Engineering Measure	Detail	Technical considerations	Possible action	Feasibility
Signs	Zebra warning signs - Diagram 544	• Should only be installed if the visibility of **both** beacons is below 45m. • Size of signs to be dependent on average 85th percentile vehicle speeds.	• Beacons can be viewed from this distance in both directions so no further improvement appropriate.	• No perceived problems, though installation of such signs would add extra sign clutter that could be a distraction.
	School warning signs - Diagram 545	• Must include supplementary plate. • Size of signs to be dependent on average 85th percentile vehicle speeds.	• Existing signs could be repositioned, with the required supplementary plate and yellow backing board added to improve visibility.	• No perceived problems, though installation of such signs would add extra sign clutter that could be a distraction. Additionally, the rectangular shape of backing board can cause the distinctive shape of a warning triangle to become less conspicuous.
	School Safety Zone (SSZ) signs - Advisory 20mph speed limit when lights are flashing	• Electrical supply readily available from nearby street lighting. • Verge width adequate to site signs, though visibility of signs may be obscured by overhanging vegetation without robust maintenance practises.	• Proceed with implementation of SSZ signs.	• No perceived problems, though installation of such signs would add extra sign clutter that could be a distraction.
Vehicle Activated Sign (VAS)	VAS to re-enforce the presence of a potential hazard ahead - Diagram 545	• Electrical supply readily available from nearby street lighting. • Size of signs to be dependent on average 85th percentile vehicle speeds.	• Generally installed to re-inforce existing warning signs, which are not as effective. Could be installed in conjunction with the above warning signs.	• No perceived problems. Signs should be located nearer to the hazard than the above static warning signs.
SLOW markings	1600mm SLOW marking – Diagram 1024	• Should be used in conjunction with warning signs/VAS for greater effect.	• Install road markings alongside either/both of the above measures.	• No perceived problems.
Speed Limit	Provision of a 20mph zone	• A 20mph zone would require traffic calming features to be installed every 100 metres (minimum) • Average speeds of <24mph see the best compliance with no traffic calming. Recent speed data suggests that average speeds are some way over this threshold.	• Due to the nature of the road and its surrounding environment, no further consideration should be given to a 20mph zone.	• A reduction in speed limit requires a Traffic Regulation Order to be made, which requires consultation with the public. This could potentially lead to objections and no speed limit amendments being taken forward. • Both measures should be self-enforcing • Either measure would be more effective over a network of roads, rather than a short section on an individual road.
	Provision of a 20mph speed limit	• A 20mph speed limit does not require traffic calming to be installed, and relies on signage alone. Any traffic calming installed must be treated as a separate entity (e.g. with appropriate lighting and warning signs etc.) • Average speeds of <24mph see the best compliance with no traffic calming. Recent speed data suggests that average speeds are some way over this threshold. • Minimum length of speed limit should be 400 metres • Consideration should be given to whether a 20mph speed limit would create problems with the surrounding 30mph limits. As cars leave the 20mph limit covering the crossing, they could speed up as they approach the existing traffic calmed area and local schools.	• The implementation of a 20mph limit would be the more appropriate measure, though would need implementing with other traffic calming measures to ensure it is self-enforcing.	

Raised Crossing	Provision of a raised table to cover the whole width of the carriageway	• Not a preferred measure on bus routes due to the discomfort caused to passengers. • Could create delays to emergency services • Frequent over-running by buses may create maintenance problems. • Requirement to advertise and go to consultation with local residents and emergency services. • Would be subject to the Highways (Road Humps) Regulations 1999 & the Zebra, Pelican and Puffin Pedestrian Crossings Regulations and General Directions 1997. • Would require the installation of additional warning signage as it would not be installed as part of a 20mph zone. • May cause an increase in air pollution due to vehicles slowing/accelerating to traverse the crossing.	• Install raised crossing and associated signage, although consideration should be given to the comfort of bus drivers and passengers.	• May cause drainage problems and footway levelling will be required. Gullies would need to be installed upstream of the crossing, though finding suitable connections may be an issue. Alternative to this would be to use a 'Nib Nobbler', or similar product, which would allow channel continuity through the crossing. • Installation would depend on the condition of the existing road surface
Zebrite (or similar product)	Upgrade existing zebra crossing beacons	• Can be retro-fitted to existing lamp columns. • LED lights will help increase visibility of crossing during both hours of daylight and darkness. • Existing levels of street lighting should be checked • Would be subject to agreement with Swindon Borough Council's Street Lighting Engineer. • Cowling can be supplied to reduce light pollution to local residents.	• Install Zebrite feature to enhance existing crossing arrangements.	• Would require consultation with Street Lighting as it would be mounted on a lamp column. Available from Zebrite, Simmonsigns, Mallatite & TWM.
Upgrade of crossing	Convert existing zebra crossing to a signal-controlled crossing	• Should be subject to ADPV^2 and PV^2 analysis through the Pedestrian Crossing Review to ensure suitability. • Potential to receive objections to any audible noises produced by an upgraded crossing • Despite being superseded, LTN 2/95 states that in respect to proximity of nearby junctions, that *"a minimum distance of 20 metres is suggested for a signal-controlled crossing"*. • Would be subject to agreement with Swindon Borough Council's Traffic Signals Engineer • Close proximity to local bus stops would need to be taken into consideration	• Despite being less than 20 metres from Sleaford Close, a site specific risk assessment by Swindon Borough Council should be carried out to ascertain whether an upgrade of crossing would be appropriate here.	• Zebra crossings should not be used where 85th percentile speed is above 35mph. Recorded speeds are below this threshold so current crossing is compliant in that respect.
Traffic calming	Provision of a series of road humps to slow vehicle speeds on Hay Lane	• Road humps are not a preferred measure on bus routes due to the discomfort caused to passengers. • Could create delays to emergency services. • Can cause issues for cyclists. • Road humps, which are shallower and therefore less detrimental to the above vehicle types, are less likely to have an effect on other motorists (excluding cyclists and motorcyclists).	• Install series of speed cushions, which will have less of an effect to buses and emergency services than other road humps, on both sides of the crossing. These measures are also currently in place on Tregoze Way.	• Installation would depend on the condition of the existing road surface • Requires consultation with the public. This could potentially lead to objections and no improvements being taken forward.

		• Frequent over-running by buses may create maintenance problems. • Would be subject to the Highways (Road Humps) Regulations 1999. • Would require the installation of additional warning signage, as they would not be installed as part of a 20mph zone. • May cause an increase in air pollution due to vehicles slowing/accelerating to traverse the crossing. • Can be made from recycled rubber.		
	Provision of a series of buildouts	• Could create delays to emergency services. • Large vehicles manoeuvring around features may experience difficulties. • Installation would depend on the condition of the existing road surface. • May cause an increase in air pollution due to vehicles slowing/accelerating to traverse the crossing. • Would have to meet criteria stipulated in LTN 1/07.	• Install series of build outs. These measures are also currently in place further north on Hay Lane.	• Other traffic calming further north in the form of buildouts and cushions. Frequent bus service may create damage/maintenance problems in the future.