Proposed Highway Works
at Yarmouth Road
Cucumber Lane
A47 Roundabout
Brundall
Norfolk

DESIGNERS RESPONSE

on behalf of

ITR/5111/DR.1
March 2018
INTRODUCTION

The Designers Response has been prepared following receipt of the Fenley’s Road Safety Audit dated 20\textsuperscript{th} March 2018 which was forwarded to Highways England.

PROBLEMS IDENTIFIED

A.1 GENERAL
A.1.1 PROBLEM

Location: Yarmouth Road
Summary: Removal of existing ditch within the northern verge could give rise to surface water ponding
Acc. Type: Loss of control

An existing ditch is present within the verge to the north of Yarmouth Road that is to accommodate the proposed eastbound lane that appears to be. Should the ditch cater for surface water, the filling of the feature to provide the proposals could give rise to surface water ponding where the existing road gullies cannot drain surface water sufficiently. Surface water ponding gives rise to loss of control incidents.

RECOMMENDATION:

It is recommended that surface water is drained sufficiently.
DESIGN TEAM RESPONSE

Accepted - Surface water drainage will be assessed during the detailed design of the scheme and the ditch either culverted or re-provided within the verge beyond the proposed carriageway.

A.2 LOCAL ALIGNMENT
A.2.1 PROBLEM
Location: Yarmouth Road
Summary: Presence of the private ingress to PFS and McDonald's is not clear to drivers exiting the roundabout
Acc. Type: Shunt type incidents

The presence of the existing ingress associated with a PFS and a McDonald's is not clear for drivers exiting the roundabout. Whilst the relocation of the eastbound carriageway does not appear to alter the inside corner radius of Yarmouth Road and therefore the speed of vehicles exiting the roundabout should not increase, the distance between the roundabout exit and ingress is reduced. As such, approaching drivers may not become aware of the ingress at a safe distance which could give rise to heavy braking and shunt incidents as a result.

RECOMMENDATION:
It is recommended that appropriate signage is provided.
DESIGN TEAM RESPONSE

Accepted – Due to the existing horizontal alignment of Yarmouth Road, the presence of the existing ingress is not within an approaching drivers field of vision. The proposals do not exacerbate the existing situation, however the road safety concern is accepted and signage will be provided opposite the existing ingress to the PFS. This signage will be within an approaching drivers field of vision and will ensure the presence of the ingress is clear, reducing the likelihood of heavy braking.

A.2.2 PROBLEM
Location: Cucumber Lane
Summary: Reduced exit width tightens the path of a vehicle continuing along Cucumber Lane
Acc. Type: Side swipes and head-on collisions

The proposals reduce the width of the exit onto Cucumber Lane and whilst it remains adequate to accommodate a vehicle, the reduction amends the likely path of a southbound vehicle. As such, a vehicle cannot take the exit wide which effectively tightens the inside radius of the bend just to the south. An HGV exiting the roundabout is therefore likely to encroach the northbound lane of cucumber lane which could result in side swipes and head-on collisions.

RECOMMENDATION:

It is recommended that the proposals allow for all vehicles to exit the roundabout and continue
along to the south safely.

**Location Plan:**

![Location Plan Image]

**DESIGN TEAM RESPONSE**

Not Accepted - A swept path analysis of the existing and proposed geometry has been undertaken which shows that at present, an HGV is not required to encroach the northbound lane after exiting the roundabout. The proposals do not worsen the situation as illustrated on drawing number 5111/1006. The personal injury collision data reviewed as part of the design process does not indicate any road safety concerns with HGV's accessing and travelling along Cucumber Lane.

**A.3 JUNCTIONS**

**A.3.1 PROBLEM**

**Location:** A47 approaches

**Summary:** Proposed spiral circulatory marking provides lane designation without warning

**Acc. Type:** Side swipes

It is proposed to provide spiral road markings on the circulatory that deter vehicles within the lane 1, from turning right across the path of a vehicles in lane 2. It is understood that this element of the proposal is to be provided following a review of personal injury collision data highlighting that a number of incidents have occurred whilst a vehicle turned across the path of another, however the provision of spiral markings is likely to relocate the conflict point further...
west on the circulatory or the A47 where vehicles would undertake late lane changes increasing the likelihood of side swipe type incidents.

RECOMMENDATION:

It is recommended that advance signage is provided

Location Plan:

DESIGN TEAM RESPONSE 8

Not Accepted - Drivers travelling along the A47 and approaching the roundabout should not be turning right from Lane 1 and across the path of a vehicle in Lane 2, the proposed spiral road are proposed to deter this manoeuvre (as advised within DMRB) which is an existing road safety concern and has caused a number of incidents to include one that resulted in serious injuries. Advance road signs would further assist in reducing the likelihood of the manoeuvre occurring and a contribution can be made towards the provision of signage, however the primary reason for the proposed works is to mitigate a small amount of traffic generated from a site within Brundall only and not to address existing road safety concerns.

A.4 NON-MOTORISED USER (NMU) PROVISION

A.4.1 PROBLEM

Location: Cucumber Lane

Summary: Visibility to the proposed crossing point is restricted

Acc. Type: Vehicle pedestrian collision
It is proposed to provide an uncontrolled pedestrian crossing point from a 1.8 metre footway along the eastern side of Cucumber Lane to the existing facility on the west side. However, forward visibility to the crossing point is restricted by an existing “Welcome to Brundall” sign that is located just to the north. As such, drivers exiting the roundabout junction along Cucumber Lane and approaching the crossing point may not become aware of a pedestrian attempting to cross the road at a safe distance and a pedestrian is unlikely to have clear visibility of an approaching vehicle which could result in a pedestrian stepping out into the path of a vehicle and a vehicle pedestrian collision.

RECOMMENDATION:

It is recommended that the proposed crossing point is relocated further south.

**Location Plan:**

DESIGN TEAM RESPONSE

Accepted – The uncontrolled crossing will be removed and the footway continued to the south, to provide a connection with the existing footway along the eastern side of Cucumber Lane. Alternatively, the sign could be moved further east within the verge to improve the visibility for pedestrians and drivers alike.
A.5 ROAD SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

A.5.1 PROBLEM

Location: Yarmouth Road northern verge
Summary: Existing signage is situated where the road widening is to be provided
Acc. Type: Vehicle head-on collisions

The verge to the north of Yarmouth Road accommodates a number of street signs; one warning of two-way traffic, another highlighting the end of a clearway and a directional sign. The Audit Team have not been made aware of any proposals relating to the signage, however the proposed widening is to be provided where the signs are present. The removal of the signs could give rise to head-on collisions where vehicles exiting the A47 roundabout do not become aware of the two-way nature of Yarmouth Road.

RECOMMENDATION:

It is recommended that the appropriate signage is provided.

DESIGN TEAM RESPONSE

Accepted - All existing signage and additional signage highlighting the existing ingress, will be assessed and re-provided at the detailed design stage.
A.5.2 PROBLEM

Location: Circulatory
Summary: HGV’s are likely to encroach the adjacent lane
Acc. Type: Side swipe

The provision of spiral circulatory road markings gives the appearance that two vehicles to include an HGV and car/LGV can travel around the circulatory carriageway alongside one another, however observations show that an HGV accommodates the entire circulatory when continuing straight from the A47 west to east. The provision of the circulatory markings could therefore give rise to side swipe type incidents where a driver of a car follows their lane alongside an HGV.

RECOMMENDATION:
It is recommended that an HGV can be accommodated within the proposed lanes

Location Plan:

DESIGN TEAM RESPONSE
Not Accepted – A swept path analysis has been undertaken and the proposed spiral road markings have sufficient space for the expected vehicles. The plans 5111/1005 and 5111/1006 are attached.
A.6.0  STAGE 1 ROAD SAFETY AUDIT TEAM STATEMENT

A.6.1  We certify that this Road Safety Audit has been carried out in accordance with HD 19/15.

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Signed:                     [Signature]

Dated:   21st March 2018

Bellamy Roberts