AECOM

NORTH BRIERLEY, BRADFORD

STAGE 1 ROAD SAFETY AUDIT

JANUARY 2018

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Project Code:	**LKLEASINGWOLD2.6**
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STAGE 1 ROAD SAFETY AUDIT

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1 Introduction

1.1 This report results from a Stage 1 Road Safety Audit carried out on Wednesday 23rd January 2018.

1.2 The works feature three elements;

- Improvements to the entry from the Bradford Road arm of the Chain Bar roundabout. These include the widening of the entry, the forming of a third entry lane and the widening of the radius from the Bradford Road entry to the entry slip onto the M606 motorway,
- Improvements to the Mill Carr Hill / Bradford Road junction. These include the widening of the existing prioorty junction, the provision of two lanes from Mill Carr Hill and a new pedestrian island,
- Change of priorities at the Mill Carr Hill Road / Cliff Hollins junction. These include making the priority route from Mill Carr Hill and it's junction with Bradford Road, under the motorway bridge and then right into Cliff Hollins. Southbound traffic from Mill Carr Hill Road would need to give way.

1.3 A full Audit Brief relating to the Bradford Road / Chain Bar improvements was received on the 10th January 2018.

1.4 The following drawings have been provided for auditing purposes;

Drawing Number	Drawing Title	Date
60221630 Rev 2	Proposed Mitigation Works to Bradford Road Arm of M62 Junction 26 Roundabout	Jan 2018
60345322-P-003	Proposed Mill Carr Hill / Bradford Road Junction Mitigation and Vehicle Swept Path Analysis	Jan 2018
60345322-SKE-001	Mill Carr Hill Road / Cliff Hollins Junction with Vehcile Tracks and Visibility Splays	Jan 2018

1.5 A site visit to the Bradford Road / Chain Bar roundabout site was made by the full Audit Team Leader on 22nd January 2018. A subsequent visit to the remaining two sites was made immediately afterwards by Geoff Blackburn and Martyn Parr. The weather was cold with patchy rain.

1.6 The audit was carried out on the instructions of Steve Moss of AECOM.

1.7 The terms of reference of the road safety audit are as described in the Department for Transport document HD 19/15 and the CIHT guidelines document "Road Safety Audit". Where appropriate, cognisance has also been taken of the Manual for Streets 1 and 2

(MfS1 and MfS2) and of the guidelines for reducing mobility handicaps. The writers have examined and reported only on road safety implications of the scheme as presented and have not examined or identified the compliance of the design to any other criteria.

1.8 Those audit items considered most onerous are listed as “Problem” whereas those less onerous are listed as “Issue”. Whilst recommendations have been made within this report, there may be equally satisfactory alternatives.

1.9 The Auditors will be pleased to consider alternatives if required.

2 Site Location

2.1 Figure 1 below shows the site locations

3 Qualifications and Experience of the Report Writers

3.1 This Audit has been carried out by the following:

G BLACKBURN - FCIHT, MSoRSA, HECoC - Audit Team Leader
Associate
Mayer Brown Limited

M PARR – MCIHT, MSoRSA, HECoC, RegRSA (IHE)
Principal Consultant
Mayer Brown Limited

D BARKER

AOne Ltd

(Note Dean Barker was part of the Audit team for the Bradford Road / Chain Bar roundabout improvements only)

4 Matters Arising; Bradford Road / Chain Bar Roundabout Improvements

Departures From Standards

4.1 The Audit Team is not advised of any departures from standards.

PROBLEM

4.2 Location: Bradford Road entry

Summary: Visibility to right

The proposals provide a third lane on the entry to the Chain Bar roundabout from Bradford Road.

Due to the inside kerb alignment proposed in order to create this third, left hand lane, the resultant entry angle is very acute. This will result in drivers being forced to look over their right shoulder, almost behind themselves in order to view circulatory traffic on the roundabout. This will make it very difficult for drivers to see properly prior to entering the roundabout.

It was also observed that, again due to the entry angle of the left hand entry lane, that drivers in this position will be required to look through two lanes of traffic to their immediate right in order to see circulatory traffic on the roundaoubt.

Ddrivers entering the roundabout from the left hand lane will therefore find it very difficult to see circulatory traffic on the roundabout. This creates a high risk of vehicles entering the roundabout into the path of traffic.

This would result in conflict and a risk of collisions and possible injuries.

RECOMMENDATION

The proposed kerb alignments should be revised to ensure that appropriate entry angles are provided for all three lanes whilst also taking into consideration the view through adjacent lanes.

PROBLEM

4.3 Location: Bradford Road entry

Summary: Entry radii and lane widhts

The existing layout has lane widths on the Bradford road entry in the region of 5m in order to ofer space for turning large vehicles.

Whilst it is accepted that the left hand lane of the new proposals offers what appears to be a satisfactory lane width, the two right hnad lanes are shown as only being 3.65m in width.

These are not considered to be of sufficient width to offer the space required for a turning large vehicle. As confirmation of this, it is noted that the tracking plots provided with the Audit Brief clearly show a 16.5m articulated vehicle in both right hand lanes heavily encroaching on the lanes to their each respective left.

With the current alignment and lane widths therefore, any large vehicle in either of the two right hand lanes is at high risk of conflict with vehicles to their immediate left which could result in collisions and injuries.

RECOMMENDATION

The designer should review all three lane widths to ensure that large vehicles can safetly negotiatie the roundabout entry without encroaching on adjacent lanes.

PROBLEM

4.4 Location: Bradford Road entry

Summary: Pedestrian crossing width

The proposed, uncontrolled pedestrian crossing width across the mouth of the Bradford Road entry is in excess of 12m. This is considered very long and is possibly greater than any other crossing width on the Chain Bar roundabout, including those whilst still uncontrolled are offered the protection of adjacent traffic signals.

Whilst it is accepted that foot fall at this location is likely to be low, long crossing widths should be avoided where possible to minimise risk of conflict between pedestrians and traffic entering the roundabout.

This crossing length does create a risk of conflict and could result in pedestrian injuries.

RECOMMENDATION

A basic pedestrian refuge should be provided between lanes 1 and 2 of the entry arm from Bradford Road.

ISSUE

4.5 Location: Bradford Road entry

Summary: Lack of provision of cycle facilities

It was noted on site that a new off-road cycle facility has very recently been provided around the radius from Bradford Road onto the existing pedestrian facilities around the roundabout.

However, the proposals have not allowed for this new facility. Failure to ensure this new facility is properly integrated into the new proposals could cause confusion for cyclists and could result in a risk of conflict with traffic on Bradford Road.

RECOMMENDATION

4.6 The recently provided cycle facility should be replicated as part of the new proposals.

5 Matters Arising; Proposed Mill Carr Hill / Bradford Road Junction

Departures from Standards

5.1 The Audit Team is not advised of any Departures from Standards

PROBLEM

5.2 Location: Proposed pedestrian island

Summary: Distance from pedestrian desire line

Due to the revised crossing width across the mouth of Mill Carr Hill, the designer has proposed the introduction of a pedestrian refuge, which is welcomed. However, this refuge is proposed over 40m from the junction and therefore the pedestrian desire line along Bradford Road.

It is the view of the Audit Team that very few pedestrians will therefore use this refuge, preferring instead to corss at the mouth of the junction where the crossing length is approximately 20m and crosses three lanes of traffic.

This is a very long crossing length with traffic coming from all directions and will create a risk of conflict and injuries to pedestrians.

RECOMMENDATION

The proposed pedestrian refuge should be relocated to the desire line.

PROBLEM

5.3 Location: Mill Carr Hill approach

Summary: Inadequate lane widths

The proposals show separate left and right turning lanes out of Mill Carr Hill, however, based on the track plots provided, these appear narrow with some encroachment of large vehicles onto adjacent lanes.

This creates a risk of conflict between a large vehicle and any vehicle in an adjacent lane which in trun creates a risk of collision and possible injury.

RECOMMENDATION

The lane widths and track plots should be revised to avoid encroachment on adjacent lanes.

ISSUE

5.4 Location: General

Summary: Inadequate track plots

The designer has provided track plots show 16.5m articulated vehicles along Mill Carr Hill Road which is welcomed.

However, these plots do not show the turning movements at the proposed Mill Carr Hill / Bradford Road junction. Failure to produce adequate AutoTrack plots of all turning movements could result in large vehicles encroaching on lanes used by oncoming traffic.

This could result in conflict which in turn could result in collision and possible injury.

RECOMMENDATION

Full track plots should be provided and the design amended as necessary.

PROBLEM

5.5 Location: Northern footway

Summary: Lack of footway

There is a footway on the northern kerbline running from Bradford Road into Mill Carr Hill Road as existing. The designer has not shown this reinstated as part of the proposals.

Failure to maintain pedestrian facilityes could result in conflict with traffic which could result in injuries to pedestrians.

RECOMMENDATOIN

The existing footway should be replicated as part of the new propsals.

ISSUE

5.6 Location: Southern radius of junction

Summary: Footway narrowing

The southern footway along Mill Carr Hill narrows sharply as it turns into Bradford Road due to an existing wall. Failure to provide adequate footway width could result in pedestrians stepping into the csarriageway which in turn could result in conflict and possibly injury.

RECOMMENDATION

The designer should ensure that any footway links are of an appropriate width.

6 Matters Arising; Mill Carr Hill Road / Cliff Hollins Junction

Departures From Standards

6.1 The Audit Team is not advised of any departures from standards.

PROBLEM

6.2 Location: Left turn from Cliff Hollins Lane into Mill Carr Hill Road

Summary: Encroachment into oncoming traffic

The proposals provided include track plots around the bend from Mill Carr Hill Road into Cliff Hollins Lane which are welcomed.

However, these appear to show that a 16.5m articulated vehicle, when turning left from Cliff Hollins Lane into Mill Carr Hill Road, encroaches into the path of oncoming traffic.

Failure to keep opposing lanes of traffic clear of each other could result in conflict which in trun could result in collision and possible injury.

RECOMMENDATION

The proposals shoule be reviewed and amended as necessary to ensure that opposing lanes of traffic are kept clear of each other.

PROBLEM

6.3 Location: Bend from Cliff Hollins Lane into Mill Carr Hill Road

Summary: Wear to white lining hatching

The track plots for large vehicles undertaking the trun from Cliff Hollins Lane into Mill Carr Hill Road and vice versa show substantial encroachment onto the central hatching. Over time this will result in this hatching being worn away along with the bounding lines which could result in them becoming difficult to see, especially at night or in poor weather.

This could result in confusion by motorists unfamiliar with the junction which could in trun result drivers reacting unpredictably. This could then lead to a risk of conflict, collision and possible injury.

RECOMMENDATION

The extents of hatching should be reduced to minimise its encroachment by large vehicles and to also improve lane widths on the bend.

PROBLEM

6.4 Location: Bend from Cliff Hollins Lane into Mill Carr Hill Road

Summary: Forward visibility across third party land

The proposals show 45m forward visibility splays for traffic turning left from Cliff Hollins Lane into Mill Carr Hill Road, which are welcomed.

However, these visibility splays cross land outside of the public highway. Failure to maintain control of what happens in this land could result in restrictions to the forward visibility, whether by physical obstruction or by tall planting.

This could result in collisions with stationary vehicles or other obstructions immediately around the bend which could in turn result in injuries to drivers and passengers.

RECOMMENDATION

The designer should ensure that where possible visibility splays should remain within the public highway. Where this is not possible, appropriate easements should be entered into allowing the highway authority to remove obstructions, restrict any construction and maintain areas of visibility splays outside of the public highway.

ISSUE

6.5 Location: Bend from Cliff Hollins Lane into Mill Carr Hill Road

Summary: Lane widths

The lane widths on the new bend from Cliff Hollins Lane into Mill Carr Hill Road are of insufficient width for large vehicle use based upon the track plots provided.

This could result in large vehicles encroaching on opposing lanes of traffic which in turn could result in conflict and possible collision.

RECOMMENDATION

The lane widths saround the bend from Cliff Hollins Lane into Mill Carr Hill Road should be reviewed and amended as necessary.

PROBLEM

6.6 Location: Junction with Mill Carr Hill Road north

Summary: See through along Mill Carr Hill Road

The proposals show a build out on the northern kerbline at the new junction with Mill Carr Hill Road north.

However, there is no warning proposed to advise drivers heading north on Mill Carr Hill Road from Bradford Road of the tight right hand bend. Further, because of the alignment of Mill Carr Hill Road, it could appear as though the road continues straight on, especially at night or in poor weather.

This could result in vehicles colliding with the new kerb build out which in turn could result in possible injuries.

RECOMMENDATION

Appropriate chevron signage or similar should be provided on the new build out to advise drivers of the tight bend ahead.

PROBLEM

6.7 Location: Bend from Cliff Hollins Lane into Mill Carr Hill Road

Summary: Lack of advanced warning signage

There is no warning signage proposed to advise drivers of the tight bend. This could result in collisions or loss of control on the bend and in turn could lead to possible injuries.

RECOMMENDATION

Appropriate warning signage should be provided of the bend.

Appendix A: Audit Reference Plans

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7 Audit Team Statement

7.1 I certify that this audit has been carried out generally in accordance with the requirements of HD 19/15 and the CIHT guidelines document “Road Safety Audit”.

Signed  G Blackburn (Audit Team Leader)

Date 2-/01/2018

Signed M Parr

Date 2-/01/2018