Appendix 35

Road Safety Audit Stage 1 2018 and Designer's Response

Land at Peel Hall, Warrington
Access Strategy (Provision of or Modifications to 12 Junctions)
Road Safety Audit Stage 1

Report No 16/2018

January 2018

Alan Consultancy Ltd
Road Safety and Traffic Consultants

Content

1. Introduction

1.1 This report results from a Stage 1 Road Safety Audit carried out on the provision of or modifications to 12 junctions associated with the Access Strategy at Peel Hall, Warrington at the request of Highgate Transportation Limited, First Floor, 43 -45 Park Street, Bristol, BS1 5NL. The Road Safety Audit was carried out in January 2018.

1.2 The Road Safety Audit Team membership was as follows:

Alan Rookes	IEng, FCIHT, FSoRSA, RegRSA (IHE) Director, Alan Consultancy Limited (Certificate of Competency in Road Safety Audit gained January 2013)
J Kevin Nicholson	BSc, CMaths, MCIHT, FSoRSA Independent Consultant (Certificate of Competency in Road Safety Audit gained May 2015)

1.3 The Road Safety Audit took place on-site on 20th January 2018. The Road Safety Audit was undertaken in accordance with the instructions received from Highgate Transportation Limited. The Road Safety Audit comprised of an examination of the documents provided as listed in the Annex. The documents consisted of drawings detailing the proposed highway arrangements, other related drawings, a Stage 1 Road Safety Audit undertaken in June 2016 and its associated Designers Response, Technical Notes detailing Vehicular Trips and the Through Route Scenario and existing and predicted traffic flows. The Audit Team visited the site on 20th January 2018 between 1330 and 1530 hours. During the site visit it was raining and the existing road surface was wet. Traffic conditions were fairly heavy.

1.4 The terms of reference of the Road Safety Audit are as described in HD 19/15. The Road Safety Audit Team has reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

1.5 All comments and recommendations are referenced to the preliminary design drawings and the locations are indicated on the attached A4 plan.

1.6 The overall Access Strategy relates to the development of land at Peel Hall. The Audit, however, only sought to address the proposed provision of or modifications to 12 junctions at and near to the development site. The junctions, with their scheme reference number (where known) were as follows:

- A49/Birch Avenue;
- Birch Avenue (Junction No 08);
- Poplars Avenue (Junction No 09);
- Blackbrook Avenue (Junction 10);
- Mill Lane (Junction No 11);
- Poplars Avenue (Junction No 12);
- Grasmere Avenue (Junction No 30);
- A49/Poplars Avenue (Junction No 52);
- Crab Lane/Enfield Park Road (Junction No 70);

- Capesthorne Road/Poplars Avenue (Junction No 71);
- 1450/Hilden Road/Poplars Avenue (Junction No 72); and
- A49/Sandy Lane West (Junction No 74).

1.7 In accordance with paragraph 2.20 of HD 19/15, the Road Safety Audit Team has noted that recommendations to make significant changes to the scheme are unlikely to be acceptable.

1.8 Some items in Section 3 refer to issues that would usually be evaluated as part of a Stage 2 (detailed design) Road Safety Audit. However, notwithstanding that this is a Stage 1 Audit, those issues are raised in order that they can be given due consideration as the detailed design progresses.

2. Items Raised in Stage 1 Audit Undertaken in June 2016

2.1 The Road Safety aspects of the 6 Site Access Junctions (Junctions No 08, 09, 10, 11, 12 and 30) were the subject of comment in the June 2016 Stage 1 Road Safety Audit report produced by Warrington Borough Council.

2.2 The other 6 junctions are potential mitigation measures and/or relate to the Option B access drawings. These junctions were not referenced in the 2016 Road Safety Audit.

2.3 All issues raised in the original Stage 1 Road Safety Audit have been resolved.

3 Items Raised at this Stage 1 Road Safety Audit

3.1 The Junctions

3.1.1 Problem

Location: Poplars Avenue/Cotswold Road Junction (Junction 09), Blackbrook Avenue Roundabout (Junction No 10), Mill Lane (Junction 11), Grasmere Avenue (Junction 30), A49/Poplars Avenue Junction (Junction 52), Crab Lane/Enfield Park Road Junction (Junction 70), Capesthorne Road/Poplars Avenue Roundabout (Junction 71), A50/Hilden Road/Poplars Avenue Roundabout (Junction 72) and A49/Sandy Lane West Junction (Junction 74). *(Drawings No 1107 09/M, 1107 10/N, 1107 11/L, 1107 30/H, 1107 53/E, 1107 70, 1107 71, 1107 72 and 1107 74)*

Summary: Loss of control collisions could occur where the carriageway has been widened or realigned.

At each of the above junctions the proposals involve the construction of areas of new carriageway abutting existing surfaces. If the joints are not smooth and clean or the new surface has a significantly different PSV from the existing, drivers could lose control of their vehicles in wet conditions due to differential grip.

Recommendation

Ensure that the interfaces between the existing and new surfaces are structurally secure, clean and sound. In addition, provide a wearing course on the new sections of carriageway with a similar wet skid resistance to the existing surface, assuming that the existing surface is above investigatory levels.

3.1.2 Problem

Location: Blackbrook Avenue Roundabout (Junction 10). *(Drawing No 1107 TR10A)*

Summary: Vehicles entering the roundabout from lane two from the southern and western approaches could be squeezed out by others entering from lane one resulting in vehicle/vehicle collisions or collisions with the central island.

When travelling south to north and west to south traffic entering the roundabout from lane one of both western arms will tend to move to their right towards the central circular island of the roundabout. In doing so they will squeeze out vehicles undertaking the same turning movements from lane two of both approaches resulting in vehicle/vehicle collisions on the circulatory carriageway or the vehicle from lane two collided with the central circular island itself.

Recommendations

1. *Realign both entries so that the approach splitter islands direct lane two traffic off the central circular island, with an associated adjustment to the alignment of lane one; and*

2. *Provide lane destination arrows on the roundabout approaches to encourage 'correct lane' use.*

3.1.3 Problem

Location: A49/Poplars Avenue Junction (Junction 52). *(Drawing No 1107 TR52)*

Summary: The higher speed A49 approaches could result in shunt type collisions on the approaches to the traffic signals

Traffic on both A49 approaches tend to travel at higher speeds and as a result may have to brake sharply when the signals change and/or other vehicles slow or stop. Sharp braking could lead to rear end shunt type collisions.

Recommendation

Provide high friction surfacing on both A49 approaches to the signal controlled junction.

3.1.4 Problem

Location: Crab Lane/Enfield Park Road Junction (Junction 70). *(Drawing No 1107 70)*

Summary: The higher speed approaches could result in shunt type collisions on the approaches to the traffic signals

Traffic on all three approaches to this junction tends to travel at higher speeds and as a result may have to brake sharply when the signals change and/or other vehicles slow or stop. Sharp braking could lead to rear end shunt type collisions.

Recommendation

Provide high friction surfacing on both all three approaches to the signal controlled junction.

3.1.5 Problem

Location: Crab Lane/Enfield Park Road Junction (Junction 70). *(Drawing No 1107 70)*

Summary: Foliage from adjacent trees and the hedge could obscure the traffic signals on the western side of the junction. Drivers may consequently not see the signal and be involved in overshoot or turning vehicle collisions.

During the growing season foliage from the trees and hedge on the western side of Enfield Park Road may obscure a driver's view of primary signal head facing northbound traffic. If a driver does not see a signal head, they may continue without stopping resulting in overshoot or turning vehicle collisions.

Recommendation

Cut back, or if feasible remove, the foliage to provide a clear view of the signals.

3.1.6 Problem

Location: Winwick Road arm of the A49/Sandy Lane West Junction (Junction No 74). *(Drawing No 1107 74)*

Summary: Visibility to the right for vehicles emerging from Winwick Road will be impaired. Turning vehicle collisions could consequently occur.

Setting back the give way line as proposed on Winwick Road will result in significantly reduced visibility to the right for emerging vehicles. This situation will be worsened as traffic approaching the signalized roundabout from Sandy Lane West will be breaking out into the three lanes on the immediate approach to signals. Turning vehicle collisions are likely to occur at this point due to the restricted visibility.

Recommendation

Do not set back the give way line as proposed.

3.1.7 Problem

Location: Sandy Lane West entry to the A49/Sandy Lane West Junction (Junction No 74). *(Drawing No 1107 74)*

Summary: During peak traffic conditions drivers may seek to turn left onto the A49 from lane two across the path of vehicles crossing the junction from lane one. Turning vehicle collisions may consequently occur.

During peak traffic conditions when vehicles could be queuing and drivers seeking to take any advantage, those drivers wishing to enter the southern arm of A49 Winwick Road from Sandy Lane West may seek to turn left from lane two of the approach. In doing so they may cross the path of another vehicle travelling straight across the junction from lane one, resulting in turning vehicle collisions.

Recommendation

Modify the layout to discourage this potential manoeuvre.

3.1.8 Problem

Location: Circulatory Carriageway of the A49/Sandy Lane West Junction (Junction No 7452). *(Drawing No 1107 74)*

Summary: There is a pinch point on lane one of the circulatory carriageway adjacent to the central reserve of the A49 Winwick Road southern arm. Traffic using lane one may collide with the central reserve or collide with a vehicle in lane two.

In lane one of the circulatory carriageway a pinch point exists on the eastern side of central reserve of the A49 Winwick Road southern arm. Drivers, especially those in larger vehicles, may consequently either collide with the central reserve or move across into lane two potentially colliding with another vehicle in that lane.

Recommendation

Modify the layout to provide a consistent width to lane one.

3.2 Non-Motorised Users (NMU's)

3.2.1 Problem

Location: Poplars Avenue at the proposed Pedestrian Crossing near its western junction with Windermere Avenue (Junction No 12). *(Drawing No 1107 12/Q)*

Summary: Buses stopped in the proposed bus bays will cut off visibility of pedestrians approaching the crossing. Vehicle/pedestrian collisions could consequently occur.

The proposed bus bays are positioned on the approach to the pedestrian crossing within the crossing control area. A bus stopped in either bay could curtail the view of an approaching driver and as a result they may not see a pedestrian approaching the crossing or seeking to cross. Vehicle/pedestrian collisions could consequently occur.

Recommendation

Reposition the bus bays to a point on the exit sides of the pedestrian crossing.

3.2.2 Problem

Location: Roundabout on the Residential Land and Local Centre Link from Poplars Avenue (Junction No 12). *(Drawing No 1107 12/Q)*

Summary: The splitter island on the western arm is too narrow to accommodate cyclists.

Cyclists using the shared footway/cycleway on the western side of the link road between Poplars Avenue and the roundabout may seek to continue their journey utilizing the splitter island on the western side of the roundabout. The proposed splitter island is, however, of insufficient width to accommodate a bicycle clear of the carriageway. Passing vehicles may consequently collide with the bicycle overhanging the island.

Recommendation

Widen the splitter island.

3.2.3 Problem

Location: A49/Poplars Avenue Junction (Junction No 52). *(Drawing No 1107 TR52)*

Summary: The more southerly triangular shaped splitter island on Poplars Avenue is too narrow to accommodate cyclists.

Cyclists using the shared footway/cycleway on the eastern side of the A49 may seek to continue their journey utilizing the splitter islands on Poplars Avenue. The proposed more southerly splitter island is, however, of insufficient width to accommodate a bicycle clear of the carriageway. Passing vehicles may consequently collide with a bicycle overhanging the island.

In addition, the island may be too small to accommodate a double headed signal installation and consequently vehicles may collide with signal heads as they pass.

Recommendation

Widen the splitter island.

3.2.4 Problem

Location: A49/Poplars Avenue Junction (Junction No 52). *(Drawing No 1107 TR52)*

Summary: Cyclists appear to be crossing the A49 carriageway at the junction. The lack of a crossing facility may lead to vehicle/cyclist collisions.

There is evidence of cycle movements across the eastern verge of the A49 on the northern side of the junction suggesting that cyclists are crossing the A49 carriageway at this point. The attractors on the western side of the A49 may also encourage similar pedestrian movements. No proposals exist, however, to assist these movements if they do occur and hence vehicle/cyclist and/or vehicle/pedestrian collisions may occur.

Recommendation

Review the necessity for a cyclist and/or pedestrian crossing facility on the A49 and provide a crossing place if appropriate.

3.2.5 Problem

Location: A49/Poplars Avenue Junction (Junction No 52). *(Drawing No 1107 TR52)*

Summary: The proximity of the vehicle Stop Lines on the Poplar Avenue arm are too close to the pedestrian crossing places. This could lead to vehicles striking pedestrian.

The distance between the pedestrian crossing studs on the Poplar Avenue arm and the vehicle Stop Lines are not specified. Collisions can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians who cross close to their vehicle.

Recommendation

Provide a 3m gap between the Stop Lines and the pedestrian crossing place

3.2.6 Problem

Location: A49/Sandy Lane West Junction (Junction No 74). *(Drawing No 1107 74)*

Summary: The proximity of the vehicle Stop Lines on the Sandy Lane West are too close to the pedestrian crossing places. This could lead to vehicles striking pedestrian.

The distance between the pedestrian crossing studs on the Sandy Lane West arm and the vehicle Stop Lines are not specified. Collisions can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians who cross close to their vehicle.

Recommendation

Provide a 3m gap between the Stop Lines and the pedestrian crossing place.

3.3 Signing and Lighting

3.3.1 Problem

Location: Birch Avenue (Junction 08). *(Drawing No 1107 08/P)*

Summary: If provided, drivers and riders may not recognise the ramp near No 27 Birch Avenue and lose control of their vehicle.

As there are no other ramps or humps on Birch Avenue, drivers or riders may not recognise the presence of the proposed ramp at the change of surfacing near No 27 Birch Avenue, especially in the dark or in poor weather conditions. Drivers or riders could consequently lose control of the vehicle and collide with other road users or roadside features.

Recommendation

If a ramp is provided, provide hump warning signs in advance of the feature and 'sharks teeth' markings on the ramp.

3.3.2 Problem

Location: Mill Lane (Junction 11). *(Drawing No 1107 11/L)*

Summary: Drivers and riders may not recognise the raised table and lose control of their vehicle.

As there are no other raised tables or humps Mill Lane, drivers or riders may not recognise the presence of the proposed table at the junction, especially in the dark or in poor weather conditions. Drivers or riders could consequently lose control of the vehicle on the tables ramps and collide with other road users or roadside features.

Recommendation

Provide hump warning signs on the approaches to the raised table.

4. Audit Team Statement

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

Road Safety Audit Team Leader

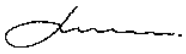
Alan Rookes IEng, FCIHT, FSoRSA, RegRSA(IHE)
Director
Alan Consultancy Limited

Signed 

Date 25th January 2018

Road Safety Audit Team Member

J Kevin Nicholson BSc, CMaths, MCIHT, FSoRSA
Independent Consultant

Signed 

Date 25th January 2018

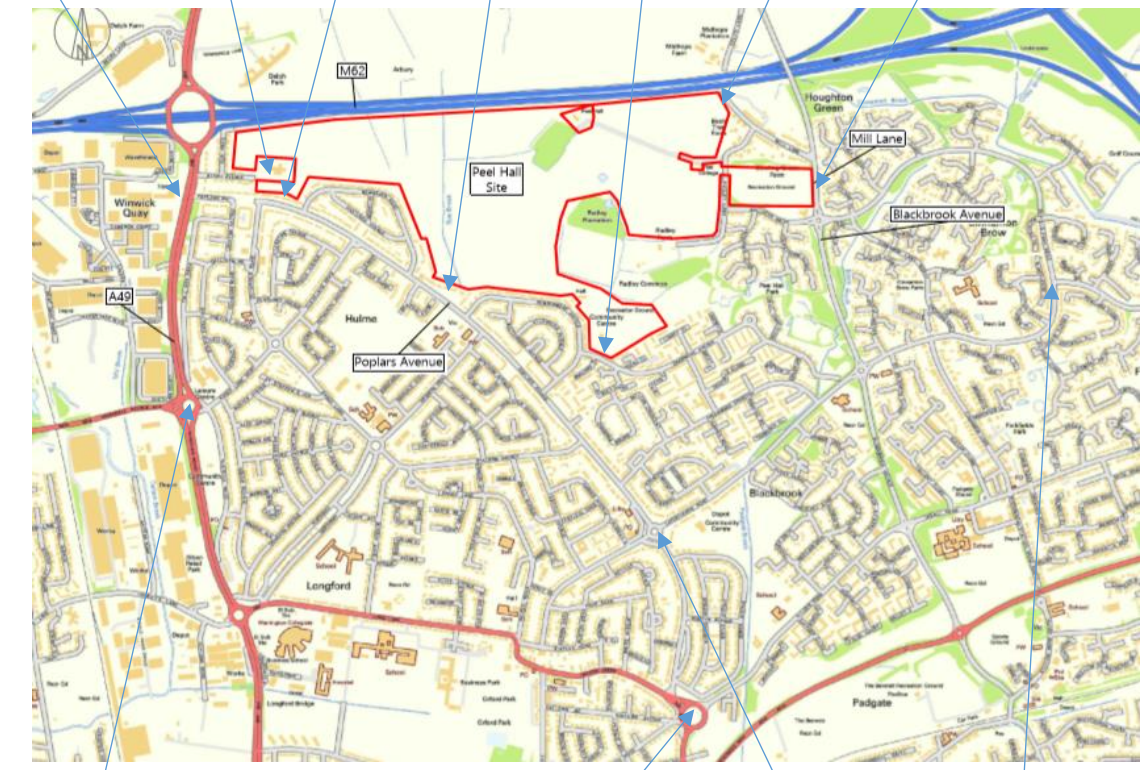
Annex: List of Documents Provided for this Stage 1 Road Safety Audit

Document/Drawing Reference No	Title	Date
1107 08/P	Proposed Access to Residential Land at Birch Avenue	03/02/17
1107 09/M	Proposed Access to Employment Land at Poplars Avenue	03/02/17
1107 10/N	Proposed Main Site Access at Blackbrook Avenue	17/01/18
1107 11/L	Proposed Access at Mill Lane	03/02/17
1107 12/Q	Proposed Access from Poplars Avenue to Residential Land and Local Centre	03/02/17
1107 19/G	Proposed Access Points and Indicative Spine Road	12/01/15
1107 30/H	Proposed Alterations to Existing Access at Grasmere Avenue	15/01/18
1107 43/A	Indicative Through Route and Access Points	01/07/17
1107 52/E	Peel Hall Proposed Alignment for Through Route to A49	13/06/17
1107 70	Peel Hall Potential Mitigation – Crab Lane/Enfield Park Road	20/12/17
1107 71	Peel Hall Mitigation – Capesthorne Road/Poplars Avenue	19/12/17
1107 72	Peel Hall Potential Mitigation – A50/Hilden Road/Poplars Avenue with Potential Improvements	20/12/17
1107 74	Peel Hall Mitigation – Sandy Lane West/A49	20/12/17
1107 79	Peel Hall Mitigation – A49/Birch Avenue	22/12/17
1107 81	Proposed Access at Mill Lane Visibility	04/01/18
1107 83	Proposed Access from Poplars Avenue (Central) Visibility	04/01/18
1107 85	Proposed Main Site Access at Blackbrook Avenue Visibility	

1107 87	Proposed Access to Employment Land at Poplars Avenue Visibility	04/01/18
1107 89	Proposed Alterations to Existing Access at Grasmere Avenue Visibility	16/01/18
1107 91	Proposed Access to Residential Land at Birch Avenue Visibility	04/01/18
1107 93	Location Plan for RSA	17/01/18
1107 TR08/A	Swept Paths Birch Avenue	03/02/17
1107 TR09	Proposed Access to Employment Land at Poplars Avenue Swept Path Analysis	04/01/18
1107 TR10A	Proposed Main Site Access at Blackbrook Avenue Swept Path Analysis	17/01/18
1107 TR11	Proposed Access at Mill Lane	03/02/17
1107 TR12	Proposed Access from Poplars Avenue to Residential Land and Local Centre	04/02/17
1107 TR30/E	Swept Path Analysis at Grasmere Avenue Access	15/01/18
1107 TR52	Swept Path at Proposed Signalised Junction of A49/Poplars Avenue	16/01/18
1107 70/A	Peel Hall Potential Mitigation – Crab Lane/Enfield Park Road Tracking	20/12/17
1107 TR71	Peel Hall Mitigation – Capesthorne Road/Poplars Avenue Swept Path Analysis	19/12/17
1107 TR72	Peel Hall Potential Mitigation – A50/Hilden Road/Poplars Avenue with Potential Improvements Tracking	20/12/17
1107 TR74	Peel Hall Mitigation – Sandy Lane West/A49	20/12/17
Unnumbered (OS Extract)	Site Location Plan	Undated
Unnumbered	SA478 Peel Hall Access Proposal (6 Junctions) Stage 1 Safety Audit	16/06/16
HTp/1107/DR/121216	RSA1 Designers Response	12/1/216

HTp/1107/TN/19	Land at Peel Hall, Warrington – Technical Note – Peel Hall Vehicular Trips	May 2017
HTp/1107/TN/21/A	Land at Peel Hall, Warrington – Technical Note – Through Route Scenario	July 2017
Unnumbered (AECOM document)	SATURN Modelling Results	28/09/17
Unnumbered	Final Flows for Issue 04092017 – Updated 22.12.17	22/12/17
Email from Highgate Transportation Ltd to Alan Consultancy Ltd	Peel Hall, Warrington RSA	17/01/18
Email from Highgate Transportation Ltd to Alan Consultancy Ltd	Peel Hall, Warrington RSA	17/01/18
Email from Highgate Transportation Ltd to Alan Consultancy Ltd	Peel Hall, Warrington RSA	18/01/18

Reference Plan



RSA1 DESIGNERS RESPONSE

PROJECT: Peel Hall, Warrington

RSA DATE: January 2018

RSA REF.: 16/2018 - Land at Peel Hall, Warrington

The Junctions

Para. No.	Problem	Recommendation	Designers Response
3.1.1	At all junctions the proposals involve the construction of areas of new carriageway abutting existing surfaces. If the joints are not smooth and clean or the new surface has a significantly different PSV from the existing, drivers could lose control of their vehicles in wet conditions due to differential grip.	Ensure that the interfaces between the existing and new surfaces are structurally secure, clean and sound. In addition, provide a wearing course on the new sections of carriageway with a similar wet skid resistance to the existing surface, assuming that the existing surface is above investigatory levels.	Accepted.

Para. No.	Problem	Recommendation	Designers Response
3.1.2	Blackbrook Avenue Roundabout (Junction 10). (Drawing No 1107 TR10A). When travelling south to north and west to south traffic entering the roundabout from lane one of both western arms will tend to move to their right towards the central circular island of the roundabout. In doing so they will squeeze out vehicles undertaking the same turning movements from lane two of both approaches resulting in vehicle/vehicle collisions on the circulatory carriageway or the vehicle from lane two collided with the central circular island itself.	1. Realign both entries so that the approach splitter islands direct lane two traffic off the central circular island, with an associated adjustment to the alignment of lane one; and 2. Provide lane destination arrows on the roundabout approaches to encourage 'correct lane' use.	1 & 2 – Noted, this will be provided for the Stage 2 RSA / at detailed design stage.
3.1.3	A49/Poplars Avenue Junction (Junction 52). (Drawing No 1107 TR52). Traffic on both A49 approaches tend to travel at higher speeds and as a result may have to brake sharply when the signals change and/or other vehicles slow or stop. Sharp braking could lead to rear end shunt type collisions.	Provide high friction surfacing on both A49 approaches to the signal controlled junction.	Noted.
3.1.4	Crab Lane/Enfield Park Road Junction (Junction 70). (Drawing No 1107 70) Traffic on all three approaches to this junction tends to travel at higher speeds and as a result may have to brake sharply when the signals change and/or other vehicles slow or stop. Sharp braking could lead to rear end shunt type collisions.	Provide high friction surfacing on both all three approaches to the signal controlled junction.	Noted.

Para. No.	Problem	Recommendation	Designers Response
3.1.5	Crab Lane/Enfield Park Road Junction (Junction 70). (Drawing No 1107 70) During the growing season foliage from the trees and hedge on the western side of Enfield Park Road may obscure a driver's view of primary signal head facing northbound traffic. If a driver does not see a signal head, they may continue without stopping resulting in overshoot or turning vehicle collisions.	Cut back, or if feasible remove, the foliage to provide a clear view of the signals.	Noted.
3.1.6	Winwick Road arm of the A49/Sandy Lane West Junction (Junction No 74). (Drawing No 1107 74) Setting back the give way line as proposed on Winwick Road will result in significantly reduced visibility to the right for emerging vehicles. This situation will be worsened as traffic approaching the signalized roundabout from Sandy Lane West will be breaking out into the three lanes on the immediate approach to signals. Turning vehicle collisions are likely to occur at this point due to the restricted visibility.	Do not set back the give way line as proposed.	These proposed junction mitigation works have been revised to improve visibility from the minor Winwick Road arm, and also to ensure that all works are contained to highway owned land. The visibility splay to the right along Sandy Lane West has been shown as achievable in excess of 25m in accordance with the 20mph signed speed limit along this road.

Para. No.	Problem	Recommendation	Designers Response
3.1.7	Sandy Lane West entry to the A49/Sandy Lane West Junction (Junction No 74). (Drawing No 1107 74) During peak traffic conditions when vehicles could be queuing and drivers seeking to take any advantage, those drivers wishing to enter the southern arm of A49 Winwick Road from Sandy Lane West may seek to turn left from lane two of the approach. In doing so they may cross the path of another vehicle travelling straight across the junction from lane one, resulting in turning vehicle collisions.	Modify the layout to discourage this potential manoeuvre.	The proposed road markings will direct traffic to the appropriate destinations. It should be noted that the demand for left turning manoeuvres from Sandy Lane West to A49 southbound is low compared to other movements from this arm.
3.1.8	Circulatory Carriageway of the A49/Sandy Lane West Junction (Junction No 7452). (Drawing No 1107 74) In lane one of the circulatory carriageway a pinch point exists on the eastern side of central reserve of the A49 Winwick Road southern arm. Drivers, especially those in larger vehicles, may consequently either collide with the central reserve or move across into lane two potentially colliding with another vehicle in that lane.	Modify the layout to provide a consistent width to lane one.	This drawing has been modified as is included within the TA.

Non-motorised users (NMUs)

Para. No.	Problem	Recommendation	Designers Response
3.2.1	Poplars Avenue at the proposed Pedestrian Crossing near its western junction with Windermere Avenue (Junction No 12). (Drawing No 1107 12/Q) The proposed bus bays are positioned on the approach to the pedestrian crossing within the crossing control area. A bus stopped in either bay could curtail the view of an approaching driver and as a result they may not see a pedestrian approaching the crossing or seeking to cross. Vehicle/pedestrian collisions could consequently occur.	Reposition the bus bays to a point on the exit sides of the pedestrian crossing.	Offside primary signal heads will be provided to overcome this issue.
3.2.2	Roundabout on the Residential Land and Local Centre Link from Poplars Avenue (Junction No 12). (Drawing No 1107 12/Q) Cyclists using the shared footway/cycleway on the western side of the link road between Poplars Avenue and the roundabout may seek to continue their journey utilizing the splitter island on the western side of the roundabout. The proposed splitter island is, however, of insufficient width to accommodate a bicycle clear of the carriageway. Passing vehicles may consequently collide with the bicycle overhanging the island.	Widen the splitter island.	This is not a crossing point for cyclists, notwithstanding this the splitter island measures 2m in width, which is suitable for cyclists.

Para. No.	Problem	Recommendation	Designers Response
3.2.3	A49/Poplars Avenue Junction (Junction No 52). (Drawing No 1107 TR52) Cyclists using the shared footway/cycleway on the eastern side of the A49 may seek to continue their journey utilizing the splitter islands on Poplars Avenue. The proposed more southerly splitter island is, however, of insufficient width to accommodate a bicycle clear of the carriageway. Passing vehicles may consequently collide with a bicycle overhanging the island. In addition, the island may be too small to accommodate a double headed signal installation and consequently vehicles may collide with signal heads as they pass.	Widen the splitter island.	All splitter islands at the proposed junction are at least 2m wide at the centre, which is considered suitable for cyclists.
3.2.4	A49/Poplars Avenue Junction (Junction No 52). (Drawing No 1107 TR52) There is evidence of cycle movements across the eastern verge of the A49 on the northern side of the junction suggesting that cyclists are crossing the A49 carriageway at this point. The attractors on the western side of the A49 may also encourage similar pedestrian movements. No proposals exist, however, to assist these movements if they do occur and hence vehicle/cyclist and/or vehicle/pedestrian collisions may occur.	Review the necessity for a cyclist and/or pedestrian crossing facility on the A49 and provide a crossing place if appropriate.	It is proposed that, as part of these works, tactile paving and widening could be provided to the existing uncontrolled crossing circa 60m to the south of this junction, in the vicinity of the southbound bus stop,

Para. No.	Problem	Recommendation	Designers Response
3.2.5	A49/Poplars Avenue Junction (Junction No 52). (Drawing No 1107 TR52) The distance between the pedestrian crossing studs on the Poplar Avenue arm and the vehicle Stop Lines are not specified. Collisions can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians who cross close to their vehicle.	Provide a 3m gap between the Stop Lines and the pedestrian crossing place	Accepted. This has been provided on the revised drawing within the TA.
3.2.6	A49/Sandy Lane West Junction (Junction No 74). (Drawing No 1107 74) The distance between the pedestrian crossing studs on the Sandy Lane West arm and the vehicle Stop Lines are not specified. Collisions can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians who cross close to their vehicle.	Provide a 3m gap between the Stop Lines and the pedestrian crossing place.	The stop line will be provided as per the existing situation.

Signing and Lighting

Para. No.	Problem	Recommendation	Designers Response
3.3.1	Birch Avenue (Junction 08). (Drawing No 1107 08/P) As there are no other ramps or humps on Birch Avenue, drivers or riders may not recognise the presence of the proposed ramp at the change of surfacing near No 27 Birch Avenue, especially in the dark or in poor weather conditions. Drivers or riders could consequently lose control of the vehicle and collide with other road users or roadside features.	If a ramp is provided, provide hump warning signs in advance of the feature and 'sharks teeth' markings on the ramp.	Accepted. Will be considered further at detailed design stage.
3.3.2	Mill Lane (Junction 11). (Drawing No 1107 11/L) As there are no other raised tables or humps Mill Lane, drivers or riders may not recognise the presence of the proposed table at the junction, especially in the dark or in poor weather conditions. Drivers or riders could consequently lose control of the vehicle on the tables ramps and collide with other road users or roadside features.	Provide hump warning signs on the approaches to the raised table.	Accepted. Will be considered further at detailed design stage.