Option H – Improving Emergency Access to Tallon Bridge

Option H involves improving emergency access to Tallon Bridge by creating an extension to the bridge from Gavin Street through to the roundabout near Bundaberg North Primary School.

Stage 2 of the Bundaberg flood protection study involves assessing 11 flood mitigation options, including those identified through consultation with the Bundaberg community in late 2015.

Option overview

Option H aims to enhance emergency access to Tallon Bridge by creating an extension to the bridge from Gavin Street through to the roundabout near Bundaberg North Primary School. A two-lane viaduct to replace Hinkler Drive was previously proposed, although this option was considered cost prohibitive. This option consists of a one-lane viaduct, which would run parallel to Hinkler Drive. The viaduct would only be used for evacuation purposes.

This option would involve:
- Construction of a one-lane viaduct linking the existing Tallon Bridge (near Gavin Street) to the roundabout near Bundaberg North Primary School.
- An on-ramp at Gavin Street and raising of Gavin Street by 300 mm.
- Associated roadworks near the bridge piers and near the roundabout.

Figure 1: Option layout
What would this option achieve?
Enhancing the emergency access to Don Tallon Bridge significantly improves the ability for emergency services to access Bundaberg North and provide additional evacuation time for flood events up to the 1% AEP event. This option:

- Provides no reduction in the number of properties with over-floor flooding in a 1% AEP flood event
- Provides an additional four hours of evacuation time to properties located to the east and west of Hinkler Avenue
- Improves evacuation of Bundaberg North residents to the north and west of the roundabout for an extended period of time, for floods up to the 1% AEP flood event.

Further assessment of the option is required to determine whether this option would cause an unacceptable increase in flood levels due to the construction of the piers.

Figure 2 shows the localities which would be able to access the viaduct.

---

1% AEP flood is the name given to a flood event which has a 1 in 100 or 1% chance of occurring in any year. It would be similar to the January 2013 flood.
Viability
A key step in the options assessment involves identifying issues that may mean construction or implementation of the option is not viable. These relate to matters such as:

- The likelihood of obtaining environmental approvals, due to unacceptable environmental impacts
- Significant or unaffordable costs of construction or ongoing maintenance
- Potential for unacceptable impacts on other areas.

An option is considered to be unviable where the assessment identifies one or more of these matters are ‘unlikely to be achieved’.

The assessment of Option H found that this option will be viable. Environmental approval is likely due to the works being undertaken mainly in road reserves. The adoption of a viaduct to provide the access minimises the likelihood of impacts outside of the benefited area. Whilst the option has been identified as affordable it is difficult to quantify the benefits.

| Likelihood of obtaining environmental approval | 🟢 |
| Affordability | 🟢 |
| Tolerable impacts outside benefited area | 🟢 |

Costs and benefits
Initial estimates indicate that the construction and maintenance of this option would cost approximately $42 million.

Although there is no reduction in flood damages, approximately 1400 properties would no longer be isolated in a 1% AEP flood event. In addition, the available evacuation times for Bundaberg North would increase by about four hours.

Summary of assessment against key criteria
Each option has been assessed against a set of 16 criteria. These criteria, if achieved by an option, indicate a strong link between the option and the overall objectives of the Bundaberg Flood Protection Study. The performance of this option against the 16 criteria is presented on the next page. These assessments will be used to derive an overall multi-criteria analysis score for this option. This score is then used in conjunction with other assessments to compare this option against the other options.

A summary of the performance of this option against the criteria as well as the costs, benefits and viability issues is presented below.

- This option would enable 1400 properties in Bundaberg North to have emergency access to Bundaberg South during a 1% AEP flood event.
- It would assist in reducing impacts on people as isolation is reduced and access to emergency services is increased.
- It would also decrease stress due to reduced isolation and improved access to emergency services during flood events.
- This option has limited benefits in very large events (e.g. larger than 2013).
- This option would have limited benefit for those properties to the east of Hinkler Drive or south of Hinkler Park.
- Afflux from the viaduct has not been assessed and would need to be considered in future design development.
- The costs for this option would be more than 10 times the estimated monetary benefits. It is difficult to quantify the benefits of this option as they are improvements to access and not reduced flood damages.
## Technical Discussion Paper

### Evaluation criteria

<table>
<thead>
<tr>
<th>Objective</th>
<th>Criteria</th>
<th>How does it perform against the criteria?</th>
<th>Preliminary Score</th>
</tr>
</thead>
</table>
| Reduce flood risk to life and reduced flood impacts on people | Improves people’s safety during flood events and people’s ability to evacuate | • Approximately 1400 are no longer isolated in the 1% AEP event.  
• Evacuation could occur throughout the event and would enable better access to emergency services. | ✔ |
| Reducing the occurrence of flood deaths and injury and improving people’s ability to plan for and recover after a flood | Reduces the impacts on people for very large / rare floods (larger than say Jan 2013 flood) | • Don Tallon Bridge access likely to be cut in larger rare flood events. | ☑ |
| | Increase people’s resilience to flooding by improving their preparation for flood events and ability to recover after flood events | • Does not increase people’s resilience. | ☑ |
| | Targets vulnerable community members or areas (e.g. elderly, poor) | • Does target more vulnerable areas. | ✔ |
| Reduce flood risk to property | Reduces damages and costs to residential property caused by floods | • No change in flood damages. | ☑ |
| Reducing flood damages and properties and improving the recovery of businesses after floods | Reduces damages and costs to business / industry / government caused by floods | • No change in flood damages. | ☑ |
| | Reduces the impacts on property for very large / rare floods (larger than say Jan 2013 flood) | • Does not reduce the impact to people for very large events. | ☑ |
| | Increase a property’s “flood resilience” (improving a property so it is less affected by a flood event and recovery after an event is faster) | • No change. | ☑ |
| Achieve a balanced investment approach that considers social, economic and environmental issues | Economic benefits (increased confidence leading to economic growth) for the broader region | • None foreseen. | ☑ |
| | Environmental benefits: Terrestrial, aquatic, riverine benefits, effects upon heritage | • Construction of the viaduct is likely to have no environmental impacts. | ☑ |
| Considering social, economic and environmental issues (independent of the improvements to flooding) | Social Health benefits: Effects upon mental health, psychological issues, stress | • Reduced stress due to reduction in isolation and access to emergency services. | ✔ |
| | Community benefits: Effects upon “livability” of the area, urban amenity, social cohesion | • May assist with social cohesion due to north and south being linked during large events so partially meets criteria. | ☑ |
| Long term reduction in flood risk and adaptable levels of protection | Adaptable flood performance with respect to climate change | • Viaduct sufficiently high that gradual increases in flood severity will not impact on flood immunity. | ✔ |
| A focus on the long-term benefits and adaptability of options and also the impact on future development land | Long term benefits | • Benefits of the viaduct would be realised over the long term. | ✔ |
| | Decreases flood damage to areas of future development | • No change to flood extent for developable land. | ☑ |
| | Staged benefits with staged construction / investment | • There is no ability to stage construction. | ☑ |

✔ Achieves the criteria  ☑ Partially achieves criteria or has no change to current status  ✗ Does not achieve the criteria
Technical Discussion Paper

Find out more about this option
Community consultation on the flood mitigation options and the findings of the options assessment will take place from 24 October to 20 November 2016. To find out more about the flood mitigation options and to provide your feedback:

Visit the website
www.qld.gov.au/bundabergfloodstudy
Interactive mapping is available on the website so that you can see how the flood mitigation options would change flooding in your area.

Contact the project team
Email: bundabergfloodprotection@jacobs.com
Telephone: 1800 994 015 (during business hours)

Next steps
The Bundaberg flood protection study is due to be completed later this year. Engagement on the 10-year action plan will occur in 2017. It is important to note that the flood mitigation options have not yet been considered by the State government and are not government policy. No commitment will be made on any of the options until the State government has consulted with the community and stakeholders on the 10-year action plan.

The Queensland Government will continue to engage with the Bundaberg community as the action plan develops.