



7.8 Installation of Temporary Safety Barriers

Temporary barriers installed at the nearside of the carriageway, adjacent to the existing piers will provide suitable protection. It is likely that temporary barriers will require the implementation of narrow lanes to ensure compliance with set back and working width. A reduced speed limit would also be recommended.

Whilst temporary barriers indicate the lowest resultant risk score of the potential mitigation measures, installation, maintenance and removal costs of these and narrow lanes are significant and will take time to procure and install.

8 Mitigation Option Summary

Option Ref	Mitigation Measure	Risk Score	Estimated Installation and maintenance cost (1 year)	Effect on Traffic Flow	Comments
1	Do Nothing	8	£0	No impact on traffic flow	Should not be considered
2	Replace ramped Leading Terminal with Compliant P4 terminal	3	£113,600 Replace 12 No ramped with P4 terminals (Assumed in filter drain)	No impact on traffic flow	Whilst measure mitigates risk of vehicles becoming airborne on impact, the likelihood is extremely low, and this measure does not alleviate the risks associated with the remaining defective length of safety barrier at and before the piers
3	Application of a Reduced Speed Limit	3	£130,000 Permanent signing with terminals illuminated over a 10km length	No impact on traffic flow	Dependent upon anticipated procurement of design and construction, costs assume permanent



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			of dual carriageway		signing will be installed to remove maintenance costs associated with temporary signage
4	Speed Enforcement (in Conjunction with Reduced Speed Limit)	-	£287,000 (in addition to speed limit signing) Costs include install, 1 year maintenance and removal.	- Should assist in regulating traffic speeds - No impact on traffic flow	This would be an "add-on" to option refs 3, 6, 7 and 8 should traffic speed compliance be poor
5	Installation of Variable Message Signs	-	£42,000 Includes 6 signs installed, 1 year maintenance and removal. (In addition to speed limit signing)	- Should assist in regulating traffic speeds - No impact on traffic flow	This would be an "add-on" to option refs 3, 6, 7 and 8 should traffic speed compliance be poor
6	Installation of Narrow Lanes	3	£5,254,000 Installed, 1 year maintenance and removal over a 10km length of dual carriageway (in addition to speed limit signing)	- Driver caution when overtaking larger vehicles - No impact on traffic flow	- Operated in conjunction with temporary speed limit - Significant installation, maintenance and removal costs - Exposes additional workforce to increased risks due to installation, maintenance and removal liabilities
7	Installation of 2 x Lane 1 Closures	2	£808,100 Installed, 1 year maintenance and removal over a 10km length of dual carriageway (in	Potential increase in congestion on westbound approach to Raglan	- Operated in conjunction with temporary speed limit - Significant, maintenance



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			addition to speed limit signing)	Roundabout • Increase driver frustration as a long length of closure would be required, with road users perceiving that no works are being undertaken	and removal costs • Exposes additional workforce to increased risks due to installation, maintenance and removal liabilities
8	Installation of Temporary Safety Barriers	2	£5,532,000 12 No. installations, each comprising 50m Temporary VRS and 1 No. Crash Cushion. Installation, 1 year maintenance and removal of temp VRS with narrow lanes on both carriageways for 10km. (in addition to speed limit signing)	• Road closures required during installation and removal • No effect on traffic flows during operation	• Operated in conjunction with temporary speed limit and narrow lanes • May become an obstruction to constructing new barriers