Burnley Pendle Growth Corridor Junction H Rose Grove Junction

Lancashire County Council

Stage 1 Road Safety Audit

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7 August 2015

Burnley Pendle Growth Corridor Junction H Rose Grove Junction

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Figure A.8 Stack Type Sign on westbound approach to the junction, which requires renewal and locating to provide clearance to the edge of carriageway

The cover photograph shows a view looking south towards the junction.

1. Introduction

1.1 Jacobs has been commissioned by Lancashire County Council (LCC) to carry out a Stage 1 Road Safety Audit (RSA) on the proposed alterations to Rose Grove Junction.

1.2 The scheme involves improvements to the existing signalised junction.

1.3 This is the first RSA to be carried out on this proposed scheme.

1.4 The audit took place on site and at the Shrewsbury office of Jacobs and was carried out in the Safety Engineering Section. The Audit was carried out by:

Paul Bartley, Traffic and Safety Engineering, Jacobs, Shrewsbury

Ciaron Morgan, Traffic and Safety Engineering, Jacobs, Shrewsbury

Dan Byles, Traffic and Safety Engineering, Jacobs, Shrewsbury (Office based)

1.5 The audit was undertaken in accordance with the audit brief and consisted of an examination of the following drawings/documents provided by the project sponsor.

	Drawing Number	*Drawing Title*
1	**CHM1MW418-GA-OPT E R0**	**Junction H – Rose Grove Junction Option B Plan**

1.6 Ciaron Morgan the audit team leader accompanied by Paul Bartley the audit team member carried out a site visit on the afternoon of 21st July 2015. The weather conditions were mild and cloudy and the road surface was dry. The ambient air temperature was 18° centigrade during the site visit. Traffic conditions were moderate. Digital photographs were taken during the site visit and may be incorporated within the report.

1.8 No traffic flow, collision data or speed data was supplied to the auditors for the purpose of this proposed scheme.

1.9 The Audit has been based on the principles contained within the Highway Advice Note HD 19/15 (Road Safety Audit) of the Highways Agency's Design Manual for Roads and Bridges. The Auditors have only examined and reported on the road safety implications of those aspects of the scheme detailed in the drawings/documentation listed above. The scheme has not been examined or verified in the compliance of the design to any other criteria; however, to explain a particular problem/recommendation the Auditors may have occasionally referred to Design Standards. This should not be considered to be a Technical Audit. The absence of comments should not be taken to imply compliance.

1.10 All of the problems identified are considered to be of sufficient importance to require action.

1.11 In addition to safety related concerns a section has been included for general observations.

1.12 All signs and road markings are referenced in accordance with the 'Traffic Signs Regulations and General Directions 2002' (TSRGD) and amendments thereof. Also relevant chapters of the Traffic Signs Manual (TSM). Tactile paving is referenced in accordance with the Department of the Environment, Transport and Regions (D.E.T.R) 1998. 'Guidelines on the use of tactile paving surfaces' and the Department for Transport 'Inclusive Mobility'.

1.13 It has been assumed that the authority will consider the installation of passively safe street furniture during the detailed design of this scheme. In 2007 a National Annex to BS EN 12767: 2007 was introduced which advises that passively safe equipment should be used on all roads and at all speed limits. With the new standard all Highways Authorities have an onus on providing passively safe equipment at certain locations, especially when equipment is being replaced at known cluster sites. Failure to do so may render the authority vulnerable to claims from road users whose injuries were caused or exacerbated by such structures. Such claims have in the past been made under duties in the 1980 Highways Act, the 2006 Road Traffic Act and increasingly under the more wide-ranging 1998 Human Rights Act.

1.14 It is recommended that passively safe equipment is used for all new installations on both 'A' and primary roads with a speed limit of 50mph and above. For other classes of road or roads with a speed limit of 40mph or below the use of a site specific risk assessment is required to enable the designer to make a decision on the use of passively safe equipment. In some areas, it may be felt that risk reduction is impracticable or requires action that is grossly disproportionate on certain routes due to low AADT, speed limits, collision history etc. If this is the case then all workings need to be clearly documented within the project file.

1.15 Designers are required to have read and understood the national annex to BS EN 12767:2007 and the review of the document in Appendix A of the Technical Note.

2. Concerns

2.1 Road Safety Audit Comment

Problem

It is unclear if vehicles will be able to negotiate the junction safely and there is a possibility that it would be difficult for any vehicles larger than a standard car to travel side by side in adjacent lanes. This could result in side swipe type collisions between larger vehicles or between heavy goods vehicles and powered or non-powered two wheeled vehicles.

Summary

Concern is expressed that lane encroachment could result in side swipe type collisions.

Recommendation

It is recommended that it should be demonstrated using Autotrack templates that all vehicle types and manoeuvres are possible using the junction without lane encroachment.

2.2 Road Safety Audit Comment

Problem

Concern is expressed that no signal staging diagrams have been provided for the junction and it is therefore unclear how the right turn movements will be controlled. This could lead to vehicle collisions resulting in injury to motorists.

Summary

Concern is expressed that no signal phasing diagrams have been provided.

Recommendation

It is recommended that the signal phasing diagrams are provided at detailed design.

2.3 Road Safety Audit Comment

Problem

Concern is expressed that there is loose detritus and gravel slipping down the incline from the rough ground between No.s 524a and 524 Accrington Road. At present this is left to collect on the footway, when the new road layout is provided this loose detritus will be in the nearside lane on the approach to the junction and will reduce the breaking potential for vehicles in the nearside lane, potentially leading to shunt type collisions. (Refer to photo A.7).

Summary

Concern is expressed that loose stones will spill into the carriageway from adjacent unmade land.

Recommendation

It is recommended that the adjacent highway is surfaced to reduce the potential for loose stones to migrate down the slope into the nearside lane.

2.4 Road Safety Audit Comment

Problem

Concern is expressed from observations on site that the existing path of articulated lorries turning left from Accrington Road, south into Rossendale Road, is tight and does not leave a significant margin for error between the offside of the cab and vehicles travelling north on Rossendale Road. Furthermore, it was noted that the rear of HGV trailers overrun the existing nearside kerbline. It is noted from the drawing that at this location there is to be a proposed pedestrian crossing. The drawings provided do not indicate whether this existing kerbline will be modified to accommodate larger vehicles turning at this location. Should this kerbline not be modified, then there is a risk that HGV's may come into conflict with pedestrians waiting to cross at this location resulting in serious injury. (Refer to photo A.3).

Summary

Concern is expressed that the pedestrian crossing location is at risk of being overrun by large vehicles/HGV's.

Recommendation

It is recommended that the turning movements are Auto-tracked including, both left and right into Rossendale Road from Accrington Road to ensure that pedestrians are not put at risk when looking to cross in an east-west direction across Rossendale Road. Furthermore, it is recommended that the width of the existing footway opposite No.s 4 and 6 Rossendale Road is reduced through the relocation of the kerbline to increase carriageway width and reduce the potential for vehicles to mount the footway and come into conflict with pedestrians.

2.5 Road Safety Audit Comment

Problem

Concern is expressed that the extension of the parking bay on the southbound side of Rossendale Road is likely to reduce the available road space for large vehicles travelling south on Rossendale Road, causing them to come into conflict with parked vehicles. (Refer to photo A.1).

Summary

Concern is expressed that the extended parking bay on the southbound side of Rossendale Road will restrict the available lane width for vehicles, causing them to overrun into the northbound carriageway.

Recommendation

It is recommended that the extents of the parking bay are modified as part of the detailed design stage to ensure that there is sufficient carriageway space for southbound vehicles to pass without coming into conflict with either pared or northbound vehicles.

2.6 Road Safety Audit Comment

Problem

Concern is expressed from observations on site that the existing lane widths on the eastbound approach to the junction are currently too narrow to prevent vehicles mounting the footway on the northern side of the road, to pass queueing traffic looking to turn right, south on Rossendale Road. This manoeuvre is most prevalent when there is little or no traffic queueing to turn left or go straight on. It is unclear from the drawings whether the proposed junction widening will allow for increased road widths. Should the lane widths remain the same, then vehicles currently observed mounting the footway could come into conflict with pedestrians resulting in serious injury. (Refer to photo A.5).

Summary

Concern is expressed that there will be insufficient lane widths on Accrington Road to allow eastbound vehicles to travel within their own lane up to and through the junction, without mounting the adjacent footway, coming into conflict with pedestrians.

Recommendation

It is recommended that the detailed design stage provides sufficient consideration to the required lane widths at this junction so far as to ensure vehicles in particular HGV's, do not mount the footway.

2.7 Road Safety Audit Comment

Problem

Concern is expressed that the drawings do not indicate whether High Friction Surfacing (HFS) is to be installed on any of the approaches to the junction, or whether a high Polished Stone Value (PSV) surfacing material is to be used. Failure to provide sufficient skid resistance on the approaches to the junction could cause motorists who brake late to lose control and come into conflict with other vehicles or pedestrians. This will be more of a problem when the road surface is wet.

Summary

Concern is expressed that no HFS or high PSV road surface has been specified on the approaches to the junction.

Recommendation

It is recommended that either a high PSV surfacing or HFS is installed on the approaches to the junction.

3. General Observations

3.1 Road Safety Audit Observation

The drawings currently do not indicate that there is provision for providing an edge of carriageway marking or kerbline and footway across the access to the area of ground between No. 524a and 524 Accrington Road. It is also unclear how the existing footway shall be constructed across this access, as currently there is no footway provided. It is recommended that these details are given consideration during the detailed design process.

3.2 Road Safety Audit Observation

It is observed from site that the existing street lighting columns are in the line of the proposed eastbound lane on Accrington Road, it is recommended that a street lighting design is provided as part of the detailed design package of works.

3.3 Road Safety Audit Observation

It is observed from site that there is an existing controlled crossing outside No. 526 Accrington Road. At the detailed design stage details should be provided as to how this crossing will be decommissioned and the bus layby constructed, relocating the existing bus stop from opposite 514 Accrington Road.

3.4 Road Safety Audit Observation

It is noted from site that there are Advance Direction Signs (ADS) on all approaches to the junction. Particular concern is given to the ADS on Rossendale and Accrington Road with regard as to how they will be accommodated due to the change in kerb lines. It is noted that there will be a requirement to provide sufficient clearance to the edge of carriageway and maintain adequate footway space for pedestrians.

It is noted that there is a bus stop flag on the southbound ADS on Rossendale Road, it is noted that the provision of a bus stop in a relocated position may affect the passage of northbound vehicles.

3.5 Road Safety Audit Observation

It is observed from inspecting the drawing there appears to be a drafting error, associated with the positioning of a right turn arrow in the southbound running lane of Rossendale Road opposite No. 42. It is recommended that this is reviewed and corrected at the detailed design stage.

3.6 Road Safety Audit Observation

It is noted from site that the give-way sign on the northwest bound approach to the junction with Accrington Road shall require relocating following the realignment of the proposed kerbline.

3.7 Road Safety Audit Observation

It is noted from site that the nearside 40mph terminal sign on Accrington Road is obscured by the lighting column in front of it. It is recommended that the sign is relocated to be clearly visible.

3.8 Road Safety Audit Observation

It is noted that there are long straight across pedestrian crossings proposed that, if signal controlled, may create extended delays at the junction. Does modelling show any issues, if so have staggered crossings been considered?

3.9 Road Safety Audit Observation

It is noted that there is no stop line shown on the northbound left turn slip however a pedestrian crossing point is shown at this location. Is this crossing going to be uncontrolled as all the others are controlled?

3.10 Road Safety Audit Observation

It is noted that no signal equipment has been shown at the junction and so the auditor is unable to comment about its safe provision with respect to location and type.

3.11 Road Safety Audit Observation

It is noted that the advance cycle stop lines have short feeder lanes and it suggested that they should be extended as far back as the anticipated queue length so cyclists can use it safely.

4. Value+ & Sustainability

The auditors have identified where cost savings can be made within the design without adversely affecting the safety of the design. Approximate anticipated cost savings have also been indicated if known.

4.1 Value+ & Sustainability Comment

None were identified at this stage of the audit.

5. Audit Team Statement

The problems identified have been noted in this report together with associated safety improvement suggestions that we recommend should be studied for implementation. No one on the Audit Team has been involved with the scheme design.

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Others Involved:

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Distribution of report:

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Police :	n/a
Design Team:	n/a

Appendix A. Photographs

Figure A.1 : Narrow lane width, due to proposed parking bay and existing parking on Rossendale Road, looking north

Figure A.2 : Articulated lorry turning right into Accrington Road from Rossendale Road

Figure A.3 : Articulated lorry turning left in to Rossendale Road from Accrington Road

Figure A.4 : Advance Direction Sign (ADS) on southbound approach to the junction, which requires relocating

Figure A.5 : Narrow carriageway width on the eastbound approach to the junction

Figure A.6 : Existing High Friction Surfacing (HFS) on the westbound approach to the existing controlled crossing

Figure A.7 : Area of detritus and access between houses No.s 524a and 524, Accrington Road

Figure A.8 : Stack Type Sign on westbound approach to the junction, which requires renewal and locating to provide clearance to the edge of carriageway

Burnley Pendle Growth Corridor Junction I
A670 Active Way / Royle Road Signalised Roundabout

Lancashire County Council

Stage 1 Road Safety Audit

CA307/ 1323|0

7 August 2015

Burnley Pendle Growth Corridor Junction I A670 Active Way / Royle Road Signalised Roundabout

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Project manager:	Paul Bartley
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Figure A.1 Existing Advance Direction sign (ADS) on the northbound approach to the roundabout, requiring mounting at 2.1m

Figure A.2 Existing flag type sign on Royle Road splitter island, requiring mounting at 2.1m

Figure A.3 Existing Advance Direction sign (ADS) on the southbound approach to the roundabout, requiring mounting at 2.1m

Figure A.4 Area of footway surfacing and location of Toucan crossing across the southbound approach to the roundabout

Figure A.5 Looking left on Active Way, towards westbound traffic approaching the roundabout at the Toucan crossing location

Figure A.6 Looking right on Active Way, towards westbound traffic approaching the roundabout at the Toucan crossing location

The cover photograph shows a view looking west towards the roundabout.

1. Introduction

1.1 Jacobs has been commissioned by Lancashire County Council (LCC) to carry out a Stage 1 Road Safety Audit (RSA) on the proposed alterations to the roundabout at the A670 Active Way / Royle Road.

1.2 The scheme involves the signalisation of an existing roundabout.

1.3 This is the first RSA to be carried out on this proposed scheme.

1.4 The audit took place on site and at the Shrewsbury office of Jacobs and was carried out in the Safety Engineering Section. The Audit was carried out by:

Paul Bartley, Traffic and Safety Engineering, Jacobs, Shrewsbury

Ciaron Morgan, Traffic and Safety Engineering, Jacobs, Shrewsbury

Dan Byles, Traffic and Safety Engineering, Jacobs, Shrewsbury (Office based)

1.5 The audit was undertaken in accordance with the audit brief and consisted of an examination of the following drawings/documents provided by the project sponsor.

	Drawing Number	*Drawing Title*
1	**CHM1MW415-2 Rev 0**	**Junction I – A670 Active Way j/w Royle Road (Roundabout) Signalised Roundabout Concept Design**

1.6 Ciaron Morgan the audit team leader accompanied by Paul Bartley the audit team member carried out a site visit on the afternoon of 23rd July 2015. The weather conditions were mild and cloudy and the road surface was wet. The ambient air temperature was 16° centigrade during the site visit. Traffic conditions were light. Digital photographs were taken during the site visit and may be incorporated within the report.

1.8 No traffic flow, collision data or speed data was supplied to the auditors for the purpose of this proposed scheme.

1.9 The Audit has been based on the principles contained within the Highway Advice Note HD 19/15 (Road Safety Audit) of the Highways Agency's Design Manual for Roads and Bridges. The Auditors have only examined and reported on the road safety implications of those aspects of the scheme detailed in the drawings/documentation listed above. The scheme has not been examined or verified in the compliance of the design to any other criteria; however, to explain a particular problem/recommendation the Auditors may have occasionally referred to Design Standards. This should not be considered to be a Technical Audit. The absence of comments should not be taken to imply compliance.

1.10 All of the problems identified are considered to be of sufficient importance to require action.

1.11 In addition to safety related concerns a section has been included for general observations.

1.12 All signs and road markings are referenced in accordance with the 'Traffic Signs Regulations and General Directions 2002' (TSRGD) and amendments thereof. Also relevant chapters of the Traffic Signs Manual (TSM). Tactile paving is referenced in accordance with the Department of the Environment, Transport and Regions (D.E.T.R) 1998. 'Guidelines on the use of tactile paving surfaces' and the Department for Transport 'Inclusive Mobility'.

1.13 It has been assumed that the authority will consider the installation of passively safe street furniture during the detailed design of this scheme. In 2007 a National Annex to BS EN 12767: 2007 was introduced which advises that passively safe equipment should be used on all roads and at all speed limits. With the new standard all Highways Authorities have an onus on providing passively safe equipment at certain locations, especially when equipment is being replaced at known cluster sites. Failure to do so may render the authority vulnerable to claims from road users whose injuries were caused or exacerbated by such structures. Such claims have in the past been made under duties in the 1980 Highways Act, the 2006 Road Traffic Act and increasingly under the more wide-ranging 1998 Human Rights Act.

1.14 It is recommended that passively safe equipment is used for all new installations on both 'A' and primary roads with a speed limit of 50mph and above. For other classes of road or roads with a speed limit of 40mph or below the use of a site specific risk assessment is required to enable the designer to make a decision on the use of passively safe equipment. In some areas, it may be felt that risk reduction is impracticable or requires action that is grossly disproportionate on certain routes due to low AADT, speed limits, collision history etc. If this is the case then all workings need to be clearly documented within the project file.

1.15 Designers are required to have read and understood the national annex to BS EN 12767:2007 and the review of the document in Appendix A of the Technical Note.

2. Concerns

2.1 Road Safety Audit Comment

Problem

It is unclear if vehicles will be able to negotiate the junction safely and there is a possibility that it would be difficult for any vehicles larger than a standard car to travel side by side in adjacent lanes. This could result in side swipe type collisions between larger vehicles or between heavy goods vehicles and powered or non-powered two wheeled vehicles.

Summary

Concern is expressed that lane encroachment could result in side swipe type collisions.

Recommendation

It is recommended that it should be demonstrated using Autotrack templates that all vehicle types and manoeuvres are possible using the junction without lane encroachment.

2.2 Road Safety Audit Comment

Problem

Concern was expressed that no signal staging diagrams have been provided for the junction and it is therefore unclear how the right turn movements will be controlled. This could lead to vehicle collisions resulting in injury to motorists.

Summary

Concern is expressed that no signal phasing diagrams have been provided.

Recommendation

It is recommended that the signal phasing diagrams are provided at detailed design.

2.3 Road Safety Audit Comment

Problem

Concern was expressed that the area of footway to the north-eastern corner of the roundabout is currently shown to be shared between pedestrians and cyclists. As this area is quite open there is space for cyclists to approach the crossing of Royle Road without slowing, particularly as the approach from the east is downhill. This could result in cyclists coming into conflict with pedestrians, who may not be aware of pedestrians waiting at the crossing location. (Refer to photo A.4)

Summary

Concern is expressed that due to the open nature of the shared footway at the north-eastern crossing of Royle Road, pedestrians may be struck by cyclists approaching the crossing too quickly.

Recommendation

It is recommended that signing advising both pedestrians and cyclists is installed to advise of the shared use footway. In addition, corduroy paving should also be installed to delineate the approaches to the crossing waiting areas.

2.4 Road Safety Audit Comment

Problem

The Toucan crossings on the exit arms of the roundabout are not the recommended 20m from the entry point, this is recommended so that storage at the stop line can be achieved without blocking back onto roundabout and also left turning vehicles out of the nearest arm have time to react to seeing a red light or vehicles stopped at signals. This could result in shunt type collisions due to vehicles stopping suddenly when looking to exit the roundabout

Summary

Concern is expressed that the Toucan crossings on the exit arms of the roundabout are not the recommended 20m from the entry point.

Recommendation

It is recommended that the location of the Toucan is reviewed, in order to provide increased storage for traffic in advance of the stop lines.

3. General Observations

3.1 Road Safety Audit Observation

The vegetation on the northern side of Active Way requires cutting back to increase the available width of the footway and improve conspicuity of pedestrians.

3.2 Road Safety Audit Observation

The vegetation within the central reservation and on the southern side of Active Way requires cutting back or removing to provide sufficient forward visibility top pedestrians crossing the westbound lanes of Active Way.

3.3 Road Safety Audit Observation

It is assumed that HFS will be applied in advance of the Toucan crossings on Active Way in order to ensure sufficient skid resistance to assist vehicles stopping prior to the crossing. This is particularly relevant to the longer, westbound, downhill approach to the crossing.

3.4 Road Safety Audit Observation

It is noted on the drawing that the splitter island on the south-western arm of the roundabout does not have a crossing point for pedestrians. Has an assessment been undertaken to identify that there is not a pedestrian desire line at this location? If not consideration may be given to providing either an uncontrolled or controlled crossing at this location.

3.5 Road Safety Audit Observation

The vegetation bounding the western perimeter of the roundabout overhangs the adjacent footway and requires cutting back, in order to increase the footway width and visibility to pedestrians.

3.6 Road Safety Audit Observation

The existing flag type sign located on the northern splitter signing north on Royle Road shall require re-erecting at 2.1m mounting height, to provide unrestricted visibility to pedestrians and motorists.

3.7 Road Safety Audit Observation

The Advance Direction Sign (ADS) on the southbound approach to the roundabout, south of Arch Street is mounted too low and will require re-erecting at 2.1m mounting height.

3.8 Road Safety Audit Observation

The Advance Direction Sign (ADS) on the northbound approach to the roundabout, north of Calder Vale Road is mounted too low and will require re-erecting at 2.1m mounting height.

3.9 Road Safety Audit Observation

Toucan crossings are provided but no cycle lanes are shown approaching these signals, further information is required as to where cyclists will be approaching from and dedicated cycle paths highlighted.

3.10 Road Safety Audit Observation

No signal equipment has been shown at the junction and so the auditor is unable to comment about its safe provision with respect to location and type.

4. Value+ & Sustainability

The auditors have identified where cost savings can be made within the design without adversely affecting the safety of the design. Approximate anticipated cost savings have also been indicated if known.

4.1 Value+ & Sustainability Comment

None were identified at this stage of the audit.

5. Audit Team Statement

The problems identified have been noted in this report together with associated safety improvement suggestions that we recommend should be studied for implementation. No one on the Audit Team has been involved with the scheme design.

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Others Involved:

See introduction

Distribution of report:

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Client :	√
Police :	n/a
Design Team:	n/a

Appendix A. Photographs

Figure A.1 : Existing Advance Direction sign (ADS) on the northbound approach to the roundabout, requiring mounting at 2.1m

Figure A.2 : Existing flag type sign on Royle Road splitter island, requiring mounting at 2.1m

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Figure A.4 : Area of footway surfacing and location of Toucan crossing across the southbound approach to the roundabout

Figure A.5 : Looking left on Active Way, towards westbound traffic approaching the roundabout at the Toucan crossing location

Figure A.6 : Looking right on Active Way, towards westbound traffic approaching the roundabout at the Toucan crossing location

Burnley Pendle Growth Corridor Junction J Active Way / Bank Top Junction & Active Way Pelican

Lancashire County Council

Stage 1 Road Safety Audit

CA307/ 1324|0

7 August 2015

Burnley Pendle Growth Corridor Junction J Active Way / Bank Top Junction & Active Way Pelican

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Project manager:	Paul Bartley
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Figure A.1 Looking west on the northern side of Active Way towards the proposed Toucan crossing

Figure A.2 Looking east on active Way towards westbound traffic at the proposed Toucan crossing

The cover photograph shows a view looking south towards the junction.

1. Introduction

1.1 Jacobs has been commissioned by Lancashire County Council (LCC) to carry out a Stage 1 Road Safety Audit (RSA) on the proposed alterations to the junction of Active Way / Bank Top Junction and Active Way Pelican.

1.2 The scheme involves improvements to an existing signalised cross roads and the provision of a new Pelican crossing.

1.3 This is the first RSA to be carried out on this proposed scheme.

1.4 The audit took place on site and at the Shrewsbury office of Jacobs and was carried out in the Safety Engineering Section. The Audit was carried out by:

Paul Bartley, Traffic and Safety Engineering, Jacobs, Shrewsbury

Ciaron Morgan, Traffic and Safety Engineering, Jacobs, Shrewsbury

Dan Byles, Traffic and Safety Engineering, Jacobs, Shrewsbury (Office based)

1.5 The audit was undertaken in accordance with the audit brief and consisted of an examination of the following drawings/documents provided by the project sponsor.

	Drawing Number	*Drawing Title*
1	**N/A**	**Active Way / Bank Top (Junction J) & Active Way Pelican Signal Improvement Suggestions**

1.6 Ciaron Morgan the audit team leader accompanied by Paul Bartley the audit team member carried out a site visit on the afternoon of 22nd July 2015. The weather conditions were mild and cloudy and the road surface was dry. The ambient air temperature was 18° centigrade during the site visit. Traffic conditions were moderate. Digital photographs were taken during the site visit and may be incorporated within the report.

1.8 No traffic flow, collision data or speed data was supplied to the auditors for the purpose of this proposed scheme.

1.9 The Audit has been based on the principles contained within the Highway Advice Note HD 19/15 (Road Safety Audit) of the Highways Agency's Design Manual for Roads and Bridges. The Auditors have only examined and reported on the road safety implications of those aspects of the scheme detailed in the drawings/documentation listed above. The scheme has not been examined or verified in the compliance of the design to any other criteria; however, to explain a particular problem/recommendation the Auditors may have occasionally referred to Design Standards. This should not be considered to be a Technical Audit. The absence of comments should not be taken to imply compliance.

1.10 All of the problems identified are considered to be of sufficient importance to require action.

1.11 In addition to safety related concerns a section has been included for general observations.

1.12 All signs and road markings are referenced in accordance with the 'Traffic Signs Regulations and General Directions 2002' (TSRGD) and amendments thereof. Also relevant chapters of the Traffic Signs Manual (TSM). Tactile paving is referenced in accordance with the Department of the Environment, Transport and Regions (D.E.T.R) 1998. 'Guidelines on the use of tactile paving surfaces' and the Department for Transport 'Inclusive Mobility'.

1.13 It has been assumed that the authority will consider the installation of passively safe street furniture during the detailed design of this scheme. In 2007 a National Annex to BS EN 12767: 2007 was introduced which advises that passively safe equipment should be used on all roads and at all speed limits. With the new standard all Highways Authorities have an onus on providing passively safe equipment at certain locations, especially when equipment is being replaced at known cluster sites. Failure to do so may render the authority vulnerable to claims from road users whose injuries were caused or exacerbated by such structures. Such claims have in the past been made under duties in the 1980 Highways Act, the 2006 Road Traffic Act and increasingly under the more wide-ranging 1998 Human Rights Act.

1.14 It is recommended that passively safe equipment is used for all new installations on both 'A' and primary roads with a speed limit of 50mph and above. For other classes of road or roads with a speed limit of 40mph or below the use of a site specific risk assessment is required to enable the designer to make a decision on the use of passively safe equipment. In some areas, it may be felt that risk reduction is impracticable or requires action that is grossly disproportionate on certain routes due to low AADT, speed limits, collision history etc. If this is the case then all workings need to be clearly documented within the project file.

1.15 Designers are required to have read and understood the national annex to BS EN 12767:2007 and the review of the document in Appendix A of the Technical Note.

2. Concerns

There were no safety concerns observed whilst undertaking the road safety audit at this stage.

3. General Observations

3.1 Road Safety Audit Observation

Consideration should be given with regard to the provision of cycle facilities associated with the upgrade of the existing controlled crossing on Active Way.

In particular, the existing crossing is located on a hill, therefore the route which cyclists are signed to take should take into consideration all abilities of cyclists and tie in with existing cycle paths.

3.2 Road Safety Audit Observation

On the northern side of the crossing, consideration should be given to providing provision to protect pedestrians from cyclists approaching the crossing downhill on the northern side of Active Way. It is recommended that staggered railing or vertical post be erected to slow cyclists down.

3.3 Road Safety Audit Observation

It is unclear from the drawing what measures are being proposed to manage cyclists around the junction.

3.4 Road Safety Audit Observation

It is noted that the signal heads and pedestrian demand units shall require careful positioning, in order to avoid any inter-visibility problems with the layout proposed at the junction.

3.5 Road Safety Audit Observation

It was observed that the pedestrian equipment at the Active Way / Bank Top junction is the far sided type. It is assumed that the new Toucan facilities will be the near-sided type. It is unclear what type of facilities (near or far sided) will be provided over Kingsway as the crossing is already staggered. The different type of facilities in close proximity may cause user problems and consideration should be given to upgrading all facilities at the Active Way / Bank Top junction to the nearside type.

4. Value+ & Sustainability

The auditors have identified where cost savings can be made within the design without adversely affecting the safety of the design. Approximate anticipated cost savings have also been indicated if known.

4.1 Value+ & Sustainability Comment

None were identified at this stage of the audit.

5. Audit Team Statement

The problems identified have been noted in this report together with associated safety improvement suggestions that we recommend should be studied for implementation. No one on the Audit Team has been involved with the scheme design.

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Others Involved:

See introduction

Distribution of report:

File :	√
Client :	√
Police :	n/a
Design Team:	n/a

Appendix A. Photographs

Figure A.1 : Looking west on the northern side of Active Way towards the proposed Toucan crossing

Figure A.2 : Looking east on active Way towards westbound traffic at the proposed Toucan crossing