Burnley Pendle Growth Corridor Junction K Church Street / Active Way

Lancashire County Council

Stage 1 Road Safety Audit

CA307/ 1325|0

7 August 2015

Burnley Pendle Growth Corridor Junction K Church Street / Active Way

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Document title: Stage 1 Road Safety Audit
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Client name: Lancashire County Council
Client no: n/a
Project manager: Paul Bartley
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File name: n/a

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Contents

Figure A.1 Looking southeast along Church Street

Figure A.2 Eastbound approach to the junction on Blackburn Road

The cover photograph shows a view looking north 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 Church Street / Active Way

1.2 The scheme involves improvements to an existing three arm 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	**N/A**	**Junction K – Church Street / Active Way 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

It is observed that pedestrians may avoid crossing Active Way within the confines of the railing and use the refuge in the centre of the carriageway to cross, when the controlled crossing signals are on green to facilitate pedestrians crossing the road. It is recommended that the extents and positioning of the railing to the south of the crossing are reviewed.

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.

Audit Team Leader:

Name:	Ciaron Morgan	Signed:	
Position:	Principal Traffic & Safety Engineer	Date:	7th August 2015
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Audit Team Member:

Name:	Paul Bartley	Signed:	
Position:	Traffic & Safety Engineer	Date:	7th August 2015
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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 southeast along Church Street

Figure A.2 : Looking south towards the junction from Active Way

Burnley Pendle Growth Corridor Junction L A670 Active Way / Westgate / Queens Lancashire Way / St. James's Street Crossroads

Lancashire County Council

Stage 1 Road Safety Audit

CA307/ 1326|0

7 August 2015

Burnley Pendle Growth Corridor Junction L A670 Active Way / Westgate / Queens Lancashire Way / St. James's Street Crossroads

Project no:	B2237501/689
Document title:	Stage 1 Road Safety Audit
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Contents

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 A670 Active Way / Westgate / Queens Lancashire Way / St. James's Street.

1.2 The scheme involves a change of the junction layout from a roundabout to a signalised crossroads.

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	**CHM1MW415-1 Rev 0**	**Junction L – A670 Active Way j/w Westgate / Queen Lancashire Way / St James's Street crossroads – 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 21st July 2015. The weather conditions were mild and cloudy and the road surface was dry. 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.

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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.

It was evidenced on site that buses when travelling south on Queens Lancashire Way they occasionally travel through the right turn lane for Sandygate. This may result in buses coming into conflict with the proposed pedestrian island, causing a collision.

Summary

Concern is expressed that lane encroachment could result in side swipe type collisions; also large vehicles may not be able to negotiate the new road layout, without coming into conflict or overrunning the new pedestrian crossings islands.

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 there is no pedestrian crossing facility on Westgate, in order to allow pedestrians travelling east on the southern footway, to cross the carriageway. Whilst on site, pedestrians were observed to be crossing at this location and standing in the road between opposing flows of oncoming traffic. (Refer to photo A.6),

In the absence of any formal crossing there will be an increase in the risk of pedestrians being struck by moving vehicles should they become stranded in the middle of the carriageway.

Summary

Concern is expressed in the lack of formal crossing facilities, which would potentially put pedestrians at risk who chose to cross the road at this location.

Recommendation

It is recommended that a provision for pedestrians to cross Westgate is investigated and a traffic island is incorporated into the design to allow pedestrians to safely wait within the centre of the carriageway.

3. General Observations

3.1 Road Safety Audit Observation

The existing roundabout warning sign on Queen's Lancashire Way which is located in advance of the Sandygate junction obscures the forward visibility to the 'HGV direction' and 'New Traffic Signals Ahead' sign, located on the adjacent lamp column (number 5). It is recommended that the location and mounting position of these signs is reviewed as part of the design process. (Refer to photo A.3).

3.2 Road Safety Audit Observation

On Queen's Lancashire Way, the existing 'New Traffic Signals Ahead' on lamp column number 5, is required to be taken down, in order to be effective when new road layout signs are erected on construction of the new junction layout.

3.3 Road Safety Audit Observation

The high level signal aspects associated with the relocated crossing on Queen's Lancashire Way may become obscured due to the adjacent tree on the western side of the road, as is currently experienced by lamp column number 3.

3.4 Road Safety Audit Observation

Vehicles were observed to queue on Queens Lancashire Way blocking the access to Sandygate for vehicles looking to turn right into or right out of Sandygate. This is due to vehicles waiting for pedestrians to cross the controlled crossing or by waiting at the give way of the roundabout. It is recommended that a yellow box marking is provided to ensure this area of the northbound lane is kept clear. (Refer to photo A.2).

3.5 Road Safety Audit Observation

The tree located in the verge between Westgate and Active Way restricts the forward visibility to the crossing point on Active Way for vehicles travelling eastbound on Westgate. It is recommended that this tree is removed to ensure that the forward visibility is not compromised and to ensure that the available footway width is maintained for pedestrians. (Refer to photo A.7).

3.6 Road Safety Audit Observation

It is noted that the cycle Advance Stop Lines (ASL) have short feeder lanes; it suggested that they should be extended as far back as the anticipated queue length, in order to enable cyclists to access the ASL's safely. There is no cycle feeder lane shown on southbound entry.

3.7 Road Safety Audit Observation

It is noted that the proposed staggered crossing on the northern arm does not appear to have the recommended 3m between tactiles. It is recommended that this is considered as part of the detailed design process.

3.8 Road Safety Audit Observation

It is noted that the lining on the westbound approach to the junction indicates through the provision of a lane arrow, that only straight on and left turn manoeuvres are permissible. Should a right turn ban be enforced, then the appropriate box signs and green arrow aspects should be provided to clarify this to motorists.

3.9 Road Safety Audit Observation

It is recommended that consideration is given to the provision of right turn lane / waiting markings within the junction for vehicles turning right from Westgate. These markings could also assist in indicating to drivers on St James Street that there is no right turn.

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.

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.

Audit Team Leader:

Name:	Ciaron Morgan	Signed:	
Position:	Principal Traffic & Safety Engineer	Date:	7th August 2015
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Audit Team Member:

Name:	Paul Bartley	Signed:	
Position:	Traffic & Safety Engineer	Date:	7th August 2015
Organisation:	Jacobs UK Ltd		
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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 : Vehicles turning right through gaps in waiting traffic into Sandygate.

Figure A.2 : Vehicles blocking access to Sandygate for westbound traffic, from Queen's Lancashire Way.

Figure A.3 : Obscured signs including New Traffic Signals Ahead Sign

Figure A.4 : High level signal head may be obscured by tree canopy at new location

Figure A.5 : Vehicles queuing on Queens Lancashire Way block the entrance to Sandygate.

Figure A.6 : Pedestrian observed crossing Westgate, where a crossing point is not proposed

Figure A.7 : Limited forward visibility to the proposed crossing on Active Way from Westgate

Figure A.8 : Buses overrun the right turn lane into Sandygate when travelling south on Queens Lancashire Way

Burnley Pendle Growth Corridor Junction O Dunkenhalgh Way / Blackburn Road Junction

Lancashire County Council

Stage 1 Road Safety Audit

CA307/ 1327|0

7 August 2015

Burnley Pendle Growth Corridor Junction O Dunkenhalgh Way / Blackburn Road Junction

Project no:	B2237501/689
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Client name:	Lancashire County Council
Client no:	n/a
Project manager:	Paul Bartley
Author:	Ciaron Morgan
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Contents

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

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 Dunkenhalgh Way / Blackburn Road Junction.

1.2 The scheme involves improvement to an existing signalised crossroads.

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	**CHM1MW413-2 Rev 0**	**Junction O – M65 Junction7 and Dunkenhalgh Way / Blackburn Road Junction General Arrangement Area 1**

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 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.

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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 the provision of cycle facilities throughout the junction has not been fully considered, in respect to the provision of signing, cycle lanes and advance stop line reservoirs. It is also not possible to determine how the proposed cycle lanes integrate with the strategic provision of cycle facilities on the adjacent highway network. There is the risk that cyclists negotiating their way through the junction may come into conflict with motorists and result in a collision causing serious injury.

Summary

Concern is expressed that the provision of cycle facilities at the junction may lead to confusion between cyclists and motorists leading to collisions resulting in serious injury.

Recommendation

It is recommended that the junction and adjoining highway network is designed to incorporate cycle facilities, in accordance with design standards. This should include the installation of Advance Stop Lines (ASL) on all approaches to the junction.

2.4 Road Safety Audit Comment

Problem

Concern is expressed that the nose of the refuge located on the southern arm of the junction appears to extend too far into the carriageway and may impede the path of westbound cyclists causing possible side swipe collisions between vehicles and cyclists.

Summary

Concern is expressed that the nose of the refuge of the southern arm of the junction, extends into the running lane of the junction.

Recommendation

The nose of the refuge should be set back 1.5m from the channel line of the carriageway as per TD 50/04 paragraph 2.38.

2.5 Road Safety Audit Comment

Problem

Concern is expressed that the staggered pedestrian crossing on the northern arm of the junction is insufficient and could allow pedestrians to cross the carriageway in a straight line, and coming into conflict with vehicles.

Summary

Concern is expressed that pedestrians would be able to cross the northern arm of the junction without deviating from a straight line.

Recommendation

It is recommended that the crossing points should be staggered in order to promote the crossing of the road in two distinct phases.

2.6 Road Safety Audit Comment

Problem

Concern is expressed that the bifurcation arrow located on the eastern arm for eastbound traffic is located at a point where vehicles changing lanes for the left turn lane would cross the cycle facility at the start of the advisory cycle lane. This could potentially cause side swipe collisions between cyclists and other vehicles, resulting in serious injury.

Summary

Concern is expressed that vehicles will cross the cycle facility when changing lanes and colliding with cyclists.

Recommendation

The cycle facility should commence after the bifurcation arrow to allow vehicles changing lanes to do so without crossing the cycle facility.

2.7 Road Safety Audit Comment

Problem

Concern is expressed that there is an existing access to an industrial premise located to the north-west of the junction which is currently closed off, however the future operation of this access is unknown. Should the access be maintained, then it is unclear whether the existing footway will be amended to include dropped kerbs

and tactile paving. Failure to provide adequate crossing facilities could result in pedestrians coming into conflict with vehicles causing serious injury. (Refer to photo A.2).

Summary

Concern is expressed that should the access be reopened, there is insufficient provision to allow pedestrians to cross the road safely.

Recommendation

The future use of the access should be determined and should the access be reopened the dropped kerbs and tactile paving should be installed across the access.

2.8 Road Safety Audit Comment

Problem

Concern is expressed that it is unclear from the drawing as to the level of detail proposed to upgrade the pedestrian facilities at the junction. In adequate pedestrian crossing facilities could result in pedestrians coming into conflict with motorists resulting in serious injury. (Refer to photo A.4).

Summary

Concern is expressed that there is a lack of detail on the level of proposed crossing facilities.

Recommendation

It is recommended that during the detailed design stage; the provision of tactile paving is aligned to lead pedestrians across the arm of each junction to either a refuge or the adjacent footway and a gap in the guard railing provided. It is also recommended that any existing ironwork or drainage in the carriageway does not conflict with these paths, thereby reducing the risk of slips, trips or falls. (Refer to photo A.4).

3. General Observations

3.1 Road Safety Audit Observation

No stage sequence has been provided for the junction and there is no signal equipment shown on the drawing. It is assumed that, due to the size of the crossing islands that each arm of the junction will still be crossed in two separate pedestrian phases. The arrangement of the crossings and staggered islands on the north, east and western arms of the junction may result in misinterpretation of the separate phases by pedestrians who may believe that they can cross the entire carriageway in a single movement.

The designer should ensure that the pedestrian display units at each crossing of the crossing islands are orientated sufficiently so that a pedestrian crossing towards the island can see the status (red or green man) of the next crossing. There should also be sufficient space between the tactile paving to show that they are two separate crossings.

3.2 Road Safety Audit Observation

No stage sequence has been provided for the junction and so it is unclear as to how the right turning movements will be controlled. The designer should give consideration to the safe control of these movements, possibly at the detriment to junction capacity. This is especially the case for the right turn into Dunkenhalgh Way as turning vehicles will need to do so against three lanes of traffic.

3.3 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.

3.4 Road Safety Audit Observation

The hatch marking on the eastern arm of the junction should be provided as per TD50/04 Figure 2-10 to improve the commencement of the right turn lane.

3.5 Road Safety Audit Observation

The lane arrows to diagram 1038 on the northern arm of the junction are located at approximately 11m from the stop line; these arrows should be located between 15 and 25m from the stop line.

3.6 Road Safety Audit Observation

The existing Advanced Direction Signs (ADS) on the approach to the junction require upgrading to reflect the layout of the crossroads.

3.7 Road Safety Audit Observation

The condition of the existing carriageway is showing signs of deteriorating, as evidenced with crazing and the loss of the wearing course in places. It is recommended that the carriageway condition is assessed, should the design not include for resurfacing.

3.8 Road Safety Audit Observation

The bus stop on the eastbound approach to the junction which serves ‘Service 14 only’ does not have a formal marking in the carriageway. Consideration should be given to the location of this stop and the potential to service this route from the bus layby on the eastern arm.

3.9 Road Safety Audit Observation

The existing bus stop layby located on the western arm of the junction serving westbound buses was observed to be operating as a holding area for taxis. It is recommended that a clearway is provided to restrict the use of the stop thereby enabling buses to pull up adjacent to the kerb, so that passengers can alight in safety.

3.10 Road Safety Audit Observation

It was observed on site that a number of gullies were blocked. This poses a hazard during periods of rain or during freezing conditions as eh carriageway surface will not drain sufficiently. (Refer to photo A.3).

3.11 Road Safety Audit Observation

It was observed on site that the bus layby on Blackburn Road was used for parking. It is also noted that a post box is located adjacent to the bus shelter, so it is presumed that the layby is used by Royal Mail to stop when collecting the post from this post box. It is recommended that a clearway is provided within the bus layby and provision is made to allow the post box to be serviced.

3.12 Road Safety Audit Observation

The vegetation which bounds the site is in need of cutting back as it is obscuring the nearside signal head for westbound traffic as well as the ADS for southbound traffic on Dunkenhalgh Road. (Refer to photos A.7 and A.8).

3.13 Road Safety Audit Observation

Throughout the crossroads and adjoining roads, it was noted that the road markings and road studs are in need of refurbishment and it is recommended that the works at the junction include for the replacement of the road stud inserts and lining.

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 : Existing access fronting the eastbound carriageway of Blackburn Road, showing required footway upgrade

Figure A.2 : Eastbound approach to the junction on Blackburn Road

Figure A.3 : Blocked gully in the channel of Blackburn Road, located on the eastbound approach to the junction

Figure A.4 : Highway metal work in line with proposed crossing of the Junction 7 industrial estate

Figure A.5 : Existing footway directing pedestrians into junction and not across estate access

Figure A.6 : Existing traffic island on Blackburn Road, on the eastern arm of the junction

Figure A.7 : Vegetation obscuring the westbound signal head at the junction

Figure A.8 : Vegetation obscuring the southbound Advance Direction Sign (ADS) on Dunkenhalgh Way

Figure A.9 : Damaged stack type sign on Dunkenhalgh Way, on the northbound approach to the junction

Figure A.10 : Blackburn Road, eastbound approach to the junction