a useful alternative in the event that a flood or traffic incident prevents access across the Emile Serisier Bridge, with only 33% agreeing. While 43% of respondents disagree that Option 4 will provide a useful alternative in the event that a flood or traffic incident prevents access across the Emile Serisier Bridge, 40% agree. Table 8 and Table 9 convey the level of agreement for Options 1 and 2 with regard to the Emile Serisier Bridge.

*Table 8: Level of Agreement for Option 1 as a useful alternative for the Emile Serisier Bridge*

Option 1 will provide a useful alternative in the event that a flood or traffic incident prevents access across the Emile Serisier Bridge	% - Option 1, Emile Serisier Useful Alternative
1. Strongly disagree	36%
2. Disagree	13%
3. Neutral	18%
4. Agree	23%
5. Strongly agree	10%

Source: BGA Work Product

*Table 9: Level of Agreement for Option 4 as a useful alternative for the Emile Serisier Bridge<sup>4</sup>*

Option 4 will provide a useful alternative in the event that a flood or traffic incident prevents access across the Emile Serisier Bridge	% - Option 4, Emile Serisier Useful Alternative
1. Strongly disagree	31%
2. Disagree	12%
3. Neutral	17%
4. Agree	26%
5. Strongly agree	14%

Source: BGA Work Product

<sup>4</sup> Note participants Option 2 is Option 4 in the Strategic Business Case

Alternatively, nearly half of respondents (47%) agree that Option 1 will provide a useful alternative in the event that a traffic incident prevents access across the LH Ford Bridge. However, over half of respondents (54%) feel this way about Option 4. Table 10 and Table 11 convey the level of agreement for Options 1 and 4 with regard to the LH Ford Bridge.

*Table 10: Level of Agreement for Option 1 as a useful alternative for the LH Ford Bridge*

Option 1 will provide a useful alternative in the event that a traffic incident prevents access across the LH Ford Bridge	% - Option 1, LH Ford Bridge Useful Alternative
1. Strongly disagree	28%
2. Disagree	8%
3. Neutral	17%
4. Agree	34%
5. Strongly agree	13%
Total	100%

Source: BGA Work Product

*Table 11: Level of Agreement for Option 4 as a useful alternative for the LH Ford Bridge*

Option 4 will provide a useful alternative in the event that a traffic incident prevents access across the LH Ford Bridge	% - Option 4, LH Ford Bridge Useful Alternative
1. Strongly disagree	22%
2. Disagree	7%
3. Neutral	16%
4. Agree	36%
5. Strongly agree	18%

Source: BGA Work Product

In the comment box provided many of the people surveyed voiced concerns about the new bridge getting flooded, as it is located in a flood plain and will be inundated in a 1 in 20-year flood event or larger. Some said that building the bridge at a higher height would solve the issue and some said a new bridge would help with congestion. However, many said they disagree with both options and some said the bridge will increase traffic for residents. These comments are reflected in Figure 8.

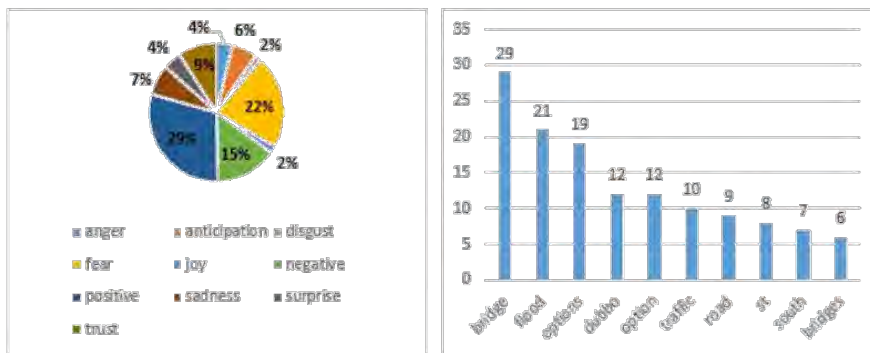


Figure 8. Sentiment Analysis and Top 10 Word Count – Comment Response Question 8

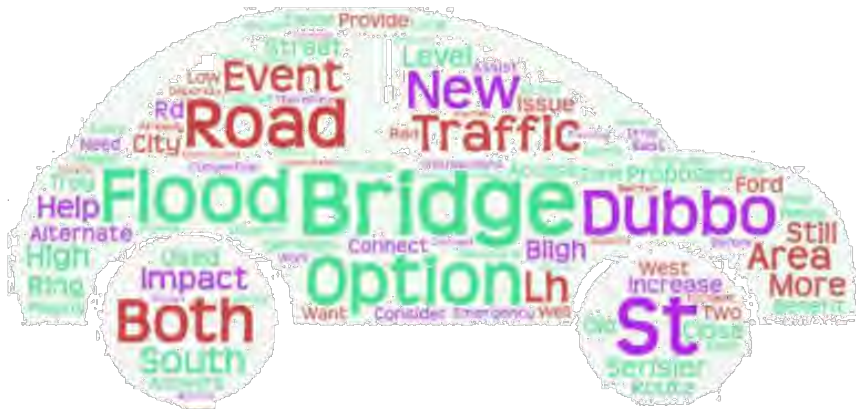


Figure 7. Response Word Cloud – Question 8

Question 9: Agreement with the objectives to increase the number of people in West Dubbo choosing active transport

Half of participants (50%) disagree, with over half of those respondents strongly disagreeing (28%) that the current infrastructure discourages commuters from taking up active transport, including walking or cycling (

Table 12).

Table 12. Level of Agreement with the statement "The current infrastructure discourages commuters from taking up active transport,

The current infrastructure discourages commuters from taking up active transport, including walking or cycling,	%
1. Strongly disagree	28%
2. Disagree	22%
3. Neutral	17%
4. Agree	20%
5. Strongly agree	13%

including walking or cycling"  
Source: BGA Work Product

Question 10: Please indicate whether you think the proposed alignment will encourage more people to walk or cycle to work or other destinations

Only 27% of respondents feel that the Option 1 proposed alignment will encourage more people to walk or cycle to work or other destinations. Likewise, this number is 28% for Option 4. More respondents for either option disagree (41% for Option 1, and 47% for Option 4) See Table 13 for responses.

Table 13. Level of Agreement Options will encourage people to walk or cycle to work or other destinations

	Option 1 - %	Option 4 - %
1. Strongly disagree	37%	35%
2. Disagree	14%	12%
3. Neutral	22%	25%
4. Agree	17%	16%
5. Strongly agree	10%	12%

Source: BGA Work Product

When asked to comment on the above (Question 10), the majority of the contestants did not see how the proposed alignment would encourage people to walk more as they said the current footbridge works well and people use it on a regular/daily basis. Some of them said that the proposed bridge alignments are way too far for people to walk to them, and they would rather try to take the risk of crossing the highway. Other people said the proposed bridge alignments do not really make a difference for pedestrians and others and that people are not incentivised to walk either for the heat or for the lack of public transport. Some replies said that the fact of the bridge serving as a footbridge as well was a minor issue and should not be considered into any decision making as it was irrelevant. Results from the sentiment analysis are below in Figure 10. Many participants note there are already various ways to cross the river, though this may be the most direct route across.

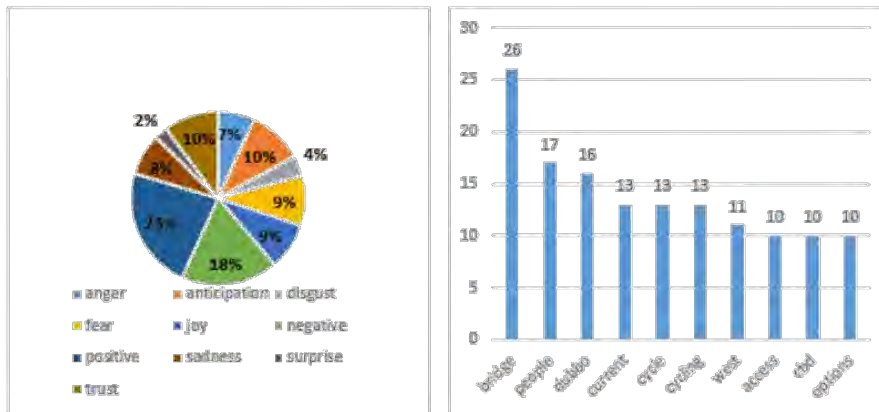


Figure 10: Sentiment Analysis and Top 10 Word Count – Comment Response Question 10



Figure 9. Response Word Cloud – Question 10

**Question 11: Agreement with objectives to allow residential development in West Dubbo**

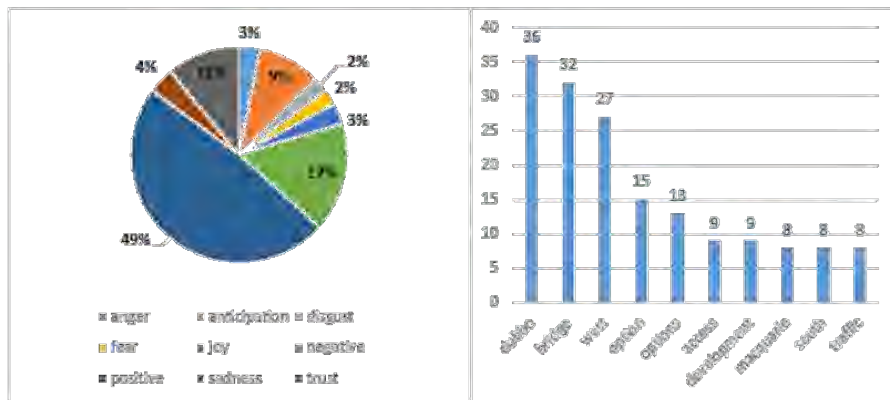
The response is mixed when considering whether bridge Option 1 across the Macquarie River is required to allow residential development in West Dubbo (*Question 11*), with 39% of respondents agreeing and 42% of respondents disagreeing. Participants are less divided when considering Option 4, with 48% agreeing that a new bridge is required (Table 14).

*Table 14. Level of Agreement with the statement "A new bridge across the Macquarie River is required to allow residential development in West Dubbo"*

	Option 1 - %	Option 4 - %
1. Strongly disagree	32%	24%
2. Disagree	10%	11%
3. Neutral	18%	17%
4. Agree	23%	29%
5. Strongly agree	16%	19%

Source: BGA Work Product

Respondents were asked to provide additional comments on their considering a new bridge across the Macquarie River (*Survey Question 11*). Although many agreed that at least one new bridge is required, they mostly said that none of the two options are suitable for the area as it would either destroy a highly appreciated recreation area or increase the traffic at a sporting facility. With regard to development, many participants said Dubbo has been developing at an increased pace without the need of a bridge and they also suggested moving jobs to Dubbo so that people should not need to commute to the CBD. Some also pointed out that a bypass would be a better option and provided alternatives for specific travels to continue to use certain roads/amenities/etc.



*Figure 11. Sentiment Analysis and Top 10 Word Count – Comment Response Question 11*





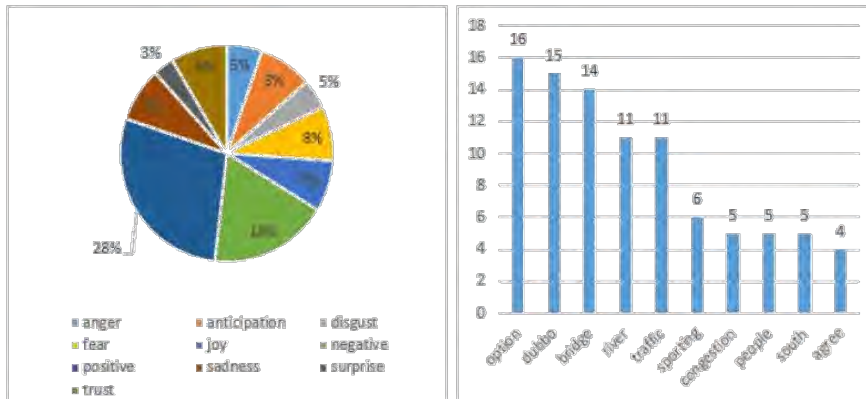


Figure 14. Sentiment Analysis and Top 10 Word Count – Comment Response Question 12

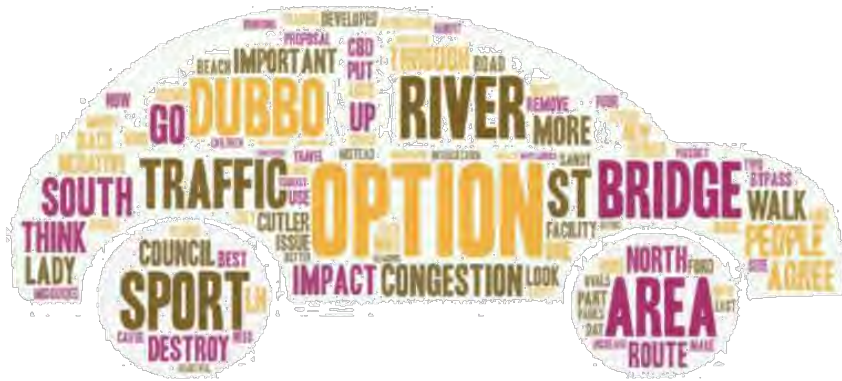


Figure 13. Response Word Cloud – Question 12

Question 13: If you think that the proposed new Bridge (Option 4) is important for Dubbo for reasons other than the aims described here, please provide your views

Respondents were also asked to provide any additional views for why the proposed new bridge (Option 4) is important for Dubbo for reasons other than the aims described within the survey (Question 13). While a lot of respondents said they liked the proposal and expressed urgency about something having to be done to help with the traffic. However, some said that although they preferred Option 4 over Option 1, they described the option as "the least worst". Growing concerns around the health of Lady Cutler Oval sporting precinct and Sandy Beach were a common theme. Some of the responses also mentioned that the bridge only addressed the traffic going to the CBD but not into West or East Dubbo. Those that mentioned the term "money" stated their concerns using money that could be more beneficial elsewhere, or that the money spent would not be worth the minimal time savings.

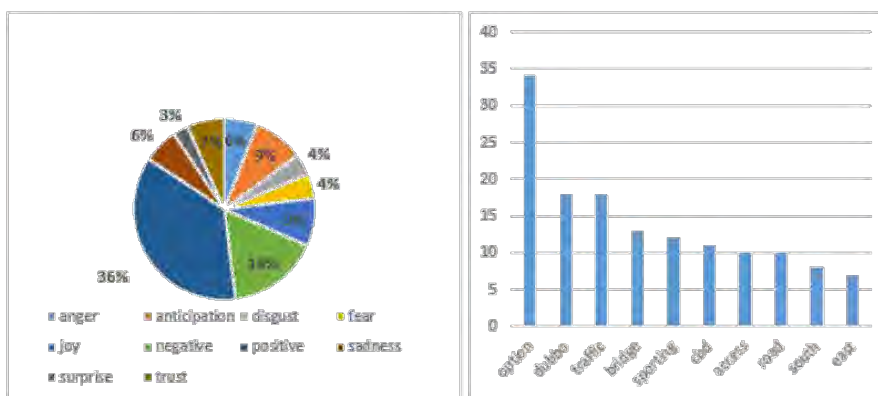


Figure 15. Sentiment Analysis and Top 10 Word Count – Comment Response Question 13

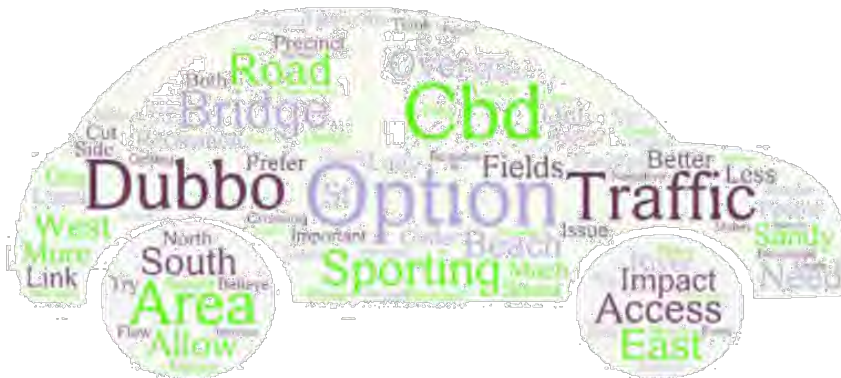


Figure 16. Response Word Cloud – Question 13

**Question 14: Please outline any concerns you have about Option 1**

For Survey *Question 14*, the majority of concerns raised regarding Option 1 are those of the sports, recreation, traffic, safety, and environmental type. Individuals are concerned for a loss of recreation/sports opportunities specifically for Lady Cutler Oval sporting precinct, but also for the sports, running, and cycling community, as well as community culture of Dubbo. Traffic concerns noted include increased pressure on roads, and limited parking. Most that cite increased traffic concerns also cite safety concerns, particularly to children who are attending the sporting fields/events, as well as safety concerns for residential area, pollution, etc. Environmental concerns include ecological, accessibility, and recreational impacts on Sandy Beach, noise, air, and light pollution for environment, loss of trees and other biodiversity in the area, impacts to access points, Sandy Beach degradation, green space, and connection to land/river, as well as flood issues. Respondents note their concern for future access and degradation to River loop, Sir Roden Cutler

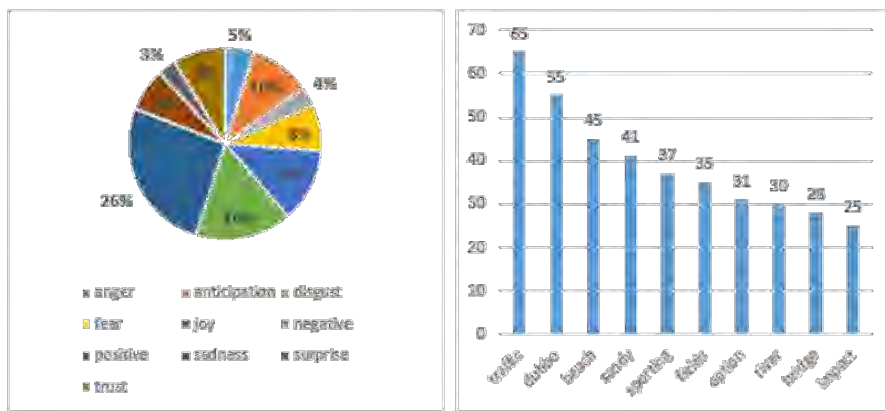


Figure 18. Sentiment Analysis and Top 10 Word Count – Comment Response Question 14

Park, Tracker Riley Cycleway, and the Macquarie River. Alternative options include the use of Option 2 and 3, and Bridge Route D, as well as a location further along the Macquarie River, or away from the City Centre (i.e. have the bridge come out further along Macquarie Street at Hennessy Drive), and the potential to have the bridge in line with the 'Green Ring'. Those with monetary concerns note lack of CBA study, transparency of options, and traffic flow studies. Community impacts include impacts to residential areas due to traffic, as well as the heritage area, and businesses such as restaurants with waterfront views. Those who have no concerns state the need for compromise with developments, as well as the need to build one of the options. As can be seen from the sentiment analysis, Sandy Beach is a dominant concern when considering Option 1, as well as the loss of sports amenities, parking, trees, etc.

Question 15: Please outline any concerns you have regarding Option 4

For Survey *Question 15* (Option 4), Sporting concerns highlight the impacts to Lady Cutler Oval sporting precinct including West Dubbo access to the Macquarie River corridor, River Loop cycle ways and parklands west of the river, as well as impacts on the running and cycling community. Safety concerns arose, especially for children who access and attend the fields and sporting events therein, as well as schools in the neighborhood that may be affected. Alternative options provided include Minore Road or further south on the western side of the river, to Tamworth Street, or further south on the eastern side of the river or to build in concert with a ring road bypass to avoid bottleneck, Bridge Route D from the GHD report, not to go towards Bligh Street, continue towards Tamworth Street and meet Macquarie Street there, take the bridge out to the Obley Road to Hennessy Drive, a bridge further south near Margaret Crescent, southern end of Margaret Crescent/Fitzroy Street via the east west leg of Huckle Street with an alignment across some of the Taronga Western Plains Zoo land to join Obley Road, Options 2 and 3, combining the two i.e. locations of Option 4 but Tamworth Street access of Option 1, a 4-way intersection at Bligh Street Tamworth Street South Street coming off Obley Road, providing direct access to and from Tamworth Street, and a bridge in line with the 'Green Ring'

Environmental concerns are with noise, visual and auditory pollution to Sandy Beach, as well as the river, contamination concerns, riparian zone, the trees, access to the river corridor, impacts on bird and wildlife corridors, flooding, scenic view, local green spaces, etc. Community impacts include affecting residential culture and older areas that do not lend themselves to infrastructure updates, taking away from community character, as well as events that may no longer be viable. While not directly affecting events (e.g. Parkrun, Dubbo Stampede, Titan Macquarie Mud Run) as Option 1, Option 4 will likely still have an influence on these events by impacting the routes they go on, most notably the increased vehicle activity in these spaces. Additional information requested was a model of traffic impacts, a cost-benefit analysis, and additional option choices for the community. Aboriginal sites were brought up as an additional concern. Concerns about the traffic in the area and increased pressure on the roads from so many and heavier vehicles. Those that feel Option 4 is the better option feel it causes a lesser impact to infrastructure already in place, a natural flow for vehicular traffic, and less impact to recreational areas.

The sentiment analysis in Figure 20 reflects the various concerns and additional insights. Again, a major concern brought up is traffic, as well as impacts to sporting amenities and fields. South Dubbo is referenced, as well as the option for a bridge further south.

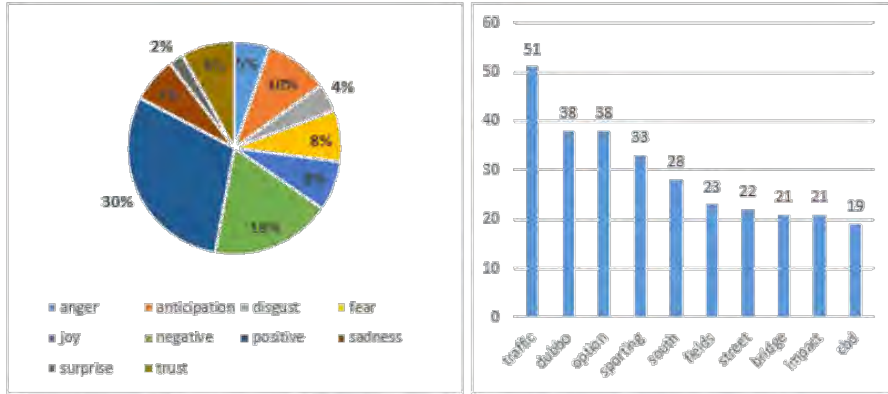


Figure 19. Sentiment Analysis and Top 10 Word Count – Comment Response Question 15



Figure 20. Response Word Cloud – Question 15

Question 16 and 17: After considering all the potential benefits and possible unintended consequences, please indicate on the scale whether or not you believe the bridge is a beneficial project overall  
 After considering the potential benefits and possible unintended consequences, participants rate Option 1 at an average of a 29.5 for whether they believe Option 1 is a beneficial project overall, with the lowest score at a 0, and the highest at 100. Option 4 rates slightly higher, at a 41.3.

Question 18: If you had to choose one of the strategic options to be constructed, please indicate which one you think is best, and why.

If participants had to choose one of the two options, 59% would choose Option 4, 16% would choose Option 1, and 25% would choose neither.

Survey participants that chose to comment on their support for Option 1 one (In Survey *Question 18*) mostly said it is the most "direct" option and that traffic flow will be better as a result of Option 1. Other comments included Option 1 being more cost effective and having more distribution options. Some people said, however, that neither option would be preferable and that this option would only move traffic to other parts of the city.

Participants that chose Option 4 stated in Survey *Question 18* the main appeal was that the sporting facilities as well as Sandy Beach would suffer less as no traffic would be redirected to them. A lot of respondents said they would not choose either of the options and some others said that they chose Option 4 not because it was a good, option but because it was less intrusive than Option 1. Many contestants said that Option 4 would be better off if there is an additional linking road to avoid bottlenecks, some mentioned Tamworth Street to be the best road to link the bridge with. Other comments include Option 4 decreasing traffic or allowing traffic to form further away from the CBD.

Those who answered 'neither' in Survey *Question 18* did not agree with any of the options proposed as they say they are not suitable for Dubbo. Some of the reasons provided include the bridge to be located in a wrong location, some of the proposals included a link with River Street or Tamworth Street. Other comments said that the options proposed are unsafe for the community due to the increased traffic caused by the bridge.

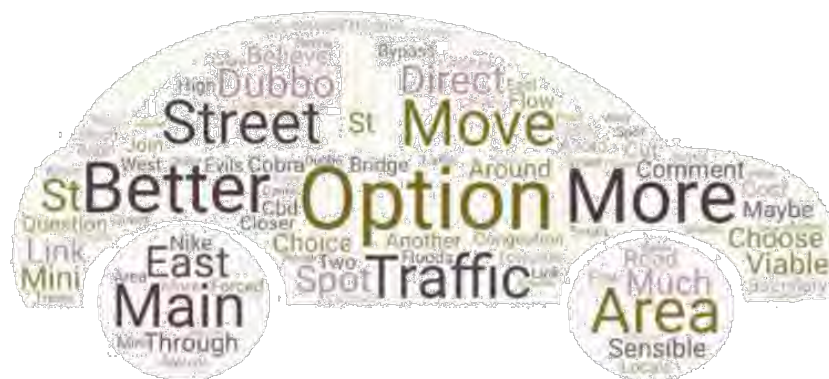


Figure 21. Response Word Cloud – Question 18

Question 19: Please provide any further comments, views or suggestions that you have not already that you think are relevant to the proposed Option 1 bridge

Participants that provided further comments relevant to the Option 1 bridge (*Question 19*) noted traffic consequences such as congestion on Fitzroy Street, Macquarie Street, Brisbane Street, Bligh Street, Minore Road-Whylandra Street intersection, as well as the sporting ovals and recreational access that are in this region. There is an overall negative view towards this option, with only a few respondents noting that of the two options provided, this is the better. Many recommend alternative suggestions such as Option 2 or 3, a bridge that comes off Obley Road and links with Hennessy Drive, alignment of a bridge from Obley Road to Old Dubbo Road, a bridge further south, or a bypass. More note environmental consequences as a result of Option 1 than Option 4; such as impacts to the beautiful area of Dubbo, river and walking tracks, waterways and wildlife, local green spaces as well as the impacts to Sandy Beach. Again, sentiment analysis reveals a mixed array of emotions here, citing alternative options as well as the bad traffic consequences (Figure 23).

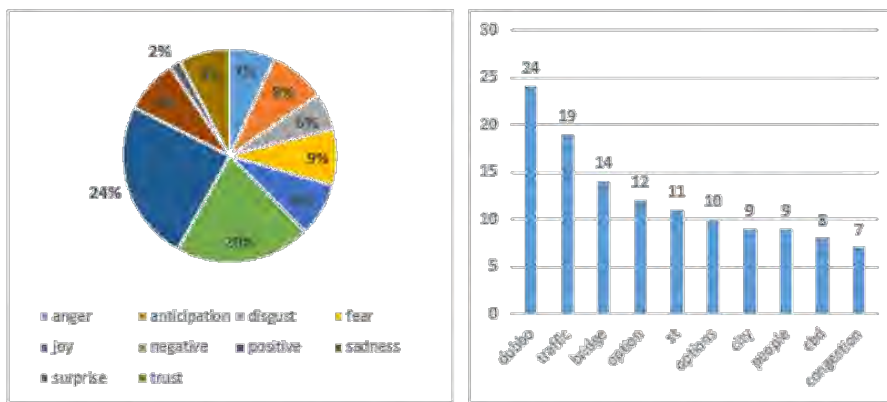


Figure 22. Sentiment Analysis and Top 10 Word Count – Comment Response Question 19

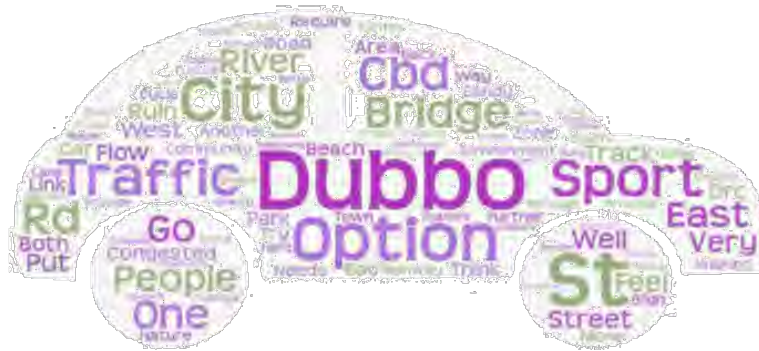


Figure 23. Response Word Cloud – Question 19

Question 20: Please provide any further comments, views or suggestions that you have not already that you think are relevant to the proposed Option 4 bridge  
 Participants that provided further comments relevant to the Option 4 bridge (Question 20) have noted traffic consequences such as congestion on Tamworth Street, and Cobra Street-Macquarie Street, entry to the LH Ford Bridge, Minore Road-Whylandra Street intersection, and Sandy Beach Road as well as the sporting ovals and recreational access that are in this region. There is an overall negative view towards this option, with only a few respondents noting that of the two options provided, this is the better. Many recommend alternative suggestions such as Options 2 or 3, as well as Bridge Route D from the GHD report, a road that does not make turns between the ovals, a bridge further south, or a bypass. Several note environmental consequences such as impacts to the beautiful area of Dubbo, river and walking tracks, as well as the impacts to Sandy Beach. Additional feedback discusses the possible impact to the wonderful facilities and recreation amenities the city has as well as the negative impacts of congestion (Figure 25).

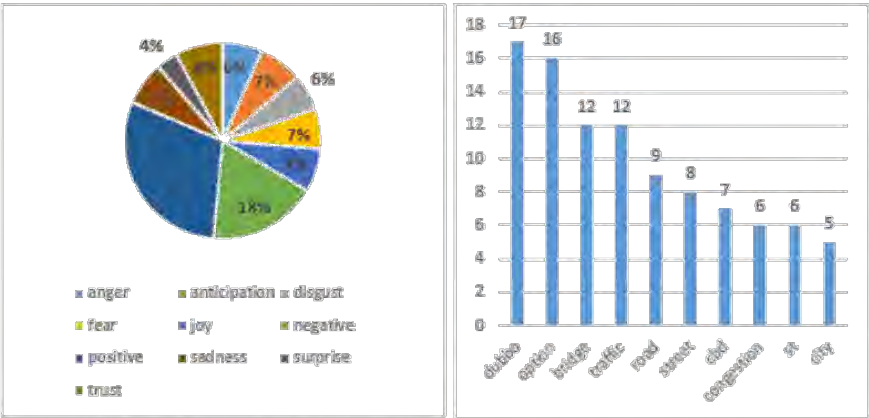


Figure 25. Sentiment Analysis and Top 10 Word Count – Comment Response Question 20

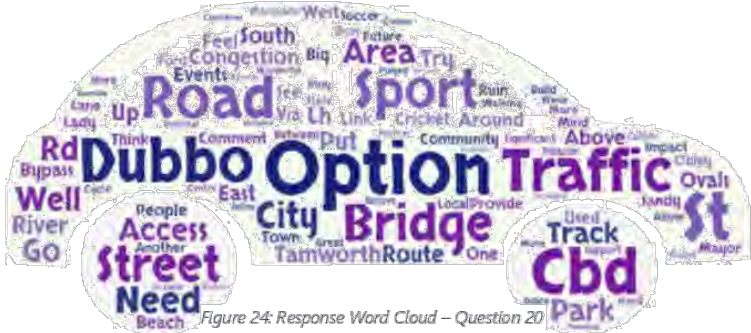


Figure 24: Response Word Cloud – Question 20



Question 21: If you wish, please indicate which of the following stakeholder groups you belong to  
While the majority of respondents (97%) are residents of Dubbo, the participants were of various stakeholder groups. The largest representation in the survey came from sports/recreational users of sports fields and the riverfront (64% of participants), followed by pedestrians/cyclists (61%), and parents/teachers/students (44%). Table 15 provides detail into stakeholder group representation.

Table 15. Stakeholder Group Representation

Stakeholder Group	
I am a commercial business operator in Dubbo	15%
I am a resident of Dubbo	97%
I am a provider of emergency or vital community services	10%
I am a parent, teach or student of a local school	44%
I am a pedestrian or cyclist	61%
I am a sports or recreational user of local sports fields or the Macquarie riverfront and surrounds	64%
I am a tourist or visitor to Dubbo	1%
I am a caretaker of Aboriginal, Non-Aboriginal, or Natural heritage	5%
I am a member of a group not listed above (please provide details)	11%
Other (please specify)	7%

Source: BGA Work Product

Question 22: If you wish, you may provide specific details of your interest as a stakeholder to the proposed Option 1 bridge

When asked to provide any specific details of their interest as a stakeholder to the proposed Option 1 bridge (Question 22), the majority of comments were in opposition to Option 1. Many respondents' interests are in the traffic consequences to the feel, liveability, and safety of the area. Some respondents cite a commitment to community and concern for the disruption of the sporting and recreation amenities. Some respondents reference the iconic nature of Sandy Beach and accessibility of the riverfront, and concerns for public acceptance, safety, and access, given this initiative.

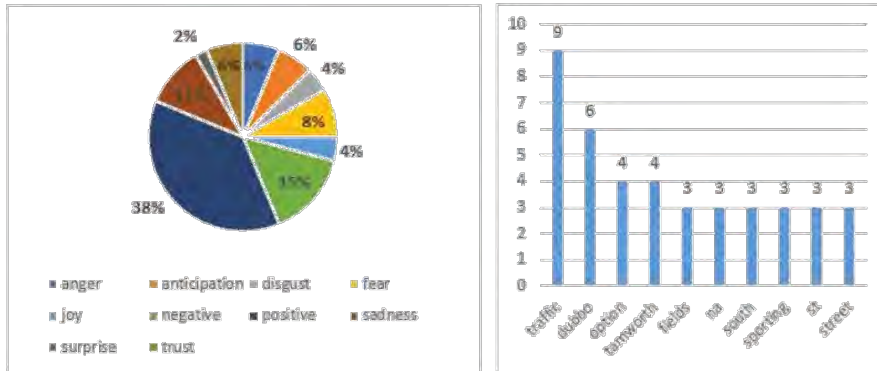


Figure 26: Sentiment Analysis and Top 10 Word Count - Comment Response Question 22

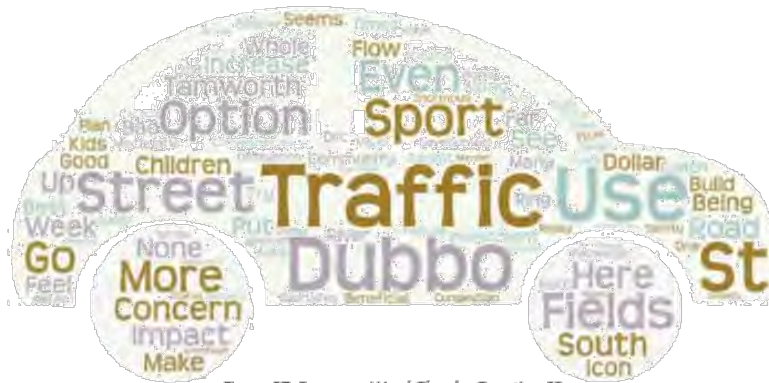


Figure 27: Response Word Cloud - Question 22

Question 23: If you wish, you may provide specific details of your interest as a stakeholder to the proposed Option 4 bridge

When asked to provide any specific details of their interest as a stakeholder to the proposed Option 4 bridge (*Question 23*), Respondents had varying interests for their support of the proposed Option 4 bridge including recreational and sports interests, and an investment in their community and fear for traffic consequences. Many also had children that they were worried about (either safety, recreational access, or both). Other interests included those from a business or an environmental standpoint.

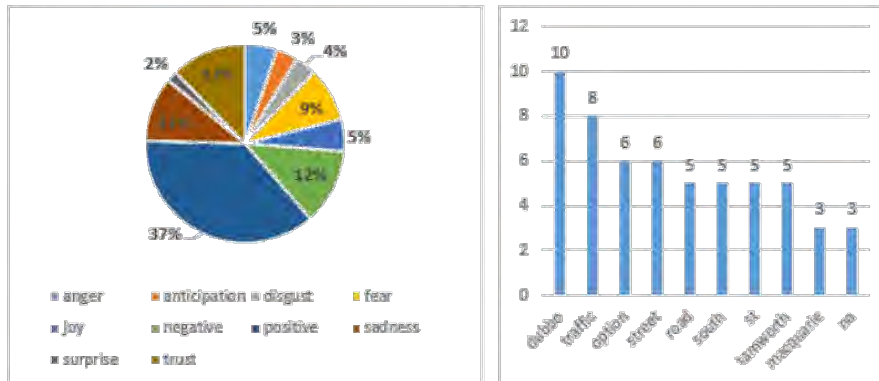


Figure 29. Sentiment Analysis and Top 10 Word Count – Comment Response Question 22

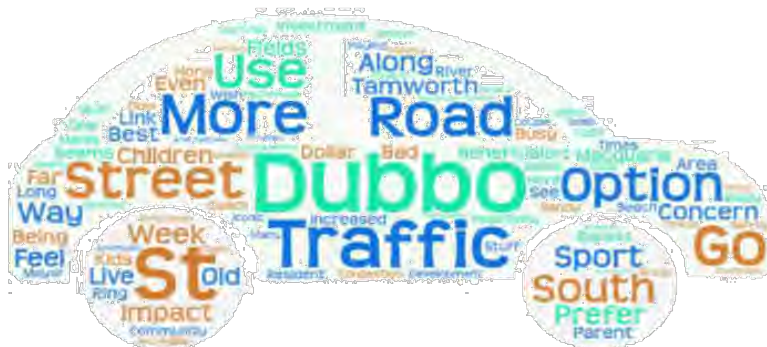


Figure 28: Response Word Cloud – Question 23

### Summary of New South Dubbo Bridge Focus Groups Feedback

In addition to the South Bridge Dubbo Survey, various focus groups met on the 26<sup>th</sup> and 27<sup>th</sup> of November 2020 to discuss concerns for the proposed bridge options.

#### Sports and Recreation Group

In addition to the comments raised by South Dubbo residents, the Sports and Recreation group shed light on sports training, kids, how parking may impact the sporting events, as well as the economic benefits the sports bring into the facilities at the Lady Cutler Oval sporting precinct, including events that come into the city. Additionally, recreation within Sandy Beach such as fishing, boating, and exercising were mentioned, as were vegetation impacts. There was general acknowledgement among the members of the sports and recreation group that a direct east-west link was needed, but that neither of the two options out for public exhibition were the answer.

Table 16: Focus Group - Sports and Recreation Feedback

Issue	Comment
Sir Roden Cutler Park	<ul style="list-style-type: none"> <li>Concerns regarding the impact either option would have on competitions and training. Comments were made that there are people training and playing on the ovals constantly, and a road shouldn't be built that would run straight through it.</li> </ul>
Safety	<ul style="list-style-type: none"> <li>Major safety issues with kids chasing balls close to, and potentially onto the road.</li> </ul>
Parking	<ul style="list-style-type: none"> <li>Parking impacted, particularly along South Street, already an issue during weekday training and weekend competition.</li> <li>Concerns local sport may suffer as parents would be deterred by lack of parking options.</li> </ul>
Sports	<ul style="list-style-type: none"> <li>Dubbo has a high chance of successfully bidding for the State Touch Football carnival, with the current facilities at Lady Cutler Oval sporting precinct and the new Pavans Oval and Bastille Oval precincts. The requirements for a successful tender include having 30 touch football fields in close proximity to one another, as access between fields would be required within limited timeframes between games for players and referees. There is an opportunity for a senior and junior state carnival tender – one has potential to bring in \$12 million for the city. Not taking into account other sports that could attract similar carnivals.</li> <li>If either option is built, it would greatly impact the city's chances of attracting sporting carnivals, with major road infrastructure cutting through the precincts, bringing increased traffic and the safety issues that come with it.</li> <li>The proposed two options may impact weekend competitions. Currently, there are competitors from outside the region who travel to Dubbo for sport, and often use the weekend to go shopping, which benefits local businesses. Dubbo currently has a reputation in the sporting community</li> </ul>

	<p>that its facilities are well maintained and easily accessible. May dramatically affect this reputation of being 'easily accessible' and has potential to deter competitors from travelling to the city.</p>
Sandy Beach	<ul style="list-style-type: none"> <li>• A lot of informal exercise and recreation along Sandy Beach, including exercise along Tracker Riley cycleway, and fishing and boating on the Macquarie River. It's an 'iconic part of Dubbo, which is 'treasured' by locals. Either option may be detrimental to Sandy Beach, by increased traffic in close proximity to the area. There were major concerns about the cost benefit, compared to the impact on the community's health, recreation and lifestyle.</li> <li>• There was a question about whether the boat sheds at Sandy Beach would be affected.</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• The question was posed about whether roads leading into the proposed bridge on the western and eastern sides of the river would need to be widened, and doing so would impact vegetation.</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>• Although not specific to sporting impacts, concern was raised as to whether moving traffic from the LH Ford Bridge to the proposed New South Dubbo Bridge, with the ultimate goal of ending up in the same location (the CBD), would actually solve traffic volume issues. It was also raised, that the 'majority' of South Dubbo residents travel to other locations in Dubbo and there was too much focus on getting people into the CBD.</li> </ul>
Alternative Options	<ul style="list-style-type: none"> <li>• There was a question as to whether there has been any study into expanding or duplicating the LH Ford Bridge.</li> <li>• Questions were raised about how much consideration was given to school drop offs – many attendees felt they would benefit from a southern link road during school drop off times, for residents living in West Dubbo but kids schooling on the eastern side of the river, and vice versa.</li> <li>• There was a strong consensus within the group that they would like to see more options, at the very least, the other two options in the Council commissioned GHD report.</li> </ul>
Timeline	<ul style="list-style-type: none"> <li>• The representatives requested information as to where this project is at, how soon would we see a New South Dubbo Bridge</li> </ul>

**Business Group**

Similar to the sports and recreational focus group, the issue was raised several times that the group would like to see other options besides the two proposed options. The Business Group was the only group to mention impacts on Taronga Western Plains Zoo and mine developments, as well as traffic impacts of people wanting to stay at hotels in West Dubbo.

*Table 17: Focus Group - Business Feedback*

Issue	Comment
Safety	<ul style="list-style-type: none"> <li>Although not specific to business groups, concerns were raised about safety issues either bridge would create around Lady Cutler Oval sporting precinct, as well as parking impacts in that area.</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>There were questions around the flood immunity of the bridge, whether the New South Dubbo Bridge would be a flood option.</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>Several issues were raised about congestion along Whylandra Street with an increased number of traffic lights, noise pollution from trucks breaking, and the potential flow-on effects of people wanting to stay at hotels in West Dubbo while visiting Taronga Western Plains Zoo. The question was raised as to why Minore Road was chosen as the intersection to link the bridge to the eastern side of the river.</li> </ul>
Alternative Options	<ul style="list-style-type: none"> <li>There was a strong consensus within the group that they would like to see more options, at the very least, the other two options in the Council commissioned GHD report. This issue was raised several times throughout the meeting.</li> <li>In reference to the draft Dubbo Transport Strategy 2020<sup>5</sup>, the question was raised as to how a New South Dubbo Bridge would help road users get to the future proposed Health and Education Precinct, and whether a link road would be more beneficial for the community for a number of reasons, including access to the future Health and Education Precinct, and traffic flows to other parts of the city. There were also questions as to whether a 'link' or 'ring road' option was still a consideration and should be investigated more.</li> <li>The question was posed as to why Option 3 curved, instead of running straight through to Tamworth Street.</li> </ul>
Timeline	<ul style="list-style-type: none"> <li>The question was asked as to how soon a South Dubbo Bridge would likely be built. There was also a question about construction hours, and how this would potentially impact businesses. The group also questioned what would happen if the overwhelming feedback on these two options was negative.</li> </ul>
Design/Aesthetics	<ul style="list-style-type: none"> <li>What would the bridge actually look like?</li> </ul>
Zoo Developments	<ul style="list-style-type: none"> <li>Representatives from Taronga Western Plains Zoo raised their development plans for land on the northern side of Obley Road, which would be impacted by Option 2.</li> </ul>

<sup>5</sup> It should be noted this document is in draft and has not been adopted by the Council

	<ul style="list-style-type: none"> <li>Concerns were raised about whether the impact on Tracker Riley cycleway was given adequate consideration. Taronga Western Plains Zoo representatives said the usage of Tracker Riley cycleway by visitors should not be 'downplayed' – there's evidence that visitors to Dubbo would use the track to ride bikes from their hotel to the zoo, or just use the track itself while visiting for a weekend, to take in the natural surrounds of the city. The concern was that either option would dramatically impact the aesthetics and character of Tracker Riley cycleway.</li> </ul>
Alkane Mine	<ul style="list-style-type: none"> <li>The question was raised as to whether the proposed Alkane mining development was taken into consideration in the draft Dubbo Transport Strategy 2020, as it would likely increase heavy vehicle movements on roads around and leading into Dubbo, particularly Obley Road.</li> </ul>
House Prices	<ul style="list-style-type: none"> <li>Questions were asked about whether any modelling had been done on any potential impact construction of either bridge option would have on house prices throughout the city.</li> </ul>

### Traditional Land Owners

Traditional Land Owners objectives centered around the cultural impact of any proposed option on Sandy Beach, and a study was suggested. Additional themes include congestion, parking and alternative options.

Table 18: Focus Group - Traditional Land Owners Feedback

Issue	Comment
Cultural Impact	<ul style="list-style-type: none"> <li>The issue of cultural importance and heritage at Sandy Beach was raised, the group expressed the need to make sure a comprehensive study was done on any potential impact at Sandy Beach, particularly in relation to Option 1.</li> </ul>
Contact Methods	<ul style="list-style-type: none"> <li>Members of the group suggested some different methods of getting feedback from Traditional Land Owners and Elders. It was suggested that Council staff could provide a brief in an informal setting, as well as a presentation at one of the Working Parties.</li> </ul>
Congestion	<ul style="list-style-type: none"> <li>Concerns were raised about any additional traffic congestion in South Dubbo brought about by a new South Dubbo Bridge, particularly at the Boundary Road-Macquarie Street intersection. Members of the group also expressed concerns about congestion at South Dubbo schools during drop off times, with fears that potential increased traffic volumes via a new bridge, would add to the congestion.</li> </ul>
Parking	<ul style="list-style-type: none"> <li>The issue of parking at the sporting ovals was raised, and concerns that it would be severely impacted by construction of either option.</li> </ul>
Alternative Options	<ul style="list-style-type: none"> <li>The group questioned whether a higher bridge had been investigated, which would take away any cultural impacts at Sandy Beach, and traffic and safety dangers at the sporting fields.</li> </ul>

### Emergency Services and Transport

Emergency Services and Transport focus group were primarily concerned with access onto Tamworth Street, congestion and flood immunity concerns.

Table 19: Focus Group - Emergency Services and Transport Feedback

Issue	Comment
Alternative Options	<ul style="list-style-type: none"> <li>Why there wasn't access onto and/or from the bridge onto Tamworth Street, as it was believed this would help control traffic flow by providing another entry/exit point in South Dubbo.</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>Had flood immunity been a major concern for the community, during the stakeholder meetings.</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>Any idea which eases congestion would be a positive one.</li> </ul>

### Summary of Online Feedback

Dubbo Regional Council accepted public input on the draft *Dubbo Transport Strategy 2020* online via a submission form on the Dubbo Regional Council Website through mid-February 2021.<sup>6</sup> This section summarises that feedback. In some cases, an individual responded to the inquiry on behalf of an organisation. Therefore, this section is split into two groups; individual and organisation responses.

#### Organisation Responses

12 people submitted responses for 11 different organisations in Dubbo. These responses were typically letters with detailed explanations for their stance on the bridge options. Table 20 describes the common themes in responses from organisations.

Table 20: Common Themes in Responses from Organisations

Theme	Description
Analysis	Respondents want more information and analysis on traffic patterns as well as the information on the other two options that weren't provided. They believe this analysis should take into account the new River Street Bridge that is underway and the environmental impacts of the bridge. They also ask for increased consultation with the public and organisations through this process.
Traffic	Respondents believe that the options will divert the traffic issues to other areas and will create noise, parking and safety problems.
Environment	Similar to other groups, Dubbo organisations love the natural area and are concerned that the bridge may have negative impacts on the river flow, the natural environment, habitats and native species of plants and animals in Dubbo.

<sup>6</sup> [Proposed South Dubbo Bridge Concepts and Transportation Strategy 2020 - Dubbo Regional Council \(nsw.gov.au\)](https://www.nsw.gov.au/transport/road-transport/south-dubbo-bridge-concepts-and-transportation-strategy-2020)



Accessibility and Amenity Value	Respondents are concerned that the bridge construction will impact recreation, particularly the Tracker Riley cycleway, which is the centre of many community activities. They also believe it will impact their ability to access the river.
Lady Cutler Oval Sporting Precinct	Many organisations are very concerned about the potential impacts to the Lady Cutler Oval sporting precinct if traffic is diverted through this area. They note the importance of attracting sporting events to the area and the difficulty increased traffic would cause in attracting these events and the millions of dollars they bring to Dubbo each year. They also worry about the safety of children and families if traffic became heavier in this area.

Table 21 summarises organisations' preferred option, their primary reason for their selection, and their additional recommendation if they provided one.

Table 21: Summary of Group Organisation Preferences

Organisation	Preferred Option	Primary Reason	Additional Recommendation (if provided)
Dubbo District Junior Cricket Association	Option 4	Limited impacts to Lady Cutler and Pavans Sporting Precinct compared to other options.	
Dubbo Environment Group	None	Preservation of the environment and natural species of flora and fauna.	A bypass that crosses the river at Troy Bridge.
Dubbo Regional Heavy Transport Representative	Option 4	Reduces traffic. Believes project is urgently important.	
Dubbo Regional Sports Council	None	Impacts to sporting and recreation facilities and activities.	
Dubbo RiverCare Group Inc.	None	Impacts on the environmental, social, economic and cultural assets. Flaws in analysis.	Support a ring road, increased public transport options, and investment in cycling and pedestrian infrastructure.
Dubbo Triathlon Club and Dubbo Mountain Bike Club	Unclear		Need more inclusivity in consultation groups and strategic plan should include bike storage.
Organisation (unknown)	None	Traffic congestion in other areas, safety in sporting precinct and lack of analysis of options.	A bridge adjacent to Dundullimal Homestead or increase the lanes on LH Ford Bridge for 2 off ramps leading back into the City or into South Dubbo

Outback Dragons Dubbo Inc.	None	Impacts to environment, recreation and safety of dragon boaters. Potentially could cause the relocation of the boaters.	No new bridge between the CBD and southern residential boundaries, investment in public transport options and cycling and pedestrian infrastructure, a ring road linking South West and South East Dubbo, and a bypass road for heavy traffic.
Dubbo Ultimate	None	Impacts to Sandy Beach and Lady Cutler sporting area.	Avoid Sandy Beach Disc Golf Course and Lady Cutler Oval Sporting precinct. If options are pursued, relocate and replace disc golf course and use fencing and signage to keep the Lady Cutler Oval sporting precinct area safe.
Dubbo Touch Association	None	Impacts to Lady Cutler Oval sporting precinct and inability to attract large sporting events.	A solution that doesn't impact the Lady Cutler Oval sporting precinct.
Transport NSW <sup>7</sup>	Supports Options 1 and 4.	Provide an east – west Connection	Further development of the South Dubbo Bridge should consider the broader implications to the local and state classified road network.

<sup>7</sup> Two people from Transport for New South Wales submitted detailed responses to the online inquiry. Only one response is summarised here since it was the one with a preferred option. The other response included detailed comments and improvements to the plan. Both should be reviewed.

**Individual Responses**

After removing spam responses and duplicates, 56 responses submitted by individuals were analysed. Figure 30 shows the most common words used by individuals who responded via email. Figure 31 shows the sentiment analysis and top 10 word count for the individual email responses. Emotions revealed in responses include anger, anticipation, and fear, with the mix of negative and positive sentiments. Frequent terms used pertain to concerns with traffic congestion, safety, and crossing alternatives across various streets or intersections

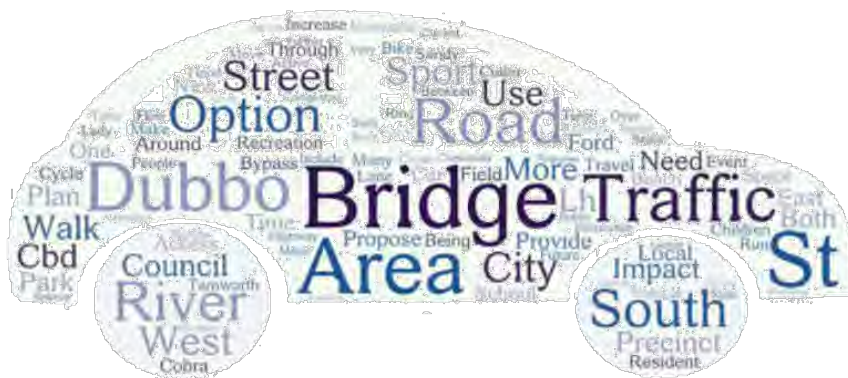


Figure 30: Response Word Cloud – Individual Email Responses

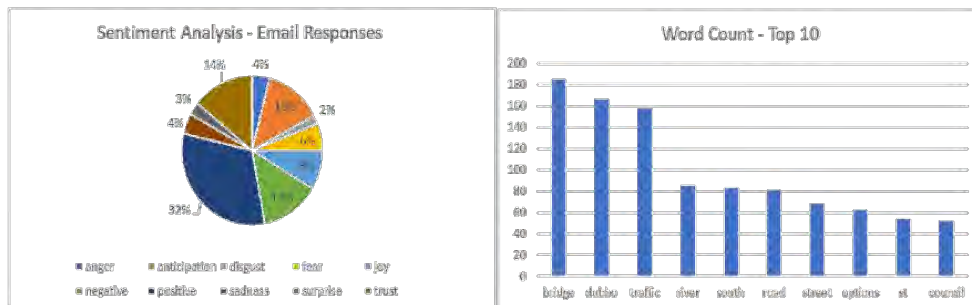


Figure 31: Sentiment Analysis and Top 10 Word Count - Individual Email Responses

Table 22 describes the most common themes from individual email responses. A description of responses under each theme is provided.

*Table 22: Summary of Individual Email Responses*

Theme	Description
Analysis	Many respondents requested additional analyses and the supporting evidence behind each of the proposed options. In addition, respondents frequently requested the analysis on the additional two options be released for public comment. For the additional analyses, one respondent requested modelling on traffic patterns to be done with the new RAAF Base development considered, showing the impacts with and without the bridge as well as modelling done with a bypass road. Many respondents believe that these options will not alleviate traffic, only shift it to other areas. They have requested modelling or impact studies showing how traffic in the main streets in South Dubbo, specifically Tamworth Street, will change into the future as West Dubbo grows and how the traffic patterns will shift with the new bridge. Others also request analysis on vehicle traffic in Macquarie Street south of the LH Ford Bridge during peak times.
Traffic	Many respondents are concerned that the new bridge will increase traffic or divert traffic to another area (from the Whylandra Street intersection to the intersection of Macquarie and Cobra Streets, from the western end to the eastern end of the LH Ford Bridge, etc.). Some also think that these proposals will increase traffic noise in green spaces and residential areas and hate the idea that traffic will dominate the more natural river precinct area. Most respondents believe the increase in traffic will make the Lady Cutler Oval sporting precinct unsafe for children and families. They also believe the increased traffic would result in a decline in parking availability, which would keep Dubbo from being able to host large sporting events. People don't like that traffic is directed through the Lady Cutler Oval sporting precinct and through quieter suburban streets in Dubbo.
Environment	Dubbo residents love the Macquarie River precinct for its trails, green space and trees. Many respondents were concerned that the development of these options would destroy trees, critical habitats and the beloved green spaces that are heavily utilised. In addition, respondents were concerned that the bridge would contribute to the erosion of the river, which residents and groups have already been working to mitigate. In addition, residents love Sandy Beach. They believe it is a huge asset for Dubbo and were strongly against the addition of a bridge that cut through this area.
Accessibility and Amenity Value	Respondents believe the development of these options would reduce the number of people using the area for recreation and impact the overall liveability of Dubbo. Specifically, they believe the options would limit people's access to the river and trails, which are utilised by many groups (Dragon Boats, runners, etc.). One respondent even listed out the groups and the resulting number of people that would be impacted. People highly value the recreational and cultural amenity of the river precinct and Sandy Beach. They feel strongly that the new bridge should not impact these areas.

Lady Cutler Oval Sporting Precinct	Dubbo residents are strongly against funnelling traffic through the Lady Cutler Oval sporting precinct. This was one of the most common reasons for opposing the options. They believe the increased traffic will make the area unsafe for children, families and other users of the facilities. They also believe that diverting traffic through Lady Cutler Oval sporting precinct will impact on Dubbo's ability to attract large sporting events to the area, which greatly contributes to the economy.
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A summary of possible solutions provided by individuals is summarised in Table 23 below.

Table 23: Possible Solutions Provided by Individuals

Theme	Description
Possible Solutions	<p>Many respondents offered other options:</p> <ul style="list-style-type: none"> <li>• Alternative bridge locations and alignments including <ul style="list-style-type: none"> <li>- A bridge connecting to Hennessy Ln</li> <li>- A bridge duplicating the LH Ford Bridge on the northern side</li> <li>- A bridge connecting Obley Rd to Margaret Cres</li> <li>- A swing bridge directly linking workers and shoppers from a parking space on the west side directly into the CBD</li> </ul> </li> <li>• Alternative infrastructure projects including <ul style="list-style-type: none"> <li>- Investment in public transport, encourage use of bus transport</li> <li>- Investment in pedestrian and cycling infrastructure</li> <li>- A ring road or bypass round Dubbo</li> <li>- Removing walking lanes on the LH Ford Bridge and opening up more lanes for traffic</li> <li>- Reinstate double lanes on Cobra Highway and extend them to business and eastern growth areas</li> <li>- Repurpose the old rail corridor from Macquarie Street to Wingewarra Street with an extension on the Tracker Riley Cycleway with further multi-purpose walking and cycling track</li> <li>- Traffic lights on the Victoria Street-Young Street intersection</li> <li>- A new route to the northern low-level Serisier Bridge for West Dubbo residents via a loop road from Minore Road - west of current housing - across the railway line, linking to a widened Thompson Street</li> <li>- Re-establish the Brisbane Street rail crossing to provide additional access to the CBD</li> </ul> </li> </ul> <p>These options were not investigated further or checked for feasibility before being summarised in this report.</p>

### Summary of New South Dubbo Bridge Internal Feedback

Feedback was gathered from several key internal members of Dubbo Regional Council. Overall themes include possible loss of future events, concerns about the report, and suggestions for consideration. In addition to the themes presented by residents and other stakeholders, internal members suggest more studies may need to be completed to adequately reflect flood immunity, traffic modelling, and property price impacts. This is similar to what the business owner focus group recommended. A summary is provided in Table 24.

*Table 24: Summary of Internal Feedback*

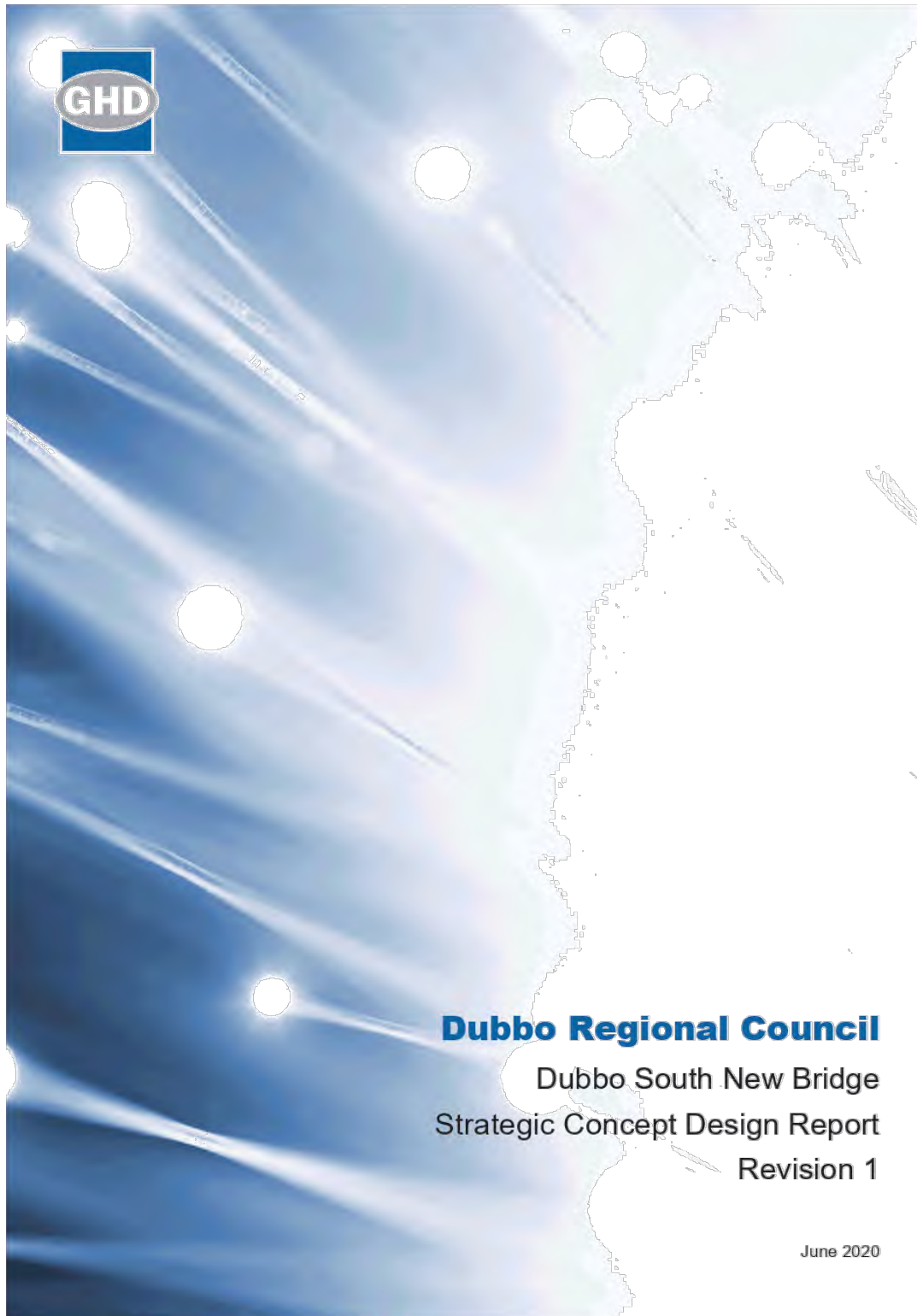
Issue	Comment
Sporting Complex and Opportunities	<ul style="list-style-type: none"> <li>In the initial workshop where it was decided to 'dispose' of the four options, comments were made about moving the sporting complex to make way for the proposed bridge – (either option). This was of concern, as \$1 million has recently been spent on irrigation and turfing the new ovals now called the Pavans and Bastille precincts, and a new amenities block is being developed.</li> <li>Elected officials have overlooked the 'kickback' that the city receives from weekend sporting competitions and carnivals, and have especially overlooked the potential kickback it would receive from potential future sporting opportunities.</li> </ul>
Elevated Bridge	<ul style="list-style-type: none"> <li>Possible solution is to raise/elevate bridge linked to Macquarie Street, if it must run through the middle of the sporting ovals, as this would erase the numerous safety issues including children running after balls onto the road, while also keeping the current character of the precinct intact.</li> </ul>
Events	<ul style="list-style-type: none"> <li>Option 2 conflicts with an event precinct being developed north of the LH Ford Bridge.</li> </ul>
Report	<ul style="list-style-type: none"> <li>The report is 'light on' in terms of Minore Road impacts and believes Minore Road, as a funnel point is a problem.</li> <li>The images in the report don't make it clear if they match the number of piers for each bridge, also couldn't tell where the piers would be placed, which could each bring about issues. Water will eddy around the piers in the water.</li> </ul>
Erosion	<ul style="list-style-type: none"> <li>Abutment issues are 'significant' for Sandy Beach and Lady Cutler Oval sporting precinct; already erosion points at Lady Cutler South, and piers or abutment could worsen it.</li> </ul>
Alternate Transport	<ul style="list-style-type: none"> <li>Alternative modes of transport really need to be looked at in the long-term strategy. Is there adequate space for electric vehicles for cars/public transport?</li> </ul>
CBD Focused	<ul style="list-style-type: none"> <li>Questioned why option 3 was so 'CBD focused', instead of diverting traffic further south.</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>Need more information in the report on flood immunity.</li> </ul>
Southern Ring Road and LH Ford Bridge	<ul style="list-style-type: none"> <li>Is the southern link road a possibility or completely off the table, as well as an LH Ford Bridge duplication.</li> </ul>

Appearance	<ul style="list-style-type: none"> <li>Concerned about how the proposed bridge would appear going over Sandy Beach, and the implications going over the currently peaceful recreational area. The bridge abutments would fill in the current footpath around Sandy Beach, so there are significant visual impacts on the area. (Option 1)</li> </ul>
City Movements	<ul style="list-style-type: none"> <li>Has there been any modelling on how people move throughout the city? While the proposed bridge is focused on easing congestion on the LH Ford Bridge, and getting traffic into the CBD, there was concern that no official modelling had been done to determine which areas of the city people are travelling to most.</li> </ul>
Property Impact	<ul style="list-style-type: none"> <li>Have any studies been done on the effect the proposed bridge would have on property prices?</li> </ul>
Big 4	<ul style="list-style-type: none"> <li>The Park managers were on annual leave the week of the stakeholder meeting, the issue was raised to talk with NRMA head office, as either bridge option would significantly impact the property via a built-up retaining wall.</li> </ul>
River Precinct	<ul style="list-style-type: none"> <li>Dubbo will continue to get higher volumes of visitors, with a number of new developments in the city, which will mean more people along the river during these events. This must be taken into consideration when building a large piece of infrastructure across the river.</li> </ul>

### Recommendations

Across all five groups that presented feedback, most groups were not supportive of the options presented. Findings from the analysis indicate that Council should:

1. Present information on all four bridge options to the public, including detailed information and supporting evidence for each option presented.
2. Consider modelling traffic impacts under each option.
3. Include analysis on other impacts to the community, including environmental impacts, when assessing each option.
4. Consider additional options suggested by respondents and discussed herein including options that don't implicate on Sandy Beach, the Lady Cutler Oval sporting precinct, or Macquarie River areas.



WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION



## Executive summary

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.3 and the assumptions and qualifications contained throughout the Report.

### Background

Dubbo is a major regional city located at the intersection of the Newell, Mitchell and Golden Highways. Dubbo Regional Council (DRC) is currently in the planning process for managing the growth and residential development of West Dubbo and alleviating CBD traffic congestion. As part of this planning, DRC has recognised that traffic congestion is a critical weak link in the supporting and surrounding infrastructure and several studies have been undertaken identifying the need for a new southern bridge crossing the Macquarie River to provide an alternate route to the CBD and to provide an alternate route for south-west Dubbo residents to the CBD.

### Design philosophy

Four (4) route options (Option A, B, C and D) were considered, seeking to utilise existing road corridors and connectivity to existing intersections. Proximity to east-west travel destinations have been considered to provide the most direct alignment possible between the Newell Highway on the west side of the Macquarie River and Macquarie Street on the east side of the river.

The horizontal alignment has been developed to ensure the bridge for each option is positioned on a straight alignment to improve safety and amenity for road users with increased sight distances. This also significantly reduces the cost of the bridge along with the complexity of both design and construction. Option B deviates from this consideration and is the only option which considers a horizontal curve within the bridge.

The vertical alignment of each option has been developed such that the road achieves a minimum flood immunity of 5 % annual exceedance probability (AEP), and the underside of the bridge is clear of water, plus an allowance for freeboard. The existing road levels on the eastern side of the Macquarie River along Bligh Street and Tamworth Street are at approximately the 5 % AEP flood level.

Pedestrians and cyclists have been allowed for in the design with the provision for on road cyclists lanes at intersections, off road cyclists and pedestrians via a 2.5 m wide shared path, and underpass at Golf Links creek for Tracker Riley cycleway, or other underpass access via large culvert, dependant on option.

### Cost

Strategic cost estimates were prepared for each alignment option with an allocated 30 % contingency. Individual bridge type options were not costed, with a square metre rate used for the preferred Super-T bridge arrangement on all road alignment options. A summary of construction and design costs is shown in Table E-1.

**Table E-1 Strategic cost estimate summary**

Item	Description	Option A	Option B	Option C	Option D
1	Total project construction costs	\$28,879,004	\$31,448,368	\$27,806,414	\$21,648,607
2	Total design and management costs	\$4,033,666	\$4,245,530	\$3,753,866	\$2,922,562
	<b>TOTAL PROJECT COST</b>	<b>\$33,912,670</b>	<b>\$35,693,898</b>	<b>\$31,560,280</b>	<b>\$24,571,169</b>

**Impacts**

The different options present different impacts to recreational spaces, existing property and existing intersections. The below table summarises each route option and impact. More detailed discussion of each of these impacts is found within the body of the report.

**Table E-2 Impact**

Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
1	Requires construction of retaining wall along BIG4 property boundary	x	x	x	
2	Severance of property and acquisition of land				x
3	Severance of Sir Roden Cutler Park	x	x	x	
4	Curved alignment on bridge		x		
5	Encroachment on existing sporting fields		x		
6	Requirement to close off access to Macquarie Street from the east end of Tamworth Street			x	x

**Strategic outcomes**

In order to progress the preferred option design development, DRC require State and / or Federal Government funding. This report supports completion of a Strategic Business Case (SBC) document which will allow DRC to complete a Strategic Business Case funding application, to ultimately achieve funding for bridge construction.

**Next steps**

The next steps for DRC are to:

- Adopt this report for community consultation.
- Undertake community consultation.
- Determine a preferred Option alignment
- Update and adopt current Draft Transport Strategy.

A successful SBC submission will provide funding approval and allow for technical site investigations and a Review of Environmental Factors (REF) to be completed to inform the concept and detailed design and cost estimate.



**Figure E-1 Sample Images of proposed South Bridge – Top image is Option B (curved Bridge); Bottom image is Option A (straight Bridge)**

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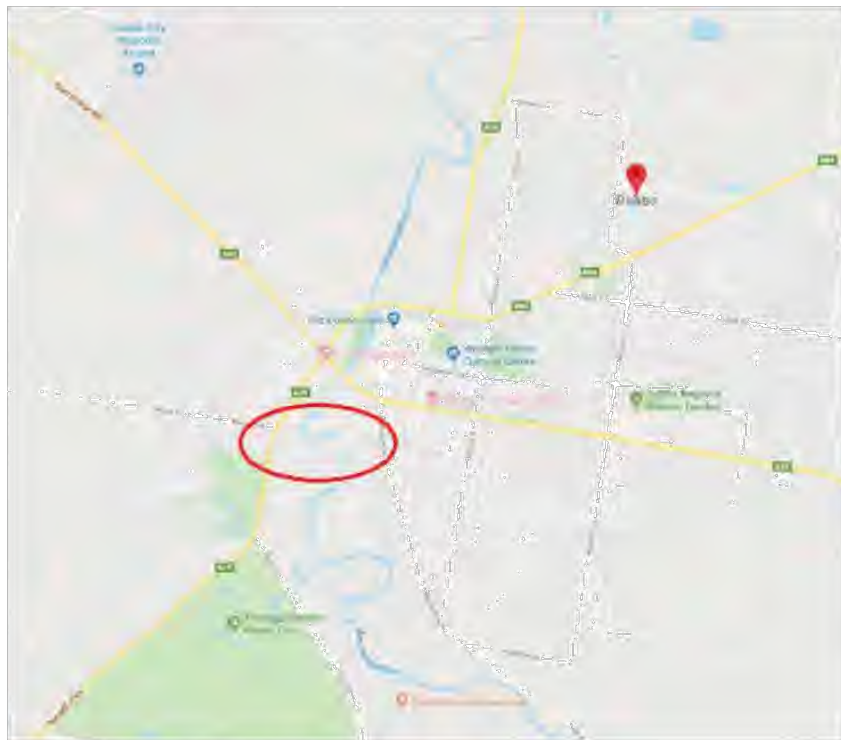
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# 1. Introduction

Dubbo is a major regional city located at the intersection of the Newell, Mitchell and Golden Highways. Dubbo Regional Council (DRC) is currently in the planning process for managing the growth and residential development of West Dubbo and alleviating CBD traffic congestion. As part of this planning, DRC has recognised that traffic congestion is a critical weak link in the supporting and surrounding infrastructure.

Consequently GHD has been engaged by DRC to investigate and develop a strategic concept options report for the construction of an alternate route to the CBD and associated bridge works over the Macquarie River.



**Figure 1-1 Dubbo South bridge location plan**

(Image by Google Maps)

## 1.1 Project background

*Located at the junction of major road, rail and air transport routes, Dubbo is a thriving regional service centre. The City is located in the heart of New South Wales and services a wider region of 120,000 people. Dubbo's economic strength lies heavily in the diversity of industries that reinforce its role as a vibrant regional service centre, supported by a flourishing retail sector and over 4,500 registered businesses. Situated in the heart of New South Wales, the Dubbo region is a dynamic growing centre, with a population of over 50,000 smiling people who call the region home. (Reference: <https://evocities.com.au/dubbo/>).*

The city of Dubbo services a population of over 40,000 people and the city is geographically divided by the Macquarie River running north-south. To the west of the river lies largely residential development and land identified for future growth, and to the east, the CBD and expansive residential development.

At present, the Macquarie River may only be crossed at two (2) locations:

- LH Ford Bridge located on the Mitchell Highway, which feeds traffic directly into Cobra Street (the main street); or alternatively.
- Emile Sersier Bridge, on the Newell Highway to the north of the CBD.

It is noted that RMS is pursuing design and construction of a new bridge at the north end of Dubbo (River Street Bridge), which focuses on Newell Highway freight movement improvements and 100 year flood immunity provision for the highway. The River Street Bridge does not:

- Ease CBD congestion.
- Provide an alternate route for south-west Dubbo residents to the CBD.
- Support development in West Dubbo.
- Support the DRC Transport Strategy to 2055, noting the bridge is part of the strategy however is not required in the near term.

GHD has been engaged to provide a strategic concept options report considering potential means of achieving access over the Macquarie River between East and West Dubbo and budget cost estimates.

## **1.2 Purpose of this report**

This Strategic Concept Report aims to determine the most appropriate option for a new bridge in terms of location, engineering, community, environmental constraints and cost. We understand that DRC will use this report to support funding requests to Government authorities in order to further develop design and ultimately proceed to construction of a new bridge. Consequently this report must be read in conjunction with those assumptions, limitations and qualifications discussed throughout.

## **1.3 Scope and limitations**

This report has been prepared by GHD for Dubbo Regional Council and may only be used and relied on by Dubbo Regional Council for the purpose agreed between GHD and the Dubbo Regional Council as set out in Section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Dubbo Regional Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.



Specifically, this Report does not take into account the effects, implications and consequences of or responses to COVID-19, which is a highly dynamic situation and rapidly changing. These effects, implications, consequences of and responses to COVID-19 may have a material effect on the opinions, conclusions, recommendations, assumptions, qualifications and limitations in this Report, and the entire Report must be re-examined and revisited in light of COVID-19. Where this Report is relied on or used without obtaining this further advice from GHD, to the maximum extent permitted by law, GHD disclaims all liability and responsibility to any person in connection with, arising from or in respect of this Report whether such liability arises in contract, tort (including negligence) or under statute.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Dubbo Regional Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has prepared the preliminary cost estimate set out in section 6 and Appendix D of this report ("Cost Estimate") using information reasonably available to the GHD employee(s) who prepared this report; and based on assumptions and judgments made by GHD and detailed in section 6 and Appendix D of this report.

The Cost Estimate has been prepared for the purpose of informing option comparisons within the Strategic Concept Options Report and to be used to inform production of a Strategic Business Case and must not be used for any other purpose.

The Cost Estimate is a preliminary estimate only. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change. Unless as otherwise specified in this report, no detailed quotation has been obtained for actions identified in this report. GHD does not represent, warrant or guarantee that the project can or will be undertaken at a cost which is the same or less than the Cost Estimate.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the user and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

#### **1.4 Assumptions**

GHD has assumed that the survey, geotechnical and utility information supplied by DRC is suitable for strategic concept options design development and generation of earthworks volumes to enable cost estimation. As this is a strategic concept design report, no detailed survey, investigations or studies have been carried out.

## 2. Route options and bridge location

### 2.1 Dubbo transport routes context

Dubbo is located at the junction of the Newell, Mitchell and Golden Highways, forming a major inland transport route. There are currently two (2) bridge crossings forming an east-west link through central Dubbo along the Golden Highway and Mitchell Highway. RMS are currently in the process of design and construction of a new bridge at the north end of Dubbo, which focuses on Newell Highway freight movement improvements and 100 year flood immunity provision for the highway. This will remove a significant number of heavy vehicles travelling directly through the main commercial/retail street of Dubbo (the Golden Highway).

Beyond the removal of heavy vehicles, Dubbo still experiences significant local traffic congestion through the central CBD from passenger and light vehicles. A southern river crossing would provide an alternate southern route to the CBD and connectivity between Dubbo's southern residential zones.

DRC has invested considerable effort into strategic studies over a period of time. The following existing and adopted studies and strategies have highlighted the need for a southern bridge crossing:

- Dubbo Expanded Urban Area Traffic Management and Roads Contributions Study (PPK Environment and Infrastructure, 1998).
- Dubbo City Planning and Transport Strategy 2036 (Stapleton Transport and Planning, 2009, p81, p93).
- Residential Release Strategy – West Dubbo Urban Release Area (Dubbo City Council, 2011).
- Dubbo Transportation Strategy – (Stapleton Transportation and Planning, 2020).

*Community Strategic Plan – current version, undated (Dubbo Regional Council).*

### 2.2 Route selection

The scope of this strategic concept options report requires identification of four (4) strategic option locations for a new south bridge crossing of the Macquarie River. GHD has not undertaken a formal route study but has conducted an investigation into alternative locations for a new bridge as a desktop exercise. Locations were nominally identified with consideration to connections with existing road corridors, intersections and proximity to east-west travel destinations.

### 2.3 Strategic options

A number of options have been investigated to provide east-west connectivity over the Macquarie River between the Newell Highway and Macquarie Street. The options seek to utilise existing road corridors to provide the most direct alignment possible. With the exception of Option B, horizontal alignment has been considered such that the whole bridge for each option can be on a straight alignment, improving safety and amenity for road users with increased sight distances. This also significantly reduces the cost of the bridge along with the complexity of both design and construction. Each of the options is described below and depicted in Figure 2-1.



Figure 2-1 Strategic options

### **2.3.1 Option A (Road 01 – orange route)**

Reference Drawing No. 22-12511689-SK002 within Appendix A.

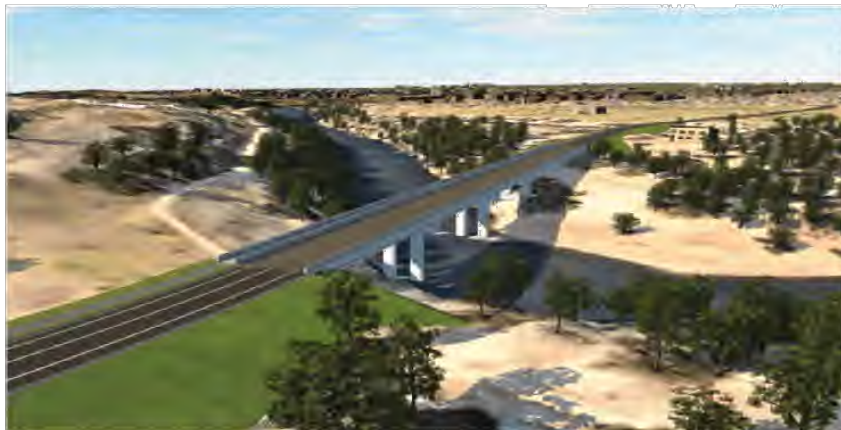
Option A provides an east-west connection from the Minore Road intersection with the Newell Highway on the western side of the river, across to Sandy Beach Road and Bligh Street, terminating at the intersection of Bligh Street and Macquarie Street, with the bridge located adjacent to Sandy Beach. The Newell Highway / Minore Road and Macquarie Street / Bligh Street intersections would require upgrade to signalised intersections. The location where the Sandy Beach Road / Bligh Street / South Street intersection currently exists would be reconfigured to a signalised T-junction with through priority given to new collector road. The South Street leg would not be part of the new T-junction. South Street would instead be accessed via Tamworth Street and terminate in a cul-de-sac just south of the new T-junction.

A reconfiguration of existing access roads to Sandy Beach would also need to be accommodated.

It should be noted that the installation of traffic signals at the Newell Highway tie in location may cause additional traffic congestion on the Newell Highway. Traffic impacts would be further investigated in detailed design phase in consultation with TfNSW.

The bridge crossing at Sandy Beach Road would significantly impact the recreational amenity and access to the popular community asset of Sandy Beach, which is a significant negative impact associated with this option.

A retaining wall with an average height of 1.5 m for a length of approximately 120 m is required. Refer to Section 2.4.1 for additional commentary on the retaining wall. The indicative location of the retaining wall is shown on the reference drawing.



**Figure 2-2 Option A – view looking northeast adjacent to new bridge over the Macquarie River**

### 2.3.2 Option B (Road 02 – purple route)

Reference Drawing No. 22-12511689-SK006 within Appendix A.

Option B provides an east-west connection via a curved bridge located to the south of the existing pedestrian bridge. The bridge is fully contained within a horizontal curve with a consistent cross fall for driveability, design speed, sight distance, safety and constructability reasons. The western tie-in of the route is from the Minore Road intersection with the Newell Highway on the western side of the river. The route then follows north along South and Bligh Street terminating at the intersection of Bligh Street and Wingewarra Street.

Motorists would also have an option to utilise the Sandy Beach Road / Bligh Street / South Street intersection to access Macquarie Street at the intersection with Bligh Street / Streakes Avenue. Both these existing intersections would be reconfigured to new signalised intersections.

When compared to Option C, the route to the west of the Macquarie River is very similar, however the eastern route directs traffic in a northbound direction, reconnecting with the road network at the intersection of Bligh Street and Wingewarra Street; or alternatively connecting to the Macquarie Street / Bligh Street / Streakes Avenue intersection via the Sandy Beach Road / Bligh Street / South Street intersection.

Due to the curvature of the alignment in order to achieve design speed, there is some encroachment on to the southern edge of sporting fields on the east side of the river.

It should be noted that the installation of traffic signals at the Newell Highway tie in location may cause additional traffic congestion on the Newell Highway. Traffic impacts would be further investigated in detailed design phase in consultation with TfNSW.

A retaining wall with an average height of 1.5 m for a length of approximately 120 m is required. Refer to Section 2.4.1 for additional commentary on the retaining wall. The indicative location of the retaining wall is shown on the reference drawing.



**Figure 2-3 Option B – view looking northeast adjacent to new bridge over the Macquarie River**

### 2.3.3 Option C (Road 03 – green route)

Reference Drawing No. 22-12511689-SK003 within Appendix A.

Option C provides an east-west connection from the Minore Road intersection with the Newell Highway on the western side of the river, terminating at the Macquarie Street / Tamworth Street intersection with the bridge located adjacent to the existing pedestrian bridge. Minore Road / Newell Highway and Macquarie Street / Tamworth Street intersections would require upgrades to signalised intersections. The southern end of South Street and the eastern leg of Macquarie Street / Tamworth Street intersection would be closed to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street.

It should be noted that the installation of traffic signals at the Newell Highway tie in location may cause additional traffic congestion on the Newell Highway. Traffic impacts would be further investigated in detailed design phase in consultation with TfNSW.

The main differentiator between this option and Option D is the route taken through private land to the west of the river, and the Newell Highway tie in point. This option minimises impact to the land parcel and more closely follows the tree line, minimising land to be acquired.



**Figure 2-4 Option C – view looking northwest adjacent to new bridge over the Macquarie River**

A retaining wall with an average height of 1.5 m for a length of approximately 120 m is required. Refer to Section 2.4.1 for additional commentary on the retaining wall. The indicative location of the retaining wall is shown on the reference drawing.

#### 2.3.4 Option D (Road 04 – blue route)

Reference Drawing No. 22-12511689-SK004 within Appendix A.

Option D provides an east-west connection between the Yuille Ct / Newell Highway intersection on the western side of the river, river, terminating at the Macquarie Street / Tamworth Street intersection with the bridge located close to the Tamworth Street carpark. This option is identified as the Tamworth Street option in early RMS consideration of its route selection process (reference RMS Preferred Option Report – New Dubbo Bridge May 2017).

Similar to Option C, the Golf Course entrance / Newell Highway and Macquarie Street / Tamworth Street intersections would require upgrades to signalised intersections. The southern end of South Street and eastern leg of Macquarie/Tamworth Street intersection would be closed to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street.

Comparing the route taken through private land to the west of the river with Option C, this option effectively severs and quarantines the portion of land between the new road and the river. DRC would likely need to acquire the whole parcel of land between the new road alignment and the river.



**Figure 2-5 Option D – view looking northwest adjacent to new bridge over the Macquarie River**

## 2.4 Impact to existing property and traffic arrangements

### 2.4.1 BIG4 Holiday Park retaining wall

As described above for Options A, B and C, the height of the road tie-in to the Newell highway would require a retaining wall with an average height of 1.5 m for a length of approximately 120 m. The retaining wall is required along the boundary of the BIG4 Holiday Park property to cater for the property line / road batter interface.

Figure 2-6 below provides an image of the retaining wall, while Figure 2.7 shows the retaining wall in plan view.



Figure 2-6 Image showing retaining wall



Figure 2-7 Location shown in plan view, required for Options A, B, C



#### 2.4.2 Macquarie Street / Tamworth Street intersection

Option C and D both utilise the section of Tamworth Street to the west of Macquarie Street Intersections. It is not intended that the section of Tamworth Street to the east of Macquarie Street will be used for direct access to or from the new Bridge. To this end, traffic controls will be put in place to prevent access to or from Tamworth Street east.

The *Dubbo City Planning and Transportation Strategy 2036* (Stapleton Transport and Planning, 2009, p37) notes there was concern connecting Minore Road to the extension of Tamworth Street as a bridge link would filter traffic through South Dubbo. Traffic modelling indicated this was not the case, with existing streets of South Dubbo remaining as the same road hierarchy classification to 2036.

Figure 2-8 below details the intended arrangement.



**Figure 2-8 Proposed intersection details at Macquarie Street / Tamworth Street intersection detailing no entry / exit via Tamworth Street east of Macquarie Street**

## 3. Site constraints

### 3.1 Regional geology

Geotechnical investigations of the proposed route alignments were not available at the time of reporting, however DRC provided past geotechnical investigations for two other locations along the Macquarie River.

- 3.16 km from South Bridge – *Draft Tracker Riley Cycleway Bridge – Detailed Design Report* by Cardno 2011.
- Opposite Minore Rd 0 km from proposed South Bridge Option 01 and 02 – *Sir Roden Cutler Carpark – Pavement Investigation and Design* by Macquarie Tech 2016.

Both reports reference the Dubbo geological map sheet SI 55-4 indicating the site is underlain by Quaternary aged alluvium associated with the Macquarie River Channel which comprises variable amounts of sands, silts, gravels, clay and sandstone bedrock, with sub-surface investigations confirming the geological mapping.

Our structural engineers have considered this information and provided preliminary pile lengths for the purposes of the cost estimate, however these would be reassessed based on targeted geotechnical information during design progression.

Further geotechnical investigations need to be implemented to confirm and/or modify the proposed foundation solutions and inform the pavement design during later stages of design development.

### 3.2 Site topography

The Macquarie River is a winding watercourse through the city of Dubbo lined with steep banks. The surrounding countryside beyond the banks is relatively flat to gently sloping paddocks and sports ovals with widely scattered trees.

### 3.3 Hydraulics and flooding

Flooding information, risks and impacts on the subject land and surrounding landowners was interpreted from the Cardno flood maps (2018) and TUFLOW flood model currently being undertaken on behalf of RMS for the nearby Newell Highway Bridge (approximately 1 km north of the proposed south bridge site). The proposed Dubbo South Bridge is required to achieve 5% AEP (20 year ARI) flood immunity.

It is noted that, at the location of the proposed South Bridge, the TUFLOW modelling provided includes the Macquarie River as a simple triangular channel, with poor integration between the Macquarie River channel and the surrounding floodplain. It is noted that Cardno have developed a detailed model at the location of the proposed South Bridge as part of the wider Macquarie River Flood Study, however this was not provided as part of this study. Whilst reasonable for the original purpose of this modelling (i.e. the Newell Highway bridge, about 1 km north), further refinement of the model is required, with the detailed model to be provided by Cardno in the future for detailed design phases of the Bridge.

Figure 3-1 identifies the flood modelling locations in TUFLOW. A summary of TUFLOW results can be found in Appendix C.



**Figure 3-1 TUFLOW Flood modelling locations**

Adopting the 5 % AEP (20 year ARI) event in the Macquarie River with the backwater effects of the 20 % AEP (5 year ARI) concurrent event in the Talbragar River, the design flood level should be between 260.1 mAHD to 260.3 mAHD. Allowing for 1.5 metres from the bridge soffit to road crest, it appears that the bridge would be inundated in about the 2 % AEP (50 year ARI) event in the Macquarie River with a flood level of 261.8 mAHD.

This level has been adopted as deck level for the options considered within this report.

Design velocities up to the 5 % AEP event in the Macquarie River are typically low (less than 1.5 m/s) throughout.

To better understand the potential impacts of the South Bridge, and better identify the design soffit level, some additional modelling is recommended for the next stage of design development. The following minimum additional scenarios are recommended and focus on the range of events within the Macquarie River, with little (or no) inflows from the Talbragar River:

- Macquarie River 1 % AEP / Talbragar River 20 % AEP
- Macquarie River 2 % AEP / Talbragar River 20 % AEP
- Macquarie River 10 % AEP / Talbragar River 20 % AEP

In considering the flood hydraulics, any new bridge structure would need to consider flood impact on surrounding properties which may include blockage assumptions and consideration of guard rails, bridge, pier and abutment design parameters that considers the flood flows and any potential debris loading, scour risk around piers and abutments and potential mitigation using erosion protection strategies.

### 3.4 Environmental

We have made no explicit allowance during this strategic concept design options investigation stage for the following potential environmental impacts and associated costs which may arise as a result. It is noted that these are typical items which are discovered during detailed design and mitigation requirements and strategies are developed accordingly.

With the exception of unknown potential items listed below (i.e. presence of acid sulfate soils and presence of indigenous heritage items), it is standard practice for a contractor to consider and manage the below items, which are generally allowed for within the contractor's preliminaries amounts noted in the cost estimate, and the cost estimate has a preliminaries amount noted.

- Fisheries
- Flora and fauna
- Indigenous and non-indigenous heritage
- Acid sulfate soils and land contamination issues
- Soils and water quality
- Changes to hydrology and flooding
- Aquatic ecology
- Noise and vibration
- Traffic and access
- Visual amenity

### 3.5 Statutory approvals

We have made no allowance for the impacts of any statutory approvals including any planning approvals.

The construction of a new bridge would be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* with DRC the determining authority (as permitted by *State Environmental Planning Policy (Infrastructure) 2007*). A review of environmental factors and associated specialist studies would be required for the planning and approvals process.

### 3.6 Public utilities

A "Dial Before You Dig" online search indicates the following existing utilities and corresponding authorities that are reported to be within the extents of the study area.

- Dubbo Regional Council – water, sewer reticulation and drainage assets.
- Essential Energy – overhead and underground electricity.
- Jemena Gas Country reticulation.
- Telstra, Nextgen and NBN Co telecommunications conduits.

#### 3.6.1 Utility impacts

Each of the options will impact on existing utility services and will require either protection or relocation to varying extents. For each option below the utility strategy for utility impacts has been assumed which will be subject to further investigations and discussions with utility authority during future detailed design stages.

##### *Option A*

- Water and sewer protection on south west side of Newell Highway/Minore Road intersection.
- Water protection and sewer relocation on eastern leg of Newell Highway/Minore Road intersection.

- Sewer relocation at western abutment of bridge over Macquarie River.
- Sewer protection near Sandy Beach reserve.
- Sewer protection at northern leg of Bligh Street intersection.
- Sewer protection at north west side of western leg of Bligh/Macquarie Street intersection.
- Water relocation opposite Bligh Street intersection.
- Approximately 1 x Electrical pole relocation and 8 streetlights.
- Assumed no impact to gas main at western side of Newell Highway intersection or eastern side of Macquarie Street intersection.
- Likely relocation of Nextgen, NBN and Telstra services on eastern side of Newell Highway in vicinity of Minore Road intersection.
- Likely relocation of Telstra and NBN services on southwest side of intersection with Macquarie Street.

***Option B***

- Water and sewer protection on south west side of Newell Highway/Minore Road intersection.
- Water protection and sewer relocation on eastern leg of Newell Highway/Minore Road intersection.
- Water protection on western side of Sandy Beach Road and Sandy Beach/Bligh Street intersection.
- Potential relocation of water along west side of Bligh Street, south of Bligh Street and Bultje Street intersection and protection of water at Bligh Street/Bultje Street road crossing.
- Sewer relocation at toe of embankment, northern side of alignment at Golf Links Creek.
- Sewer protection on eastern side of Golf Links Creek.
- Approximately 3 x Electrical pole relocation and 8 streetlights.
- Assumed no impact to gas main at western side of Newell Highway intersection.
- Likely relocation of Nextgen, NBN and Telstra services on eastern side of Newell Highway in vicinity of Minore Road intersection.

***Option C***

- Water and sewer protection on south west side of Newell Highway/Minore Road intersection.
- Water protection and sewer relocation on eastern leg of Newell Highway/Minore Road intersection.
- Sewer relocation at toe of embankment, northern side of alignment at Golf Links Creek.
- Sewer protection on eastern side of Golf Links Creek.
- Water relocation from near South Street to Macquarie Street.
- Sewer protection on northwest corner of intersection with Macquarie Street.
- Approximately 3 x Electrical pole relocation and 2 streetlights.
- Assumed no impact to gas main at western side of Newell Highway intersection or eastern side of Macquarie Street intersection.

- Likely relocation of Nextgen, NBN and Telstra services on eastern side of Newell Highway in vicinity of Minore Road intersection.
- Likely relocation of Telstra and NBN services on northwest, and NBN service on southwest side of intersection with Macquarie Street.

**Option D**

- Sewer protection on eastern leg of intersection with Newell Highway.
- Sewer protection on east side of Golf Links Creek.
- Water protection and sewer relocation on eastern leg of Newell Highway/Minore Road intersection.
- Sewer relocation at western abutment of bridge over Macquarie River.
- Approximately 2 x Electrical pole relocation and 3 streetlights.
- Assumed no impact to gas main at western side of Newell Highway intersection or eastern side of Macquarie Street intersection.
- Potential relocation of Telstra, NBN and Nextgen service on eastern side of Newell Highway in vicinity of Yuille Court intersection.
- Likely relocation of Telstra and NBN services on northwest, and NBN service on southwest side of intersection with Macquarie Street.

**3.7 Land ownership**

With reference to Figure 3-2, each option alignment would impact upon adjacent properties other than the lots that are classed as road reserve. The properties along Options A and C are assumed to be Crown or State owned land, with the ownership of Lot 1 DP130730 to be confirmed by DRC. Option D traverses further to the south into Lots 18 & 19 DP753233 which is privately owned, while option B traverses Lot 19 only. Property acquisition has been allowed for in cost estimates and may need to be refined following confirmation of land ownership by DRC.



**Figure 3-2 Land ownership information**

## 4. Design criteria

### 4.1 Existing road network

The strategic options investigated seek to provide east-west connectivity over the Macquarie River between the Newell Highway and Macquarie Street. The options connect with existing intersections and utilise portions of existing streets. The existing streets within the study area are described below.

The Newell Highway is a national highway that provides a north-south travel route between Brisbane and Melbourne. At the intersection with Minore Road there are two travel lanes northbound, a right turn and single travel lane in southbound direction. At the intersection with Yuille Court there is a single travel lane and shoulder in each direction.

Minore Road is an urban arterial road that provides access to West Dubbo. The road cross section consists of a travel lane, cycle lane and on street parking in both directions.

Yuille Court is a local access providing access to Dubbo Golf Club.

Sandy Beach Road is a local un-kerbed road that provides access from Bligh Street to the Macquarie River and adjacent sporting fields. Traffic efficiency is likely to be impacted along this road for a potential bridge option due to interaction with local traffic associated with sporting fields.

Bligh Street is a collector road that for the majority of its length runs parallel with Macquarie Street. At the southern end of Bligh Street it turns 90 degrees in an easterly direction and terminates at Macquarie Street. The road has a single travel lane in each direction with a shoulder and no parking along its southern length.

The section of Tamworth Street to the west of Macquarie Street has kerb & gutter and shared pathway on the northern side and table drain on the southern side. The road is a local road with single travel lane in each direction.

Macquarie Street is a collector road consisting of a single travel lane and wide sealed shoulders with on street parking in each direction. South of the intersection with Tamworth Street there is a wide median and right turn lane into Tamworth Street (east of Macquarie Street).

### 4.2 Traffic volumes

No traffic modelling was undertaken as part of the strategic concept design and route option development. It is understood that DRC has undertaken a recent transport study, however at the time of reporting this has not been adopted by Council and made available. Council's "Dubbo City Planning and Transport Strategy 2036" was provided. This document was prepared in 2009 and provides Council's current Transport Strategy. The document describes traffic modelling undertaken and Table 8.1 shows a projected 11,750 vehicles per day estimated to be using the new South Bridge in 2036. The Table also shows more than a doubling of current vehicle numbers on the existing 2 bridges (Emile Serisier Bridge and LH Ford Bridge) if the "Do nothing" option is followed.

Construction of any of the options would have significant impact on the nature of traffic distribution in Dubbo and the new road/bridge option would experience high traffic volumes due to the new connectivity it would provide. Provision of recent transport study information will be required for design progression in order to refine development of the preferred option to understand traffic movements and confirm intersection types.

### 4.3 Design speed

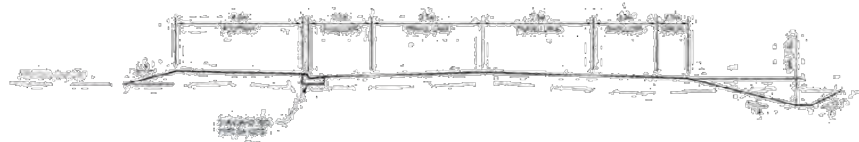
The new road is to be designed to be an arterial road with a design speed of 70 km/h, however will be signposted at 60 km/h.

### 4.4 Cross section

The cross section adopted for the new arterial road and bridge is described in the table below. The road is a rural arterial road with kerb and gutter and footway provided on northern side and no kerb provided on southern side. The cross section caters for on road cyclists and off-road pedestrians and cyclists through provision of 2.5 m shared pathway.

**Table 4-1 Cross section criteria**

Cross section	Road	Bridge
Travel lane width	3.5 m	3.5 m
Shoulder	2.0 m	1.5 m (south), 1.0 m (north)
Barrier	-	0.53 m x 2 medium performance level barrier 0.14 m pedestrian safety barrier
Verge	1.0 m (Southside) 4.0 m (north side, including shared pathway)	-
Shared pathway width (clear width)	2.5 m (2.5 m)	2.8 m (2.5 m)
Fill batter slope	4H:1V, steepened to 2H:1V where safety barrier provided	-
Cut batter slope	3H:1V	-
Total width	16 m	13.5 m



**Figure 4-1 Typical cross section - road**



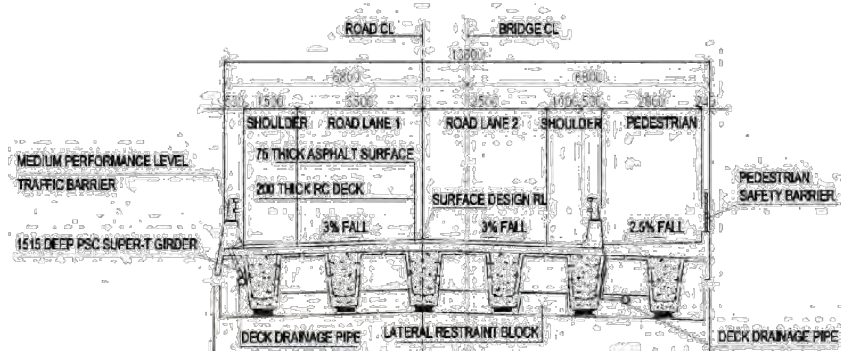


Figure 4-2 Typical cross section - bridge

#### 4.5 Horizontal and vertical geometry

All options considered seek to utilise existing road corridors to provide the most direct alignment possible between the Newell Highway and Macquarie Street. The horizontal alignment has been developed to ensure the bridge for each option is positioned on a straight alignment to improve safety and amenity for road users with increased sight distances. This also significantly reduces the cost of the bridge along with the complexity of both design and construction. Option B deviates from this consideration and is the only option which considers a horizontal curve within the bridge.

Road geometry has been based on the Austroads Guide to Road Resign (AGRD) for a design speed of 60 km/h and signposted speed of 50 km/h. It is assumed that the alignment would be street lit. The horizontal and vertical geometry is compliant for a 60 km/h design speed for all options with the exception of Option A, where the crest and sag curves closest to the Newell Highway intersection are only compliant for 50 km/h. Adopting 60 km/h criteria in this location shifts the vertical curves onto the bridge structure which complicates design and construction, or to remove vertical curves from the bridge completely would mean the structure is much higher leading to additional costs and visual amenity issues.

The vertical alignment of each option has been developed such that the road achieves a minimum flood immunity of 5 % AEP and the bridge soffit is clear of water level plus an allowance for freeboard. The existing road levels on the eastern side of the Macquarie River along Bligh Street and Tamworth Street are at approximately the 5% AEP flood level.

For each option the approach sight distance (ASD) to the Newell Highway intersection dictates the vertical alignment to ensure an approaching car can see the intersection clearly. At these locations the ASD overrides the minimum crest curvature requirement for design speed.

#### 4.6 Pedestrians and cyclists

An allowance has been made for pedestrians and cyclists with a 2.5 m off-road shared pathway provided on the northern side of each alignment, and on road cycle provisions in each direction.

It is noted that Options A, B, C and D all cross the Tracker Riley cycleway, a popular and well used walking and cycling track. To maintain continuity of this route, culverts are to be located and adequately sized to allow pedestrians and cyclists passage.

This could be accomplished via an underpass at Golf Links creek by suitably locating flood relief culverts for Options B, C and D.

#### 4.7 Intersection arrangements

For the purposes of the cost estimate and on the basis that the addition of a new arterial road provided by one of the options will change the traffic environment in southeast and southwest Dubbo, it has been assumed that all intersections are likely to be signalised due to the changes in traffic flow. The table below explains the likely lane arrangements at each key intersection. A visual depiction of these arrangements are shown on drawing 22-12511689-SK007 within Appendix A.

**Table 4-2 Nominated intersection arrangements**

Intersection	Northern leg	Eastern leg	Southern leg	Western leg
Newell Highway/ Minore Road/ Strategic Option A, C or D	Single through lane in each direction, right and high entry left turn lanes southbound	Single through lane in each direction, right & left turn lanes westbound	Single through lane in each direction, right and high entry left turn lanes northbound	Single through lane westbound, Right turn and through & left eastbound
Bligh Street/ Sandy Beach Road/ South Street/ Strategic Option A	Single lane northbound, right and high entry left turn lanes for southbound	Single through lane westbound, & right turn lane	Cul de sac at South Street	Single through lane eastbound, & left turn lane
Macquarie Street/Bligh Street	Single through lane in each direction, right and left turn lanes for southbound	Single through, right and left lane westbound, single through lane eastbound	Single through lane in each direction, right and left turn lanes northbound	Single through lane westbound, high entry left turn and through & right turn lane eastbound
Bligh Street/ Sandy Beach Road/ South Street/ Strategic Option B	Single lane northbound, right and high entry left turn lanes for southbound	Single through lane westbound, & right turn lane, high entry left turn lanes for southbound	Single lane northbound, right and high entry left turn lanes for southbound	Single through lane eastbound, & high entry left turn lane for northbound, right turn lane for southbound
Newell Highway/ Yuille Court/ Strategic Option D	Single through lane in each direction, right and high entry left turn lanes southbound	Single through lane eastbound, through & right and high entry left turn lanes westbound	Single through lane in each direction, right and left turn lanes northbound	Single through lane westbound, single through/Right/left turn lane eastbound
Strategic Option D (Tamworth Street)/ South Street	Cul de sac at South Street	Single lane in each direction	None	Single lane in each direction
Strategic Option D (Tamworth Street)/ Macquarie Street	Single through lane in each direction, right turn lane for southbound	No access provided to Tamworth Street, east of Macquarie	Single through lane in each direction, left turn lanes northbound	Single through lane westbound, high entry left turn and through & right turn lane eastbound

Intersection	Northern leg	Eastern leg	Southern leg	Western leg
Bligh Street / Bullje Street Strategic Option B	Single through lane in each direction	Single through lane in each direction	Single through lane in each direction	Single through lane in each direction
Bligh Street / Wingewarra Street Strategic Option B	Single through lane in each direction, right turn lane	Left turn & right turn lanes	Single through lane in each direction	Single through lane in each direction

## 5. Structures

### 1.1 Assumptions

The concept options prepared by GHD are based on the following assumptions:

- The geotechnical information is assumed based on information supplied by DRC from surrounding projects, geotechnical investigations need to be implemented to determine the sensible foundation solutions during later stages of design development.
- Hydraulic information would be modelled and computed further in later stages of design development to determine forces due to water flow and its related actions, i.e. debris, logs, placed onto the structure.
- The concept options (within prefeasibility study) are developed primarily based on the critical criteria including cost consideration, community effects, constructability, timing and safety. Additional criteria is also discussed and may require further considerations in later phases of design.
- Site investigations would be required in later stages of design development to clarify solutions for embankment, retaining wall, approach slabs, abutment, scour protection, foundation levels, utilities, services, and erosion control measures etc.
- An environmental assessment would be developed to examine potential impacts of the new structure on natural environment and communities. This may lead to necessary changes in design.
- The structures presented assume a design life of 100 years except where noted otherwise in this report. Any specific elements' design life would be defined in later design phases.

### 1.2 Project Inputs

#### 1.2.1 Design Standards

Design standards used in the preparation of the design include but are not limited to:

- Australian Standards including:
  - AS5100 – Bridge Design Set
  - AS1170 – Design Actions Set
  - AS2159 – Pile Design and Installation
  - AS4678 – Earth Retaining Structures
- Roads and Marine Services (RMS) RMS QA Specifications for Roadworks and Bridgeworks including:
  - RMS Bridge Policy Manual which includes Bridge Technical Direction Manual, Bridge Policy Circulars
  - RMS Standard Drawings
  - RMS Bridgeworks QA Specifications
  - ASA and TfNSW Standards and Guidelines
- Reference to Austroads – Guide to Road Design 2016

#### 1.2.2 Design Loading

Design loads are listed in the Table 5-1.

**Table 5-1 Design loading**

Load group	Detailing	Design Value	Reference
Dead Load	Superimposed wearing surface	22 kN/m <sup>3</sup>	AS5100-2017
	Steel	77.0 kN/m <sup>3</sup>	
	Reinforced concrete (precast)	26.5 kN/m <sup>3</sup>	
	Reinforced concrete (in-situ)	26.5 kN/m <sup>3</sup>	
Live Load	Road Traffic	SM1600, heavy load platform HLP 320	
	Braking Force	Single vehicle stopping  Fbs = 0.45Wbs (200 kN <Fbs<720 kN)  Multi-lane moving traffic Fbm = 0.15 Wbm	
Pedestrian, cyclist path and maintenance traffic		As per AS5100.2-2017	
Bridge Barrier impact loads	Medium level performance barriers	As per AS5100.2-2017	
Minimum lateral Restraint	Superstructure-at any point, and any angle between horizontal and vertical	500 kN or 5 % of Superstructure DL, whichever is greater.	
Fatigue load effects		Determined from 70% of the effects of a single A160 axle or 70% of a single M1600 moving traffic load, without UDL, whichever is more severe	
Earth pressure	Fill density	20 kN/m <sup>3</sup>	
Surcharge load	General UNO	20 kPa	
Thermal Effects	Max. Shade Air Temp Min. Shade Air Temp	44 °C (Region II – inland) -1 °C (Region II – inland)	
Shrinkage and Creep, and Prestress effects		As per AS5100-2017	
Ground water		As per AS5100-2017	
Loads result from water flow and its related actions		As per AS5100-2017	
Wind load		As per AS5100-2017 with reference to AS1170.2-2011	
Road signs and lighting structure		As per AS5100-2017	
Seismic effect	Earthquake	As per AS5100-2017 and reference to AS1170.4-2007	

### 1.3 Alignments and cross section

#### 5.1.1 Vertical alignment

Vertical alignment is intended to be on single longitudinal fall from 0.2 % to 0.47 %. The constant grade simplifies the design for bridge and benefits stormwater drainage. Where there is a minor change between vertical curve and constant grade fall (e.g. Road D), the design surface level will be accommodated through varying the girder slope and concrete deck slab thickness as required.

Vertical alignments for each road option have been selected to position the girder soffit at least 500 mm above design flood level. For the purpose of this assessment, flood levels have been adopted based on hydraulic information provided by DRC targeting 5% AEP (20 year) immunity. From the flood events contained in the provided information, soffit levels have been based on the 5 % AEP (20 year ARI) event in the Macquarie River in combination with backwater effects from a 20 % AEP (5 year ARI) concurrent event in the Talbragar River.

#### 5.1.2 Horizontal alignment

Horizontal alignment has been considered such that the whole bridge for each option can be on a straight alignment where practical. This significantly reduces the cost of the bridge along with the complexity of both design and construction. Straight alignment of the bridge improves the safety and amenity for road users with increased sight distances. Future development, structure upgrades or replacement will also be easier with a straight bridge.

However, a curved alignment across the bridge in Option B has been adopted to better suit the approaching local road system. The bridge in this case lies on a 210 m radius curve. Despite its challenges to both design and construction, this is considered to provide a lower social impact and interfaces with the surrounding are to present an improved overall solution for this alignment.

#### 5.1.3 Cross section

The bridge cross section requires sufficient width to suit the approach road cross sections. The proposed cross section composition is as follows (and as noted in Figure 4-2):

- 0.53 m medium performance level barrier.
- 1.5 m road shoulder.
- 2 x 3.5 m road traffic lanes (increased to 3.8 m on curve).
- 1.0 m road shoulder.
- 0.53 m medium performance level barrier.
- 2.8 m pedestrian footpath.
- 0.24 m pedestrian safety barrier.
  - Overall bridge's width = 13.6 m for straight alignment.
  - Overall bridge's width = 14.2 m for 210 m Radius curve where each traffic lane is widen by 0.3 m, i.e. Option B.

#### 1.4 Structure options selection criteria

As part of the options development, the following requirements were considered when determining appropriate options:

- Durability and serviceability.
- Aligned with Specifications/ directions, manual guidelines by RMS.
- Meet the hydrology level (20 years ARI Flooding level) and minimize permanent obstructions to waterway as far as practical.
- Safety during construction and throughout the asset's service life.
- Economical solution.
- Low maintenance frequency and repair cost.
- Constructability.
- The complexity and quantity of substructure and foundation elements.
- Limit the construction within the waterway.
- Adverse impacts on the surrounding local area and traffic should be avoided.

#### 5.2 Superstructure options

Seven (7) prospective types of girders have been identified for consideration for Dubbo South Bridge. A discussion of the advantages and disadvantages of each follows below.

##### 5.2.1 Type 1 – Suspension bridge

The total required river crossing length is approximately 220 m, 120 m, and 100 m for Option A, C and D respectively. A suspension bridge has the advantage of achieving clear spans of these lengths and makes a landmark statement. However, this option has been eliminated in this instance noting the following disadvantages:

- Capital cost will be much higher compared to shorter simply supported beam alternatives.
- Relatively high maintenance costs due to accessibility and difficulty to complete maintenance. This also reduces the number of contractors that can undertake this type of work.
- Whole superstructure is inflexible for future development if there is a need for road expansion.
- Significant footing challenges on alluvial soils.
- Construction complexity and time required.
- Sensitivity to earthquake, wind actions, traffic load dynamics, vibration and fatigue requiring a highly specialised treatment.

A suspension bridge option is not recommended in this situation.

### 5.2.2 Type 2 – Cable stayed bridge

Cable stayed bridges can cross a large span so that the numbers of piers is minimised. The advantages of cable stayed bridges, like suspension bridges, are that they have a unique aesthetic advantage but provide improved durability, stability and safety. However, this option has been eliminated in this instance noting the following disadvantages:

- Capital cost will be much higher compared to shorter simply supported beam alternatives.
- Relatively high maintenance costs due to accessibility and difficulty to complete maintenance. This also reduces the number of contractors that can undertake this type of work.
- Whole superstructure is inflexible for future development if there is a need for road expansion.
- Significant footing challenges on alluvial soil.
- Construction complexity and time required.
- Onerous tower structure foundation required with potential significant impact on waterway.

A cable stayed bridge option is not recommended in this situation.

### 5.2.3 Type 3 – Integral bridge

An integral bridge has the advantage of improved stability of substructure along with reduced jointing and maintenance costs through fixing the superstructure and substructure elements together. However, this option has been eliminated in this instance noting the following disadvantages:

- Capital cost will be higher compared to simply supported beam alternatives.
- Issues with differential settlement between abutment and approach stiffness compatibility.
- Complexity of construction and adequately allowing for movement.
- The proposed bridge lengths exceed the maximum length permissible (70 m) under RMS' Bridge Policy Circular BPC2007/05 – Design of Integral Bridges.

An integral bridge option is not recommended in this situation.

### 5.2.4 Type 4 – Steel girder or composite steel-concrete girder bridge

Steel superstructures allow for a lighter weight, cheaper construction. However, this option has been eliminated in this instance noting the following disadvantages:

- High maintenance requirements throughout life of asset, require re-coating to achieve 100 year design life or the selection of specialised materials like weathered steel and sophisticated coating systems.
- Susceptibility to vibration, noise, fatigue and corrosion requiring a highly specialised treatment.

A steel bridge option cannot be recommended in this situation without further development of the design to quantify key items that are highly specialised and can influence the cost and maintainability assessment.



### 5.2.5 Type 5 – Concrete segmental box bridge

Concrete segmental box girders can cross large spans so that the number of piers and waterway obstructions are minimised. Concrete construction provides improved durability and reduced maintenance requirements during the asset's life. Continuous superstructures reduce jointing and maintenance costs. However, this option has been eliminated in this instance noting the following disadvantages:

- Capital cost will be higher compared to simply supported beam alternatives.
- Construction time and specialised trade requirements will be higher compared to simply supported beam alternatives.
- Requires a higher road level with associated approach embankment height to interface with greater structure depths required, particularly at supports to provide adequate shear and negative moment capacity.

A concrete segmental box option is not recommended in this situation.

### 5.2.6 Type 6: Simple supported precast prestressed concrete super-t girder

Prestressed concrete Super T girders are a widely adopted simply supported girder system for 18 to 37 m spans in road bridges. Girders are prestressed precast concrete that are constructed and transported to site as discrete elements. Multiple girders are placed side by side with a concrete deck slab cast in place to tie the girders together for each span. The system is cost effective and allows for rapid construction.

Key benefits of this type include:

- Simple and standard construction accessible to tier 1 and 2 contractors.
- Robust elements of concrete construction for reduced maintenance over asset's life.
- Simple support arrangement and load transfer to substructure.

A key disadvantage of this system is the more limited span lengths resulting in a greater number of piers. However this could be mitigated by a strategic location of the piers in the low flow areas.

This type of structure is recommended to be pursued for this application and is discussed in further detail in Section 5.3.

### 5.2.7 Type 7: Precast prestressed voided concrete plank

Prestressed voided concrete planks are a widely adopted simply supported girder system for 7 to 18 m spans in road bridges. Girders are prestressed precast concrete that are constructed and transported to site as discrete elements. Multiple girders are placed side by side with a concrete deck slab cast in place to tie the girders together for each span. The system is cost effective and allows for rapid construction.

Key benefits of this type include:

- Simple and quick construction.
- Robust elements of concrete construction for reduced maintenance over asset's life.
- Simple support arrangement and load transfer to substructure.

A key disadvantage of this system is the more limited span lengths result in a greater number of piers. This could be mitigated by a strategic location of the piers in the low flow areas but still requires installation of piers in the main waterway.

This type of structure is recommended to be pursued for this application and is discussed in further detail in Section 5.3. A combination of Types 6 & 7 could also be considered so that the Super T spans are reserved for the main river crossings and the planks for the low flow areas

### 5.3 Superstructure

Based on the superstructure girder options assessment in Section 5.2, two (2) options have been deemed suitable for further selection refinement based on the defined selection criteria.

- Super-T girders.
- Voided plank.

#### 5.3.1 Option 1 – Super-T (preferred)

Super T girders are available in a range of depths. Based on our experience, the 1515 mm deep girder section paired with a minimum 200 mm thick deck slab is likely to be the most practical and cost effective arrangement. This outcome is based on balancing several criteria including maximising clear span, transportability, weight for lifting, stability during construction, cost and limiting approach embankment works.

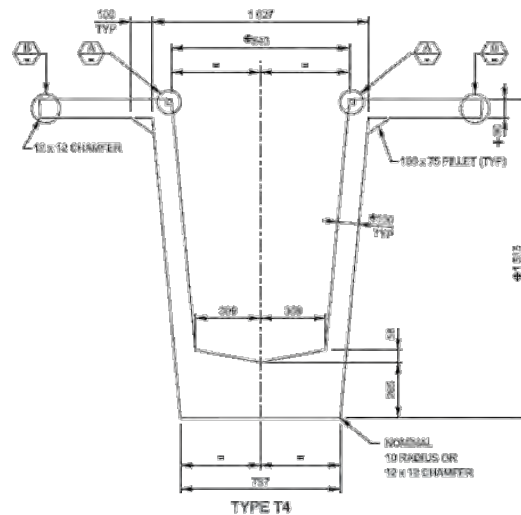


Figure 5-1 1515 mm Super-T Girder section

Based on economic and technical considerations, the recommended range of spans for the 1515 Super-T is from 25 to 33 m (maximum allowed by RMS). The maximum 33 m length has been adopted to apply to this project in order to minimize the number of piers in the waterway. Shorter spans with the same section are proposed to manage the abutment locations whilst maintaining visual amenity and simplify detailing.

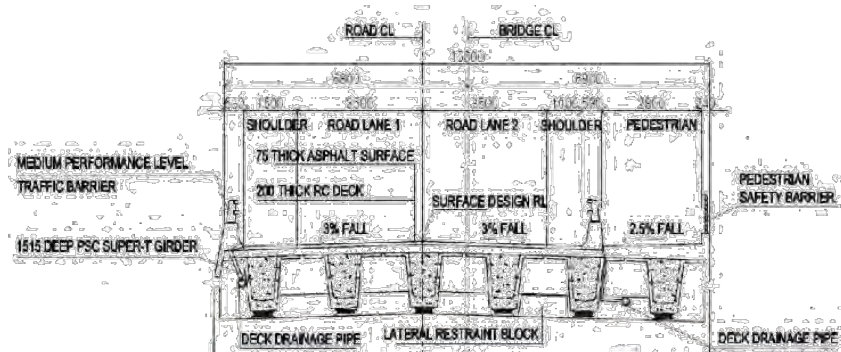
The total depth of super structure is calculated as following:

- Asphalt surface layer = 75 mm.
- In-situ reinforced concrete deck = 200 mm.
- Depth of Super-T type 4 = 1515 mm.
- Level difference due to Cross fall computed from design surface level to lowest point (7.165 m) x 3% = 214 mm.

- Total depth (from DSL to Lowest soffit level) is: 2,004 mm.
- In order to include hogging, construction tolerance, use total depth of 2.1 m for Super-T for concept design development.

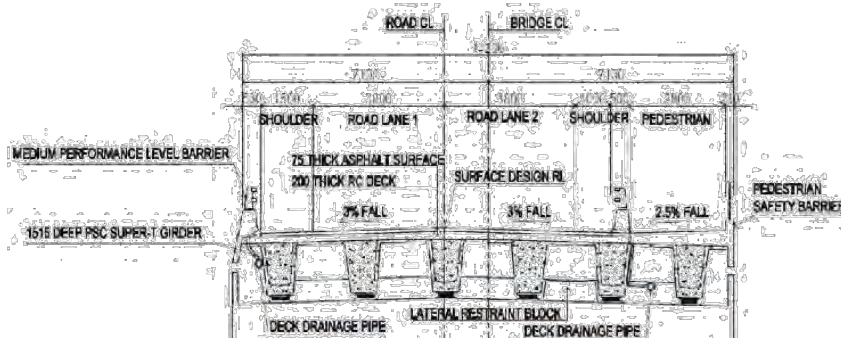
The cross section is shown in Figure 5-2 and includes 6 girders with 2.25 m spacing. Span configurations are shown in Figure 5-4 to Figure 5-6 for each road alignment.

The eccentricity between bridge centreline and carriageway centreline is 1.22 m. This causes an unequal load effect distribution to girders, pier and piling. A two-way 3% cross fall has been adopted in the carriageway and single 2.5% cross fall of the footpath. The overall cross fall is made by shaping the headstocks and increased deck thickness in the pedestrian slab. A nominal gap is provided between girder flanges to allow placement and to limit unsupported deck direct carrying loads.



**Figure 5-2 Superstructure Option 1 – Cross section with Super-T beams on Road A, C and D**

The bridge width has to be wider as a consequence of curving alignment provided in the Road B, e.g. as showed in the Figure 5-3.



**Figure 5-3 Superstructure Option 1 – Cross section with Super-T beams on Road B**

**Road A**

Fitting the Super T structure on the Road A alignment, middle spans will be longer (e.g. 33 m) to minimize the obstruction to waterway, and shorter spans (26.3 m) are used at the ends to limit the total length of the bridge, save capital cost and avoid adverse impacts on community as well as local infrastructure.

Based on geometry of the river bank and surrounding areas along with other local constraints, the proposed configuration for Road A includes 2 x 26.3 m spans and 5 x 33 m spans as shown in Figure 5-4.

Abutment and piers heights as shown are not uncommon and readily designed and constructed.

Figure 5-4 illustrates the spans arrangement using Super – T beams on Road A



**Figure 5-4 Superstructure Option 1 – Span arrangement on Road A**

**Road C**

The proposed bridge for Road C has a total distance of approximately 122 m, comprised of 2 x 33 m central spans and 2 x 26.3 m side spans. This road alignment significantly shortens the bridge length because it crosses a narrower portion of river and the existing ground level to both sides are typically equal.

In order to limit the structure length, the western extent has a high abutment (to Mirrore Rd) due to the gradual slope of the existing ground level. Treatment of this abutment should be refined during later stages of the design development. Solutions may include a high abutment wall, spill through batter, separate retaining wall or extending the bridge length.

Abutment and pier heights as shown are not uncommon and readily designed and constructed.

Concept arrangement of spans on Road B is depicted in the Figure 5-5.



**Figure 5-5 Superstructure Option 1 – Span arrangement on Road C**

**Road D**

The proposed bridge for Road D is the shortest with only 3 spans of 33 m. Besides the economic benefit of limited length, this arrangement also has the least obstruction of the waterway. The height of substructure is reasonable, the construction time will be also be the shortest in comparison with other alignments.



**Figure 5-6 Superstructure Option 1 – Span arrangement on Road D**

**Road B**

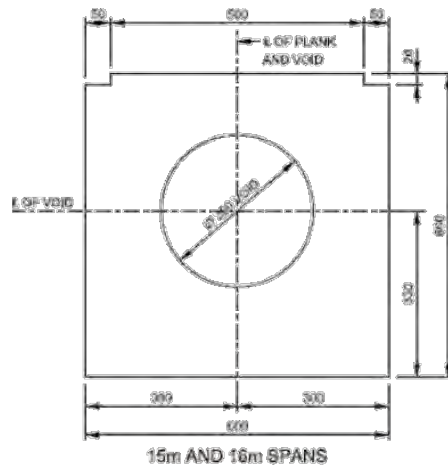
Road B places the bridge on a curve, i.e. 210 m radius. Hence, the bridge has 4 spans with the note that the design of span which is closest to the bridge's centreline is 30 m, enabling longer spans of edge beams at the outside of curve that do not exceed the typical maximum 33 m span of the 1515 mm deep girders. The curved arrangement, whilst more complex for the bridge, accommodates more favourable overall project outcomes such as improved road geometry and sight distances.



**Figure 5-7 Superstructure Option 1 – Span arrangement on Road B**

**5.3.2 Option 2 – Voided plank**

The suggested superstructure for Option 2 is a 600 mm deep Precast Prestressed Concrete Voided Plank (typical spans of 15 m, and 16 m, considering the longer span outer girders of the curved bridge on Road B). Figure 5-8 shows the typical cross section of a voided plank that suits these desired spans.



**Figure 5-8 Typical RMS precast pre-stressed planks**

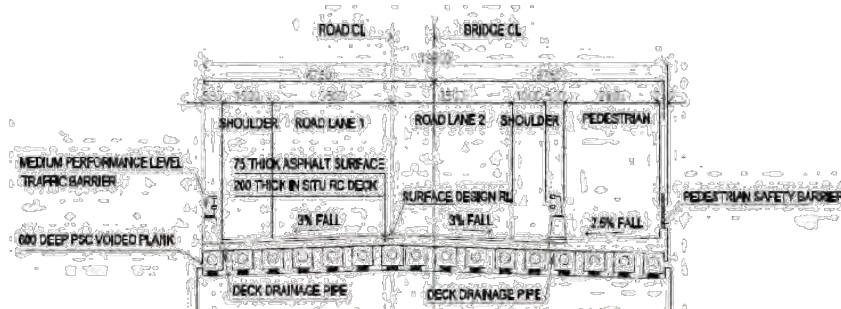
**Advantages**

- Voided planks have lower structure depth.
- The soffit level can be above the 50 year ARI for most of the same proposed road alignments, thus improving flood immunity and limiting risk of debris loading and damage.
- Lighter compared to other girder types, and therefore facilitate transport and lifting by smaller machinery or with larger reaches and less crane moves.
- They are inherently more stable and require less temporary support.

**Disadvantages**

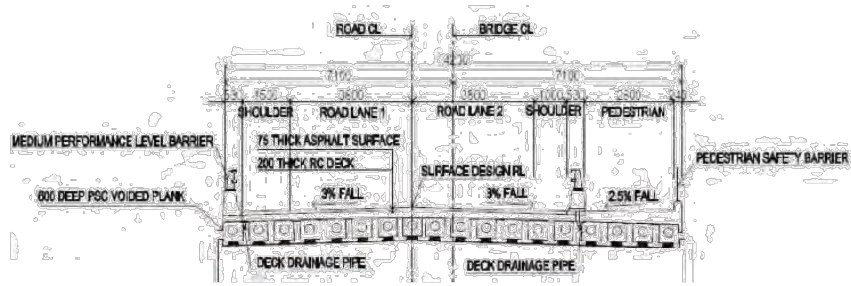
- Savings in foundation costs can be realised due to less load per pier with shorter spans however more piers are required which likely will have a net increase in foundations and impact on waterway performance.

Figure 5-9 shows the proposed bridge cross section where 16 spaced voided planks are situated with nominal gaps between planks of 270 mm.



**Figure 5-9 Superstructure option 2 – Cross section with Voided planks – bridge on road Option A, C, and D**

Due to effects of road horizontal curve the two traffic lanes through the bridge on Option B would be widen as shown in the Figure 5-10.



**Figure 5-10 Superstructure option 2 – Cross section with voided planks – wider bridge on road B**

Span arrangements for plank span configurations are shown below for each road alignment. It is noted that the voided planks require significantly more spans and piers to provide the required waterway opening.

**Road A**

The bridge on Road A includes 15 spans, 14 piers (5 located in the waterway).



**Figure 5-11 Superstructure option 2 – Span arrangement on road A**

**Road C**

The bridge on Road B includes 8 spans, 7 piers (4 located in the waterway).





**Figure 5-12 Superstructure option 2 – Span arrangement on road C**

**Road D**

Despite being located at the narrowest portion of Macquarie River when compared to other options, 7 spans are still required for the bridge on Road D.



**Figure 5-13 Superstructure option 2 – Span arrangement on road D**

**Road B**

The bridge on Road B includes 8 spans, 7 piers (4 located in the waterway).



**Figure 5-14 Superstructure option 2 – Span arrangement on road B**

**5.4 Superstructure option comparison and recommendation**

Table 5-2 provides a comparison between the two progressed superstructure options regarding the main selection criteria noted in Section 1.4.

**Table 5-2 Compare the most prospective superstructure options**

Comparable criteria	Option 1 – 1515 mm Super-T girders	Option 2 – 600 mm Precast prestressed voided plank
Durability	Precast prestressed concrete elements are durable over the design life. Prestressing provides higher stiffness, higher bending capacity and the possibility to achieve control of hogging/sagging during each step of construction. Main durability issue is cracking during transfer of prestress. This is a known issue, easily managed during design and with experienced manufacturers. Reinforced concrete substructure easily able to provide design life requirements.	As per Option 1
Maintenance	Reinforced concrete structure is very durable and less likely to fail due to corrosion. The frequency of maintenance is less than a steel structure.	Same as option 1.

Comparable criteria	Option 1 – 1515 mm Super-T girders	Option 2 – 600 mm Precast prestressed voided plank
Serviceability	Deflection throughout the service life can be assessed and accounted for during design.	As per Option 1
	Larger room between girders that can make it easier to inspect or repair the girders	Limited gap between beams (270 mm) makes inspection and repair more difficult.
	Because the bearing is high, it is possible to inspect and replace bearings when needed.	Lower bearing makes replacement of bearings and beams more difficult.
Provides freeboard above 5% AEP flood (20 year)	Yes	Yes
Provides freeboard above 2% AEP flood (50 year)	No	Yes – ranging from 0.2 m to 0.6 m across road options.
Waterway obstructions	Because Super T has a larger span (33 m), it significantly reduces (by half) pier numbers within the waterway compared to the plank option.	Shorter spans result in more piers in the waterway. Increased partial blockage of waterway during construction and increased number of permanent blockages during service. May lead to long term erosion around the riverbank or increased afflux.
	Possible to adopt pier arrangement to minimise excavation work, under water work with temporary formwork, sheet piling or adopting through piles without pile caps.	Possible to adopt pier arrangement to minimise excavation work, under water work with temporary formwork, sheet piling or adopting through piles without pile caps.
Construction within the waterway	Longer spans results in less piers in the waterway. Heavier girders require larger cranes to allow lifting of river spans or crane to be set up in waterway.	Increased number of piers in the waterway. Lighter girders may allow for crane to be set up further from the waterway.
Superstructure weight	Approx. 55 t per girder (33 m) 6 girders per span	Approx. 12 t per plank (15 m) 16 planks per span
	Heavier superstructure leads to larger piling, pile cap and piers' components.	Approx half deck weight per span per pier but approx. twice as many spans compared to Super-T.
	Larger crane required especially to achieve required reach for lifts over river.  Reduced number of heavier lifts, and oversized girders to transport to site.	Larger number of small lifts required (approx. 5x more lifts compared with Super-T option). Allows for smaller cranes, or to utilise same crane with larger reach.  Lighter superstructure is advantageous in reducing the number and/or length of piles, smaller pile cap, smaller cross section.
Commonly available units	Standard beams taken from RMS manual guidelines.	Standard beams taken from RMS manual guidelines.

Comparable criteria	Option 1 – 1515 mm Super-T girders	Option 2 – 600 mm Precast prestressed voided plank
Constructability	Common type of construction. Many instances being implemented throughout the state.	Lightweight elements are easy to transport. Common type of construction. Many instances being implemented throughout the state.
Construction timing	Less spans, piers and girders so likely to have faster construction time.	The more spans, more lifts per span, more components to manufacture and more substructure to construct expect to lead to a longer construction time.
Adverse impacts on the surrounding local area	Fewer girders to deliver to site. Girders would require oversize vehicles. Fewer piles to install. Faster delivery project means fewer impacts on environment and community.	More planks to deliver to site. More piling to install. More time in waterway. Slower delivery project means prolonged impact on environment and community.
Foundations	Foundation loads approx. twice that of plank option, however half as many piers required. Pile diameter expected to be larger with similar number of piles compared to plank option. Likely similar rig required to install. Larger pier columns required to carry larger load. Increased impact on waterway per location, less locations required. Net better performance. Expect cost of larger elements would be comfortably offset by the reduced number of setups required.	Lighter foundations expected, however twice as many piers required. Likely similar rig to install piles. Larger number of setups required and notably more in waterway. Thinner pier columns possible but likely governed by slenderness in waterway. Expect higher number results in net larger foundation costs.
<b>Preferred option</b>	<b>Option 1 – Super T is recommended</b>	<b>Not recommended</b>

### 5.5 Substructure

As discussed in Section 1.1, due to insufficient geotechnical information at this stage, detailed comparison between potential substructure types will not be discussed in this report. The following sections discuss the main features of some likely substructure options.

Reinforced concrete abutments with spill through batters are considered most appropriate for this application and are assumed to be adopted across all options. As such, abutments will not be discussed further. There are potential alternate options available, such as the use of reinforced soil walls, which could be considered during later design development should a constraint be identified e.g. clearances, property acquisition and excessive scour protection requirements.

Below, "substructure" refers to piers and their foundations. Each option is applicable to all piers and road alignment options.

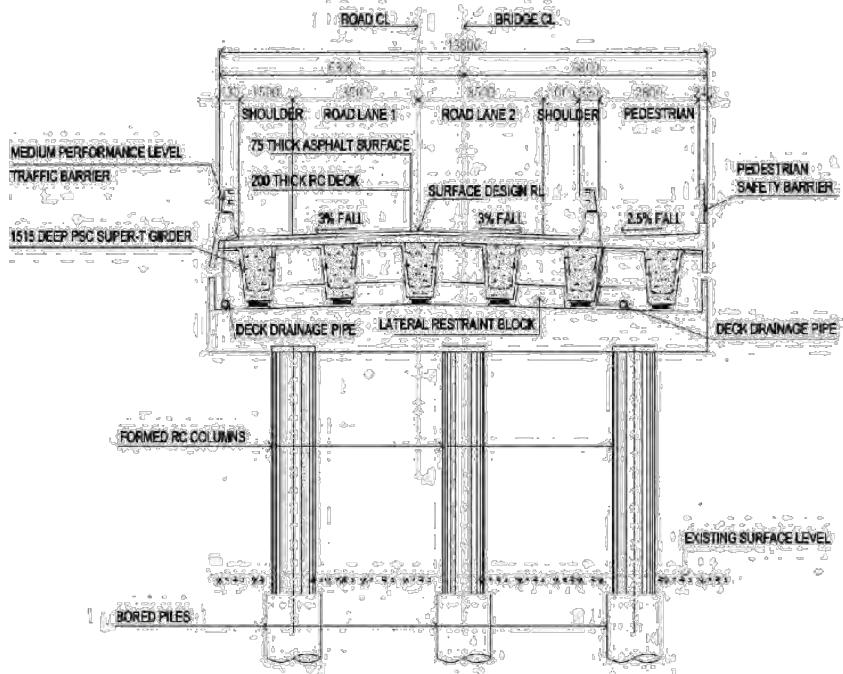
**5.5.1 Option A (preferred)**

Option A comprises an in-situ reinforced concrete headstock directly connected to 3 bored piles without pile caps. An illustration can be found in Figure 5-15.

The main advantage of this option is that there is no need to construct pile caps within the waterway, and temporary structures are eliminated. This solution reduces the obstruction within the waterway and debris getting stuck around the structure, reducing the possibility of river bank scour.

The main disadvantage is column slenderness. Pile size typically needs to be larger in order to satisfy design code requirements for forces due to water flow, debris, earthquake, braking etc. Pile tolerances become a consideration and are typically managed with a section diameter change nominally below ground level with the above ground portion constructed as a formed column.

There is typically a significant cost and time advantage and construction risks are avoided or mitigated significantly. Excavation and/or below water work is minimised and time is saved by not requiring piles caps to be formed, poured and cured before building columns.



**Figure 5-15 Substructure option A**

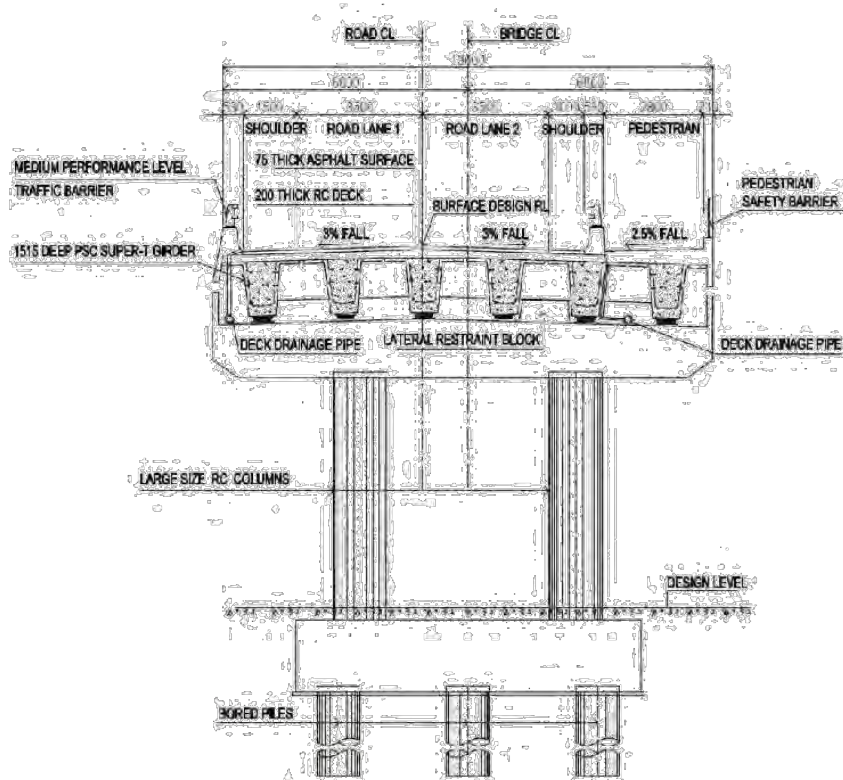
**5.5.2 Option B**

Option B is a common form of construction due to its efficiency and flexibility. This option includes a cast in-situ reinforced concrete headstock supported by 2 columns, constructed on top of an in-situ pile cap and bored piles to provide a durable foundation (Figure 5-16).

Pile caps in the waterway should typically be nominally exposed above normal water level for navigational visibility. Pile caps outside the waterway should be nominally placed 500 mm below ground level to maximise usable land and improve aesthetics.

Option B allows for efficient pile designs utilising push/pull action and reduced element effective lengths to improve buckling issues. Pile caps accommodate pile tolerances and provide a solid base for construction of columns and headstocks with greater accuracy and can resolve issues with the offset between bridge and road centrelines.

Unlike Option A, this foundation type requires work under water level and below ground level. Excavation and dewatering are required. Impacts may be minimised through scheduling activities during drier periods.



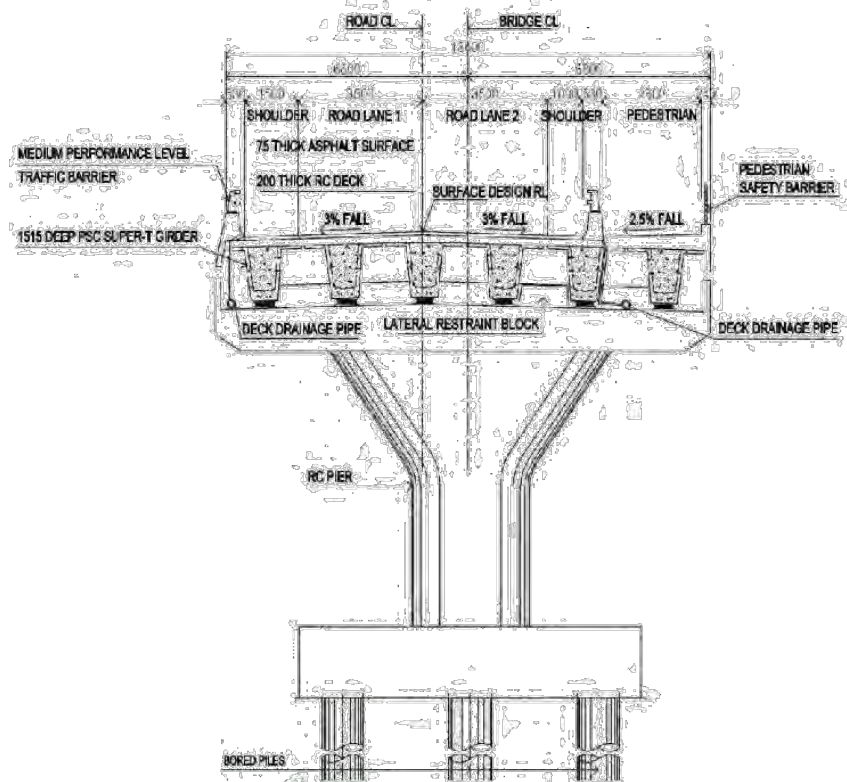
**Figure 5-16 Substructure option B**

**5.5.3 Option C**

Option C is similar to Option B except a larger single cast in-situ reinforced concrete column is adopted. This option can provide an alternative aesthetic to the bridge substructure appearance. Any bending moment due to offset between bridge and road centreline offset may challenge this design. The single column is often profiled to improve hydraulic performance in the waterway. Figure 5-17 shows a common arrangement.

Like Option B, pile caps are typically located nominally above normal water level in the waterway and nominally below ground level elsewhere. As such, excavation and dewatering are also required with this option.

The main disadvantage of this arrangement is that pier bodies have heavier weight resulting in higher loads on the piling structure. The need for formwork adjustment due to the variable pier cross sections may also cause constructability issues.



**Figure 5-17 Substructure option C**

## **5.6 Conclusion for structure and concept design development**

### **5.6.1 Conclusion for preferred option of bridge type**

- **Superstructure:** Option 1 – Precast prestressed Concrete Super-T girders (1515 mm deep).
- **Substructure:** Option A is likely to be preferred given the speed of construction and the cost saving associated with removal of pile caps. However, further consideration will be required in future design development stages once more detailed geotechnical and hydraulic assessments can be undertaken.



## 6. Strategic cost estimates

### 6.1 Basis for cost estimates

All cost estimates in this report have been prepared for the purpose of the Dubbo South Bridge strategic concept options report, and must not be used for any other purpose.

The cost estimates are preliminary estimates only and have been developed solely for the purpose of comparing and evaluating different options and may not have been fully scoped. Actual prices, costs and other variables may be different to those used to prepare the cost estimate and may change.

Unless as otherwise specified in this report, no detailed quotation has been obtained for tasks identified in any future construction project. GHD does not represent, warrant or guarantee that the works/project can or will be undertaken at a cost which is the same or less than the cost estimate.

The cost estimates have been prepared using information reasonably available to GHD and is based on assumptions and judgments made by GHD including no allowance for DRC costs (which include but are not limited to costs associated with staffing, project management, supervision, contract management, tendering, approvals, associated works, etc.) to undertake the work and that all work is undertaken in the quickest and most efficient manner without delays for reviews, procurement, installation and shutdowns.

It shall be recognised that the options described within this report are of a specific nature, and much of the work would need to be conducted remote to major cities. As such, associated uplifts to the typical unit rates / costs may apply. The use of regional indices has been allowed for within the cost estimate to address this matter.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected at the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the estimation and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

### 6.2 Strategic budget capital cost estimates and comparative assessment

Preliminary cost estimates have been prepared on the various route alignment options described in the strategic options development. The strategic costs for these options have been allocated a preliminary risk contingency of 30 % which is used by RMS and other road authorities at this stage of design development.

As discussed throughout the report, we have made a number of assumptions in arriving at these estimates. It should be noted that no comparative cost estimate for the investigated bridge types (i.e. Super-T vs Plank) has been undertaken, with a per square meter rate used for the preferred Super T option. We have made no allowance, other than directly at the bridge location, for any river excavation, shaping or protection up or down stream from the new structure.

A summary of the capital cost estimates can be found in Table 6-1. The full detailed cost estimates can be reviewed in Appendix D.

**Table 6-1 Strategic budget capital cost estimates**

Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
1	Preliminaries	\$2,846,790	\$2,955,408	\$2,693,447	\$2,106,901
2	Roadworks	\$7,320,169	\$13,709,054	\$11,549,712	\$8,851,874
3	Bridge	\$12,816,890	\$7,526,590	\$7,146,390	\$5,694,000
4	Contingency at 30%	\$6,895,155	\$7,257,316	\$6,416,865	\$4,995,832
	<b>TOTAL PROJECT COSTS</b>	<b>\$28,879,004</b>	<b>\$31,448,368</b>	<b>\$27,806,414</b>	<b>\$21,648,607</b>

Table 6-2 shows costs associated with project development and delivery costs from planning and design development through to completion of construction. These nominal amounts vary from project to project depending on complexity and any unique circumstances. The nominal percentages chosen are conservative and are expected to be adequate for this project.

**Table 6-2 Investigations, approvals, design and project management**

Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
A	Site Investigations (Nominal 3% of capital cost)	\$896,370	\$943,451	\$834,192	\$649,458
B	REF and approvals (Nominal 0.5% of capital cost)	\$149,395	\$157,242	\$139,032	\$108,243
C	Concept and Detail design (Nominal 5% of capital cost)	\$1,493,950	\$1,572,418	\$1,390,321	\$1,082,430
D	Contract and Project Management (Nominal 5% of capital cost)	\$1,493,950	\$1,572,418	\$1,390,321	\$1,082,430
	<b>TOTAL DESIGN AND MANAGEMENT COSTS</b>	<b>\$4,033,666</b>	<b>\$4,245,530</b>	<b>\$3,753,866</b>	<b>\$2,922,562</b>

Table 6-3 shows overall project costs, and sums the capital costs from Table 7-1 with the other project costs identified at Table 7-2.

**Table 6-3 Total capital, investigations, approvals, design and project management costs**

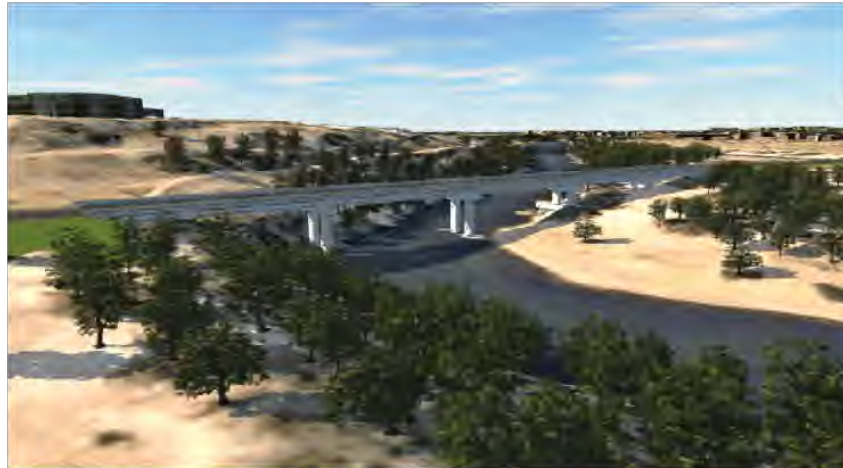
Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
	<b>TOTAL PROJECT COSTS</b>	<b>\$33,912,670</b>	<b>\$35,693,898</b>	<b>\$31,560,280</b>	<b>\$24,571,169</b>

### 6.3 Additional commentary and route option comparison

#### 6.3.1 Route Option A

The second most expensive option is mainly a result of the additional bridge length required for this alignment. Earthworks for the roadworks are less than Option C and D. There are also costs for additional traffic control signals required compared to Option C and D. The combination of highest cost and impact on a popular recreation area (Sandy Beach) makes this the least attractive option to pursue.

The main disadvantage of this option is the impact to the Sandy Beach recreational area, with the bridge going through the middle of the precinct.



**Figure 6-1 View looking northeast adjacent to new bridge over the Macquarie River**

#### 6.3.2 Route Option B

This option is the most expensive however provides an options on the eastern side of the river to access the new bridge via Macquarie Street, or further to the north from Wingewarra Street. When comparing this option to Option C, the route on the western side of the river is very similar, however the eastern route is much longer. In addition the curved bridge presents some technical construction challenges and is less desirable from a design perspective than a straight bridge. Due to the curvature of the alignment in order to achieve design speed, there is some encroachment on to the southern edge of sporting fields on the east side of the river.

#### 6.3.3 Route Option C

This option has relatively similar roadworks costs and slightly higher bridge costs compared to Option D. Signalised intersection works are the same as Option D. The main differentiator between this option and Option D is the route taken through private land to the west of the river. This option minimises impact to the existing land parcel and more closely follows the tree line and minimises land to be acquired.

#### 6.3.4 Route Option D

It appears the least expensive option with the shortest bridge span length, however the highest roadworks costs associated with the longest road alignment. The western tie-in point of Yuille Ct is further South than DRC would prefer.

Comparing the route taken through private land to the west of the river with Option C, this option effectively severs and quarantines the portion of land between the new road and the river. DRC would likely need to acquire the whole parcel of land between the new road alignment and the river.

#### 6.3.5 Route Options A, B, C

With regard to Options A, B and C, it is noted that the connection of the new bridge access road to the intersection of the Newell Highway and Minore Street results in severance of Sir Roden Cutler Park immediately to the east of the BIG4 Holiday Park. Further consideration of provision of an access culvert to this southern portion of the park will be undertaken during further design and community consultation.



**Figure 6-2 Routes B and C – view from Newell Highway, looking east with Sir Roden Cutler carpark on left of image.**

#### 6.3.6 Budget Considerations

Assuming Council wish to consider all options at this strategic stage, an overall budget of \$31.5 million (Capital costs) and \$37.0 million (Total Project Costs including investigations, approvals, design development and project management) could be adopted for DRC programming and planning purposes. This figure would be subject to further design, engineering and changes following the receipt and analysis of additional information and the development of a more detailed estimate.

## 7. Next steps

The development of the strategic concept options has progressed as far as possible without site investigations and the approvals process along with further design inputs to allow detailed design and corresponding more accurate costing information.

We understand that DRC intends to make a Strategic Business Case submission to appropriate Government departments to seek funding for further design development and ultimately bridge construction.

The next steps for DRC are to:

- Adopt this report for community consultation.
- Undertake community consultation.
- Determine a preferred Option alignment.
- Update and adopt current Draft Transport Strategy.

From a technical perspective in terms of progression of bridge design, a successful application for funding would allow the next steps to be undertaken:

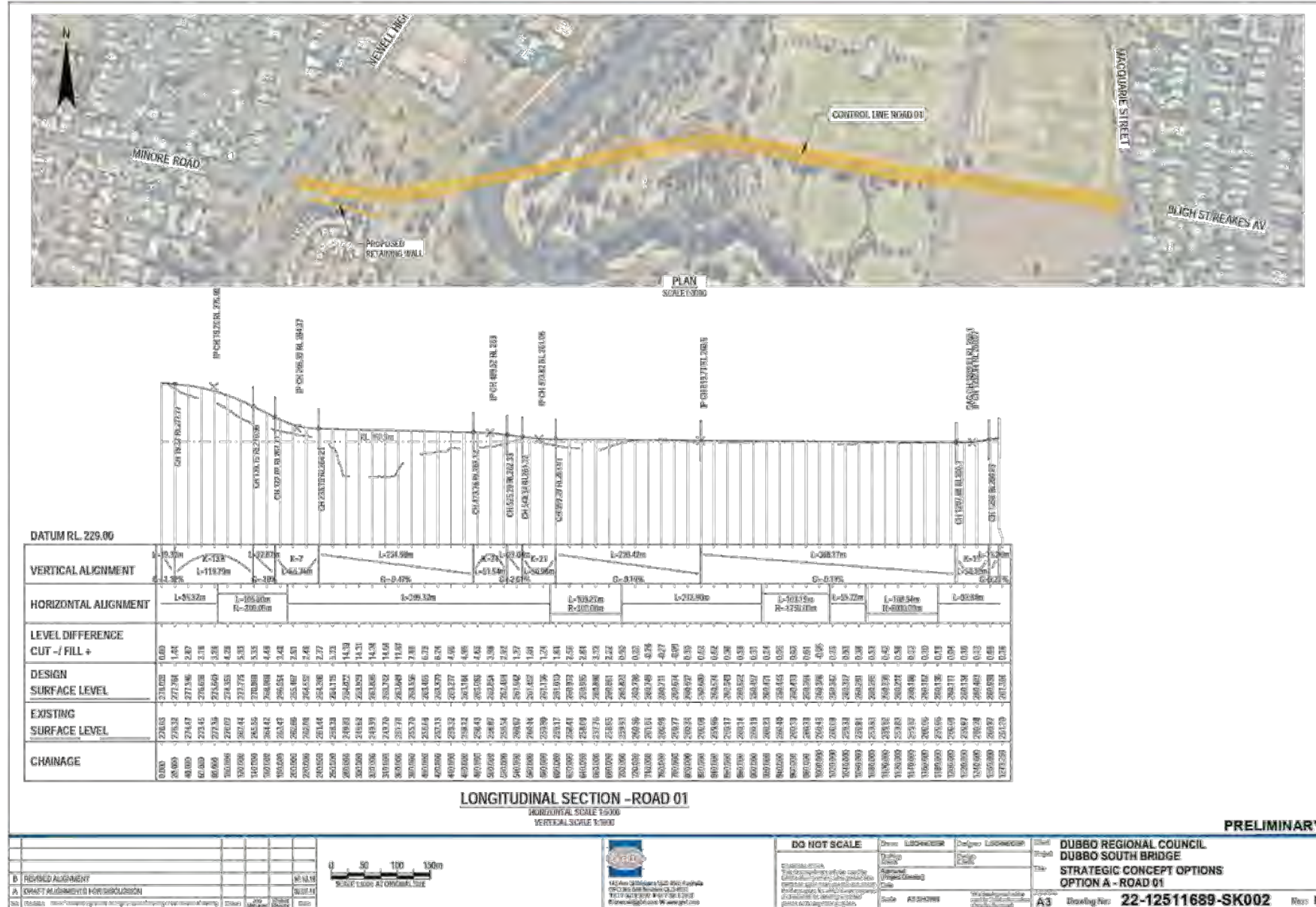
- Site investigations.
- REF, approvals.
- Firm the concept and detailed design and cost.
- Detail design and contract documentation.

## **Appendices**

## **Appendix A** - Summary of options comparison

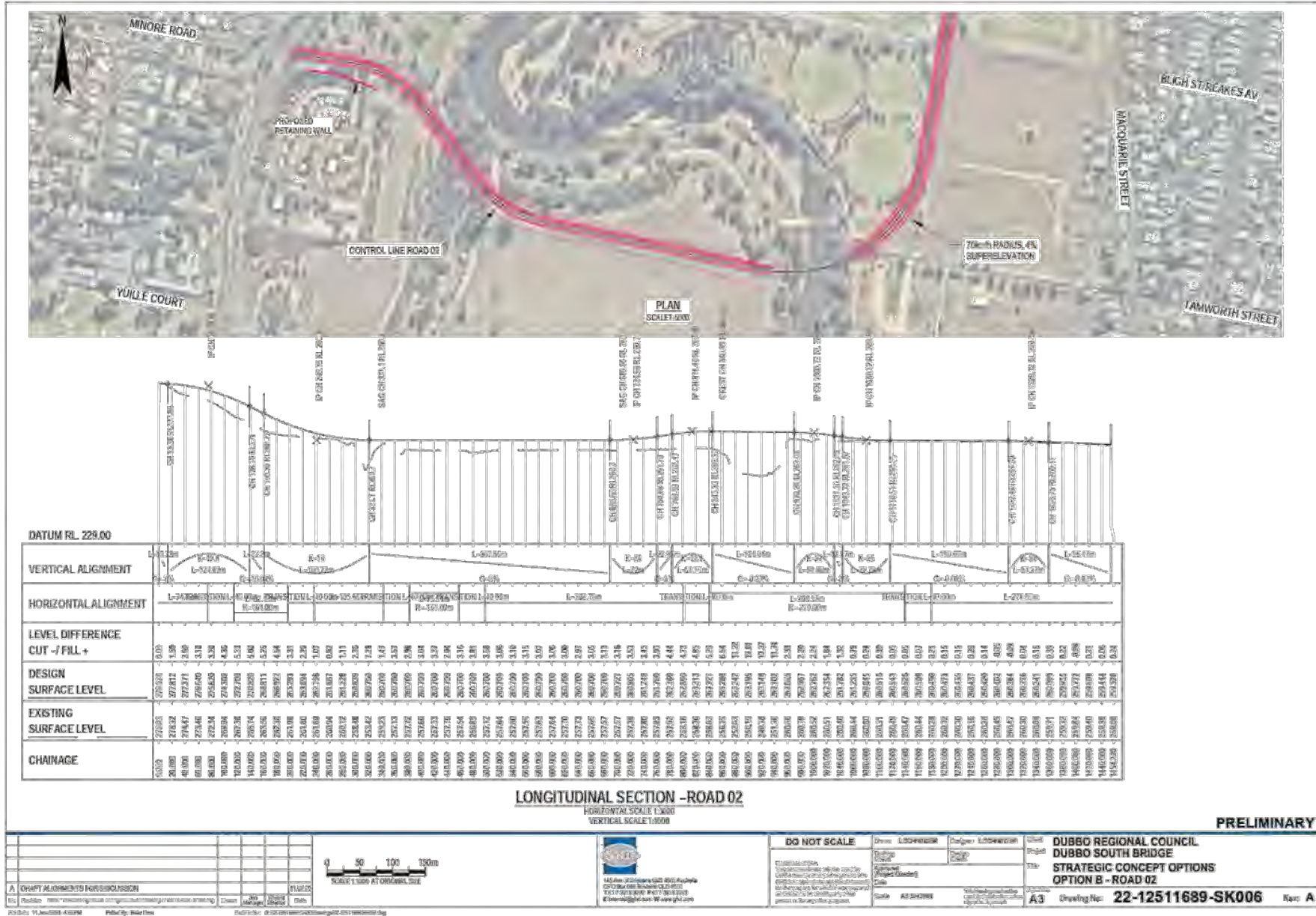


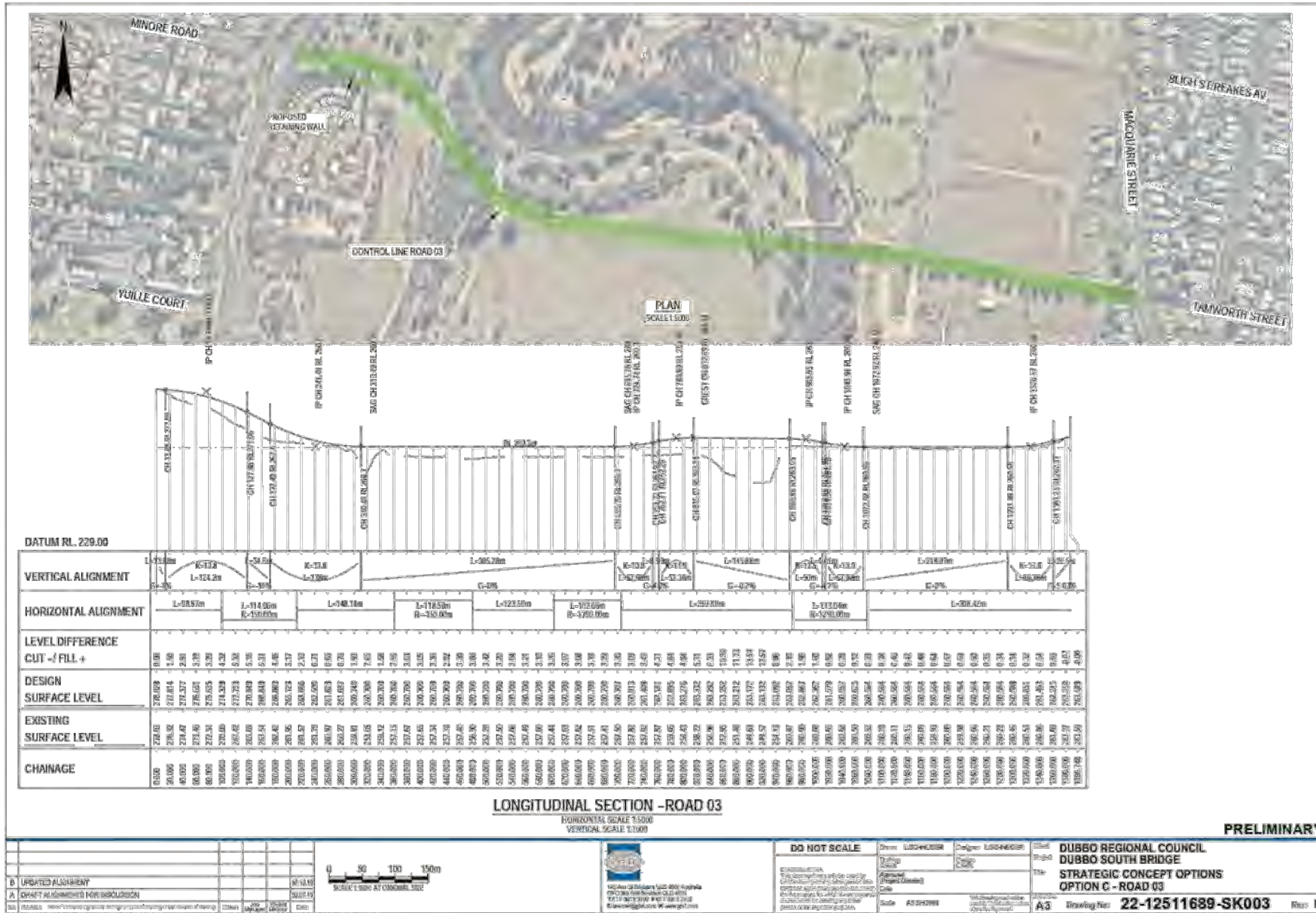




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<p><b>B</b> REVISED ALIGNMENT</p> <p><b>A</b> CONCEPT ALIGNMENT FOR DISCUSSION</p> <p>Scale: 1:5000</p>	<p>Scale: 1:5000 AT ORIGINAL SIZE</p>	<p>145 Ann St Dubbo NSW 2880 Australia          02 9210 5000 Fax 02 9210 5001          100 Sturt St Dubbo NSW 2880 Australia          02 9210 5000 Fax 02 9210 5001          100 Sturt St Dubbo NSW 2880 Australia          02 9210 5000 Fax 02 9210 5001</p>	<p><b>DO NOT SCALE</b></p> <p>Drawn: LSCHNEIDER          Checked: LSCHNEIDER          Date: 22/08/2022          Scale: AS 2420:2000</p>	<p>Client: DUBBO REGIONAL COUNCIL          Project: DUBBO SOUTH BRIDGE          Drawing Title: STRATEGIC CONCEPT OPTIONS          Drawing No: 22-12511689-SK002          Rev: B</p>
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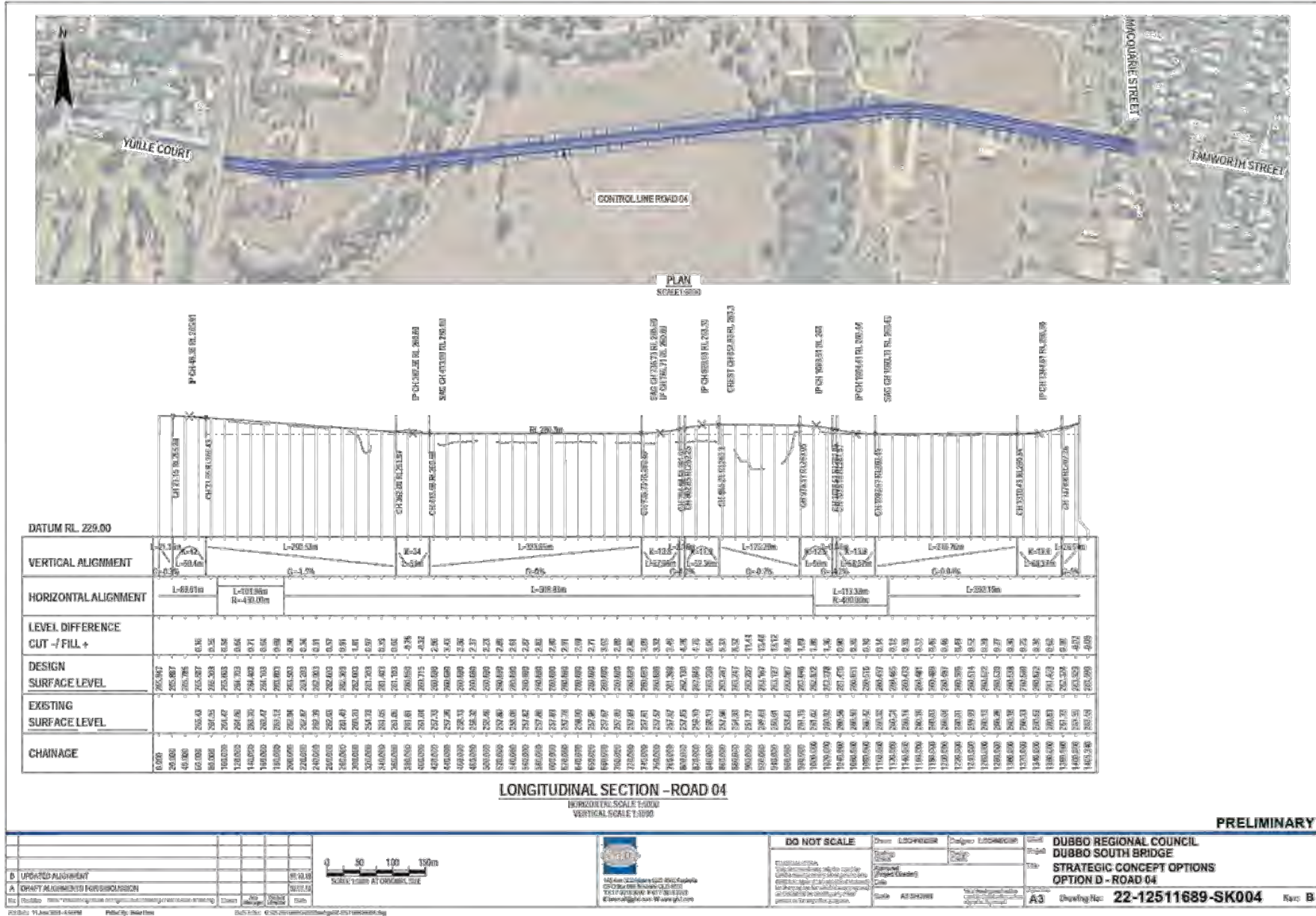




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 OPTION C - ROAD 03  
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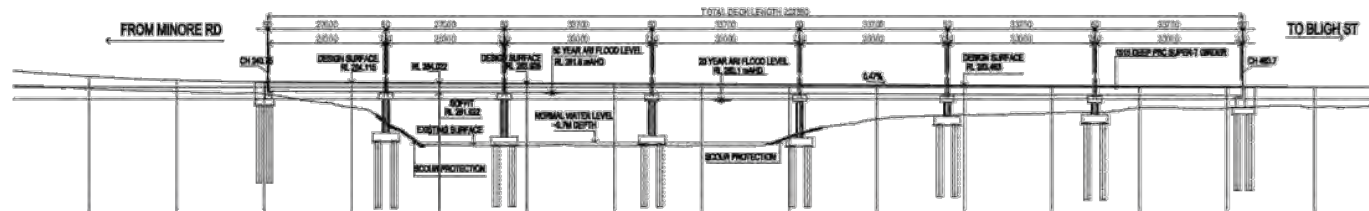




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## **Appendix B** - Super T superstructure concept drawing



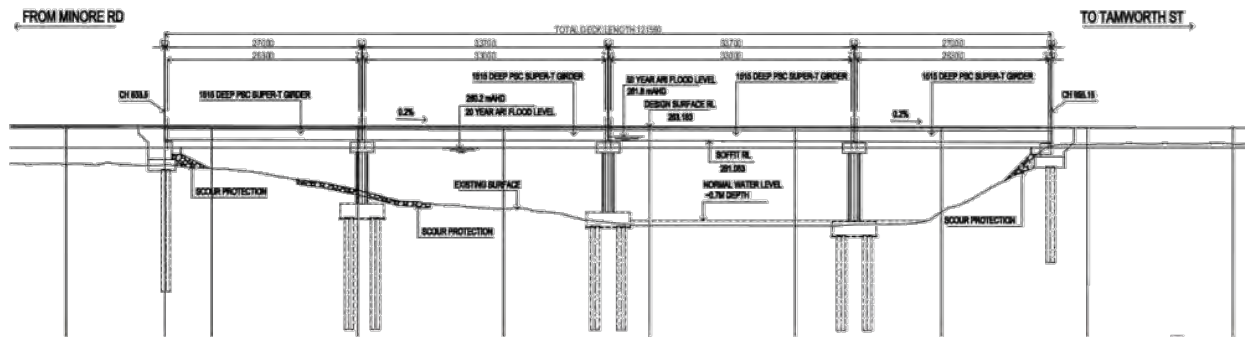
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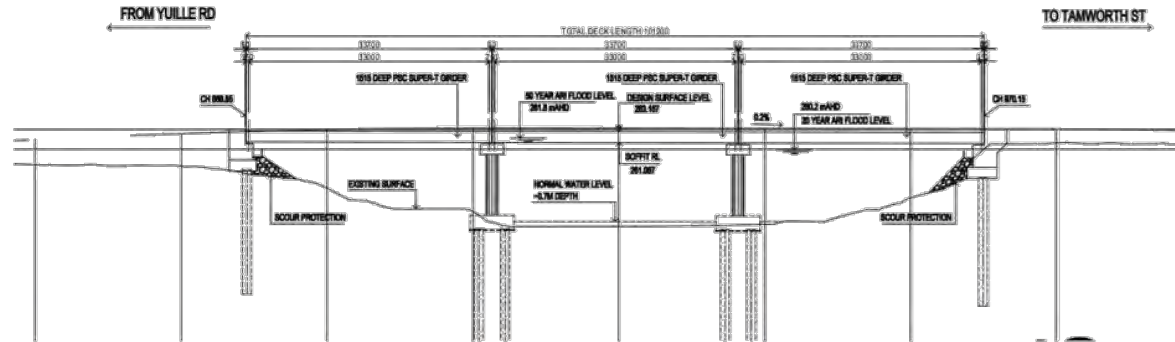


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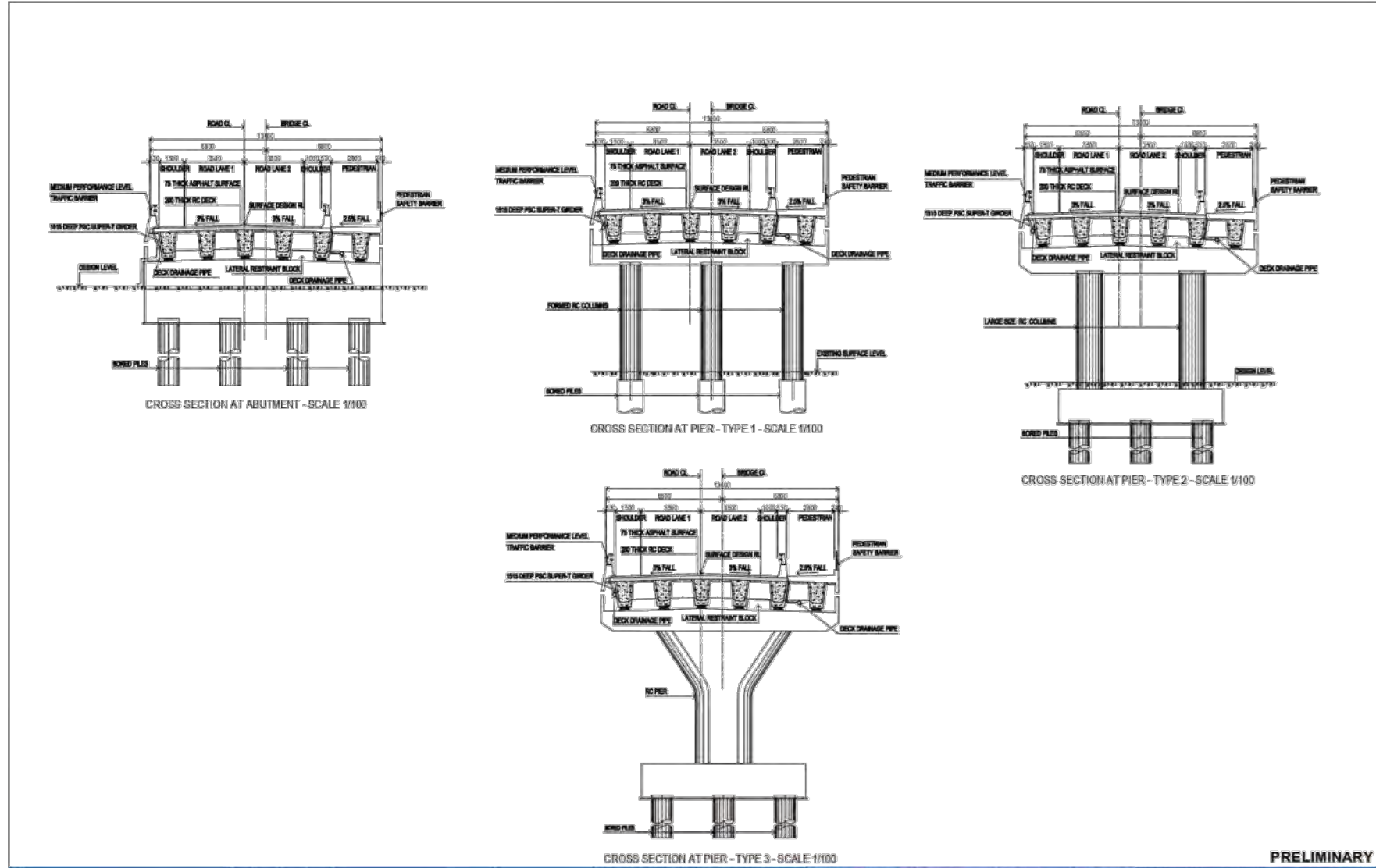
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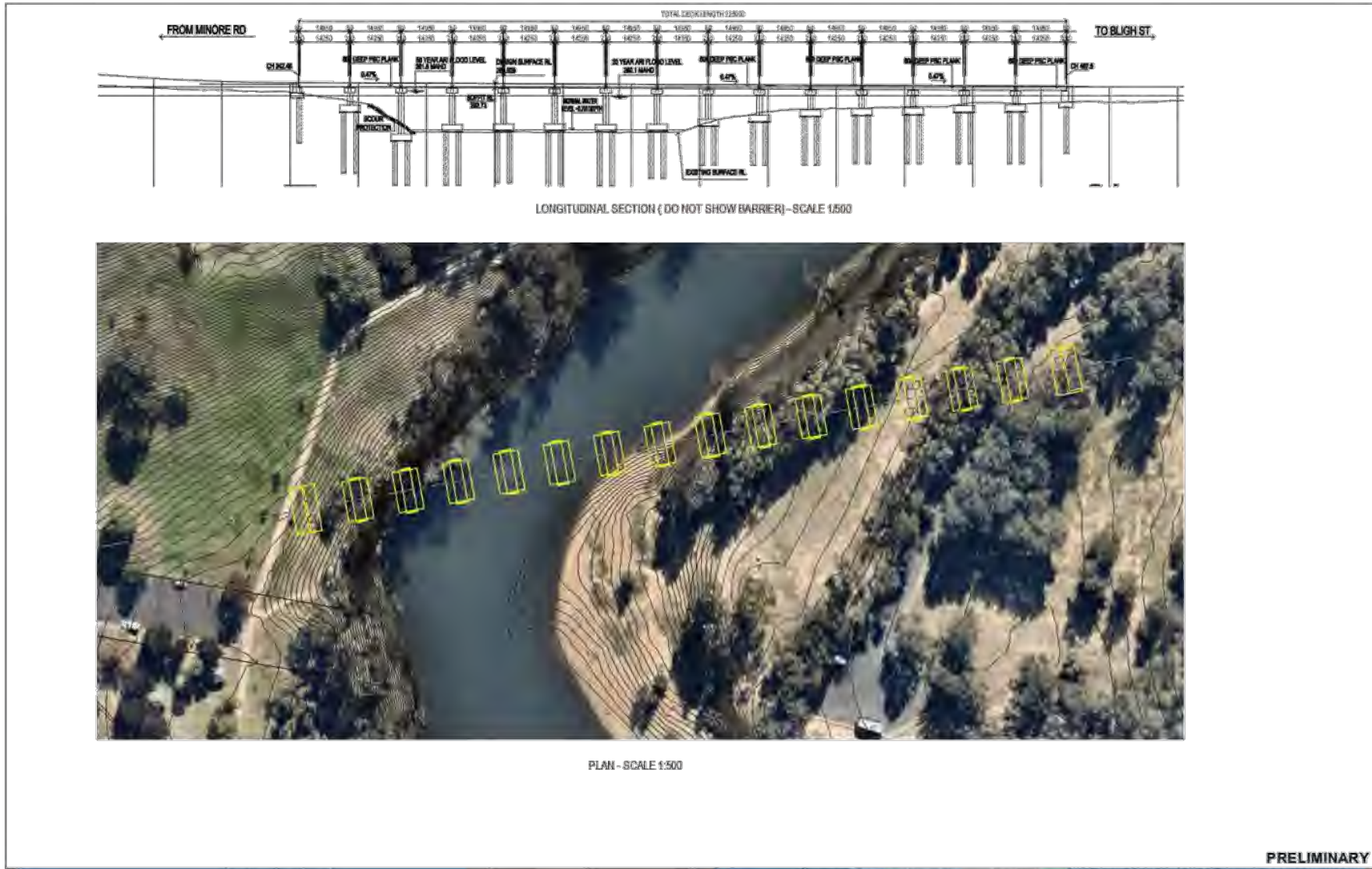
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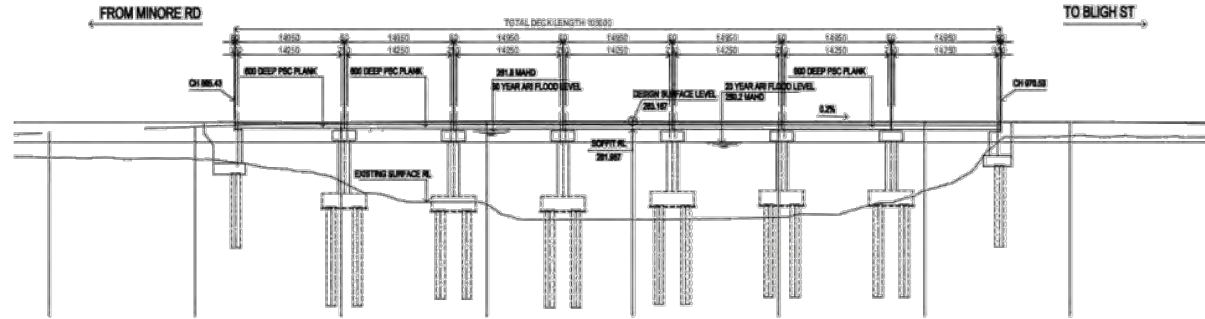
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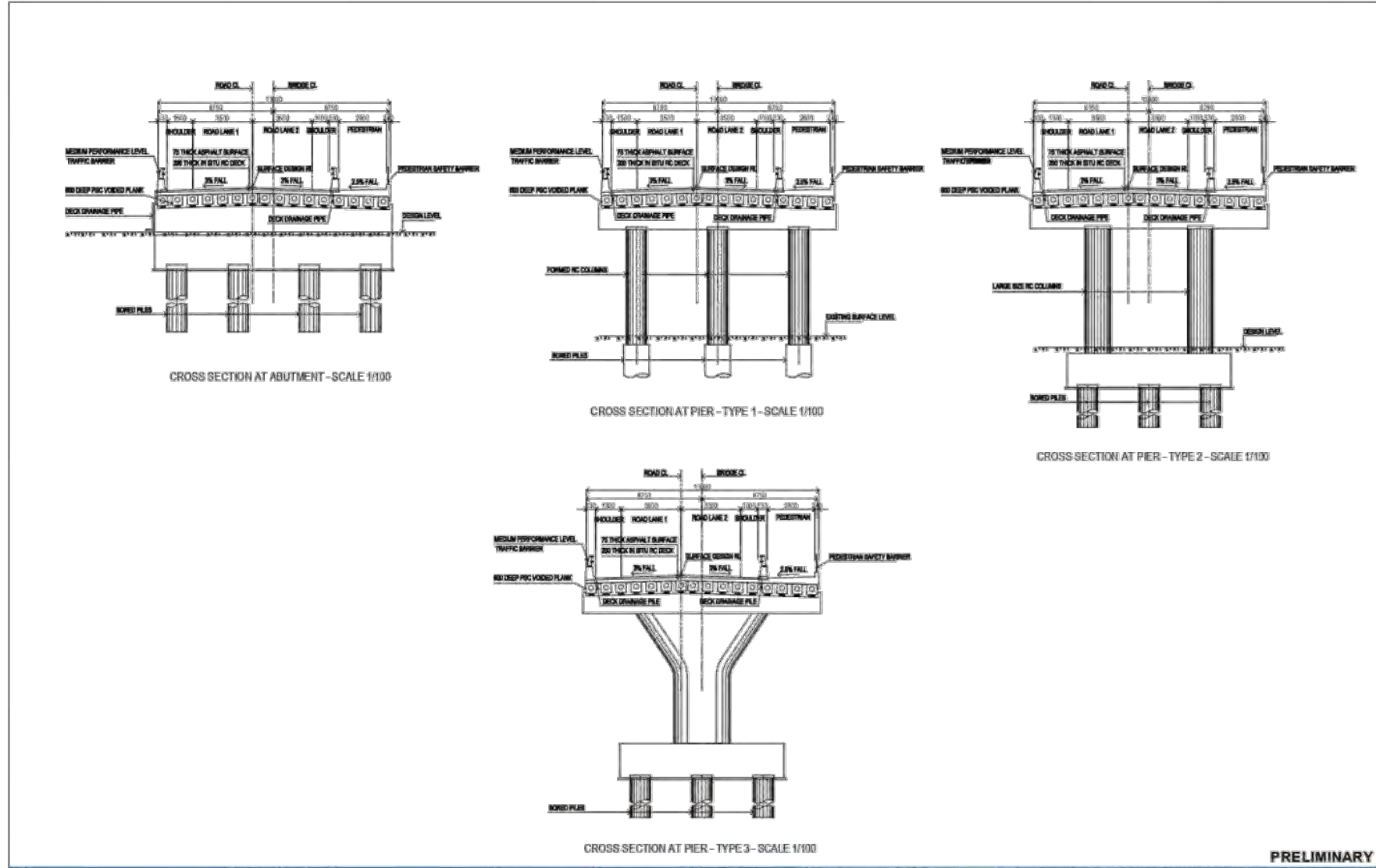
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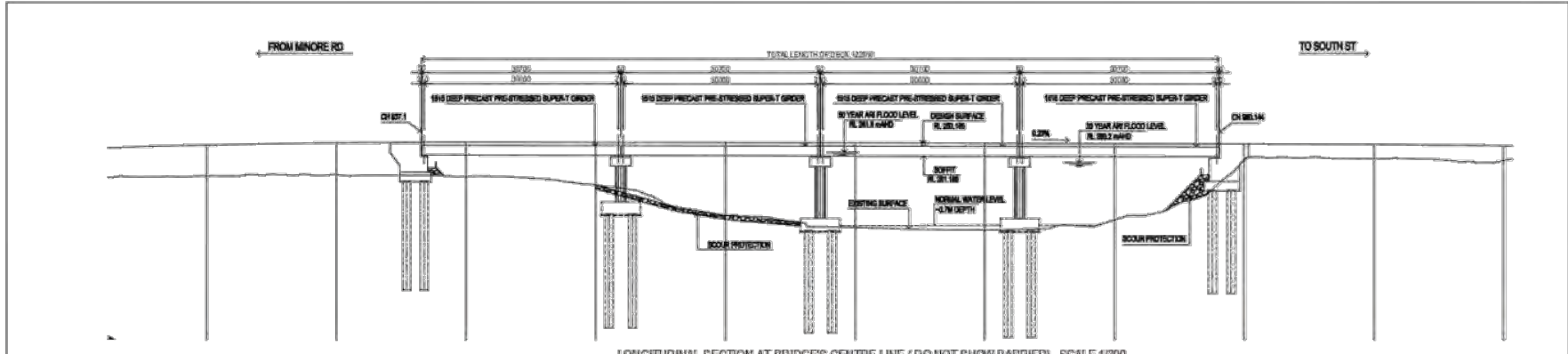
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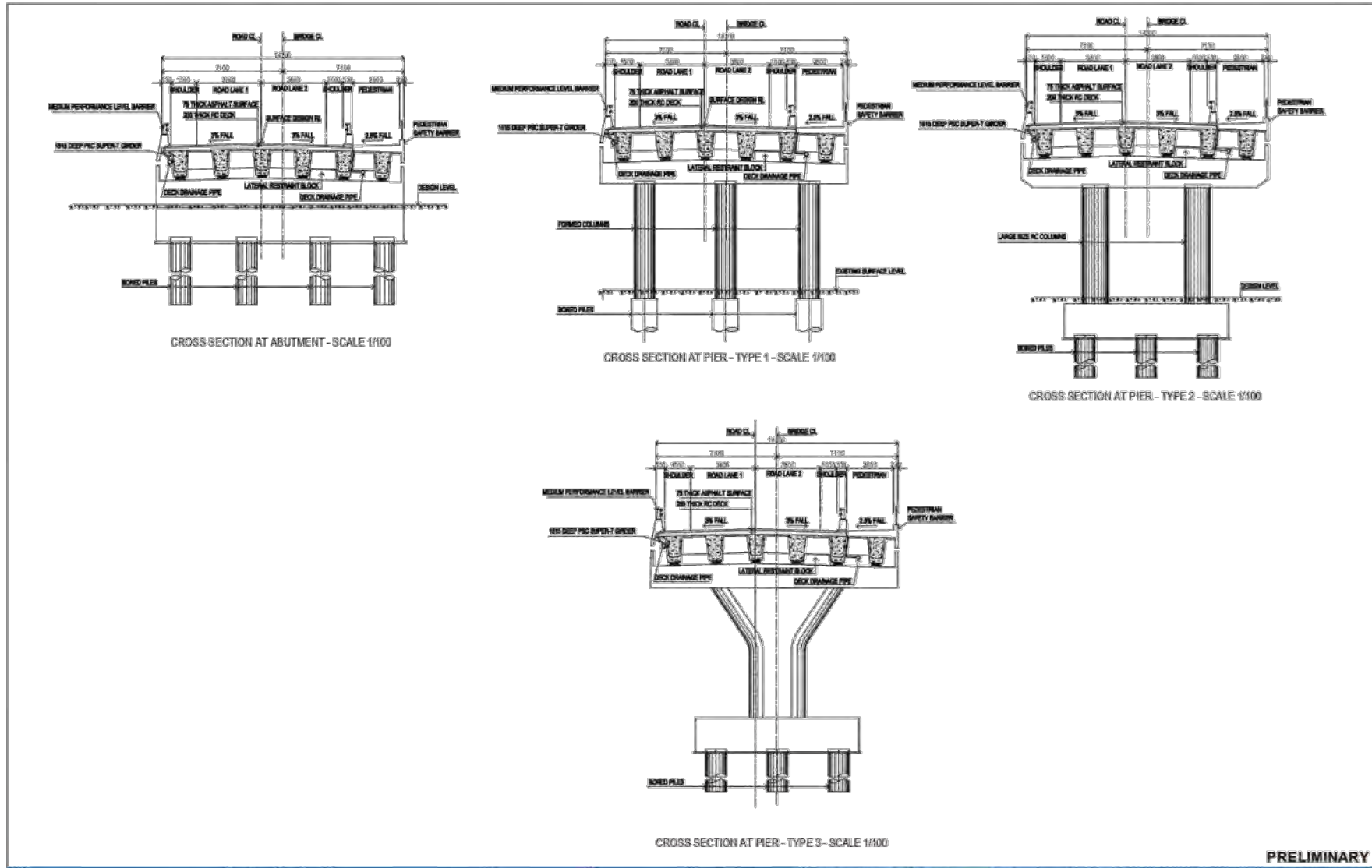
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PRELIMINARY

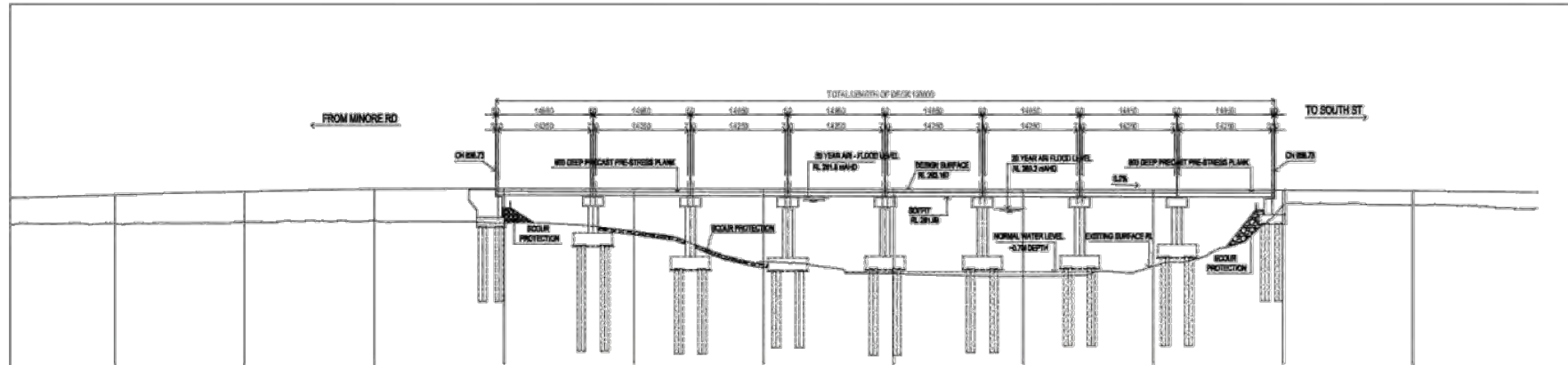
<p><b>DO NOT SCALE</b></p> <p>Conditions of Use:                  This drawing is to be used by:                  Clients, clients, consultants, and other parties.                  It is not to be used for any other purpose.                  The client is responsible for any and all errors and omissions.                  This drawing is not to be used for any other purpose.</p>				Drawn: N334 Checked: [blank] Approved: [blank] Date: [blank]	Designer: N334 Design: [blank] Project Director: [blank] Date: [blank]	Client: <b>DUBBO REGIONAL COUNCIL</b> Project: <b>DUBBO SOUTH BRIDGE</b> Title: <b>BRIDGE STRATEGIC CONCEPT OPTIONS</b> <b>ROAD B - OPTION 1, SUPER - T GIRDER</b>
A DRAFT ALIGNMENTS FOR DISCUSSION	NV SP DM 13.03.20	[blank] [blank] [blank]	[blank] [blank] [blank]	[blank] [blank] [blank]	Scale: AS:SHOWN [blank] [blank]	Drawing No: 22-12511689-SK108 Rev: A



PRELIMINARY

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A DRAFT ALIGNMENTS FOR DISCUSSION 1/2/2024 10:52 AM 1/2/2024 10:52 AM 1/2/2024 10:52 AM 1/2/2024 10:52 AM	REV 02 03 04	DATE 13.03.20 13.03.20 13.03.20	PROJECT 22-12511689-SK109	DRAWN NUSJ	CHECKED TKSJZ	DATE 13.03.20	PROJECT 22-12511689-SK109





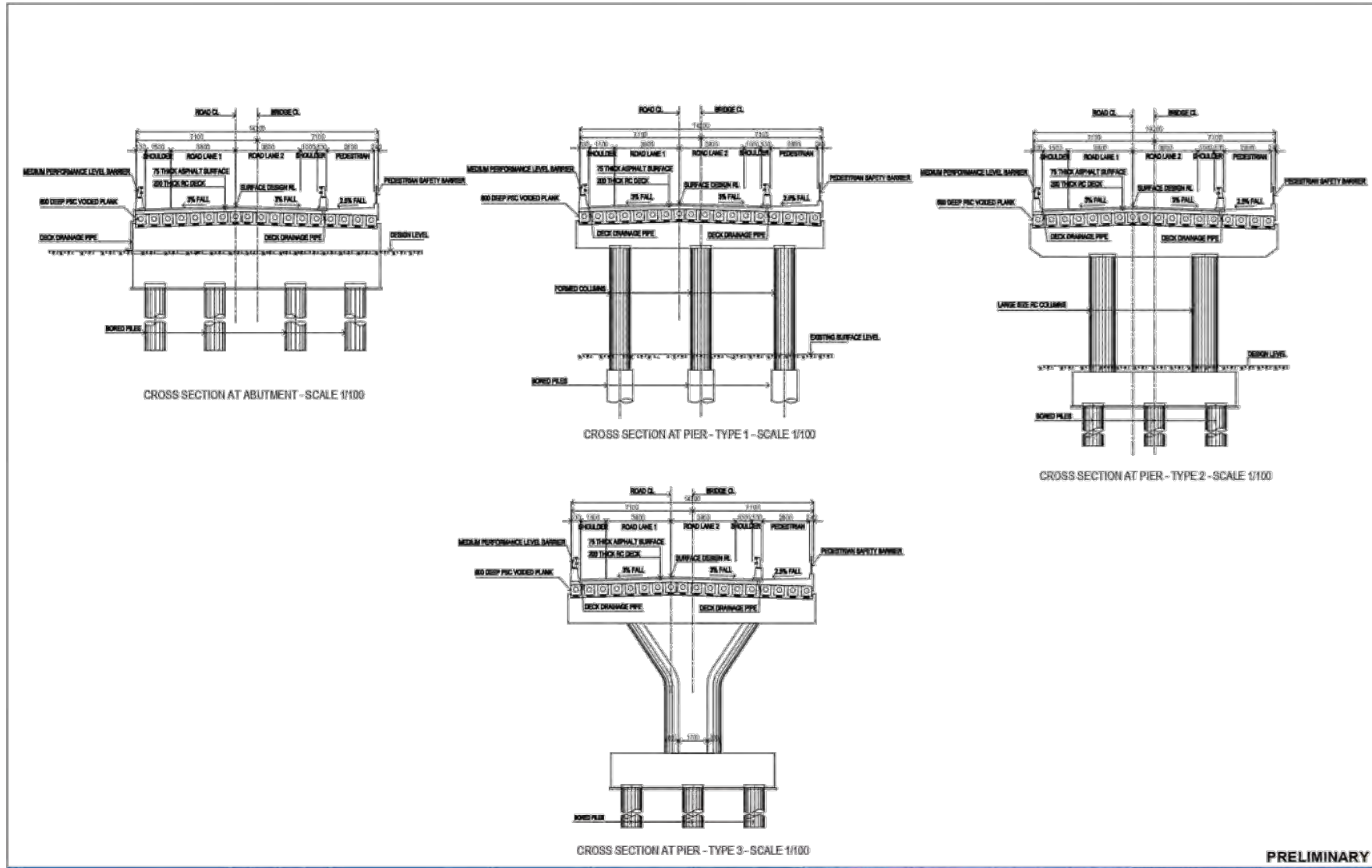
LONGITUDINAL SECTION (DO NOT SHOW BARRIER) - SCALE 1/300



PLAN - SCALE 1:300

PRELIMINARY

								<b>DO NOT SCALE</b> Conditions of Use: This drawing is only to be used for information and is not to be used for any other purpose without the written approval of the project manager. It is not to be used for any other purpose or for any other project.		Drawn: NSM Checked: NSM Approved: (Project Director) Date: Scale: AS 1500:1		Designer: NSM Design: NSM Date: Scale: AS 1500:1		Client: DUBBO REGIONAL COUNCIL Project: DUBBO SOUTH BRIDGE Title: BRIDGE STRATEGIC CONCEPT OPTIONS ROAD B - OPTION 2, VOIDED PLANK Drawing No: 22-12511689-SK110 Rev: A	
A DRAFT ALIGNMENTS FOR DISCUSSION				NV	SP	DM	13.03.20								
No. Revision: Note: * indicates a revision to original drawing or approval of drawing.				Drawn	Checked	Approved	Date	Reference Drawing Title		Drawing No.					



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<p>JA DRAFT ALIGNMENTS FOR DISCUSSION</p> <p>REV: [ ]</p> <p>DATE: [ ]</p>	<p>BY: [ ]</p> <p>DATE: [ ]</p>	<p>BY: [ ]</p> <p>DATE: [ ]</p>	<p>BY: [ ]</p> <p>DATE: [ ]</p>	<p>BY: [ ]</p> <p>DATE: [ ]</p>	<p>BY: [ ]</p> <p>DATE: [ ]</p>	

No		Structure	Bridge total width	Bridge total length of deck	Total deck surface area	Number of spans	Total number of beams	Number of Piers	Number of Abutments
			m	m	m2	EA	EA	EA	EA
<b>1</b>	<b>Road A</b>								
1.1	Option 1	Simple supported Super T -type 4 girders (Precast prestressed concrete-1515mm deep), In-situ Column Piers with bored piles	13.5	222.85	3008.48	7	42	6	2
2	Option 2	Simple supported Precast prestressed 600 deep Void planks, , In-situ Column Piers with bored piles	13.5	225.0	3037.50	15	240	14	2
<b>2</b>	<b>Road B</b>								
1	Option 1	Simple supported Super T -type 4 girders (Precast prestressed concrete-1515mm deep), , In-situ Column Piers with bored piles	14.1	122.95	1733.60	4	24	3	2
2	Option 2	Simple supported Precast prestressed 600 deep Void planks, In-situ Column Piers with bored piles	14.1	120.0	1692.00	8	144	7	2
<b>3</b>	<b>Road C</b>								
1	Option 1	Simple supported Super T -type 4 girders (Precast prestressed concrete-1515mm deep), In-situ Column Piers with bored piles	13.5	121.55	1640.93	4	24	3	2
2.2	Option 2	Simple supported Precast prestressed 600 deep Void planks, In-situ Column Piers with bored piles	13.5	119.95	1619.33	8	128	7	2
<b>4</b>	<b>Road D</b>								
1	Option 1	Simple supported Super T -type 4 girders (Precast prestressed concrete-1515mm deep), , In-situ Column Piers with bored piles	13.5	101.2	1366.20	3	18	2	2
2	Option 2	Simple supported Precast prestressed 600 deep Void planks, In-situ Column Piers with bored piles	13.5	105.0	1417.50	7	112	6	2

## **Appendix C** - TUFLOW flood modelling results





## **Appendix D** - Cost estimate



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## Dubbo South Bridge

### Basis of Capital Cost Estimate

10207-BOE-001

11 June 2020

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**SYNOPSIS**

This document has been prepared to support the development of the Capital Cost Estimate for the Dubbo South Bridge.

**Disclaimer**

*This report has been prepared on behalf of and for the exclusive use of GHD, and is subject to and issued in accordance with the agreement between GHD and Goeldner Consulting Pty Ltd. Goeldner Consulting Pty Ltd accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this report by any third party. Copying this plan without the permission of GHD and Goeldner Consulting Pty Ltd is not permitted.*

REV	DESCRIPTION	ORIG	APPROVER	DATE	CLIENT APPROVAL	DATE
A	Issued for use	D Simone	C Goeldner	06-12-19		
B	Revised Issue	D Simone	C Goeldner	04/03/20		
C	Revised Issue	C Goeldner	C Goeldner	11/06/20		

GOELDNER CONSULTING PTY LTD

10207 : BOE-001 Rev C : 11 June 2020



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**Appendices**

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APPENDIX 4	ESTIMATE DETAILS – Option 4

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## 1 INTRODUCTION

### 1.1 Executive Summary

This document has been prepared to support the development of the Capital Cost Estimate for the Dubbo South Bridge as defined by the scope of work documents supplied by GHD. The basis of the estimate in terms of methodology and process in determining the capital cost value are the prime areas of focus of this document. This document provides a cost estimate for the following design options:

- Option 1 – Bligh St/Reakes Ave to Minore Rd
- Option 2 – South St to Minore Rd
- Option 3 – Tamworth St to Minore Rd
- Option 4 – Tamworth St to Yuille Court

### 1.2 Evaluation and Summary of the Estimate

The total P50 estimated cost of the overall project for each option as detailed in this document is summarised in Table 1-1 on the following page.

These amounts are based on March-2020 AUD dollars at a 50/50 probability of overrun/underrun (excludes, market forces, escalation and currency hedging).



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**Table 1-1. Cost Estimate Summary**

Code		Description		Option 1		Option 2		Option 3		Option 4	
				\$AUD	%TIC	\$AUD	%TIC	\$AUD	%TIC	\$AUD	%TIC
<b>DUBBO REGIONAL COUNCIL Dubbo South Bridge</b>				Job No.		10207		Date:		11 Jun 2020	
				Revision:		C					
<b>Total Cost</b>				<b>\$29,879,004</b>		<b>\$31,448,368</b>		<b>\$27,806,414</b>		<b>\$21,648,607</b>	
		<b>PRELIMINARIES</b>		\$ 2,846,790	9.5%	\$ 2,955,408	9.4%	\$ 2,693,447	9.7%	\$ 2,106,901	9.7%
G1		CONTRACTOR PRELIMINARIES		\$ 2,462,555	8.2%	\$ 2,591,898	8.2%	\$ 2,291,737	8.2%	\$ 1,784,226	8.2%
G7		UTILITY ADJUSTMENT		\$ 352,360	1.2%	\$ 322,860	1.0%	\$ 300,310	1.1%	\$ 239,125	1.1%
G40		CLEARING AND GRUBBING		\$ -31,875	0.1%	\$ -40,650	0.1%	\$ 101,400	0.4%	\$ 83,550	0.4%
		<b>ROADWORKS</b>		\$ 7,320,169	24.5%	\$ 13,709,054	43.6%	\$ 11,549,712	41.5%	\$ 8,851,874	40.9%
R11		STORMWATER DRAINAGE		\$ 384,410	1.3%	\$ 1,601,328	5.1%	\$ 1,110,990	4.0%	\$ 1,086,873	5.0%
R15		KERBS AND GUTTERS		\$ 160,965	0.5%	\$ 256,545	0.8%	\$ 122,610	0.4%	\$ 100,140	0.5%
R33		TRENCH DRAINS		\$ 276,256	0.9%	\$ 192,674	0.6%	\$ 192,674	0.7%	\$ 162,731	0.8%
R44		EARTHWORKS		\$ 3,811,732	12.8%	\$ 6,907,171	22.0%	\$ 6,738,441	24.2%	\$ 4,478,823	20.7%
R71		CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE		\$ 719,231	2.4%	\$ 1,609,833	5.1%	\$ 740,354	2.7%	\$ 820,987	3.8%
R101		COLD MILLING OF ROAD PAVEMENT MATERIALS		\$ 89,900	0.3%	\$ 60,450	0.2%	\$ 80,600	0.3%	\$ 51,150	0.2%
R116		HEAVY DUTY DENSE GRADED ASPHALT		\$ 587,502	2.0%	\$ 941,263	3.0%	\$ 547,410	2.0%	\$ 538,030	2.5%
R131		GUIDE POSTS		\$ 4,942	0.0%	\$ 5,245	0.0%	\$ 5,144	0.0%	\$ 5,245	0.0%
R132		SAFETY BARRIER SYSTEMS		\$ 100,925	0.3%	\$ 142,525	0.5%	\$ 136,000	0.5%	\$ 156,520	0.7%
R141		PAVEMENT MARKING		\$ 11,263	0.0%	\$ 17,993	0.1%	\$ 11,225	0.0%	\$ 10,749	0.0%
R142		RETROREFLECTIVE RAISED PAVEMENT MARKERS		\$ 1,293	0.0%	\$ 2,477	0.0%	\$ 1,414	0.0%	\$ 1,426	0.0%
R143		SIGNPOSTING		\$ 27,500	0.1%	\$ 27,500	0.1%	\$ 27,500	0.1%	\$ 27,500	0.1%
R173		GENERAL CONCRETE PAVING		\$ 609,450	2.0%	\$ 569,700	1.8%	\$ 546,850	2.0%	\$ 412,600	1.9%
R178		VEGETATION		\$ 84,800	0.3%	\$ 116,600	0.4%	\$ 106,000	0.4%	\$ 116,600	0.5%
R201		FENCING		\$ -	0.0%	\$ 17,750	0.1%	\$ 17,500	0.1%	\$ 42,500	0.2%
R204		PROPERTY ADJUSTMENTS		\$ -	0.0%	\$ 940,000	3.0%	\$ 865,000	3.1%	\$ 540,000	2.5%
TS101		TRAFFIC CONTROL SIGNALS		\$ 450,000	1.5%	\$ 300,000	1.0%	\$ 300,000	1.1%	\$ 300,000	1.4%
		<b>BRIDGE</b>		\$ 12,816,890	42.9%	\$ 7,526,590	23.9%	\$ 7,146,390	25.7%	\$ 5,694,000	26.3%
B1		BRIDGE CONSTRUCTION		\$ 12,289,890	41.1%	\$ 7,077,090	22.5%	\$ 6,727,890	24.2%	\$ 5,509,000	25.4%
B2		BRIDGE SCOUR PROTECTION		\$ 527,000	1.8%	\$ 449,500	1.4%	\$ 418,500	1.5%	\$ 186,000	0.9%
		<b>CONTINGENCY</b>		\$ 6,895,155	23.1%	\$ 7,257,316	23.1%	\$ 6,416,865	23.1%	\$ 4,995,832	23.1%
		Contingency at 30%		\$ 6,895,155	23.1%	\$ 7,257,316	23.1%	\$ 6,416,865	23.1%	\$ 4,995,832	23.1%
		<b>OWNERS COSTS</b>		\$ -	0.0%	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
		Excluded		\$ -	0.0%	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%

**Notes to Table 1.1**

- All costs exclude GST
- Market forces, escalation and currency hedging have been excluded from the cost estimate.

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BASIS OF CAPITAL COST ESTIMATE



## 2 BASIS OF ESTIMATE

### 2.1 Purpose and Objective

The Cost Estimate was prepared by Goeldner Consulting to produce a Capital Cost Estimate with a target accuracy of  $\pm 30\%$  for each option of the Dubbo South Bridge project.

### 2.2 Extent of the Estimate

Goeldner Consulting has based the capital cost estimate on the engineering details, including material take-offs and historic data from similar projects.

### 2.3 Qualifications and Assumptions

The following qualifications and assumptions were noted when preparing the Capital Cost Estimate:

- Estimate base date is March 2020.
- The estimate has been developed based on a single civil contractor being appointed to execute the entire scope of work.
- A nominal 50hr working week has been assumed.
- No allowance for construction of temporary diversions. It is assumed diversions will utilise existing roads.
- No provision for delay costs with regard to permitting (e.g. excavation permits, confined space permits etc.) beyond what would be reasonably expected.
- The weather conditions are not of extreme proportions that may disrupt the continuance of safe work. No provision of 'force majeure' occurrences such as storms and resultant flooding or earthquakes are included in the cost estimate.
- All standards and procedures are in accordance with Australian Standards and codes of practice, together with good engineering practices.
- Estimate reflects material take offs supplied by GHD. Where this does not exist, allowances and provisions have been included.

### 2.4 Exclusions

- Project development costs including Route/Concept/EIS studies
- Investigation and Design costs
- Public utility adjustments
- Compensation of residents impacted by the works/diversions
- Compensation of emergency services/authorities impacted by the works/diversions
- Credit for salvaged materials



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- Treatment and/or removal of contaminated soil/pavement materials.
- Escalation beyond March 2020
- The impact of related concurrent projects which may affect the availability of skilled construction labour has not been assessed.
- Changes to labour or industrial relations laws.
- Impact of market forces on commodity pricing (e.g. concrete supply, oil price variation).
- No allowance for additional costs due to abnormal weather such as El Niño events.
- No allowance for improvements to existing infrastructure or services outside the battery limits of the project.
- No allowance has been included for extended periods of industrial unrest.
- Finance and interest charges for project duration.
- GST.
- Any environmental requirement not identified in this estimate.
- No allowance for sunk costs (e.g. Cost of this and previous studies etc.).

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BASIS OF CAPITAL COST ESTIMATE



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### **3 QUANTITY AND COST BASIS**

#### **3.1 Quantity Basis**

All quantities used in the estimate have been based on preliminary material take-offs provided by GHD.

#### **3.2 Material Pricing**

Rates for construction materials have been generally based on pricing from similar projects in Goeldner Consulting's database.

#### **3.3 Bridge Pricing**

Pricing for the concrete bridge is based on a per m<sup>2</sup> rate due to the preliminary stage of the project. The following rates have been applied based on historic information and verbal advice from contractors.

- a) Dual lane bridge      \$4,000/m<sup>2</sup>

#### **3.4 Property Adjustments**

An allowance for property adjustments has been included based on \$10/m<sup>2</sup>

#### **3.5 Labour**

The manual labour rate is based on a nominal 50 hour work week. The direct labour manhours for the works have been based on Goeldner Consulting's database of similar projects and assessed according to current construction techniques, methodology and productivity of trades.

#### **3.6 Preliminary Costs**

An allowance for head contractor preliminary costs has been included based on 12% of construction costs. Preliminary costs include items such as contractor mobilisation/demobilisation, site facilities, temporary services, temporary construction works, traffic control, surveying, project plans and documentation

#### **3.7 Escalation**

No allowance has been included for escalation beyond the estimate base date.

#### **3.8 Contingency**

An allowance has been included based on 30% of the project cost.

#### **3.9 Owners Costs**

No allowance has been included for Owners costs. Owners costs may include, but are not limited to:

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- 
- Finance and capitalised interest for project duration.
  - The Owners project team costs during the execution phase which includes travel and accommodation, miscellaneous business related costs.
  - Cost of obtaining statutory and regulatory approvals for construction.
  - Owners insurances, including those during construction (e.g. public liability, contractor's all-risks, workers compensation, public and professional liability).
  - 3rd Party Consulting costs when engaged directly with the Principal.
  - Industrial Relations consultant.
  - Sunk Costs
  - Local community compensation.



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## Appendix 1 Estimate Details – Option 1

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 1			10207-EST-001-C (Option 1)
Pay Item	Description	Unit	Quantity	Rate	Total
<b>DIRECT COSTS</b>					
<b>G1</b>	<b>PRELIMINARIES</b>				
G1P2	Allowance for contractor preliminaries including mobilisation/demobilisation, site facilities, temporary works, traffic control, surveying, project plans/documentation etc.	sum	1	2,462,555.28	2,462,555
<b>G1</b>	<b>PRELIMINARIES</b>				<b>2,462,555</b>
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				
G7P5.1	Electrical pole relocation x 1 poles	no	1	30,000.00	30,000
G7P6.1	Street lighting relocation - 7 x timber pole, OH feed	no	7	5,000.00	35,000
G7P6.2	Street lighting relocation - 1 x steel pole, UG feed	no	1	6,500.00	6,500
G7P8.1	Water main relocation	m	190	125.00	23,750
G7P8.2	Water main protection	m	9	365.00	3,285
G7P9.1	Sewer main adjustments	m	190	550.00	104,500
G7P9.2	Sewer main protection	m	173	525.00	90,825
G7P9.3	Telstra Adjustments - 250m conduit	m	250	90.00	22,500
G7P9.4	NBN Adjustments - 250m conduit	m	250	90.00	22,500
G7P9.5	Nextgen Adjustments - 150m conduit	m	150	90.00	13,500
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				<b>352,360</b>
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				
G40P1	Clearing and Grubbing	m2	18,350	1.50	27,525
G40P3.2	Demolition of existing median island	m2	58	75.00	4,350
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				<b>31,875</b>
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				
<i>R11P5 Precast Concrete and Fibre-reinforced Concrete Pipes</i>					
R11P5.1	450mm Class 4 - RR1 RCP	m	780	291.50	227,370
<i>R11P7 Drainage Structures Other Than Pipes and Box Culverts</i>					
R11P7.1	Pit Type SA2	ea	52	3,020.00	157,040
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				<b>384,410</b>
<b>R15</b>	<b>KERBS AND GUTTERS</b>				
R15P1.1	Type SA Kerb	m	2,090	45.00	94,050
R15P1.2	Type SF Kerb	m	1,915	33.00	63,195
R15P6	Removal of Kerbs and Gutter	m	248	15.00	3,720
<b>R15</b>	<b>KERBS AND GUTTERS</b>				<b>160,965</b>
<b>R33</b>	<b>TRENCH DRAINS</b>				
R33P2.1	100 mm dia Corrugated Perforated Plastic Drainage Pipe	m	2,890	18.00	52,020
R33P3.2	No Fines Concrete	m3	520	305.00	158,600
R33P4	Supply and Installation of Geotextile	m2	6,069	5.50	33,380
R33P6	Flat Batter Outlet	ea	42	788.00	33,256
<b>R33</b>	<b>TRENCH DRAINS</b>				<b>276,256</b>
<b>R44</b>	<b>EARTHWORKS</b>				
R44P1.1	Removal and Stockpiling of Non-contaminated Topsoil (Stockpile Volumes)	m3	3,050	18.50	56,425

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 1			10207-EST-001-C (Option 1)	
Pay Item	Description	Unit	Quantity	Rate	Total	
R44P2.1	General Earthworks (Cut/Fill)	m3	4,210	24.02	101,124	
R44P3	Imported or Borrowed Material (other than Selected Material, Verge Material and Foundation Treatment Material)	m3	38,000	82.00	3,116,000	
R44P4	Unsuitable Material (Item with Provisional Quantity)	m3	200	95.02	19,004	
R44P5.2	Selected Material Zone - Imported Material	m3	5,772	82.00	473,304	
R44P7.1	Treatment Type E1 - Loosen and Recompact	m2	18,350	2.50	45,875	
<b>R44</b>	<b>EARTHWORKS</b>				<b>3,811,732</b>	
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>					
R71P1	Supply and Place Sub Base	m3	3,609	109.00	393,381	
R71P2	Supply and Place Base	m3	2,450	133.00	325,850	
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				<b>719,231</b>	
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>					
R101P1	Milling to Specified Depth of Cut	m2	5,800	15.50	89,900	
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				<b>89,900</b>	
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>					
R116P1	Supply and Application of Tack Coat (Including Preparation of Surface)	m2	22,860		Included	
R116P4....	14 mm Nominal Size, 50mm thick	m2	22,860	25.70	587,502	
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				<b>587,502</b>	
<b>R131</b>	<b>GUIDE POSTS</b>					
R131P1	Supply and Installation of Guide Posts	ea	98	50.43	4,942	
<b>R131</b>	<b>GUIDE POSTS</b>				<b>4,942</b>	
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>					
R132P1	Removal of Safety Barriers	m	225	45.00	10,125	
R132P3	Construction of Post and Rail Safety Barriers					
R132P3.1	Near side (single sided) post and rail barriers	m	360	180.00	64,800	
R132P8	Construction of End Treatments					
R131P8.1	ET2000	ea	4	5,000.00	20,000	
R131P9	Construction of Transitions					
R131P9.1	W Beam to Thrie Beam transition	ea	4	1,500.00	6,000	
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				<b>100,925</b>	
<b>R141</b>	<b>PAVEMENT MARKING</b>					
R141P3	Non-profile Thermoplastic Pavement Marking Material - Longitudinal Lines					
R141P3.1	Line BB	m	1,280	2.60	3,328	
R141P3.4	Line E1	m	2,560	1.95	4,992	
R141P4	Screeded or Sprayed Non-profile Thermoplastic Pavement Marking Material - Transverse Lines and Other Markings					
R141P4.2	Line TB	m2	18	55.00	990	
R141P4.3	Line PCW	m2	35.5	55.00	1,953	
<b>R141</b>	<b>PAVEMENT MARKING</b>				<b>11,263</b>	

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 1			10207-EST-001-C (Option 1)	
Pay Item	Description	Unit	Quantity	Rate	Total	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>					
R142P2	Installation of Retroreflective Raised Pavement Markers	ea	213	6.07	1,293	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>				<b>1,293</b>	
<b>R143</b>	<b>SIGNPOSTING</b>					
R143P2.1	General regulatory signs	ea	50	550.00	27,500	
<b>R143</b>	<b>SIGNPOSTING</b>				<b>27,500</b>	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>					
R173P1	Concrete Paving					
R173P1.1	125mm thick Concrete with SL82 Mesh - Footpath	m2	5,220	85.00	443,700	
R173P1.2	150mm thick concrete with SL82 Mesh - Median	m2	1,105	150.00	165,750	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>				<b>609,450</b>	
<b>R178</b>	<b>VEGETATION</b>					
R178P2.2	Areas steeper than 5 to 1 except stepped batters.	m2	16,000	3.50	56,000	
R178P8	Hydromulching and organic fibre mesh (jute mesh)	m2	16,000	1.50	24,000	
<b>R178</b>	<b>VEGETATION</b>				<b>84,000</b>	
	<b>TRAFFIC CONTROLS</b>					
TS101	TRAFFIC CONTROL SIGNALS					
TS101P1.1	Construction of Traffic Signals (21 x signal post & lanterns, 3 x controller box)	Lsum	1	450,000.00	450,000	
	<b>TRAFFIC CONTROLS</b>				<b>450,000</b>	
	<b>BRIDGES</b>					
B	BRIDGE					
C	Construction of Bridge - 13.5m wide Super-T construction	m	225	54,000.00	12,150,000	
D	Construction of Retaining Walls -1.5m high	m	120	1,165.75	139,890	
B1	Bridge Scour Protection					
B1.1	Bridge abutments scour protection	m2	2,800	155.00	434,000	
B1.2	Bridge piers x 6 (assume 100m2 per pier)	m2	600	155.00	93,000	
	<b>BRIDGES</b>				<b>12,816,890</b>	
	<b>DIRECT COSTS</b>				<b>22,983,849</b>	
	<b>CONTINGENCY</b>					
B1.3	Allowance for contingency 30%	Lsum	1	6,895,154.78	6,895,155	
	<b>CONTINGENCY</b>				<b>6,895,155</b>	
	<b>TOTAL</b>				<b>29,879,004</b>	

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## Appendix 2 Estimate Details – Option 2

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 2			10207-EST-004-C (Option 2)
Pay Item	Description	Unit	Quantity	Rate	Total
<b>DIRECT COSTS</b>					
<b>G1</b>	<b>PRELIMINARIES</b>				
1	Allowance for contractor preliminaries including mobilisation/demobilisation, site facilities, temporary works, traffic control, surveying, project plans/documentation etc.	Leum	1	2,591,898.48	2,591,898
<b>G1</b>	<b>PRELIMINARIES</b>				<b>2,591,898</b>
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				
G7P5.1	Electrical pole relocation x 3 poles	no	3	30,000.00	90,000
G7P6.1	Street lighting relocation - 7 x timber pole, OH feed	no	7	5,000.00	35,000
G7P6.2	Street lighting relocation - 1 x steel pole, UG feed	no	1	6,500.00	6,500
G7P8.1	Water main relocation	m	190	125.00	23,750
G7P8.2	Water main protection	m	9	365.00	3,285
G7P9.1	Sewer main adjustments	m	165	550.00	90,750
G7P9.2	Sewer main protection	m	63	525.00	33,075
G7P10.1	Telstra Adjustments	m	150	90.00	13,500
G7P10.2	NBN Adjustments	m	150	90.00	13,500
G7P10.3	Nextgen Adjustments	m	150	90.00	13,500
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				<b>322,860</b>
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				
G40P1	Clearing and Grubbing	m2	24,600	1.50	36,900
G40P3.2	Demolition of existing median island	m2	50	75.00	3,750
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				<b>40,650</b>
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				
<i>R11P5 Precast Concrete and Fibre-reinforced Concrete Pipes</i>					
R11P5.1	450mm Class 4 - RR1 RCP	m	1,665	291.50	485,348
<i>R11P6 Precast Concrete Box Culvert Structures</i>					
R11P6.1	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.2	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.3	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.4	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.5	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.6	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.7	3 Cell 3600mm x 3600mm x 55m RCBC	m	55	7,360.00	405,800
<i>R11P7 Drainage Structures Other Than Pipes and Box Culverts</i>					
R11P7.1	Pit Type SA2	ea	110	3,020.00	332,200
<i>R11P7 Headwall Inlet and outlet scour protection</i>					
R11P7.2	Rock scour protection placed of geotextile	m2	180	155.00	27,900
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				<b>1,601,328</b>
<b>R15</b>	<b>KERBS AND GUTTERS</b>				
R15P1.1	Type SA Kerb	m	4,457	45.00	200,565
R15P1.2	Type SF Kerb	m	1,620	33.00	53,460

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 2			10207-EST-004-C (Option 2)
Pay Item	Description	Unit	Quantity	Rate	Total
R15P6	Removal of Kerbs and Gutter	m	168	15.00	2,520
<b>R15</b>	<b>KERBS AND GUTTERS</b>				<b>256,545</b>
<b>R33</b>	<b>TRENCH DRAINS</b>				
R33P2.1	100 mm dia Corrugated Perforated Plastic Drainage Pipe	m	1,825	18.00	34,650
R33P3.2	No Fines Concrete	m2	347	305.00	105,835
R33P4	Supply and Installation of Geotextile	m3	4,043	5.50	22,237
R33P6	Flat Batter Outlet	ea	39	788.00	29,952
<b>R33</b>	<b>TRENCH DRAINS</b>				<b>192,674</b>
<b>R44</b>	<b>EARTHWORKS</b>				
R44P1.1	Removal and Stockpiling of Non-contaminated Topsoil (Stockpile Volumes)	m3	4,330	20.00	86,600
R44P3	Imported or Borrowed Material (other than Selected Material, Verge Material and Foundation Treatment Material)	m3	68,285	82.00	5,599,170
R44P4	Unsuitable Material (Item with Provisional Quantity)	m3	1,560	95.02	148,231
R44P5.2	Selected Material Zone - Imported Material	m3	12,335	82.00	1,011,470
R44P7.1	Treatment Type E1 - Loosen and Recompact	m2	24,600	2.50	61,500
<b>R44</b>	<b>EARTHWORKS</b>				<b>6,907,171</b>
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				
R71P1	Supply and Place Sub Base	m3	7,919	109.00	863,171
R71P2	Supply and Place Base	m3	5,614	133.00	746,662
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				<b>1,609,833</b>
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				
R101P1	Milling to Specified Depth of Cut	m2	3,900	15.50	60,450
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				<b>60,450</b>
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				
R116P1	Supply and Application of Tack Coat (Including Preparation of Surface)	m2	36,625		Included
R116P4....	14 mm Nominal Size, 50mm thick	m2	36,625	25.70	941,263
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				<b>941,263</b>
<b>R131</b>	<b>GUIDE POSTS</b>				
R131P1	Supply and Installation of Guide Posts	ea	104	50.43	5,245
<b>R131</b>	<b>GUIDE POSTS</b>				<b>5,245</b>
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				
R132P1	Removal of Safety Barriers	m	225	45.00	10,125
<i>R132P3</i>	<i>Construction of Post and Rail Safety Barriers</i>				
R132P3.1	Near side (single sided) post and rail barriers	m	480	180.00	86,400
<i>R132P8</i>	<i>Construction of End Treatments</i>				
R132P8.1	ET2000	ea	8	5,000.00	40,000
<i>R132P9</i>	<i>Construction of Transitions</i>				
R132P9.1	W Beam to Thrie Beam transition	ea	4	1,500.00	6,000

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 2			10207-EST-004-C (Option 2)
Pay Item	Description	Unit	Quantity	Rate	Total
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				<b>142,525</b>
<b>R141</b>	<b>PAVEMENT MARKING</b>				
<i>R141P3</i>	<i>Non-profile Thermoplastic Pavement Marking Material - Longitudinal Lines</i>				
R141P3.1	Line BB	m	2,450	2.60	6,370
R141P3.4	Line E1	m	4,900	1.95	9,555
<i>R141P4</i>	<i>Screeded or Sprayed Non-profile Thermoplastic Pavement Marking Material - Transverse Lines and Other Markings</i>				
R141P4.2	Line TB	m2	11	55.00	605
R141P4.3	Line PCW	m2	26.6	55.00	1,463
<b>R141</b>	<b>PAVEMENT MARKING</b>				<b>17,993</b>
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>				
R142P2	Installation of Retroreflective Raised Pavement Markers	ea	408	6.07	2,477
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>				<b>2,477</b>
<b>R143</b>	<b>SIGNPOSTING</b>				
R143P2.1	General regulatory signs	ea	50	550.00	27,500
<b>R143</b>	<b>SIGNPOSTING</b>				<b>27,500</b>
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>				
<i>R173P1</i>	<i>Concrete Paving</i>				
R173P1.1	125mm thick Concrete with SLB2 Mesh - Footpath	m2	5,820	85.00	494,700
R173P1.2	150mm thick concrete with SLB2 Mesh - Median	m2	500	150.00	75,000
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>				<b>569,700</b>
<b>R178</b>	<b>VEGETATION</b>				
R178P2.2	Areas steeper than 5 to 1 except stepped batters.	m2	22,000	3.80	83,600
R178P8	Hydromulching and organic fibre mesh (jute mesh)	m2	22,000	1.50	33,000
<b>R178</b>	<b>VEGETATION</b>				<b>116,600</b>
<b>R201</b>	<b>FENCING</b>				
R201P1	Rural Fencing - Wire	m	710	25.00	17,750
<b>R201</b>	<b>FENCING</b>				<b>17,750</b>
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>				
R204P1	Property Adjustments	m2	94,000	10.00	940,000
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>				<b>940,000</b>
	<b>TRAFFIC CONTROLS</b>				
<i>TS101</i>	<i>TRAFFIC CONTROL SIGNALS</i>				
TS101P1.1	Construction of Traffic Signals (14 x signal post & lanterns, 2 x controller box)	Lnum	1	300,000.00	300,000
	<b>TRAFFIC CONTROLS</b>				<b>300,000</b>
	<b>BRIDGES</b>				
<i>B</i>	<i>BRIDGE</i>				
G2	Construction of Bridge - 123m	m	123	56,400.00	6,937,200
B1.3	Reinforced concrete retaining wall - average height 1.5m	m	120	1,165.75	139,890



Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 2			10207-EST-004-C (Option 2)	
Pay Item	Description	Unit	Quantity	Rate	Total	
B1	Bridge Scour Protection					
B1.1	Bridge abutments scour protection	m2	2,500	155.00	387,500	
B1.2	Bridge piers x 4 (assume 100m2 per pier)	m2	400	155.00	62,000	
	<b>BRIDGES</b>				<b>7,526,590</b>	
	<b>DIRECT COSTS</b>				<b>24,191,052</b>	
	<b>CONTINGENCY</b>					
B1.3	Allowance for contingency 30%	lsun	1	7,257,315.74	7,257,316	
	<b>CONTINGENCY</b>				<b>7,257,316</b>	
	<b>TOTAL</b>				<b>31,448,368</b>	

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### Appendix 3 Estimate Details – Option 3

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 3			10207-EST-002-C (Option 3)
Pay Item	Description	Unit	Quantity	Rate	Total
<b>DIRECT COSTS</b>					
<b>PRELIMINARIES</b>					
1	Allowance for contractor preliminaries including mobilisation/demobilisation, site facilities, temporary works, traffic control, surveying, project plans/documentation etc.	Lsum	1	2,291,737.44	2,291,737
<b>PRELIMINARIES</b>					<b>2,291,737</b>
<b>UTILITY ADJUSTMENT</b>					
G7P5.1	Electrical pole relocation x 3 poles	no	3	30,000.00	90,000
G7P6.1	Street lighting relocation - 2 x timber pole, OH feed	no	2	5,000.00	10,000
G7P8.1	Water main relocation	m	350	125.00	43,750
G7P8.2	Water main protection	m	9	365.00	3,285
G7P9.1	Sewer main adjustments	m	110	550.00	60,500
G7P9.2	Sewer main protection	m	31	525.00	16,275
G7P10.1	Telstra Adjustments - 500m conduit	m	500	90.00	45,000
G7P10.2	NBN Adjustments - 200m conduit	m	200	90.00	18,000
G7P10.3	Nextgen Adjustments - 150m conduit	m	150	90.00	13,500
<b>UTILITY ADJUSTMENT</b>					<b>300,310</b>
<b>G40 CLEARING AND GRUBBING</b>					
G40P1	Clearing and Grubbing	m2	24,000	1.50	36,000
G4P03.1	Demolition of existing footpath	m2	850	75.00	63,750
G4P03.2	Demolition of existing median island	m2	22	75.00	1,650
<b>G40 CLEARING AND GRUBBING</b>					<b>101,400</b>
<b>R11 STORMWATER DRAINAGE</b>					
<i>R11P5 Precast Concrete and Fibre-reinforced Concrete Pipes</i>					
R11P5.1	450mm Class 4 - RRJ RCP	m	720	291.50	209,880
<i>R11P6 Precast Concrete Box Culvert Structures</i>					
R11P6.1	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.2	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.3	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.4	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.5	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.6	1 Cell 1200mm x 1200mm x 35m RCBC	m	35	1,535.00	53,725
R11P6.7	3 Cell 3600mm x 3600mm x 55m RCBC	m	55	7,360.00	405,800
<i>R11P7 Drainage Structures Other Than Pipes and Box Culverts</i>					
R11P7.1	Pit Type SA2	ea	48	3,020.00	144,960
<i>R11P7 Headwall Inlet and outlet scour protection</i>					
R11P7.7	Rock scour protection placed of geotextile	m2	180	155.00	27,900
<b>R11 STORMWATER DRAINAGE</b>					<b>1,110,990</b>
<b>R15 KERBS AND GUTTERS</b>					
R15P1.1	Type SA Kerb	m	1,925	45.00	86,625
R15P1.2	Type SF Kerb	m	1,015	33.00	33,495

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 3			10207-EST-002-C (Option 3)
Pay Item	Description	Unit	Quantity	Rate	Total
R15P6	Removal of Kerbs and Gutter	m	166	15.00	2,490
<b>R15</b>	<b>KERBS AND GUTTERS</b>				<b>122,610</b>
<b>R33</b>	<b>TRENCH DRAINS</b>				
R33P2.1	100 mm dia Corrugated Perforated Plastic Drainage Pipe	m	1,925	18.00	34,650
R33P3.2	No Fines Concrete	m2	347	305.00	105,835
R33P4	Supply and Installation of Geotextile	m3	4,043	5.50	22,237
R33P6	Flat Batter Outlet	ea	39	788.00	29,952
<b>R33</b>	<b>TRENCH DRAINS</b>				<b>192,674</b>
<b>R44</b>	<b>EARTHWORKS</b>				
R44P1.1	Removal and Stockpiling of Non-contaminated Topsoil (Stockpile Volumes)	m3	4,140	20.00	82,800
R44P3	Imported or Borrowed Material (other than Selected Material, Verge Material and Foundation Treatment Material)	m3	72,720	82.00	5,963,040
R44P4	Unsuitable Material (Item with Provisional Quantity)	m3	1,440	95.02	136,829
R44P5.2	Selected Material Zone - Imported Material	m3	6,046	82.00	495,772
R44P7.1	Treatment Type E1 - Loosen and Recompact	m2	24,000	2.50	60,000
<b>R44</b>	<b>EARTHWORKS</b>				<b>6,738,441</b>
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				
R71P1	Supply and Place Sub Base	m3	3,743	109.00	407,887
R71P2	Supply and Place Base	m3	2,499	133.00	332,367
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				<b>740,254</b>
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				
R101P1	Milling to Specified Depth of Cut	m2	5,200	15.50	80,600
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				<b>80,600</b>
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				
R116P1	Supply and Application of Tack Coat (Including Preparation of Surface)	m2	21,300		Included
R116P4....	14 mm Nominal Size, 50mm thick	m2	21,300	25.70	547,410
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				<b>547,410</b>
<b>R131</b>	<b>GUIDE POSTS</b>				
R131P1	Supply and Installation of Guide Posts	ea	102	50.43	5,144
<b>R131</b>	<b>GUIDE POSTS</b>				<b>5,144</b>
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				
R132P1	Removal of Safety Barriers	m	80	45.00	3,600
<i>R132P3</i>	<i>Construction of Post and Rail Safety Barriers</i>				
R132P3.1	Near side (single sided) post and rail barriers	m	480	180.00	86,400
<i>R132P8</i>	<i>Construction of End Treatments</i>				
R132P8.1	ET2000	ea	8	5,000.00	40,000
<i>R132P9</i>	<i>Construction of Transitions</i>				
R132P9.1	W Beam to Thrie Beam transition	ea	4	1,500.00	6,000

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 3			10207-EST-002-C (Option 3)	
Pay Item	Description	Unit	Quantity	Rate	Total	
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				<b>136,000</b>	
<b>R141</b>	<b>PAVEMENT MARKING</b>					
<i>R141P3</i>	<i>Non-profile Thermoplastic Pavement Marking Material - Longitudinal Lines</i>					
R141P3.1	Line BB	m	1,400	2.60	3,640	
R141P3.4	Line E1	m	2,800	1.95	5,460	
<i>R141P4</i>	<i>Screeded or Sprayed Non-profile Thermoplastic Pavement Marking Material - Transverse Lines and Other Markings</i>					
R141P4.2	Line TB	m2	12	55.00	660	
R141P4.3	Line PCW	m2	26.63	55.00	1,465	
<b>R141</b>	<b>PAVEMENT MARKING</b>				<b>11,225</b>	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>					
R142P2	Installation of Retroreflective Raised Pavement Markers	ea	233	6.07	1,414	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>				<b>1,414</b>	
<b>R143</b>	<b>SIGNPOSTING</b>					
R143P2.1	General regulatory signs	ea	50	550.00	27,500	
<b>R143</b>	<b>SIGNPOSTING</b>				<b>27,500</b>	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>					
<i>R173P1</i>	<i>Concrete Paving</i>					
R173P1.1	125mm thick Concrete with SLB2 Mesh - Footpath	m2	4,810	85.00	408,850	
R173P1.2	150mm thick concrete with SLB2 Mesh - Median	m2	920	150.00	138,000	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>				<b>546,850</b>	
<b>R178</b>	<b>VEGETATION</b>					
R178P2.2	Areas steeper than 5 to 1 except stepped batters.	m2	20,000	3.80	76,000	
R178P8	Hydromulching and organic fibre mesh (jute mesh)	m2	20,000	1.50	30,000	
<b>R178</b>	<b>VEGETATION</b>				<b>106,000</b>	
<b>R201</b>	<b>FENCING</b>					
R201P1	Rural Fencing - Wire	m	700	25.00	17,500	
<b>R201</b>	<b>FENCING</b>				<b>17,500</b>	
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>					
R204P1	Property Adjustments	m2	86,500	10.00	865,000	
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>				<b>865,000</b>	
	<b>TRAFFIC CONTROLS</b>					
<i>TS101</i>	<i>TRAFFIC CONTROL SIGNALS</i>					
TS101P1.1	Construction of Traffic Signals (14 x signal post & lanterns, 2 x controller box)	Lnum	1	300,000.00	300,000	
	<b>TRAFFIC CONTROLS</b>				<b>300,000</b>	
	<b>BRIDGES</b>					
<i>B</i>	<i>BRIDGE</i>					
G2	Construction of Bridge - 122m	m	122	54,000.00	6,588,000	
G3	Construction of Retaining Walls - 120m length average height 1.5m	m	120	1,165.75	139,890	

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 3			10207-EST-002-C (Option 3)	
Pay Item	Description	Unit	Quantity	Rate	Total	
B1	<i>Bridge Scour Protection</i>					
B1.1	Bridge abutments scour protection	m2	2,400	155.00	372,000	
B1.2	Bridge piers x 3 (assume 100m2 per pier)	m2	300	155.00	46,500	
	<b>BRIDGES</b>				<b>7,146,390</b>	
	<b>DIRECT COSTS</b>				<b>21,389,549</b>	
	<b>CONTINGENCY</b>					
B1.3	Allowance for contingency 30%	Lsum	1	6,416,864.83	6,416,865	
	<b>CONTINGENCY</b>				<b>6,416,865</b>	
	<b>TOTAL</b>				<b>27,806,414</b>	

GHD  
DUBBO SOUTH BRIDGE  
BASIS OF CAPITAL COST ESTIMATE

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## Appendix 4 Estimate Details – Option 4

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 4			10207-EST-003-C (Option 4)
Pay Item	Description	Unit	Quantity	Rate	Total
<b>DIRECT COSTS</b>					
<b>G1</b>	<b>PRELIMINARIES</b>				
1	Allowance for contractor preliminaries including mobilisation/demobilisation, site facilities, temporary works, traffic control, surveying, project plans/documentation etc.	Leum	1	1,784,225.86	1,784,225
<b>G1</b>	<b>PRELIMINARIES</b>				<b>1,784,225</b>
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				
G7P5.1	Electrical pole relocation x 2 poles	no	2	30,000.00	60,000
G7P6.1	Street lighting relocation - 2 x timber pole, OH feed	no	2	5,000.00	10,000
G7P6.2	Street lighting relocation - 1 x steel pole, UG feed	no	1	6,500.00	6,500
G7P8.1	Water main relocation	m	305	125.00	38,125
G7P9.2	Sewer main protection	m	100	525.00	52,500
G7P10.1	Telstra Adjustments - 450m conduit	m	450	90.00	40,500
G7P10.2	NBN Adjustments - 200m conduit	m	200	90.00	18,000
G7P10.3	Nextgen Adjustments - 150m conduit	m	150	90.00	13,500
<b>G7</b>	<b>UTILITY ADJUSTMENT</b>				<b>239,125</b>
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				
G40P1	Clearing and Grubbing	m2	11,850	1.50	17,775
G40P3.1	Demolition of existing footpath	m2	850	75.00	63,750
G40P3.2	Demolition of existing median island	m2	27	75.00	2,025
<b>G40</b>	<b>CLEARING AND GRUBBING</b>				<b>83,550</b>
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				
<i>R11P5 Precast Concrete and Fibre-reinforced Concrete Pipes</i>					
R11P5.1	450mm Class 4 - RRJ RCP	m	615	291.50	179,273
<i>R11P6 Precast Concrete Box Culvert Structures</i>					
R11P6.1	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.2	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.3	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.4	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.5	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.6	1 Cell 1200mm x 1200mm x 38m RCBC	m	38	1,535.00	58,330
R11P6.7	3 Cell 3600mm x 3600mm x 55m RCBC	m	55	7,380.00	405,900
<i>R11P7 Drainage Structures Other Than Pipes and Box Culverts</i>					
R11P7.1	Pit Type SA2	ea	41	3,020.00	123,820
<i>R11P7 Headwall Inlet and outlet scour protection</i>					
R11P7.2	Rock scour protection placed of geotextile	m2	180	155.00	27,900
<b>R11</b>	<b>STORMWATER DRAINAGE</b>				<b>1,086,873</b>
<b>R15</b>	<b>KERBS AND GUTTERS</b>				
R15P1.1	Type SA Kerb	m	1,625	45.00	73,125
R15P1.2	Type SF Kerb	m	575	33.00	18,975
R15P6	Removal of Kerbs and Gutter	m	536	15.00	8,040



Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 4			10207-EST-003-C (Option 4)	
Pay Item	Description	Unit	Quantity	Rate	Total	
<b>R15</b>	<b>KERBS AND GUTTERS</b>				<b>100,140</b>	
<b>R33</b>	<b>TRENCH DRAINS</b>					
R33P2.1	100 mm dia Corrugated Perforated Plastic Drainage Pipe	m	1,625	18.00	29,250	
R33P3.2	No Fines Concrete	m2	293	305.00	89,365	
R33P4	Supply and Installation of Geotextile	m3	3,413	5.50	18,772	
R33P6	Flat Batter Outlet	ea	33	768.00	25,344	
<b>R33</b>	<b>TRENCH DRAINS</b>				<b>162,731</b>	
<b>R44</b>	<b>EARTHWORKS</b>					
R44P1.1	Removal and Stockpiling of Non-contaminated Topsoil (Stockpile Volumes)	m3	4,760	20.00	95,200	
R44P3	Imported or Borrowed Material (other than Selected Material, Verge Material and Foundation Treatment Material)	m3	45,060	82.00	3,694,920	
R44P4	Unsuitable Material (Item with Provisional Quantity)	m3	1,200	95.02	114,024	
R44P5.2	Selected Material Zone - Imported Material	m3	6,647	82.00	545,054	
R44P7.1	Treatment Type E1 - Loosen and Recompact	m2	11,850	2.50	29,625	
<b>R44</b>	<b>EARTHWORKS</b>				<b>4,478,823</b>	
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>					
R71P1	Supply and Place Sub Base	m3	4,135	109.00	450,715	
R71P2	Supply and Place Base	m3	2,784	133.00	370,272	
<b>R71</b>	<b>CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE</b>				<b>820,987</b>	
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>					
R101P1	Milling to Specified Depth of Cut	m2	3,300	15.50	51,150	
<b>R101</b>	<b>COLD MILLING OF ROAD PAVEMENT MATERIALS</b>				<b>51,150</b>	
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>					
R116P1	Supply and Application of Tack Coat (Including Preparation of Surface)	m2	20,935		Included	
R116P4....	14 mm Nominal Size, 50mm thick	m2	20,935	25.70	538,030	
<b>R116</b>	<b>HEAVY DUTY DENSE GRADED ASPHALT</b>				<b>538,030</b>	
<b>R131</b>	<b>GUIDE POSTS</b>					
R131P1	Supply and Installation of Guide Posts	ea	104	50.43	5,245	
<b>R131</b>	<b>GUIDE POSTS</b>				<b>5,245</b>	
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>					
R132P1	Removal of Safety Barriers	m	536	45.00	24,120	
<i>R132P3</i>	<i>Construction of Post and Rail Safety Barriers</i>					
R132P3.1	Near side (single sided) post and rail barriers	m	480	180.00	86,400	
<i>R132P8</i>	<i>Construction of End Treatments</i>					
R132P8.1	ET2000	ea	8	5,000.00	40,000	
<i>R132P9</i>	<i>Construction of Transitions</i>					
R132P9.1	W Beam to Thrie Beam transition	ea	4	1,500.00	6,000	
<b>R132</b>	<b>SAFETY BARRIER SYSTEMS</b>				<b>156,520</b>	

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 4			10207-EST-003-C (Option 4)	
Pay Item	Description	Unit	Quantity	Rate	Total	
<b>R141</b>	<b>PAVEMENT MARKING</b>					
<i>R141P3</i>	<i>Non-profile Thermoplastic Pavement Marking Material - Longitudinal Lines</i>					
R141P3.1	Line B8	m	1,410	2.60	3,666	
R141P3.4	Line E1	m	2,820	1.95	5,499	
<i>R141P4</i>	<i>Screeded or Sprayed Non-profile Thermoplastic Pavement Marking Material - Transverse Lines and Other Markings</i>					
R141P4.2	Line TB	m2	11	55.00	605	
R141P4.3	Line PCW	m2	17.8	55.00	979	
<b>R141</b>	<b>PAVEMENT MARKING</b>				<b>10,749</b>	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>					
R142P2	Installation of Retroreflective Raised Pavement Markers	ea	235	6.07	1,426	
<b>R142</b>	<b>RETROREFLECTIVE RAISED PAVEMENT MARKERS</b>				<b>1,426</b>	
<b>R143</b>	<b>SIGNPOSTING</b>					
R143P2.1	General regulatory signs	ea	50	550.00	27,500	
<b>R143</b>	<b>SIGNPOSTING</b>				<b>27,500</b>	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>					
<i>R173P1</i>	<i>Concrete Paving</i>					
R173P1.1	125mm thick Concrete with SL82 Mesh - Footpath	m2	4,060	85.00	345,100	
R173P1.2	150mm thick concrete with SL82 Mesh - Median	m2	450	150.00	67,500	
<b>R173</b>	<b>GENERAL CONCRETE PAVING</b>				<b>412,600</b>	
<b>R178</b>	<b>VEGETATION</b>					
R178P2.2	Areas steeper than 5 to 1 except stepped batters.	m2	22,000	3.80	83,600	
R178P8	Hydromulching and organic fibre mesh (jute mesh)	m2	22,000	1.50	33,000	
<b>R178</b>	<b>VEGETATION</b>				<b>116,600</b>	
<b>R201</b>	<b>FENCING</b>					
R201P1	Rural Fencing - Wire	m	1,700	25.00	42,500	
<b>R201</b>	<b>FENCING</b>				<b>42,500</b>	
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>					
R204P1	Property Adjustments	m2	54,000	10.00	540,000	
<b>R204</b>	<b>PROPERTY ADJUSTMENTS</b>				<b>540,000</b>	
	<b>TRAFFIC CONTROLS</b>					
<i>TS101</i>	<i>TRAFFIC CONTROL SIGNALS</i>					
TS101P1.1	Construction of Traffic Signals (14 x signal post & lanterns, 2 x controller box)	Lotum	1	300,000.00	300,000	
	<b>TRAFFIC CONTROLS</b>				<b>300,000</b>	
	<b>BRIDGES</b>					
<i>B</i>	<i>BRIDGE</i>					
G2	Construction of Bridge - 102m	m	102	54,000.00	5,508,000	
<i>B1</i>	<i>Bridge Scour Protection</i>					

Goeldner Consulting		ESTIMATE DETAILS Dubbo South Bridge - Option 4			10207-EST-003-C (Option 4)	
Pay Item	Description	Unit	Quantity	Rate	Total	
B1.1	Bridge abutments scour protection	m2	1,000	155.00	155,000	
B1.2	Bridge piers x 2 (assume 100m2 per pier)	m2	200	155.00	31,000	
	<b>BRIDGES</b>				<b>5,694,000</b>	
	<b>DIRECT COSTS</b>				<b>16,652,775</b>	
	<b>CONTINGENCY</b>					
B1.3	Allowance for contingency 30%	Lsum	1	4,995,832.46	4,995,832	
	<b>CONTINGENCY</b>				<b>4,995,832</b>	
	<b>TOTAL</b>				<b>21,648,607</b>	

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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
1	L Schneider / E Mitchell / n Vu	S Farrell	SF*	D Mees	DM*	12/06/2020

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# DUBBO TRANSPORTATION STRATEGY 2020

Prepared for Dubbo Regional Council  
May 2020

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**2020 DUBBO TRANSPORTATION STRATEGY**

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2020 DUBBO TRANSPORTATION STRATEGY

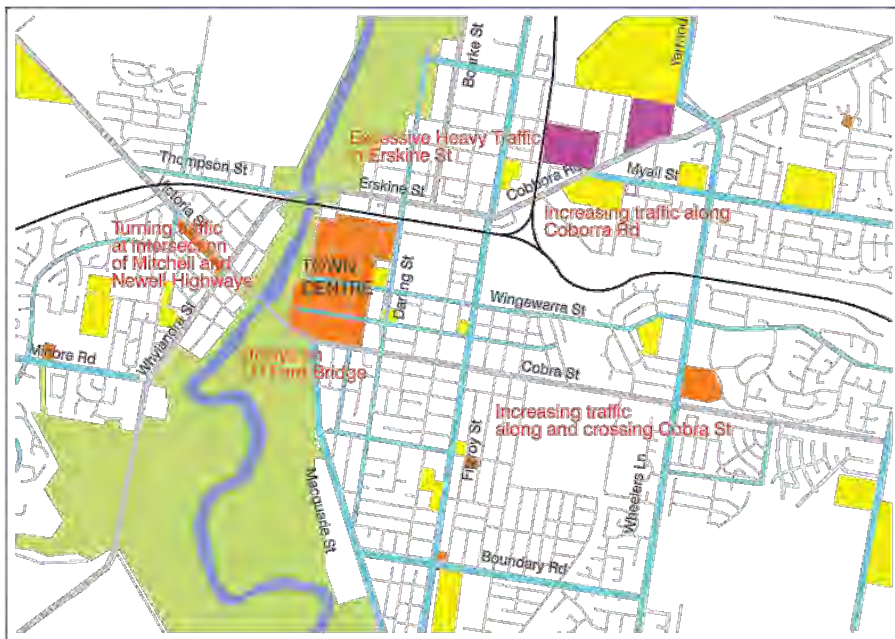
1. SCOPE OF WORK

1.1. Goals

1.1.1. Resolving Current Transport Issues

Dubbo is losing its ten-minute City feel where most trips can be made in under ten minutes. Just a few delays can make the journey feel much longer. Whilst the rapidly growing changes in traffic conditions are observed throughout Dubbo, including say crossing Cobra St from Dubbo South or entering the Emile Serisier Bridge from Thompson St the main issues are associated with the Highways.

Figure 1.1 Current Transport Issues



The major current transport issues are:

- Overcrowding on the LH Ford Bridge
- Excessive heavy vehicle movement in Erskine St
- Turning of heavy vehicles and all traffic at the intersection of Mitchell Hwy and Newell Hwy in West Dubbo
- Increasing traffic in Cobra St



## **2020 DUBBO TRANSPORTATION STRATEGY**

### **1.1.2. Responding to State Investment for North Bridge**

The State Government is funding the construction of a second high level bridge, partly in response to the growing level of delays in Dubbo, more specifically to improving trucks manoeuvring through the town streets and as a State policy to upgrade the Newell Hwy for operations during flood events, at least until for the 10 year flood occurrence (that is expected to increase in frequency). Council has the opportunity to benefit from this investment. This bridge is referred to as North Bridge.

### **1.1.3. Optimising Public and Private Investment**

Development in Dubbo has always been encouraged and supported by Council. This included Council having a robust developer contribution system that is both fair and equitable. There is an opportunity to direct these funds to facilitate current and future development in an efficient manner.

### **1.1.4. Maintain Quality of Life for 20,000 New Residents**

The population of Dubbo has been increasing consistently over many years; this analysis is based on this increase continuing.

One of the primary attractions to Dubbo is its lifestyle, everything available at short notice using a high quality public realm. This is attracting younger people who grew up in Dubbo to return to the quality of life they remember. One element is the quality of the town centre both in the facilities provided and in the public realm. Part of this is a general lack of intrusive traffic; for, whilst the Highways are busy, they have been generally free from congestion and therefore less pollution and Macquarie St has its own relaxed pace.

New transport infrastructure must support growth without decreasing amenity.

### **1.1.5. Maintain Dubbo as a Competitive Community**

Another major attraction to Dubbo is job opportunities. Commercial investment is encouraged by a cohesive approach to location, amenity, accessibility and cost. This has been recognised by the development of Enterprise Zones. The East Dubbo area also has access to the Blueridge Business Plan and bulky goods retailing.

The transport infrastructure needs to enhance commercial development.

2020 DUBBO TRANSPORTATION STRATEGY

1.2. Scale of Development

The growth in population is a fixed input to this study. Residential development will occur in four Sectors.

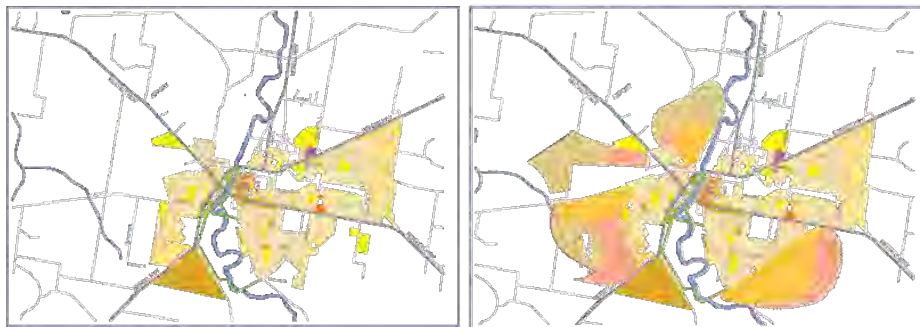
The footprint for existing development is located predominantly on the east side of the Macquarie River. The eastern side will be fully built out in the next 10 to 20 years (Excluding rural residential). Land is available for development to the west that is close to the City centre. This will continue to deliver the efficient 10-minute City. Further details of the staging of development are discussed in Chapter 2.

The analysis of transport infrastructure is generally based on a detailed 10 year plan, when most variables can be estimated accurately; a 20 year plan that supports the continuing trends in population and employment; and a 35 year horizon with the main purpose being to measure the ongoing role of Projects built in the first 20 years. This is relevant to major infrastructure. For example; a new bridge should accommodate the projected flow for 35 years either by additional traffic lanes that are built on at the time, or plans to provide a second bridge during this period. This optimises public investment.

Figure 1.2 Existing and Future Footprint

Existing Footprint

Projected Footprint 2055



1.3. Information Gathered – Outline of Work Conducted

The analysis of future transport infrastructure starts with an analysis of existing issues and data for future population and employment. The construction of new roads encourages development and hence the order of construction tends to lead to further development. Prospective new links are considered and then evaluated using the transport model. The model estimates trip generation from the residential and employment land uses, predicts a demand between areas, and assigns the journeys to the shortest time through the network. The process for modelling, including how it is calibrated to local conditions, is

## **2020 DUBBO TRANSPORTATION STRATEGY**

described further in Chapter 6. The model has the advantage of providing a logic to the initial concepts and placing them in priority with other potential projects. The patterns of movement are discussed in Chapter 3 and indicate when links will be required. The type of roads required impacts on cost; these are described in Chapter 4. Different scenarios are considered for each time period, these and the conclusions are discussed in Chapter 5.

Firstly, in Chapter 2 below, is a discussion on how the goals can be directed to shape the expansion of Dubbo. These topics have been guided by a number of internal workshops where different skills have been applied to direct the value of the study.

### **2. DIRECTIONS**

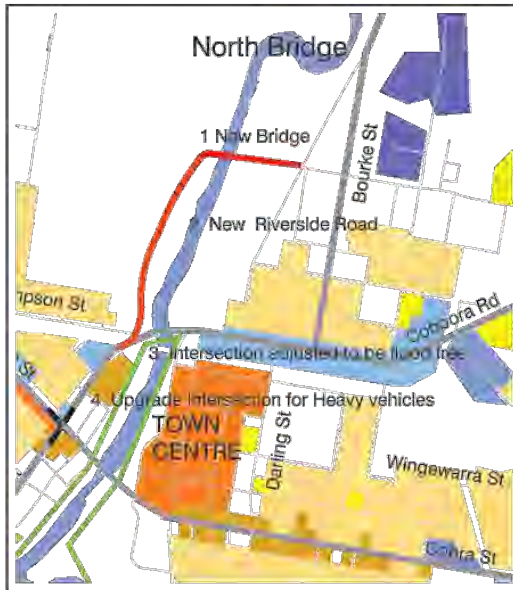
#### **2.1. Priority for North Bridge**

The construction of North Bridge and its associated infrastructure is a priority for the State Government. The works include (See Figure 1)

1. A new high-level bridge in the alignment of River St.
2. A flood free Riverside connection road on the western bank of the Macquarie River.
3. Realignment of the intersection of Emile Serisier Bridge with Whylandra St to provide flood free access to the new bridge (details not provided by the RMS).
4. Reconfiguration of intersection of Mitchell Hwy and Newell Hwy in West Dubbo to facilitate turning of Trucks in all directions and to accommodate future demand.

2020 DUBBO TRANSPORTATION STRATEGY

Figure 2.1 North Bridge and Highway Works



2.1.1 Flood Free Route

The primary purpose of the North Bridge for the State of NSW is the provision of a second high-level bridge operating during flood events. Recent flood events have resulted in chaos and extensive delays on the LH Ford Bridge. Unfortunately the Newell Hwy north of River St (e.g. Bourke St) and Fitzroy St are flood affected. Therefore, whilst a second bridge will reduce congestion during flood events (when just 2 of 3 bridges will be operating), without further changes to the network traffic, the Newell Hwy will be forced to return to Erskine St and thence use Yarrandale Rd to access the north at Troy Crossing. This issue has been considered and it is proposed to open River St through to Yarrandale Rd during flood events; this is discussed further in 5.2.4.

2.1.2 Integration with Prime Development Area

Another major issue to address is that the western side of North Bridge lands into the centre of the primary riverside development area of the City. This area has been identified for development for over 20 years. Figure 2.2 (a) illustrates an indicative road network for the Northwest Sector drawn up in the 2007 Structure Plan. The diversion of the Newell Hwy from Erskine St will also continue to pass directly (Figure 2.2 (b)) through West Dubbo which were also identified in the 2007 Structure Plan as the next stage of development of the City Centre, required as the Western Parts of Dubbo expand.

2020 DUBBO TRANSPORTATION STRATEGY

Figure 2.2 Opportunity for Prime Development (2007)

a) Indicative Development of Northwest Sector

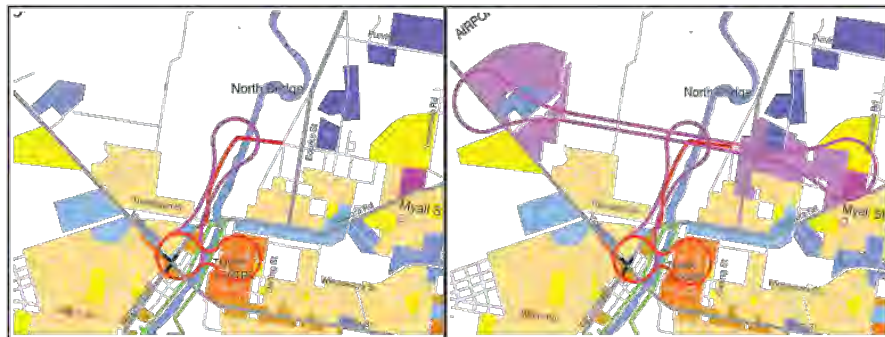
b) Indicative Twin Development of City Centre



The 2007 Structure Plan also identified (Figure 2.2 (c)) as a prime development corridor of the "Riverside Boulevard". This was identified to accommodate prime commercial development, which could include; hotels, accommodation, high end offices and health care; all set in front of residential estates with River St West as a local centre. This was planned on the premise that highway traffic would, at some point be diverted to a Northern Bypass from Troy Crossing connecting to a Western Bypass at the Mitchell Hwy and then continuing south to re-join the Newell Hwy south of the Zoo. This was the 2007 plan and has been amended during the preparation of this strategy in response to the consequences of the North Bridge proposal.

c) 2007 Riverside Commercial Opportunity

d) 2018 Twin Enterprise Zones



The most recent incentive for attracting employment to Dubbo has been the twin Enterprise Zones near the Dubbo City Regional Airport and the Dubbo Base Hospital that will also impact on the RMS/State plan for a Highway connection using North Bridge. This is discussed further in 2.3.3.

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**2.1.3 Need for Long Term Resolution of Traffic Intrusion**

The relocation of the Newell Hwy to the proposed route still leaves the question of how to reduce the impact of the City traffic on highway traffic in the long term.

**2.2. Future Population**

**2.2.1 Development Trends and Population**

The basic predictor for this study has been the ongoing increase in the number of houses built in Dubbo.

<b>TABLE 2.1 HOUSEHOLDS AND POPULATION PROJECTION</b>					
		Projected Development	Households	Persons per household	Population
Recent Trend	2015 - 2020 <sup>F</sup>	(1250)	14796	2.56	37878
10 Year Contribution Plan	2020 - 2025	1250	16046	2.53	40667
	2025 - 2030	1250	17296	2.51	43397
20 Year Rolling Plan	2030 - 2040	2500	19796	2.46	48676
35 Year Project Life	2040 - 2055	3050	22846	2.41	55052

It has been assumed that the rate of 250 new households per year will be maintained into the future. This is not further discussed here. There is an underlying statistic (ABS) that household size is decreasing in Dubbo and throughout Australia, brought on by factors including an ageing population and more single parents. This statistic is relevant to the number of employees and therefore the journey to work. (See 2.3).

**2.2.2 Distribution of Future Residential Development**

The precise location of new development is not required for modelling because it will be served by only a few roads. Hence although the exact areas of each new estate have been identified they are shown in Figure 2.3 as hatching per decade.

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Figure 2.3 Residential Staging (By Decade/Colours)

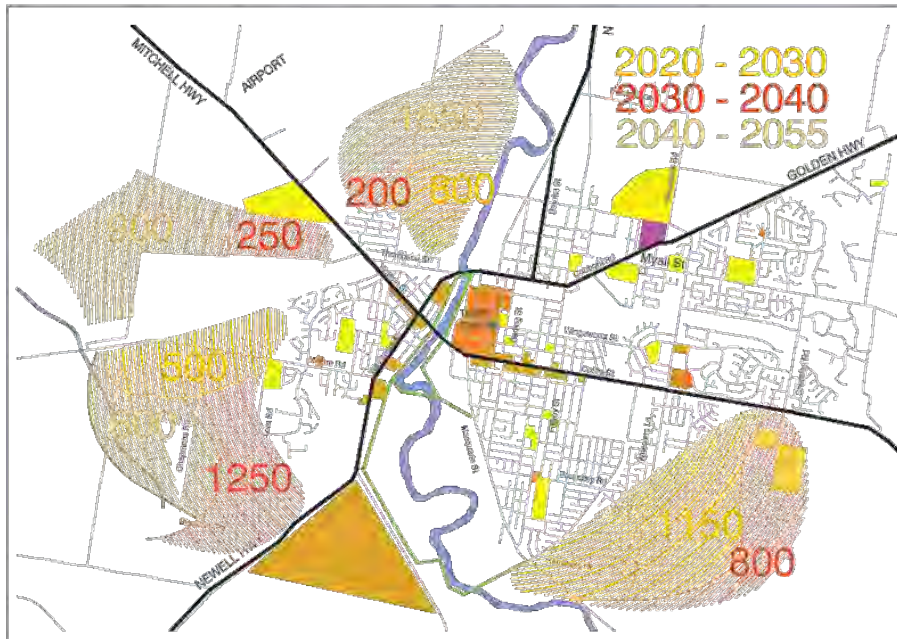


Table 2.2 summarises the information in Figure 2.3.

Development is expected to continue to be concentrated in the SE Sector in the next five years with 60% of new housing, and 20% in the SW and NW Sector. In the following five years the completion of North Bridge is expected to concentrate 44% of new housing in the NW Sector, whilst still maintaining 36% in the SE Sector. No development is expected in the SW Sector in the next 10 years with only the Delroy West Estate being completed adjacent to Minore Rd in addition to some rural residential estates. The total development for 2020 is 1200 in the SE Sector that 800 in the NW Sector, and 500 in the SW Sector that will be subject to a new roads Section 7.11 (formerly Section 94).

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TABLE 2.2 PROPOSED DISTRIBUTION OF NEW DWELLINGS					
		SECTORS			
		SE	NW	SW	CWc
<b>Recent Trend</b>					
2015 - 2020	1250	750	50	450	0
		60%	4%	36%	0%
Total Households		Proposed Distribution			
<b>PROJECTION</b>					
2020 - 2025	1250	750	250	250	0
		60%	20%	20%	0%
2025 - 2030	1250	450	550	250	0
		36%	44%	20%	0%
2030 - 2040	2500	800	200	1250	250
		32%	8%	50%	10%
2040 - 2055	3050	0	1550	600	900
		0%	51%	20%	30%

The capacity of the SE Sector is expected to be complete with 800 dwellings built in the period 2030 – 2040. The concentration of development during this period is expected to be in the SW Sector, mostly along Joira Rd and Chapmans Rd. The SW Sector will accommodate its first estates.

Development is expected to be contained mostly within a 5km radius of the City Centre during the next 15 years until 2055. The majority of new housing, 51%, occurring in NW Sector, and a further 30% in the CW Sector, possibly low density lifestyle development. Only 3050 new houses have been allocated into the sectors in the 2040 – 2055 period, this is 700 short of the 250 new households per year used in this analysis. The reason for this is an assumption that increased density of housing in existing areas will have become a trend by this stage, due in part to the smaller household size and retirement housing. Funding for transport upgrades in existing areas is considered separately.

**2.2.3 Capacity of Sectors**

The physical limitations to development are a factor in the direction of development, as is connectivity.

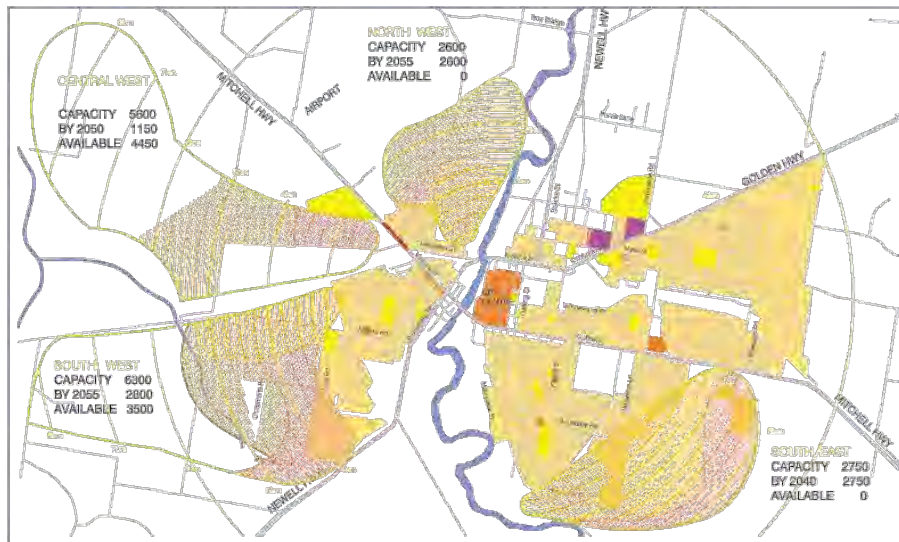
It is anticipated that the SE Sector and the NW Sector will be built out within the next 35 years with 2750 new dwellings in the SE Sector and 2600 in the NW Sector.

Suitable land is available to expand Dubbo West in the CW and the SW Sectors. An arbitrary boundary has been drawn at the Whylandra Creek. Taking out land that would most likely be assessed as natural open space, the capacity of these sectors is between 5500 to 6500 dwellings, the difference being the density of housing. For the purposes of examining the transport infrastructure needs (in the modelling) 1150 dwellings have been allocated to the CW Sector from 2030 to 2055, all served by new roads and 1850 in the SW most served by existing roads (upgraded). This perhaps illustrates how development tends to follow the least line of resistance, and how good planning can “direct” efficient outcomes.



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Figure 2.4 Capacity of Each Sector



2.3 Future Employment

2.3.1 Changes in Employment

As previously discussed, household size is changing as is the number of employees per household. These trends (ABS) determine the future number of employees per household.

Table 2.3 shows the combined impact of both trends with 8050 new households increasing the population by 17,174 from 2.56 persons per household to 2.41. But the workforce is expected to increase by only 6,413 the rate of employment decreasing from 1.18 to 1.04 employed persons per household.

These factors drive the location of employment and therefore traffic movement.

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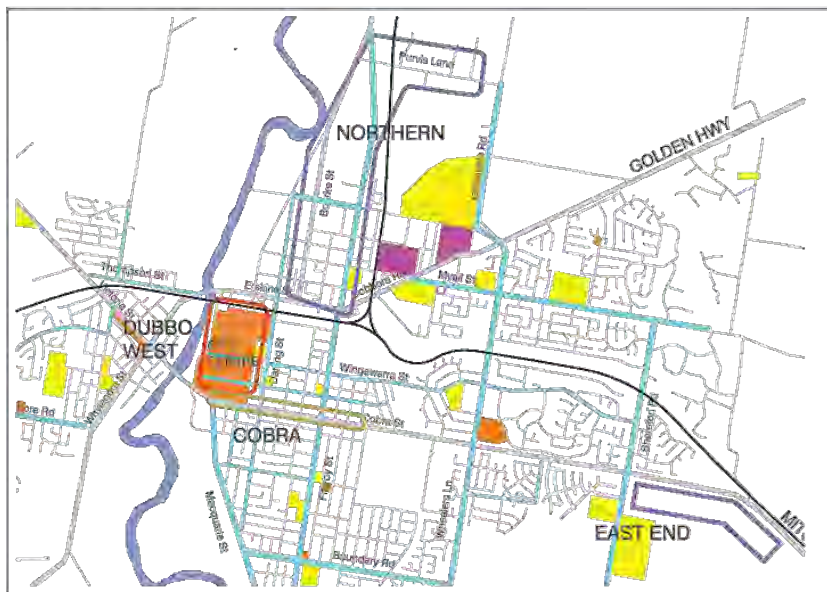
	2020 Verified	2025	2030	2040	2055	CHANGE 2020- 2050				
HOUSEHOLDS	14796	1250	16046	1250	17296	2500	19796	3050	22846	8050
Trend in Pop/hh	2.50	2.53	2.51	2.46	2.41	2.13				
POPULATION	37878	2789	40667	2730	43397	5279	48676	6376	55052	17174
Trend in % in Work	0.46	0.46	0.45	0.44	0.43					
EMPLOYMENT	17424	1096	18520	1045	19565	1941	21506	2331	23837	6413
Employee/hh	1.18	1.15	1.13	1.09	1.04					

2.3.2 Existing Hubs

Currently 55% of all employment takes place in the existing Hubs; the City Centre, the Northern Manufacturing Area, West Dubbo, the Cobra Accommodation Strip, plus the East End (Table 3.1). A further 22% of employment is located in Developing Hubs including 18% in the Health and Education Hub near the Base Hospital.

These currently focus traffic movement.

Figure 2.5 Employment Hubs



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Employment is changing and this impacts on the growth of Hubs. Many categories used in ABS data, have different trip generation characteristics. Retailing generates a high daily demand per employee/area; finance tends to be based in the city centre, community is spread throughout the town including homework and health, manufacturing is generally located in zones but also has a proportion spread throughout the town, and "other" is also multi-located.

Table 2.4 summarises the changes in employment projected to occur in Dubbo and this corresponds to the total employment (including external commuters). (Source Council)

	Ret	Fin	Com	Man	Other	Total	
2019	3088	1802	8875	2681	3378	20011	
% Total	15%	9%	44%	13%	17%		
2025	3210	1931	9893	2976	3406	21615	108%
% Total	15%	9%	46%	14%	16%		
increase	122	129	1018	295	28	1604	
2030	3241	2051	10771	3128	3503	22993	106%
% Total	14%	9%	47%	14%	15%		
increase	153	249	1896	447	125	2982	
2040	3270	2249	12100	3635	3542	25196	110%
% Total	13%	9%	48%	14%	14%		
increase	182	447	3225	954	164	5185	
2055	3319	2481	13627	4033	3967	27927	111%
% Total	12%	9%	49%	14%	14%		
increase	231	679	4752	1352	589	7916	
Overall Change	7%	38%	54%	50%	17%	40%	140%

Whilst the proportion of retail employment is projected to decrease from 15% to 12% there is still a small increase in the total number employed in retail (7%), thanks to the increased population. Hence the vitality of the City Centre will be retained. In addition, financial services are expected to increase by 38% in line with the population. Employment in community services and manufacturing are predicted to have the greatest increases of 54% (4752 employees) and 50% (1352) employees respectively.

These factors will change the patterns of demand and have a strong bearing on how to plan the future.

2.3.3 The Enterprise Axis

Referring to the statistic above, in anticipation of changes to future employment Council has been actively planning for two Enterprise Zones, the Health and Education Precinct is currently the subject of a Master Plan. The Airport Precinct is also the subject of detailed future planning.

The sheer strength of these two expanding Hubs suggests an Enterprise Axis. This conveniently follows River St and the new river crossing.

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This east-west axis strengthens the earlier Riverside Boulevard (2.1.2) as the confluence of two highly strategic employment initiatives. This focuses on the intersection at the western side of North Bridge and the Riverside Boulevard.

**Figure 2.6 The Enterprise Axis**



This mutual attraction is perfect for development but not so easy to reconcile with the RMS objective for a free flowing Newell Hwy sharing part of the East-west axis and the Riverside Boulevard. Council cannot afford to lose the opportunity to coordinate with the RMS in designing the public realm for the mutual benefit of employment for the City and ease of passage for the Highway. This can be achieved.

### 2.4 Strategic Roads

The design of roads suitable for their future role in the transport network efficiency is a key objective of the study, and in particular the development of a new Developer Contributions Plan for Roads.

Four fundamental directions dictate the design of strategic roads for Dubbo, as below:

#### 2.4.1 Maintain Flexibility of Movement

The secret of success in Dubbo for the, until recently, lack of congestion has been the flexibility offered by the Grid Network of roads that serve Dubbo. This provides intuitive flexibility, some choosing their traditional route from A to B, others thinking of avoiding a short delay.

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### 2.4.2 Maintain Amenity

The Grid Network, with a few notable exceptions, provides roads with a maximum flow of 600 vehicles per hour or less (Many less). This is a threshold to amenity; relatively easy to cross; relatively easy to be polite and let the slow cross at ease; relatively but not perfectly quiet. Many of course choose to live in the even quieter local streets and only need to travel a short distance to join the Grid Network.

### 2.4.3 Enhance Quality Of Life

The ease of movement allows residents to maintain a high quality of life, there is very little thought given to can I get there on time or easily. This is an ideal condition for transport that is recognised by many of the returning residents.

### 2.4.4 Provide an Efficient Transport Network

It could be said that most strategic road are initially under-designed and then regretted a few years later. However the Dubbo Grid has kept on delivering convenient movement with little need for upgrades.

The challenge for the upgraded street designs (Chapter 4) is to continue this legacy and anticipate future trends.

## 2.5 Natural Assets

### 2.5.1 Macquarie River

Dubbo was settled along the Macquarie River and the flood plain provides the setting for recreational open space. The proposed Riverside Boulevard extends this opportunity. Unfortunately Macquarie St does not address the open space riverfront through the City.

### 2.5.2 Vistas/ Lookouts

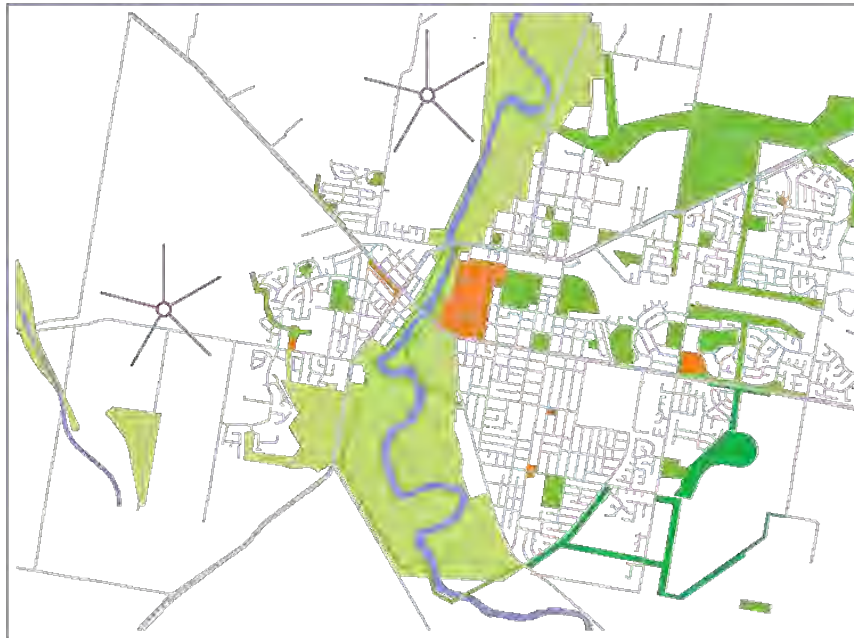
Less well known are the vistas from the ridge to the west of the Macquarie River – shown in Figure 2.7 - These can lead urban development as lookouts or other community focus points and are utilised in the Active Transport Plan (2.6.1). A third potential Lookout has also been identified at the Drive-in Cinema in West Dubbo and this features later in the discussion.

### 2.5.3 Connectivity of Open Space

The existing urban area contains many areas of recreational open space. The previous Strategic Plan identified some existing linear connections in eastern parts of Dubbo and adopted plans to extend this as a continuous ring around Dubbo (Figure 2.8). This network is suitable for Active Transport.

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Figure 2.7 Natural Features



**2.6 Future Transport Modes**

**2.6.1 Active Transport**

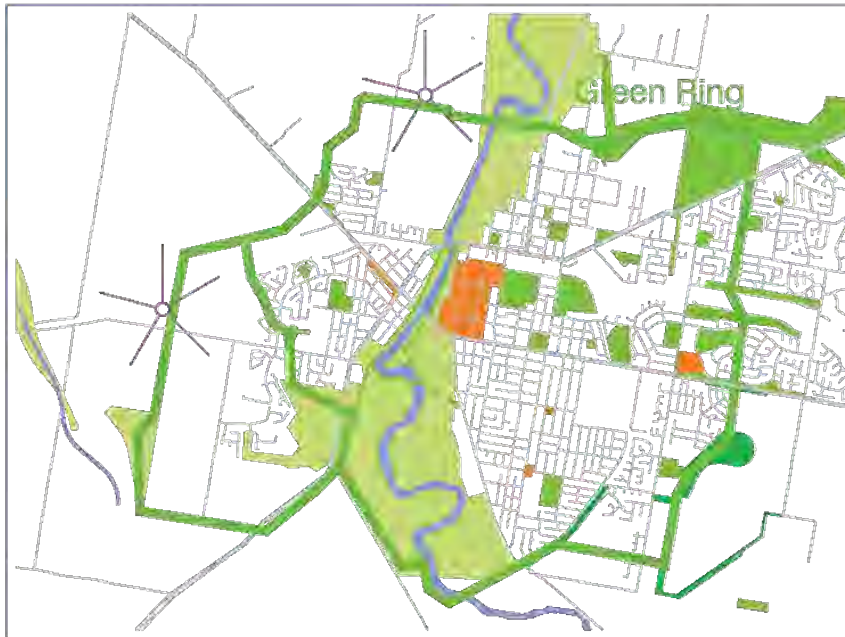
Active Transport networks are being developed in Dubbo. (Refer to Council documents including Cycleways in Dubbo). With the exception of paths along the Macquarie River these are predominantly on road facilities following bike lanes or quiet streets.

Recent developments of electric power have lead to an upsurge of new micro vehicles ranging from electric assisted bikes to boards and scooters. Mobility scooters are also undergoing changes in range and capability and are seen as a transport mode for deliveries and car replacements.

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These vehicles are permitted to use Cycleways and will become part of the mainstream movement. This will alter the balance and priority given to the Green Ring and the extension of the Green Ring. Works on this network have been included in this Strategic Transport Plan. This follows on from the previous 2007 Transport Strategy.

Figure 2.8 Green Ring

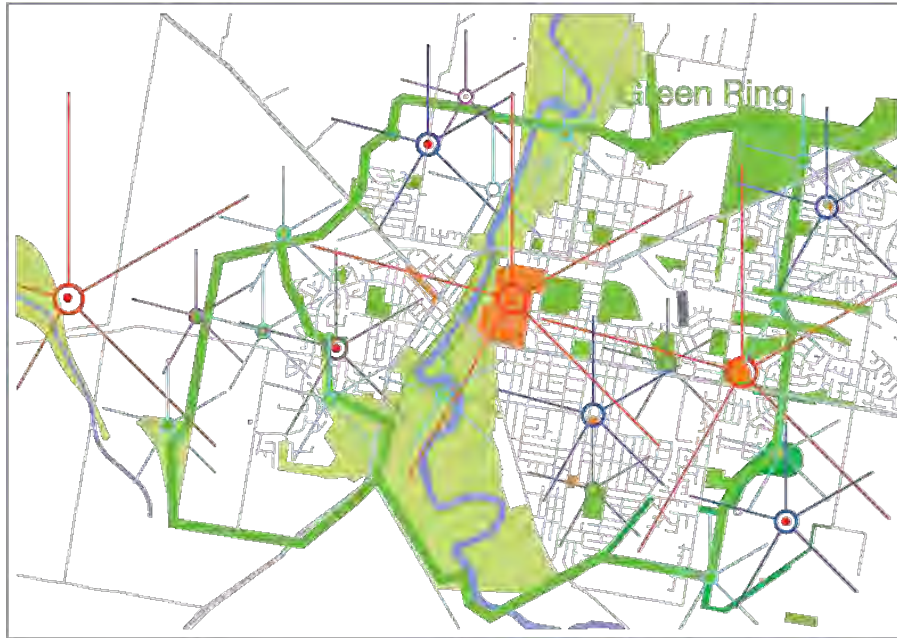


These electric powered vehicles are also using footpaths to the detriment of more vulnerable pedestrians including the mobility limited and parents with small children.

Figure 2.9 illustrates the need for local connectivity. This intrusion is not the subject of this report but needs to be addressed as part of a future "hierarchy" of integrated networks.

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Figure 2.9 Active Transport Connectivity



2.6.2 Autonomous Vehicles

The introduction of larger electric powered vehicles is also on the agenda. All new vehicles have some form of driver assistance and are becoming to some degree "autonomous". This will have no impact on traffic operations in Dubbo in the short term. Driver advisories for congestion are already assisting in rural highways in Europe and the US but again will have no impact in Dubbo.

The next generation of AV's are aiming to have surveillance to protect pedestrians as well create efficient traffic platoons. This application will not be in general operation for at least 20 years although some truck operations may become more Autonomous earlier.

Nevertheless the Strategic Transport Strategy can address the possibilities for AV operations in new areas and this has been considered in Chapter 4.



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### **2.6.3 Public Transport**

Public transport will continue to provide a service to bring residents from the residential areas into the City Centre, Schools, and to work and recreation throughout Dubbo. The route system is efficiently designed for this role with all services focusing on Macquarie St and providing the opportunity to transfer to every other service and thereby move throughout Dubbo.

A detailed review of the existing function of public transport is not required for this study.

Given the time lag for the introduction of AVs public transport will continue its important role in accessibility.

All Street styles are capable of accommodating bus services.

### **2.6.4 Electric Vehicles and Noise**

One goal is the reduction of noise and the intrusion of Highway traffic in Dubbo and hopes for a Bypass to the west of the City.

During the course of this work it has become apparent that further State investment on a Bypass is unlikely to be justified even in the long term (35 years plus).

The introduction of electric powered heavy vehicles – to start with in towns – will reduce noise (as well as pollution) and this will achieve some of the goals to remediate intrusion. This is further discussed in Chapter 4.

## 2020 DUBBO TRANSPORTATION STRATEGY

### 3. TRANSPORT PATTERNS

The modelling calculates the three shortest routes through an average of ten road sections between each of the 280 zone pairs, (2.3m digits of information). The intention of this Chapter is to illustrate how traffic is manipulated through the existing and future roads. Firstly to disperse current congestion and secondly to spread traffic throughout the network and in particular to show how new links contribute to the dispersal of traffic. This is summarised numerically in Chapter 6.

#### 3.1. Current Patterns

##### 3.1.1. Traffic Conditions

Results from the Modelling include diagrams that measure sections of road under "stress". This is calculated by measuring the "Level of Service" of street sections and intersections. This is a standard measure of traffic congestion, progressing from excellent to complete stand still.

The diagrams are colour coded. Circles (there are none in Figure 3.1) indicate where an Intersection may require attention, and bars indicate where the street "link" itself may require attention. The links are less critical than the Intersections because the measure is an indication of the lack of opportunity to pass that is more suited to rural conditions than urban streets. It could be argued that some "Bars"/congestion in streets busy with pedestrian activity are a sign of good traffic management.

The output from the modelling is an indicator of the urgency of creating the alternative, with emphasis on alternative rather than necessarily upgrading the location in stress. For example; in traditional engineering a blocked high street can sometimes be resolved by a new Bypass.

The diagrams of "stress" are used in the analysis for future networks, in Chapter 5, and need to be considered in that light.

Referring to the formal Level of Service [LoS] terminology and its impact on travel in Dubbo.

- Green, LoS D warns of the need for attention in the near future.
- Blue LoS E, requires an alternative to be designed.
- Orange LoS F, should not be reached because the alternative should be in place.

Many Dubbo residents are intolerant to delays and indeed the free flow traffic conditions are an attraction to living in the 10 minute City of Dubbo. A lower tolerance is more applicable in Dubbo where LoS C (that is not illustrated in the diagrams) is a sign that some Dubbo drivers are finding conditions unacceptable and might seek an alternative way to avoid the intersection.

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This analysis consistently shows Cobra St with green sections and not moving to Blue, this is because the strategy consistently aims to marginally reduce traffic on Cobra St. The question of how much time difference is summarised in Chapter 6 with measurements of the time taken to move along Cobra St from near Wheelers Ln to near Macquarie St and is in the order of 5 to 7 seconds on a 6 minute trip. This is considered within a tolerable range of changing conditions.

Figure 3.1A shows the working analysis of existing conditions and indicates stressed conditions on the LH Ford Bridge, in Cobarra Rd – at the railway – both being difficult to avoid and along short sections of Cobra St. (It is considered that the LH Ford Bridge experiences unacceptable queuing for a short period in the morning peak. Because this occurs for a short time this is not reflected in this analysis but is recognised in the Strategy).

The same delays occur if nothing was done in 2025 (Figure 3.1.B) with Cobarra Rd moving to unacceptable delays requiring an alternative and LH Ford is stressed in both directions during the morning peak. (This by the way with the intersection of Whylanda St and Victoria St upgraded. (Those with keen eyes will note that Fig 3.1 B has some other new local links added (in the SE Sector and others that are not being used at this time).

**Figure 3.1. a) 2019 Level of Service      b) 2025 No Minimum Level of Service**



As a planning tool this representation shows how efforts must be made to move a small proportion of existing traffic off Cobra St. And confirms that conditions on the LH Ford Bridge are deteriorating fast.

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3.2. Patterns Of Growth

3.2.1. Employment

The main attractors for all journeys are the employment Hub. The future proportion of travel to each Hub will change as employment changes (Ref 2.3.2). At first the net result does not appear to be substantial. For example, whilst the existing Hubs are expected to have an overall increase of 26% (Table 3.1) the proportion of total employment in the existing Hubs is expected to reduce from 55% in 2020 (Table 3.1) to 50% by 2050. This is relevant to the City Centre where the total number of employees is projected to grow by 26%, but the proportion of the total employment reduces from 22% to 20%.

These changes in the existing hubs are small and manageable, however the new Hubs have an estimated increase of 75% in employment.

Considering the pattern of journeys, 2000 additional trips need to be accommodated to the Hospital and Education Precinct, nearly half as much as the current employment in the City Centre. The Airport Precinct will have 1000 additional trips, the same as the CBD, with a further 1000 to Cobra and West Dubbo combined. (See Table 3.1 for concise estimates and Figure 3.2 for shape).

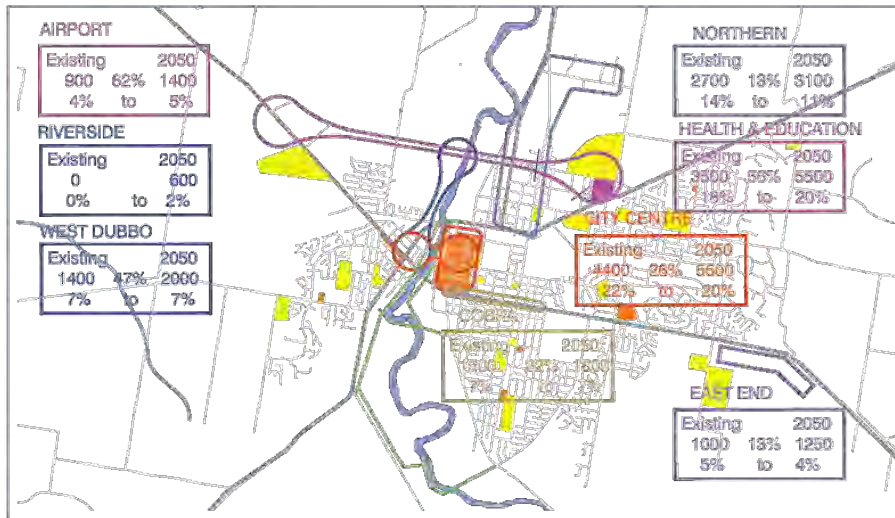
**TABLE 3.1 EMPLOYMENT BY HUB**

	2019 (Calibration)		2025		2030		2040		2050		Change 2020 - 2050
		% Tot		% Tot		% Tot		% Tot		% Tot	
<b>EXISTING HUBS</b>											
1 City Centre	4399	22%	4689	22%	4945	22%	5291	21%	5635	20%	128%
2 Dubbo West	1363	7%	1614	7%	1736	8%	1952	8%	2041	7%	150%
3 Cobra	1477	7%	1544	7%	1624	7%	1718	7%	1836	7%	124%
4 North	2706	14%	2734	13%	2811	12%	2909	12%	3121	11%	115%
5 East End	1083	5%	1136	5%	1168	5%	1198	5%	1234	4%	114%
	11028	55%	11717	54%	12284	53%	13067	52%	13866	50%	126%
<b>NEW HUBS</b>											
6 Health & Education Precinct	3509	18%	4133	19%	4536	20%	5037	20%	5617	20%	160%
7 Riverside Precinct	0	0%	27	0%	37	0%	245	1%	609	2%	165%
8 Airport Precinct	885	4%	930	4%	1071	5%	1267	5%	1457	5%	175%
	4395	22%	5091	24%	5644	25%	6549	26%	7683	28%	175%
<b>SUBURBAN</b>											
	4588	23%	4808	22%	5065	22%	5579	22%	6378	23%	139%
<b>Total</b>	20011		21615		22993		25166		27927		140%

This pattern shows how the River Street Axis will accommodate the same numeric change as the Central Areas, a clear need for more accessibility to the northern parts of Dubbo. But also the additional employment in the City Centre and Cobra St will attract more demand to the LH Ford Bridge and some other demands need to be dispersed. (2055 projections are used in the modelling and are not illustrated here).

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Figure 3.2 Employment Hubs



3.2.2. New Residents

Figure 3 A to D illustrates the directional split of journey to work from each Residential Sector, the light green bars showing demand using new facilities, the base colour showing demand on existing roads.

This "pre analysis" before the modelling continues to indicate the usefulness of new strategic infrastructure; in particular North Bridge and South Bridge but also crossing the railway line at Chapmans Rd (referred to below as Western Railway). This summary was then used to make first calculations of the potential scale of demand on new facilities to indicate the number of new links required.

Demand from the NW Sector will concentrate on the Riverside to Ernle Serisior Bridge with a proportion using North Bridge and practically no traffic on the LH Ford Bridge.

Demand from the SE Sector primarily uses existing roads (for journey to work). The scale of this additional traffic needs to be considered at this Stage. For example; Figure 3.1 B indicates a strong demand using Hennessy Rd and the southern part of Macquarie St. This represents 261 peak hour trips in 2030 from the SE Sector, (Table 3.3 A) with (a surprising) 180 peak hour trips as contraflow from other new development. Cumulatively this is less than 600 vehicles per hour, and therefore within the environmental goal for the Neighbourhood Grid. Demand increases later (Table 3.3.B) to a maximum of 10,000 vehicles per day in 2055.

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Figure 3. A) Demand from NW Sector b) Demand from SE Sector



Conclusion; the connection to South Bridge via Macquarie St south is suitable in the foreseeable future and no other option, such as the Southern Bypass [Ref Figure 5.6.1] needs be considered for 10 years.

As a point of clarification, whilst there may be concern over the accuracy figures estimated for 20 or 35 years hence the strategy will be reviewed regularly and other options will be considered at the time. This analysis gives a sense of direction.

Figure 3. c) Demand from CW Sector d) Demand from SW Sector



Demand from the CW Sector concentrates on North Bridge and LH Ford Bridge indicating that some existing traffic must be diverted from this access and hence South Bridge is required.

Demand from the SW Sector concentrates on South Bridge. Further, a new bridge over the railway at Chapmans Rd will spread traffic across the west and onto North Bridge. When combined these will successfully reduce impacts on Cobra St and through West Dubbo. Traffic from the existing parts of the SW will predominantly use South Bridge, this is not reflected in these figures.

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Again before starting the modelling it is apparent that North Bridge will be well used by Dubbo traffic by 2030. The figure of 6000 Vehicles per day [vpd] (Referring to Table 3.2A) is higher than the demand from new development for South Bridge – 4000 vpd. (See Chapter 6 for modelled results).

**TABLE 3.2A 2030 INDICATIVE USE OF NEW MAJOR INFRASTRUCTURE**  
DEMAND FOR 2030 BY NEW DEVELOPMENT ONLY; EXISTING TRAFFIC WILL ALSO DIVERT TO NEW FACILITIES

MAJOR NEW INFRASTRUCTURE	PEAK TRAFFIC GENERATION								TOTAL DAILY TRAFFIC 0.1
	NW Sector		SE Sector		CW Sector		SWSector		
	Total Gen	800 Additional Traffic	Total Gen	1450 Additional Traffic	Total Gen	0 Additional Traffic	Total Gen	700 Additional Traffic	
North Bridge	Estimated % using 40%	320	Estimated % using 0%	0	Estimated % using 40%	0	Estimated % using 40%	280	6000
South Bridge	7%	0	8%	115	12%	0	41%	287	4050
Bligh St	7%	0	10%	145	0%	0	22%	154	2980
Hennessey	10%	80	16%	261	15%	0	15%	105	4480
Western Railway	2%	16	2%	25	3%	0	3%	14	330

Taking these initial estimates to 2055 indicates that North Bridge will be stressed (18000 vpd similar to current flows on LH Ford), South Bridge will be relatively small from newly generated traffic (4000 vpd), Hennessey Rd, as mentioned above will be close to capacity for a Residential Grid Road, and a bridge over the Railway in the SW should be working well (15,000 vpd).

**TABLE 3.2B 2055 INDICATIVE USE OF NEW MAJOR INFRASTRUCTURE**  
DEMAND FOR 2055 BY NEW DEVELOPMENT ONLY; EXISTING TRAFFIC WILL ALSO DIVERT TO NEW FACILITIES

MAJOR NEW INFRASTRUCTURE	PEAK TRAFFIC GENERATION								TOTAL DAILY TRAFFIC
	NW Sector		SE Sector		CW Sector		SWSector		
	Estimated % using	Cumulative Additional	Estimated % using	Cumulative Additional	Estimated % using	Cumulative Additional	Estimated % using	Cumulative Additional	
North Bridge	56%	702	0%	0	61%	367	51%	760	19189
South Bridge	0%	0	15%	338	3%	32	82%	784	12195
Bligh St	0%	0	0%	215	0%	0	10%	45	4700
Hennessey	5%	86	25%	568	9%	88	11%	270	10215
Western Railway	5%	156	7%	158	16%	184	41%	1005	15020

These patterns will form from residential development.

3.2.3.

3.2.4. Scale of External Traffic and Heavy Vehicles

The third pattern of movement is external traffic. This often dominates discussion but is a small proportion of total movement in Dubbo. However, is essential to the economy as Dubbo is the regional centre for 120,000 residents.

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Through traffic forms approximately 20% of external traffic (Table 3.3). Regional traffic is considered in two types, Commuters and other regional traffic. Currently of the total regional traffic 50% is journey to work commuter traffic and 50% are regional visitors; shopping, business, school recreation etc.

**TABLE 3.3 COMPOSITION OF EXTERNAL TRAFFIC (Two way traffic)**

	2019 Survey	Applied Annual Increase	2025		2030		2040		2055	
Through traffic	2460	103%	1.16	2852	1.16	3306	1.34	4443	1.56	6922
Commuter	5174	101%	1.13	5847	1.1	6491	1.08	6946	1.07	7492
Regional Movement	5271	101%	1.03	5404	1.03	5540	1.05	5824	1.08	6276
<b>TOTAL EXTERNAL</b>	<b>11905</b>			<b>14103</b>		<b>15278</b>		<b>17213</b>		<b>20631</b>
				<b>118%</b>		<b>128%</b>		<b>145%</b>		<b>160%</b>

Through traffic is expected to increase on the existing trend of 3% per year. Regional movement is expected to increase in line with the anticipated small increase in population, generally 1% per year.

Commuting from rural areas has increased over the last decade and is expected to continue in line with changing types of employment in Dubbo.

Considering the total increase in employment, the resident employees in the Dubbo Study area (ABS) is currently made up of 87% internal residents and 13% regional commuters. This is not expected to vary in the future.

**TABLE 3.4 EXTERNAL COMMUTERS**

ORIGIN OF EMPLOYEES	2020		2025		2030		2040		2055	
Internal Resident	17424	87%	18520	86%	19565	86%	21506	86%	23837	87%
External Commuters	2587	13%	2923	14%	3216	14%	3473	14%	3716	13%
<b>Total</b>	<b>20011</b>		<b>21443</b>		<b>22781</b>		<b>24979</b>		<b>27553</b>	

External traffic will increase faster than internal traffic (60% and 40% respectively). This will not have an impact on traffic in Dubbo in the foreseeable future.

In conclusion to this Chapter, the Transport Strategy has been a response to the current pattern that centralises demand, the movement of employment more to the north and the centroid of population moving more to the west and little change in the proportion of external traffic.



## 2020 DUBBO TRANSPORTATION STRATEGY

### 4. ROADS FOR THE FUTURE

The purpose of this Chapter is to establish suitable Sections for new transport infrastructure that can be costed for use in the Developer Contributions Plan and to make estimates of future infrastructure programs.

The actual traffic requirements, traffic lanes, parking, footpaths and landscape are based on typical Arterial Roads. The traditional Dubbo Suburban Road is included as a comparison for costing and amenity. The design originated with the need to accommodate trucks and turning traffic and evolved to accommodate pedestrian amenity with central refuges, streets include Cobra St, Fitzroy St and tended to spread to most older Grid Roads.

Unit-Cost Prices have been provided by Council. They include the cost (Table 4.2) for m<sup>2</sup> of, pavement, parking lanes, footpaths, bridges, for m length of footpaths, and m<sup>3</sup> for earthworks - earthworks are only estimated for flood plains. Acquisition costs are not included.

Based on these costs the typical existing Dubbo Suburban Road with 14m of heavy-duty pavement and 4.2m of parking pavement cost in the order of \$4,000 per-metre length.

Five situations have been considered.

**1 Residential Grid** - a typical Grid Road within a neighbourhood.

Many new links will have similar characteristics to the existing layout of the Grid Roads in Dubbo; frontage housing and low volumes of predominantly local traffic. Whilst the traditional streets are very attractive, and part of the Dubbo identity, more recent Suburban Roads, such as, Boundary Road have been built to the standards of more typical metropolitan streets with 6m of pavement plus two parking lanes. (Table 4.1 Costing Infrastructure)

The reserve width is reduced to 15m.

These are primarily internal Suburban Streets and cost \$2000 per m length; half of the traditional street style.

**2 Urban Edge** – located at the edge of residential development and requiring one residential service road and a separate carriageway for other traffic (note, not through traffic but simply other local traffic). The per-metre cost of this profile is still a moderate \$2800.

The reserve width is maintained at 22m.

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The use of Urban Edge Streets is recommended at a number of locations, either at the edge of development or where there is a strong linear barrier to development. For example; Hennessey Rd could eventually (and not in the 35 year horizon) become part of the Southern Link Rd and is situated on the edge of the flood plane. (Hennessey Rd is already designed using the profile).

TABLE 4.1 COSTING OF INFRASTRUCTURE							
UNIT PRICES		Unit Price					
Pavement/drainage	\$/m2		\$220				
Parking Pavement	\$/m2		\$120				
Kerbs	\$/m		\$75				
Footpaths Width	\$/m2		\$90				
Bridge Water	\$/m2		\$6,000				
Bridge Land	\$/m2		\$4,800				
Earthworks	\$/m3		\$2,106				
OPTIONS FOR ROAD SECTIONS							
		Width	Pavement	Light	Footpath	Kerbs	TOTAL
<b>EXISTING ARTERIALS</b>							
Central turning and pedestrian refuge	Quantity	22	14	4	3	2	
	\$		\$3,080	\$480	\$270	\$150	\$3,980
<b>1 RESIDENTIAL GRID</b>							
No Regional Traffic or wider footpaths/verges	Quantity	15	6	4	0	2	
	\$		\$1,320	\$480	\$0	\$150	\$1,950
<b>2 URBAN EDGE</b>							
Local and passing traffic	Quantity	22	10.5	2	0	3	
	\$		\$2,310	\$240	\$0	\$225	\$2,775
<b>3 SEGREGATED ARTERIAL</b>							
Limited pedestrian access	Quantity	19	13	0	0	2	
	\$		\$2,860	\$0	\$0	\$150	\$3,010
<b>4 COMMERCIAL INTEGRATOR</b>							
Three carriageways	Quantity	33	17	4	0	4	
	\$		\$3,740	\$480	\$0	\$300	\$4,520
<b>5 RESIDENTIAL INTEGRATOR</b>							
<b>5.1 Stage 1 Single carriageway</b>	Quantity	33	5.5	0	1.5	2	
	\$		\$1,210	\$0	\$135	\$150	\$1,495
<b>5.2 Stage 2 Two Carriageways</b>	Quantity	33	5.5	0	1.5	2	
	\$		1210	0	135	150	\$1,495
<b>5.3 Three Carriageways</b>	Quantity	30	8	10	3	2	
	\$		1760	1200	270	150	\$3,380

**3 Segregated Arterial** – crossing flood plains or permanently outside the Urban Expansion (e.g. under airport flight path)

A number of links are built across flood planes or outside the future urban areas, operating at a higher speed they require larger carriageways. Given the higher speed – and given that a Greenway network is included in the costing of Infrastructure – it is desirable to segregate pedestrians from these roads and hence there are no footpaths. The per-metre cost reflects the wider carriageway at \$3000.

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- 4 Commercial Integrator** – passing through mixed development requiring service roads accommodating heavy vehicles and a central carriageway for passing traffic.

This situation was identified in the previous Strategic Transport Plan, (River St West). This is the most flexible means of bringing high volumes of traffic through a commercial area. The 33m width (Table 4.2 Road Design Options) allows for landscaping and therefore provides an attractive street environment.

The per-metre cost of \$4500 reflects the stronger carriageways.

- 5 Residential Integrator** – Also with the potential for three carriageways but passing through residential development where Service Roads can, be used to accommodate local traffic and not requiring heavy-duty use. (Southern part of Wheelers Lane).

The Residential Integrator can be staged to suit development. This provides the ultimate in flexibility, particularly of the future role of the link is not settled, as is the case for the 20 to 35 year plan.

Stage 1; Residential development on one-side of the reserve requiring one Service Road. At a cost of \$1500 per-metre length this is the least cost for a Strategic Road. But because this style is built in stages the Service Road is built for heavy-duty use (and 5.5m in width).

Stage 2; Residential development on the second side of the reserve requiring a second Service Road. Suitable when there is still no certainty on the future use of the Central Carriageway

Stage 3; Build the three carriageways concurrently with two light duty Service Roads. The per-metre cost of \$3400 is less than adding the central carriageway to two heavy duty service roads and less than the Commercial Integrator (\$4520).

Also note the specification requires space for an 8m central carriageway not the 7m for a Commercial Integrator this is interchangeable. Also Light Duty Service roads can always be upgraded if the need arises in the future. (8m probably ideal for advanced AV vehicles)

In conclusion, using a series of Sections that offer flexibility for future transport demands can make substantial saving to the alternative of simply adopting to continue to use the current Grid Road Section. And furthermore provide a more sustainable long-term transport network; a fact established in the 2007 Transport Strategy.



## 2020 DUBBO TRANSPORTATION STRATEGY

### 5. CONCLUSIONS

It should be noted that the conclusions are based on an assumed location of development; this is known with some accuracy in the short term but becomes progressively less certain as the timeline expands. The location of the Residential Grid will normally only occur when development is underway. The order might change but the intent is the same, i.e. the network is connected and must be maintained.

#### 5.1. Reference to Modelling.

The conclusions reached in this study are assisted by the modelling of journeys predicted to be made in the future from varying employment and population. A more thorough list of network performance is given in Chapter 6.

This Chapter concentrates on conclusions of the future physical form of Dubbo.

#### 5.2. 2020 - 2030 - 10 Year Investment Program

##### 5.2.1. Program

Table 5.2.1 list the projects that are required to accommodate traffic by 2030. This is displayed in three parts, Current Commitments mostly concerning North Bridge, a 0-to-5 year list, requiring immediate action, and 5 to 10 year projects some requiring major design.

Entries in Blue and Green are the list requiring approval for the purposes of calculating developer contributions, Black is either the RMS or Council funding, Orange is an estimate for the upgrade of existing streets. The style of road is described in 4.1, See Figure 5.2.1 for the location of these projects.

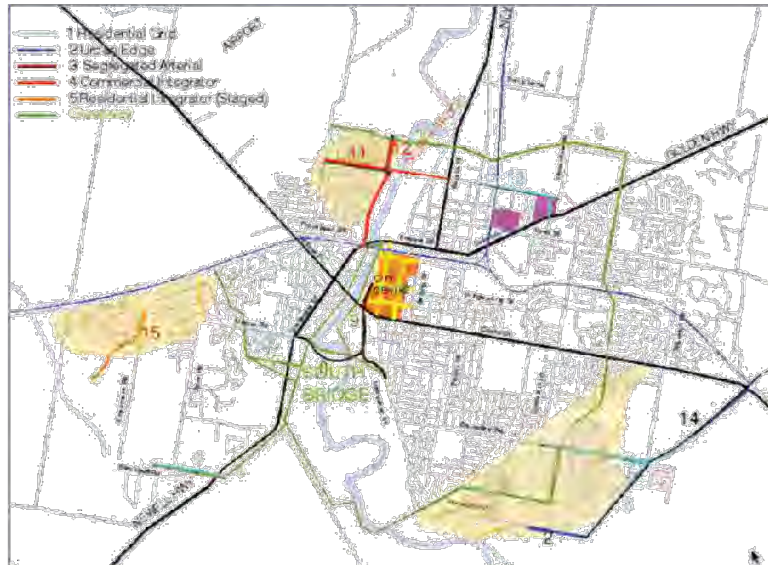
Selecting some projects for further analysis:

PJ 1A Riverside Boulevard is currently being designed without input from the Council. This must be designed to accommodate the prime commercial opportunity for the Boulevard. The total cost of the Commercial Integrator has been ascribed to the RMS. This negotiation might require that Council fund Service Lanes but they need access to the central carriageway.

2020 DUBBO TRANSPORTATION STRATEGY

TABLE 5.2.1 0 - 10 YEAR (2020 - 2030) TRANSPORT INFRASTRUCTURE PROGRAM					
CURRENT COMMITMENTS					
Ref	Project	Purpose	Design Style	Comment	
1C	North Bridge	Strategic Network	3 80k Segregated Arterial	RMS funded	
1A	Riverside Boulevard Stage 1	Strategic Network	4 60k Commercial Integrator	Passes thru prime River Front (RMS)	
1B	Whylandra/Victoria Int	Strategic Network	Upg Intersection	RMS funded	
UP1	Extn Boundary Rd	Residential Grid	1 50k Only Local Traffic	Under construction (Excl earth works)	
0 to 5 YEARS 2020 - 2025					100,000s
Ref	Project	Purpose	Design Style	Comment	Est Cost
2	Hennessy Macquarie St Upgrade	Future Strategic Option	2 60k Urban Edge	Minor Upgrade Macquarie St	\$2,958
3	Sheraton Link	Residential Grid	1 50k Only Local Traffic		\$4,298
4	Blackbutt Rd Stage 1	Residential Grid	1 60k No Access		\$1,950
UP2	Existing Street Upgrades			Item Cost Potential - Bligh St Circulation	\$2,000
5	Greenway to Blackbutt			Start of Budden Creek Loop	\$322
6	Greenway S E Loop			Required for SE Sector (over 10 years)	\$2,688
7	Greenway Delroy Loop			Required for SW Sector	\$663
5 - 10 YEARS 2025 - 2030					
8	South Bridge (low Level)	Strategic Network	3 80k Segregated Arterial	No Footpaths use existing bridge	\$17,930
9	Bligh St Link	Strategic Network	3 70k Segregated Arterial	Footpaths within Playing Fields	\$6,078
10	Minore Rd	Existing Street Upgrade	Upg 50k Special case	Access to existing properties	\$1,950
11	River Street West	Strategic Network	4 60k Commercial Integrator	Passes through Commercial	\$6,005
12	Riverside Boulevard Stage 2	Strategic Network	4 60k Commercial Integrator	Passes through Commercial	\$2,388
13	River St East	Residential Grid	1 50k/40k Also Flood Management	Passes through Active Area (Campus)	\$2,343
14	Blueridge Link Rd	Residential Grid	1 50k/40k Part with access part not		\$3,900
15	Chapmans Rd Diversion	Future Strategic Option	5.1 60k Residential Integrator St 1	Option for 3 carriageways as Type 4	\$1,271
UP3	Existing Street Upgrades			Essential Osborne St Rail Crossing	\$2,000
16	Greenway North West St 1			River Crossing	\$835

Figure 5.2.1 2030 - 10 Year Infrastructure



**2020 DUBBO TRANSPORTATION STRATEGY**

- PJ2 Hennessey Drive - Macquarie St – are minor works for traffic management in Macquarie St and Urban Edge in Hennessey.
  
- PJ3 Sheraton Rd extension to Hennessey Drive – a perfect example of cooperation to achieve the best connectivity involving the developer, with payment from Developer Contributions.
  
- PJ4 Blackbutt Rd Stage 1 Illustrates how if the link is not built at the time of development it will become impossible in the future. Lost opportunities have included a Gangewood connection to the Newell Hwy that could have located the Southern Bypass to the north of the Zoo and relieved demand on Minore Rd. Together with Stage 2 this forms a part of the SW grid.
  
- PJ8 South Bridge has been held in the 2020–2030 construction program because of the deterioration of traffic amenity even with North Bridge completed, see 5.3.
  
- PL9 Strengthening of Bligh St to distribute traffic to the main Town Centre car parks has been in plans for many years with a number of iterations. The conclusion to connect Bligh St to South Bridge and thence to Macquarie St South is fundamental to creating a stable traffic network that can accommodate traffic until at least 2055. (See Wingewarra crossing Table 5.6.1)
  
- PL10 Upgrading Minore Rd for two through lanes per direction is also as a result of the lack of east-west connection from the SW Sector to the Newell Hwy. Baird Dr has taken much of the additional traffic over the last 15 years (Delory/Gangewood) and this has less capacity and is reaching its design capacity. The loss of amenity in Minore Rd has been slowly growing as traffic has increased, this is the result.
  
- PL11 River St West and PL12 Riverside Boulevard Stage 2 emphasise the manner in which the NW Sector will develop quickly and connect with North Bridge. River St West is also an expensive Commercial Integrator but its role grows in the next few decades. This intersection is identified as the Next Step in the strategic planning process. (Section 5.8)
  
- PL13 River St East also has long-term strategic impacts. (if fails in 2055). At this time it is required to give access to the Health and Education Precinct. It is designed to have high pedestrian amenity and therefore low traffic capacity, particularly the link through the precinct to Cobbora Rd.
  
- PL14 Blueridge is currently only served by Mitchell Hwy and access from Sheraton Rd (Schools) is inappropriate. The 2007 Strategy relied on the expensive Southern Distributor (See PJ 43 Table 5.6.1). The lack of growth of external traffic precluded this option in the foreseeable future but there are local demands that will be relieved by this link, plus it will be beneficial to the development of this employment Hub. Requires immediate negotiation.

## 2020 DUBBO TRANSPORTATION STRATEGY

PL15 Chapmans Rd was previously identified as part of the "Western Bypass". Environmental constraints have required that the alignment in the south be relocated to the west. This needs to be established with development south of Minore Rd (assumed to occur in this period). This forms part of a strategic road linking the SW and the CW.

The estimate for upgrading existing Streets (\$4m excluding River St East PJ 13) include works at the railway crossing in Cobbora St. Other works have not been identified and will tend to follow developments. It is noted that the upgrade of Bligh St as part of South Bridge (and already included in budgeting) will probably trigger the opportunity to make changes to circulation in the City Centre.

### 5.2.2. Greenways

As discussed (2.5.3) in 2007 Council adopted the construction of a Green Ring for active transport that circled the Town Centre (Figure 2.8). Active Transport Networks also can be by small electric powered micro vehicles and in effect are becoming more viable as a transport network. The 2007 Transport Strategy concentrated on the Green Ring passing through the SE Sector and Delroy. The Greenways are an extension to the Green Ring bringing Active Transport close to all new residents.

The cost of this network, be it a community cost or a transport mode, is included in this analysis.

Projects for the period 2020 to 2030 include:

- PJ 5 Extension to Blackbutt Rd. This is the first of the projects that add to the Greenways as development occurs, in the same manner as the Residential Grid, in this case Blackbutt Rd PJ 4. This section of the Greenway extending from the front of the Zoo follows roads, something generally avoided but in this case the most efficient way to bring these and future residents to the west into the main network. This is the start of the Buddens Creek Loop.
- PJ 6 The South Eastern Loop was intended (in 2007) to become an attraction for new residents in the SE and to bring the benefits of Active Transport through the existing areas of eastern Dubbo. PL6 includes the entire construction of the Green Ring through the SE Sector and up to Troy Creek.
- PJ16 Takes the Green Ring over the Macquarie River near Devils Hole and into the development of the NW.
- PL7 The Delroy Loop is also part of the original Green Ring linking development at the top of Minore Rd back to the River. This involves negotiation with the Dubbo Golf Course to use the northern edge of the course from the existing path to Yuille Court.



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5.2.3. Costing for S94 and Upgrading Existing Networks

2020 - 2030		
0 - 5 Years 2020 - 2025		100,000's
	Road Infrastructure in new areas	\$9,217
	Dubbo Greenway Infrastructure	\$2,330
	Existing Network Upgrades	\$2,000
5 - 10 Years 2025 - 2030		
	Road Infrastructure in new areas	\$11,094
	Dubbo Greenway Infrastructure	\$2,180
	Existing Network Upgrades	\$4,340
	Internal Funding	\$24,956
<b>Total 2020 - 2030</b>	Road Infrastructure in new areas	\$20,311
	Dubbo Greenway Infrastructure	\$4,509
2500 Dwellings	Cost Per dwelling (For S94)	\$9,928
	Existing Network Upgrades	\$6,340
	Internal Funding	\$24,956

The total cost of Roads (Blue text) and Greenways (Green text) in new areas in the period 2020 to 2030 is estimated at \$24,840,400. This cost has been derived from the additional movement generated by 2500 new houses. The cost per dwelling in new areas is \$9,928. (Table 5.2.2.) This is applicable to S94.

In addition it is expected that \$6.34m will be required to upgrade existing roads; and \$25.0m will be required for South Bridge and its approaches.

5.2.4. Flood Management.

In respect of the proposed North Bridge, The northern parts of Bourke St, Darling St and Fitzroy St are flood affected in a 50 year event.

Three "groups" of traffic will use North Bridge during a flood event a 4<sup>th</sup> will relocate to Yarrandale Rd.

- 1 Highway Traffic from the North must use Yarrandale Rd and can be given some priority by having a right turn access into River St, available only during flood events. The Left turn from Yarrandale Rd would be prohibited to give advantage to Highway traffic. Similarly a left turn into Yarrandale Rd but not a right turn.
- 2 This would limit intrusion into the Campus, albeit heavy vehicles. Further limitation would be extended but prohibiting movement between River St and Caroline St thereby requiring that Cobbora Rd traffic comes down to Fitzroy St – which does not continue north. Hence, Cobbora Rd would access River St from Fitzroy St and with access via River St West could access the Mitchell Hwy.

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Figure 5.2.2 Indicative Traffic Management during Flood.



**3** In the meantime traffic normally using Fitzroy St to travel north could be advised to divert to Wheelers Lane crossing Cobbara Rd in what should be a congestion free intersection.

**4** Town Traffic normally using Emile Serisior Bridge – inundated by flood water – would seek to avoid the congestion at LH Ford Bridge by continuing to North Bridge and then returning into North Dubbo via Bourke St or Darling St and possibly to avoid queuing on North Bridge not Brisbane St. The Cobbara Rd traffic would be encouraged to continue to Fitzroy St by limiting access into Erskine St thereby simplifying the right turn from

Cobbara Rd. It may also be necessary to limit access from Fitzroy St south into Cobbara Rd.

**5.3. 2025 – The 5 Year Priority**

**5.3.1. South Bridge as a 5 Year Priority**

The existing 2018 traffic conditions (Fig 3.1) indicate Cobra St, the LH Ford Bridge and Cobbara Rd being under stress.

Without any action development between 2020 and 2025 (1250 Dwelling in New Areas) would deteriorate traffic conditions to stress both directions of traffic on the LH Ford Bridge, and Cobbara Rd would reach unacceptable delays. (Fig 3.1). An alternative is required.

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Figure 5.3.1 Stressed Traffic Conditions - 2025 AM Peak North Bridge Only



The traffic conditions are not improved by the completion of North Bridge (Figure 5.3.1). A reduction in demand on Cobbara Rd (diversion to River St) bring some relief, but new stress at Thompson St even with a generously designed intersection, and similar conditions on Cobra St and for both directions of the LH Ford Bridge.

Figure 5.3.2 Stressed Traffic Conditions - 2025 AM Peak Both Bridges



With North Bridge and South Bridge completed in 2025 the Stressed Sections of Cobra St, Fitzroy St and Cobbara Rd settle down and are not experience any further stress in the long term. (Fig 5.4.2 and Fig 5.5.2)

But it is the Costs and Savings achieved, 5.4 and 5.5; and how this expenditure provides for the future 5.6 that justify expenditure and explains the logic. Before the hard economic facts the 'perception'

of traffic conditions is view through "Stressed Conditions" continues below.

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Figure 5.3.3 Stressed Traffic Conditions - 2030 AM Base No Improvements



Just in case we needed any justification for building a new crossing urgently Figure 5.3.3 illustrates Stressed Streets in 2030. With the eastbound direction of LH Ford and Emile Serisior Bridge both requiring action to be taken.

Figure 5.3.4 Stressed Traffic Conditions - 2030 AM Peak Both Bridges



Whereas with both Bridges built the 2030 conditions show similar conditions to 2025 with pressure building in the Health and Education Precinct (Cobbora Rd)

This is addressed for 2040 (See 5.4.2 but returns as an issue in 2050 (See 5.4.2).

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5.4. 2030 - 2040 20 Year Investment Program

New residential growth is expected to occur mostly in SW (1250) and SE (800) with small developments in the CW (250) and NW (200). Infrastructure for the SE is complete and 10 to 20 year program of works concentrate mostly on a Strategic Link in the Central West (PJ 22, PJ 23) and Residential Grid roads in new development. The Strategic Link successfully spreads the newly generated traffic away from LH Ford and across to North Bridge.

10 - 15 YEARS 2030 - 2035							100,000s
Ref	Project	Purpose	Speed	Design Style	Comment	Est Cost	
17	Grangewood Extn Stage 1	Residential Grid	1	50k	Only Local Traffic		\$1,658
UP#	Existing Street Upgrades				Item Cost Potential City Consideration	\$9,030	
18	Greenway Chapman Park				Opening Forest	\$500	
15 - 20 YEARS 2035 - 2040							
20	River St West Extn	Strategic Network	4	60k	Commercial/Integrator	Could have access to School	\$4,140
21	Mitchell Hwy Upgrade	Strategic Network	Upg		Existing	Could be earlier	\$9,000
22	Central West Spine Rd Stage 1	Future Strategic Option	2	60k	Urban Edge		\$6,130
23	Extn to River St	Future Strategic Option	2	60k	Urban Edge	Draw to North Bridge	\$2,414
24	Central West Link Rd Stage 1	Residential Grid	1	50k	Only Local Traffic		\$2,438
25	Kerwick Collectors	Residential Grid	1	50k	Only Local Traffic		\$9,900
UP#	Existing Street Upgrades				Item Cost ? Golden Key Vaseendole	\$9,030	
26	Greenway CW Stage 1				Chapmans Creek Loop Complete	\$844	
27	Greenway Rail Crossing				Delroy Loop Complete	\$380	

Table 5.4.1 list the projects that are required to accommodate traffic by 2040. This is displayed in two parts, a 10-to-15 year list, requiring budgeting in the next few years, and 15 to 20 year projects where no action is required – unless of course if development occurs ahead of the schedule used in this analysis, this particularly refers to the Residential Grid.

Entries in Blue and Green are the list are potential for a future S94 plan, Orange is an estimate for the upgrade of existing streets. The Style of Street is described in 4.1, See Figure 5.4.1 for the location of these projects.

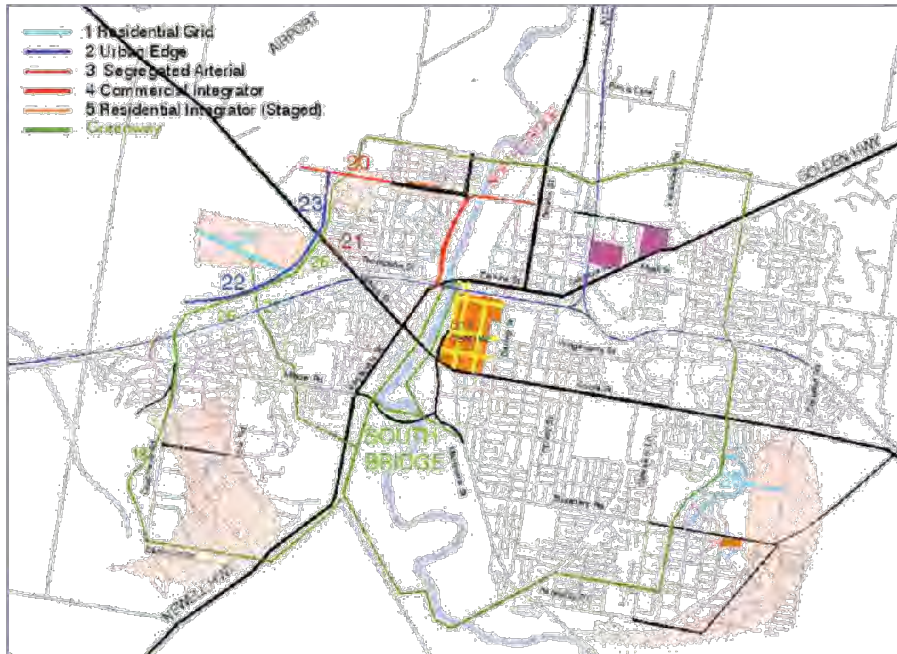
Selecting some projects for more comment:

- PJ 17 The extension of Grangewood Rd is part of the Residential Grid and not expected to increase traffic on the existing road. This route is expected to serve a future school but not in this stage of construction.
- PJ 18 Also in the same area this extension of the Greenway needs to be planned and will open up the remnant forest be to set aside near Chapmans Rd.
- PJ 19 A link of Chapmans Rd over the Rail line to the CW Sector (and PJ 22) has been delayed until after 2040, mostly as a cost saving but also because it did not carry sufficient traffic to impact on West Dubbo. Nevertheless it would advantageous to “set” the travel pattern between the SW and River St.

2020 DUBBO TRANSPORTATION STRATEGY

PJ 20 The extension of River St is required to access the Central West Spine Road PJ 22 and PJ23. It is likely to serve a future school.

Figure 5.4.1 2040 10 - 20 Year Infrastructure



PJ 21 Upgrading of the Mitchell Hwy has been allocated to New Residential Development (Item cost \$3m). This could perhaps be allocated to non-residential development with the cost saving going towards PJ 19 (\$4.8m). As can be seen from this discussion there will be alternative to discuss in 5 years.

PJ 22 The Central West Spine Road is a Strategic Road. This section through the CW from the Mitchell Hwy to Rosedale Rd has been “located” so that it is paralleled with the Greenway PJ 26. Master Planning could indicate other more environmentally sensitive options. Also the alignment may not actually be contained within the development assumed to be occurring in this area. Hence PJ 24 is possibly longer than will be required at the time.

PJ 23 A separate project extending the Central West Spine Road to River St. This could be the subject of a detailed land use plan including the intersection at the Mitchell Hwy and the potential “Lookout” at the Drive-In cinema.

PJ 24 Is Stage 1 of the Central West Link Rd and illustrates how the Residential Grid themselves form a connective network in the same way as the existing Residential Grid in Dubbo.

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PJ 25 The Keswick Collectors have been 'on the plan' for about 20 years and are strategically orientated to disperse traffic from Keswick without putting pressure on any one of the access roads.

PJ 26 Is the afore mentioned Green Ring almost completed (PJ 32)

PJ 27 Is the last Greenway connection for the Delroy Loop.

The upgrading of Existing Streets are again not specifically identified, it could be anticipated that circulation is again subject to change as the benefits of Bligh St are recognised throughout the town. And the growing employment in the Heath and Education Precinct plus some levels of stress could trigger a circulation plan for this area.

Figure 5.4.2 Stressed Traffic Conditions 2040 AM Peak



The measures taken to move traffic north south across the new western areas has taken pressure off the three river crossings.

Meanwhile the slow growth in demand from the SE and E maintains the levels of stress in Cobra St and Fitzroy St but does not overload these links indicating that previous infrastructure has set up a long term solution. Stress around the Base Hospital continues.

		100,000's	
	Road Infrastructure in new areas	\$23,681	
	Dubbo Greenway Infrastructure	\$1,674	
2500 Dwellings	Cost Per Dwelling		\$10,142
	Existing Network Upgrades	\$4,000	

The estimated cost for all works attributed to dwellings in new areas for this decade is \$25,355,000, or \$10,142 per dwelling.

Costs for upgrading existing streets, possibly in the City and Heath and Education Precinct are not known but nominated as \$4m. Interestingly the existing intersections throughout town are not reporting an additional delays; this may not be the case for individual developments.

2020 DUBBO TRANSPORTATION STRATEGY

5.5. 2040 – 2055 35 Year Investment Horizon

The pattern for new development between 2040 and 2055 (20 to 35 years) is entirely to the West and it is assumed that development will keep as close as possible to the City Centre. Hence; the NW is built out with 1550 new dwellings; the first major expansion occurs in the CW (900 Dwls); and a slow continuation in the SW (600 Dwls).

New links are orientated to continue the dispersal of traffic after 2055 years and start to concentrate demand on new employment/activity hubs possibly a linear extension of River St. This of course will be reviewed in, say, 2025 when 2055 on will be the new 20-year plan.

The program includes:

PJ 19 The Chapmans rail crossing, reallocated from the 2030 2040 projects.

PJ 37 The second western rail crossing between the SW and CW Sectors.

PJ 28 and PJ 35 Further extensions of Grangewood Rd and Blackbutt Rd

PJ 29 Continuation of the Central West Link Rd.

PJ 30 and PJ 31 in the NW Sector

PJ 36 and PJ 38 creating a continuous connection between Blackbutt St and the Central West Link Road.

20 - 25 YEARS 2040 - 2045							200,000s
Ref	Project	Purpose	Speed	Design Style	Comment		Est Cost
19	Chapmans Rail Crossing Stage 1	Future Strategic Option	5.1	60k	Residential Integrator St 2	One rail bridge	\$4,784
28	SW Extn of Grangewood Rd	Residential Grid	1	50k	Only Local Traffic		\$1,950
29	Central West Link Rd Stage 2	Future Strategic Option	5.1	60k	Residential Integrator St 1	Option for 3 carriageways as Type 4	\$2,248
30	Northern City Access	Residential Grid	1	50k	Only Local Traffic		\$3,900
31	Riverside Boulevard Stage 3	Future Strategic Option	2	60k	Urban Edge		\$5,305
UPS	Internal Street Upgrades					Item Cost Not Identified	\$2,000
32	Greenway NW					Green Ring Complete	\$238
33	Greenway NW Loop						\$550
34	Greenway NW-Rail Loop						\$544
25 - 35 YEARS 2045 - 2055							
35	SW Extn of Blackbutt	Residential Grid	1	50k	Only Local Traffic	Draw away from Minora	\$975
36	Southern Link Rd Stage 1	Future Strategic Option	5.1	60k	Residential Integrator St 1	Option for 3 carriageways as Type 4	\$1,844
37	Southern Link Rd Stage 2	Future Strategic Option	5.1	60k	Residential Integrator St 1	Increases significance after 2050	\$2,590
38	Northern Link Rd Stage 1	Future Strategic Option	5.1	60k	Residential Integrator St 1	Increases significance after 2050	\$4,188
UPS	Internal Street Upgrades					Item Cost Not Identified	\$4,000
39	Buddens Creek					Buddens Creek Loop Complete	\$689



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Figure 5.5.2 Stressed Traffic Conditions 2055 AM Peak

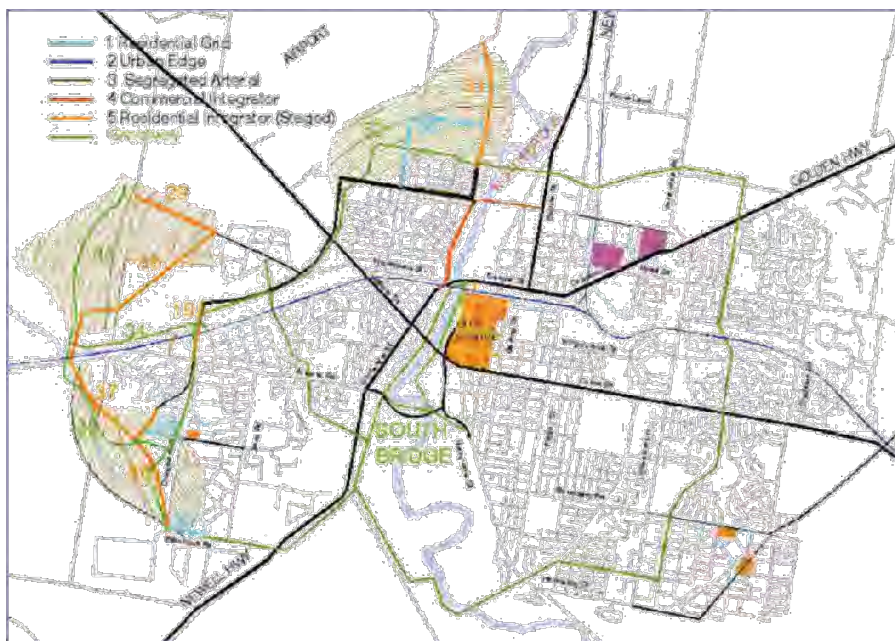


The modelling reports Stress in the usual places on Cobra St, and a critical situation in Caroline St (Heath and Education Precinct).

Stress also returns to LH Ford and occurs for the first time on North Bridge.

These two signs indicate a 5<sup>th</sup> Crossing will be required on or around 2055; 30 years after South Bridge and Bryan Bay have been built.

Figure 5.5.1 2055 - 35 Year Infrastructure



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TABLE 5.5.2 20 - 35 YEAR TRANSPORT INFRASTRUCTURE COST 2040 - 2055			
		100,000's	
	Road Infrastructure in new areas	\$28,058	
	Dubbo Greenway Infrastructure	\$2,001	
3050 Dwellings	Cost Per Dwelling		\$9,855
	Existing Network Upgrades	Not Known	

The estimated cost per new dwelling in the 20 to 35 year period (Table 5.5.2), indicates a level of investment per dwelling, \$9,855, almost exactly the same as the 2020 – 2030 estimate.

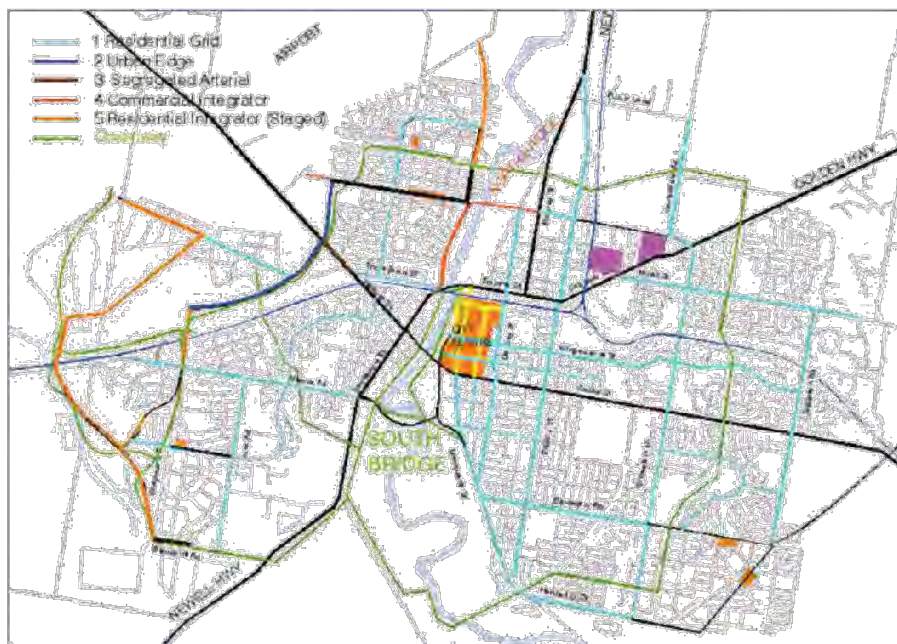
These figures include Greenway costs.

We can confidently conclude that the modelling has confirmed the rate of new infrastructure required by time period over the next 35 years, subject to changes in the scale of development or possibly the location of development. For example; additional development in the SE might force consideration of a new, highly costly Southern Bypass that has not been considered for this or the previous Strategic Transport Plan.

This development scenario concludes with a Road Hierarchy (Fig 5.5.2) that look similar to the existing road hierarchy, consisting of extensive new Residential Grid Road and an expanding Strategic Network.

This scenario is extended to long-term development (5.7).

Figure 5.5.3 The 2055 Road Hierarchy



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The second reality check is to summarise the Infrastructure Costs per time period (Table 5.5.3). They are balanced.

	Total Cost of Infrastructure	RMS Funded	Existing Rd Upgrades	Council Funding	Construction in new Areas		Houses built	Cost per New Dwelling
					Greenways	Roads		
2020 - 2030	\$124,807,280	\$68,690,880	\$6,340,000	\$24,956,000	\$4,509,000	\$20,311,400	2500	\$9,928
2030 - 2040	\$29,355,000	0	\$4,000,000	0	\$1,674,400	\$23,680,600	2500	\$10,142
2040 - 2055	\$36,056,600	0	\$6,000,000	0	\$2,000,500	\$28,056,100	3050	\$9,855
CW and SW	\$102,301,500	Potential	\$16,395,500	\$0	\$5,754,000	\$80,152,000	8050	\$10,672

(The CW and SW Figures are derived later in 5.6)

**5.6. Goals Achieved**

The report started by setting out the aims of the transport network.

In response these proposals:

Allow for the population to increase by 17000 new residents whilst:

- Maintaining the 10 minute City.
- Resolving current issues on the LH Ford.
- Continuing to provide the high level of amenity for access throughout Dubbo.
- Providing the flexibility for movement without concentrating traffic.
- Providing new residents with the same level of amenity as the existing areas.
- Avoiding increasing the capacity of Cobra St to maintain it as a mixed commercial residential street.
- Keeping the cost of new infrastructure to within \$10,000 per new dwelling.

**5.7. Towards 100,000**

The final question is how the 2055 proposals will fit into the continuing extension of the residential areas. Figure 2.4 shows how development in the next 35 years will fill the SE and NW Sectors to capacity and there will be capacity for a further 8000 dwellings at the current density of development in the SW and CW . Estimates get a bit open ended in this time frame certainly not suitable for conclusive modelling. The more important planning question is; will the form of infrastructure accommodate additional population after 2055?

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This following exercise looks at urban form and, as a reality check, costs the infrastructure and the indicative the cost per new dwelling in the same manner as the analysis to 2055.

Continuity defines how roads are used. In a perfect grid everyone tries to go by the shortest route but tend also to avoid make turns – particularly right turns. A grid network tends to concentrate demand at the centre of the network. The concept for Dubbo is to create two series of roads that offer direct no-turn paths over long distances. One is the traditional grid system serving the Town Centre and a second series of roads are orientated to draw demand away from the Town centre. Figure 5.7.1 illustrates these.

The traditional grid for the City Centre includes

- 1 The southern edge of the Mitchell Hwy.
- 2 The northern edge from Thompson St to Cobbora Road.
- 3 The eastern edge of Fitzroy St to the Mitchell Hwy.
- 4 The western edge of Whylandra St.

Using any of these streets leads to the opportunity to make one turn into the circulation road in the City Centre.

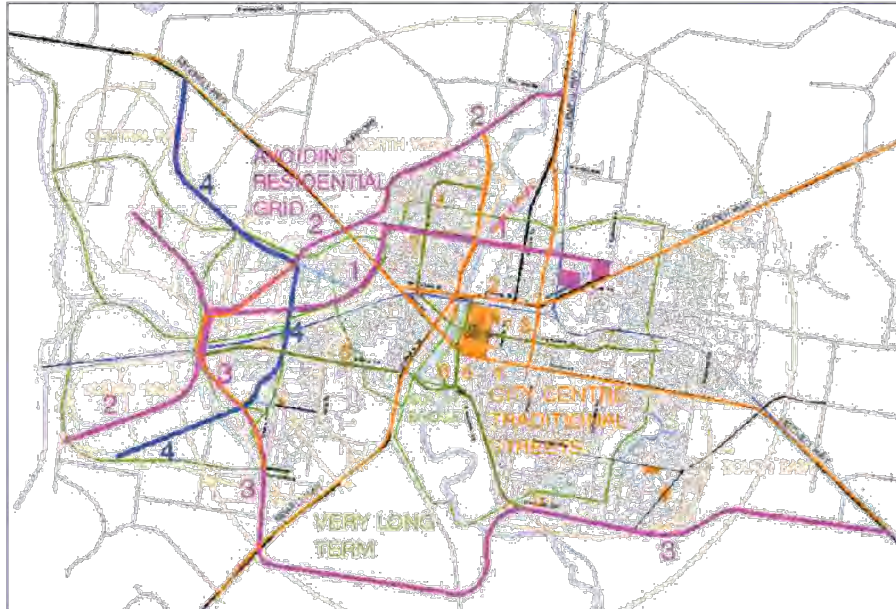
Three additional roads have been added to increase the capacity of access to the City Centre

- 1 Bligh Street with direct no-turn access from the SE.
- 2 South Bridge with direct no-turn access from Minore Rd and the SW.
- 3 And or around 2055 a bridge at Wingewarra Rd providing a secondary direct link from Wingewarra Rd east possibly through West Dubbo and via Bumblegum Rd to the NW.

Conclusion – The City Access network provides a substantial increased capacity, well beyond that needed for the growth of the City. This relieves some capacity on the existing roads for other additional trips.

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Figure 5.7.1 Long term Strategy



The second series of long roads all originate in the western development areas. Four long streets, preferably designed with different identities, aim to draw traffic away from the Residential Grid.

These new continuous roads are:

- 1 The River St axis with a change of orientation to the SW and without a turn.
- 2 The Northern Link Road, orientated to the north and continues north possibly onto the Northern Bypass.
- 3 The Southern Link Road orientates to the south at the Newell Hwy and possibly onto the Southern Bypass.

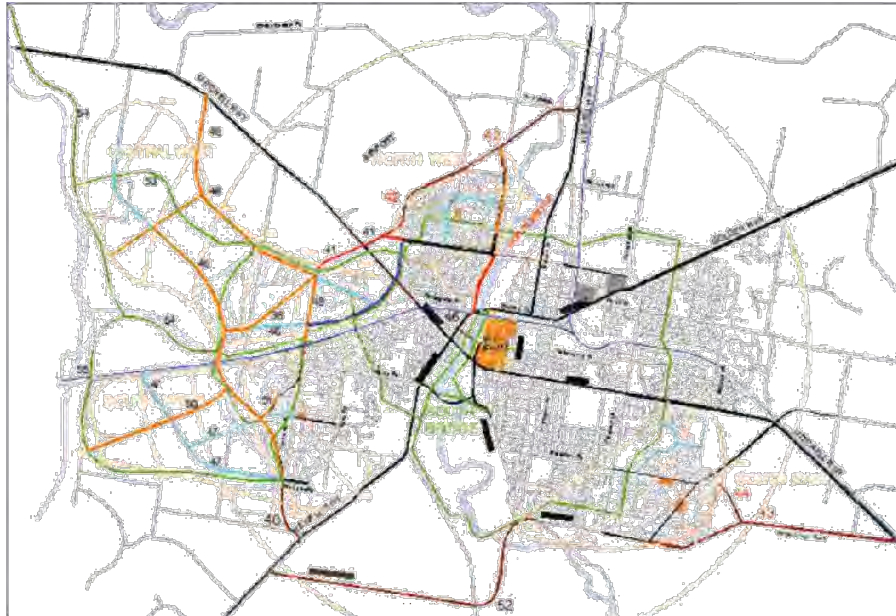
These three roads have been focused on the western rail crossing between the CW and SW Sectors. This could vary but it indicates how a powerful position could be created for a future Activity Centre.

- 4 The Chapmans Loop a continuous street between the CW and the SW providing legibility and accessing 1, 2 and 3 along the way.

This is only an exercise but in the final part of this analysis this concept was costed using the same road styles as earlier work (Fig 5.7.2)

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Figure 5.7.2 Indicative Long Term Projects



The 2055 demand indicate that the “Bypasses”, PJ 42, PJ 43 and PJ 52 may only have a marginal benefit and are not viable. Whereas some of the 3<sup>rd</sup> carriageway of already constructed Integrators in the SW and CW [PJ 56], might be required.

Towards 77000 suburban (100,000 with densification)						100,000s
Ref	Project	Purpose	Design Style		Comment	Est. Cost
37-38	Expansion of Link Roads	Future Strategic Option	5.2	60k Residential Integrator St 2	Option for central carriageway	\$7,176
40	Southern Link Rd Stage 3	Strategic Network	3	80k Segregated Arterial	Connecting to Southern Bypass	\$4,324
41	Northern Link Rd Stage 2	Future Strategic Option	5.2	60k Residential Integrator St 2	2nd Connection to River St	\$2,392
42	Northern Link Rd Stage 3	Strategic Network	HOLD	100k Segregated Arterial	Option for Newell Hwy	\$30,217
43	Southern Link Rd Stage 4	Strategic Network	HOLD	100k Segregated Arterial	Option for Mitchell Hwy	\$9,750
44	Boundary St Extension	Residential Grid	HOLD	50k Segregated Arterial	Alternative to Blue Ridge	\$1,658
45	Wingewarrs Crossing	Strategic Network		40k Slow Street in City	Could reduce traffic on Cobra St	\$16,358
46	Central West Spine Rd Stage 2	Future Strategic Option	5.2	60k Residential Integrator St 2	Option for central carriageway	\$11,063
47	SW Residential Grid	Residential Grid	1	50k Only Local Traffic		\$7,020
48	Central West Link Rd Stage 3	Future Strategic Option	5.2	60k Residential Integrator St 2	Option for central carriageway	\$10,764
49	Chapmans Rd North	Residential Grid	1	50k Only Local Traffic	2nd rail Bridge	\$4,020
50	Northern Link Rd Stage 4	Residential Grid	1	50k Only Local Traffic		\$8,580
51	Chapmans Rd South	Future Strategic Option	5.1	60k Residential Integrator St 2	Option for central carriageway	\$748
52	Southern Bypass	Strategic Network	HOLD	100k Segregated Arterial	Alternative to Mitchell Hwy	\$51,605
56	SW and CW Integrators	Strategic Network	5.3	80k Add 3rd carriageway	Selection in SW and CW Sectors	\$34,066
53	Greenway CW Spine				Cross Rivers Connection Complete	\$1,910
54	Greenway Whylandra Ck St 1				CW Sector Loop Complete	\$2,244
55	Greenway Whylandra Ck St 2				SW Sector Loop Complete	\$1,500

**2020 DUBBO TRANSPORTATION STRATEGY**

Whilst the analysis is of no consequence for the conclusions reached for 2055 it is reassuring to note that the cost per new dwelling remains around \$10,000 indicating a viable extension of the investment until 2055 (Figure 5.7.2). And a project such as the Wingewarra Crossing would cost a further \$2000 per dwelling. Of course this will be attributed to upgrading the existing areas and not new development (Figure 5.7.3)

Conclusion - South Bridge provides stable network that can grow without further intervention until 2055.

		100,000's	
	Road Infrastructure in new areas	\$80,152	
	Dubbo Greenway Infrastructure	\$5,754	
8050 Dwellings	Cost Per Dwelling		\$10,672
	Strategic Network (See HOLD)	\$43,535	\$5,408

		100,000's	
	8050 Dwelling Completed		
A	Include Wingewarra Crossing 2040 - Ultimate (More likely to be internal)		
	Wingewarra	\$16,396	
	Additional Cost per Dwelling		\$2,037
	Current Plan		\$10,672
	Total		\$12,708
	Additional		19%

**5.8. Next Steps.**

The short term conclusion from the long term form for Dubbo is that the decision to build North Bridge has strengthened three Enterprise Zones. The Heath and Education Precinct, the Airport Precinct and the Riverside Precinct. These need to be enhanced by legible, purpose built, uniquely identifiable, road connections.

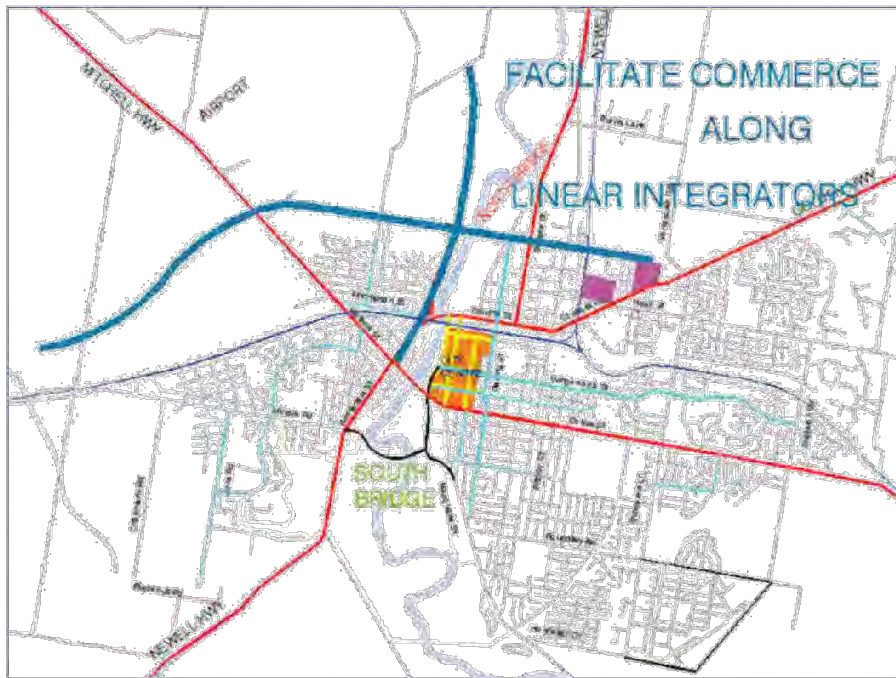
The River St Commercial Axis will inevitably extend across the Mitchell Hwy,

The next step is to identify how this axis will work in the short term whilst North Bridge is being constructed; in the medium term as the NW Sector develops and the Axis becomes a Commercial Integrator; and in the long term as it extends it will become a recognisable commercial focus.

Conclusion – This alignment needs to be protected now. As does the Riverside Boulevard?

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Figure 5.8 Key links to protect

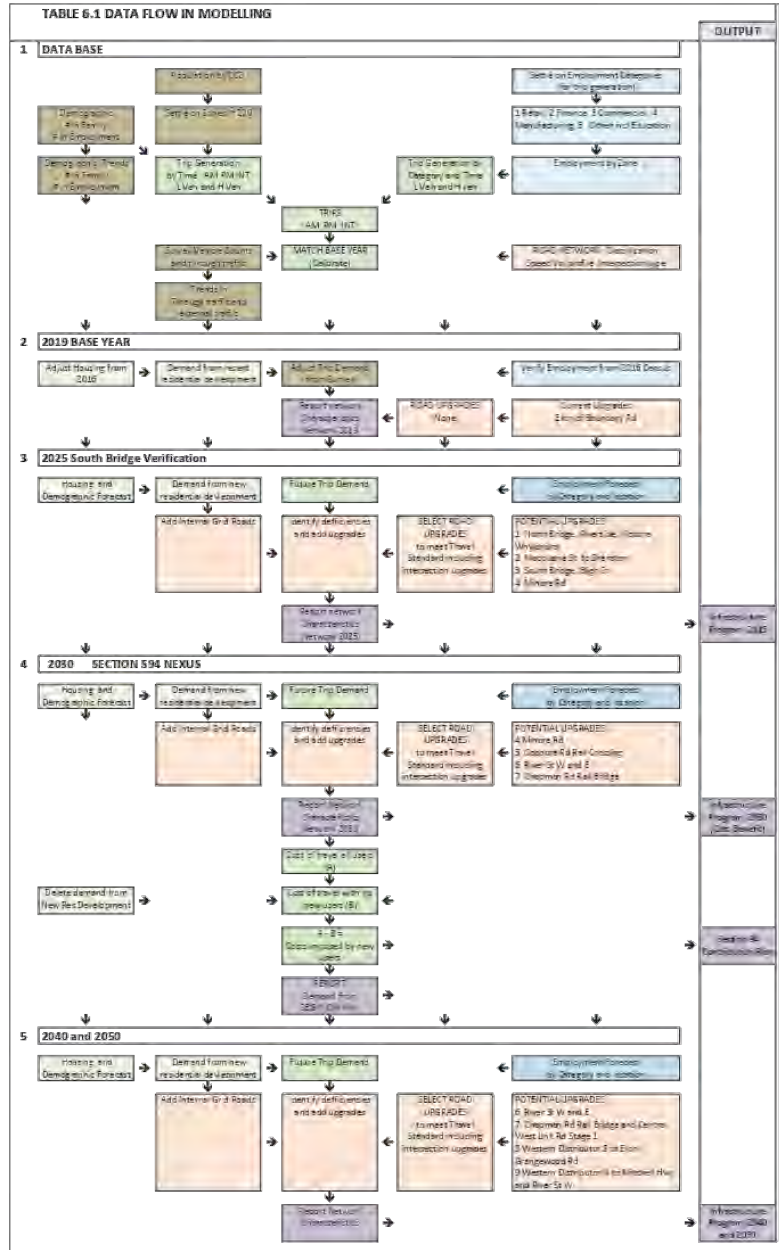




2020 DUBBO TRANSPORTATION STRATEGY

6. DATA ANALYSIS

6.1. Modelling Process



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6.2. Transport Task

In the following tables Reference Letters have been attached to each Networks; for example, D/C means results from D divided by results from C. The recommended Network for each time period is in red text.

Selected results are listed in Tables 6.2, 6.3, 6.4 and 6.5. how the transport task will change is described below and summarised in Table 6.2.

		TABLE 6.2 TRANSPORT TASK							
NETWORK	Ref	VEHICLE TRIPS			TOTAL DISTANCE ALL TRIPS			TOTAL TIME	
		DAILY Trips	TRIPS per PERSON	AM Peak Trips	DAILY Veh Kms	AM PEAK Veh Kms	DISTANCE per TRIP km	ALL TRIPS DAILY Veh Mins	AM PEAK Veh Mins
2018 Base	A	177,999	4.79	18,657	810,330	89,337	4.91	1,086,495	119,444
2025 Do Minimum	B	194,014 109%	4.77 99.6%	20,961 112%	950,960 117%	106,646 119%	4.90 100%	1,292,071 119%	146,467 123%
2025 Base - No Bridges	C	194,014		20,961	949,688 117%	106,383 119%	4.89 100%	1,289,163 119%	145,817 122%
2025 North Bridge only	D	194,014		20,961	946,272 117%	106,137 119%	4.88 99%	1,286,166 118%	144,904 121%
2025 Both Bridges	E	194,014		20,961	945,713 117%	106,023 119%	4.87 99%	1,268,503 117%	142,513 119%
2030 Base - No Bridges	F	205,758 116%	4.74 99.0%	22,452 120%	1,015,400 125%	114,477 128%	4.93 101%	1,382,881 127%	157,134 132%
2030 North Bridge only	G	205,758		22,452	1,012,111 125%	113,900 127%	4.92	1,377,087 127%	155,908 131%
2030 Both Bridges	H	205,758		22,452	1,014,462 125%	115,699 129%	4.93 100%	1,392,291 125%	155,974 131%
2040 Both Bridges	I	221,363 125%	4.55 94.9%	24,569 132%	1,128,163 139%	128,595 144%	5.10 104%	1,521,805 140%	174,824 146%
2055 Both Bridges	J	244,075 137%	4.43 92.6%	27,246 146%	1,260,177 156%	145,172 162%	5.16 105%	1,716,290 158%	200,731 168%

6.2.1. Daily and Peak Hour Trips

Currently on average each person in Dubbo makes 4.79 trips per day; a total of 165,000 trips by residents per day in Dubbo. A further 12,900 trips are made in and through Dubbo by external traffic (Table 6.7) (Note the figures used in the Text are rounded for ease of reading, the actual results from the model are contained in the tables.) Of these 18,600 trips are made in the peak hour.

## **2020 DUBBO TRANSPORTATION STRATEGY**

The number of trips made per person is reducing due to demographics and therefore the number of trips to be handled by the transport network does not rise in direct proportion to population. Daily trips are expected to rise by 37% to 244,000 trips per day in 2055. The varying proportions in the type of employment are altering the proportion of trip made in the morning peak hour. Demand in the peak period is expected to rise by 46% to 27,200 trips per hour.

### **6.2.2. Distance travelled on Network,**

The gradual increasing size of Dubbo is increasing the distance travel per trip; it is currently 4.91 km per trip and is expected to rise to 5.16 km per trip by 2055. Hence the total vehicle kilometres will rise by 56% in the period to 2055 and by 62% in the peak period.

This is the basic input to the model.

### **6.2.3. Time Spent on Network,**

Output from the model finds that the number of minutes travelled per day will increase from 1.1million minutes to 1.7m minutes, a 58% increase in time. The rise is consistent through the years. Morning Peak hour travel will increase by 68%. This is due to more trips to accommodate and not as a result of congestion.

## **6.3. Network Performance**

A selection of Performance Indicators are described below and listed in Table 6.3.

### **6.3.1. Minutes per Trip**

Dubbo is described as the 10-minute City and the current average trip time is 6.58 minutes. Thinking of a distribution of trips the majority of journeys are indeed less than 10 minutes.

This is an ideal performance indicator for the future networks.

The output from the Model shows the average time hardly varying through to 2030 as demand increases by 25%. The average time increases (by a mere) 18 seconds (4%) by 2040; mostly as a result of the greater area of development. The same applies to 2055 when most development is occurring 5 to 6 km west of the City Centre and the average time increases 7% to 7.03 minutes.

Conclusions – the Land Use and Transport Strategy is successful.

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NETWORK		TABLE 6.3 NETWORK PERFORMANCE						
		Ref	MINUTES per TRIP		COBRA St		AVERAGE SPEED	
Min	Sec		Time Min	Difference from 2018 Sec	Time Min	Difference from 2018 Sec	AM Peak kmph	Day Period kmph
2018 Base	A	6.58		6.93		44.9	44.7	44.7
2025 Do Minimum	B	6.66 101%	4.7	7.08 102%	9	43.7 97%	44.3 99%	44.1 99%
2025 Base - No Bridges	C	6.64	3.8	7.00 101%	4.2	43.8	44.3	44.1
2025 North Bridge only	D	6.63	2.9	7.01 101%	4.8	43.9	44.3	43.8
2025 Both Bridges	E	6.54 99%	-3.6	6.98 101%	3	44.6	44.8 100%	44.7 100%
2030 Base - No Bridges	F	6.72	8.4	7.06 102%	7.8	43.7	44.2	44.0
2030 North Bridge only	G	6.69	6.7	7.03 101%	6	43.8	44.2	44.0
2030 Both Bridges	H	6.62 101%	-1.4	7.03 101%	6	44.5 99%	44.7 100%	44.7 100%
2040 Both Bridges	I	6.87 104%	17.6	7.05 102%	7.2	44.1 98%	44.6 100%	44.3 99%
2055 Both Bridges	J	7.03 107%	17.0	7.13 102%	11	43.4 97%	44.3 99%	43.9 98%

6.3.2. Time on Cobra St

Of more local concern to some would be the “Green Bars” seen consistently along Cobra St. A specific measurement was taken from a point near Wheelers Ln along Cobra St to a point near Macquarie St. (This includes some time getting to and from Cobra St). The current time during the morning peak is 6.93 minutes. Without further action but with the increased population the time would increase by 2% by 2030 but with both bridges in operation the time increases by 1% or 6 seconds. This shows the sensitivity of the model to very small changes in traffic conditions, as reported in the “Stressed Sections” diagrams.

And even when many parts of the road network will be operating with some difficulty in 2055 the increase in time along Cobra St is only expected to be 3% or 12 seconds, well below the average increase time throughout Dubbo (17 seconds).

Conclusion – The Strategy to draw a little traffic away from Cobra St is successful.

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6.3.3. Average Operating Speed

On a broader scale the average speed of trips indicates the overall condition of travel in Dubbo. Currently it is 44.9 km/h in the morning peak and 44.7 km/h in the afternoon peak and during the day. This is a very comfortable average speed that would be envied by most small towns left alone large Metropolitan Areas. The little to no difference between peak and off-peak average speed is also a selling point to the amenity of Dubbo.

And these average speeds are not expected to vary by more than 1% to 3 %, an almost immeasurable difference that could be attributed to minor causes.

Conclusion – The amenity to move about Dubbo easily is not being compromised by development.

6.4. Costs and Savings

		TABLE 6.4 INVESTMENT PERFORMANCE				
NETWORK	Ref	COST			SAVING	
		Annual Cost			From	Annual
		Vehicle \$	Time \$	Total \$		
2018 Base	A	\$73,150,000	\$128,160,000	\$201,310,000		
2025 Do Minimum	B	\$85,840,000	\$152,410,000	\$238,250,000	Base 2025	
				118%	No Bridges	
2025 Base - No Bridges	C	\$85,730,000	\$152,070,000	\$237,800,000	B - C	\$450,000
				118%	North Bridge Only	
2025 North Bridge only	D	\$85,420,000	\$151,720,000	\$237,140,000	D - C	\$660,000
				118%	Addition for South Bridge	
2025 Both Bridges	E	\$85,370,000	\$149,630,000	\$235,000,000	E - D	\$2,140,000
				117%		
2030 Base - No Bridges	F	\$91,660,000	\$163,120,000	\$254,780,000	Base 2030	
				127%	North Bridge Only	
2030 North Bridge only	G	\$91,360,000	\$162,440,000	\$253,800,000	F - G	\$980,000
				126%	Addition for South Bridge	
2030 Both Bridges	H	\$91,580,000	\$160,700,000	\$252,280,000	H - G	\$1,520,000
				125%		
2040 Both Bridges	I	\$101,840,000	\$179,510,000	\$281,350,000		
				140%		
2055 Both Bridges	J	\$113,760,000	\$202,450,000	\$316,210,000		
				157%		

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### 6.4.1. Vehicle Costs and Time Costs

The cost estimates use 2016 ABS data of 30.09 cents/km for vehicle operating costs and 39.22 cents per minute for the value of time when travelling. These are average figures that should be equally applicable in Dubbo.

Due to the stability of the length of travel time and the distance travelled the cost of travel in Dubbo will increase at near to the same rate as the number of trips increases. (This is somewhat different to a typical cost/benefit discussion for Metropolitan infrastructure where travel time-saving are usually dominant).

The travel cost savings are calculated from the small time savings between schemes (networks). Hence for 2025 the costs of [C] The No Bridges network that does have all other Grid Road against [B] the minimum where traffic is simply loaded onto the existing network show a saving of \$450,000/annum.

Conclusion – The Residential Grid Roads have an economic benefit and are not uni-functional local distributor roads.

### 6.4.2. Return on Investment

The addition of South Bridge to the 2030 Network [H] shows a saving of \$1,520,000 per annum over [G] Network with only North Bridge Built. The estimated cost for South Bridge is \$25m. The simple division of \$25m by 1.52m indicates a ratio of 16. A full economic calculation is far more complex taking into account changes in traffic etc, this is a comparative indicator.

Conclusion – The first year's savings from South Bridge are 1/16<sup>th</sup> of the cost of the construction.

Comparing this with the construction of North Bridge (\$48m for similar works and not including the intersection at Thompson St) and the time saving of \$980,000. The first year's savings are 1/70<sup>th</sup> of construction cost.

There are many further details, for both schemes, South Bridge looks to be an extremely beneficial project for Council. And the benefits of North Bridge are enhanced by accommodating City traffic and indirectly giving priority to new – Enterprise – employment and residential development.

Conclusion – North Bridge will become a viable project by carrying Dubbo City Traffic.

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**6.5. Traffic Flows**

The model reports the hourly and daily flows between each intersection for every street in the Networks (Fig 3.1 indicates the density of streets included in the Model). Those streets that help explain the analysis are listed in Table 6.5 and are more simply described in the text below. Existing residential streets that are not listed when that generally following a pattern of little or no change or changes in flows of streets in new areas that are simply proportional to new development.

Table 6.5 contains highlights

Green	Identified in the Stress Diagrams (described earlier)
Light Orange	Warning conditions could be coming critical and action is needed
Darker Orange	Double warning
Olive green	Flow decreased
Blue	Large increase in time period.
Red Text	Recommended scheme.

Five groups of results have been selected for their relationship to each other.

**6.5.1. Traffic Crossing Macquarie River**

The demand for crossing the Macquarie River sets the timing for new crossings. But the location of a new crossing needs to attract demand from the crossings that are congested.

Currently 36,800 vehicles per day [VpD] cross the Macquarie River; 19,500 53% using the LH Ford Bridge; and 17,300 using the Emile Serisior Bridge.

The completion of North Bridge by 2025 will only attract 10% of crossing traffic, mostly from Emile Serisior Bridge (down to 38%) with only a 1% difference at LH Ford.

South Bridge on the other hand would attract 18% of crossing traffic in 2025 and 2030 reducing demand on LH Ford to 40%. Daily traffic in the LH Ford would reduce to 17,700 VpD and stress free in 2030 (Net H).

By 2040 the road configuration in the west, combined with additional employment along the Enterprise Axis, has drawn 15% of demand to North Bridge and 24% to South Bridge. The total demand has lifted from 36,800 VpD existing to 57,800 VpD that is conveniently spread over the 4 crossings. LH Ford is operating at the same demand as currently and therefore starting to experience stress (even though this is not showing up in the statistics) (Fig 5.4.2).

## **2020 DUBBO TRANSPORTATION STRATEGY**

The further concentration of development in the CW and NW through to 2055 will increase the proportion of crossing on North Bridge to 18% and a reduction in the proportion elsewhere (LH Ford from 34% to 31%, Emile Serisior Bridge 28% to 27% and South Bridge 24% to 23%. Both the LH Ford (21,000 VpD) and North Bridge (12,500 VpD) are under stress (Fig 5.5.2). But with LH Ford having slightly less demand than 2025 without South Bridge.

Conclusion – The Strategy maximises the use of new infrastructure.

It is also evident from these figures that a new crossing in the central part of the City, a continuation of Wingewarra Rd, would reduce traffic on the LH Ford and Cobra St around 2055. And, combined with a link through West Dubbo to the NW Sector (Figure 5.7.1) could possibly take just enough pressure off River St at Cobbora Rd to ease demand on North Bridge.

Other features of the stats are that if nothing were to be done by 2030 then the LH Ford Bridge would be operating at High Stress requiring immediate attention. Whereas with North Bridge and South Bridge the LH Ford will be carrying 9% less traffic than today.

### **6.5.2. South End**

The South End Group addresses the sensitivity of traffic intrusion into South Dubbo.

The intention of the new connectivity is to draw a small part of the demand generated in the SE Sector from Boundary Rd into Hennessey Rd and thence the southern part of Macquarie St, the historic entry into Dubbo.

Boundary St is currently carrying more than twice the demand on Hennessey Rd (Counted in Survey).

Between 2018 and 2030 traffic is expected to double on Hennessey Rd (107%) – close to the current flow in Boundary St and traffic in Boundary St is expected to grow by 42%.

Conclusion - The orientation of streets in the SE to Hennessey Rd shows that the upgrade of Bligh St to Macquarie St south will be successful.

Traffic on Bligh St, without the traffic from South Bridge is expected to grow by over 100 %. (Net G) The addition of South Bridge will add a further 100% of current traffic, all located away from residential areas.

Referring to the recommended network for 2030 (Net H) traffic is expected to increase in the next 12 years by 108% on Hennessey Rd and 45% on Boundary St both remaining well within their environment and carrying capacity. The demand will increase gradually after 2030 on these two streets.



## 2020 DUBBO TRANSPORTATION STRATEGY

Demand on Bligh St will continue to absorb the increase in traffic between the SW and the City Centre, 29% between 2030 and 2040 and 12% thereafter.

The figures in Network E and Network D illustrate the proportion of movements between South Bridge, Macquarie St south, Bligh St and South Dubbo – that will continue to have access south of Tamworth St.

Looking in more depth to explain how traffic flows interact in this Scenario (Net D and Net E).

Without South Bridge 780 vph are using Boundary St to enter South Dubbo and 495 are using Hennessey. Of these 450 are using Bligh St some from both origins some from South Dubbo itself.

With the addition of South Bridge the volumes on Boundary St hardly change (810 vph from 780 vph) and do not change in Hennessey Rd hardly (495 vph). The demand on Bligh St increases by 380 to 830 vph. One additional piece of information, the traffic on the link between South Bridge and Macquarie St south, 715 vph. This comprises traffic accessing South Bridge or Bligh St by residents in South Dubbo, and traffic from Hennessey Rd and Boundary St.

With a maximum of 495 vph from Hennessey and a change of only 25 vph in Boundary the conclusion is that  $715 - 495 - 25 = 185$  trips accessing South Bridge originate in South Dubbo. Some, maybe half, may originate north of Cobra St and north of Fitzroy St. This is balanced by the outgoing flows indicating some locals would find Cobra St easier for some destinations not used today.

In summary; currently South Dubbo accommodates (Net A) some 800 though trips per hour; with the development of the SE this will increase to 1300 vph **without** the construction of South Bridge and increase by as little as a further 100 with South Bridge built and connected as proposed.

Conclusion – South Dubbo will gain more convenient access via South Bridge than it will experience from additional through traffic.

### 6.5.3. West End

The West End group in Table 6.5 indicates how the roads in West Dubbo will perform.

The intent of the Strategy was to draw traffic generated in the three western sectors away from this area thereby allow commercial development to occur. There are two elements to this area, the Mitchell Hwy and south along the Newell Hwy.

The manner in which traffic has been drawn away from key congestion is demonstrably noted on the Mitchell Hwy where the increase at West Dubbo is consistently less than the increase in total demand.

## **2020 DUBBO TRANSPORTATION STRATEGY**

This dispersal of traffic is also achieved on the Mitchell Hwy at Thompson St where the need to widened the section from Thompson St to Westview St is averted until 2040. This is in spite of a spike in growth West of Westview St (31% by 2030 and a further 18% by 2040) due to the development of the Airport Enterprise Zone. Traffic is dispersed to River St and North Bridge.

Demand for the Riverside Boulevard north of Thompson St starts at some 4,700 VpD in 2025, mostly generated by development in the NW and grows in proportion to this Sector, 16% in the decade 2030 to 2040 and 30% following, still well within the capacity of this road.

Conclusion - If it were not for its use by Highway traffic the design of the Riverside Boulevard could be moderated to one more suited to the riverside.

Predictions of traffic on the Newell Hwy will vary greatly depending on the construction of Strategic Infrastructure. Without South Bridge demand south Victoria Rd will increase 28% in the next few years, responding to development in the SW. With the addition of South Bridge demand in 2030 will drop by 16% from 14,800 VpD to 12,400 VpD, without South Bridge 19,000 VpD. This will grow back in 2040 to 15,400 and possibly 17,200 in 2055 all very doable for 4 lanes albeit possibly carrying highway traffic through an Active Commercial area.

Further south beyond Minore Rd the Newell Hwy is the only route serving development from the southern parts of the SW to access South Bridge or any other parts of Dubbo hence demand will grow in line with development.

The key contributor in accommodating the growth of the SW is Minore Rd. This is the only access suitable for east west movement south of Victoria Road and the rail line. Traffic is expected to increase by 55% in the next 12 years (2030).

The 2030 demand of 9,100 VpD can hardly be handled by two lanes.

Minore Rd will provide direct access to South Bridge and hence will experience an increase of 71% in the decade 2030 to 2040 the highest increase on any road and a further 23% before 2055. By this time the demand is expected to be 19,100 VpD (Currently 5,900 VpD) a similar demand currently in Cobbora St. It can carry this demand in 4 lanes but amenity will be seriously affected.

Conclusion – Minore Rd is the only route to serve the expansion and the increase in demand requires it to be 4 lanes. This move has been avoided for all other existing streets in Dubbo.

Conclusion – The design of the upgrade must address pedestrian movement particularly to school.

Minore Rd will also serve development west of Chapmans Rd and this can be handled with a lower key Residential Grid Road, with other links taking the bulk of the load.

## 2020 DUBBO TRANSPORTATION STRATEGY

### 6.5.4. North End

There is less certainty and more opportunity in the North End where the Health and Education Precinct will provide a focus for additional employment attracting trips from all directions.

The impact of North Bridge and extension of River St is indicated by the 60% increase in 2025 (Net D) and also reflected by the decreases in Cobbora Rd, Bourke St and Fitzroy St north of Erskine; a transfer of 2700 VpD. Bourke St and Fitzroy St are two streets that are predicted to carry less traffic in 2055 than in 2018. At the same time demand on River St continues to increase until the Link to Cobbora Rd (Caroline St) exceeds capacity in 2055 (not shown in Table 6.5) and River St is also stressed (9,800 VpD 2055). (Triggers for capacity vary with the style of street; 9,000 VpD is on the edge for an active retail street.)

This also explains why the intersection of Fitzroy St and Erskine St does not have as ongoing issue, and why the volume in Fitzroy St south of Erskine St can increase slightly without further issues.

Conclusion - Further management options should be available in and around North End and will become essential in the long term. Perhaps a short-term solution could solve long term issues.

### 6.5.5. East End

Finally East End describes how the existing grid changes.

Wingewarra St is a "second level" Residential Grid carrying a respectable 10,000 VpD that parallels and is complementary to Cobra St offering a direct line into the City Centre for its local residents. Increases are gradual and below average indicating a balanced existing network, (and no growth in the locality).

Cobra St has similar growth which; given that it is the most direct path serving the expansion of the SE ; indicates that newly generated traffic is successfully dispersed (Hennessey in South End). Nevertheless Cobra St will experience a slower speed than most other streets in Dubbo, (Table 6.3). The actual increase in the peak hour volume is small currently 1852 (two – way) to 2027 in 2025 an additional 180 vehicles per hour does not trigger an increase in Stress. A further increase of 100 vehicles per hour between 2030 and 2040 also has no impact. You might think the model is assuming driving will become more tolerant or skilled or autonomous but the same measure of stress has been applied for the future. The peak hour flow for 2055 is predicted as 2219 vph, 20% greater than today. The reason there is no change is that the time (Table 6.3) is only 3% greater than today, or an increase of 12 seconds. This does not register as a failure but is a reminder that travel conditions do not change in direct proportion to demand.

The same small changes are predicted in Fitzroy St south of Erskine St that also reports a low level of Stress through to 2055. The demand changes between 2025 and 2030 (1698 to 1834 vph) but is stable thereafter.

**2020 DUBBO TRANSPORTATION STRATEGY**

A lesson that leaving something alone that just works is often the answer. This rule has been the approach for the Dubbo Transport Strategy; optimise the network, don't over spend and don't concentrate only on traffic flow but also amenity.

Conclusion – Assuming travel modes are similar to today residents moving around in 35 years time will be experiencing similar conditions to today's easy ways. A fine legacy for Transport Planning.



2020 DUBBO TRANSPORTATION STRATEGY

6.6. Surveys

The study commenced with a large survey of existing traffic required to estimate external traffic and to calibrate the model of internal traffic. The proportion of through traffic was surveys using Number Plate recognition at entry/exit points to the Study Area.

The survey separated traffic into Heavy Vehicles, multiple axes, and Light Vehicles.

Full results of this survey have been lodged with Council.

Table 6.6 summarises the results of the Number Plate Recognition Survey for through traffic. The Newell Hwy south has the highest proportion of through traffic, 23%. This was matched with 13% of through traffic at the northern entry of the Newell Hwy (13%). The difference in through traffic reflects the proportion of regional residents living north and south of Dubbo. The proportion of through traffic on other Highways also reflect the importance of regional access, only 4% of traffic on the Golden Hwy is through traffic, 5% on the Mitchell Hwy to the west and 7% on the Mitchell Hwy to the east. These figures are consistent with regional population.

EXTERNAL ROAD	TOTAL TRAFFIC			THROUGH TRAFFIC (1) Heavy Vehicles				(2) Light Vehicles				(3) TOTAL		
	Total Daily From	8.00 AM - 4.00 PM	4.00 PM - 8.00 PM	Heavy Vehicles	% Thru Daily Survey	Night Total	% Night	Heavy Daily Through	Light Vehicles	Small Trucks	% Thru Daily Survey	% Light Daily Through	Total Daily Through	% Daily Total
1 Mitchell Hwy Rumblegumble W	3821	195	3626	172	4.5%	19	11%	34	2424	255	6%	200	2484	65%
2 Newell Hwy Troy Crossing	3001	153	3154	455	15.2%	117	26%	277	2505	241	7%	135	2640	88%
3 Golden Highway	4427	15	4442	93	2.1%	18	19%	31	1285	129	2%	13	1418	32%
4 Mayfield Rd Mitchell Hwy Eulomaga	3311	215	3526	195	5.9%	60	31%	75	3366	257	5%	113	3479	100%
5 Newell Hwy Camp St	3271	11	3282	359	11.0%	100	28%	227	1057	132	11%	135	1192	36%
	1294	1026	2320	1274	53%	314	53%	595	10557	1044	63%	687	1230	30%
	11805	20%	9%	651	5.5%	18	4.6%	3082	74	1%	52%	3270	27%	
				651	5.5%	18	4.6%	3082	74	1%	52%	3270	27%	

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**Archived:** Thursday, 17 June 2021 3:36:18 PM

**From:**

**Sent:** Sat, 14 Nov 2020 05:41:22

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

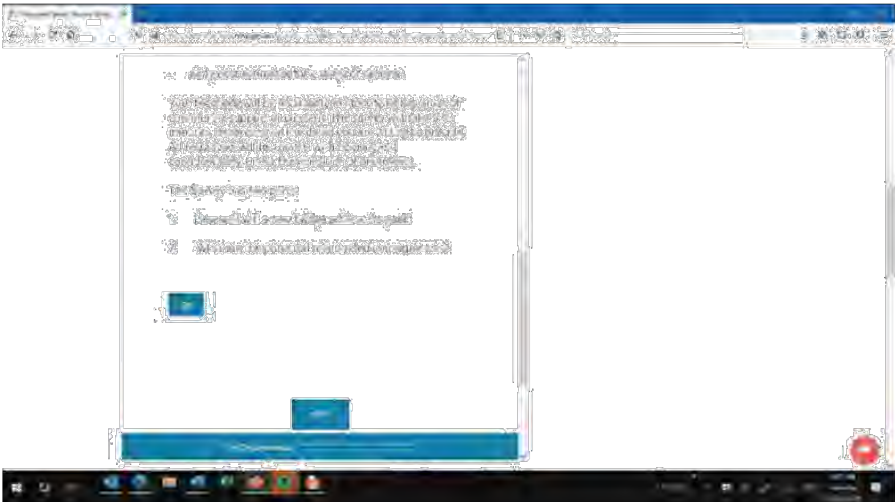
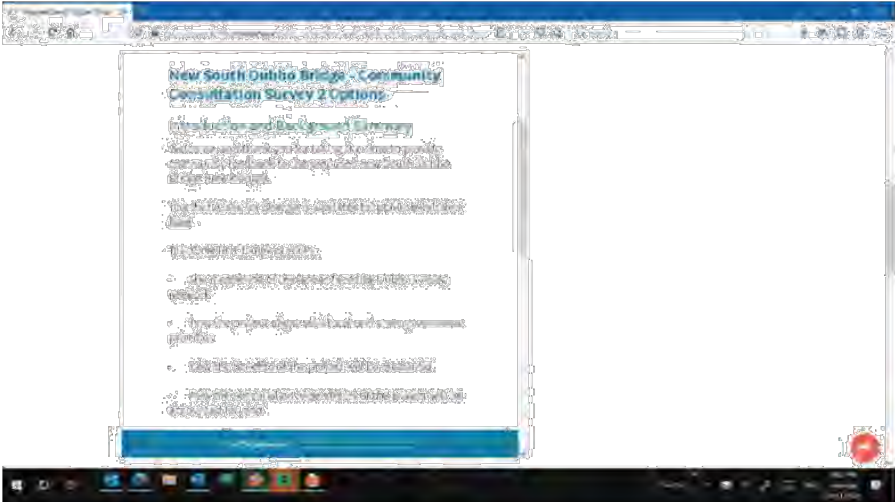
0\_103968\_14Nov2020164047\_South Bridge DRC Survey 14.11.20.docx;

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Steve
<b>Surname:</b>	Hodder
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	██████████
<b>Submission:</b>	
<b>File upload if required:</b>	0_103968_14Nov2020164047_South Bridge DRC Survey 14.11.20.docx



**Archived:** Thursday, 17 June 2021 3:36:19 PM

**From:**

**Sent:** Fri, 13 Nov 2020 00:14:12

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Damien
<b>Surname:</b>	Pfeiffer
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>The 2 options presented will not help in easing traffic from west to east. The would help with future proofing the city if it was moved further south. Where both options are set to interact with current roads on the eastern side will just create more congestion.</p> <p>It would be beneficial to release the other 2 options and see what they present. If it was tax payers money that payed for this report, investigation and options not sure why then councillors had the right not to release.</p> <p>Regards</p> <p>Damien</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:20 PM

**From:**

**Sent:** Tue, 17 Nov 2020 02:25:02

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Craig
<b>Surname:</b>	Granger
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>The below part of the Strategic Business Case needs to expand its consultation to include all cycling stake holders such as, Dubbo Bicycle User Group. (BUGS) contact Mick Cooper [REDACTED].</p> <p>Dubbo Triathlon Club and Dubbo Mountain Bike Club.</p> <p>Also you could have the best cycle way/path connectivity in the world BUT if when you get to your destination and there is no safe and secure storage/parking for your bike so no one damages or steals it your NOT going to ride or use the cycle way/path to to go to work or shopping so only the recreational riders will use it as most do loop rides and cafe rides where there bikes are in full view while they are stopped.</p> <p>Craig.</p> <p>EXTRACT.</p> <p>Increase the percentage of commuters in West Dubbo choosing active transport</p> <p>The Transport for NSW Economic Parameter Values provides a list of benefits (and costs) of walking</p> <p>and cycling, relative to using a car as the main method of commuting. Benefits include health, air</p>

	<p>pollution, GHG emissions, noise, water pollution, nature and landscape, urban separation, roadway</p> <p>provision cost savings, and parking cost savings per km travelled using active transport<sup>16</sup></p> <p>-</p> <p>It is unlikely that an increase in the number of residents of West Dubbo choosing active transport will</p> <p>be directly attributable to a new South Dubbo Bridge, especially given that the proposed bridge is only</p> <p>one of a number of upgrades to the City's road and active transport network. However, qualitative</p> <p>evidence from stakeholder groups such as the Dubbo Cycle Club will be sought as part of a detailed</p> <p>business case.</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:22 PM

**From:**

**Sent:** Wed, 18 Nov 2020 11:11:14

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

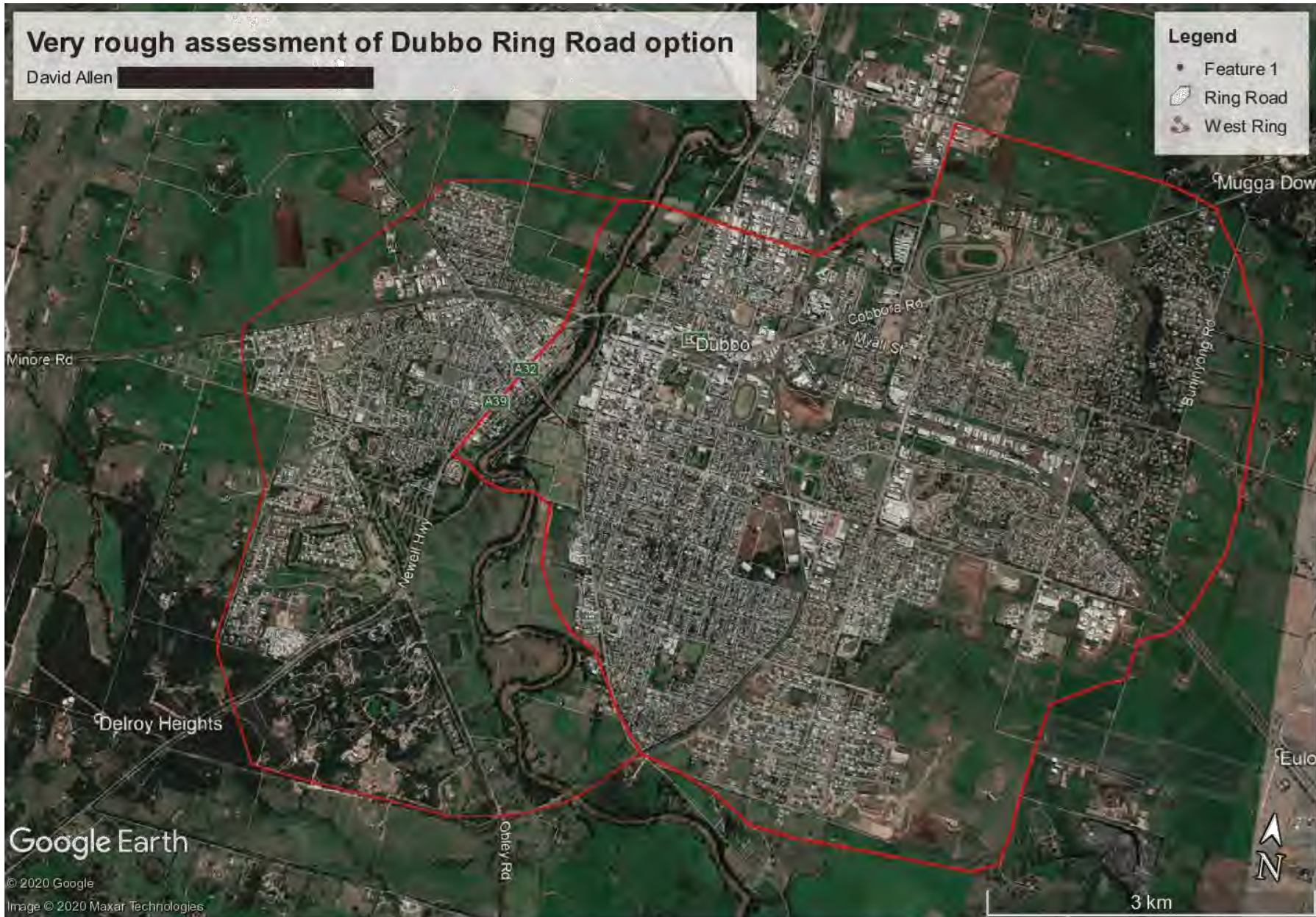
**Attachments:**

0\_103968\_18Nov2020220456\_Dubbo Ring Roads.pdf

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	David
<b>Surname:</b>	Allen
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Planning of a full ring road 360 degrees around Dubbo is urgently needed. Everything I have seen so far is blinkered compartmentalized thinking that fails to solve future traffic problems and dumps traffic right back into congested intersections unnecessarily. Some of council may want this congestion creating strategy to retain state funding but are wrecking the city in the process of trying to retain that funding. If Dubbo had a real long term strategy it would control the LEP but it seems short sighted LEP is 'burning the bridges' when it comes to cheap long term traffic solutions and leading to a 'Paramatta Road' type situation.</p> <p>The attached file suggests a ring road but not much thought has gone into it - please consider it further with care.</p>
<b>File upload if required:</b>	0_103968_18Nov2020220456_Dubbo Ring Roads.pdf



**Archived:** Thursday, 17 June 2021 3:36:25 PM

**From:**

**Sent:** Wed, 18 Nov 2020 22:57:57

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Brittany
<b>Surname:</b>	Ward
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	██████████
<b>Submission:</b>	<p>My concern for both options of the bridge is the impact on a leisure area. That area is absolutely beautiful and peaceful. What is going to happen when you had in a high traffic bridge? you lose the peace and the impact on not just the sporting fields but the walking tracks?</p> <p>It also does not take into consideration the rapid expansion of south dubbo.</p>
<b>File upload if required:</b>	



**Archived:** Thursday, 17 June 2021 3:36:27 PM

**From:**

**Sent:** Sun, 22 Nov 2020 09:36:09

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Ann-Maree
<b>Surname:</b>	chandler
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	these suggestions are impacting heavily into much used areas for sporting, leisure and public use  i can not fathom how this is practical to anyone
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:28 PM

**From:**

**Sent:** Sat, 21 Nov 2020 05:41:12

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Michelle
<b>Surname:</b>	Sullivan
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	I completely oppose this bridge. The changes negatively impact the natural setting of the Sandy beach river area. No bridge is worth the loss of habitat, green space, river damage and loss of car free recreational green spaces for residents.
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:29 PM

**From:**

**Sent:** Fri, 20 Nov 2020 21:53:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	shane
<b>Surname:</b>	clarke
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:30 PM  
**From:**  
**Sent:** Mon, 23 Nov 2020 09:09:44  
**To:**  
**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020  
**Sensitivity:** Normal

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Garry
<b>Surname:</b>	Burton
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:31 PM

**From:**

**Sent:** Tue, 24 Nov 2020 10:39:44

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Steven
<b>Surname:</b>	Munn
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	██████████
<b>Submission:</b>	Ring road is my view. Go early and we will have less opposition
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:32 PM

**From:**

**Sent:** Tue, 24 Nov 2020 10:21:24

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Barbara
<b>Surname:</b>	Corcoran
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I strongly oppose the construction of the new South Dubbo Bridge for the following reasons</p> <ul style="list-style-type: none"> <li>*impact on park, recreational and river walkways along the Macquarie River</li> <li>*has minimal purpose for the expense to rate payers/ tax payers</li> <li>* floods are infrequent with minimal disruption</li> <li>* mirrored services eg supermarkets on both sides of the river therefore basic needs met</li> </ul> <p>I would support a flood proof bridge at Troy crossing to provide additional movement over the Macquarie River during flood events and to facilitate the possible future by-pass of Dubbo. This bridge at Troy would ensure that stock could be delivered to the sale yards and would enable traffic to flow in a north/ south and east west direction.</p> <p>Regards Barbara Cororan</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:33 PM

**From:**

**Sent:** Tue, 24 Nov 2020 09:24:08

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Marion
<b>Surname:</b>	Kenny
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I strongly oppose the construction of the south Dubbo bridge proposal.</p> <p>It has limited purpose and will degrade the beautiful park and walkways on the western and southern sides of the Macquarie river - a significant tourist attraction and a beautiful area for Dubbo residents</p> <p>A flood proof bridge at Troy would be a better alternative and should be considered.</p> <p>The South Dubbo bridge will do little to improve traffic flow through Dubbo and the flood of 2010 lasted only a few days.</p> <p>Better management of flood events should see reduced impact to Dubbo residents - eg working from home which has been perfected during COVID, shutting schools, closing LH Ford bridge to traffic and utilising buses. There are shops either side of the river so basic needs can be met.</p> <p>Build a flood proof bridge at Troy crossing</p> <p>Regards Marion Kenny</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:35 PM

**From:**

**Sent:** Tue, 24 Nov 2020 04:09:18

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Lynton
<b>Surname:</b>	Auld
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Both options on display will have an extremely detrimental effect on the vitally important lady Cutler sporting complex. Option 1 will also destroy a valued public recreation space on the Macquarie River, Sandy Beach.</p> <p>Both options 1 and 2 will split the existing Lady Cutler sports precinct in half. Young children and sports participants will be forced to negotiate high volumes of high speed traffic in order to manoeuvre between fields and to access the kiosk.</p> <p>Justifying the new bridge there have been 11 traffic accidents at the west Dubbo roundabout, presumably mostly rear ends. have there been any fatalities? Imposing high volume high speed (50-60kmh) traffic into a heavily utilised pedestrian zone is a recipe for disaster and death. Particularly when the vast bulk of those pedestrians are children.</p> <p>Options 3 and 4 do not have these issues. Both skirt the sports precinct to the south. Both connect with Macquarie st at the existing very dangerous Tamworth st intersection. Blocking this intersection would force traffic from west to turn north or south along Macquarie. This would i) prevent traffic from west accessing south Dubbo via Tamworth, ii) would remove one of the most dangerous intersections in Dubbo (visibility is atrocious) and would of course, iii) prevent the dislocation of the sports fields and Sandy Beach, and also retain the existing ambience and safety of the Lady Cutler precinct. it would also retain Sandy Beach for community recreation Option 3 is my preference.</p> <p>Deliberately choosing not to display options 3 and 4 does not mean these options are not popular, the limited choice being offered is misleading to the public and the results procured are unreliable.</p> <p>This is a terrible process thats been mishandled.</p>



<b>File upload if required:</b>	
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**Archived:** Thursday, 17 June 2021 3:36:36 PM

**From:**

**Sent:** Wed, 25 Nov 2020 06:52:37

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Tony
<b>Surname:</b>	Miller
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>OPTION 2 WOULD PLEASE EVERYONE but would go with anyone of option 1 or 2 just want it not to be all talk..</p> <p>long term there should be planning for 2035 ... Bypasses around the city in planning ? Are they going to open the railway up as the bridge on the Hendersy Road could be opened up for long term future...</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:37 PM

**From:**

**Sent:** Wed, 25 Nov 2020 05:15:05

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Raymond
<b>Surname:</b>	Perkins
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>The most practical location for the Dubbo South Bridge is considered to be "control line road 02.</p> <p>It provides better alternative outlets to South Dubbo streets, so it should minimise bottlenecks.</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:38 PM

**From:**

**Sent:** Thu, 26 Nov 2020 02:29:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Oscar
<b>Surname:</b>	Robinson
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:39 PM

**From:**

**Sent:** Thu, 26 Nov 2020 03:21:58

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Kevin
<b>Surname:</b>	Rugg
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Hi</p> <p>Initially I personally designed, installed and substantially funded the Sandy Beach Disc Golf Course which conducted a Covid limited event last weekend which included Sydney, Newcastle &amp; Dubbo as the three NSW sites. The SBDG course would be majorly impacted by the Option A route. Whilst not the major sport in terms of numbers, disc golf is played by locals regularly and often by visitors.</p> <p>At this morning's meeting we heard the major impact that either Option A or B will have a massive impact on the Lady Cutler sports facilities including #1 being safety!</p> <p>Sandy Beach and Sir Roden Cutler Park are not often crowded out but do very regularly get visited by Dubbo tourists and residents. These proposals would virtually wipe this out.</p> <p>It was indicated that this is a 2025-30 time frame project with a second South bridge in maybe 2050.</p> <p>As i raised at the meeting both of these arrangements appear to me to move the bottle neck from the western end to the eastern end of LH Ford bridge.</p> <p>I also suggested that it would make more sense to put a low level bridge alongside the LH Ford bridge (either one lane bridge each side or two lanes on south side) and have exit/merge lanes on the western side and a connection into Bligh St on the eastern end.</p> <p>In conjunction with this I would also suggest the following:</p> <ul style="list-style-type: none"> <li>- Cobra / Macquarie St intersection only carry Macquarie St through traffic with low</li> </ul>

	<p>priority</p> <ul style="list-style-type: none"><li>- in West Dubbo traffic be encouraged onto Victoria Road via Baird St &amp; Young St with traffic lights on Victoria / Young St intersection</li><li>- in South Dubbo, Boundary Road be given priority rather particularly once it is extended through to Sheraton Rd</li></ul> <p>This proposal would achieve this project objectives at a considerably lower cost and this could allow the next South crossing off Obley Rd to Hennessy Drive be brought forward.</p> <p>My thoughts only but I am certain the Dubbo Disc Golf players would support this.</p> <p>Regards</p> <p>Kevin</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:40 PM

**From:**

**Sent:** Thu, 26 Nov 2020 11:48:48

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments ]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Alan
<b>Surname:</b>	Hughes
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Building a bridge in the proposed location in Sth Dubbo would take away the most popular recreation area in Dubbo putting traffic in the major sporting area in Dubbo</p> <p>Also this will still add a bottle neck the traffic in different areas including the traffic light at the end of the bridge this will also add extra traffic into Tamworth street and Boundary road</p> <p>Would you not be better building a bypass around the outer edge of Dubbo removing the through traffic and Trucks this would ease the traffic across the existing bridges</p> <p>Or maybe build a 2nd bridge along the existing LH Ford bridge and you could have 4 lanes</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:42 PM

**From:**

**Sent:** Thu, 26 Nov 2020 09:43:44

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Margot
<b>Surname:</b>	Russell
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>These proposed bridges will cause many accidents, as children walk between fields to find their siblings playing on a different field. Many families have multiple children playing on the fields (eg soccer or cricket) requiring kids to find their own way across the fields. Its unimaginable that Council thinks it is a good idea to put general city traffic (and possibly anyone in any vehicle) through a multisport precinct, where people are stopping, parking, searching for kids, kids are crossing the roads, chasing balls. etc</p> <p>The multisport precinct is used by soccer players, cricketers, runner, triathletes, walkers, people with dogs, PSSA sports, cyclists, occasionally touch football comps etc, kayakers, dragonboaters, scooter riders, parents just taking their kids for a walk in nature or to fish, and swimmers. Besides spoiling the quiet amenity, the natural beauty, sports players and pedestrians who have happily co-existed with the safe considerate drivers that currently share the zone, they will be relegated by the busy, careless, fast, inconsiderate drivers zooming over the bridge straight through the sports fields. It is honestly the most ludicrous concept. Cross city traffic is an anathema with community sports fields. Find another location for a cross city bridge and DO NOT DESTROY A PERFECTLY SUCCESSFUL CITY PRECINCT (ASSET). Think about children and sports people and nature lovers.</p>
<b>File upload if required:</b>	



Archived: Thursday, 17 June 2021 3:36:43 PM  
From: [Rod Fardell](#)  
Sent: Thu, 26 Nov 2020 01:54:36  
To:  
Subject: PUBLIC SUBMISSION FOR THE 2 BRIDGES  
Sensitivity: Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Hi Guys,

I would like to overall thank Council for giving us this opportunity to respond to the new Bridge Project proposal.

As an organisation I would like to say that we strongly OPPOSE the current proposal due to the reasons below we also believe there is a better alternative to this situation.

Council staff did present only 2 options and reasons why this bridge is needed but all sporting organisational leaders including a large amount of recreational staff members are AGAINST the idea and for good reason.

1. The Bridge does little to ease congestion just creates bottle necks in other area's. Traffic Lights will create a stop and go effect into the CBD.
2. No figures done what times the traffic issues are and why. ( School times for example )
3. Hundreds of children from South and East are pushed into West Dubbo because there is no school for them in the East. Particularly 2 lower socio economical schools being Orana/Bunningyong. There is no study on this to show creating a larger school or another school would ease on this.
4. Safety. New bridges mean greater safety risks to all our young kids playing soccer/cricket as the new route takes all traffic into those sporting area's.
5. Destroys our amazing Sandy Beach area. This is an iconic site.
6. Traffic Congestion will mean greater issues with Parking in those key sporting area's.
7. There were other alternatives that Council had been \$100k to provide but chose not to provide.
8. The Survey only gives you two options BUT you must choose one. You cannot refused both.
9. There are better options but no opportunity at this stage for Community Consultation
10. The River Street Bridge will be built commencing in 2022. There is no much positive data Council want to give on his will assist these other issues. These Bridges should not be considered until the full affect of the River Street Bridge is completed. Strategising now it's impact is not a great way for future planning.
11. I believe that 2 options that be more applicable is the a bridge adjacent to Dundullimal. It gives all the traffic from South and East to West and because of the larger road / greater speed zones no time difference.
12. Increasing the lanes on LH FORD BRIDGE for 2 off ramps leading back into the City or into South Dubbo.

I am no Civil Engineer or City Planner but I believe you have the team make better options from this.

If we accept this now this bridge may get built and have a long lasting impact on the City of Dubbo for quite some to come.

**Rod Fardell**

  
CHAIRMAN OF THE TITAN MUD RUN

**Archived:** Thursday, 17 June 2021 3:36:44 PM

**From:**

**Sent:** Mon, 30 Nov 2020 22:12:31

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Sam
<b>Surname:</b>	Cowell
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:36:47 PM

**From:**

**Sent:** Mon, 30 Nov 2020 22:26:45

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Mark
<b>Surname:</b>	Williams
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	As a resident I clearly understand the need for a future southern bridge option however it is disappointing that Council considers the destruction of the Sandy Beach precinct worthy as an option to present to the public. This option should have been excluded without further consideration. This area is one of the most enjoyed and easily accessible river access points in Dubbo. Strategic planning is a tool that should be utilised to make decisions that are often difficult and expensive. It is futile exercise if the decision made on simple engineering terms, i.e. what is the straightest and cheapest. Thankyou for the opportunity to comment.
<b>File upload if required:</b>	

**From:** Dubbo Ultimate  
**Sent:** Fri, 4 Dec 2020 00:06:43  
**To:**  
**Subject:** Consultation on South Dubbo Bridge options  
**Sensitivity:** Normal  
**Attachments:** Dubbo Ultimate DRCouncil Bridge letter Dec2020.pdf;  
**Archived:** Thursday, 17 June 2021 3:36:48 PM

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Hi,

Please find attached a letter regarding the invitation for public comment on the South Dubbo Bridge options

Cheers Tim Hosking

Dubbo Ultimate

Tim Hosking  
Dubbo Ultimate Frisbee  
DUBBO NSW 2830



4 December 2020

Dear Sir/Madam,

On behalf of the Dubbo Ultimate Frisbee, we'd like to submit our position on the proposed two South Dubbo Bridge Options as presented by Dubbo Regional Council.

Our interest arises as Dubbo Ultimate uses the Lady Cutler (east) ovals for large posting tournaments and assisted in the formation of the Dubbo Disc Golf Course at Sandy Beach. We represent approximately 100 players/members.

As such:

- we **oppose** the two route options, particularly the option that impacts Sandy Beach directly, given the impacts to the sporting precinct and particularly the Dubbo Disc Golf Course. We would be happy to consider other options if they are presented for comment.
- Should council wish to pursue either of these options, we would request Council:
  - o make good on a plan to relocate and replace community Disc Golf infrastructure.
  - o use fencing and road crossings so the Lady Cutler East sporting ovals can continue to be used together for large events safely.
- we would prefer routes that avoided the Sandy Beach Disc Golf Course, and ideally routes that avoided increasing traffic through Lady Cutler East so the public can safely use of these important facilities.

I am happy to be contacted about this matter.

Sincerely,

Tim Hosking  
DU President



**Archived:** Thursday, 17 June 2021 3:36:53 PM  
**From:** [REDACTED]  
**Sent:** Tue, 8 Dec 2020 01:21:34  
**To:**  
**Subject:** Dubbo bridge options  
**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Dear Sir,

I would like to add my support to the residents of South Dubbo in objecting to the two South Dubbo bridge options put forward by Council.

I spent some time in Oklahoma City in the 1970's, at that time a city of 100000 people. There was a ring road in the form of a freeway all around the outskirts of the city with no stops at all, and with entry and exit points suitably spaced along it. One could go from one corner to the other in a few minutes.

I think the option of skirting all the residential development and going straight to East Dubbo has great merit. I would go straight to the Mitchell highway with an exit lane for the education zone of Sheraton road.

A similar plan in the west to take the Newell highway away from the built up areas would also be a great long term option.

Yours faithfully

Michael Harrison

**Archived:** Thursday, 17 June 2021 3:36:54 PM  
**From:** [REDACTED]  
**Sent:** Thu, 10 Dec 2020 03:02:07  
**To:**  
**Subject:** south dubbo bridge  
**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The Chief Executive Officer  
Dubbo Regional Council  
Dubbo

Dear Sir

I strongly object to the proposal to build a bridge across the Macquarie River at Sandy Beach.  
I believe there would be more appropriate access points.

I firmly believe that the Council should investigate a ring road around Dubbo  
- as the city expands the traffic problem is fast becoming a burden on the residents and a ring road would elevate the through traffic

Yours faithfully

Barbara O'Brien

[REDACTED]

**Archived:** Thursday, 17 June 2021 3:36:56 PM

**From:**

**Sent:** Tue, 15 Dec 2020 22:26:44

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Jeffrey
<b>Surname:</b>	Childs
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I would like the south bridge to go ahead, it would be a big benefit to people that live in West Dubbo. It would put us straight into the business centre of Dubbo. I would like to vote for the control line 03.</p> <p>If Tamworth residents are frightened of too much traffic then make it so you can't turn right off the new road.</p>
<b>File upload if required:</b>	



**Archived:** Thursday, 17 June 2021 3:36:57 PM

**From:**

**Sent:** Fri, 18 Dec 2020 03:46:57

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments ]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Kevin
<b>Surname:</b>	Murray
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>The vocal excessive opposition to the River Street Bridge and the push for a ring road is clouding the waters of the importance of a West to south crossing of the river.</p> <p>The unlikely and unfunded ring road to the west of town will do very little to ease the congestion that is already evident in West at peak hour .</p> <p>While all the proposed options have issues , option 2 may work in the short term , but not in the long term.</p> <p>A more comprehensive and long term option would be to look at a crossing to link to Hennessy Rd/Macquarie St , this will allow an option to join Macquarie street , and access to numerous exits prior to CBD ( Boudary Rd , Tamworth St ,Margaret Cres , Fitzroy , Dalton , Brisbane , Darling ) while also having the option of Hennessy Rd to Wheelers lane , which with new access Rd currently being built at Southlakes to link to Private School Zones , also potential to continue this road behind Bluebridge to connect to Mitchell Hwy .</p> <p>The previous councils have perhaps dropped the ball by not prioritising a ring road to west in Traffic Management plan , but with the opportunity presented with South case study it may provide a opportunity for another crossing - No need for flood crossing - 9 years and 11 months of every 10 years it will be well used - do we not progress for the 1 month every 10 that we have a flood ?</p> <p>No matter where progress is there will be people who are against development , the challenge for Council and Government is to govern for the greater good and not the vocal minority , hopefully we can see some leadership around this with South bridge proposal - not a good start with Mayor backflipping on dumb decision to only release 2 of the options worried he may lose a vote or two ?</p>

<b>File upload if required:</b>	
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**Archived:** Thursday, 17 June 2021 3:36:59 PM

**From:**

**Sent:** Sun, 20 Dec 2020 22:17:10

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Garry
<b>Surname:</b>	Gowans
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Forget about South Dubbo Bridge. We need to raise Troy Bridge above flood level.
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:00 PM  
**From:**  
**Sent:** Sun, 20 Dec 2020 22:11:05  
**To:**  
**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020  
**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Yvonne
<b>Surname:</b>	Gowans
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	We need a high level bridge at Troy Crossing. That will take traffic from the crossroad of Highways at West Dubbo. No bridge will be needed at South Dubbo for a very long time.

File upload  
if required:

**Archived:** Thursday, 17 June 2021 3:37:03 PM

**From:**

**Sent:** Mon, 21 Dec 2020 08:57:03

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Karen
<b>Surname:</b>	Hyland
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I strongly oppose councils plan to build a South Dubbo Bridge linking West Dubbo to the CBD for the following reasons:</p> <ul style="list-style-type: none"> <li>• The consultation process was do followed correctly as a Business plan was developed and released prior to any consultation with Dubbo City citizens.</li> <li>• Council has not liaised with transport NSW regarding traffic flow and the ring road proposals</li> <li>• A gain of 4 seconds drive time for West Dubbo citizens is not a valid reason</li> <li>• Council has a duty of care to preserve the historic Sandy Beach and surrounding park areas.</li> <li>• Council has acted in a negligent manner directing traffic through children's playing fields.</li> <li>• Council has acted in a negligent manner directing traffic through the quiet streets of South Dubbo.</li> <li>• Council has acted unethically by omitting information from the public about other proposals.</li> <li>• Council and reacted without researching a sound and feasible future traffic flow plan beyond 2030.</li> <li>• Council has not considered alternate options such as taking the walkways off the LH ford Bridge and open up an extra lane for traffic flow.</li> </ul>

	<ul style="list-style-type: none"><li>• Council actions of building a low level bridge with low approaches will alter the flow of the river, which is illegal.</li></ul>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:04 PM

**From:**

**Sent:** Tue, 22 Dec 2020 23:22:43

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments ]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Alan
<b>Surname:</b>	Nelson
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>It is clear that there is considerable community opposition towards all four options that have been presented. Personally, I have no really deep seated concerns about the option which leads into Tamworth Street but, having said that, I do believe Council should stroke it out along with the other three. I am totally against the River Street bridge (as is Council) and am in favour of a western highway bypass of the city for Newell Highway through traffic. But I do believe (contrary to the views of many including your Mayor) that the bypass should not be built as a solution to the local traffic issues that are strangling Dubbo. A traffic count south of the city (say near Camp Road) and another count in Whylandra Street (say just south of the LHFord bridge) would either confirm or deny my view that highway traffic is not a highly significant component of the traffic congestion we suffer most days. The State Government is pursuing River Street to provide a second flood free river crossing. If this is a high priority, surely duplication of LHFord bridge (as was agreed upon a few years back) should be the preferred option. This would lead into Cobra Street which is sufficiently wide to provide two lanes in each direction. This should be done as a fully funded State Government project, leaving the bypass to be fully funded by the Commonwealth. This is their responsibility as the Newell is a National Route. We are told that a local bridge over the river is a local project, to be funded by Council. As such it would be years away and the problem of local traffic congestion needs to be tackled now, not at some indefinite time in the future.</p>
<b>File upload if required:</b>	



**Archived:** Thursday, 17 June 2021 3:37:09 PM

**From:**

**Sent:** Sun, 3 Jan 2021 02:29:57

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_03Jan2021132804\_South Bridge options - letter of reply.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Simon
<b>Surname:</b>	Tratt
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Please see attached.
<b>File upload if required:</b>	0_105454_03Jan2021132804_South Bridge options - letter of reply.pdf

### Proposed South Dubbo Bridge Options

#### Traffic impacts to existing residential areas in south central Dubbo

In the GHD report, Section 2.4 'Impacts to existing property and traffic arrangements' only refers to Big 4 Holiday Park and Tamworth Street residents. It fails to consider the additional traffic that will impact over 115 residences along Macquarie Street between Reakes Avenue and Margaret Crescent, nor does it consider the 'leakage' of traffic into local streets such as Boundary Road as vehicles travel to and from the Sheraton Road school precinct, Bunnings and even Orana Mall as traffic originating from West Dubbo attempts to bypass the Cobra Street congestion at peak times each weekday morning and afternoon.

#### Negative impacts to the Macquarie River active living space

Bridge Option A dissects Sandy Beach which forms an integral part of the River walkway that Council has spent years embellishing for the active participation of residents and visitors. It is the start of Parkrun that has in excess of 350 participants each Saturday morning. It is an integral part of the Dubbo Stampede half and full marathon route. An event that has been running for nine years, brings in a lot of running tourists to Dubbo, and portrays Dubbo in a positive and healthy light.

Bridge Option B, whilst not directly impacting Sandy Beach, does dissect Lady Cutler sporting fields. Lady Cutler Park is a major sporting asset to Dubbo for Cricket and football and hosts major events such as the annual NSW State junior cricket camp. Dissecting Lady Cutler Park as proposed in Options A, and B would dramatically reduce the effectiveness and the appeal of this sporting and recreation precinct as well as pose a significant pedestrian safety hazard.

Bridge Option C and D, proposed to connect to Tamworth Street, will sever the 75 hectares of Council owned parkland situated between Tamworth Street and the South Weir. Whilst this land is mostly undeveloped at present, Council needs to plan 20+ years in advance and understand what a huge natural asset this area is to the residents and visitors to Dubbo. The construction of an arterial road and connecting bridge along this Tamworth Street alignment will be a huge impediment to connecting these green spaces.

The City of Albury has invested in the strategic design and embellishment of Noreuil Park located on the south-west fringe of Albury city centre. Noreuil Park is bounded by the Murray River and has grassed picnic areas, café, boathouse, public barbeques, walking tracks, and sporting ovals. Noreuil Park is similar to Dubbo's Sandy Beach / Lady Cutler Ovals in the services it provides and its proximity to the city centre, and it is what Sandy Beach could aspire to become with further embellishment. My family and I have spent a number of January holidays in Albury with junior national sporting events, and it is not uncommon to have in excess of 100 people at Noreuil Park at 8pm on a hot summer's evening, swimming, picnicking and walking. None of this is possible if Bridge Options A or B were to proceed.

### Proposed South Dubbo Bridge Options



**Figure 1.** Noreuil Park – Albury NSW

### Alternative Bridge Location

I request that Council investigate the option of the South Dubbo Bridge being located off Obley Road, where the existing Shibble pedestrian Bridge is situated, with such bridge connecting to the southern end of Macquarie Street. (Figure 2.)

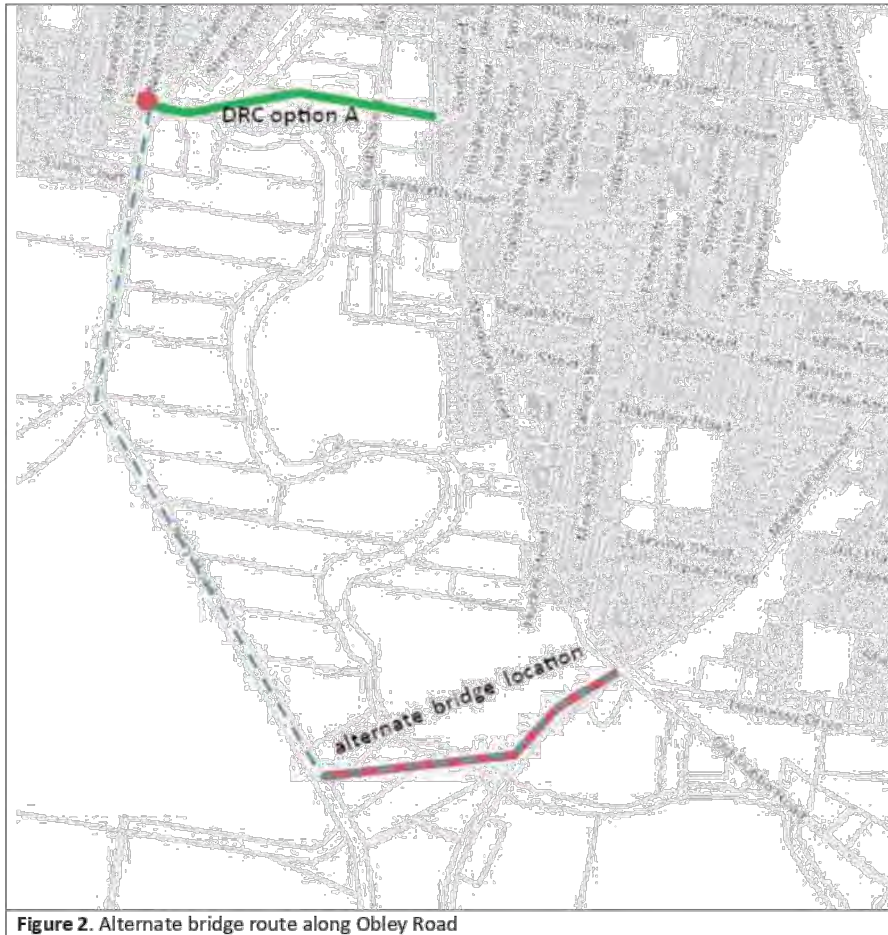
It is my understanding that a significant amount of morning and afternoon peak traffic in West Dubbo is vehicles travelling to and from the school precinct in Sheraton Road, before parents then continue on to work precincts including Blue Ridge, CBD, Orana mall, and the hospital precinct. The travel distance from Whylandra /Minore Road intersection to the Sheraton Road school precinct is 9.6km if Bridge Option A was a reality. As an alternative, if the South bridge was constructed off Obley Road (shown in Figure 2) the travel distance from Minore Road intersection to the Sheraton Road school precinct is 10.3km; a mere 700m further than Bridge Option A, with some of that route being 100km/hr zone, so travel times are assumed to be the same or less than the four current options being considered by Council.

The Obley Road Bridge also traverses the '1 in 100 flood affected area' for a distance of just over 1,000m; shorter than the four bridge options being considered by Council.

The Obley Road option also provides future opportunity for heavy vehicles travelling along Newell Highway from Parkes into Dubbo, to bypass Dubbo to connect onto Mitchell Highway if they were

**Proposed South Dubbo Bridge Options**

heading east toward Sydney. This will be possible once Hennessy Road connection onto Mitchell Highway is undertaken.



**Archived:** Thursday, 17 June 2021 3:37:13 PM

**From:**

**Sent:** Mon, 11 Jan 2021 10:43:10

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Ros
<b>Surname:</b>	Williams
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I would like the following dot points on the South Dubbo bridge proposal to be considered:</p> <p>Firstly, as a resident of Macquarie Street I do not support the proposal.</p> <p>The information presented at the community meeting made it very clear that both of the proposed bridge options will negatively impact on the environment and liveability.</p> <p>Groups like Dubbo Rivercare have spent thousands of volunteers hours and grant funding in improving the riparian areas subject to the two bridge locations provided for community consultation.</p> <p>While the main purpose of structural systems is to enable people to travel from one point to another, it is well known that litter is an accompanying factor. As a result, areas around the bridge, overhang, passes often contain mounds of litter.</p> <p>How many trees will be destroyed?</p> <p>How much natural habitat will be lost?</p>

	<p>Both flora and fauna depend on the local natural habitat for their very survival.</p> <p>DRC wants to keep the city as a 10 min town. For what period is this goal considered achievable? Will we continue to destroy natural habitat to save just a few minutes in the daily commute?</p> <p>The riverbank precinct is renown for its exceptional sporting facilities, bringing to the city numerous regional, state and national events. Running a major road through the middle of this precinct would have a negative result - less field space, undue noise, increased litter, pedestrian safety concerns, reduced wildlife and ultimately reduced use and lower income into the city.</p> <p>In promoting our City's liveability, we need to actively demonstrate and model environmentally sustainable practise. For example, if the goal is to move people into the CBD, lets look at how we can improve health and lifestyle rather than simply providing for increased vehicle movements. Dubbo' terrain is well suited to walking and cycling. Could a swing bridge linking workers and shoppers from a parking space on the west side directly into the CBD assist?</p> <p>It is well known that traffic increases exponentially before and after school. How can these traffic movements be reduced? Research indicates that bus travel is far safer and environmentally sustainable than private vehicle travel. What research and actions need to be undertaken the promote the benefits of bus travel.</p> <p>What research has been undertaken on current vehicle traffic in Macquarie Street South of the LH Ford Bridge during peak times. Taking traffic on a route through residential areas and returning it to the same road (Cobra Street) does not appear to provide a traffic management solution.</p> <p>How much of the traffic issue could be managed with a ring round?</p> <p>I urge DRC to avoid quick fix options that do not take care of long-term problems.</p>
<p><b>File upload if required:</b></p>	

**Archived:** Thursday, 17 June 2021 3:37:16 PM

**From:**

**Sent:** Tue, 12 Jan 2021 06:49:42

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Diana
<b>Surname:</b>	HOFFMAN
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	I do not believe that Dubbo needs ANY new bridge anywhere along any section of the Macquarie River. It is ridiculous to suggest Dubbo needs to be a '10 minute city'! Particularly as more people see the advantages of being further from city centres and move to the regions to achieve this goal. Dubbo city has a perfect river 'playground' admired and used extensively by locals and visitors alike. Planners should be looking to create every opportunity to maximise all the green spaces, walking and cycling tracks, entertainment areas as well as quiet seating areas on and around the river while providing by-passes for the transport and movement of goods to and from the region. The lack of foresight and long term planning over extended time frames will ultimately lead to the destruction of Dubbo's greatest asset - The River and all its surroundings.
<b>File upload if required:</b>	

Archived: Thursday, 17 June 2021 3:37:22 PM

From: [REDACTED]

Sent: Thu, 14 Jan 2021 06:42:49

To:

Cc:

Subject: SOUTH BRIDGE SUBMISSION

Sensitivity: Normal

Attachments:

John Morris - DRC South Bridge Submission - Jan 2021.pdf;

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Hi Mayor Ben and DRC People,

Please find attached my submission on the South Bridge Proposal attached.

I hope this helps in your DRC planning going forward. Many thanks.

Best regards,

John

*John Morris*



Transport Issues Advocate

Phone: [REDACTED] Fax: [REDACTED]

Mobile: [REDACTED]

[REDACTED]  
[REDACTED]





### Transport Issues Specialist

a division of John and Trish Morris Pty Ltd

ABN: [REDACTED]  
 Phone: [REDACTED]  
 Fax: [REDACTED]  
 Mobile: [REDACTED]



14<sup>th</sup> January 2021.

Mayor Clr. Ben Shields  
 Dubbo Regional Council  
 PO Box 81  
 DUBBO, NSW, 2830

Dear Ben,

Please let me say first up, do not listen to the vocal rabble of the South Dubbo NIMBY's regarding the South Bridge proposal. We seriously do need this crossing.

The "Option 2" is the only common sense, viable choice for this very much needed Dubbo City Infrastructure project.

As I said in my submission back on the 12<sup>th</sup> July 2019, the South Bridge needs to be the most urgent project in the Dubbo Regional Councils (DRC) infrastructure planning for the next day-to-day river crossing to facilitate the ever-increasing volume of every-day traffic coming out of all the new and growing developments in the whole West Dubbo precinct.

I estimate the 'South Bridge' would take 30 to 40% of the local commuter traffic off the LH Ford bridge between West Dubbo and the CBD every week-day morning and every evening, as well as catering for all-day use by motorists between West Dubbo and the South Dubbo area.

The DRC engineering department has concerns of this two-lane road going through the sporting precinct of Lady Cutler ovals.

Looking at it realistically, the most activity on these ovals happens on Saturday mornings. Then the odd use during the rest of the time of the whole week. There is minimal 'commuter traffic' on this road on weekends. Allowances were made for this "through road" when Council put the new ovals in recently.

Most of the traffic will be Monday mornings to Friday afternoons. People from the whole developing West Dubbo precinct will use the South Bridge to get to work throughout the CBD precinct. Once coming over the South Bridge, off Minore Road, people have six (6) exit options off South and Bligh Streets to get to their place-of-work:-

1. Tamworth Street. *Already sealed down to South Street*
2. East Bligh St/ Reakes Ave
3. Bultje St
4. Wingewarra St
5. Church St
6. Talbragar St

Parents taking their kids to any of the schools can take any of the exits to suit their destination.

We urgently need to encourage more kids to use the school bus options or even ride their bikes to school to take the ever-increasing cars off our roads on school days.

The Minore Road – Newell Highway intersection will also need some levelling to facilitate the in-bound loaded trucks to be able to take off after a red light at this busy junction.

Even though the South Bridge will be susceptible to flooding every 20-30 years, the advantageous, day-to-day use, simply outnumbers that problem many times over.

It has even been said building the South Bridge first will take away the urgent need for a "heavy vehicle bypass" around the city of Dubbo.

The two projects need to be prioritised separately and run on their own urgency merits.

Separate NSW Government funding needs to be sought for both projects, each having the highest priority. The Federal Government should assist with the bypass funding also.

Thank you for allowing me to have my experienced opinion on this very important and much needed Dubbo Infrastructure project.

If you (and the whole of Council) need me to come in at anytime for a round-table discussion please contact me anytime.

Thanking you in anticipation.

Best regards,

A handwritten signature in cursive script that reads "John Morris". The signature is written in black ink and is positioned above the printed name.

John Morris

Dubbo Regional Heavy Transport Representative.

**Archived:** Thursday, 17 June 2021 3:37:24 PM

**From:**

**Sent:** Sun, 17 Jan 2021 08:48:21

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Fiona
<b>Surname:</b>	Rayner
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:25 PM

**From:**

**Sent:** Sun, 17 Jan 2021 08:17:55

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Catherine
<b>Surname:</b>	Campbell
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Option D or alternative option along shibbles Bridge.
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:27 PM

**From:**

**Sent:** Fri, 15 Jan 2021 00:33:43

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Tracey
<b>Surname:</b>	Whillock
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I believe both options will have an extremely detrimental impact on the Lady Cutler Precinct. Both options 1 and 2 split the existing Lady Cutler sports precinct in half. Young children, players and spectators will be forced to negotiate high volumes of high speed traffic in order to manoeuvre between fields and to access amenities and canteen. The number of sporting ovals in this Lady Cutler Precinct and the close proximity makes this venue highly desirable for large regional and state sporting events for soccer, cricket, frisbee and touch. These major events have a significant economic benefit to Dubbo. With major roads running through the precinct and reduced parking available this would make it near impossible to maintain the current major events and attract new ones in the future. Also the two options would have a significant impacting access and parking for the thousands of people using the Lady Cutler precinct for local sport training, competitions and gala days/carnivals on a weekly basis.</p> <p>Option 1 also would have a significant impact on Sandy Beach and the Tracker Riley which is heavily used by on average 320 parkrunners every Saturday, Outback Dragon Boaters, The Dubbo Paddle Club, Disc Golf users and even more general public walkers, runners, cyclists etc. This area is a beautiful recreation asset of Council and a bridge through the middle would have a significant impact on recreation users.</p> <p>I also would like to see the statistics around the destination of vehicles using the LH Ford Bridge. I utilise the LH Ford Bridge regularly and everytime I have there has been at least 10 cars or more who proceed straight ahead up Cobra Street for every 1 or 2 vehicles who turn right into the CBD. I think option 1 and 2 both seem to use</p>

	<p>the rationale that all traffic coming from West Dubbo will head into the CBD which will create more congestion. To me it seems a bulk of the traffic are heading up Cobra Street and likely to schools on Sheraton Road as well as Orana Mall or using other connecting roads to get to work premises. If i wanted to come into the CBD from west I would use Seriser Bridge and Blight Street every time.</p> <p>There has to be better options than the two presented. An option which allows greater spread of traffic. Possibly one that connects with Hennessy and Macquarie Street or even Boundary Road</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:28 PM

**From:**

**Sent:** Sun, 17 Jan 2021 03:37:12

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_17Jan2021143629\_South Bridge options - letter of reply.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Bonnie
<b>Surname:</b>	Tratt
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	please see attached
<b>File upload if required:</b>	0_105454_17Jan2021143629_South Bridge options - letter of reply.pdf

### Proposed South Dubbo Bridge Options

#### Traffic impacts to existing residential areas in south central Dubbo

In the GHD report, Section 2.4 'Impacts to existing property and traffic arrangements' only refers to Big 4 Holiday Park and Tamworth Street residents. It fails to consider the additional traffic that will impact over 115 residences along Macquarie Street between Reakes Avenue and Margaret Crescent, nor does it consider the 'leakage' of traffic into local streets such as Boundary Road as vehicles travel to and from the Sheraton Road school precinct, Bunnings and even Orana Mall as traffic originating from West Dubbo attempts to bypass the Cobra Street congestion at peak times each weekday morning and afternoon.

#### Negative impacts to the Macquarie River active living space

Bridge Option A dissects Sandy Beach which forms an integral part of the River walkway that Council has spent years embellishing for the active participation of residents and visitors. It is the start of Parkrun that has in excess of 350 participants each Saturday morning. It is an integral part of the Dubbo Stampede half and full marathon route. An event that has been running for nine years, brings in a lot of running tourists to Dubbo, and portrays Dubbo in a positive and healthy light.

Bridge Option B, whilst not directly impacting Sandy Beach, does dissect Lady Cutler sporting fields. Lady Cutler Park is a major sporting asset to Dubbo for Cricket and football and hosts major events such as the annual NSW State junior cricket camp. Dissecting Lady Cutler Park as proposed in Options A, and B would dramatically reduce the effectiveness and the appeal of this sporting and recreation precinct as well as pose a significant pedestrian safety hazard.

Bridge Option C and D, proposed to connect to Tamworth Street, will sever the 75 hectares of Council owned parkland situated between Tamworth Street and the South Weir. Whilst this land is mostly undeveloped at present, Council needs to plan 20+ years in advance and understand what a huge natural asset this area is to the residents and visitors to Dubbo. The construction of an arterial road and connecting bridge along this Tamworth Street alignment will be a huge impediment to connecting these green spaces.

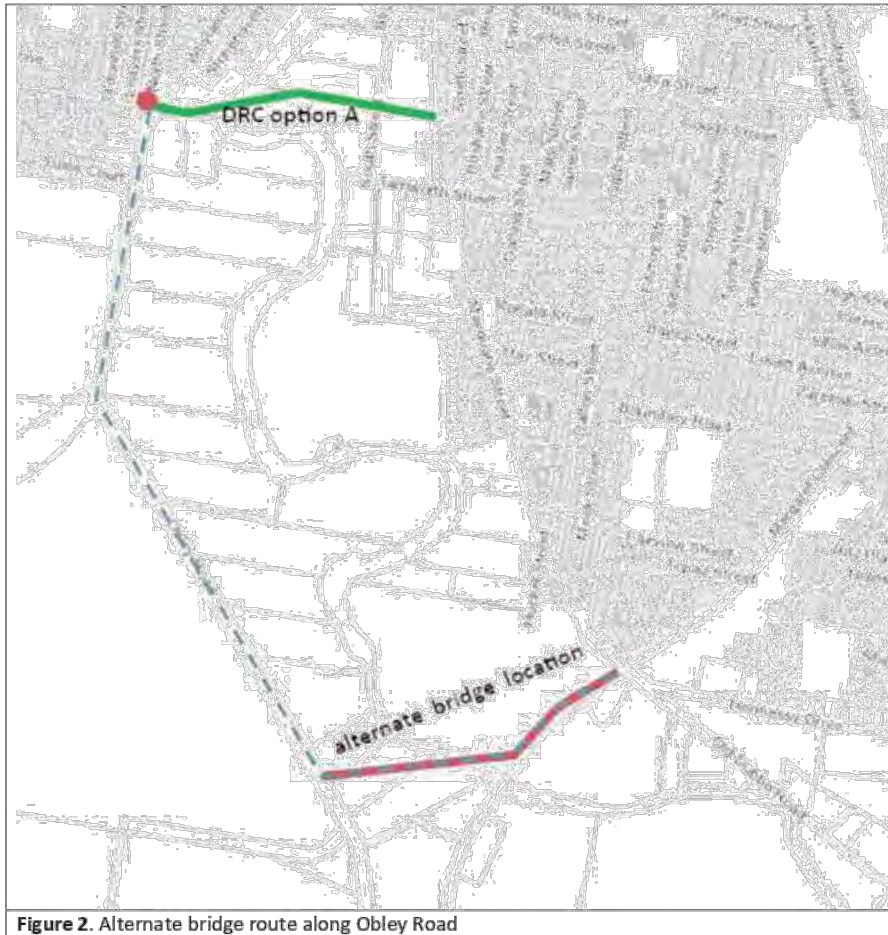
The City of Albury has invested in the strategic design and embellishment of Noreuil Park located on the south-west fringe of Albury city centre. Noreuil Park is bounded by the Murray River and has grassed picnic areas, café, boathouse, public barbeques, walking tracks, and sporting ovals. Noreuil Park is similar to Dubbo's Sandy Beach / Lady Cutler Ovals in the services it provides and its proximity to the city centre, and it is what Sandy Beach could aspire to become with further embellishment. My family and I have spent a number of January holidays in Albury with junior national sporting events, and it is not uncommon to have in excess of 100 people at Noreuil Park at 8pm on a hot summer's evening, swimming, picnicking and walking. None of this is possible if Bridge Options A or B were to proceed.





**Proposed South Dubbo Bridge Options**

heading east toward Sydney. This will be possible once Hennessy Road connection onto Mitchell Highway is undertaken.



**Archived:** Thursday, 17 June 2021 3:37:29 PM

**From:**

**Sent:** Sun, 17 Jan 2021 08:17:55

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Catherine
<b>Surname:</b>	Campbell
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Option D or alternative option along shibbles Bridge.
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:32 PM

**From:**

**Sent:** Sun, 17 Jan 2021 22:48:48

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Karen
<b>Surname:</b>	Pellow
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Being a Run Director of parkrun which has been running in Dubbo for over 5 years and utilises Sandy Beach precinct and the beautiful walking track around the river I disapprove of Option A and B being in consideration. It dissects Sandy Beach which forms an integral part of our beautiful river walkway that Council has spent years improving for the active participation of residents and visitors to Dubbo. We have the most beautiful areas available to everyone around our river, putting a big bridge through there would be very sad for all the users of the area.
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:33 PM

**From:**

**Sent:** Mon, 18 Jan 2021 10:56:21

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Katie
<b>Surname:</b>	Lyons
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:34 PM

**From:**

**Sent:** Mon, 18 Jan 2021 14:16:07

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Fiona
<b>Surname:</b>	Stuart
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>As an active member of Dubbo's Community and a local healthcare professional I am deeply concerned with the bridge options that will hamper opportunities for physical activity for the people of our region.</p> <p>Our regional population of Dubbo and surrounds has a population of people whom 80% are overweight or obese. We need to promote not hamper opportunities for physical activity for both the children and adults alike to assist in changing these statistics.</p> <p>Not only does Sandy Beach, the River track and Soccer fields in this area provide opportunity for structured activity, e.g. parkrun. The Mudrun, Stampede &amp; Soccer. These areas also provide a tranquil, peaceful environment for unstructured physical activity. A bridge would hamper these both. Such a disappointment as this location being so close to the centre of town could assist in bringing tourists to our great City also.</p> <p>Please consider a Bridge option NOT affecting these areas.</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:35 PM

**From:**

**Sent:** Tue, 19 Jan 2021 11:43:58

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

---

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Felicity
<b>Surname:</b>	Taylor-Edwards
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:36 PM

**From:**

**Sent:** Mon, 25 Jan 2021 02:30:51

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	mark
<b>Surname:</b>	gardner
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Both options are terrible. They substantially impact the recreational and sporting precinct of Sandy Beach. They dump large volumes of traffic into streets that wont be able to handle them, creating problems. Bridges need to be planned not just for todays traffic but for the next 50+ years. Both options are fails.</p> <p>A better option is to build a bridge whcih meets Hennessy Lane, which could become the southern bypass. Its a lasting investment and could be part of a better long term plan.</p>
<b>File upload if required:</b>	



**Archived:** Thursday, 17 June 2021 3:37:37 PM

**From:** [REDACTED]

**Sent:** Tue, 26 Jan 2021 22:08:18

**To:**

**Subject:** South Bridge Submission

**Sensitivity:** Normal

**Attachments:**

[South Bridge Submission.pdf](#)

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Good morning

I have attached my submission re the proposed south Dubbo bridge.

Thank you for the opportunity to have a say in this proposal.

Regards,  
Rhonda Lang

Submission re concept plans for a south Dubbo bridge

Disclosure, I am a ratepayer and resident of south Dubbo, and a regular user of the river precincts, both in organised sports and casual use.

Firstly, I wonder why there needs to be a focus on " a 10 minute city", and where and why this concept arose. Surely we prefer to be known as a beautiful city, adequately serviced by sensible traffic routes, and proud of our river environment and inclusive sporting heritage.

I strongly object to either of the proposed concepts A and B, and in fact, to any bridge option that impacts the river corridor through central Dubbo.

1. Traffic congestion

- A. The presentation highlighted the known residential growth areas for the near future as south east and south west. This, coupled with the south eastern education precinct and the growth of services and business in this area, has led to increased traffic from west to east. The reason given for another bridge in south is to reduce traffic over the LH Ford bridge, to give options for west Dubbo residents to get to the CBD, for convenient travel between the south east and south west growth areas, and to maintain Dubbo as a "10 minute city". From the two meetings I attended, I discovered that the main reason is about traffic- to take southeast/ southwest traffic off the LH Ford bridge and direct and filter it through south Dubbo streets.
- B. It is difficult to understand the logic in channelling the proposed increased vehicle traffic through south Dubbo streets and onto already congested intersections with Cobra St. Macquarie, Brisbane and Darling streets are residential streets which have already been affected by increasing traffic. Their intersections with Cobra St are often stop/start zones and delays entering Cobra St would only increase with the river crossing options presented.
- C. Macquarie St consists not just of residential precincts. There are aged care facilities, child care centre, popular children's park, and pedestrian and walkways to the river green space. Increased traffic is not a positive move for safety or amenity for these users.
- D. There is considerable pedestrian and bicycle traffic along Macquarie St, particularly since it is the gateway to the river precinct. We should encourage these activities, but they would be negatively impacted by more traffic due to noise, emissions, safety concerns and accessibility.
- E. The amenity of this iconic south residential area has already been impacted by increased traffic flow, and the plan to route even more traffic through south is untenable. More traffic, more noise, more congestion, more accidents, less safety and less amenity for residents are negative impacts that must be considered.
- F. Dubbo Urban Heritage Review vol 1 asserts the importance of safeguarding character conservation areas in Residential South Dubbo ( pgs 44, 45) and states "the river corridor is undoubtedly the City's most valuable landscape

resource" ( pg 97). Assuming current council policy is in line with these recommendations, it is impossible to reconcile a central south bridge crossing with such policy.

- G. None of the river crossing options are usable during major flooding, which occurs around every 10 years or so.
2. Both concepts A and B presented to residents (and the other two options included later after ratepayer enquiry) will impact heavily on the river precinct:
- A. Safety: the safety of sports people, particularly children, will be affected with many hundreds using the area on a daily basis. Soccer and cricket are major participant sports, and roads intended to move many more 100s of cars through the middle of these sports fields will increase the risk of accidents.
  - B. Access: a major road through this heavily used area will affect access to the river areas and sporting events because of increased congestion and more challenging access, not to mention the need for parking and safe movement
  - C. Amenity: the impact of cars, emissions and noise will detract from all river precinct users, especially casual non-organised activities. I expect there would be a large decrease in walkers, picnickers and those undertaking informal exercise on both sides of the river. These areas are currently an oasis of quiet beauty which would be significantly impacted.
  - D. River sports: sports like park run, canoeing and dragon boating will undoubtedly be affected, with many participants possibly opting out of these sports due to challenging access, noise, loss of amenity and inability to access the river.
  - E. Environment: aside from the noise issues previously stated, the concepts involve the destruction of trees and plant habitat, some of which is many hundreds of years old. Increased traffic will also impact any remaining plant life through increased emissions, and noise and vehicles will negatively impact fauna and biodiversity. How can we put the use of vehicles above this beautiful environmental heritage.
  - F. River flow: another bridge in the central south area could cause more erosion of the river banks, as the water flow will be redirected by pylons in the river bed. This has already happened at the much smaller Tamworth St pedestrian bridge precinct.
  - G. Cultural: sandy beach and the river corridor are iconic to Dubbo, part of our heritage and identity, both for indigenous and later residents. I cannot understand why they would be destroyed in order to save motorists a few minutes inconvenience.

#### Possible solutions

1. Provide easily accessible safe walking and bike paths to encourage residents to walk/ride to work. Since the purported aim is to give options for CBD travel, this could be a viable and less expensive option. A pedestrian/bike path and small bridge immediately north of the LH Ford bridge could be an economic solution with a collateral benefit of healthy exercise.

2. Provide a real long term solution to the increased traffic from the new developments by building a route and bridge more directly between the two growth areas - a ring road to take East West traffic around existing residential areas rather than through them. This option has already been raised in Council planning, so why not bring it forward and provide a sensible flood proof river crossing.
3. Serisier Bridge will be a more attractive option for travel from west into the CBD once heavy vehicles use the new River St Bridge, and possibly a future bypass. This would encourage more Serisier bridge local traffic and take some CBD traffic off LH Ford bridge. The ability to easily and safely turn into Brisbane St north, and more day long parking in this area would improve convenience for CBD workers and further encourage travel via this route.
4. Lobby for a heavy vehicle bypass to remove through traffic from the city streets. This bypass could provide a flood free alternative route around the city, as well as removing considerable congestion in the city.
5. Enable traffic to move more freely along the Cobra St highway, by reinstating double lane traffic, and ensuring the double lanes extend all the way to the Eastern growth and business areas.

Please consider these factors ahead of vehicles and the saving of a few moments travel time.

I appreciate the opportunity to make a submission

Rhonda Lang  
Macquarie St, Dubbo

**Archived:** Thursday, 17 June 2021 3:37:39 PM

**From:**

**Sent:** Thu, 28 Jan 2021 01:47:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Cheryl
<b>Surname:</b>	McLeod
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Please leave Sandy Beach just as it is for the enjoyment of the local community as it has always been
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:40 PM

**From:**

**Sent:** Sun, 31 Jan 2021 07:46:21

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_103968\_31Jan2021184510\_South Dubbo Bridge.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	James
<b>Surname:</b>	Morrow
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	See attached.
<b>File upload if required:</b>	0_103968_31Jan2021184510_South Dubbo Bridge.pdf

To Whom It May Concern,

The South Dubbo Bridge option consideration has been framed around the problem of traffic travelling from West Dubbo to the CBD. The 2020 Dubbo Transportation Strategy Document identifies areas of stressed traffic versus time. Whilst the LH Ford bridge is congested, primary areas of congestion occur along Cobra Street in the modelled scenarios. This suggests that the West Dubbo – East Dubbo commute is the major concern. Creating a third River crossing will simply get more cars across the River only to encounter the same bottlenecks on the eastern side of the River. Without a strategy to manage flow of traffic from east – west across the entire city, either bridge option is flawed and will do little to alleviate the issues identified in the 2020 Dubbo Transportation Strategy Document.

Both bridge options would:

- Destroy the amenity of the existing sporting fields and River recreation areas, decreasing liveability of our city.
- Shift traffic into South Dubbo, affecting liveability of our city for many residents.
- Not reduce travel times from West Dubbo to East Dubbo.

Without a strategy for dealing with traffic flow across our city both bridge options just relocate the existing problems.

Until a longer term plan can be implemented I believe there are some simple changes that could be made to existing infrastructure to improve access to the CBD from West Dubbo. Currently delays occur along the LH Ford Bridge primarily due to restrictions at eastern end of the bridge, these being cars exiting the eastern end to Cobra Street or Macquarie Street. Council does not appear to have considered options of improving the efficiency of the LH Ford bridge and Cobra Street. These could include:

- Widening Cobra Street to two lanes between Fitzroy Street and L H Ford Bridge – there appears to be room in the current road reserve to do this.
- Widening the bridge to tow lanes, especially at the eastern end where double to traffic could get through the existing traffic lights if lanes were duplicated.
- Creating an exit from the existing bridge to Bligh Street via elevated ramp – taking traffic away from the eastern end of the bridge.
- Creating a longer slip lane on the exit to Macquarie Street.
- Creating a slip lane onto the bridge from Macquarie Street, allowing vehicles from Macquarie St to enter the bridge without needing to cycle the traffic lights.

Further changes that could alleviate congestion on the L H Ford bridge could include improving access to the CBD from the north side. Once the River Street bridge is constructed traffic will be reduced in Erskine Street. This will improve access to the CBD via Bligh Street, Talbragar Street Darling Street.

The Brisbane Street rail crossing should be re-established providing additional access to the CBD. This would also alleviate traffic on Talbragar Street, which is constrained by lack of exit to the north between Darling Street and Macquarie Street. By improving access from the north side of the CBD, traffic can be moved from the L H Ford bridge to the underutilised Serisier Bridge. More vehicles will chose to enter and leave the CBD from the northern side if Erskine Street and the Serisier Bridge is made more accessible.

The aim of being a 10 minute city is good at face value but it's contradictory to making our city liveable if it destroys our open parkland and recreational areas. It is contradictory to making our city more liveable if it turns our quiet urban streets into commuter raceways where kids can no longer ride a bike or walk to school without fear of being run over by someone desperate to commute across town in less than 10 minutes.

The 10 minute commute is possible now and will remain so provided residents make sensible decisions on where they live relative to where they work and where their kids go to school. We have affordable housing in all parts of town. If short commuting is a priority for people then they need to make smart choices on where they live. Its not realistic for people to chose to live on one extent of town and expect to be able to commute to the opposite extent within 10 minutes.

So in summary I feel that neither bridge option will achieve positive outcomes with respect to liveability of Dubbo. The more sensible option would be to establish an orbital road and site the South Dubbo bridge accordingly to feed into that road and minimise impacts to already established areas. Relatively minor changes to the existing L H Ford bridge, Cobra Street and Brisbane Street (North) could improve flow of traffic from the West Dubbo to the CBD without the need for a new bridge.

James Morrow

[REDACTED]



**Archived:** Thursday, 17 June 2021 3:37:41 PM

**From:**

**Sent:** Sun, 31 Jan 2021 21:36:19

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_103968\_01Feb2021083513\_SUBMISSION IN RELATION TO THE SOUTH DUBBO BRIDGE OPTIONS FOR DUBBO REGIONAL COUNCIL.docx;

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Anna
<b>Surname:</b>	McLaughlin
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Attached.
<b>File upload if required:</b>	0_103968_01Feb2021083513_SUBMISSION IN RELATION TO THE SOUTH DUBBO BRIDGE OPTIONS FOR DUBBO REGIONAL COUNCIL.docx

**SUBMISSION IN RELATION TO THE SOUTH DUBBO BRIDGE OPTIONS FOR  
DUBBO REGIONAL COUNCIL**

**No bridge options in the South Dubbo Bridge Plan are supported.**

I have been a resident of Dubbo since 2004. For residents, I do not believe there is a more loved and used part of Dubbo than the River area.

I love living in Dubbo but of its many wonderful assets, the greatest of these is the River area. I congratulate the Dubbo Regional Council for the work they have done to date to make this space so wonderful.

I use this space every day and twice a day several times a week, as do many other residents. This space is an asset for all Dubbo residents, not just for those in close proximity.

I use this space to walk my dog each morning. I paddle on the River with the local dragon boat club, I jog around the River, I run with Park Run every chance I get. Many social catchups are a walk around the River. I keep in touch with my community by being able to chat with the other river walkers out and about on the River loop. I am a member of the local Rivercare group which voluntarily maintains the River ecosystem.

**I do not believe any bridge or traffic redirection can be built in this area which would not destroy what is important in this area.**

All bridge options would result in loss of trees and wildlife habitat and affect aquatic species.

These mature trees could not be replaced in my lifetime.

The 3 pictures below show what we could lose.



children.



Enough wildlife habitat has already been destroyed. Can we afford to destroy further wildlife reserves?

Loss of shade would be devastating to the usability of this area. Currently, the river walk is one of the few places you can walk in shade in Summer. As temperatures rise, this will become more and more important. Not every outside activity can be scheduled for early morning and very late evening. The shade allows for an extended time for outdoor activities such as walking or running.

All bridge options would increase traffic noise and air quality. Being away from traffic and buildings is what is special about this area. Listening to the birds in the trees is one of joys of walking in this space.

Any traffic in this area would be very unsafe for the small children and pets that are high users of this area. From plans available, I believe that the safety issue would be enough to make this space unusable for dogs and small children.

I often run into visitors to the Dubbo area either walking or cycling in this area. The cycleway allows a safe cycling option from the CBD to the Zoo and Dundullimal. This area is a beautiful area for tourists to visit and is very accessible from the CBD.

I understand the Tamworth Street walking bridge has already caused a great deal of erosion to the Riverbank. I do not want to see riverbank erosion exacerbated.

It would be heartbreaking to witness the disruption to sporting facilities based in this area. All the many sporting groups who use this area (many informally – including family cricket games) would be affected. Many could not coexist with the traffic that would be directed through this area even if not actually displaced by the traffic or bridge.

**Recommendations:**

- **No new bridge between the CBD and southern residential boundaries**
- Dubbo has potential to be a sustainable city by focusing on investment in cycling infrastructure, walkways & greater use of public transport

Please invest in further infrastructure for cycling.

This could be a preferable and viable alternative to a vehicle for many dubbo trips. Currently the infrastructure prevents cycling. For example, Tamworth Street is not wide enough to allow a bike to travel between the cars on the road and the cars parked. A bike can fit between them, but if a car door opens, the cyclist may be badly hurt. Concrete bases to signage also push bikes into moving traffic. It is viable to use this street for cycling on weekends and outside busy times, but not for travelling to work, for collecting mail, etc. Safe cycling options into and around the CBD would be needed to make this alternative. Even if only 10% of the trip is unsafe for cycling, we are pushed back into the car.

- Prefer a ring road linking growth areas of South West and South East Dubbo.

- Advocate for a bypass road for Heavy traffic

Anna McLaughlin

[REDACTED]

[REDACTED]

[REDACTED]

**Archived:** Thursday, 17 June 2021 3:37:42 PM

**From:**

**Sent:** Fri, 29 Jan 2021 03:39:36

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Liz
<b>Surname:</b>	Mazzer
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I strongly object to both the Tamworth Street and Sandy Beach bridge options.</p> <p>All of the options presented in the report will negatively impact the recreational and aesthetic values of the Macquarie River area. This includes the walking/cycling track, playing fields and river access for fishing, canoeing, dragon boats etc. This area has high use for recreation which has been developed over a number of years.</p> <p>In addition, the Tamworth Street options are likely to increase traffic along Tamworth Street as people do the 'rat run' to avoid Cobra Street. This will make the area around the schools and Tamworth Street shopping center even more congested and dangerous than they are now.</p> <p>I consider that other options should be considered, such as a bridge located further south (eg off Obley Road leading to Margaret Crescent.)</p> <p>Regards</p> <p>Liz Mazzer</p>

<b>File upload if required:</b>	
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**Archived:** Thursday, 17 June 2021 3:37:44 PM

**From:**

**Sent:** Fri, 29 Jan 2021 00:20:56

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_103968\_29Jan2021111923\_Bridge Submission Outback Dragons Dubbo.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Outback Dragons
<b>Surname:</b>	Dubbo Inc
<b>Residential Address:</b>	Sandy Beach
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	See attached
<b>File upload if required:</b>	0_103968_29Jan2021111923_Bridge Submission Outback Dragons Dubbo.pdf

**OUTBACK DRAGONS DUBBO INCORPORATED****SUBMISSION IN RELATION TO THE SOUTH DUBBO BRIDGE OPTIONS FOR  
DUBBO REGIONAL COUNCIL****About Outback Dragons Dubbo**

- Outback Dragons Dubbo is an incorporated club established in 2005. Our team quarters are located at Sandy Beach and our dragon boats are launched from Sandy Beach to paddle on the Macquarie River at least three days per week in summer and weekly in winter.
- Dragon boat paddling promotes health and also raises breast cancer awareness. It is helping to change attitudes toward "life after breast cancer" and it encourages men and women to lead full and active lives by giving breast and other cancer survivors confidence and pride.
- The Outback Dragons' ethos is that paddling is mentally and physically rewarding and a vehicle for improving quality of life. Our mandate is to encourage participation within the framework of support and inclusiveness.
- Current membership is 60 men and women from the Dubbo and regional community and includes paddlers with visual and hearing impairments.
- The club contributes to our Dubbo economy by participating in community events, spending locally and providing an exercise opportunity with most members aged between 40 and 70.
- After reviewing all 4 bridge options it is considered that they will all have a detrimental affect on our sporting club however Option A-Bridge over Sandy Beach will have the greatest impact.

**Impact of Option A on Sandy Beach Outback Dragon Team Quarters**

- Since its inception Outback Dragons has enjoyed the convenience of a low-cost storage facility (purchased with club funds) and use of the amenities block at Sandy Beach. A bridge over Sandy Beach will end this and require the club to relocate somewhere else along the river that can accommodate 3 dragon boats and other sporting equipment such as paddles and life jackets and enable safe launching of boats.
- Parking is currently readily accessible at the two Sandy Beach car parks. During the lengthy construction phase access to Sandy Beach amenities block and car parks will no doubt be limited or non-existent due to safety and security needs.

- On completion the bridge may also mean access to Sandy Beach is limited or non-existent. Relocation will have a detrimental and costly effect on our club and ratepayers.
- On looking at the plans currently available, due to the specific location of the Sandy Beach bridge, if the club were to continue paddling from Sandy Beach we would need to launch on the upstream side of the bridge. Depending on the span of the multiple pylons it may not be consistently safe to paddle between them especially if there is a buildup of debris.
- Our present site is a visible public site which reduces the opportunity for vandalism to our equipment. The possibility of a less central location of club facilities will risk increased attacks of vandalism.

### Safety Issues

- From past experience we know that bridges increase the temptation for children to use the dragon boats as targets for rock and bottle throwing. We occasionally experience such attacks and certainly don't want an escalation of such activities.
- Increased traffic on Sandy Beach Road, South St/Bligh St and Tamworth St and Macquarie St will be dangerous to our club members and all other River precinct users accessing the site.

### Environment

- Currently we get to paddle in an extraordinary natural environment in the centre of the city. Our ability to do this is a unique feature of Dubbo.
- All the bridge options will result in destruction of trees and other plant habitats, some of which are hundreds of years old. Users of the river precinct will lose necessary shade and habitat for birds and animals will be negatively affected. This, along with increased vehicle noise and emissions, will seriously affect the ambience of our beautiful river environment.
- Bridge construction alone will seriously endanger the fauna and flora and access to the riverbank. This will result in less engagement in the sports currently utilising our river precinct.
- Traffic noise would impact on the quiet sanctuary this part of the river currently provides with air quality also being compromised by traffic emissions.
- Any new bridge to the South of L H Ford bridge will change the River flow and contribute to erosion of the riverbank. For example, the Tamworth St walking bridge has caused considerable erosion to the riverbank. The River is currently shallow at Sandy Beach, which allows the safe launching of our boats.

- Changes in flows would have an unknown effect of the capacity of the river to allow a dragon boat to be paddled.

**Recommendations:**

- **No new bridge between the CBD and southern residential boundaries**
- Dubbo has potential to be a sustainable city by focusing on investment in cycling infrastructure, walkways & greater use of public transport
- Prefer a ring road linking growth areas of South West and South East Dubbo.
- Advocate for a bypass road for Heavy traffic

Contact:  
Graeme Board  
President  
Outback Dragons Dubbo  
[REDACTED]

**Archived:** Thursday, 17 June 2021 3:37:45 PM

**From:**

**Sent:** Mon, 1 Feb 2021 03:53:51

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_01Feb2021145205\_Tracker Riley Extension and resurfacing.jpg

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Tom
<b>Surname:</b>	Hudson
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>Hi,</p> <p>I would like to propose that council repurpose the old rail corridor from Macquarie Street to Wingewarra Street with an extension on the Tracker Riley Cycleway with further multi-purpose walking and cycling track.</p> <p>This addition would provide nearly an extra 4km of (mostly) uninterrupted walking/cycling space through the centre of Dubbo.</p> <p>The repurposed corridor would provide pedestrian access to Apex, the new RAAF development and park area and would connect to the existing track that goes out to the Zoo - creating a major loop for exercise and commuting. A pedestrian footbridge over Cobra street would mitigate pedestrian traffic issues.</p> <p>I believe a pedestrian route like this could create more opportunities for people to ride or walk to work, removing vehicles from major areas of congestion.</p>

It would also be excellent to see the remainder of the dirt walking tracks around the river (both banks - from the Water Treatment Plant to Serisier Bridge) concreted to further complement the existing Tracker Riley Cycleway.

I believe that resurfacing the existing Tracker Riley from Taronga Western Plains Zoo to Macquarie Street would encourage more use, exercise and activity for the broader community.

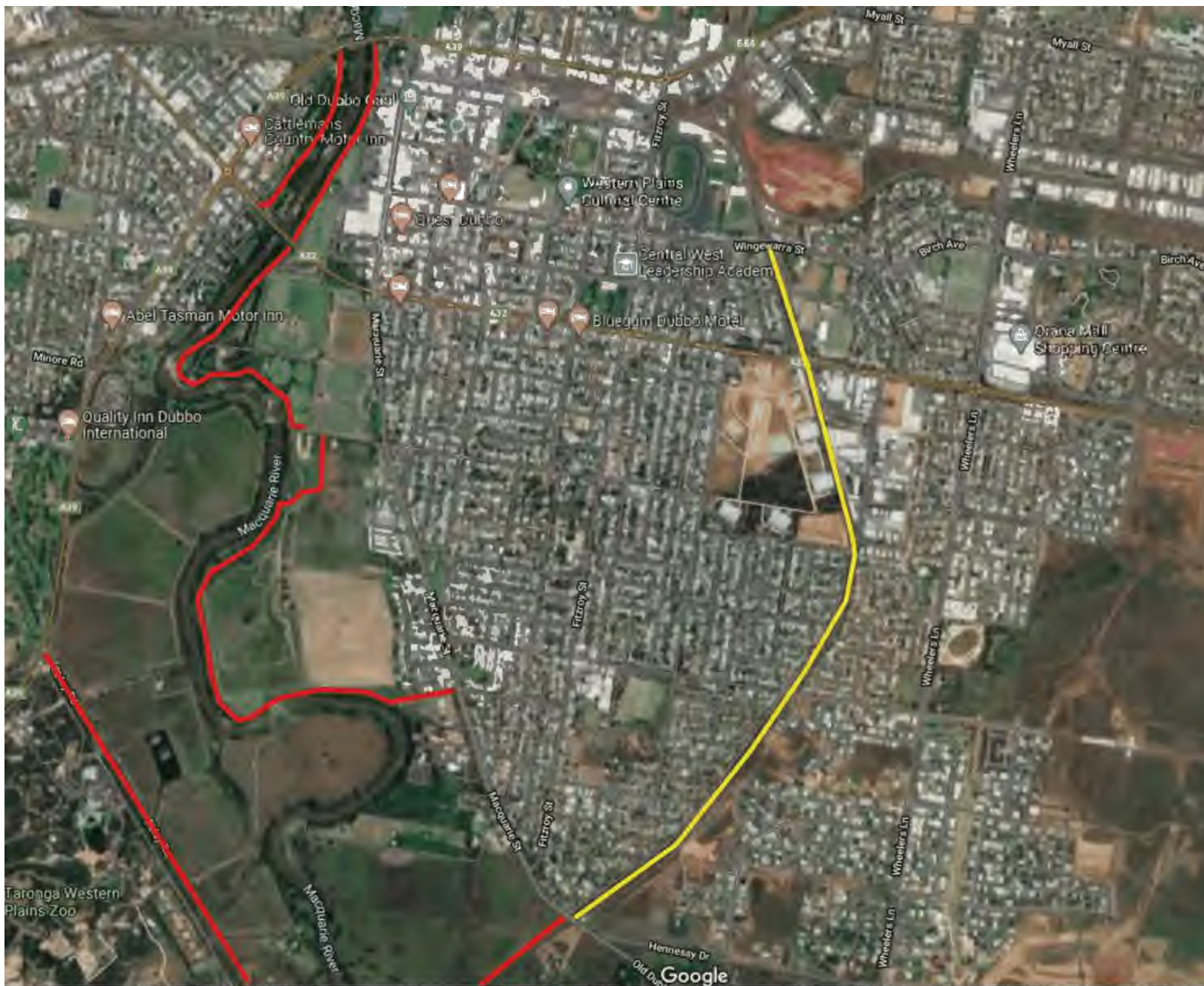
I think that adding to Tracker Riley and upgrading walking areas around the river would be beneficial to the Dubbo community.

Kind regards,

Tom Hudson

**File upload  
if required:**

0\_105454\_01Feb2021145205\_Tracker Riley Extension and resurfacing.jpg



 Existing track to be upgraded

 New proposed walk and cycle way

**Archived:** Thursday, 17 June 2021 3:37:46 PM

**From:**

**Sent:** Sun, 31 Jan 2021 23:47:07

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Peter
<b>Surname:</b>	Duggan
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I can't remember if I have made a submission regarding the south Dubbo bridge options already but here are my comments as follows:</p> <p>- The need for the south Dubbo bridge and its benefits is overinflated in the consultants report and its negative impacts not fully explored. The bridge would destroy a priceless part of the town (cultural, environmental, aesthetic and heritage values) in either of the options for little gain. A better proposal would be to construct an adjacent duplicate of the L H Ford bridge on its northern side. Travel by bike could be incentivised by the Council with expanding the bike path network as well as more frequent bus services. Less pollution and a saner future.</p>
<b>File upload if required:</b>	



**Archived:** Thursday, 17 June 2021 3:37:48 PM

**From:**

**Sent:** Mon, 1 Feb 2021 21:31:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	susan
<b>Surname:</b>	bymes
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	████████████████████
<b>Submission:</b>	<p>Hi</p> <p>I live in South Dubbo. I would like to commend the council for the work that they have done to encourage healthy lifestyle and outdoor walking areas within and around the river. This is what I believe will attract people to visit and possibly live in Dubbo. The green spaces within the city are a valuable resource that will have impact on future generations if they are able remain as they are. The council presented goals in terms of travel times and roads but no mention of citizen health and wellbeing or green spaces which I was disappointed about. I believe both options will bring traffic into suburban streets. Tamworth st will have traffic looking to move out to boundary road. I believe a link road should be put in from Obley road and around to east. Putting a bridge across ruins a beautiful space that is used by many - it is short term solution that has big impact on many citizens . Solving problem for West Dubbo by creating a problem for South Dubbo .</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:49 PM

**From:**

**Sent:** Tue, 2 Feb 2021 09:55:36

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Emma
<b>Surname:</b>	Webster
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I am writing to express my extreme disappointment at the four proposals for a South Dubbo bridge.</p> <p>My leading objection is the obliteration of the most iconic riverbank area of Dubbo. The Sandy Beach, Regand Park walking track, Lady Cutler and Sir Roden Cutler areas have environmental, tourism and recreational value which would be ruined should any of the proposals go ahead. As an example, platypii have been observed in the exact location of the proposed bridges. Destroying their habitat is unforgivable.</p> <p>My second objection is that none of the proposed bridges change the traffic congestion problem of moving traffic from west Dubbo residential areas to traffic generation points in east Dubbo (schools, shops). If none of the proposed bridges fix this problem, then surely this is a waste of tax payers money?</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:50 PM

**From:** [REDACTED]

**Sent:** Tue, 2 Feb 2021 09:44:25

**To:**

**Subject:** SOUTH DUBBO BRIDGE CONCEPT DESIGNS LETTER - DUBBO REGIONAL SPORTS COUNCIL

**Sensitivity:** Normal

**Attachments:**

Letter - Dubbo Regional Sports Council submission to the South Bridge Concept.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Hi,

Please find attached letter from the Dubbo Regional Sports Council in regard to the South Dubbo Bridge Concept Designs.

Regards

Neil Webster  
President  
Dubbo Regional Sports Council



Dubbo Regional Council  
PO Box 81  
Dubbo NSW 2830

Dear Sir

**DUBBO REGIONAL SPORTS COUNCIL – RE PROPOSED SOUTH DUBBO BRIDGE CONCEPT DESIGNS**

I am writing on behalf of the Dubbo Regional Sports Council who unanimously and vehemently oppose the two (later increased to four) concept designs for the proposed South Dubbo Bridge. Our opposition to the proposed South Dubbo Bridge Concept Designs is based on the untenable impacts to sporting and recreation facilities and activities in the Lady Cutler precinct. These include safety concerns for precinct users and reduction in Dubbo Regional Council ability to attract large sporting events. The details of our concerns are outlined below.

The new bridge and road network will increase traffic and **reduce the ability for precinct users to move easily and safely between ovals**. This presents a safety issue for children, parents and spectators using the busy sporting precinct. We note that issues currently exist with soccer and cricket balls landing on the road and children running out after them. Increasing traffic would increase risks to both motorists and pedestrians.

Lady Cutler precinct is a highly desirable venue for large state sporting carnivals given the number of ovals in area and the ability for players, officials, spectators and support staff to move easily between ovals. Attracting large carnivals to Dubbo brings in millions of dollars each year to businesses in the region. Dubbo Regional Council estimates the value of sporting carnivals at \$190 per person per day or \$211 per person per night. A busy bridge and road network **would make the precinct less desirable and indeed prevent Dubbo Regional Council from tendering for future events as the precinct will no longer meet criteria expected to host state sporting events**.

Dubbo Regional Council has recently invested millions of dollars in upgrading the Lady Cutler precinct to attract these major sporting events to Dubbo. The development of Pavan's field at a cost of \$1m and the allocated \$1m for new amenities at the oval are recent examples. Building a bridge and road network through this precinct reduces significantly the value of this investment and would be seen by ratepayers as a waste of public money.

Current major events to be negatively effected by proposed South Dubbo Bridge

- PSSA State Cricket Carnival: 420 participants over 4 days
- Under 13, 14, 15 Boys and Under 13 Girls State Cricket Carnival (January 2020). 600 participants and spectators over 4 days
- Cricket NSW Under 13, 14 and 15 Boys Youth Championships (October 2019) 800 participants and spectators over 4 days

- Macquarie Titan Mud Run (2018, 2019) 2,000 participants
- Dubbo Stampede (2018 and 2019) 2,000 participants
- National Disc Golf Championships 90 participants
- Eastern Regionals Ultimate Frisbee Championships, (February 2019) 300 participants and 200 spectators over 2 days
- Dubbo Sixers Soccer Tournament 1000 participants and spectators
- Dubbo Triathlon Interclub Event 350 participants and spectators

Future major events which would be negatively effected by the proposed South Dubbo Bridge

- NSW Touch Country Championships: 1500 participants and spectators
- NSW Touch State Cup: 8000 participants and spectators
- NSW Touch Junior State Cup: Southern conference 10,000 participants and spectators
- Regional and State Football Carnivals: thousands of players and spectators
- Combined Catholic Colleges: Combined High Schools and PSSA State Football, Touch and Cricket carnivals

The new bridge and road network will also **reduce available car parking**. This will effect current users of the precinct for either sporting or recreational purposes eg parkrun, walkers, bike riders etc. Dubbo Regional Council will be required to invest significantly in car parking as a result. This does not appear to be costed as part of the redevelopment.

The proposed South Dubbo Bridge will significantly negatively impact these sporting, school and recreation users of the Lady Cutler precinct:

- Dubbo and District Football: 2,550 junior and senior members utilise precinct daily all year round for training and competition
- Dubbo and District Cricket: 350 members utilise precinct Tuesday to Friday for training, Saturdays for local competition and Sundays for representative cricket
- Dubbo and District Junior Cricket: 675 members utilise precinct Tuesday to Friday for training, Thursday afternoons and Saturdays for local competition and Sundays for representative cricket
- Parkrun Dubbo: average 320 participants utilise Sandy Beach and Tracker Riley path every Saturday (6,150 registrations of which 5,350 have a Dubbo postcode)
- Dubbo Disc Golf: Approx. 20-30 members
- Outback Dragon Boats: Approx: 15-20 paddlers utilise Sandy Beach twice weekly
- Dubbo Paddle Club
- Dubbo Triathlon Club: 150 members utilise Tracker Riley pathway and Bligh Street for training, local and inter-club competitions.
- PSSA School Sport in Term 2 and 4 utilise all ovals every Friday for school sport. All Primary Schools in Dubbo are involved in School Sport program with 1,800 primary children participating
- Western School Sport Football (Soccer) and Cricket Team trials, training, competition games and carnivals for Primary and High School
- Dubbo and District School Sport Football and Cricket Team trials
- Catholic School Regional Soccer Gala Day hosted by St Laurence's Primary School
- Seriser Cup, Astley Cup, Ken Eggleton Cup
- Cross Country: 10 schools utilise Lady Cutler Precinct, Tracker Riley and Sandy Beach
- School Sport State CHS Cricket Finals
- Tracker Riley: cyclists, walkers, runners
- Sandy Beach: Disc Golf, Paddlers, Fishers, Swimmers
- Regand Park: cyclists, walkers, runners, fitness groups
- Macquarie River: Paddlers, Boating, Fishing, Swimming

- Sir Roden Cutler Park: cyclists, walkers, runners, fitness groups, children on new ninja course etc

In conclusion, the Dubbo Regional Sports Council has not been able to identify a single positive outcome for any user group as a result of any of the proposed South Dubbo Bridge concepts. We urge you to reconsider the location of the bridge to ensure no reduction in safety or amenity of the Lady Cutler precinct. Our community depends upon these facilities- not just because sport and recreation are central to the Dubbo way of life, but because every missed sporting carnival costs our community millions of dollars.

Please contact me if you would like to discuss further.

Yours sincerely,



Neil Webster  
President  
Dubbo Regional Sports Council

**Archived:** Thursday, 17 June 2021 3:37:51 PM

**From:**

**Sent:** Tue, 2 Feb 2021 03:05:24

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_103968\_02Feb2021140450\_my bridge submission.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Trish
<b>Surname:</b>	Taylor
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	0_103968_02Feb2021140450_my bridge submission.pdf

SUBMISSION IN RELATION TO THE SOUTH DUBBO BRIDGE OPTIONS  
FOR DUBBO REGIONAL COUNCIL

No bridge options in the South Dubbo Bridge Plan are supported.

My family and I moved to Dubbo in 2011 for my young twin sons to start Kindergarten. We loved the open space, and our favourite is the River area. As permanent residents, we do not believe there is a more loved and used part of Dubbo than the River precinct.

The Dubbo Regional Council should be congratulated for the wonderful work they have achieved to date making this entire space a community and tourism asset.

I use this space several times a week and twice a day several times a week, as do many other residents. I am a member of Breast Cancer walking group and we walk around the river every Wednesday morning.

I paddle on the River with our local dragon boat club, Outback Dragons Dubbo three times a week. I am also a part of a Breast Cancer survivor – Dragons Abreast Dubbo team that is incorporated into the sporting team.

I walk /run around the around the River, with Park Run most Saturday mornings and at other times with Vixens and Kits – the local women’s running group. My friends and I use the river for social catchups including a casual walk or bike ride around the River. I participate in Dubbo Stampede that utilises the River circuit in the event.

My teenage sons and I walk to catch Pokémon around the River walk – it is loaded with virtual Gyms and Poke stops to encourage children and adults alike to walk. My teenage sons are involved in 1<sup>st</sup> Dubbo Scouts and they use the river for water sport activities Canoeing and kayaking several times a year. Their high-school, Dubbo Christian School, uses the river walk for weekly sport on Tuesday. My sons are also play soccer at the soccer fields during the soccer season.

In my opinion all bridge options would result in loss of trees and wildlife habitat and affect aquatic and bird species. The loss of these beautiful mature trees could not be replaced in my or my sons’ lifetime.

As a Cancer Council Sun Safe advocate, the loss of shade would be devastating to the usability of this area with the river walk being one of the few places you can walk in some shade in any season. The availability of such a safe walking/running/cycling track is so important for the community’s ability to exercise in a comfortable and well-maintained environment.



Located away from traffic and buildings is what makes this area so special. One of joys of walking in this space is listening to the birds and 'spotting' them – my friend is a keen bird photographer involved in a local Birdwatch group and during our Breast Cancer group walks she stops to photograph them.

The entire Tracker Riley cycleway allows bicycle users, both casual and formal groups - especially children a very safe cycling option. It is a beautiful area for locals and tourists to travel from the CBD to the Zoo and Dundullimal.

The disruption to sporting facilities based in this area would be extensive. Every single sporting group who uses this area could be affected. I cannot see how with the increase in traffic that would be directed through this area, that it would remain safe for the children of Dubbo and surrounding areas – including Wellington and Narromine – who also participate in our sporting teams.

Recommendations:

- No new bridge between the CBD and southern residential boundaries
- Dubbo has potential to be a sustainable city by focusing on investment in cycling infrastructure, walkways & greater use of public transport.

Please invest in further, future cycling infrastructure.

A preferable option and viable alternative to a vehicle for many Dubbo trips. The current infrastructure inhibits cycling.

For example, Tamworth Street is not wide enough to allow a bike to travel between the cars on the road and the cars parked. A bike can ride between them, however if a car door were to open, the cyclist may be injured.

Concrete bases to road signage also push bikes into moving traffic. Safer cycling options into and around the CBD could be an alternative and reduce local traffic and encourage more children to ride to school and adults to ride the 5km to work. Even if only 1% of the trip is unsafe for cycling, people will choose the car.

- Prefer a ring road linking growth areas of South West and South East Dubbo.
- Advocate for a bypass road for large vehicles and Heavy traffic.

Trish Taylor

████████████████████  
████████████████  
████████████████

**Archived:** Thursday, 17 June 2021 3:37:53 PM

**From:**

**Sent:** Tue, 2 Feb 2021 06:08:14

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_02Feb2021170757\_South Dubbo Bridge draft plans A and B Submission to DRC.docx;

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	MARGARET
<b>Surname:</b>	MCDONALD
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Please find attached the submission from Dubbo Environment Group. We thank you for the opportunity to comment on these draft bridge and roadway plans.
<b>File upload if required:</b>	0_105454_02Feb2021170757_South Dubbo Bridge draft plans A and B Submission to DRC.docx



**New South Dubbo Bridge draft plans A and B Submission to DRC  
(Dubbo Environment Group)**

Dubbo Environment Group understands that the growth of our city of necessity requires built infrastructure projects be considered from time to time. Our concern, always, is that such infrastructure impacts the local and broader environment as little as possible. Consideration must be given not only to immediate impacts but to possible impacts in the long-term as well. For example, the future preparation for a 4-lane LH Ford bridge initially, would have saved costs and other negative consequences for any new locations now.

Dubbo sits on the central western plains and has been cleared for agriculture and development to the extent that very little natural habitat for our birdlife, reptiles and mammals exists from pre-colonisation times. It is estimated that over half of the original forests of NSW have been cleared. Even the poor- quality scrub of Beni Forest and Goonoo Forest, overlooked by farmers, has been depleted of old-growth trees by timber cutters. In a time when the UN is calling all countries to act urgently to combat the consequences of Global Warming, the protection of any old-growth trees should be a high priority.

Our Macquarie River is precious not only as a natural community green-space, but as a refuge for many species of flora and fauna. Centuries- old river gums exist only along our river and provide valuable nesting places for animals and birds. Bridges trap debris in flooding periods, divert natural currents which erode banks, flush the river with toxic run-off and can change water patterns which then deters native fish. The removal of any of these hollow-bearing trees so close to Tracker Reilly Walkway and to Sandy Beach, one of the few places of natural beauty in Dubbo, would be a tragedy for locals and visitors. These hollow- bearing trees are not only rare in their age - they attract wildlife and birds such as the masked owl, they cool the city, provide shade for the river banks and water, add protection for water animals and fish, filter pollution, stabilise the banks and sequester considerably more carbon than young trees.

In NSW, platypus observations have declined by an estimated 32% in the last 30 years. Dubbo has recorded platypus sightings in Golf Links Creek at the Sandy Beach footbridge in the last 6 years. A platypus was sighted early one morning on the golf course some 4 years ago. UNSW scientists recommend that the platypus be listed as a threatened species.

Turtles are often seen in Macquarie River and other waterways. A near-endangered Broad-shelled Turtle, *Chelodina expansa*, was found nesting on the bank of Sandy Beach approximately 4 years ago by a member of Dubbo Field Naturalists and Conservation Society

Threatened Grey-crowned babbler live in the woodland around the Golf course and river bank area of Option A and B bridges and roadways.

The rakali or native water-rat has often been seen in the Macquarie River.

**Recommendations:**

Dubbo Environment Group strongly rejects both A or B bridge options. Dubbo's congestion needs addressing. Our preference is for a new bypass which crosses the river at Troy Bridge, taking traffic out of our city entirely. We think that when this best option is achieved, the construction of a ring road directing traffic around the city, east to west, should then, and only then be considered.

**Archived:** Thursday, 17 June 2021 3:37:54 PM

**From:**

**Sent:** Fri, 5 Feb 2021 06:15:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Ben
<b>Surname:</b>	Orford
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>As a resident of Dubbo, someone who regularly uses the sporting facilities, lives on the west side but works on the east side and someone who has engineering qualification and a transport back ground, of the 4 options the best one is option 3 from minor to Tamworth via the zoo land with an intersection that facilitates south st/bligh st slip lane. As the supporting documents show and it should be emphasised and repeated daily by the Mayor Ben Shields:</p> <p>The strategic business case for south Bridge reference on page 6 that south bridge would remove between 18-23% of vehicles from whylandra st and cost \$35m-45m, where as a town bypass would cost ~\$700m and remove only 8%-10% of vehicles from whylandra st. This factual point is very important and needs to be made and emphasised under the need for the importance of South Bridge. It needs to be noted that South Bridge will be flood prone and also will be limited to smaller sized vehicles unlike North Bridge which has neither restraint.</p> <p>However as dubbo currently only has two traffic bridges and one is flood prone and the other cant take road trains, the Best option for Dubbo is a High level Road train rated North Bridge combined with a low level light vehicle south bridge. Councils analysis shows that once these two features are added to Dubbos network, the network is stable and viable until 2055.</p> <p>Dubbos transport issues cannot be met by any one solution. The Council needs to be brave and do what is right, and listen to the wisdom and evidence presented by the council engineers instead of listening to an unqualified activist NIMBY hearsay.</p> <p>From the Transportation strategy:</p>

	<ul style="list-style-type: none"><li>• Figure 5.7.2 Indicative Long Term Projects The 2055 demand indicate that the "Bypasses", PJ 42, PJ 43 and PJ 52 may only have a marginal benefit and are not viable. TINSW agrees with the statement but Councils document does not emphasize this enough. A statement similar needs to be in the executive summary.</li><li>• 2.6.4 Electric Vehicles and Noise During the course of this work it has become apparent that further State investment on a Bypass is unlikely to be justified even in the long term (35 years plus). TINSW analysis concurred with this statement and believe it needs to be highlighted in the executive summary and mentioned multiple times throughout the documents instead of in this section.</li></ul>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:37:55 PM  
**From:**  
**Sent:** Fri, 5 Feb 2021 04:51:00  
**To:**  
**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020  
**Sensitivity:** Normal  
**Attachments:**  
0\_103968\_05Feb2021154924\_121014\_LEO\_Final.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Matthew Thome
<b>Surname:</b>	Premise Australia Pty LTd
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	0_103968_05Feb2021154924_121014_LEO_Final.pdf



Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission

5 February 2021

The Chief Executive Officer  
Dubbo Regional Council  
Via email: [REDACTED]

**Attention:** Manager Growth Planning, Steven Jennings

Dear Mr Jennings

**SUBMISSION ON THE DRAFT DUBBO TRANSPORTATION STRATEGY REVIEW 2020**

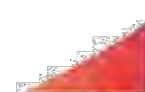
Premise Australia Pty Ltd (Premise) acts on behalf of a group of landowners in the south-east sector of Dubbo being the owners of a significant portion of land in the south-east Dubbo area including: -

- South Keswick Family Company Pty Ltd;
- Kanilast Pty Ltd; and
- Mr D and Mrs L Wykes; and

Premise Australia Pty Ltd is pleased to make this submission in regard to the Draft Dubbo Transportation Strategy Review 2020 (draft Strategy). Premise thanks Dubbo Regional Council (DRC) for the opportunity to comment on this draft strategy.

Premise understands the draft strategy is a review of the original Dubbo City Transportation Strategy to 2045 which was adopted by Dubbo City Council in 2012. The draft review provides Development Horizons to 2055 for the various areas of Dubbo City. The draft strategy notes that the south-east sector will continue to develop residential housing of 1150 lots to 2030 and 800 lots from 2030 to 2040.

**Figure 1** highlights the landowners in the south east sector impacted by the proposed strategy.









Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission

#### SUBJECT OF SUBMISSION

The draft strategy includes road alignments which traverse the south-east sector. These include the Sheraton Road link and Blueridge link road which are described as:

*"PL3 Sheraton Road extension to Hennessey Drive – a perfect example of cooperation to achieve the best connectivity involving the developer, with payment from Developer Contributions"*

*"PL14 Blueridge is currently only served by Mitchell Hwy and access from Sheraton Rd (schools) is inappropriate. The 2007 Strategy relied on the expensive Southern Distributor... The lack of growth of external traffic precluded this option in the foreseeable future but there are local demands that will be relieved by this link, plus it will be beneficial to the development of this employment Hub. Requires immediate negotiation."*

These road alignments are forecast to be completed from 2020-2030. The draft strategy recognises the Sheraton Road link as a two lane road with a speed limit of 50km and the Blueridge link as a two lane road with a speed limit of 40-50km.

We note that the draft Strategy only depicts road linkages with their locations represented as high-level concepts. Notwithstanding the conceptual nature of the alignments shown in the strategy, the purpose (in part) of this submission is to object to the proposed alignment of the Blueridge Link Road (PL14) shown in **Figure 2** (below).

The reasons for this objection include and are discussed below:

- Need to separate heavy vehicles from residential and school vehicles along Sheraton Road;
- Location of intersection of Blueridge Link Road with Mitchell Highway; and
- Failure to meet landowner needs.

#### PURPOSE OF SUBMISSION

The purpose of this submission is to seek DRC's consideration of a road alignment for the Blueridge Link Road. It is our opinion that this proposed road alignment of the Blueridge Link Road would meet the objectives of the draft Strategy and would benefit DRC and the community by providing some certainty in the shorter term and in due course providing increased traffic functionality and safety within the locality.

This submission seeks Council's support by the means of an approved Council recommendation that the Blueridge Link Road should proceed subject to ensuring that the exit point onto the Mitchell Highway is confirmed while the road alignment may remain flexible to allow for future land use planning and design of the affected properties.



Figure 1: Development Horizon Map 2020-2030

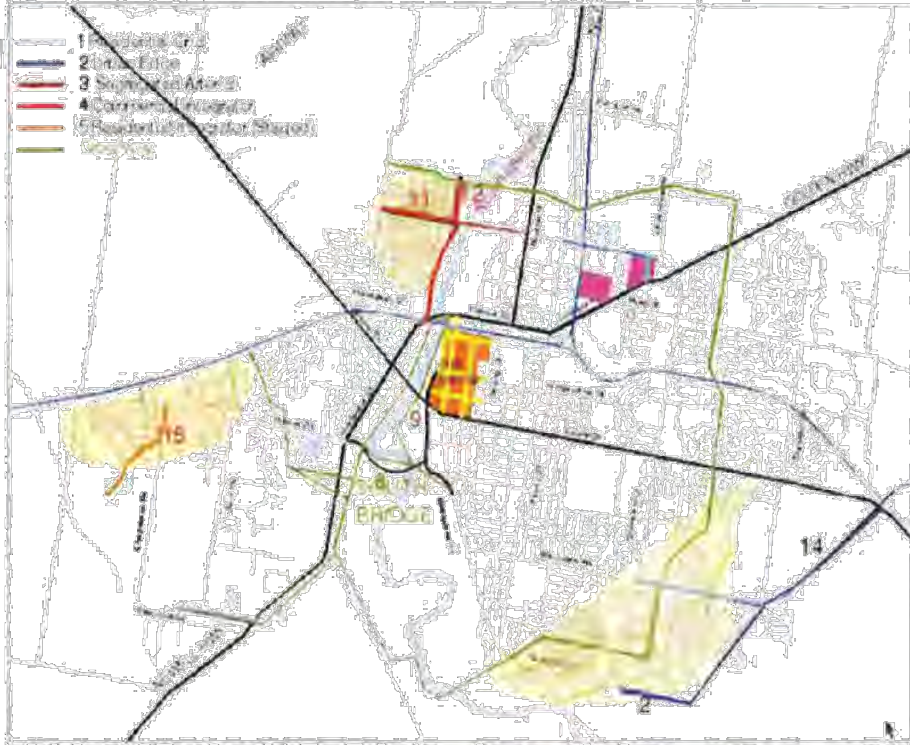


Figure 2: Development Horizon Map

**ISSUES/REASONS FOR PROPOSED ROAD ALIGNMENT**

This section provides an analysis of issues which would impact the alignment, functionality and safety of the future Blueridge Link Road. These issues form a major component for the justification of the proposed road alignment for the Blueridge Link Road as provided in this submission.

**LAND ZONING**

In the south-east sector a large amount of land is zoned as 'employment land' which is currently vacant. This land will generate employment opportunities during development and after development. The area has a mixture of land use zones which include:-

- R1 General Residential;
- R2 Low Density Residential;
- R5 Large Lot Residential;
- B5 Business Development;
- B7 Business Park;





- IN2 Light Industrial;
- IN3 Heavy Industrial;
- RU2 Private Recreation; and
- RE2 Private Recreation.

**Figure 3** provides a review of the land zoning arrangement in the area. There is a mixture of land use zones in the area which means heavy vehicle trips and standard residential trips would use the Blueridge Link road. These trips are accounted to the location of extractive industries in the area, the Blueridge Business Park, three very busy schools and significant nearby residential development.

#### LAND USE

**Figure 4** provides a review of the actual land uses occurring in the area. In this sector, along Sheraton Road are two quarries; one owned Regional Quarries and the other owned by Holcim (Australia) Pty Ltd which is currently the subject of a state significant development application for extension to the south. These industries generate a large number of heavy vehicle trips along Sheraton Road to the Mitchell Highway. There are three very busy Dubbo schools located along Sheraton Road and the combined use of Sheraton Road for heavy vehicle movements and residential/school trips has been an ongoing concern in Dubbo for many years.

As a component of the development of Blueridge Estate, a significant overland flow path and series of detention basins were constructed within the road reserve corridor along its eastern boundary, draining from the north to the south and effectively separating the commercial area of Blueridge Estate from the schools to the West. The draft strategy notes that the use of Sheraton Road by the heavy vehicles traffic is inappropriate.

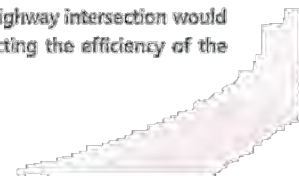
#### STRATEGIES FOR FUTURE USE

The Dubbo Employment Lands Strategy includes the following opportunities which relate to Blueridge Estate including the industrial zoned land:

- *Infrastructure is planned to allow development on vacant land to continue in a sustained manner.*
- *Good supply of land to enable the continued growth of Blueridge.*
- *Encourage high quality development with appropriate built form, bulk and design.*
- *Existing zone allows a wide variety of uses to re-locate to this precinct.*
- *Good transport linkages between the precinct and the adjoining highway and CBD.*
- *Future development has good road connections to allow future expansion onto other land within the precinct.*
- *Consider long term transport routes and their impact on the highway ensuring the efficiency of the Mitchell Highway.*
- *Ensure the CBD is not undermined through inappropriate use.*
- *Review existing Structure Plan for the precinct.*
- *Monitor land uses as Blueridge Business Park expands with a view to ensure the precinct does not significantly undermine the commercial centres hierarchy*

The proposed Blueridge Link Road would encourage the area to develop in a manner which reflects the opportunities created by the estate. The proposed road alignment would facilitate development of the IN2 Light Industrial zoned land in a sustained manner to allow only one direct access to the site from Mitchell Highway. The existing commercial zoned land of Blueridge would continue to be access via an existing access point on the Mitchell Highway.

The Blueridge Link Road being developed in an appropriate alignment and Mitchell Highway intersection would allow the continued growth of the area with good transport linkages without impacting the efficiency of the Mitchell Highway.





Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission

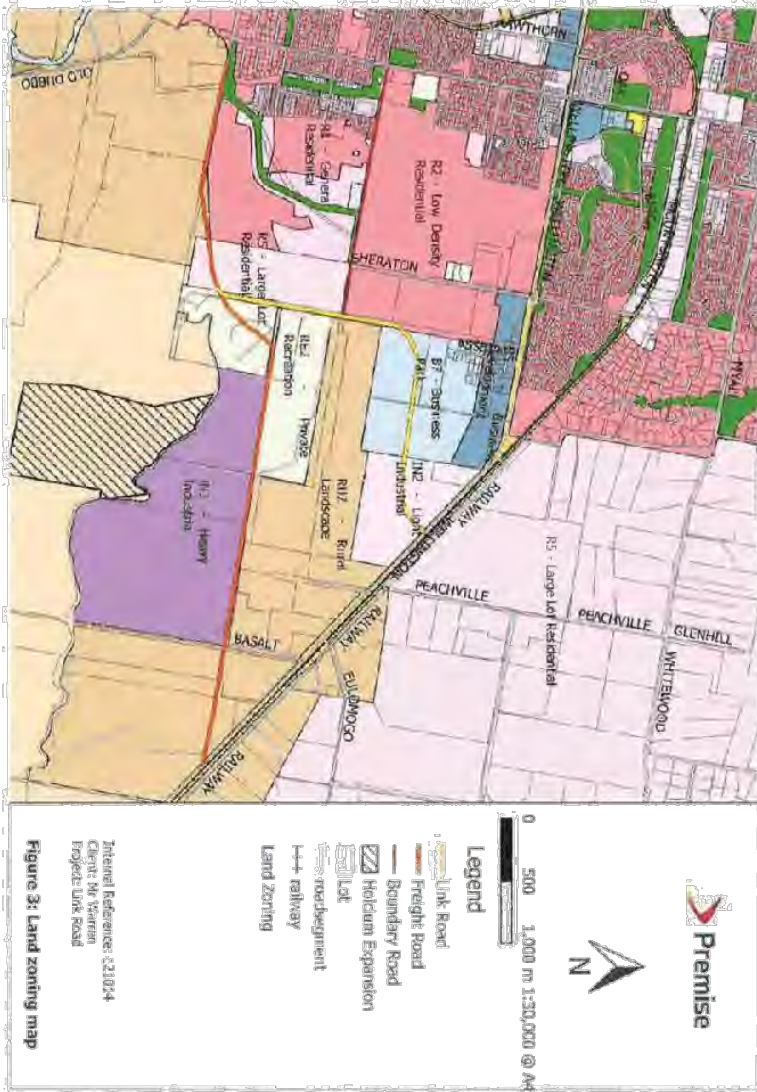
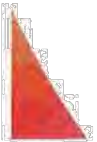


Figure 3: Land use zoning map

Figure 3: Land zoning map

Project Reference: 121014  
 Client: Mt Vernon  
 Project: Link Road



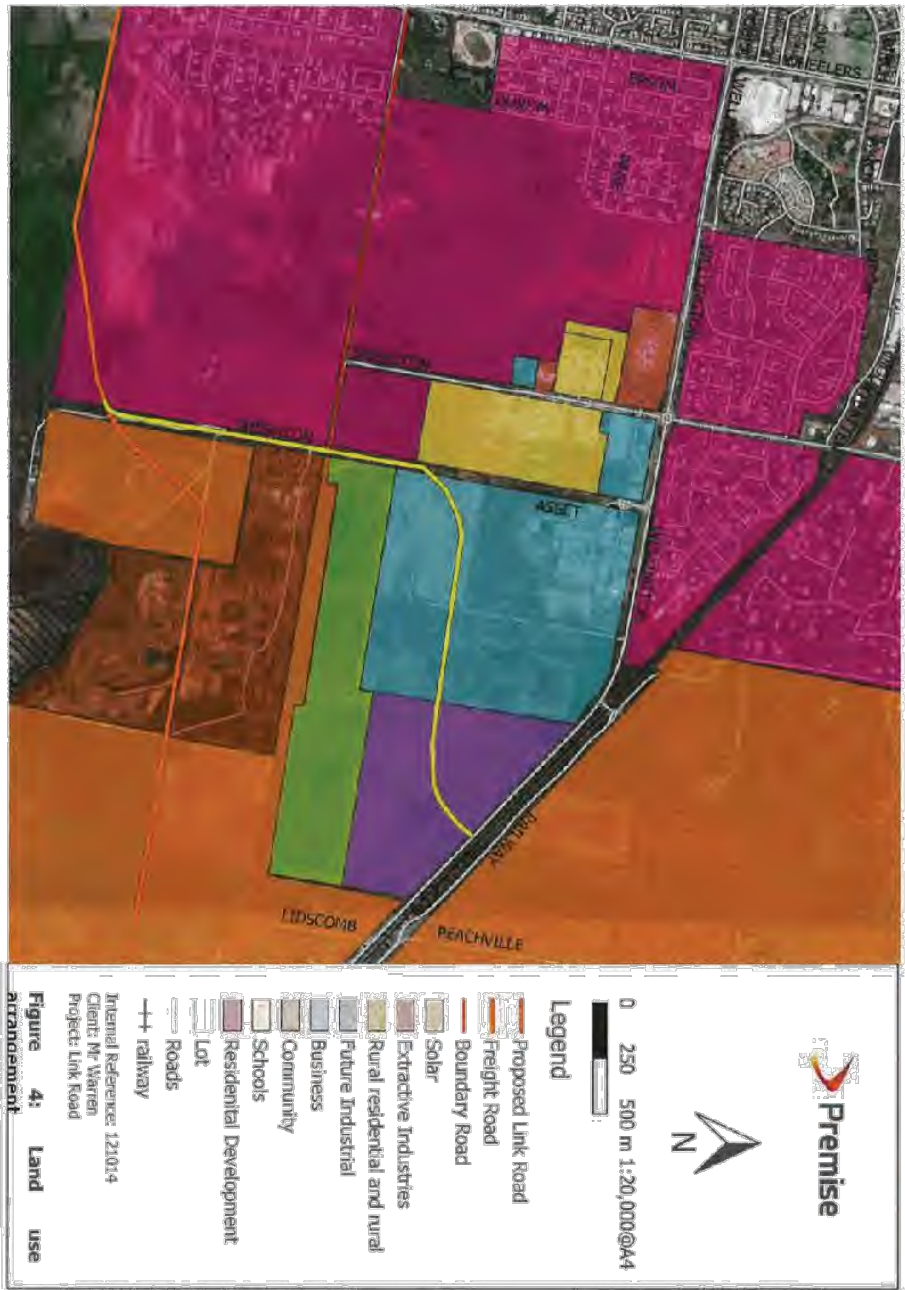


Figure 4: Land use arrangement  
 Page 7 of 11





Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission

#### LOCATION OF ACCESS TO MITCHELL HIGHWAY

We note that the draft Strategy does not include specific road alignments, instead is aimed to provide a concept recommendation of the road link between development nodes. The draft strategy depicts the entrance of the Blueridge Link Road with the Mitchell Highway being located opposite the existing intersection of Railway Lane (South Buninyong Road), displayed in red in **Figure 5**. It is considered this intersection location would not be appropriate due to being on a bend in the major highway and immediately opposite the South Buninyong Road intersection, creating a four way intersection on the Highway with restricted sight lines.

Our client's recommendation is this intersection should be located further to the east, as displayed in yellow in **Figure 5**. This location would enjoy excellent sight distance to the north west of approximately 600m and 700m to the south east. It is considered this intersection would allow appropriate safety mitigation measures to be included without impacting on the functionality of the major highway.

We note this access as proposed was adopted by Council as part of the Blueridge Structure Planning process.



Figure 5. Possible intersection locations (red = Council's strategy) (yellow = Premise recommendation)



#### PROPOSED ROAD ARRANGEMENT

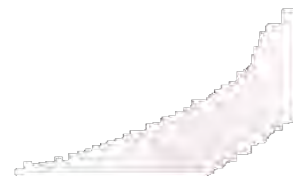
This submission provides a proposed alignment which would meet the objectives of the draft strategy and comply with the strategic direction of the area while benefiting the landowners within the sector. The proposed road alignment is intended to be flexible in nature with certainty provided for the exit point on Mitchell Highway. The below **Figure 6** depicts the proposed freight way in orange, the extension of Boundary Road in red and the Blueridge/Hennessey link road in yellow.

We understand that the Freight Way has been placed on hold due to the cost of the road and a lack of growth in heavy vehicle demand for this road. However, this road has been considered at length during the master planning stage for Southlakes Estate by the developer and Council and it remains prudent to retain the presumption of its future development in the broader planning context of this submission.

The link road option from Hennessey Road to the Mitchell Highway would connect the freight way to the southern part of Sheraton Road before veering to the east on the northern side of the Solar Farm through Lot 253 in DP 754308, Lot 51 in DP 612578 and finally through Lot 2 in DP 1246347 where the road could meet the Mitchell Highway.

The benefits of the proposed alignment would include:

- Create service corridors by following electricity infrastructure;
- 70-80km per hour road which could accommodate low speed 40-50km per hour parallel service roads;
- Potential to accommodate four points of entry to undeveloped land along the alignment; and
- Light industrial traffic would be separate from school traffic along Sheraton Road;



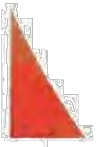




Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission



Figure 6: Proposed future road network





Our Ref: 121014\_LEO\_002A\_Link Road\_Council\_Submission

The Blueridge Link Road as proposed would have the following benefits:-

- Would capture the heavy vehicle trips from both Quarries and provide an appropriate access to Mitchell Highway separated from school traffic;
- Would not require the redesign of major residential subdivisions;
- Would follow alignments which are already dedicated to road and would not impact on land dedicated for stormwater purposes;
- Would provide Mitchell Highway access for Lot 2 in DP 1246347 which could provide linkages to other land locked parcels such as Lot 51 in DP 612578 and Lot 253 in 754305; and
- Has the support of impacted land owners resulting in a simplified land acquisition process for Council.

It is our understanding that the proposed road alignment as depicted in this submission would be beneficial to the safety of road users in south-east sector, would be in keeping with existing land use arrangements and would provide a realistic and achievable road alignment to be contained in the final adopted strategy.

To reiterate, this submission seeks Council's support of this submission by means of a Council approved recommendation that the Blueridge Link Road should proceed subject to ensuring that the exit point as shown in yellow on **Figure 5** to the Mitchell Highway is supported in principal while the road alignment as shown in **Figure 6** is supported in concept and may remain flexible to allow for future land use planning and design of the affected properties.

Yours sincerely

A handwritten signature in black ink that reads 'Stef Presland'.

**STEF PRESLAND**

Town Planner

A handwritten signature in black ink that reads 'Tom Warren'.

**TOM WARREN (DIRECTOR)**

South Keswick Family Company Pty Ltd;

**Archived:** Thursday, 17 June 2021 3:37:57 PM

**From:**

**Sent:** Thu, 4 Feb 2021 22:31:24

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_05Feb2021093025\_South Dubbo Bridge\_Review and Concerns.pdf

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Melissa
<b>Surname:</b>	Britnell
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	Can I receive confirmation of my submission please including that the attachment has also come through successfully.
<b>File upload if required:</b>	0_105454_05Feb2021093025_South Dubbo Bridge_Review and Concerns.pdf

1. I bought in South Dubbo and Tamworth St because I like the iconic nature and leafy and quiet appeal of the area and in particular the Street. Any additional traffic through here will destroy this as well as destroy the value of my home.
2. The options 1 through 4 in one report do not seem to correlate with the right options A through to D – this will be construed as misleading (even if an error) and needs to be updated to reflect what cost goes with what option.
3. There does not appear to be any modelling or impact studies showing how the main areas and streets in South Dubbo and in particular Tamworth St will be impacted for the growth from West Dubbo say at 5, 10, 20, 50 years. It has been presented that 15,700 additional vehicles movements at 2055 will enter South Dubbo via the South Bridge. A decision cannot be made until the modelling is done and the public consulted.
4. The modelling for any traffic in Tamworth St may not have taken into consideration the traffic impacts of the new RAAF Development at the end of Tamworth St and Palmer St. There have been suggestions that Bunnings or other large retailers may move into this new development and the traffic impacts need to be considered with the St Bridge modelling – a “with” and a “without”
5. I note the survey has only offered 2 options. If I had a preference for an option, it would be an option where Tamworth St was protected from large traffic impacts / flows and sealed at the Macquarie St end as well as the introduction of traffic calming in addition to the 3 x roundabouts in the street at present.
6. I am concerned about the impact of additional traffic in and around the 3 schools and kids day care facilities in South Dubbo and without modelling, I cannot provide an educated opinion.
7. I note that the GHD reports from 2009 may require updating to be consistent with the 2020 traffic strategy. Until this report and any options are updated to be consistent with the 2020 Strategy Report, there may be inconsistencies and in fact the options may not be the best ones. I recommend that an additional 2 options based on a concept of a bridge further away from Tamworth St and the sports fields be considered, costed, modelled and tabled. Surely entry into Boundary Road from such a bridge would be better than potential intersection issues at the Macquarie St – Cobra St intersection which would not provide any quicker access to the CBD.

**Archived:** Thursday, 17 June 2021 3:37:58 PM

**From:**

**Sent:** Thu, 4 Feb 2021 22:25:20

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_05Feb2021092438\_210204\_Review and Concerns Dubbo South New Bridge.pdf

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Sean
<b>Surname:</b>	Buxton
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	██████████
<b>Submission:</b>	Can I receive an email that confirms receipt of my submission ASAP please. Thankyou for your time.
<b>File upload if required:</b>	0_105454_05Feb2021092438_210204_Review and Concerns Dubbo South New Bridge.pdf

I purchased my property in 2013 based on South Dubbo being an iconic, leafy, older (heritage and historic houses) and quiet part of Dubbo without a large amount of through traffic. This proposal is creating the potential for a negative impact to my property due to increased traffic, noise, gas emissions and visual impact. I therefore wish for Council to undertake a more detailed assessment on any South Bridge proposals before any construction or funding proposal decision is made - including other options either not yet presented to public for consultation, not considered yet as a concept (alternatives), or not supported by traffic modelling.

I do not believe enough investigation has been completed into where the public plan to travel while using this new bridge. Not everyone will be traveling to the CBD. Now with the proposal of Bunnings moving to the old RAAF Base there is an increased chance that the traffic will want to cut through South Dubbo to reach this development and other developments such as Orana Mall. How can the Council ensure that this short cut will not be used which will result in a negative impact to the residents in South Dubbo?

During the Nov 2020 public information / consultation session where only 2 options were presented, it was shown that the average (not peak) traffic flows across the South St Bridge would be 15,700 (2055). A question was asked during and post the meeting to one of the panel whereby it was stated both times that modelling had not been done . If your street was in the line of fire (along with others) to a proposed 15,700 vehicles at 2055 with no modelling up to then or even which streets were going to receive which traffic of the South St Bridge, would you not also be concerned like I am in Tamworth St?

The Mayor has already stated in August 2020 that he will continue to fight for the rights of the South Dubbo residents to keep South Dubbo as it is. Just as the same residents had to fight to keep it the way it is back in 2015 when the Council tried to change the zoning.

The proposed Dubbo South Bridge may be good for the growth of Dubbo however, the growth of Dubbo cannot come at the cost of the existing parts of Dubbo (e.g. South Dubbo and the iconic Tamworth St) I believe with more planning, modelling and management the growth of Dubbo can continue without impacting South Dubbo.

On 13 July 2020 staff tabled a report South Bridge Update ILC20/29 to the Infrastructure and Liveability Committee. This report had attached revision 2 of the GHD Dubbo South New Bridge Strategic Concept Design Report. This report only shows two bridge options, following the public meeting and a request from the Mayor the other two options have now been put on public display. Will staff see option C or D as preferred options?

The below highlights a number of different issues, some just lack of information, others show limited planning or design of the GHD Dubbo South New Bridge Strategic Concept Design Report Revision 1 report, the Dubbo Transportation Strategy 2020 and the Dubbo South New Bridge Strategic Business Case. The information provided is unclear how this proposal will impact the South Dubbo residents, in particular the impact on the Tamworth Street residents of which I am one.

Can Council please address my concerns and questions and consider updating the relevant sections of the reports and redoing the community consultation to ensure that all Dubbo

residents are given the opportunity to understand the proposal and give their valuable feedback to Council.

1. The objective of the Dubbo South New Bridge is proposed to provide an alternate route to the CBD and to provide an alternate route for south-west Dubbo residents to the CBD over the Macquarie River – is this the sole objective?
2. Only two options have been considered although there has been four options investigated. Can the community be consulted with all options (including modelling) before a decision is made?
3. Option A is designed on existing road alignment, however I note that this is an assumption and no detailed design has been completed. This should be confirmed before a decision is made.
4. Option B is a curved alignment which costs more but does not have much more benefit and will impact the sporting field more. What is the plan and budget to address the impact to the sporting fields?
5. Minimum flood design is 5% should these be designed for full flood management e.g. 1% / 100 year flood design? Will any part of the bridge design in all options be subject to flooding and therefore not offer the complete benefits for when the lower Dubbo bridge is inoperable?
6. Table E-2 Impacts show four impacts, are these the only key impacts or are there more? What is the impact to the South Dubbo properties and in particular Tamworth St? What is the cost of these impacts? How can these impacts be managed?
7. The current consultation is on the draft options with no funding to progress to preferred option and design. How can the community be confident that they are seeing the best options with so little information and so many assumptions?
8. The purpose of the report is to  
*"This Strategic Concept Report aims to determine the most appropriate option for a new bridge in terms of location, engineering, community, environmental constraints and cost"*.  
 There appears to be no detailed engineering or environmental work completed in this report and community consultation is being undertaken after the completion of the report. How can this report be relied on to assess the options without this key facts assessed?
9. Council may be basing its decision on this report, however, this report has not undertaken a formal route study. How can Council be confident in the options and that there will be no negative impact to South Dubbo if this has not happened?
10. Option A requires three new traffic lights at three intersections. How will this improve traffic movements? Can you show how this will not impact the South Dubbo residents near the Bligh / Macquarie intersection?
11. Option A will impact the traffic movements in the sporting field, how will this be addressed?
12. Option A will change the access to the Sandy Beach area, how will this be addressed?
13. Option A will impact traffic on the Newell Highway and further investigation will be required, as stated in the report. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
14. Option A  
*"The bridge crossing at Sandy Beach Road would significantly impact the recreational amenity and access to the popular community asset of Sandy Beach, which is a significant*

*negative impact associated with this option.* This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.

15. Option B requires three new traffic lights at three intersections. How will this improve traffic movements? Can you show how this will not impact the South Dubbo residents near the Bligh / Macquarie intersection?
16. Option B will impact the traffic movements in the sporting field, how will this be addressed?
17. Option B will change the access to the Sandy Beach area, how will this be addressed?
18. Option B will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section
19. Option C will close the southern end of South Street. What will be the impact to the sporting field access due to this closing?
20. Option C will close the eastern leg of Macquarie Street / Tamworth Street intersection to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street. How will this change work and can you provide the modelling of these changes?
21. Option C requires land acquisition, this will need to be costed before a decision is made to confirm the whole cost of the project.
22. Option C will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
23. Option D will close the southern end of South Street. What will be the impact to the sporting field access due to this closing?
24. Option D will close the eastern leg of Macquarie Street / Tamworth Street intersection to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street. How will this change work and can you provide the modelling of these changes?
25. Option D requires land acquisition, this will need to be costed before a decision is made to confirm the whole cost of the project.
26. Option D will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
27. The report recommends additional flood modelling to assess the impact. This assessment needs to be completed before a decision is made.
28. The report has not completed an environmental assessment despite it been a purpose of the report. This assessment needs to be completed before a decision is made. Impact of South Dubbo from traffic, noise, air quality and visual amenity will need to be assessed, also the impact to the sporting fields.
29. Land ownership is yet to be confirmed? This needs to be addressed before a decision is made.
30. No traffic modelling was completed and the recent transport study that DRC was completing was not completed before the report was finalised. The report has based traffic modelling on the 2009 study which is out of date. The new data needs to be provided before a decision is made.
31. Intersections have been assumed to be signalised, no modelling to confirm.



- 32. Ref Dubbo Transportation Strategy 2020 - Section 6.5.2 South End addresses the traffic intrusion into South Dubbo. This section explains what the traffic movements are in South Dubbo however, it does not explain what additional traffic movements will be coming into South Dubbo from the new bridge. Can Council provide this information and how the additional traffic will impact the South Dubbo residents?
- 33. Ref Dubbo Transportation Strategy 2020 - The South Dubbo Bridge is a 5 to 10 year priority construction planned from 2025 to 2030 subject to funding. Why is this bridge being considered at this time without modelling or all options and also other concepts being considered?
- 34. Ref Dubbo Transportation Strategy 2020 - *Dubbo is described as the 10-minute City and the current average trip time is 6.58 minutes. Thinking of a distribution of trips the majority of journeys are indeed less than 10 minutes. Without the South Bridge the trip time will increase by on 1%, this below the 10 minute objective. Is this a good spend of money or should this money go into another Dubbo project?*
- 35. Ref Review of Dubbo South New Bridge Strategic Business Case – Stakeholder Engagement & Management Plan highlights South Dubbo residents concerns about the South Dubbo Bridge. However, the business case does not address the concern or explain how Council will risk of traffic travelling through South Dubbo.
- 36. Review of Dubbo South New Bridge Strategic Business Case  
Section 3 Cost Benefit Analysis shows four bridge options

Business case number	GHD report number
Option 1	Option A
Option 2	Option D
Option 3	Option B
Option 4	Option C

It should also be noted, that while Option 4 has the lowest overall total project costs, it also accounts for the greatest area of land to be quarantined and purchased by Council. The value of land acquisitions is, as yet, unquantified as no estimates of the amount of land, and the associated compensatory rates, are currently available.

Table 7 - Strategic costings for each of the bridge options, values in 2010 \$'000s. Source: GHD, Strategic Concept Design Report

Item	Option 1	Option 2	Option 3	Option 4
Preliminaries	2,346.4	2,955.4	2,693.4	2,106.4
Roadworks	7,320.2	13,709.1	11,549.7	8,861.9
Bridge	12,816.9	7,526.6	7,146.4	5,664.0
Contingency 30%	6,895.2	7,257.3	6,416.9	4,995.8
Site investigations	890.4	943.5	834.2	1,048.0
REF and approvals	149.4	157.2	139.0	100.2
Concept and Detailed Design	1,494.0	1,572.4	1,300.3	1,082.4
Contract and Project Management	1,494.0	1,572.4	1,300.3	1,082.4
<b>Total Bridge Costs</b>	<b>33,912.7</b>	<b>36,693.9</b>	<b>31,560.3</b>	<b>24,571.2</b>
Upgrades to the Water Network	7,480.6		7,480.6	7,480.6
<b>TOTAL PROJECT COSTS</b>	<b>41,402.3</b>	<b>36,693.9</b>	<b>39,049.9</b>	<b>32,060.5</b>

Source: Dubbo South New Bridge Strategic Business Case page 30

Table 6-3 shows overall project costs, and sums the capital costs from Table 7-1 with the other project costs identified at Table 7-2.

**Table 6-3 Total capital, investigations, approvals, design and project management costs**

Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
	<b>TOTAL PROJECT COSTS</b>	<b>\$33,912,670</b>	<b>\$35,693,898</b>	<b>\$31,560,280</b>	<b>\$24,571,169</b>

Source: GHD Dubbo South New Bridge Strategic Concept Design Report Revision 1 page 51

The business case has recommended that option 4 is the lowest overall cost. However, it is unclear how this is the case. Option 4 in the business case is option C in the GHD report. However, the costs have not been copied across as such. Therefore, can Council confirm which option is their preferred option? I also note that both option 3 and 4 were not reported to Council in the July 2020 report.

Executive Summary:

1. I bought in South Dubbo and Tamworth St because I like the iconic nature and leafy and quiet appeal of the area and in particular the Street. Any additional traffic through here will destroy this as well as destroy the value of my home.
2. The options 1 through 4 in one report do not seem to correlate with the right options A through to D – this will be construed as misleading (even if an error) and needs to be updated to reflect what cost goes with what option.
3. There does not appear to be any modelling or impact studies showing how the main areas and streets in South Dubbo and in particular Tamworth St will be impacted for the growth from West Dubbo say at 5, 10, 20, 50 years. It has been presented that 15,700 additional vehicles movements at 2055 will enter South Dubbo via the South Bridge. A decision cannot be made until the modelling is done and the public consulted.
4. The modelling for any traffic in Tamworth St may not have taken into consideration the traffic impacts of the new RAAF Development at the end of Tamworth St and Palmer St. There have been suggestions that Bunnings or other large retailers may move into this new development and the traffic impacts need to be considered with the St Bridge modelling – a “with” and a “without”
5. I note the survey has only offered 2 options. If I had a preference for an option, it would be an option where Tamworth St was protected from large traffic impacts / flows and sealed at the Macquarie St end as well as the introduction of traffic calming in addition to the 3 x roundabouts in the street at present.
6. I am concerned about the impact of additional traffic in and around the 3 schools and kids day care facilities in South Dubbo and without modelling, I cannot provide an educated opinion.

7. I note that the GHD reports from 2009 may require updating to be consistent with the 2020 traffic strategy. Until this report and any options are updated to be consistent with the 2020 Strategy Report, there may be inconsistencies and in fact the options may not be the best ones. I recommend that an additional 2 options based on a concept of a bridge further away from Tamworth St and the sports fields be considered, costed, modelled and tabled. Surely entry into Boundary Road from such a bridge would be better than potential intersection issues at the Macquarie St – Cobra St intersection which would not provide any quicker access to the CBD.

**Archived:** Thursday, 17 June 2021 3:37:59 PM

**From:**

**Sent:** Thu, 4 Feb 2021 10:16:26

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_105454\_04Feb2021211540\_River St Bridge Submission 31 Jan 2021.docx;

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Daryl
<b>Surname:</b>	Green
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	See attached submission from Dubbo Rivercare Group Inc.
<b>File upload if required:</b>	0_105454_04Feb2021211540_River St Bridge Submission 31 Jan 2021.docx



## Dubbo Rivercare Group Inc.

[REDACTED]  
[REDACTED]  
[REDACTED]

The General Manager  
Dubbo Regional Council  
P.O Box 81  
Dubbo NSW 2830

Lodged online via [www.dubbo.nsw.gov.au](http://www.dubbo.nsw.gov.au)

### Submission in relation to the 4 South Dubbo Bridge Options

The Dubbo Rivercare Group Inc. appreciates the opportunity to provide a submission on the above proposal.

The Dubbo River Group Inc (previously the Dubbo Macquarie Rivercare Group Inc.) is a volunteer group that focuses on improving the river corridor environment of the Macquarie River primarily in the urban area of Dubbo (from the South Weir to the Troy River Bridge). The group has worked in this area since 2002, and has made significant contributions to improvement of the river corridor in that time through activities including weed control, native planting activities, rubbish removal, interpretive signage installation, placement of large woody debris as fish habitat and ongoing effective maintenance of the river corridor.

**None of the South Dubbo Bridge Proposals are supported by Dubbo Rivercare Group Inc. The information below provides a basis for this position.**

#### **1. Disturbance and severance of the river corridor's environment and amenity**

The River Red Gum vegetation community provides the basis for the environmental value and integrity of the Macquarie River in the proposal area for all bridge options. All options will significantly impact the current integrity of the vegetation community and floodplains that support both animal and bird species that are dependent on these communities. The disturbance of the vegetation community will also impact on aquatic species that are dependent on the riverbank environment. This undermines decades of work by Dubbo Regional Council, the Dubbo Rivercare Group Inc. and many other organisations such as the former Dubbo Landcare Group and the Inland Waterways Rejuvenation Association.

The proposal flies in the face of many recent comments by the current Dubbo Regional Council Mayor and Dubbo Regional Council in relation to making the river a more appreciated asset for the Town through things such as the *Dubbo Borough* CBD improvement concept.

The amenity of the river environment will be severely impacted by all of the bridge proposals. The river corridor provides a scenic feature of the Dubbo environment delineating the passage of the river.

## **2. Impact on the hydrological environment from the three Tamworth Street Bridge options**

The planned location and construction of bridges and approaches in this area will have an unacceptable impact on the passage of flood waters on the alluvial floodplain on the eastern side of the river. This will contribute to changes to the vegetation communities of the river, as well as the impacts on the riverbanks and water flow that have already been destabilised through things such as the inappropriate footings installed under the Tamworth Street footbridge. This has the potential to contribute to further bank destabilisation only adding to the current erosion on the right bank downstream of Tamworth St and ongoing loss of riverbank land. The current trajectory of this bank erosion is such that another major flood event will likely see the loss of some of the playing fields and/or Tracker Riley Cycleway.

The study does not mention other instream and riparian features such as the rock bar near the Tamworth Street low level bridge which protects the area, and which will likely be damaged by the construction of any the three Tamworth Street options. Indeed, erosion risk and hydrological impact is given scant regard in the study which is incredibly disappointing given the likely impacts. Indeed, the report notes a large number of shortcomings in key geological information available. The authors alludes to the fact that Dubbo Regional Council did not even provide GHD with information that the Council already had at its disposal (which is unusual to say the least). Regardless, GHD then proceeds to base much of the report findings on construction, routes, costs and impacts on information which they accept is limited and flawed.

We understand that all of the Tamworth Street Bridge options will be impassable during any major flood events, which we find very short sighted given the Council's current position on the ring road and River Street Bridge.

## **3. General impacts of the Sandy Beach Bridge option**

There would be an unacceptable loss of recreational and green space in Dubbo. The Macquarie River is the key area of green space that Dubbo is built around. The level of work undertaken by Council and community groups such as ours will see the loss of river values and effectively render invalid our contribution to better riparian management. Traffic will contribute to increased noise levels and there will be an increased exposure of native fauna (birds, swamp wallabies, etc.) to traffic impacts.

The opening up of this area also provides for more opportunities for rubbish to be casually discarded from travelling cars with consequent flow on impacts to the local environment. Information from organisations like Keep Australia Beautiful and the NSW EPA consistently finds that roads are the second most commonly littered area, behind industrial sites and the impact of an additional road will have obvious impacts in the Sandy Beach area. This is counter to the decades of investment – and indeed current investment – by Dubbo Regional Council in Gross Pollutant Traps to reduce litter in the river and riparian zone.

## **4. All bridge options**

Will result in a major impact on the Tracker Riley Waalk/Cycleway. This is one of Dubbo's main passive recreational areas, and as such is a significant recreational asset for the community and visitors. It also forms the focus of a number of community activities (e.g. Parkrun, Outback Dragon Boats, Dubbo Stampede, school groups). There will also be significant impacts on free community recreation such as swimming, photography, kayaking, disc golf, bird watching, walking and running. Sandy Beach is a focus visitation area and a significant place for all recreation, swimming

and fishing pursuits. Some of these areas have been used for recreation virtually since Dubbo was founded and Council have contributed to this amenity over many years. This recreational amenity will be effectively wiped out by all options.

Will compromise the sporting fields of Lady Cutler Oval precinct, particularly with increased traffic around these high visitation areas and the allocation of land and long-term investment of Dubbo Regional Council into these areas (irrigation, turf, amenities, etc.)

Will result in an increase in traffic that will impact on the safety of the many children and adults that use this area especially on weekends. The demand for parking in this area is already high and with increased traffic it will become more congested and dangerous.

Will involve the loss of important native vegetation, including many remnant and planted native species. Again, this is completely inconsistent with decades of work to rehabilitate the area, with this work being significantly undermined and unable to be offset.

Will diminish the educational opportunities for the community, schools and many visitors who appreciate, utilise and contribute to these riparian areas.

##### 5. Overall

We consider that all the options presented are simplistic and propose that a massive piece of hard infrastructure be constructed in a way that completely ignores the diverse values that the river and flood-plain offers to residents. The environment gets barely half a page in the 110 page GHD report. The *Strategic Business Case* mentions the 10-minute city seven times, and the environment only once. Most environmental groups have not been consulted in the proposal (notably, our group gets no mention in the options and in the *Draft 2020 Transport Strategy*, which reinforces the general view that natural resources and environmental impacts are not really a consideration). We have outlined some key concerns.

The consideration and opportunities for community engagement in this consultation process (up until recently) have been very limited, as evidenced by the high level of community concern expressed at the one and only community consultation session. There has been no “value management assessment” in the proposal’s planning. This is a clear demonstration of not bringing the community into the issue early on and presenting a blueprint for future transport needs which was not developed with genuine community consultation, resulting in a proposal that many of the community reject.

There is a lack of clear or relevant evidence to support any new bridge in the urban area. The overriding goal of the bridge options and the *2020 Transport Strategy* is to retain Dubbo as a 10-minute city. Regardless of the fact that it already takes more than 10 minutes to drive between many parts of the City in non-peak times, if we accept the 10 minute city as the goal, how is it that justified to spend tens if not hundreds of millions on a bridge that will save just 0.07 or 4.2 seconds minutes to an average trip (*Strategic Business Case*, Table 1). This seems flawed logic, which the authors allude to, stating *the average trip duration appears to increase by only a modest amount by 2030 under the base case without any new bridge crossing the Macquarie River*.

(It is worth noting that the text under Table 1 in the *Strategic Business Case* notes an average trip increase of 8.4 seconds to 2030. We are unable to see how this was calculated. The table notes that the 2018 base case trip time is 6.58 seconds and the 2030 trip time with the new bridge is 6.65 seconds. This is 0.07 minutes of 4.2 seconds. We may be mistaken, but if we are correct, we wonder how many more fundamental errors are contained in the *Business Case*. If we are incorrect in our calculations, we apologise and would ask for an explanation as to how 8.4 seconds increase per trip is calculated.

The *Strategic Business Case* appears flawed and cannot be relied upon to make decisions in relation to the options. The NSW Treasury provides guidelines for strategic business cases for public entities at <https://www.treasury.nsw.gov.au/information-public-entities/business-cases>.

We would request a reassessment of the draft Transportation Study numbers in relation to the movement of traffic to the central business district. We find these numbers questionable, considering the movement to work from home (COVID 19 response which has driven a long term trend very quickly), and the drawdown of businesses from the CBD (the level of vacant office and commercial retail space). The unintended consequences of transport diverting to south Dubbo, especially to access educational facilities to the east is also not addressed.

The *Transport Strategy* does make some mention of alternatives to car use in Dubbo but these are not front and centre in the *Strategic Business Case* or in any of the bridge options.

Whilst there has been some considerable development of cycling and pedestrian facilities in Dubbo, the *Transportation Strategy* notes the need do more. We argue that this needs to be comprehensively assessed and looked at from a holistic perspective. For example, many cities in the world rely on suspension pedestrian bridges to access city centres (we also have one down the road in Wellington) and a suspension bridge combined with better cycleways may provide an option, and one which we should be encouraging in the Dubbo LGA. Better still, combine an enhanced cycleway and perhaps a suspension bridge with better public transport options (more frequent, smaller buses) and we will find less cars, less need for a new bridge with flow on benefits for emissions and climate change. This sort of option is currently being pursued in Brisbane with a series of green bridges proposed -see <https://www.brisbane.qld.gov.au/traffic-and-transport/roads-infrastructure-and-bikeways/green-bridges>

We strongly support the Mayor's recent comment about the need for a new ring road around Dubbo <https://www.dubbo.nsw.gov.au/news-and-media/news-and-resources/mayors-column/theres-no-doubt-dubbo-needs-a-ring-road>. This will take heavy vehicles and other highway traffic out of the main city and remove the need for an additional bridge. This is a key point: can we seriously say that in a town of our size with the traffic volume we have, that we will need five or six crossings (LH Ford, Serisier, River St, proposed new south bridge and two on a ring road/bypass)? We'd suggest not, and this is alluded to in the long-term options of the *Transportation Strategy*. So why not pursue the long-term option now and build it once and build it for the long term.

The current proposed "River St Bridge" has no strategic context to Dubbo's liveability as it will continue to support heavy transport moving through the city. We are concerned why Dubbo is being treated this way, while other centres across the state are supported with bypass proposals which take heavy transport and highways out of the urban area (eg Coffs Harbour). Why do we continue to need the Newell and Mitchell Highways to go through the central parts of the city, especially with truck volumes being estimated to increase as per the *Transportation Strategy*?

## 6. Summary

The Dubbo Rivercare Group Inc. are very opposed to the four bridge options. They do not stack up against objective analysis, because of significant impacts on environmental, social, economic and cultural assets. The proposals will destroy decades of work which has been undertaken to enhance the area, which would be forever impacted by an additional bridge. This impact cannot be offset, and assets cannot be reinstated if any new bridge is constructed.

We would ask that you look at the economics: the *Strategic Business Case* has major shortcomings in our opinion. It should not be used as the basis of any decision based on benefits and costs.



We believe Dubbo has the potential to be known as a city of the future where new and existing residents are impressed with a city that is sustainable, community focused and provides healthy and desirable living opportunities. We hear good things in this area at times from the Mayor, Councillors and Staff and this is the time to show some long-term leadership and stop the piecemeal approach.

Please contact our organisation should you have other enquiries.

Yours sincerely

SIGNED

**Daryl Green**

**President, Dubbo Rivercare Group Inc.**

[REDACTED]

[REDACTED]

**Archived:** Thursday, 17 June 2021 3:38:01 PM

**From:**

**Sent:** Thu, 4 Feb 2021 07:35:06

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

**Attachments:**

0\_103968\_04Feb2021183356\_OBJECTION Norman Larkings 2021-02-04.pdf;

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Anthony
<b>Surname:</b>	Norman
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████
<b>Email Address:</b>	██████████
<b>Submission:</b>	Please review the attached Objection to both proposals
<b>File upload if required:</b>	0_103968_04Feb2021183356_OBJECTION Norman Larkings 2021-02-04.pdf

**DUBBO REGIONAL COUNCIL**

P.O. Box 81  
Dubbo NSW 2830

**PROPOSED NEW SOUTH DUBBO BRIDGE – OBJECTION**

Our families have been long term residents of Dubbo living on both the east and west side of the LH Ford Bridge. We believe we have a good appreciation of the traffic management issues facing our city.

We believe that both Options should be categorically rejected as being a waste of Rate and Tax payer funds; and a net detriment to the natural environment and the liveability of Dubbo.

Key shortcomings of both proposals include but are not limited to:

1. Strategic traffic flow issues are not addressed in particular, access between West Dubbo and education and shopping areas towards the eastern edge of Dubbo. Our observation is that most traffic on the bridge during times of congestion is seeking to go further east – not to the CBD area
2. Significant destruction of riverbank environment including old River Gum habitats
3. Increasing traffic on Minore Road's single lane roadway – which already has a significant volume of traffic. It is likely that both proposed solutions will cause significant traffic congestion at the corner of the Newell Highway
4. Impeding Newell Highway traffic and the generation of high noise levels in local neighbourhoods from heavy northbound traffic restarting on an incline
5. The elevation change between the Minore Road / Newell Highway junction and the proposed bridge level will also significantly increase traffic noise for local residents
6. Being too narrowly focused – channelling traffic into Bligh Street – without providing any secondary support for wider traffic issues within Dubbo
7. Significant negative impacts on local sporting and leisure amenities – including channelling traffic into an area with high levels of child sporting activities (which should arguably already be an activity based 40km/hr zone)

Multiple other options should be considered, including:

1. A southern ring road for Dubbo, including a bridge near the old Molong Railway bridge with links from the Obley Road through to Wheelers Lane, Sheraton Road and possibly the Mitchel Highway – this would divert significant future traffic from the LH Ford Bridge and Cobra Street – including the busy Fitzroy Street intersection
2. Twin low-level bridges closely paralleling the existing LH Ford Bridge – this would provide additional access to the CBD whilst having much less impact to the environment, sporting facilities and leisure amenities while still connecting to Bligh Street

3. Improving east-west traffic flow at the eastern end of LH Ford Bridge via a cohesive series of improvement measures, such as:
  - a. Delete the pedestrian walkway on the northern side of the LH Ford bridge and creating a new eastern off-ramp, with no traffic lights, to loop down to Bligh Street. This should be combined with providing for 2 lanes on the east-bound section of Cobra Street / Mitchell Highway near the bridge to facilitate traffic flow off the bridge
  - b. Longer traffic light sequence time for east-west traffic, thereby easing LH Ford Bridge bottleneck could be achieved by:
    - Blocking north-bound through traffic on Macquarie Street past Tamworth Street, with Macquarie Street being fully blocked at Cobra Street.
      - Darling Street should be the primary north-bound traffic for the south-western area of Dubbo.
      - Residual Macquarie Street traffic (particularly local resident and sporting oval traffic) could flow one-way down the bottom section of Tamworth Street onto South Street – with corner alignment enhancements at three intersections to smooth traffic flow.
    - Block all south-bound Macquarie Street traffic across Cobra Street – to push the south bound traffic onto Darling or Bligh Streets.
      - Convert Bligh Street between South Street and Macquarie Street into a one-way, south-bound thoroughfare – including the removal of the Stop sign at Macquarie Street. This section of Bligh Street could also be widened (northwards) to provide 45 degree parking bays for the sporting ovals.
4. Provide a new route to the northern low-level Serisier Bridge for West Dubbo residents via a loop road from Minore Road – west of current housing – across the railway line, linking to a widened Thompson Street
5. Provide a definitive alternative route for Baird Street traffic in West Dubbo to access the low level bridge – allowing this traffic to avoid the major West Dubbo intersection

Yours sincerely



A.N. Norman

S.A. Larkings

4 Feb 2021

4/2/2021

**Archived:** Thursday, 17 June 2021 3:38:03 PM  
**From:** [REDACTED]  
**Sent:** Thu, 4 Feb 2021 21:28:17  
**To:**  
**Subject:** DUBBO TOUCH - SOUTH DUBBO BRIDGE CONCEPT DESIGNS  
**Sensitivity:** Normal  
**Attachments:**  
Dubbo Touch Letter South Dubbo Bridge.pdf

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Hi,

Please find attached Dubbo Touch Association re South Dubbo Bridge Concept Designs.

Regards  
Neil Webster  
President  
Dubbo Touch Association

DUBBO TOUCH ASSOCIATION INC.  
[REDACTED]  
[REDACTED]

Dubbo Regional Council  
PO Box 81  
Dubbo NSW 2830

Dear Sir

**DUBBO TOUCH ASSOCIATION – RE PROPOSED SOUTH DUBBO BRIDGE CONCEPT DESIGNS**

I am writing on behalf of the Dubbo Touch Association who unanimously oppose the four concept designs for the proposed South Dubbo Bridge. Our opposition to the proposed South Dubbo Bridge Concept Designs is based on the reduction in Dubbo Regional Council ability to attract large sporting events.

Lady Cutler precinct is a highly desirable venue for large state sporting carnivals given the number of ovals in area and the ability for players, officials, spectators and support staff to move easily between ovals. Attracting large carnivals to Dubbo brings in millions of dollars each year to businesses in the region. A busy bridge and road network would make the precinct less desirable and indeed prevent Dubbo Regional Council from tendering for future events as the precinct will no longer meet criteria expected to host state sporting events.

Future major Touch events which would be negatively effected by the proposed South Dubbo Bridge

- NSW Touch Country Championships: 1500 participants and spectators
- NSW Touch State Cup: 8000 participants and spectators
- NSW Touch Junior State Cup: Southern conference 10,000 participants and spectators

The new bridge and road network will also reduce available car parking. Provision of adequate parking close to the precinct is a requirement for any major sporting event. Dubbo Regional Council will be required to invest significantly in car parking as a result. This does not appear to be costed as part of the redevelopment.

In conclusion, the Dubbo Touch Association urge you to reconsider the location of the bridge to ensure no reduction in amenity of the Lady Cutler precinct. Our community depends upon these facilities as every missed sporting carnival costs our community millions of dollars.

Please contact me if you would like to discuss further.

Yours sincerely,

Neil Webster  
President  
Dubbo Touch Association

**Archived:** Thursday, 17 June 2021 3:38:04 PM  
**From:** [REDACTED]  
**Sent:** Thu, 4 Feb 2021 11:07:05  
**To:**  
**Subject:** DDJCA Response to DRC - South Bridge Option  
**Sensitivity:** Normal  
**Attachments:**  
DDJCA Response to DRC - South Bridge Option.pdf;

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

To Whom It May Concern,

Please find attached the response from the Dubbo District Junior Cricket Association to the DRCs proposal for a new South Bridge.

Yours sincerely,

Glenn Shepherd  
President  
Dubbo District Junior Cricket Association





**Dubbo District Junior Cricket Association Inc.**

President:	Glenn Shepherd	██████████	████████████████████
Vice President:	Richie Richardson	██████████	████████████████████
Secretary:	Wes Giddings	██████████	████████████████████
Registrar:	Jon Fuller	██████████	████████████████████
Treasurer:	Jeremy Dickson	██████████	████████████████████

**RESPONSE TO DRC**

**RE: DUBBO SOUTH NEW  
BRIDGE STRATEGIC CONCEPT  
DESIGN REPORT**

Date Prepared: 1 February 2021





**Dubbo District Junior Cricket Association Inc.**

President: Glenn Shepherd  
 Vice President: Richie Richardson  
 Secretary: Wes Giddings  
 Registrar: Jon Fuller  
 Treasurer: Jeremy Dickson



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## Dubbo District Junior Cricket Association Inc.

President:	Glenn Shepherd
Vice President:	Richie Richardson
Secretary:	Wes Giddings
Registrar:	Jon Fuller
Treasurer:	Jeremy Dickson

### 1 Executive Summary

The Dubbo District Junior Cricket Association (DDJCA) has the following positions regarding the proposed South Bridge:

- (1) Option C is our preferred option, as it impacts least on the Lady Cutler and Pavans Sporting Precinct. However, there is some uncertainty around any impact on Lady Cutler South.
- (2) Option D would also be acceptable for the same reasons as Option C, although it appears to have other costs and drawbacks associated with it (not related to junior cricket). However, there is some uncertainty around any impact on Lady Cutler South.
- (3) Option B is not acceptable due to the loss of playing areas, training facilities, parking, shade and a reduction in safety to our users.
- (4) Option A is the least acceptable, due to the large negative impact on playing areas, loss of multiple training facilities, parking, shade and a significant and potentially dangerous reduction in safety to cricket users.
- (5) Having extensively reviewed all documentation being relied on to make the decision on the best option for a South Bridge, the DDJCA is concerned that insufficient information is currently known about the origin and destination of potential users of a South Bridge. This has obvious implications for selecting the best crossing.
- (6) Based on Point 5, the concerted push as directing traffic to the CBD as a main reason for pursuing Options A and B appears ill-founded.
- (7) No allowance has been made in the costings for loss and replacement of sporting facilities. It is estimated that depending on the facilities lost, the cost could be in excess of \$3 million to replace.
- (8) It is estimated that up to \$2 million could be lost annually to the Dubbo region as a result of lost carnival hosting rights if the existing facilities fall below the standards required for such events as a result of a reduction in the field sizes at Lady Cutler.

### 2 Background

The DDJCA administers junior cricket in the Dubbo and surrounding area. We currently have approximately 700 children from the ages of 5-16 who play cricket every week during our summer sporting season.

Whilst we have a range of facilities available to us, approximately 200 children play every Thursday night at the Lady Cutler precinct, encompassing the four main Lady Cutler ovals, as well as the three



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Lady Cutler South fields. It is likely that the adjoining new Pavans Oval will be utilised on Thursday evenings in future years. On Saturday mornings, we have approximately 110 children playing in the same precinct.

The precinct is unique for Dubbo (and rare across the state) due to its capacity to enable so many children to play cricket in the one location. Many families have multiple children competing on any given day, and the low through-traffic and low traffic speeds facilitate a safe off-field environment for families to attend and enjoy the sport.

### 3 Impact of proposals on junior cricket

Discussions in this document shall refer to the four options provided in the GHD Strategic Concept Design Report for Dubbo Regional Council - Dubbo South New Bridge (henceforth, the SCDR). They are represented visually in Figure 1.



**Figure 1:** Strategic Options for River Crossings (Figure 2.1 from the SCDR)

Orange = Option A      Purple = Option B      Green = Option C      Blue = Option D

#### 3.1 Option A

This option has the largest negative impact on junior cricket of all the options. Because it bisects the Lady Cutler precinct, it will make the running of cricket events extremely problematic.



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### 3.1.1 Traffic

The SCDR notes that in reference to Sandy Beach Road, the *traffic efficiency is likely to be impacted along this road for a potential bridge option due to interaction with local traffic associated with sporting fields* (Section 4.1, Page 17). This is clearly an issue for sport and traffic flow alike.



Figure 2: Lady Cutler Precinct (Source: Adapted from Google maps)



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Very few vehicles currently use Sandy Beach Road at any time, and on cricket days the vast bulk of traffic is to attend cricket events. If Sandy Beach Road were to become a major thoroughfare, the ability to access the grounds would be severely compromised. Presumably there would not be an option to turn right off Sandy Beach Road onto the access road linking it to Bligh Street, between the playing fields and the river on the western side of the grounds (Point D in Figure 2). This would force all participants to enter via the Bligh Street end of this access road (Point A in Figure 2).

Presuming the above is the case, it is unlikely that there would be an option to turn right off Bligh Street into the playing precinct at Point A (Figure 2) as the interruption to single-lane traffic would be significant. Therefore, the only means of entering the precinct will be via Macquarie St, turning into Bligh Street (to the east of Point B in Figure 2, travelling north and turning left into the precinct. Similarly, everyone exiting the venue will be forced into the CBD. This will create obvious problems during peak sporting periods.

Access to the southern portion of Lady Cutler South and Pavans ovals will only be via Tamworth Street (Point C in Figure 2) as the intersection at Point B will be closed to South St (SCDR, Section 2.3.1, Page 6). This will force all users through the one access point and then require participants/families to make a round trip via Macquarie Street and Point A (Figure 2) to access the rest of the precinct. This is clearly not a workable option, particularly during peak use periods (e.g. Thursday evenings).

### 3.1.2 Safety

Due to the increased traffic on Sandy Beach Road outlined in 3.1.1, it will be impossible for small children and families to cross from Lady Cutler South to the remainder of the Lady Cutler complex with any sort of safety. This is a massive issue for Thursday night cricket, where many families have children playing on both sides of Sandy Beach Road. Traffic lights and/or pedestrian crossing are not part of the plan and would be likely be impractical due to the proximity to the new bridge itself. This would be a serious safety concern for anyone with small children.

### 3.1.3 Parking

Parking is currently available on both sides of Sandy Beach Road and is critical for families attending sport in the precinct. Option A would result in the loss of substantial parking spaces (at least 100) with no alternative offered and it is unclear where such alternative parking could be located. This would again make it impossible for families to park their car and walk to organised sport and equally difficult for organisers to bring equipment to their playing grounds.

### 3.1.4 Impact on fields

According to Section 4.4 of the SCDR (Page 25), the road servicing the new bridge will need to be a minimum of 16m in width. This will not only result in the loss of significant parking (3.1.3), but will also encroach on the playing fields themselves. The Lady Cutler ovals currently satisfy the minimum

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size requirements needed to attract open age Premier and Regional fixtures. However, any loss of area would result in these fields falling below the minimum standards for these fixtures, jeopardising the ability to hold cricket carnivals.

These carnivals bring many people and tourism dollars to Dubbo, so the loss/reduction in capability of these facilities would have a large financial impact on the area. As an example, the 2020 Cricket NSW Youth Championships saw 24 teams participate in the Dubbo area, with families of the vast majority of players also attending. It is estimated that approximately \$1 million was injected into the local economy as a result of 5,000 "person night" stays during the carnival, and this is the potential impact from the loss/downgrade of these facilities.

In addition to the Youth Championships, the Max Shepherd Shield (at least 8 teams) and State Cricket Carnivals (16 teams) would also be at risk from downgrades to the Lady Cutler facilities. This would put at risk an additional \$750,000 - \$1,000,000 in revenue to the city.

Furthermore, the Lady Cutler South ovals are already at a minimum size for holding cricket matches. Should the road corridor impact on them at all, they would no longer become usable even for junior cricket matches. This would require the provision of 2 extra fields at another location to make up for their loss. However, it is the complementarity of these fields to the rest of the complex that would be irreplaceable.

To gain an understanding of the financial impact of removing playing facilities, the recent development of Pavans ovals (one turf and one synthetic pitch) cost DRC in the order of \$1 million. The proposed amenities block and carpark will be a further \$1 million. There does not appear to be any allowance for loss of playing and training areas in the costings for Option A.

### 3.1.5 Impact on training facilities

Two sets of cricket nets are located adjacent to Sandy Beach Road, at the eastern and western end of Lady Cutler ovals (Points B and D in Figure 2). They would be lost as a result of the upgrade required to the road and would need to be replaced. The 2-lane nets at the western end would cost \$80,000 and the 4-lane nets at the eastern end would cost \$160,000 to replace.

### 3.1.6 Shade

The upgrade of the Sandy Beach Road would presumably only be able to occur with removal of most (if not all) trees along its length adjoining the sporting ovals (noting the requirements in Section 4.4 of the SCDR (Page 25)). This will remove all of the shade available on the southern edge of the Lady Cutler ovals and a substantial portion available to the Lady Cutler South A and B ovals. The DDJCA has a commitment to provide sun-safe facilities to its members, and such removal would greatly restrict the ability to fulfil this obligation.



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If the solution is to plant replacement trees, this will have obvious impacts on the size of the fields, as outlined in 3.1.4.

### 3.2 Option B

This proposal is preferred by the DDJCA over Option A as it does not bisect the Lady Cutler and Lady Cutler South precinct. However, it still negatively impacts on the ability to manage and run cricket matches on the Lady Cutler South ovals and is not a desirable solution.

#### 3.2.1 Traffic

This option will see a large increase in traffic along South Street, between Lady Cutler South and the Pavans ovals. It is unclear from the road design as to whether southbound traffic on South Street will be able to turn right to access Lady Cutler South and northbound right to access Pavans (i.e. is there a central traffic island?). In the absence of a traffic island, there will be inherent danger in any such turns, particularly given that will be a single lane only in each direction (Table 4.2, SCDR, Page 20) and a vastly increased traffic volume from the new bridge.

Plans for the construction an amenities block at Pavans are currently well advanced, including a carpark. No allowance for this has been made in the current SCDR and the issue of access to this facility has not been considered.

#### 3.2.2 Safety

Due to the increased traffic on South Street outlined in 3.2.1, it will be impossible for small children and families to cross from Lady Cutler South to the Pavans ovals with any sort of safety. This will likely be a big issue for Thursday night cricket, as numbers expand and Pavans becomes critical to having sufficient space for all teams. Traffic lights are not part of the plan in its current form.

#### 3.2.3 Parking

Parking is currently available on both sides of South Street and is critical for families attending sport in the precinct. Option B would result in the loss of substantial parking spaces (at least 100) with no alternative offered and it is unclear where such alternative parking could be located. This would again make it impossible for families to park their car and walk to organised sport and equally difficult for organisers to bring equipment to their playing grounds.

The proposed carpark discussed in 3.2.1 would also be under threat depending on how much land is required for the presumed upgrade of South Street, further reducing available car parking in the area.



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### 3.2.4 Impact on fields

The SCDR notes that *there is some encroachment on to the southern edge of sporting fields on the east side of the river* without specifying how significant that is. Based on the stylised indications in Figure 1 and discussions at the sporting user group meeting held by DRC (26 Nov 2020), it is likely that Lady Cutler South A (the southern most oval) will be lost to roadworks. This greatly reduces the ability to run all junior cricket, but particularly that on Thursday night when young children are so prevalent. This will be exacerbated if access to Pavans ovals is compromised (3.2.2). There is no indication as to where a replacement field would be located adjacent to an existing facility.

To gain an understanding of the financial impact of removing playing facilities, the recent development of Pavans ovals (one turf and one synthetic pitch) cost in the order of \$1 million. The proposed amenities block and carpark will be a further \$1 million. There does not appear to be any allowance for loss of playing and training areas in the costings for Option B. As discussed earlier, the impact of the fragmenting of playing areas, even if an alternative field could be developed, would be immense.

### 3.2.5 Impact on training facilities

Based on the stylised indications in Figure 1 and discussions at the sporting user group meeting held by DRC (26 Nov 2020), it has been indicated that the cricket nets at Point B (Figure 2) would be lost as a result of the upgrade required to the road and would need to be replaced. This 4-lane set of nets would cost \$160,000 to replace. It should be noted that the cricket community has contributed a significant amount of funding to this training facility.

### 3.2.6 Shade

The upgrade of South Street would presumably only be able to occur with removal of most (if not all) trees along its length adjoining the sporting ovals. This will remove all of the shade available on the eastern edge of the Lady Cutler South ovals and all those on the western edge of the Pavans ovals. The DDJCA has a commitment to provide sun-safe facilities to its members, and such removal would greatly restrict the ability to fulfil this obligation.

If the solution is to plant replacement trees, this will have obvious impacts on the size of the fields, as outlined in 3.1.4.

### 3.2.7 Cost of replacing facilities

When accounting for the potential loss of cricket fields, training facilities and associated infrastructure (3.1.4, 3.1.5 and 3.2.6), it is possible that over \$3 million would be required to replace these lost assets. This is not accounted for in any costings in the SCDR.





## Dubbo District Junior Cricket Association Inc.

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### 3.3 Options C & D

It should be noted that Options C & D were not discussed at the sporting user group meeting held by DRC on 26 November 2020, as DRC at that stage was not releasing details of these options.

Based on the SCDR, it would appear that neither of these options would have a significant impact on junior cricket in Dubbo. There will be some minor inconvenience of not being able to access South Street at Point C (Figure 2), but DDJCA accepts this is a small price to pay for the betterment of Dubbo as a whole in getting another river crossing.

Either of these solutions appear to have the least impact on existing infrastructure whilst delivering the desired outcomes of traffic management. Option C doesn't appear to encroach on sporting fields and is cheapest of the preferred options, costing up to 13% less than Option B (SCDR, Table 6.1, Page 44), which would also incur additional costs associated with moving sporting grounds.

However, it is unclear as to whether the southernmost Lady Cutler South field would be impacted depending on the traffic arrangements at Point C (Figure 2) for either/both Option C & D. This would require clarification before the DDJCA could offer a firm position on Options C & D.

## 4 Other relevant issues

### 4.1 Focus on delivery of vehicles to CBD

It is unclear why the DRC is so focussed on delivery of all the traffic using the proposed South Bridge into the CBD (Executive Summary (Page i) and Introduction (Page 1) of SCDR). There does not appear to be any data currently presented that outlines the origin and destination of trips currently made across the LH Ford and Serisier bridges. The Dubbo Transportation Strategy (2020) implies that less than half of all employment occurs in the CBD (Section 2.3.2, Page 13). The ABS data (Table 2.4, Page 14), suggests that the majority of employment (and therefore traffic movements) in the future will not occur in the CBD.

This philosophy also runs contrary to the Dubbo City Planning and Transport Strategy 2036 (2009), which refers specifically to the need for a Tamworth Street bridge. It also highlights the benefit of taking traffic away from the CBD.

The Dubbo Transportation Strategy (2020) highlights that while the CBD will see a 28% increase in employment from 2020 to 2050, over the same timeframe the Health and Education Precinct will see a 60% increase and the suburban sector a 40% increase. In fact, employment in many other areas of the city area is growing at the same rate or faster than that of the CBD (Table 3.1, Page 23).



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The Dubbo Transportation Strategy (2020) lists four major current transport issues (Page 3):

- Overcrowding on the LH Ford Bridge
- Excessive heavy vehicle movement in Erskine St
- Turning of heavy vehicles and all traffic at the intersection of Mitchell Hwy and Newell Hwy in West Dubbo
- Increasing traffic in Cobra St

None of these refers to a problem of getting more vehicles into the CBD, which raises questions as to the use of this reason as one of the main reasons for the design of the new river crossing. It also raises the question that if traffic congestion in the CBD is a central issue (SCDR, Introduction, Page 1), how does shifting the congestion from the western side of the bridge to the eastern side solve the underlying problem?

Surely having accurate data for the destination of current traffic movements is critical to making the best decision around this issue?

### **4.2 Issues surrounding Options C & D and Tamworth Street**

Where is the most suitable location for a crossing will of course be an emotive issue for those affected by its location, but such decisions should be made on the best available data and expertise, not emotion or vested interests. The Dubbo Transportation Strategy (2020) clearly states that the *connection to South Bridge via Macquarie St south is suitable in the foreseeable future* (Section 3.2.2, Page 25).

Furthermore, the Dubbo Transportation Strategy (2020), Section 6.5.2, Page 60) notes that *currently South Dubbo accommodates some 800 though trips per hour; with the development of the SE this will increase to 1300 vph without the construction of South Bridge and increase by as little as a further 100 with South Bridge built and connected as proposed*. The conclusion of the impact on South Dubbo residents of the South Bridge is *South Dubbo will gain more convenient access via South Bridge than it will experience from additional through traffic* (Dubbo Transportation Strategy (2020), Section 6.5.2, Page 60). This is reiterated in Section 2.4.2 of the Strategic Concept Design Report (Page 11). The plans even incorporate control measures to prevent access to Tamworth Street east from the Macquarie/Tamworth Street intersection.

Based on this data and expertise, there does not appear to be any reason why the new bridge and road design utilising Option C could not flow straight through to the Macquarie/Tamworth Street intersection. This would allow motorists to access the CBD via either Macquarie or Blight Streets, or continue south on Macquarie Street for access to other southern parts of the city.

In fact, Section 2.1 of the SCDR (Page 4) refers to the need to *provide an alternate southern route to the CBD and connectivity between Dubbo's southern residential zones*. Surely a link connecting to



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the Macquarie/Tamworth Street intersection solves these dual issues better than Bligh Street alone?

### 4.3 Utilising the existing grid road network

The Dubbo Transportation Strategy (2020) notes *the secret of success in Dubbo for the, until recently, lack of congestion has been the flexibility offered by the Grid Network of roads that serve Dubbo. This provides intuitive flexibility, some choosing their traditional route from A to B, others thinking of avoiding a short delay* (Section 2.4.1, Page 15). Funnelling more traffic into the one area (i.e. the CBD) is the antithesis of this hitherto successful strategy.

The 2055 Road Hierarchy (Dubbo Transportation Strategy (2020), Page 45) identifies Tamworth Street as a key residential grid road, similar to Wingewarra St and Boundary Rd. To ignore that whilst planning for the South Bridge ignores the experts' planning for the future. Whilst the current Options C & D prevent traffic from entering the Macquarie/Tamworth Street intersection from Tamworth Street east (or *vice versa*), the ability to use Boundary Road and other grid roads remains.

### 4.4 Deficiencies of Option D

Option D is not preferred by DRC due to the more southern tie-in point on the western side. It also isolates land between the road and the river, creating unusable land and increased cost not in current estimates (6.3.4, Page 46).

It would also appear that the Yuille Court take-off point associated with Option D would create a sub-optimal access point for many in southwest Dubbo. Minore Road is a major feeder road for this area, and lights at the Minore Road/Newell Highway intersection (Option C) would be able to take traffic directly from both Minore Road and those residents using the Blackbutt Road-Newell Highway route.

## 5 Response to Mayor's comments\*

\* Mayor's Statement: "Taking bad plans for South Bridge off the table the right move", 18 Aug 2020

This document appears to contain a number of inaccuracies that need addressing. The DDJCA feels it necessary to address these, as comments by elected officials tend to carry a lot of weight in the community and are often taken on face value.

The document implies that South Dubbo residents are afforded more importance than other Dubbo residents. Obviously, residents in that area *are passionate about their streets and homes*; residents in all areas of Dubbo have similar views. The city should be governed for residents in all areas.

The comment *the idea of sending thousands of cars a day though those streets should be opposed* is a straw man argument. The Dubbo Transportation Strategy (2020), Section 6.5.2, Page 60) notes

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## Dubbo District Junior Cricket Association Inc.

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Registrar:	Jon Fuller
Treasurer:	Jeremy Dickson

that less than 2 extra cars per minute will move through South Dubbo with the South Bridge being built and connected as proposed in that document. The comment above, plus *I opposed any option that would wreck South Dubbo*, are purely inflammatory and not helpful to finding the best transport option for all Dubbo residents.

The comments by Mr. Shields, along with the original decision not to release two of the original options examined, raise questions over the scope of the planning proposal. Why did DRC waste money on examining proposals for sending traffic into South Dubbo if such proposals were never going to be considered?

References to the River St crossing are not relevant to this issue. The DRC's own experts made that point during the presentation to the sporting user group (26 Nov 2020). It only confuses people and does not make finding the best outcome any easier. All mentions of the River Street crossing in the various planning documents commissioned over the past 20 years are **in addition** to a southern bridge crossing.

Mr. Shields states:

*The best outcome for a plan B is to extend Minore Road down past Club Dubbo with a bridge across the river, go around Sandy Beach and directly link into Bligh Street where traffic can access the CBD. Bligh Street is an ideal distributor because it has at least four streets it can offload traffic onto directly into the CBD. Tamworth Street in South Dubbo offers none of this.*

As discussed earlier in this document, the overwhelming desire to push traffic into the CBD does not appear to be supported by the available evidence. Those points will not be repeated here. However, the point claiming *Tamworth Street offers none of this* is both fallacious and irrelevant. Firstly, an intersection at Tamworth and Macquarie Streets would allow traffic to access the CBD and other areas (see Section 4.2). Secondly, Option C explicitly states that eastbound traffic will not be able to proceed into Tamworth Street east (nor westbound onto the proposed South Bridge). To imply otherwise is to misrepresent the facts.

A recent study entitled "Preferred Option Report – New Dubbo Bridge (2017)" examined six different crossing options and was commissioned by the RMS. The Tamworth Street crossing scored the highest preferred ranking from a survey of all residents. It also had the second lowest number of properties impacted by the development. This suggests that Dubbo residents as a whole see a South Bridge crossing feeding into South Dubbo as a viable option.

Whilst the DDJCA respects Mr. Shields desire to honour a previously-made commitment, sticking to an election promise alone is not a good enough reason for making a decision. If the best data available suggests an alternative option to that originally decided, surely those who make such decisions should amend their views?

Archived: Thursday, 17 June 2021 3:38:07 PM

From: [REDACTED]

Sent: Thu, 4 Feb 2021 23:03:42

To: [REDACTED]

Subject: PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020 - Submissions

Sensitivity: Normal

Attachments:

210204\_Review and Concerns Dubbo South New Bridge.pdf

EXTERNAL Message: Be cautious of clicking on links or opening attachments.

Please send confirmation both this email and its attachment have been received.

--

Sean Buxton

Managing Director - Buxton Innicon Pty Ltd

[REDACTED]  
[REDACTED]  
[REDACTED]



I purchased my property in 2013 based on South Dubbo being an iconic, leafy, older (heritage and historic houses) and quiet part of Dubbo without a large amount of through traffic. This proposal is creating the potential for a negative impact to my property due to increased traffic, noise, gas emissions and visual impact. I therefore wish for Council to undertake a more detailed assessment on any South Bridge proposals before any construction or funding proposal decision is made - including other options either not yet presented to public for consultation, not considered yet as a concept (alternatives), or not supported by traffic modelling.

I do not believe enough investigation has been completed into where the public plan to travel while using this new bridge. Not everyone will be traveling to the CBD. Now with the proposal of Bunnings moving to the old RAAF Base there is an increased chance that the traffic will want to cut through South Dubbo to reach this development and other developments such as Orana Mall. How can the Council ensure that this short cut will not be used which will result in a negative impact to the residents in South Dubbo?

During the Nov 2020 public information / consultation session where only 2 options were presented, it was shown that the average (not peak) traffic flows across the South St Bridge would be 15,700 (2055). A question was asked during and post the meeting to one of the panel whereby it was stated both times that modelling had not been done . If your street was in the line of fire (along with others) to a proposed 15,700 vehicles at 2055 with no modelling up to then or even which streets were going to receive which traffic of the South St Bridge, would you not also be concerned like I am in Tamworth St?

The Mayor has already stated in August 2020 that he will continue to fight for the rights of the South Dubbo residents to keep South Dubbo as it is. Just as the same residents had to fight to keep it the way it is back in 2015 when the Council tried to change the zoning.

The proposed Dubbo South Bridge may be good for the growth of Dubbo however, the growth of Dubbo cannot come at the cost of the existing parts of Dubbo (e.g. South Dubbo and the iconic Tamworth St) I believe with more planning, modelling and management the growth of Dubbo can continue without impacting South Dubbo.

On 13 July 2020 staff tabled a report South Bridge Update ILC20/29 to the Infrastructure and Liveability Committee. This report had attached revision 2 of the GHD Dubbo South New Bridge Strategic Concept Design Report. This report only shows two bridge options, following the public meeting and a request from the Mayor the other two options have now been put on public display. Will staff see option C or D as preferred options?

The below highlights a number of different issues, some just lack of information, others show limited planning or design of the GHD Dubbo South New Bridge Strategic Concept Design Report Revision 1 report, the Dubbo Transportation Strategy 2020 and the Dubbo South New Bridge Strategic Business Case. The information provided is unclear how this proposal will impact the South Dubbo residents, in particular the impact on the Tamworth Street residents of which I am one.

Can Council please address my concerns and questions and consider updating the relevant sections of the reports and redoing the community consultation to ensure that all Dubbo

residents are given the opportunity to understand the proposal and give their valuable feedback to Council.

1. The objective of the Dubbo South New Bridge is proposed to provide an alternate route to the CBD and to provide an alternate route for south-west Dubbo residents to the CBD over the Macquarie River – is this the sole objective?
2. Only two options have been considered although there has been four options investigated. Can the community be consulted with all options (including modelling) before a decision is made?
3. Option A is designed on existing road alignment, however I note that this is an assumption and no detailed design has been completed. This should be confirmed before a decision is made.
4. Option B is a curved alignment which costs more but does not have much more benefit and will impact the sporting field more. What is the plan and budget to address the impact to the sporting fields?
5. Minimum flood design is 5% should these be designed for full flood management e.g. 1% / 100 year flood design? Will any part of the bridge design in all options be subject to flooding and therefore not offer the complete benefits for when the lower Dubbo bridge is inoperable?
6. Table E-2 Impacts show four impacts, are these the only key impacts or are there more? What is the impact to the South Dubbo properties and in particular Tamworth St? What is the cost of these impacts? How can these impacts be managed?
7. The current consultation is on the draft options with no funding to progress to preferred option and design. How can the community be confident that they are seeing the best options with so little information and so many assumptions?
8. The purpose of the report is to  
*"This Strategic Concept Report aims to determine the most appropriate option for a new bridge in terms of location, engineering, community, environmental constraints and cost"*.  
 There appears to be no detailed engineering or environmental work completed in this report and community consultation is being undertaken after the completion of the report. How can this report be relied on to assess the options without this key facts assessed?
9. Council may be basing its decision on this report, however, this report has not undertaken a formal route study. How can Council be confident in the options and that there will be no negative impact to South Dubbo if this has not happened?
10. Option A requires three new traffic lights at three intersections. How will this improve traffic movements? Can you show how this will not impact the South Dubbo residents near the Bligh / Macquarie intersection?
11. Option A will impact the traffic movements in the sporting field, how will this be addressed?
12. Option A will change the access to the Sandy Beach area, how will this be addressed?
13. Option A will impact traffic on the Newell Highway and further investigation will be required, as stated in the report. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
14. Option A  
*"The bridge crossing at Sandy Beach Road would significantly impact the recreational amenity and access to the popular community asset of Sandy Beach, which is a significant*

*negative impact associated with this option.*" This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.

15. Option B requires three new traffic lights at three intersections. How will this improve traffic movements? Can you show how this will not impact the South Dubbo residents near the Bligh / Macquarie intersection?
16. Option B will impact the traffic movements in the sporting field, how will this be addressed?
17. Option B will change the access to the Sandy Beach area, how will this be addressed?
18. Option B will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section
19. Option C will close the southern end of South Street. What will be the impact to the sporting field access due to this closing?
20. Option C will close the eastern leg of Macquarie Street /Tamworth Street intersection to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street. How will this change work and can you provide the modelling of these changes?
21. Option C requires land acquisition, this will need to be costed before a decision is made to confirm the whole cost of the project.
22. Option C will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
23. Option D will close the southern end of South Street. What will be the impact to the sporting field access due to this closing?
24. Option D will close the eastern leg of Macquarie Street /Tamworth Street intersection to improve traffic flow and minimise impacts to resident on Tamworth Street, east of Macquarie Street. How will this change work and can you provide the modelling of these changes?
25. Option D requires land acquisition, this will need to be costed before a decision is made to confirm the whole cost of the project.
26. Option D will impact traffic on the Newell Highway and further investigation will be required. This assessment needs to be completed before a decision is made. This impact is not listed in the impact section.
27. The report recommends additional flood modelling to assess the impact. This assessment needs to be completed before a decision is made.
28. The report has not completed an environmental assessment despite it been a purpose of the report. This assessment needs to be completed before a decision is made. Impact of South Dubbo from traffic, noise, air quality and visual amenity will need to be assessed, also the impact to the sporting fields.
29. Land ownership is yet to be confirmed? This needs to be addressed before a decision is made.
30. No traffic modelling was completed and the recent transport study that DRC was completing was not completed before the report was finalised. The report has based traffic modelling on the 2009 study which is out of date. The new data needs to be provided before a decision is made.
31. Intersections have been assumed to be signalised, no modelling to confirm.



- 32. Ref Dubbo Transportation Strategy 2020 - Section 6.5.2 South End addresses the traffic intrusion into South Dubbo. This section explains what the traffic movements are in South Dubbo however, it does not explain what additional traffic movements will be coming into South Dubbo from the new bridge. Can Council provide this information and how the additional traffic will impact the South Dubbo residents?
- 33. Ref Dubbo Transportation Strategy 2020 - The South Dubbo Bridge is a 5 to 10 year priority construction planned from 2025 to 2030 subject to funding. Why is this bridge being considered at this time without modelling or all options and also other concepts being considered?
- 34. Ref Dubbo Transportation Strategy 2020 - *Dubbo is described as the 10-minute City and the current average trip time is 6.58 minutes. Thinking of a distribution of trips the majority of journeys are indeed less than 10 minutes. Without the South Bridge the trip time will increase by on 1%, this below the 10 minute objective. Is this a good spend of money or should this money go into another Dubbo project?*
- 35. Ref Review of Dubbo South New Bridge Strategic Business Case – Stakeholder Engagement & Management Plan highlights South Dubbo residents concerns about the South Dubbo Bridge. However, the business case does not address the concern or explain how Council will risk of traffic travelling through South Dubbo.
- 36. Review of Dubbo South New Bridge Strategic Business Case  
Section 3 Cost Benefit Analysis shows four bridge options

Business case number	GHD report number
Option 1	Option A
Option 2	Option D
Option 3	Option B
Option 4	Option C

It should also be noted, that while Option 4 has the lowest overall total project costs, it also accounts for the greatest area of land to be quarantined and purchased by Council. The value of land acquisitions is, as yet, unquantified as no estimates of the amount of land, and the associated compensatory rates, are currently available.

Table 7 - Strategic costings for each of the bridge options, values in 2010 \$'000s. Source: GHD, Strategic Concept Design Report

Item	Option 1	Option 2	Option 3	Option 4
Preliminaries	2,346.4	2,955.4	2,693.4	2,106.4
Roadworks	7,320.2	13,709.1	11,549.7	8,861.9
Bridge	12,816.9	7,526.6	7,146.4	5,664.0
Contingency 30%	6,895.2	7,257.3	6,416.9	4,995.8
Site investigations	890.4	943.5	834.2	1048.0
REF and approvals	149.4	157.2	139.0	100.2
Concept and Detailed Design	1,494.0	1,572.4	1,300.3	1,082.4
Contract and Project Management	1,494.0	1,572.4	1,300.3	1,082.4
<b>Total Bridge Costs</b>	<b>33,912.7</b>	<b>36,693.9</b>	<b>31,560.3</b>	<b>24,571.2</b>
Upgrades to the Water Network	7,480.6		7,480.6	7,480.6
<b>TOTAL PROJECT COSTS</b>	<b>41,402.3</b>	<b>36,693.9</b>	<b>39,049.9</b>	<b>32,060.5</b>

Source: Dubbo South New Bridge Strategic Business Case page 30

Table 6-3 shows overall project costs, and sums the capital costs from Table 7-1 with the other project costs identified at Table 7-2.

**Table 6-3 Total capital, investigations, approvals, design and project management costs**

Item	Description	Route Option A	Route Option B	Route Option C	Route Option D
	<b>TOTAL PROJECT COSTS</b>	\$33,912,670	\$35,693,898	\$31,560,280	\$24,571,169

Source: GHD Dubbo South New Bridge Strategic Concept Design Report Revision 1 page 51

The business case has recommended that option 4 is the lowest overall cost. However, it is unclear how this is the case. Option 4 in the business case is option C in the GHD report. However, the costs have not been copied across as such. Therefore, can Council confirm which option is their preferred option? I also note that both option 3 and 4 were not reported to Council in the July 2020 report.

Executive Summary:

1. I bought in South Dubbo and Tamworth St because I like the iconic nature and leafy and quiet appeal of the area and in particular the Street. Any additional traffic through here will destroy this as well as destroy the value of my home.
2. The options 1 through 4 in one report do not seem to correlate with the right options A through to D – this will be construed as misleading (even if an error) and needs to be updated to reflect what cost goes with what option.
3. There does not appear to be any modelling or impact studies showing how the main areas and streets in South Dubbo and in particular Tamworth St will be impacted for the growth from West Dubbo say at 5, 10, 20, 50 years. It has been presented that 15,700 additional vehicles movements at 2055 will enter South Dubbo via the South Bridge. A decision cannot be made until the modelling is done and the public consulted.
4. The modelling for any traffic in Tamworth St may not have taken into consideration the traffic impacts of the new RAAF Development at the end of Tamworth St and Palmer St. There have been suggestions that Bunnings or other large retailers may move into this new development and the traffic impacts need to be considered with the St Bridge modelling – a “with” and a “without”
5. I note the survey has only offered 2 options. If I had a preference for an option, it would be an option where Tamworth St was protected from large traffic impacts / flows and sealed at the Macquarie St end as well as the introduction of traffic calming in addition to the 3 x roundabouts in the street at present.
6. I am concerned about the impact of additional traffic in and around the 3 schools and kids day care facilities in South Dubbo and without modelling, I cannot provide an educated opinion.

7. I note that the GHD reports from 2009 may require updating to be consistent with the 2020 traffic strategy. Until this report and any options are updated to be consistent with the 2020 Strategy Report, there may be inconsistencies and in fact the options may not be the best ones. I recommend that an additional 2 options based on a concept of a bridge further away from Tamworth St and the sports fields be considered, costed, modelled and tabled. Surely entry into Boundary Road from such a bridge would be better than potential intersection issues at the Macquarie St – Cobra St intersection which would not provide any quicker access to the CBD.

**Archived:** Thursday, 17 June 2021 3:38:11 PM

**From:**

**Sent:** Mon, 8 Feb 2021 11:47:35

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

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[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Keiran
<b>Surname:</b>	Braybon
<b>Residential Address:</b>	██████████
<b>Contact Number:</b>	██████████
<b>Email Address:</b>	██████████
<b>Submission:</b>	No to Tamworth street bridge
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:38:12 PM  
**From:**  
**Sent:** Wed, 10 Feb 2021 07:04:38  
**To:**  
**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020  
**Sensitivity:** Normal  
**Attachments:**  
[0\\_105454\\_10Feb2021180338\\_South Dubbo Bridge Response Kim Chandler.pdf](#)

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The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Kim
<b>Surname:</b>	Chandler
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	
<b>File upload if required:</b>	0_105454_10Feb2021180338_South Dubbo Bridge Response Kim Chandler.pdf

The Manager  
Dubbo Regional Council

8 February 2021

I am writing to vehemently oppose all concept designs for the proposed South Dubbo Bridge. My opposition to the proposed South Dubbo Bridge Concept Designs is based on the untenable impacts to sporting and recreation facilities and activities in the Lady Cutler precinct and their non-compliance to numerous council strategic plans. These include safety concerns for precinct users and reduction in Dubbo Regional Council ability to attract large sporting events and maximise community access to recreational facilities and open spaces.

I am particularly disappointed that funding provided for the south Dubbo Bridge concepts failed to take into account the community's and Councillor's interest in a ring road for our city. Many citizens would like to see part of the ring road travel from Obley Road, cross the river and join Hennessy Road, reducing the impact of traffic on the LH Ford Bridge. Why was this south Dubbo ring road not included in the concepts presented to the community? All concepts are basically diverting traffic congestion from the Whylandra St intersection and moving it to the intersection of Macquarie Street & Cobra Street.

The proposed South Dubbo Bridge concepts **do not comply with:**

- DRC Recreation Strategy 2030
- DRC 2040 Community Strategic Plan Theme 5 – Liveability. The 2040 Community Strategic Plan forms the central component of integrated planning and reporting for our region. The direction of this strategy is based on the overarching principles defined under Theme 5: Liveability in the plan:
  - In particular section 5.5 - The community has the opportunity to participate in a diverse range of lifestyle, sporting and passive recreation pursuits.
  - The action plans within this strategy deliver on:
    - 5.5.1 Access to recreation and cultural facilities for young people is improved
    - 5.5.2 Quality passive and active open space is located to maximise access and use by the community
    - 5.5.3 Unique recreational facilities and opportunity are available
    - 5.5.4 Our sporting facilities are recognised as catering for a wide range of local, regional and state sporting events and opportunity
- 2018 Open Space Masterplan
- Central West and Orana Sport and Active Recreation Draft Plan 2018 – 2023
- NSW Planning and Environment Central West and Orana Regional Plan Implementation Plan 2017-2019.

- Directions from the plan support recreation through: Direction 13.5: Protection and management of environmental assets, including for recreation.
- Direction 14.3: Management and conservation of water resources for recreational fishing.
- Direction 29.2: Enhance the quality of neighbourhoods by integrating recreational walking and cycling networks.

The new bridge and road network will increase traffic and reduce the ability for precinct users to move easily and safely between ovals. This presents a safety issue for children, parents and spectators using the busy sporting precinct. Increasing traffic would increase risks to both motorists and pedestrians.

Lady Cutler precinct is a highly desirable venue for large state sporting carnivals given the number of ovals in area and the ability for players, officials, spectators and support staff to move easily between ovals. Attracting large carnivals to Dubbo brings in millions of dollars each year to businesses in the region. A busy bridge and road network would make the precinct less desirable and indeed prevent Dubbo Regional Council from tendering for future events as the precinct will no longer meet criteria expected to host state sporting events.

Dubbo Regional Council has recently invested millions of dollars in upgrading the Lady Cutler precinct to attract these major sporting events to Dubbo. The development of Pavan's field at a cost of \$1m and the allocated \$1m for new amenities at the oval are recent examples. Building a bridge and road network through this precinct reduces significantly the value of this investment and would be seen by ratepayers as a waste of public money.

The new bridge and road network will also reduce available car parking. This will affect current users of the precinct for either sporting or recreational purposes eg Parkrun, walkers, bike riders etc. Dubbo Regional Council will be required to invest significantly in car parking as a result. This does not appear to be costed as part of the redevelopment.

Yours Faithfully



Kim Chandler

**Chris Godfrey**

---

**From:** Alistair Lunn [REDACTED]  
**Sent:** Sunday, 14 February 2021 9:18 AM  
**To:** [REDACTED]  
**Subject:** TfNSW submission on Dubbo Transportation Strategy 2020  
**Attachments:** TfNSW submission Dubbo Transportation Strategy 2020.pdf

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Chris

Thanks for allowing TfNSW the time to comprehensively review the Dubbo Transportation Strategy 2020. As previously mentioned, by Alexandra and Andrew, we would welcome the opportunity to discuss our comments and suggestions further.

Alistair Lunn  
Director West  
TfNSW  
[REDACTED]

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13 February 2021

████████████████████  
Chief Executive Officer  
Dubbo Regional Council  
████████████████████  
████████████████████

**Attn: Chris Godfrey**

Dear Sir

**Transport for NSW response to the Dubbo Transportation Strategy 2020**

Thank you for the opportunity to comment on the *Dubbo Transportation Strategy 2020 (the strategy)*. Following changes to the South Bridge Concept and a telephone conversation between you and Transport for NSW's (TfNSW) Andrew McIntyre, an extension to provide comments was granted to 15 February 2021, which is appreciated.

TfNSW has reviewed *the strategy* and supports its preparation. TfNSW has identified a number of areas within *the strategy* that require additional information or changes. These areas are identified in the following pages. TfNSW is committed to working with Council in a collaborative way to develop a robust and clear strategy that will serve Dubbo and support its vision of being a '10 minute city'. To assist and work with Council in finalising *the strategy*, TfNSW seeks an opportunity to further discuss *the strategy* with Council and elaborate further on the matters listed below.

Our comments are categorised by subsection and page number with general comments at the beginning of each chapter.

**General comments**

Suggested improvements to the plan:

- Encompass all modes of transportation, such as public, active, road and rail freight.
- Provide model-design, inputs, outputs, scenarios that have informed *the strategy*.
- Legends clearly labelled within maps to identify the intent of each map.
- Provide context and analysis to demonstrate how the proposed southern link compliments and/or facilitates Council's vision for a '10 minute city'.
- Background information and references. For example, providing references/linkages to strategic planning documents such as Council's LSPS, Residential Housing Strategy, etc to support statements made relating to future growth projections.
- Assessment of proposed improvements to the network against TfNSW's Movement and Place framework - <https://www.transport.nsw.gov.au/industry/nsw-movement-and-place-framework>

Transport for NSW  
████████████████████  
████████████████████







**Archived:** Thursday, 17 June 2021 3:38:15 PM

**From:**

**Sent:** Mon, 15 Feb 2021 00:21:12

**To:**

**Subject:** Submission - PROPOSED SOUTH DUBBO BRIDGE CONCEPTS AND TRANSPORTATION STRATEGY 2020

**Sensitivity:** Normal

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

The following information has been submitted from the Dubbo Regional Council:

<b>First Name:</b>	Ryan
<b>Surname:</b>	Marie
<b>Residential Address:</b>	[REDACTED]
<b>Contact Number:</b>	[REDACTED]
<b>Email Address:</b>	[REDACTED]
<b>Submission:</b>	<p>I am hoping you might accept this late submission. I consider both bridges ill-advised, but regard the very idea of an overhead bridge in the vicinity of Sandy Beach as the ultimate vandalism of Dubbo's prime visual and recreational amenity.</p> <p>Please Councillors, do NOT follow the ignominious decision-making of the then-NSW government when, in the 1950's it spumed the advice of its planners and built the Circular Quay Railway right across the magnificent harbour gateway to the city of Sydney. That decision, and those who made it, have been the contemptuous laughing stock of the nation ever since. And it will never be undone in our lifetimes. Please, DRC, don't do this to yourselves, to this wonderful city and to all of us. PLEASE DO NOT.</p> <p>Yours respectfully and sincerely</p> <p>Marie Ryan</p>
<b>File upload if required:</b>	

**Archived:** Thursday, 17 June 2021 3:38:17 PM  
**From:** [REDACTED]  
**Sent:** Sun, 14 Feb 2021 21:46:04  
**To:** [REDACTED]  
**Subject:** FW: Submission to the South Dubbo Bridge public consultation.  
**Sensitivity:** Normal  
**Attachments:**  
South Dubbo Bridge Submission.docx;

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[REDACTED]

[REDACTED]

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**From:** Karina McLachlain [REDACTED]  
**Sent:** Monday, 15 February 2021 2:43 AM  
**To:** [REDACTED]  
**Subject:** Submission to the South Dubbo Bridge public consultation.

[EXTERNAL Message: Be cautious of clicking on links or opening attachments.]

Dear Mr Geddes,

Here is my submission to the South Dubbo bridge public consultation. Thank you for accepting it after the official deadline which I wasn't aware of.

My list of questions concerning the Stapleton Report will be with you in the next couple of days.

Thanks and kind regards,

Karina



Dear Mr Geddes,

This is my submission for the South Dubbo Bridge public consultation.

At the Bush Summit of June 2019 held at the Dubbo Convention Centre, I spent almost all day talking to politicians from local, state and Federal levels about the problems associated with the River St Bridge and Dubbo's preference for a bypass. At one stage during the day, I walked up and introduced myself to John Barilaro, who was accompanied by his press secretary, James Jooste. I asked him if I could talk to him about a matter of importance to Dubbo & the Newell Highway. I showed him with the aid of a large laminated map of Dubbo how a bridge built at River St would increase congestion problems and not solve flooding issues. I then showed him how a bridge at Troy & a bypass would solve both flooding and congestion problems. After this, he said "Well we only have one chance to get this right, don't we?" He then suggested that the NSW Government could fund a scoping study to compare River St with Troy bridge Road and I agreed that it would be a great idea and that is what we wanted. He asked "What does Dugald think about this?" After which I replied "He's being a bit stubborn". Mr Barilaro replied "Yes he is and so was Troy Grant". He asked James Jooste to give me his business card and asked me to get in touch. Dugald noticed me talking to Mr Barilaro and didn't look happy. I was surprised that up until that point (2 years after the announcement of the NSW Government's preferred option) that he knew nothing about the New Dubbo Bridge project.

Weeks later, an announcement was made by Paul Toole & Dugald Saunders that they were giving money to Dubbo Regional Council for a scoping study but to compare River St & Troy Bridge Road but to look at options for a bridge in South Dubbo for local traffic. This funding announcement was unlikely to have been a coincidence. The scoping study and the arguments over the South Dubbo Bridge locations was designed to distract the council and the public from the River St Bridge campaign. There was no funding for a South Dubbo bridge in the last budget and none promised. All this kerfuffle over what could end up being a non-event.

Cancelling the River St Bridge needs to be the priority, followed by a bypass from Troy Bridge Road. A bypass will solve more local traffic problems in more locations in Dubbo than any other infrastructure proposal on the table and it will actually solve the problem rather than move it somewhere else and inflict it upon other communities. A western bypass would remove both highway and local traffic from Whylandra St, Minore Rd, Victoria St, Cobra St, Thompson St, Erskine St, Cobbora St & Bourke St. A bridge into South Dubbo from Minore Rd would only relieve some of the local traffic (and none of the highway traffic) from Minore Rd & Whylandra St only and will increase traffic in South and/or Central Dubbo and Cobra St as a result.

A bridge from Minore would add another busy intersection across the highway and a 4<sup>th</sup> set of traffic lights within hundreds of metres of each other. An intersection at Minore would be half way up a steep hill and it is unlikely that fully loaded roadtrains are going to want to stop half way up for a red light and then attempt a hill start when it turns green. Stopping half way down

wouldn't be pleasant either. To avoid such a disaster, you'll have to factor in the cost of extensive earthworks to make the hill less steep or a flyover to get the local traffic over the top of Whylandra St. The budget for a bridge from Minore will be more expensive than your estimates predict for this reason. I can't understand why anyone who knew anything about Dubbo traffic and the Newell Highway would consider putting a major obstructive intersection at this location was a good idea.

All of the suggested bypass routes from Troy Bridge Road that have been proposed so far by Allan Murphy, John Morris & Garry Braithwaite involve crossing Minore Rd. That means that residents from around that area will have the option to be whisked away at 100km/h on the bypass for part or all of their journey. In addition to the current Whylandra St route to the LH Ford, which would be far less congested with highway traffic.

The Stapleton Report and the traffic modelling around this issue was flawed. I have no idea why he didn't think to (or wasn't instructed to) investigate a scenario with the bypass, since this is what the council and the public want. Is it because the public don't matter? The future demand for a South Dubbo bridge predicted by the modelling won't stand up if a bypass was factored in. Is the reason that this modelling wasn't carried out because Dugald Saunders or the DRC not interested?

Unlike in times gone by, schools are flooded with cars dropping off and picking up children twice a day, whilst many school buses are half empty. As part of this traffic report, a survey of parents who drive their children to school should ask them why they take their children to school by car and what measures could be taken to increase the numbers of children walking, riding bikes or taking the bus to school. It may be possible to reduce the numbers of parents doing the school run without the need for a bridge.

In conclusion, the bypass needs to be built first and then if significant amounts of peak hour traffic are still clogging up Whylandra & Cobra (doubtful), that is the time to look at a bridge in South Dubbo. However, its location should be further south and constitute an extension of the Newell Highway bypass to complete the next section of the ring road, which would function as a Mitchell Highway bypass.

Thank you and kind regards,

Karina McLachlain  
February 2021



Archived: Thursday, 17 June 2021 3:38:49 PM  
From: [REDACTED]  
Sent: Mon, 22 Feb 2021 05:49:24  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: TfNSW Response to South Dubbo Bridge New Concepts.pdf  
Sensitivity: Normal  
Attachments:  
TfNSW Response to South Dubbo Bridge New Concepts.pdf

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Dear Chris,

Thankyou for the extension provided in relation to TfNSW response to the Dubbo South Bridge New Bridge South Concepts, TfNSW have provided the response in relation to this matter within the above attachment.

I trust this information is of assistance. TfNSW looks forward to working further with Council on the development of the concept for a south bridge.

TfNSW would be pleased to discuss the feedback provided (above) in a debrief meeting with Dubbo Regional Council. If you have any further queries or would like to arrange a meeting in relation to this proposal.

Kind regards

Alexandra Power  
A/Team Leader Development Services  
West  
Regional and Outer Metropolitan Division | TfNSW  
T [REDACTED]

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22 February 2021

SF2020/209248; WST20/00397/01

General Manager  
Dubbo Regional Council

[REDACTED]

**Attn: Chris Godfrey**

Dear Sir

**Transport for NSW response to the Dubbo South Bridge New Bridge Strategic Concepts**

I refer to the *Dubbo South New Bridge Strategic Concepts Design Report Revision 1 (the report)* prepared by GHD that has recently been on public exhibition. As a key stakeholder, Transport for NSW (TfNSW) appreciates the opportunity to comment on the report.

TfNSW understands the intent of the proposed New South Dubbo Bridge is to reduce traffic congestion at critical links, in particular congestion at the LH Ford Bridge, and provide an alternate, faster route for new residential release areas on the western side of the Macquarie River to access the CBD and east Dubbo.

The report presents four route options (Options A, B, C and D), seeking to utilise existing road corridors and connectivity to existing intersections. Proximity to east-west travel destinations have been considered to provide the most direct alignment feasible between the Newell Highway on the west side of the Macquarie river and Macquarie Street on the east side of the river.

TfNSW supports the preparation and early consultation regarding the proposed New South Dubbo Bridge and provides the following comments for your consideration:

- Section 1.1 Commentary on the proposed New Dubbo Bridge (referred to in the report as 'River St Bridge') has factual errors:
  - The New Dubbo Bridge does ease congestion on Erskine Street and Bourke Street improving access to the CBD and commercial district.
  - The New Dubbo Bridge does support development in West Dubbo (particularly development of the North West which will have increased connectivity).
  - The *Dubbo Transportation Strategy 2020* provides strong alignment with the New Dubbo Bridge (referred to as North Bridge) and leverages benefits for the local network as well as highway through traffic. It also provides relief to heavy vehicle movement on Erskine Street which the strategy identifies as a major current transport issue.
- Section 2.1 –*Dubbo Local Strategic Planning Statement (LSPS)* was adopted by Council on June 22 2020. The LSPS has relevant statements about future growth and transport infrastructure plans that should be referenced in the concepts to demonstrate strategic alignment.
- Page 17 section 4.2 - Transport modelling is an important input to option selection. As the proposed New South Bridge will be a key east west connector, the broader network impacts (positive and negative) from this change will be an important deciding factor on the best option(s). There are existing traffic models which could be used to model the impacts to the network from the four different bridge options. This would aid understanding of how each option may impact Newell Highway, Macquarie Street, and in particular, the Macquarie Street/ Mitchell

Transport for NSW

[REDACTED]



**Option C** - Provision of an east-west connection from the Minore Road intersection with the Newell Highway on the western side of the river, terminating at the intersection of Macquarie and Tamworth Streets with the bridge located adjacent to the existing pedestrian bridge.

**TfNSW comments:**

- TfNSW supports the proposal to prohibit bridge traffic to proceed directly into Tamworth Street. This will ensure that Tamworth Street does not become a thoroughfare for the West/East bound traffic bound traffic and preserve the high place value of this residential street.

**Option D** – Provision of an east-west connection between the intersection of Yuille Court and the Newell Highway terminating at the intersection of Macquarie and Tamworth Streets with the bridge located close to the Tamworth Street carpark.

**TfNSW comments:**

- Option D will require two sets of traffic control signals on the Newell Highway, one at the Minore Road intersection with Newell Highway, and then a second set at Yuille Circuit. This creates two new delay impacts to the Newell Highway north/south flow.
- A significant portion of the land is identified as flood prone and will require the bridge to be designed to mitigate the impacts of flooding.
- The proposed Option D will present significant conflict with east/west flow of traffic from Minore Road and South Dubbo across Newell Highway with offset intersections.

In summary, TfNSW supports the further development of Options A and C as both options will provide an east/west connection. Further development of the Dubbo South Bridge should consider the broader implications to the local and state classified road network.

I trust this information is of assistance. TfNSW looks forward to working further with Council on the development of the concept for a south bridge.

TfNSW would be pleased to discuss the feedback provided (above) in a debrief meeting with Dubbo Regional Council. If you have any further queries or would like to arrange a meeting in relation to this proposal, please contact Joshua Parkin, Senior Network & Corridor Planner on 02 6861 1480

Yours faithfully



Damien Pfeiffer  
A/Director Development Services  
Community and Place  
Regional and Outer Metropolitan

Transport for NSW

