



LAND TO THE EAST OF TYE LANE, WALBERTON

A27 / A29 / FONTWELL AVENUE - POTENTIAL FURTHER JUNCTION IMPROVEMENT

ROAD SAFETY AUDIT STAGE 1

on behalf of i-Transport LLP

M & S Traffic reference no: IT/11324/1/BS

August 2017

M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Tel: +44 1634 307498

Directors:
Martin Morris & Bryan Shawyer
Company Reg. No. 06730905
Registered Office: 32 Hamelin Road, Gillingham, Kent ME7 3EX

1. INTRODUCTION

- 1.1. This report results from a Stage 1 Road Safety Audit carried out on the A27 / A29 roundabout at the request of David Bowie, Highways England Company Ltd, the Highway Authority Project Sponsor. The Road Safety Audit was carried out during August 2017.
- 1.2. The Road Safety Audit Team membership approved by David Bowie, the Overseeing Organisation Project Sponsor was as follows:

Bryan Shawyer, BEng (Hons), MSc, MCIHT, MSoRSA
M & S Traffic Limited
(Certificate of Competency in Road Safety Audit gained in July 2012)

Martin Morris, PGD, MCIHT, MSoRSA
M & S Traffic Limited
(Certificate of Competency in Road Safety Audit gained in April 2012)
- 1.3. The Road Safety Audit took place at the Gillingham Office of M & S Traffic on 23 August 2017. The Road Safety Audit was undertaken in accordance with the Road Safety Audit Brief provided by Tim Wall, Design Team Leader, i-Transport LLP, Grove House, Lutyens Close, Chineham Court, Basingstoke, Hampshire, RG24 8AG as approved by the Project Sponsor Highways England. The Road Safety Audit comprised an examination of the documents provided and these are listed in Annex A. The documents consisted of a set of the preliminary design drawings, a summary of the general details of the scheme including traffic flows, 5-year crash data, predicted queue lengths, Non-Motorised User context and Audit Reports. The Audit Team visited the site together on the afternoon of 24 August 2017 between 16.45 and 18.00. During the site visit the weather was fine and the existing road surface was dry. Traffic conditions were free flowing. No pedestrian or cyclist movements were observed in the audit.
- 1.4. The terms of reference of the Road Safety Audit are as described in HD 19/15. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 1.5. All comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the A3 plan supplied with the Road Safety Audit Brief in Annex B.
- 1.6. The Arun Local Plan and Fontwell applications developed an improvement scheme to partially signalise the A27/A29 roundabout junction, which has been agreed with Highways England. To accommodate additional traffic, a further improvement is proposed and comprises delivery of an additional (third) entry lane to the A27 East arm, and associated alterations to the Arundel Road approach.
- 1.7. Accident data was supplied from March 2012 to February 2017 for the roundabout and the immediate area. Reviewing the accident data during this period there have been 13 accidents at the roundabout and on the approaches, where three (23%) of the accidents were serious. There are three main causation factors during this period, 7 of these accidents (54%) were due to lane changing or poor lane discipline, 3 collisions (23%) were rear end shut collisions and 2 collisions (16%) were due to a failure to give way.

2. ITEMS RAISED AT THE STAGE 1 ROAD SAFETY AUDIT

2.1. GENERAL

2.2. PROBLEM

Location: A (drawing ITB11324-GA-015 Rev B) – A27 southwest bound approach to junction.

Summary: Presence of a ditch may compromise road safety.

There is an existing ditch between the proposed additional entry lane and the restaurant / hotel complex, see figure 1 below, where no protection system is proposed. Vehicles that lose control and exit the carriageway may decelerate rapidly, where injuries may be severe in nature. In addition, in winter months the ditch could hold water, which could further impede the escape of vehicle occupants.



Figure 1: Existing ditch could increase severity of a loss of control accident.

RECOMMENDATION

That a Road Restraints Risk Assessment Process (RRRAP) should be undertaken to determine the aggressiveness of the ditch and whether protection is needed.

2.3. PROBLEM

Location: B (drawing ITB11324-GA-016) – A27 southwest bound approach to junction.

Summary: Tree line and vegetation could lead to rear end shunt accidents.

On the A27 southwest bound approach to the roundabout, there are trees and vegetation in the nearside verge, which may restrict forward visibility to queuing vehicles at the stop line,

particularly in the spring and summer months. This could lead to rear end shunt collisions on this approach.

RECOMMENDATION

That adequate forward visibility should be provided on the approach to the stop-line and that a regular maintenance programme should be employed.

2.4. PROBLEM

Locations: C (drawing ITB11324-GA-015 Rev B) – Circulatory carriageway between Arundel Road and Fontwell Avenue.

Summary: Insufficient drainage could lead to loss of control accidents.

The carriageway alignment between Arundel Road and Fontwell Avenue is proposed to be changed with the kerblines being brought forward. However, there is a gully on the existing alignment, see figure 2 below, where no drainage provision is proposed. Surface water on the circulatory carriageway could lead to loss of control accidents, particularly under braking conditions.



Figure 2: Drainage provision on existing kerblines.

RECOMMENDATION

At detailed design stage, the drainage provision should be provided for assessment.

2.5. PROBLEM

Location: D (drawing ITB11324-GA-015 Rev B) – A27 southwest bound approach to junction.

Summary: Ironwork in running lane could lead to loss of control accidents.

On the A27 southwest bound approach to the roundabout, there is a manhole cover that is likely to be in the braking area on approach to the signal stop-line. This could lead to loss of control collisions under braking, particularly for two-wheeled vehicles.

RECOMMENDATION

That the manhole cover should be treated with a non-slip coating.

2.6. THE ALIGNMENT

2.7. PROBLEM

Location: E (drawing ITB11324-GA-015 Rev B) – Arundel Road.

Summary: Excessive entry path curvature may compromise road safety.

Entry path curvatures were provided for assessment, where the entry path from Arundel Road to the A27 for the east to west movement is greater than 100m, which is greater than the permitted maximum though it is recognised that the approved scheme also has an entry path curvature of 145m. An entry path radius exceeding 100m could lead to high entry speed and possible loss of control accidents, or conflict with circulating traffic and potential side swipe accidents.

RECOMMENDATION

That the entry path curvature should be decreased through further deflection.

2.8. THE JUNCTIONS

2.9. No comment.

2.10. NON-MOTORISED USERS (NMUs)

2.11. PROBLEM

Location: F (drawing ITB11324-GA-015 Rev B) – A29 Fontwell Avenue.

Summary: Insufficient pedestrian facilities could lead to pedestrian accidents.

The A29 Fontwell Avenue arm of the roundabout currently has uncontrolled pedestrian facilities, see figure 3 below. However, no dropped kerb provision is proposed, where pedestrians, particularly the mobility impaired may trip, which could lead to pedestrian accidents.



Figure 3: Existing pedestrian facilities at junction.

RECOMMENDATION

That dropped kerbs should be provided in accordance with Department for Transport guidelines.

2.12. SIGNING AND LIGHTING

2.13. PROBLEM

Location: G (drawing ITB11324-GA-016) – A27 southwest bound approach to the junction.

Summary: Insufficient visibility to signal heads could lead to fail to stop accidents.

The Stopping Sight Distance (SSD) to the offside signal head is proposed at 196m, although this is below the required 295m, it is the same as with the approved scheme relating to Fontwell Meadows. Further, the SSD to the nearside signal head is proposed at 90m. In the event of the offside signal failure or queuing traffic obscuring the signal aspect, there is concern that approaching traffic will have insufficient time to react to a red aspect, which could lead to fail to stop accidents.

RECOMMENDATION

That the speed limit on the approach to the junction should be lowered and that the nearside signal head should also be located on a mast arm to increase conspicuity to approaching traffic.

2.14. PROBLEM

Location: H (drawing ITB11324-GA-016) – A27 southwest bound approach to junction.

Summary: Proposed road markings could lead to lane change and side-swipe type accidents.

On the southwest bound approach to the roundabout all three lanes have straight ahead arrow markings with the nearside lane also a turn left aspect. Road users may enter the nearside lane believing that they can still gain access to the A27, when instead they will be directed to the A29 Fontwell Avenue. This may lead to late lane change merge type collisions.

RECOMMENDATION

It is recommended that the lane designation should be made clearer and be complemented with Advance Directional Signage, and that full details of signage and lane markings should be provided at Stage 2 Road Safety Audit.

2.15. PROBLEM

Location: I (drawing ITB11324-GA-015 Rev B) – A27 southwest bound approach to the junction.

Summary: Sun dazzle could lead to red light running accidents.

The signal heads are on an east west alignment, where sun dazzle could lead to red light running accidents, particularly if drivers cannot see the red / amber aspects.

RECOMMENDATION

That traffic signal hoods should be fitted.

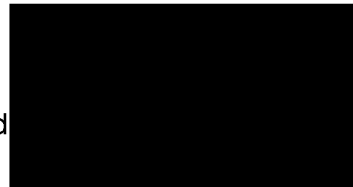
3. AUDIT TEAM STATEMENT

We certify that this Road Safety Audit has been carried out in accordance with HD 19/15.

ROAD SAFETY AUDIT TEAM LEADER

Bryan Shawyer
BEng (Hons), MSc, MCIHT, MSoRSA
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed

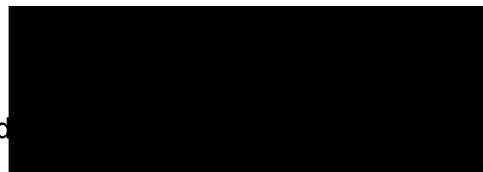


Date: 27/08/17

ROAD SAFETY AUDIT TEAM MEMBER

Martin Morris
PGD, MCIHT, MSoRSA
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed



Date: 27/08/17

Annex A - List of Drawings and other information submitted for auditing:

Reference	Title	Date
TW/RS/ITB11324-008B TN	Road Safety Audit Brief, Land to the East of Tye Lane, Walberton – Road Safety Audit Stage 1	July 2017
ITB11324	Design Check for Departures from Mandatory Standard	
TW/RA/ITB/11324-009A R	Land east of Tye Lane, Walberton – Walking, Cycling and Horse-Riding Assessment	July 2017
Walberton HE RSA Queries	Scheme 2: Additional westbound entry lane on the A27 / A29 Fontwell Ave / Arundel Road roundabout	August 2017
Figure T1	Land east of Tye Lane, Walberton, Site Location Plan	
ITB11324-GA-015 B	A27 / A29 / Fontwell Avenue - Potential Further Junction Improvement - Sheet 1 of 3	
ITB11324-GA-016	A27 / A29 / Fontwell Avenue - Potential Further Junction Improvement - Sheet 2 of 3	
ITB11324-GA-017	A27 / A29 / Fontwell Avenue - Potential Further Junction Improvement - Sheet 3 of 3	
ITB11324-SK-007	A27 / A29 / Fontwell Avenue - Potential Further Junction Improvement – Swept Path Analysis, Large Articulated Vehicle	
ITB11324-GA-Q16	Personal Injury Accident, Stick Diagrams	
17060	West Sussex Injury Accident Engineers Report, Fontwell Walberton Area – 5 Years to 28 Feb 2017	

Annex B - A3 Plan attached showing the locations of the problems identified as part of this audit.