

Project:	Dunsbury Hill Farm Stage 2 – Proposed Highway Works	To:	Richard Fowke (Hants CC)
Subject:	Stage 1 Safety Audit Response Report	From:	Steve Dimmock
Date:	22/08/11	cc:	Portsmouth CC

Prepared By: Steve Dimmock

Checked By: Dan Hardwick

Authorised By: Bill Dawes

1. Introduction

This technical note details the Clients Organisation's response to the Stage 1 Road Safety Audit Report carried out on the preliminary design of Dunsbury Hill Farm Stage 2 – Proposed Highway Works

The terms of reference of this response report are as described in HD19/03.

Where a safety audit recommendation is accepted, this technical note details the actions proposed to comply with the recommendation. Where a safety audit recommendation is rejected, the technical note details the justification for rejection.

2. Response to Items Raised at the Stage 1 Road Safety Audit

The Design Team's response is provided in Table 2.1.

Table 2.1 – Designer's Response to Road Safety Audit

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
A	Location: Proposed roundabout on B2150 Hulbert Road Summary: High speed downhill approach to roundabout Vehicles approaching the proposed roundabout from the A3(M) Junction 3 gyratory will be on a downhill gradient. During the site visit, the Audit Team were of the opinion that the perceived speeds of southbound vehicles appeared to be in line with the recorded 85th percentile speeds and confirmed concerns about how these users would negotiate the proposed roundabout. Specific concerns at this juncture would be vehicles losing control when entering the roundabout at high speeds or failing to stop and colliding with circulating vehicles.	As the design is progressed, ensure that the proposed roundabout approach and entry geometry will sufficiently and physically encourage reduced speeds. Ensure that the road layout and the presence of the new roundabout is clear to approaching drivers in terms of signing and forward visibility, to further encourage them to approach and enter the roundabout at an appropriate speed.	Accepted	The approach to the roundabout has a centre line radius of 75m, which is slightly tighter than the existing, but is a limiting factor in itself for vehicle speeds. The entry geometry to the roundabout complies with TD16. Adequate signing and road markings coupled with a high skid resistant surfacing should be considered during the detailed design process.
B	Location: Proposed roundabout on B2150 Hulbert Road Summary: High speed downhill approach to dedicated left-turn lane The dedicated left turn facility for users entering the development has a low radius and would be approached on a downhill gradient. If users are not given a clear message about the low speeds needed to travel round this bend, they will be more likely to fail to negotiate it	Ensure that the horizontal alignment of the left turn facility is smooth and that the radius does not tighten as users proceed through the bend. Ensure that any superelevation is applied smoothly through the traffic lane. Ensure that the nature and layout of this left turn facility is	Accepted	The horizontal alignment is a compound curve with a 15m radius as the main element followed by a 60m radius on the exit. Superelevation will be applied smoothly through the lane and adequate signing and road markings will be considered during the

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	safely. This could lead to either single vehicle loss-of-control accidents or collisions with other vehicles exiting the roundabout.	clearly communicated to approaching drivers.		detailed design.
C	Location: Proposed roundabout on B2150 Hulbert Road Summary: High flows along Hulbert Road may lead to queuing and driver frustration Hulbert Road currently appears to carry a steady flow of traffic. Once the proposed roundabout is introduced it is possible that this steady flow along Hulbert Road will be predominant and will restrict entry to the roundabout for vehicles approaching from the Dunsbury Hill Farm development. It is particularly noticeable in the PM peak future traffic flows (Figure 3.9) that only an estimated 42 vehicles would turn right into the development, thus providing few gaps between the estimated 669 vehicles continuing from north to south on Hulbert Road. This imbalance of flows could lead to queuing at the exit from the development (1015 vehicles are forecast to be exiting in the PM peak) and resulting driver frustration may increase the likelihood of drivers choosing inappropriate gaps in which to enter the roundabout. This could lead to vehicle-to-vehicle collisions in the	Review the traffic turning movements at the junction and the choice of a roundabout as the method of control. Seek a solution that provides a degree of balance of priority for all arms of the junction. If queuing is expected to occur on the approach from the development, ensure that forward visibility to any traffic queues is good.	Accepted	The proposed traffic flows have been based on a worst case scenario from the Stage 1 works. More detailed figures will be available in the near future and the junction layout reviewed as a result.

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	circulatory carriageway.			
D	Location: Proposed roundabout on B2150 Hulbert Road Summary: Offset roundabout may lead to problems related to vehicle paths The proposed roundabout is offset from the existing Hulbert Road alignment. This creates a roundabout layout with arms in close proximity to each other which may compromise the achievement of appropriate approach geometry and entry path curvature. This type of layout can also lead to largely untrafficked areas of the circulatory carriageway where debris can gather and cause problems, particularly for motorcyclists and pedal cyclists.	Review the need for the roundabout to be offset from the Hulbert Road alignment by such a significant distance. Should this offset prove unavoidable, seek to amend the roundabout's geometry to minimise the potential for untrafficked areas within the circulatory carriageway while still ensuring that the geometry sufficiently controls entry speeds into the roundabout.	Accepted	The roundabout is offset to ensure that the SSD for northbound traffic is entirely within the northbound lane or verge and does not encroach into the southbound lane. Potential untrafficked areas at the splitter islands could be hatched out to discourage vehicles using them.
E	Location: Approximate Chainage 170 on MCE1 Main Development Alignment Summary: Short straight section between two curves may present a risk of loss-of-control accidents At Ch.170 on the development link road (master alignment string MCE1) there is a short straight section, 24m long, in between two curves (100m and 130m	Amend the layout to remove the straight section, either through the use of transitions or by provision of a continuous	Accepted	The design will be reviewed and amended in conjunction with any other comments the Highway Authority may have requiring

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	radii). In extremes this type of horizontal alignment can lead to problems with users, particularly motorcyclists, being caught out by the short straight when they are expecting to continue steering around a curve. This can result in users losing control and leaving the carriageway. Despite the 30mph speed limit proposed for the development it is possible that motorcyclists could be travelling in excess of the posted speed limit.	curve.		geometric alterations.
F	Location: Various Summary: Width of non-motorised user (NMU) provisions and interfaces between shared surfaces, footways and carriageways It is acknowledged that the shared use paths would have a width of 3m through most of the scheme. However, the 2m wide connectors leading to and from crossing points may not be wide enough to comfortably accommodate a combination of cyclists, pedestrians and wheelchair users etc. and may present a risk of collisions between these users. In addition, the 2m wide bridges over the swale at various locations including at the eastbound bus stop (of Woolston Road roundabout) may present similar risks. At 2m wide the bus stop waiting areas themselves may also be too narrow to safely accommodate	Review the NMU provisions throughout the scheme and amend as appropriate to ensure that NMUs can be comfortably and safely accommodated, particularly at connector links, bridges and where the scheme ties in to the existing network. Consider the provision of a culverted drainage solution at the eastbound bus stop such that there is no open channel for the length of the passenger waiting area. Ensure that the routes and passenger waiting areas are not obstructed by street furniture and that any bridges are sufficiently wide with appropriate parapets and surfacing.	Accepted	The 2m wide connectors, bridges and bus stop footways have been increased to 3m and further consideration for NMUs can be given at detailed design stage. Consideration will be given to the provision of a culverted section next to the bus stop. Detailed cycle facilities will be considered at the detailed design stage.

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	passengers due to commonly provided bus stop furniture (shelters, flags and bins etc.). Furthermore, the shared use path would narrow considerably where it ties-in to the existing footway at the Woolston Road roundabout. The existing footways at this location are not wide enough to accommodate shared use. Understandably, there are no details provided at this early stage in the design relating to the overarching cycle route strategy but it is worth noting that there are, as yet, no proposals relating to the interfaces between shared use paths, footways and carriageways (other than at crossing locations). In particular, there is concern that in the absence of specific entry and exit ramps, cyclists would be more likely to contravene pedestrian-only surfaces and/or to use crossing points in order to join or leave the carriageways.	Finally, ensure that the cyclists are afforded appropriate facilities by which to traverse between the carriageway and shared use paths.		
G	Summary: Entry geometry is unlikely to control entry speeds The entry geometry for eastbound traffic leaving the development and entering the existing roundabout from its western arm appears unlikely to sufficiently encourage reduced entry speeds. Whilst not detailed on the drawings, it is understood that it is probable that this	Realign the nearside kerbline and splitter island to ensure that the approach and entry geometry sufficiently encourages reduced traffic speeds.	Rejected	The stub leading to Woolston Road roundabout and the roundabout itself have been constructed recently and are beyond the scope of works for this project.

Problem Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	arm of the roundabout would only be used by buses, pedestrians and cyclists. There is still a concern however that, unless sufficient entry deflection is provided, buses entering the roundabout (or other vehicles if eventually permitted to do so) may do so faster than desired, potentially leading to collisions on the circulatory carriageway.			

3. Client Organisation Statements

3.1 Project Sponsor's Statement

In accordance with HD 19/03, I certify that I have reviewed the items in the Stage 1 Safety Audit Report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Project Director's endorsement of my proposals.

Name:

Position:

Organisation:

Signed:

Dated:

3.2 Project Director's Statement

I accept these proposals by the Project Sponsor.

Name:

Position:

Organisation:

Signed

Dated: