Stage 1 Road Safety Audit

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Ringland Allotments Traveller Site Access, Cot Hill, Llanwern

Gallagher Estates

March 2014
Stage 1 Road Safety Audit

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A1 Introduction

This report results from a Stage 1 Road Safety Audit carried out the proposed access provision to serve a potential traveller site at the former Ringland Allotments site off Cot Hill in Llanwern, at the request of the Client: Gallagher Estates. The audit was carried out during March 2014.

In November 2013 Capita, on behalf of Newport City Council, produced a Transport Statement to review the traffic and transport implications of a proposed new transit or permanent Gypsy & Traveller Site at the former Ringland Allotments site accessed off Cot Hill.

The Capita Transport Statement states that the proposed site would have access via a priority junction from Cot Hill; although no site access layout or location was specified the only feasible location would be at the current access to Ringland Allotments, due to the Cot Hill alignment, which is approximately 30m east of the Cot Hill SDR junction.

The proposed Gypsy and Traveller site at the former Ringland Allotments would have 7 pitches, the status of which may be either permanent or transit location. The access to this site would be within the extent of works of the agreed (but not yet built) Cot Hill / A48 Southern Distributer Road (SDR) junction improvements which consists of the signalisation of the existing layout.

Whilst the access arrangements had not been determined within the Capita Transport Statement it would consist of either a priority junction (Option 1) or a signal controlled variant (Option 2) due to the close proximity of the agreed Cot Hill/SDR junction signalisation. These options form the basis of this audit.
The only other highway boundary to this traveller site is the A48 itself; the A48 SDR is a high speed (50mph limit) dual carriageway which has no other small development accesses connected directly along its length; along with the close proximity of the Cot Hill junction (which is to be signalised) it is unlikely that such a direct access off the A48 would be suitable or achievable within the space available and therefore is not considered as a potential option within this audit report.

The audit team membership was as follows: -

John Richardson BSc (hons), CEng, MICE
CH2M HILL (Safety Audit Section), Worcester

David Lines BSc (hons), CEng, MICE, MCIHT
CH2M HILL (Safety Audit Section), Worcester

A visit to the site of the works was made on Monday 17 March 2014 when the weather was sunny and dry.

The terms of reference of the audit are as described in Chapter 2 of HD 19/03. The team has examined and reported only on the road safety implications of the scheme as presented and has not commented or verified the compliance of the designs to any other criteria.

All comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the A3 plan appended to this report.
Items raised at this Stage 1 Audit

A2  Junctions

A2.1  Layout

A2.1.1  Problem (Option 1 – priority access)

Location: Cot Hill east bound approach

Summary: risk of shunt type collisions with vehicles stopping ‘unexpectedly’.

In order to turn right into the proposed access when arriving from the A48 (SDR), a vehicle would on occasion need to wait for opposing west bound Cot Hill traffic to clear or at the least slow down significantly to undertake the turn. The access is close to the SDR junction at only about 30m from the splitter islands. A following driver would not be expecting an access junction in such close proximity downstream from the SDR signal junction; a momentary distraction (for example a quick check whether another is approaching from the other side of the splitter – even though under separate signal stage) would increase the risk of a shunt type collision.

This would be exacerbated should the turning vehicle be longer (eg: lorry / trailer or caravan combination), such a vehicle would need to wait set back slightly from the access to allow for its swept path. The rear of such a waiting vehicle may only be 10m (or less) from the SDR splitter island increasing the risk of shunt type collision.

This is further exacerbated by the speed of the A48 SDR (50mph limit) that would mean drivers on a green phase of the SDR junction would pass through at higher speed than in say an urban situation.

Recommendation

The access would need to be located further from the SDR / Cot Hill junction to allow following drivers to have reasonable opportunity to stop for a waiting turning vehicle, although it is noted that such an arrangement would be on or close to the inside of a bend potentially resulting in visibility splays being compromised and so could not be recommended.

A2.1.2  Problem (Option 1 – priority access)

Location:

Summary: swept path conflict with waiting vehicles

The proposed access is within the extent of the SDR / Cot Hill signalisation such that vehicles waiting at the stop line would queue back across the access. Whilst drivers
may tend to leave a gap it would unlikely be sufficient due to the potential length of some turning vehicles leading to an increased risk of minor side swipe collisions.

Recommendation

Whilst a ‘Keep Clear’ box would assist it would need to be some 20-25m long due to the swept paths of the large vehicle combinations resulting in potential compliance issues and reduced effectiveness.

A2.1.3 Problem (Option 2 – signal controlled access)

Location: Cot Hill east bound approach

Summary: risk of shunt type collisions with vehicles waiting at the access stop line

Drivers entering Cot Hill from the A48 SDR would not be expecting a second stop line in such close proximity to the SDR junction particularly in such a rural situation, the stop line would only be about 20m downstream of the SDR splitter island. It is likely that one of the phases, left turn from A48 North or right turn from A48 South would need to make a stop at the access junction on each cycle, a separate detection would not be feasible due to the available width and insufficient space to generate a separate right turn lane.

As a result the access junction would need to be 3-Stage and ahead vehicles (continuing along Cot Hill) would also need to stop and would only be able to proceed when both Cot Hill west bound and the site access egress is stopped. This result in much higher incidence of secondary stopping than the volume of turning traffic would infer resulting in an increased risk of shunt type collisions.

This is exacerbated by the higher speed rural nature of the A48 SDR resulting in a potential increase in the severity of such collisions.

Recommendation

The access would need to be located further from the SDR / Cot Hill junction to allow following drivers to have reasonable opportunity to stop, although it is noted that such an arrangement would be on or close to the inside of a bend potentially resulting in visibility splays being compromised and so could not be recommended.

A2.1.4 Problem (Option 2 – signal controlled access)

Location: Cot Hill east bound approach

Summary: inadequate space for offside primary signal

Due to the close proximity of the access to the SDR junction, there appears to be little space to incorporate a separation island to install an offside primary signal on the east bound Cot Hill approach without excessive deflection beyond the SDR splitter island. Right turn traffic, particularly longer vehicles from the A48 South may be at risk of striking the splitter island, offside signal island or mounting the nearside footway in order to manoeuvre around.
Recommendation

The junction may need to be located further away from the SDR in order to incorporate adequate island (for the offside primary signal) and deflection approach.

A2.1.5 Problem (Option 2 – signal controlled access)

Location: A48 Mainline & Cot Hill approaches

Summary:

The incorporation of signal controlled site access so close to the A48 SDR junction has resulted in a staging arrangement with increased ‘lost time’. This in turn results in some arms operating saturated with significant queues and delay per cycle. The Traffic Assessment shows queues in Cot Hill some 125m long in 2014 AM peak and more than 210m long in the 2026 am peak. The mean 2026 am peak delay is shown as 175seconds per pcu, ie nearly 3 minutes; this will result in traffic waiting a number of cycles to clear the main A48 SDR/Cot Hill signal junction even on those arms that does not have the proposed site access. Driver frustration is likely to increase as a result with potential increased incidence of amber (or even red light) running and associated side swipe or shunt type collisions.

Recommendation

The whole layout including the A48 SDR / Cot Hill junction would need significant amendment to mitigate the queuing and delay issues.
A3 Non Motorised User Provision

A3.1 Pedestrians

A3.1.1 Problem (Options 1 & 2)

Location: pedestrian crossing points

Summary: block back from site access to pedestrian crossing points

Under the Option 1 – priority junction access a vehicle slowing significantly in order to make the right turn into the site, or stop to wait for the opposing Cot Hill traffic to clear may result in backing up of traffic due to the close proximity of the access to the Cot Hill / SDR signal junction. Similarly under Option 2, where the access is under signal control, the mean queue has been shown as 3.3pcu in 2014 (am) and 3.7pcu in the pm peak (2014) which would extend to the either of the crossing points.

This may cause a conflict with subsequent pedestrian stages when a queue of traffic restarts increasing risks to pedestrians who may be attempting to cross.

Recommendation

The access would need to be located further from the SDR / Cot Hill junction to maintain the access queue clear of the SDR junction, although it is noted that such an arrangement would be on or close to the inside of a bend potentially resulting in visibility splays being compromised and so could not be recommended.

A3.2 Cyclists

A3.2.1 Problem

Location: east bound Cot Hill opposite site access

Summary: potential risk to cyclists re-joining Cot Hill

A shared cycle footway network is present, cyclists destined for Cot Hill would need to re-join the road. It would appear that this would be in the vicinity of traffic manoeuvring for site access increasing the risk of side swipe type collisions with cyclists.

Recommendation

Amend the cycle re-join carriageway location.
A4  Audit Team Statement

I certify that this audit has been carried out in accordance with HD 19/03.

Audit Team Leader

John Richardson BSc (hons), CEng, MICE

Signed

Date 17 March 2014

Audit Team Member

David Lines BSc (hons), CEng, MICE, MCIHT
Appendix A

List of Drawings and Documents supplied
## Appendix A  List of Drawings and Documents Supplied

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Appendix B

Safety Audit Plan
Appendix B  Option 1 layout – Priority Junction access with SDR/Cot Hill Signalisation
Appendix C  Option 2 layout – Signal controlled access with SDR/Cot Hill Signalisation
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