

## FACT SHEET 4 – *Bridges*

The road network within the Kyogle Local Government Area contains a total of 380 bridges with a combined length of over 7.1km. The bridge network is made up as follows:

Road Class	Number of Timber bridges	Length of Timber Bridges (m)	Number of Concrete Bridges	Length of Concrete Bridges (m)	Sub-Total by Road Class (Number of bridges)	Sub-Total by Road Class (Length of bridges)
State Highways	0	0	28	892	28	892
Regional Roads	5	80	21	498	26	578
Local Roads	207	2,991	119	2,651	326	5,642
<b>Sub-Totals</b>	<b>212</b>	<b>3,071</b>	<b>168</b>	<b>4,041</b>	<b>380</b>	<b>7,112</b>

Council is financially responsible for the bridges on Local and Regional Roads, which have a total of 352 bridges. Of these, 212 are constructed from timber. These timber bridges represent the single biggest challenge facing Kyogle Council, from both a financial sustainability and risk exposure perspective. Many of these timber bridges were constructed between the 1930s and 1950s and are near the end of their useful lives. Council has a bridge management strategy that has been in place since 2004, but funding levels mean that many of the remaining timber bridges will not be able to be replaced before they are beyond economical repair. Council prepared a Transport Asset Management Plan in 2012 and identified the following strategies for the long term management of these bridges:

- Increased structural condition inspections in order to establish clear priorities for maintenance and replacements and allow assessment of load bearing capacities and risk of failure;
- Focus expenditure on maintenance and replacements to the highest trafficked roads and streets, working away from major arterial roads;
- Compilation of data on heavy vehicle usage across the network with a focus on school bus routes, milk tanker routes and timber haulage routes to assist in the strategic decision making process;
- Imposition of weight and speed limits on deteriorating bridges and other structures when required;
- Demolition and disposal of bridges where alternate routes provide acceptable means of access; and

- Eliminate remaining timber bridges and replace with concrete and steel structures that provide a 100 year design life reducing the annual maintenance requirements and ongoing renewal costs.

At present, Council's bridge replacement program is focused on the replacement of smaller single span structures, many of which are able to be replaced with concrete pipe culverts rather than bridge structures, in an attempt to reduce the overall number of timber bridges. This strategy has worked well over the last 10 years, reducing the number of timber bridges by an average of 9 per year, from 304 in 2003 to 212 in 2013. The bridges replaced during this period also included a significant number of larger multi-span timber bridges on Regional Roads (Clarence Way and Mount Lindesay Road) that were funded 50/50 by the NSW Government through their Regional Road Timber Bridge Replacement Program, which no longer exists. Council will continue to lobby both the State and Federal Governments for funding to assist with the replacement of timber bridges, however the message from the current NSW Government has been made clear by the Minister for Roads and Ports, The Hon. Mr Duncan Gay MP, who stated in April this year:

*"We're doing what we can to help local government in NSW but Councils need to make clear decisions as to where funding should be allocated in their local area. Councils also receive funding from their local rates and the Federal Government and if bridges are deteriorating or need replacing, Councils need to prioritise funding for the work."*

Council undertakes an extensive program of planned maintenance of its timber bridges, using skilled staff and specialist plant and equipment. Council also promotes efforts to maximise efficiency and effectiveness in this

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area, but despite this, the resources available are not sufficient to halt the deteriorating condition of these timber bridges.

Council has also increased its capacity to design and construct replacement bridge structures over the last 10 years. This has proven to deliver the best value for money for the local communities, as well as providing some local employment and a decrease in Council's dependency on external contractors and suppliers. We have also increased Council's capacity to manage external contracts for design and construction of larger structures, allowing Council to take advantage of opportunities for additional funding when they eventuate, as was the case with the former NSW Government's *Regional Road Timber Bridge Replacement Program*.

Of the 212 timber bridges that remain, 66 are multiple-span bridges with an average replacement cost of \$425,000 each. These multi-span timber structures present particular challenges, as they have timber piers and supporting structures that are often mid-stream and/or at elevated height and are difficult to access for maintenance and repairs. Whereas the decking and girders are relatively simple to remove and replace, these timber pier-supporting structures are more complex. This means that over the life-time of these structures, the girders and decking may have been replaced several times, but these piers may never have been replaced, and these are the oldest timber elements that remain in service. Council has recently developed an innovative solution to this challenge that allows these timber piers to be replaced by galvanised steel piers, without demolishing the structure and also keeping the bridge open with limited service during the works. The resulting steel structures have been designed such that they can support a concrete deck structure when the funding is available for the replacement of the remaining timber components. A recent example is the timber bridge at Grieves Crossing on Grady's Creek Road at The Risk.

Council's current funding levels for bridges are \$880,000 per year for replacements and \$556,000 per year for maintenance. At this level of expenditure it will take another 58 years to replace the remaining timber bridges. In this time period, many of these will need to have

weight limits imposed, or be closed altogether. This could have significant impacts on the local economy and the health and wellbeing of the affected communities. In order to see the timber bridges replaced in the next 20 years, the replacement budget would need to be \$2.45M, which is an additional \$1.6M per year to the bridge replacement program.

There is a long term economic benefit to Council if this could be achieved. As the number of timber bridges is reduced, the requirement for maintenance and upkeep of the concrete and steel structures which replace them will also reduce. This could see the current \$550,000 per year allocated for maintenance, reduced to around \$200,000 per year, an ongoing saving of around \$350,000 per year. As these replacement structures also have a longer life than the existing timber structures, the annual funding for replacements over the life cycle of the new structures will reduce from the \$2.45M required for the next 20 years, down to \$1M per year, an ongoing saving of \$1.45M per year. After 20 years, this would see the annual costs associated with bridges reduced by \$1.8M per year. In simple terms, an additional \$32M investment over the next 20 years, would be offset by an ongoing saving of \$1.8M per year thereafter, making the payback period for the \$32M investment a further 17 years. When planning for assets with a life of 100 years, this is a significant return on investment, which would contribute greatly to the sustainability of the local communities and the local economy.

Council will always strive for innovative solutions to the challenges that a bridge network of this magnitude presents, to ensure that the best value for money can be achieved from the available funds. However, the current funding levels are not sufficient to maintain the bridges in their current condition, or make any improvements to the overall condition of the bridge network as a whole. This means that the remaining life of many of these structures will expire before we can afford to replace them, leading to closures, weight limits, risk of failure and the social and economic impacts that go along with each of these. There are many bridges, but every bridge is the most important bridge to somebody.