

- All options hydraulically modelled
- Flood mitigation measures identified for each option
- Designed to maintain current flood immunity in Grafton and South Grafton
- Evacuation and emergency response also considered

- Minor levee raising proposed for all options
- Increase in levee height ≤ 10 centimetres
- Length of levee between 10 and 20 kilometres, depending on option
- Bridge / viaduct lengths between 500 and 1600 metres, depending on option
- Option C requires additional local drainage infrastructure

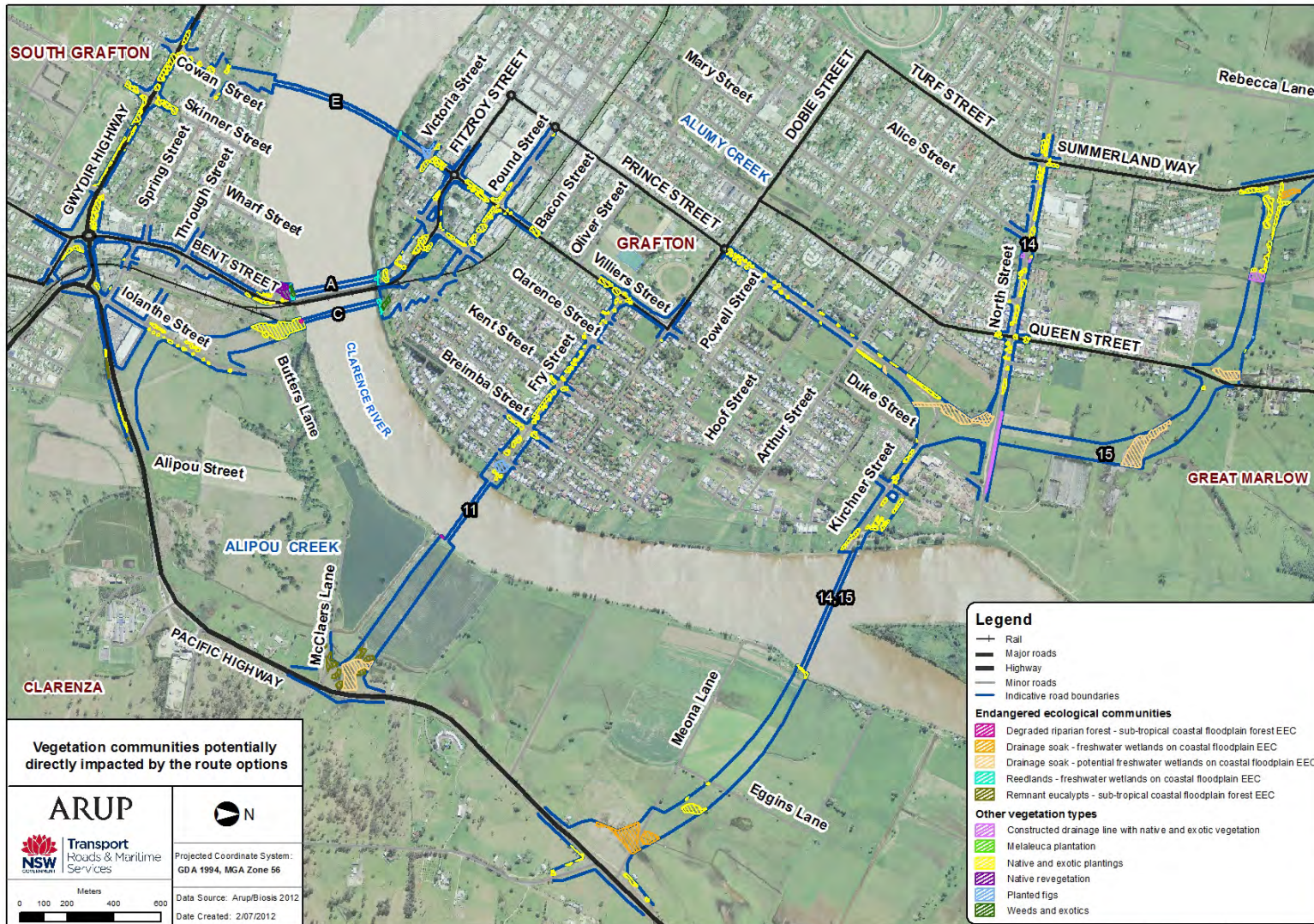
- None of the mitigated designs impact on flood levels behind the levees, or downstream from Grafton
- Minor upstream river level increase ≤ 10 centimetres, no increase in floodplain
- All options increase efficiency of major flood evacuation
- Options A, E, C concentrate evacuation through business district / reduce contingency
- Options 11, 14, 15 provide route out of Grafton, reducing congestion / increase contingency

➤ Potential ecological constraints

- Type of plant community, both endangered ecological communities and other vegetation and fauna
- Threatened species flora
- Threatened species fauna habitat



Natural environment - ecology



- Options 14 and 15 have the greatest potential direct impacts on ecological communities
 - drainage areas on freshwater wetlands on coastal floodplains
 - native and exotic plantings.

 - Options E, A, C, 11 affect lower areas of communities
 - reedlands
 - native and exotic plantings.
 - eucalypts
 - riparian forest

 - Known habitat for threatened listed species
 - Option E – flying foxes (fig trees and flight path to Susan Island)
 - Options A and C - bats (bridge and riparian zone)
 - Option 14 and 15 – egret (wetland)
-

Non-aboriginal heritage



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➤ Report includes information on:

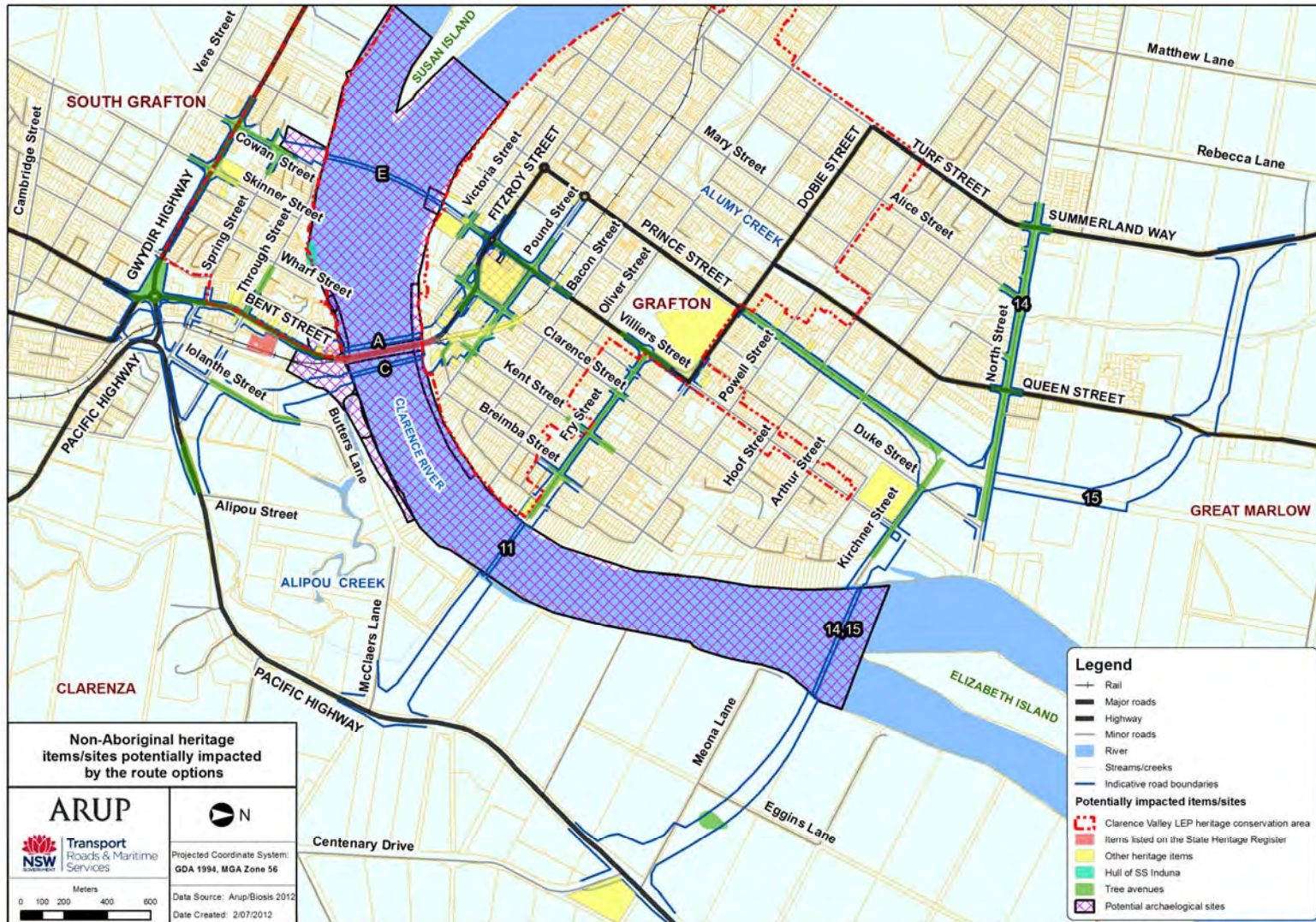
- Heritage items
- Archaeological items
- Trees as heritage items and effect on streetscape and setting
- Heritage conservation areas



Non-aboriginal heritage



Transport
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Services



- Options E, A and C greatest impact items of non-aboriginal heritage due to urban location. Including:
 - Fitzroy Street (Option A)
 - Villiers Street (Option E)
 - Kent and Greaves Street (Option C)

- Option A direct impact on two items on state heritage register.
 - Grafton Road and Rail Bridge
 - Railway Station Group

- Options E and C will also have visual impacts on the existing state heritage bridge.

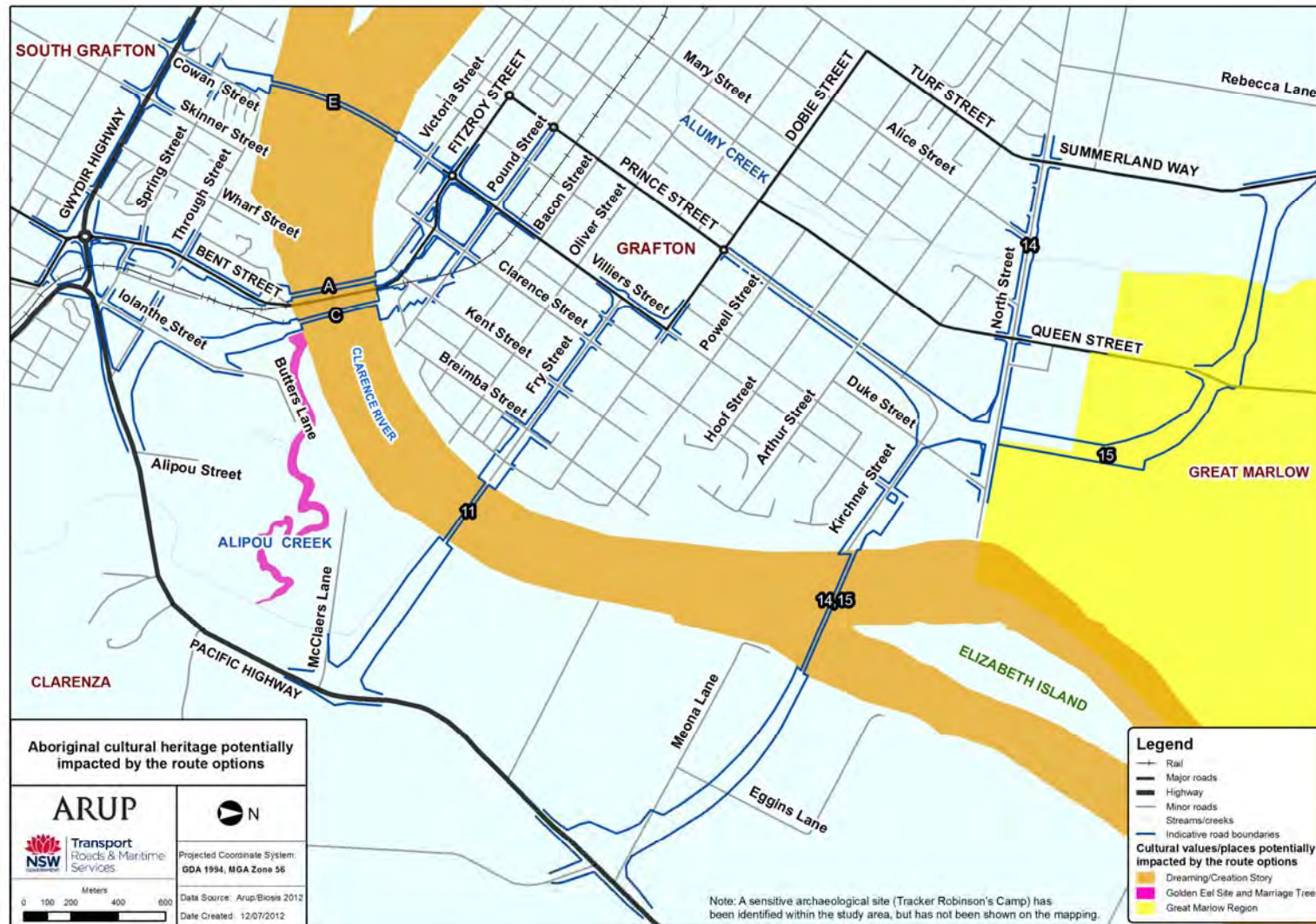
- All options impact on listed trees such as figs, jacaranda and flame trees and other significant plantings. Option 14 affecting the most trees (140).
- All options have the potential to impact on potential maritime sites, which will have to be carefully managed during detailed design and construction. Where possible they have been identified as Potential Archaeological Sites (PAS).

- Aboriginal Cultural Heritage
 - Aboriginal Archaeological Heritage
-

Aboriginal cultural heritage



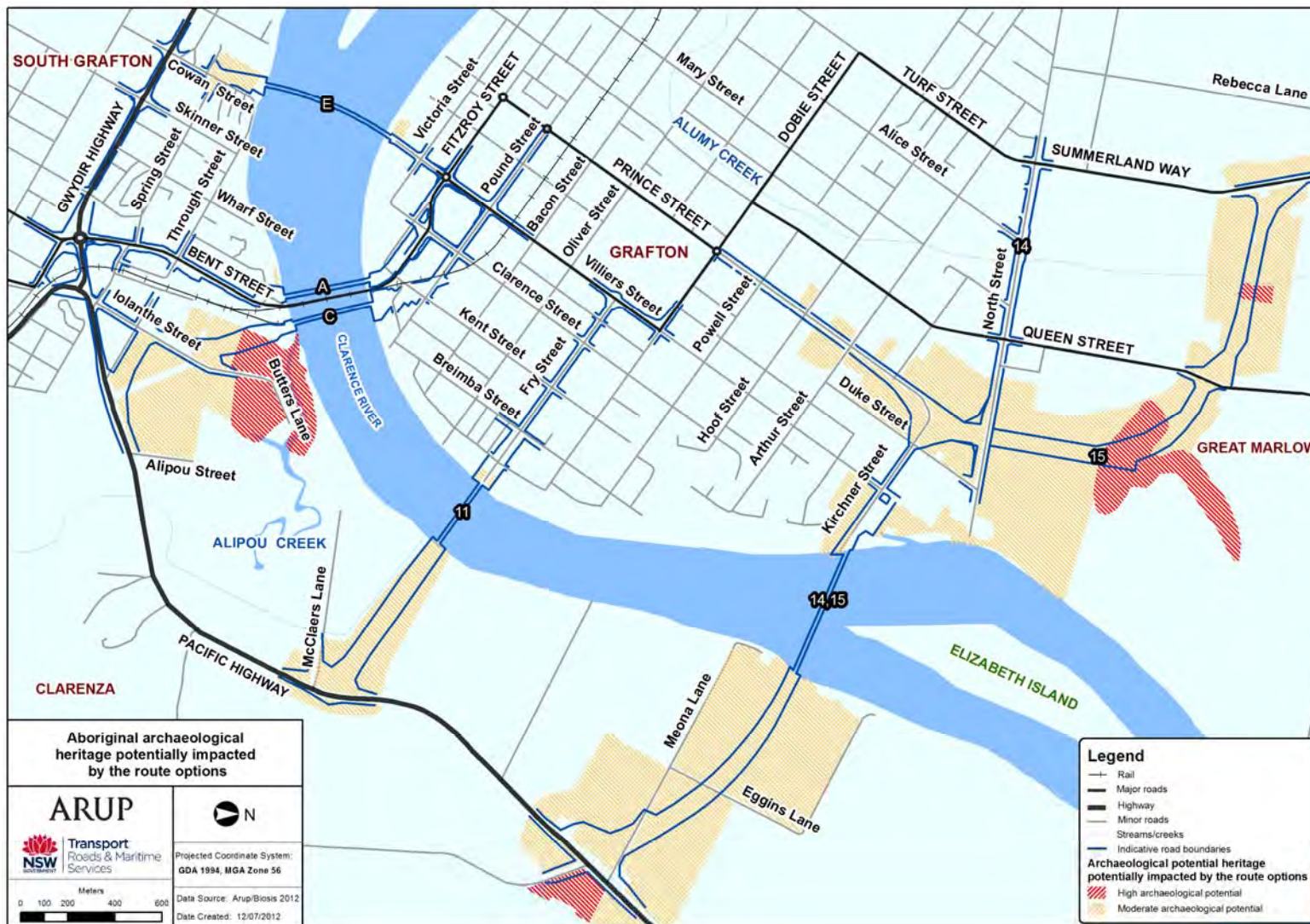
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Aboriginal archaeological heritage



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- Options 14 and 15 direct impact Great Marlow cultural site.
- Option C could potentially affect the aesthetic value of the Golden Eel cultural site. Protection measures to be put into place during construction.
- Option 15 is in close proximity to the Tracker Robinson camp site. Protection measures to be put into place during construction.
- Option 15 has the greatest length through areas of potential archaeology.

Social and Economic Issues

- Benefits of second crossing include reduced traffic congestion and travel times; improved road safety and access for service delivery, emergency services, pedestrians and cyclists; as well as a greater integration between Grafton and South Grafton
- Land use impacts, including property acquisitions – as per table below

	OPTION E	OPTION A	OPTION C	OPTION 11	OPTION 14	OPTION 15
Property impacts						
Number of potentially directly affected properties:						
• Residential	16	21	24	22	6	1
• Businesses	7	21	4	1	2	1
• Rural	0	0	2	2	7	14
• Community	8	15	12	5	5	6
• Total	31	57	42	30	20	22

- Option E, A, C have largest impacts on residential properties, with Options 11, 14 and 15 having impacts on rural properties and regionally significant farmland

- Option A has the greatest impact on businesses, mostly located along Bent St.
 - Option E provides a strong link between the Grafton & S Grafton CBD and strong potential to improve tourism (waterfront plans)
 - Options E, A and C have benefits for pedestrians and cyclists and connectivity between the two town centres of Grafton and South Grafton
 - Option 11 improves connectivity between existing residential areas and Clarenza, with Options 14 and 15 achieving this as well as benefiting the Junction Hill area.
 - Options 14 and 15 avoid impacts on community cohesion due to the sparsely populated areas adjacent to the proposed routes.
-

Urban Character and Landscape



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➤ Investigations considered:

- Visual integrity of the existing bridge
- Compatibility with the surrounding built environment
- Integrity of existing landscape and street pattern



Urban Character and Landscape



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	OPTION E	OPTION A	OPTION C	OPTION 11	OPTION 14	OPTION 15
Landscape and urban character	Maintains visual integrity of existing bridge. Would not fragment existing urban settlement patterns.	Impacts on views to, and visual character of, existing bridge. Would fragment existing urban settlement patterns.	Impacts on views to, and visual character of, existing bridge. Would significantly fragment existing urban settlement patterns.	Maintains visual integrity of existing bridge. Would significantly fragment existing urban settlement patterns.	Maintains visual integrity of existing bridge. Would fragment existing urban settlement patterns.	Maintains visual integrity of existing bridge. Would fragment existing urban settlement patterns.

