Appendix 11
Future Rail Connectivity Plan

In Response to: ExQ1 Number 1.2.22

Four Ashes Limited

West Midlands Interchange

Four Ashes Ltd

chetwoods
architects
32 frederick street birmingham B1 3HH
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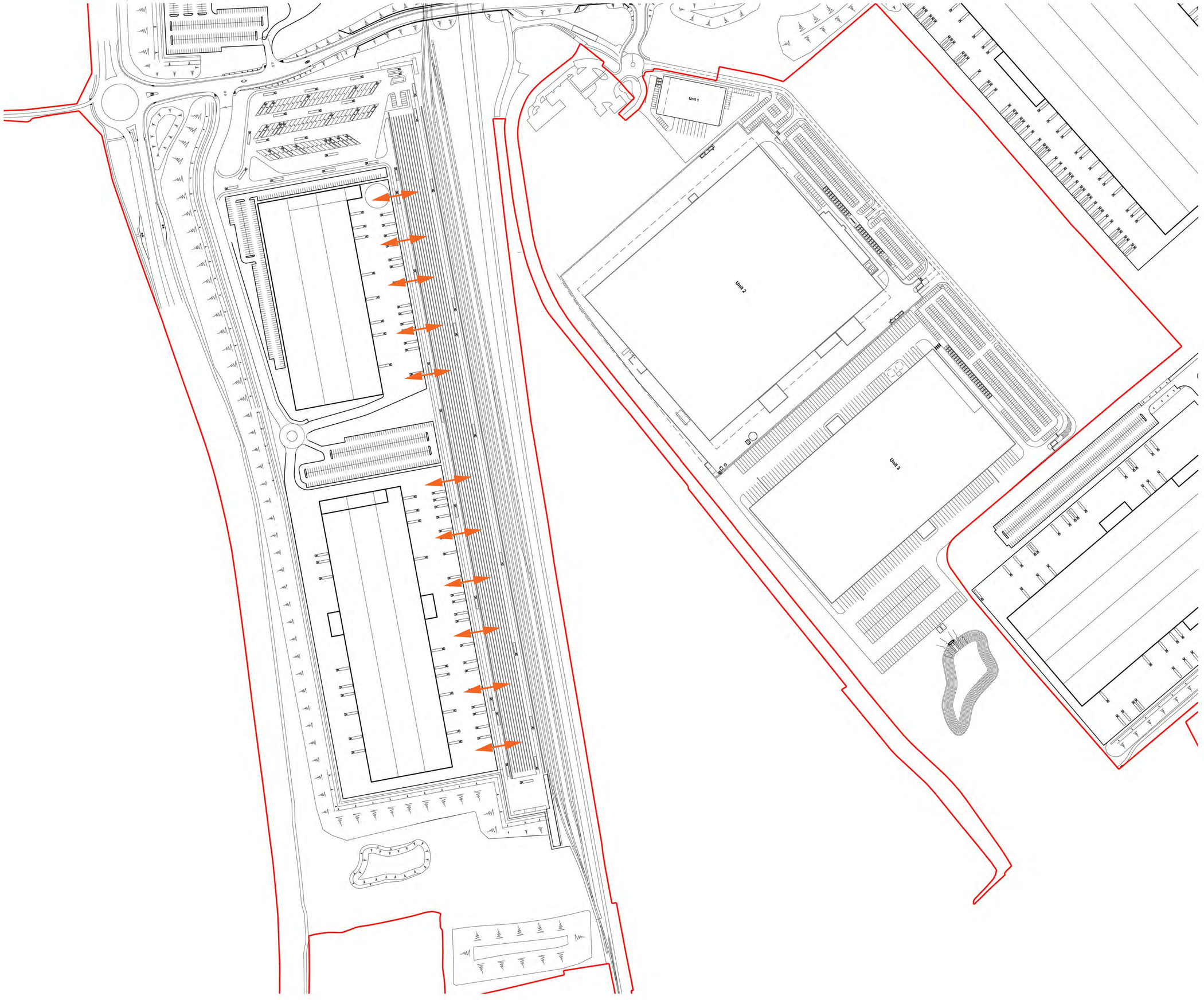

N

Potential Reachstacker or Gantry Movements

Revisions

West Midlands Interchange

Project
THE WEST MIDLANDS RAIL FREIGHT INTERCHANGE ORDER 201X

Drawing Status
SUBMISSION

Drawing Title
Future Rail Connectivity

Drawing Size A1

Regulation	Document
5 (2) (o)	

Drawn	Date	Scale	Reviewed
SM	MARCH 2019	1/2000	PMJS

Drawing No.	Rev.
4049 - 902	02

Appendix 12
Photograph of the Sainsbury's rail connected warehouse at DIRFT II

In Response to: ExQ1 Number 1.2.22

Four Ashes Limited

West Midlands Interchange

Four Ashes Ltd


EVERGREEN

Appendix 13
Green Belt Plan

In Response to: ExQ1 Number 1.3.1

Four Ashes Limited

West Midlands Interchange

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N

Green Belt

Note;
Not to Scale. Drawing is illustrative, for information only

Revisions

West Midlands Interchange

Project
THE WEST MIDLANDS RAIL FREIGHT INTERCHANGE ORDER 201X

Drawing Status
SUBMISSION

Drawing Title
GREEN BELT PLAN

Drawing Size A1

Regulation	Document
5 (2) (o)	N/A

Drawn SM	Date MARCH 2018	Scale 1: NTS	Reviewed PS

Drawing No.	Rev.
4049-30	01

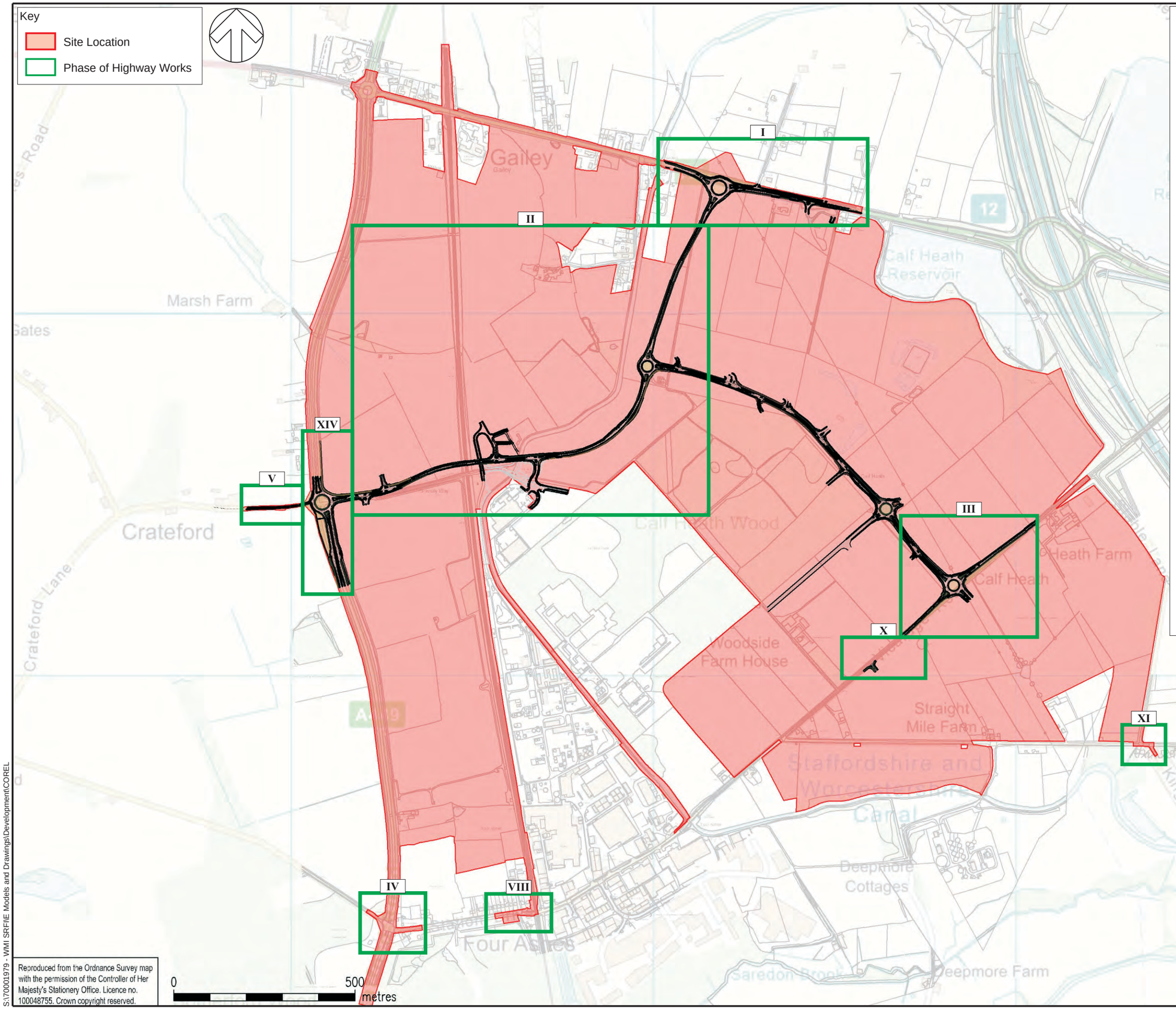
Appendix 14
Vehicular Access Works Phasing

In Response to: ExQ1 Number 1.7.10

Four Ashes Limited

West Midlands Interchange

Four Ashes Ltd



Phasing of Highway Works Requirement 25

(I) A5 Access Roundabout, including works to Avenue Cottages junction
To be completed prior to the occupation of first warehouse to be occupied (with the exception of less than 47,000 square metres (gross internal area) of warehouse floorspace accessed from the Vicarage Road Access Roundabout (item (iii)).

(II) A5 – A449 link road
To be completed prior to occupation of more than 140,000 square metres (gross internal area) of warehouse floorspace served via the A5 and 47,000 square metres (gross internal area) of warehouse floorspace served via the Vicarage Road Access Roundabout (item (iii)) or within five years of the occupation of more than 47,000 square metres (gross internal area) of warehouse floorspace, whichever is sooner.

(III) Vicarage Road Access Roundabout
To be completed prior to the occupation of any warehouse floorspace to accessed from the Vicarage Road Access Roundabout.

(IV) Right turn ban and associated works at A449 / Station Drive junction
Not to be in force until such time as the A449 Roundabout (item xiv) has been completed.

(V) Crateford Lane closed to westbound traffic
To be completed prior to occupation of more than 140,000 square metres (gross internal area) of warehouse floorspace or within five years of the occupation of more than 47,000 square metres (gross internal area) of warehouse floorspace, whichever is sooner.

(VIII) Provide HGV turning area on Station Drive to the west of the rail bridge
To be completed within 6 months of completing the Vicarage Road Access.

(X) Improved visibility splay at Vicarage Road / Straight Mile Priority Junction
To be completed prior to opening of Vicarage Road Roundabout.

(XIV) A449 Roundabout
To be completed prior to occupation of more than 140,000 square metres (gross internal area) of warehouse floorspace or within five years of the occupation of more than 47,000 square metres (gross internal area) of warehouse floorspace, whichever is sooner.

S:\70001979 - WMI SRFIIE Models and Drawings\Development\COREL

wsp

TITLE:

Vehicular Access Works Phasing

FIGURE No:

1.7.10

Appendix 15
West Midlands Interchange Stage 1 Road Safety Audit

In Response to: ExQ1 Number 1.7.11

Four Ashes Limited

West Midlands Interchange

Four Ashes Ltd

Highways England

WEST MIDLANDS INTERCHANGE

Stage 1 Road Safety Audit

Revision E

ITS/454/2018
SEPTEMBER 2018

(CONFIDENTIAL)

Highways England

WEST MIDLANDS INTERCHANGE

Stage 1 Road Safety Audit

Revision E

FINAL DOCUMENT (CONFIDENTIAL)

PROJECT NO. 70042700-RSA
OUR REF. NO. ITS/454/2018

DATE: SEPTEMBER 2018

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Floor 8,
Crossway
156 Great Charles Street
Queensway
Birmingham B3 3HN
WSP.com

QUALITY CONTROL

Issue/revision	Revision A	Revision B	Revision C	Revision D	Revision E	Revision E
Remarks	Draft	Draft	Draft	Draft	Draft	FINAL
Date	20/11/17	24/11/17	21/12/17	02/01/18	06/09/18	20/09/18
Prepared by	Neil Jones	Neil Jones	Neil Jones	Neil Jones	Neil Jones	Neil Jones
Signature	[redacted]					
Checked by	Lyn Turner	Lyn Turner	Lyn Turner	Lyn Turner	Lyn Turner	Lyn Turner
Signature	[redacted]					
Authorised by	Axel Kappeler	Axel Kappeler	Axel Kappeler	Axel Kappeler	Neil Jones	Neil Jones
Signature	[redacted]					
Project number	70042700-RSA	70042700-RSA	70042700-RSA	70042700-RSA	70042700-RSA	70042700-RSA
Report number	ITS/416/2018	ITS/416/2018	ITS/416/2018	ITS/416/2018	ITS/454/2018	ITS/454/2018
File reference	As above	As above	As above	As above	As above	As above

CONTENTS

APPENDICES

1 INTRODUCTION

1.1.1. This report results from a Stage 1 Road Safety Audit carried out on West Midlands Interchange Scheme (Trunk Roads) at the request of Neil Hansen, Highways England Project Sponsor. The Road Safety Audit was carried out during November 2017 and August 2018. The Road Safety Audit Team membership approved by Neil Hansen, Highways England Project Sponsor was as follows

Audit Team Leader:	Neil Jones BA(hons), DipTEDM, MSoRSA, MCIHT
Audit Team Member	Lyn Turner FIHE, FSoRSA, RegRSA(IHE)

Both team members hold a Road Safety Certificate of Competence meeting the requirements of the European Directive 2008/96/EC and HD19/15 Annex J.

1.1.2. The Road Safety Audit took place at the Sutton Coldfield Office of WSP during November 2017 and August 2018. This Road Safety Audit was undertaken in accordance with the Road Safety Audit Brief provided by Neil Hansen, Highways England Project Sponsor. The Road Safety Audit comprised an examination of the preliminary design drawings provided and these are listed in the Annex. The documents consisted of a complete set of the scheme plans. Although the design team and the road safety audit team both work for WSP, the road safety audit team have remained wholly independent throughout the process.

1.1.3. The Audit Team visited together the site of the West Midlands Interchange on the 14th November 2017 between 11am and 2pm. During the site visit the weather was fine and overcast and the existing road surface was dry. Traffic conditions were free flowing although traffic management was in operation along the A449 due to ongoing improvement works at the A449/Gravelly Way junction.

1.1.4. An additional site visit was carried out on the 16th August 2018 between 10:30am and 12 noon. During the site visit the weather was fine and the existing road surface was dry. Traffic conditions were free flowing although traffic management was in operation along the A449 due to grass cutting along the A449 verge. The additional site visit was requested for the road safety audit team to review the proposed improvement works to the signalised cross roads at the A449/Gravelly Way junction which will be replaced with a roundabout. The audit team were also specifically requested to consider the amended access arrangements serving the Avenue Cottages and the exit visibility of the proposed A5 roundabout to Harrisons Lane.

1.1.5. The Road Safety Audit also comprised of an examination of the documents and drawings supplied to the Road Safety Audit Team, referenced in Appendix A of this report.

1.1.6. All comments and recommendations are referenced to the preliminary design drawings (relative to the Stage 2 Consultation submission of the WMI Development Consent Order) and the locations have been indicated on the plan included in Appendix B. The terms of reference of the Road Safety Audit are as described in the Design Manual for Roads and Bridges (DMRB) Standard HD19/15

1.1.7. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

1.1.8. Nine departures from Standards have been identified. These relate to

- Stopping site distance to Marina access.
- Stopping site distance to a single residential access on the A5
- Visibility to the right from Marina access
- Visibility to the right from the residential access on the A5
- Distance from adjacent junction of proposed lay-bys
- Distance from adjacent junction of proposed bus lay-bys

Applications for Departures from Design Standard have been submitted, however these have been rejected by Highways England Safety and Engineering Services pending the receipt of further information which is currently being prepared by the Design organization, prior to it being submitted in draft to the Project Sponsor.

A further potential departure has been identified at the proposed A5 roundabout and may be a potential hazard that requires consideration. This is in relation to exit visibility from the roundabout to Harrisons Lane that is located to the east of the proposed A5 roundabout.

1.1.9. Audit administration

This Audit Report has been submitted to the Audit Project Sponsor as a draft for checking, consideration and approval. The Audit Project Sponsor is responsible for agreeing with the Audit Team Leader the form of the final version of the report and for instructing that the report is presented in its final form.

It is the Audit Project Sponsor's responsibility to advise the Audit Team Leader if any Problem or Recommendation is not accepted. A copy of every signed Exception Report is required by the Audit Team Leader from the Audit Project Sponsor for attachment to the master copy of the Final Audit Report.

Safety issues identified during the audit and site inspection which the Terms of Reference exclude from this report, but which the audit team wishes to draw to the attention of the Audit Project Sponsor, will be set out in a separate letter. These issues could include maintenance items and operational issues.

1.2 PURPOSE OF THE SCHEME

West Midlands Interchange is a Strategic Rail Freight Interchange being developed at land located at Four Ashes. The Site is located south west of the M6 Junction 12 and is bordered by the A5 to the north of the Site and the A449 to the west of the Site. The road safety audit will assess infrastructure proposed on the strategic road network which will enable access to the site and provide mitigation to the SRN through the introduction of a new link road connecting the A5 and A449 bypassing the Gailey Roundabout, which will be adopted by Staffordshire County Council. This includes:

- a new roundabout on the A5, providing access to the Site (GA-107 Rev B);
- Modification to the existing traffic signal control junction of A449 / Gravelly Way to provide a replacement roundabout providing access to the Site, including relocation of bus laybys (GA-103 Rev A).
- Replace the laybys on the A5 with new laybys on the A449 (GA-105 Rev A).
- Banning of a right turn on the A449 into Station Drive (GA-101 Rev A).
- A449 Cycleway/Footway (GA-106 Rev B, 105 Rev A,103 Rev A,102 Rev A and 101 Rev A).
- Proposed footway works on the A5 (GA-106 Rev B and 107 Rev B).

The A5 bordering the north of the Site has a number of residential dwellings and other properties with direct frontage access distributed on both the northern and southern sides of the carriage. The location of the proposed roundabout on the A5 has been chosen to be as far as possible from M6 J12 but avoid the canal which runs underneath the A5 which is a conservation area. The proposed roundabout on the A449 will replace the signalised junction which has recently been constructed.

A separate road safety audit has been completed assessing the complementary infrastructure within Staffordshire County Council control.

Within the Safety audit brief, the project sponsor has specifically asked the road safety audit team to consider certain aspect of the proposals. These are outlined below:

The RSA Team have been requested by the Project Sponsor to take account of the proposal to convert the Crateford Lane arm of the proposed A449 roundabout to one way in a west to east direction. The purpose of this proposed alteration is to prevent A449 traffic travelling north bound from using Crateford Lane to avoid A5/A449 roundabout (The Gailey Roundabout) during times of congestion. The unbalanced traffic flows at the new roundabout would potentially reduce gaps for vehicles waiting at the Crateford Lane Arm which does raises Highway safety concern.

In response – The road safety audit team have considered the conversion of Crateford Lane to one-way and have raised road safety issues within this report.

The junction of A449/Gravelly Way has recently been reconfigured in order to convert the junction from priority to control to traffic signal control. The new arrangement provides signal controlled pedestrian and cycle crossing

facilities on the northern arm of the junction. The proposed A449 roundabout would see the signal controlled crossings removed and which would be replaced with uncontrolled crossing facilities, connecting to the central reservation. These pedestrian crossing facilities are proposed to be provided on the southern arm of the junction and would connect to the proposed replacement bus stops that form part of the highway works that are the basis of this Safety Audit brief. The Auditors are specifically requested to consider the highway safety implications of the removal of the signal controlled crossing provided by the existing junction arrangement to be replaced by uncontrolled crossing facilities. This will require a second site visit to be undertaken by the Auditors due to the works being undertaken during the initial site visit.

In response – The road safety audit team have carefully considered the junction improvement works and issues have been identified within this report.

The RSA team should be aware that the introduction of the proposed A449 roundabout junction will require changes to the earthworks that have been constructed in order to deliver the A449 / Gravelly Way traffic signal junction. At this stage, the design work in relation to this area of the proposed A449 roundabout has yet to be undertaken and would be expected to be carried out at the detailed design stage.

In response – This will be reviewed during the stage 2 road safety audit

In addition, the Auditors are specifically requested to consider the amended access arrangements serving the Avenue Cottages left in / left out junction to the east of the A5 roundabout, as shown on WSP-70001979-GA-107 Rev B - General Arrangement Plan. A west bound running lane width of 3.5m together with hard strips has been provided, which is sufficient to accommodate the largest vehicle that will use the junction arrangement, in accordance with TD41/95.

In response - The road safety auditors have considered the amended access arrangements and have no road safety comments at the preliminary design stage.

A potential departure from standard has been identified at the proposed A5 roundabout and may be a potential hazard that requires consideration. This is in relation to exit visibility from the roundabout to Harrisons Lane that is located to the east of the proposed A5 roundabout.

In response - The audit team have considered the exit visibility from the A5 roundabout to Harrisons Lane and currently have no road safety concerns at this time, as presented. There appears to be adequate forward visibility from the roundabout to Harrisons Lane considering a number of factors including the verge between Harrisons Lane and the A5 roundabout, and the A5 roundabout itself, if these are to be planted with grass only there shouldn't be an adverse effect of driver's visibility. Therefore, drivers wishing to turn left out of Harrisons Lane will have adequate visibility of vehicles approach westbound along the A5. The roundabout should also act as a traffic calming feature therefore potentially slowing vehicles down within the 50mph speed limit. The collision data supplied to the audit team show only 1 collision at the junction of the A5 and Harrisons Lane. This involved a vehicle attempting a right turn manoeuvre out of Harrisons Lane into the path a vehicle travelling westbound along the A5. This resulted in a collision where the occupants suffered slight injuries. With the provision of the kerbed central island on the A5 across Harrisons Lane, the right turn out (and right turn in) manoeuvres would no longer be possible.

Also considered is that Harrisons Lane is a cul-de-sac and only appears to serve a handful of properties. Therefore, traffic flows in and out are likely to be very low. The preliminary drawing shows a westbound single lane exit from the new A5 roundabout. If, at the detailed design, this becomes a two lane exit then this may increase the risk of a collision between a vehicle exiting the roundabout and with a vehicle entering or exiting Harrisons Lane.

Although the road safety audit team don't consider there be a road safety issue with the A5 roundabout/Harrisons Lane at the preliminary design stage (as presented), the Harrisons Lane junction should be reviewed once again during the stage 2 road safety audit, once the detailed design has been completed, especially the planting and road marking drawings.

2 PROBLEMS IDENTIFIED IN PREVIOUS ROAD SAFETY AUDITS

2.1.1. A Stage 1 Road Safety Audit was completed in October 2014 at the A449 Bericote, Four Ashes junction.

2.1.2. A Stage 2 Road Safety Audit was completed in September 2016 at the A449 Bericote, Four Ashes junction.

2.1.3. The Stage 3 Road Safety Audit was completed in February 2018 at the A449 Bericote, Four Ashes junction the issues raised are detailed below along with the designers response:

2.1.4. General

Problem

Location: Gravelly Way

Summary: Risk for various types of collisions for vehicles entering the junction from Gravelly Way

It was observed during the site visit that the signals on the Gravelly Way did not operate accordingly whereby the red aspect was running for a very long time. This resulted in motorists having to ignore the red aspect of the signals in order to enter the junction and could result in potential collisions with vehicles travelling on the A449 or from Crateford Lane as the motorists are not aware of the other signals aspects. This is of particular concern for vehicles turning right as they would have the most potential conflicts. It was also observed that the pedestrian phase over the A449 Northbound appeared to be permanently demanding, resulting in driver frustration for other approaches. This issue was already raised with the traffic signals team and is pending to be resolved.

Recommendation

The signal staging should be amended as per the traffic signal controller work specification and configuration form issued to the audit team.

Designer's Response: This issue was identified during the audit and the traffic signal designers (Julian Smith's team at Kier) were notified of it immediately. It is understood they have since attended site and rectified this issue.

Problem

Location: Gravelly Way

Summary: Orientation of signal poll could be misleading to motorists who may attempt to enter the junction on a red aspect leading to various collisions. One of the secondary signal pols for the A449 southbound right turn was incorrectly orientated and was facing traffic coming out from Gravelly Lane. If motorists waiting at Gravely Lane stop line would believe that it is the secondary signal for this junction, then they could enter the junction on a red aspect without being aware of it and could lead to various types of collisions such as side swipe or side impact collisions. It was determined on site that the signal pole was loose and was rotated to face the correct direction. This issue was already raised and is pending to be resolved.

Recommendation

The signal pole to be adequately tightened facing the correct direction as soon as possible.

Designer's Response: This issue was identified during the audit and the pole was rotated to the correct aspect there and then. However this is only a temporary fix, the NAL socket in which the pole is mounted requires a restraining bolt to be fitted. We understand this issue has been raised with the signals sub-contractor and is being addressed.

Problem

Location: A449 Southbound crossing

Summary: Push button mounted to low could discourage pedestrians to use it which would have an increased risk in vehicle/pedestrian conflicts. The push button on the right-hand pole of the A449 northbound crossing was mounted too low, as it can be seen in Photo 3.

The location of the push button could discourage NMU's to use it as it is uncomfortable to be operated. Moreover, visual impaired pedestrians would find it even more difficult as they would have to wait for the tactile rotator in an uncomfortable position. As a result, there could be an increased risk in vehicle/pedestrian conflicts.

Recommendation

The push button unit should be relocated at the adequate height.

Designer's Response: Agreed - We understand this issue has been raised with the signals sub-contractor and is being addressed.

Problem

Location: Maintenance bay

Summary: Risk of trip and fall with inherited injuries for operatives using the maintenance bay.

The kerbing drawing issued to the Audit Team shows that the edging kerb is to be flushed with the footway surface. During the site visit it was observed that the edging kerb along the maintenance bay has a raised upstand. Operatives using the maintenance bay could trip on the kerb raised upstand which

could lead to potential injuries especially if they carry tools. This event is exacerbated during the hours of darkness where the upstand would be more difficult to be observed.

Recommendation

The kerbing along the maintenance bay should be flushed with the footway and the grass crated area.

Designer's Response: We acknowledge this point, however we consider it even more important to protect pedestrians from (and alert them to) the trip hazard of the uneven (grass-crete) surface to the bay by means of the raised edging. Maintenance operatives will be aware of the raised edging having driven over it, will be trained to be aware of and assess their surroundings, and will typically be wearing PPE including safety boots.

By contrast pedestrians, in particular those with visual impairments walking along this length of footway will not have such benefits. As such we consider the raised edging to be a useful feature, to ensure that pedestrians do not "stray" into the maintenance bay as they might if the delineation were flush between the two surfaces. A raised edging at the back of a footway is a commonly used feature and as such we do not consider it to

be a particularly hazardous feature for the maintenance operatives to encounter in their day to day activities.

2.15 Road Signs, Carriageway Markings and Lighting

Problem

Location: A449 Northbound ADS

Summary: Risk of nose to tail and side swipe collisions due to obstructed ADS.

The ADS sign on the northbound approach to the junction is hidden behind the trees as it can be seen in photo 4 below. There is the risk for motorists to not observe the sign until they are very close to it which

could lead to sudden breaking and potential nose to tail collisions with traffic behind. Furthermore, if the motorists would not see the sign at all, they would not be aware of the junction ahead, and there is the risk for the vehicles with the intention to turn right to be positioned in the first lane which would require to cross over two lanes in a short distance with the risk of side swipe collisions.

Recommendation

The ADS sign should be relocated and adequately positioned such that adequate sight lines and clearances are achieved. If not possible then the trees obscuring the sign should be removed.

Designer's Response: Agreed – The sign is currently positioned at its minimum distance from the stop line of 150m so cannot be positioned further north. The guidance within LTN 1/94 Appendix A allows this distance to be increased to 225m, but we believe that other trees would then obscure visibility to the sign. Therefore we

propose that the situation is monitored through the current bird nesting season, after which the trees in question should be removed either by the Contractor, or by agreement with the Highways England maintaining agent for this length of the A449.

Problem

Location: A449 Northbound ADS and A449 Southbound ADS

Summary: ADS signs do not match with the road layout ahead and could lead to junction related collisions.

The two ADS signs installed on the A449 approach to the junction do not match with the road layout ahead. Motorists could believe that they are approaching a 'T junction' when in fact is a 'crossroad junction'.

Motorists travelling along the A449 northbound, unfamiliar with the road layout, would not be aware of a junction arm to the left. In the event of a traffic signals failure there is an increased risk of collision between vehicles travelling on the A449 northbound and vehicles exiting from Crateford Lane as vehicles traveling on the mainline would not expect vehicles from the left. Furthermore, vehicles travelling along the A449 southbound, unfamiliar with the road layout, would not be aware of a junction arm to the right until when they are potentially to close to the junction. There is the risk for the vehicles with the intention to turn right to be positioned in the first lane which would require crossing over two lanes in a short distance with the risk of side swipe collisions.

Recommendation

The ADS signs should be amended to reflect that the junction ahead is actually a crossroads.

Designer's Response: Agreed – However the arm of the junction in question (Crateford Lane) is a very minor road with minimal traffic flows. As such we propose to amend the sign by means of applying a small white rectangular patch of retro-reflective material to each one, to denote a small "stub" opposite the arm indicated for Four Ashes Park. The gap between the white vertical stem, and the white border is 150mm (4 stroke widths), so it is considered that a 75mm wide x 50mm deep rectangle would be sufficiently visible to correctly convey the form of the actual junction layout.

Problem

Location: Crateford Lane

Summary: Risk of junction overshoot collisions due to obstructed signs/signal heads

The nearside 60mph speed limit/ no stopping on the carriageway signs together with the nearside signal head are obscured by vegetation as it can be seen in Photo 8. Together with the fact that the offside signage is also part hidden due to the lamp column there is the risk for motorists to overshoot the junction resulting in collisions with traffic on the mainline.

Recommendation

The vegetation obscuring the signage/signal head should be cleared.

Designer's Response: Agreed - Staffordshire County Council (SCC) are responsible for maintaining Crateford Lane, including trimming/pruning of trees and vegetation as required to maintain visibility. This item will be dealt with as part of the routine SCC maintenance regime for the area. In the meantime, it is noted that whilst the sign may be obscured, both the primary and secondary signal heads are clearly visible, so it is considered that the risk of motorists overshooting the junction at this location is minimal.

Problem

Location: A449 Southbound

Summary: Risk of junction overshoot or nose to tail collisions if traffic signals

warning sign not observed.

The traffic signals ahead warning sign must be illuminated. The southbound traffic signals ahead sign had the illumination lamp but it was not functioning during the night time sight visit as it can be seen from Photo 9 bellow.

If the warning sign is not observed by motorists there is the risk to not expect the traffic signals ahead which could result in junction overshoot or hard braking and potential nose to tail collision

Recommendation

The traffic signals warning sign should be illuminated.

Designer's Response: Agreed - We understand this issue has been raised with the traffic signs sub-contractor and is being addressed.

3 PROBLEMS IDENTIFIED AT THIS STAGE 1 ROAD SAFETY AUDIT

3.1 GENERAL

PROBLEM A

Location : GA 101, GA105, GA106 - Northbound approach to Station Drive and approaches to proposed closures of central reserve gaps (both directions)

Summary: Restricted manoeuvres may cause driver confusion and hesitation resulting in shunt type collisions.

Detail: As part of this scheme, the northbound right turn manoeuvre from the A449 into Station Drive is to be prevented (see Photo1). Also several central reserve gaps are to be closed. Without adequate advance signing and subsequent directional signing, drivers may become confused, resulting in hesitation and subsequent collisions.

Also once the central reserve gaps are closed and agricultural vehicles can no longer turn right into and out of their fields, there is likely to be a number of slow agricultural vehicles looking for alternative opportunities to U-turn.

Photo 1: A449 Northbound approach to Station Drive junction

RECOMMENDATION

Ensure the restricted turning movements and the alternative diversions are adequately signed. Safe alternatives should be relayed to the users of the fields adjacent to the A449 once the gaps are closed.

PROBLEM B

Location : GA 106, GA 107 – A5 including Gailey Roundabout and proposed new roundabout.

Summary: Proposed development of the WMI site has the potential to increase the risk of collisions on the A5, especially at Gailey Roundabout.

Detail: Collisions data provided to the audit team as part of the RSA1 showed high numbers of collisions, including serious injury collisions, on the A5 at Gailey roundabout (see Photo 2) and along the A5 between Gaily Roundabout and its junction with Vicarage Road. The proposed development of the WMI is likely to increase traffic flows, especially HGVs, on the surrounding road network. The A5 is a major feeder road for traffic into and out of the WMI development and is likely to encounter increases in flows. However, improvement works are not proposed to the Gaily Roundabout to help mitigate the potential risk attributed to higher traffic flows and there is a risk that the already poor collision record, will get worse.

Photo 2 : Gailey Roundabout

RECOMMENDATION

Collision investigation be carried out on this section of the A5 (including Gaily Roundabout) and remedial measures proposed to help reduce the possibility of an increase in collisions once the WMI development is completed.

PROBLEM C

Location : GA103 – Proposed roundabout at the Crateford Lane junction with the A449

Summary: Proposed one-way of Crateford Lane is likely to increase traffic flows on Four Ashes Road and Claygates Road

Detail: As part of this scheme, Crateford Lane is to be made a one-way carriageway, with vehicles only being able to travel eastbound. Therefore, any traffic wanting to access Crateford, would have to use Four Ashes Road or Claygates Road. The drawings provided didn't show any improvement works on the surrounding road network, resulting from the introduction of the one-way system at Crateford Lane. These roads are very rural and narrow in nature and an increase in traffic flows could increase the risk of collisions on these roads.

RECOMMENDATION

Ensure the local road network is capable of safely absorbing any additional traffic flows resulting from the introduction of the one-way system.

3.2 PEDESTRIANS, CYCLISTS AND HORSE RIDERS

PROBLEM D

Location : GA 101, GA102 - A449 northward from its junction with Station Drive.

Summary: Users of the pedestrian and cycle facility may be at risk of collisions with errant vehicles on the adjacent carriageway.

Detail: On the southbound carriageway of the A449 there is a pedestrian and cyclist facility which runs adjacent to the carriageway (see Photo 3). A majority of this facility is set away from the edge of the carriageway with a strip of verge between the facility and the edge of carriageway. However, there is a section of the facility on the A449 southbound carriageway, to the north of its junction with Station Drive, where a 'buffer' zone between the facility and the edge of carriageway does not appear to exist.

The construction of the new West Midlands Interchange is likely to increase pedestrian and cyclist usage of the facilities. The A449 is subject to 60mph speed limit along this section of carriageway. The lack of a 'buffer' zone may increase the risk of a vehicle colliding with a cyclist or pedestrian using the facility and/or deterring cyclists or pedestrians from using the facilities.

Photo 3 : Footway alongside the A449

RECOMMENDATION

Provide a safety zone between the pedestrian/cyclist facility and the edge of the carriageway.

PROBLEM E

Location : GA 103 - Proposed roundabout at the A449/Gravelly Way junction

Summary: Reverse stagger in the pedestrian/cyclist crossing may increase the risk of a collision between pedestrians/cyclists and vehicles

Detail: On the southern arm of the proposed roundabout, there is a pedestrian/cyclist crossing facility within the central reserve (between the north and southbound carriageways of the A449). The facility has a 'right-left' stagger which results in pedestrians and/or cyclists attempting to cross the A449 with their backs to approaching vehicles. This may increase the risk of a pedestrian or cyclist attempting to cross the A449 into the path of an approaching vehicle resulting in a collision.

RECOMMENDATION

Provide a 'positive' stagger in the crossing.

PROBLEM F

Location : GA 106 – A5 pedestrian/cycle facility over the rail bridge.

Summary: The width of the pedestrian/cycle facility is reduced over the bridge and a lack of signing to warn them may increase the risk of pedestrians/cyclist colliding with each other or passing vehicles.

Detail: There are to be proposed pedestrian/cycling facility improvements along the eastbound carriageway of the A5. However, the facility over the rail bridge will not be improved and to remain as it currently is. This results in a reduced width facility over the rail bridge. Although a sign is proposed on the western side of the rail bridge to inform pedestrians/cyclists of the need to give way, no such information or warning signing is proposed at the eastern end of the rail bridge. This may increase the risk of a pedestrians/cyclist travelling westbound, failing to take care on the narrow facility, resulting in a collision with another pedestrian/cyclist travelling eastbound or being forced onto the A5 carriageway and then colliding with a vehicle.

RECOMMENDATION

Provide adequate signing on the eastern side of the rail bridge to inform pedestrians/cyclists of the reduced width of facility.

PROBLEM G

Location : GA 107 – A5 pedestrian/cycle facility over the canal bridge.

Summary: The width of the pedestrian/cycle facility is reduced over the bridge and lack of signing to warn them may increase the risk of pedestrian/cyclists colliding with each other or passing vehicles.

Detail: There are to be proposed pedestrian/cycle facility improvements along the eastbound carriageway of the A5. However, the facility over the canal bridge will not be improved and to remain as it currently is. This results in a reduced width facility over the bridge. Although a sign is proposed on the eastern side of the canal bridge to inform pedestrian/cyclists of the need to give way, no such information or warning signing is proposed at the western end of the canal bridge. This may increase the risk of a pedestrian/cycle travelling eastbound, failing to take care on the narrow facility, resulting in a collision with another pedestrian/cyclist travelling westbound or being forced onto the A5 carriageway and then colliding with a vehicle.

RECOMMENDATION

Provide adequate signing on the western side of the canal bridge to inform pedestrian/cyclists of the reduced width of facility.

PROBLEM H

Location : GA 103 – A449 cycle facilities within the western verge

Summary: Lack of cycle facilities on the western verge of the A449 may increase risk of collisions between cyclists and pedestrians and/or vehicles.

Detail: The proposed pedestrian/cyclist facilities in the vicinity of the new roundabout include a combined cycle and pedestrian facility on the A449 eastern verge and also into Gravelly Way. However, the crossing facility over the A449 to the south the roundabout and the facility on the A449 western verge is intended for pedestrians only. The existing provision includes a combined cycle/pedestrian facility on the A449 western verge (see Photo 4) and the signalised crossings have cycle provision to allow the safe crossing of cyclists. Failing to provide adequate provision for cyclists could increase the risk of a cyclist colliding with a pedestrian when using the pedestrian facilities or with a vehicle due to the cyclist being forced onto the carriageway.

Photo 4 – Existing combined facility alongside the A449

RECOMMENDATION

Provide adequate facilities for cyclists alongside the A449 and provide safe facilities for cyclists to cross over the A449.

PROBLEM I

Location : GA 103 – Central islands on Gravelly Way and its side roads

Summary: Proposed footway/cycleway central island does not appear wide enough to accommodate cyclists

Detail: There is a proposed combined footway and cycleway along the eastern verge of the A449. Where these facilities cross over Gravelly Way a central island has been provided to allow pedestrians or cyclists to wait in the centre of the junction for a safe gap in traffic. However, the central island does not appear to be of sufficient width to allow a cyclist to safely wait in them without there being a risk of collision with passing vehicles.

RECOMMENDATION

Ensure the central island is sufficient width to allow a cyclist to wait whilst being fully protected by the refuge.

PROBLEM J

Location : GA 103 – Proposed A449/Gravelly Way roundabout

Summary: Proposed removal of controlled crossing over A449 and Gravelly Way could increase risk of collisions between pedestrians/cyclists and vehicles.

Detail: The existing layout of the A449/Gravelly Way junction includes controlled crossing facilities over the A449 and Gravelly Way (see Photo 5). The proposed roundabout layout removes the controlled crossing facilities and provides uncontrolled crossing facilities for cyclists and pedestrians over Gravelly Way and for pedestrians only over the A449. The risk of a pedestrian/cyclist crossing into the path of an approaching vehicle is therefore increased. Also, once the West Midlands Rail Freight Interchange is completed, traffic flows are likely to increase therefore reducing the potential gaps in traffic to allow pedestrians and cyclists to safely cross A449/Gravelly way. Should a collision occur between a cyclist or pedestrian and a vehicle, the severity of any injuries suffered is likely to be high.

Photo 5 – Existing controlled pedestrian/cycle facility over Gravelly Way

RECOMMENDATION

Ensure adequate pedestrian and cyclist crossing facilities are provided on the A449 and Gravelly Way taking into account the likely increases to traffic flows once the West Midlands Rail Freight Interchange is completed.

3.3 ROAD MARKINGS

PROBLEM K

Location : GA 107 – Proposed new roundabout on the A5.

Summary: Lack of road markings on the entries and/or exit arms may result in side swipe type collisions.

Detail: The proposed new A5 roundabout is to have three arms, each of which is to have two entry arms and one exit arm. None of the entry lanes have directional arrow or destination markings proposed. Therefore drivers on the A5 wishing to continue straight-on at the roundabout, could do so in either lane 1 or lane 2. With only 1 exit lane this may result in side swipe collisions as both vehicles attempt to utilise the same carriageway space.

RECOMMENDATION

Provide directional arrows on the roundabout entries and ‘tuck-in’ arrows (where required) at the exits.

3.4 SIGNING

PROBLEM L

Location : GA 107 – Proposed new roundabout on the A449.

Summary: Preventing vehicle access to Crateford Lane from the proposed roundabout may lead to driver hesitation and confusion.

Detail: As part of the proposed improvement works involving the roundabout construction, the ability to turn into Crateford Lane from this junction is to be prevented. Crateford Lane is to be made a one-way carriageway for vehicles to enter the roundabout only. Crateford Lane is currently two way. If drivers are not made aware of the change in access to Crateford Lane, it may result in confusion/hesitation on the proposed roundabout resulting in late lane change manoeuvres and side swipe/shunt type collisions.

RECOMMENDATION

Ensure adequate signage is provided to inform drivers that access will not be possible into Crateford Lane from the A449 and that alternative routes are signed.

End of list of Problems identified and Recommendations offered in this Stage 1 Road Safety Audit

4 AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with HD 19/15 (as amended).

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Signed [redacted]
Date: 20/09/18

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Signed: [redacted]
Date: 20/09/18

Appendix A

DOCUMENT LIST

DOCUMENT LIST

Drawings:

Collision Data

WSP-70001979-GA-101RevA	General Arrangement Plan
WSP-70001979-GA-102RevA	General Arrangement Plan
WSP-70001979-GA-103RevA	General Arrangement Plan
WSP-70001979-GA-105RevA	General Arrangement Plan
WSP-70001979-GA-106RevB	General Arrangement Plan
WSP-70001979-GA-107RevB	General Arrangement Plan
WSP-70001979-GA-100RevH	General Arrangement Key Plan
WSP-70001979-5k-062RevB	New Speed Limit Plan
WSP-70001979-SK-068RevC	Highway Classification plan
4049-100Rev3	Key Plan Illustrative Masterplan
C14877RevC3	A449 Signalised Junction Works : GA

Also provided County Council proposals for info:

WSP-70001979-GA-108	General Arrangement Plan
WSP-70001979-GA-109	General Arrangement Plan
WSP-70001979-GA-110	General Arrangement Plan
WSP-70001979-GA-111	General Arrangement Plan

Documents:

Technical Note 21 – Design review of proposed amendments to the Trunk Road network
Review of DMRB Standards for Roundabouts on the A5 and A449 Trunk Roads
Walking, Cycling and Horse riding Assessment Report
180525 HD19/15 RSA Brief 1 Rev E (HE) FINAL - Highways England approved RSA Brief
Traffic flow data
Collision data (3 years 01/07/2011 – 30/06/2016)
Non-motorised user data
Highway/junction capacity assessment results and queue length predictions

Departures from Standards:

9 departures have been identified. These relate to:

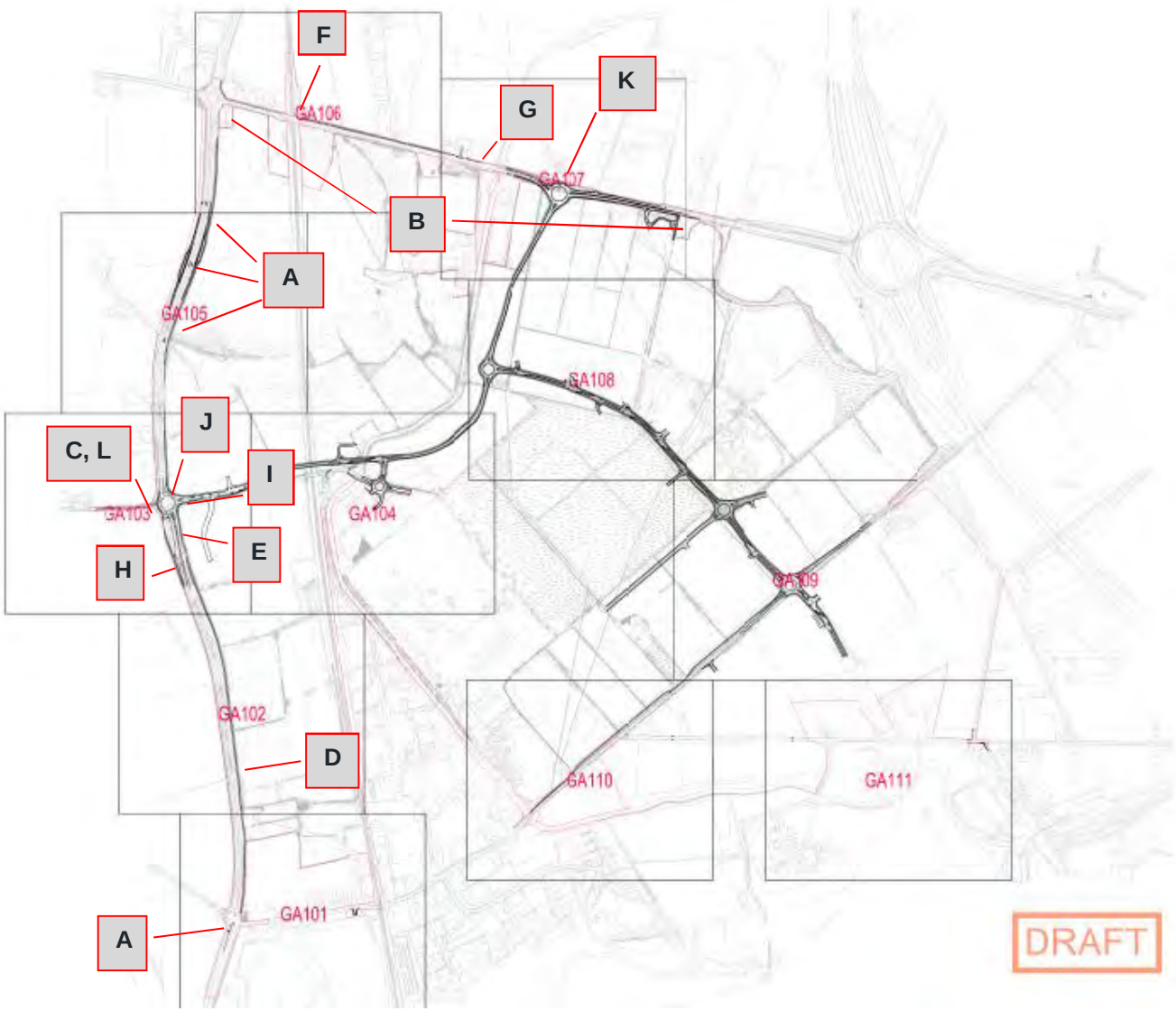
- Stopping site distance to Marina access.
- Stopping site distance to a single residential access on the A5
- Visibility to the right from Marina access
- Visibility to the right from the residential access on the A5
- Distance from adjacent junction of proposed lay-bys
- Distance from adjacent junction of proposed bus lay-bys

- A further potential departure is also proposed at the A5 roundabout. This is in relation to exit visibility from the roundabout to Harrisons Lane that is located to the east.

The audit team have considered these departures during the road safety audit process.

Appendix B

PROBLEM LOCATION PLAN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