

OBJ/36/W10/1

The Proposed Network Rail (Suffolk
Level Crossing Reduction) Order
Department for Transport Reference:
TWA/17/APP/04

**Transport Proof of Evidence
of John Russell**

OBJ/36/W10/1

for

The Ramblers' Association

Document Control Sheet

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The Proposed Network Rail (Suffolk Level Crossing Reduction) Order TWA/17/APP/04

OBJ/36/W10/1 The Ramblers' Association

This document has been issued and amended as follows:

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1.0 Introduction

Qualifications and Experience

- 1.1 My name is John Norman Russell. I am a Chartered Transport Planner, being a Chartered Member of the Institute of Logistics and Transport (CMILT) and a Member of the Institution of Highways and Transportation (MIHT). I have an Honours Degree in Civil Engineering. I have worked in the field of transport planning and highway design for 25 years.
- 1.2 I am a Technical Director of Motion Consulting based in Guildford, Surrey which specialises in transport planning, traffic engineering and highway design.

Representations

- 1.3 I advise the Ramblers' Association on matters of highway design and safety with respect to the Proposed Network Rail (Suffolk Level Crossing Reduction) Order (hereafter referred to as "the Order") which seeks to close a number of level crossings on footpaths within Suffolk and replace them with alternative pedestrian routes. The Order has been applied for by Network Rail (NR).
- 1.4 I am familiar with the footpaths that I consider within my evidence having visited each of them and walked both the existing route and the associated proposed alternative route as far as physically safe and possible to do so. I visited the sites as follows:
- ▶ Friday 1st December 2017 between the hours of 10:00 and 16:00; and
 - ▶ Monday 8th January 2017 between the hours of 09:00 and 16:00.
- 1.5 Weather conditions were cold with showery outbreaks during both visits. Both visits were during daylight hours.

Scope of Evidence

- 1.6 My instructions received from the Ramblers' Association are to:
- ▶ undertake an audit of the proposed closures and associated alternative pedestrian routes from a highway design and safety perspective;
 - ▶ undertake an assessment of the alternative pedestrian routes from a highway design and safety perspective; and
 - ▶ provide my advice regarding the suitability of each alternative pedestrian route assessed from a highway design and safety perspective.
- 1.7 My evidence neither objects to nor supports the Order in principle. Instead it considers each closure individually with my conclusions advising, in terms of highway design and safety, whether an individual alternative pedestrian route is:
- ▶ Acceptable; or
 - ▶ Acceptable subject to modifications and / or long term safeguards; or
 - ▶ Unacceptable and an objection should be made to the closure of the associated level crossing.
- 1.8 My evidence solely considers the suitability of alternative pedestrian routes from a highway design and safety perspective. There are other factors which affect the suitability of pedestrian routes including, but not limited to, distance, amenity, fear and intimidation (arising from proximity of traffic and in particular its speed and composition), the number of turns pedestrians are required to make to re-join the footpath and road crossing delays. These matters are dealt with in evidence presented by others.

- 1.9 My evidence does not make reference to the legal status of Public Rights of Way (PROWs) or any other matter relating to law. This is outside my scope of expertise.
- 1.10 In presenting my evidence to the inquiry, I do so in the knowledge that my duty, as an expert in traffic and transport engineering, is to give a full and fair view of the Rambler's objection to the application to the best of my professional knowledge and belief. With that duty in mind, I am satisfied that the Rambler's objection is properly made for the reasons that I set out in this proof of evidence.

General Comments

Use of highway verges

- 1.11 Several of the closures result in diversions which utilise highway verge to prevent pedestrians having to walk in the carriageway. I have assessed the safety of the diversion on the basis of the verges being in place. However I make the following comments in this respect:
- ▶ I have been unable to find evidence submitted by Network Rail (NR) that all the verges utilised in the diversions are part of the part of the highway and maintainable at public expense highway. It is not unreasonable to assume that grass verge between the edge of the carriageway and a field boundary is "highway verge". However, there are examples where this is not the case. I provide a copy of a highway boundary plan as **Appendix OBJ/036/W10/2-1** to illustrate this. I have circled an area on the plan where it can be seen that the highway boundary (shaded pink) does not meet the fence line of the adjacent land. So what appears on site to be a single width of highway verge is in fact only partly highway with the remainder not part of the highway and in 3rd party ownership. I would recommend that the Inspector seeks evidence from NR to confirm that all diversions purporting to utilise highway land are in fact on highway land and not 3rd party land adjacent to the highway;
 - ▶ NR does not own or control highway verge. I have been unable to find evidence submitted by NR explaining how NR intends to secure the retention of highway verges utilised in diversion routes as verge for use by pedestrians. The highway authority is able to undertake works within land which is maintainable at public expense including partially or wholly removing grass verge to widen the carriageway. The loss of grass verge to metalled carriageway would require diverted pedestrians to walk in the carriageway with general traffic which increases the risk of collision between pedestrians and vehicles. So far as I am aware there will be no official record maintained that sections of highway verge have been utilised to enable the diversion of a footpath. This lack of record means that in the future, decision makers are unlikely to be aware that a section of footway forms part of a diverted footpath that would otherwise not have been permitted to have been diverted had the verge not been available to walk in. There is therefore the risk that sections of verge forming part of a diverted footpath route will be removed for use as carriageway. I would recommend that the Inspector seeks evidence from NR concerning how they intend to secure the retention of grass verges in the long term which are utilised for diverted routes, including any correspondence with the relevant highway authority in this respect; and
 - ▶ NR does not maintain highway verges. I have been unable to find evidence submitted by NR explaining how they intend to ensure that grass verges utilised for diverted routes are kept maintained and fit for use. I would recommend that the Inspector seeks evidence from NR concerning how they intend to ensure maintenance of grass verges in the long term which are utilised for diverted routes, including any correspondence with the relevant highway authority in this respect.

Signage

- 1.12 For routes which divert pedestrians along roads it is critical that the diversions are adequately signed so that pedestrians spend as little time as necessary walking with live traffic. In the absence of clear signage there is a risk that pedestrians will continue walking along a road rather than following the diversion and thereby increase their risk of accident. I have been unable to find evidence submitted by NR explaining how the diversion routes will be signed. I would recommend that the Inspector seeks evidence from NR concerning how they intend to sign diversion routes and ensure the long term maintenance of the signs.

Structure of Evidence

- 1.13 My evidence is structured in the following manner:
- ▶ In Section 2 I provide an overview of design guidance and best practice of relevance to my evidence.
 - ▶ In Section 3 I will make general comment regarding the suitability of NR's Stage 1 Road Safety Audit (RSA1) carried out on the alternative pedestrian routes.
 - ▶ In Section 4 I present my audit of, assessment of and conclusions regarding each of the proposed closures.
 - ▶ In Section 5 I summarise my evidence and set out my conclusions for each of the proposed closures considered.

2.0 Design Guidance

Rural road safety

- 2.1 The 2010 *Rural Road Environment Policy Paper* produced by the Royal Society for the Prevention of Accidents (RoSPA) states that:

"Around one third of pedestrian fatalities occur on rural roads and the other two thirds on urban. Pedestrian injuries in rural areas are more likely to be fatal however"

- 2.2 A more recent factsheet published by RoSPA (February 2017) reiterates the potential danger of pedestrians walking on rural roads:

"In 2015, 116 pedestrians were killed on rural roads, 685 were seriously injured and 2,043 were slightly injured."

Rural roads are narrow and often have no pavement or crossing facilities. Child pedestrian casualties in rural areas are more likely to occur when children are walking along the road rather than crossing it. Only 26% of casualties occur within 20 metres of a junction. There are nearly twice as many child pedestrians hurt when walking with their back to traffic than walking facing on-coming traffic. By walking in the direction of oncoming traffic (as recommended by the Highway Code) a pedestrian is more likely to see the danger and take avoiding action by moving out of the way."

- 2.3 In comparison, data published by the Office of Rail and Road (*2015-16 Annual Statistical Release, 22 September 2016*) shows that for the similar period (2015-16) there was a total of three pedestrian fatalities at level crossings. This is down from 11 during the period 2014-15.

- 2.4 These sets of statistics show that the interaction between pedestrians and motorised transport, either road or rail, results in a risk of serious injury or fatality for pedestrians. The significantly higher number of pedestrians killed and seriously injured on rural roads compared to at rail level crossings will be in part due to the higher number of pedestrians walking on rural roads and the longer distances walked compared to crossing railway lines.

- 2.5 It suggests that, at current levels of use, pedestrian crossings of railway lines do not in themselves represent a higher risk of accident to pedestrians than pedestrians walking in rural roads. Indeed the 2017 RoSPA factsheet suggests pedestrians are more at risk of accident when walking along rather than crossing rural roads. This can be partly explained by the fact that pedestrians stop and look when crossing a road and therefore have a greater awareness of their surroundings.

Influence of traffic volume

- 2.6 The biggest danger to the safety of pedestrians walking on a country road is road traffic. The risk of an accident occurring is therefore linked to the likelihood of a pedestrian / vehicle interaction and therefore to the volume of traffic using a specific rural road.

- 2.7 The speed that a pedestrian walks at is dependent on a number of factors including, but not limited to, surface material, terrain, age and physical ability. Seeking to arrive at a consistently applied average pedestrian walking speed, an average speed of 1.2m/s is applied in the design of highways in England to determine the length of time a pedestrian would typically take to cross a road. The speed of 1.2m/s equates to 4.3kph (2.7mph) and is based on the pedestrian walking on a fairly level, hard surface (for example tarmac or asphalt). I have provided an extract of the highway design guidance at [Appendix OBJ/036/W10/2-2](#). I would expect the average speed to reduce if the surface is soft (for example grass verge) and also if the terrain slopes upwards.

- 2.8 Research has been undertaken in recent years by the organisation “Living Streets” into the appropriateness of this average speed. This research identified that there were ranges of pedestrian speeds between 0.54m/s and 1.31m/s. These equate to speeds of 1.9kph (1.2mph) and 4.7kph (2.9mph) respectively. The executive summary of the research is provided at [Appendix OBJ/036/W10/2-3](#).
- 2.9 Given the range of possible pedestrian walking speeds, for the purposes of my evidence I have applied the average 1.2m/s walking speed advised in highway design guidance. For consistency I have applied this speed to all distances irrespective of surfacing or gradient.
- 2.10 Based on an average walking speed of 1.2m/s, a pedestrian would take 5-6 minutes to complete a 400m diversion along a road, 11 minutes for an 800m diversion and so on. If there are no vehicles using the road then the risk of a pedestrian / vehicle interaction is removed. However once vehicles start to use the road, the risk of a pedestrian / vehicle interaction begins to increase.
- 2.11 For example if a road has a daily volume of 1,000 vehicles, it might be expected during the busiest hour of the day that approximately 1-2 vehicles would pass each minute during that hour. During the time it takes a pedestrian to walk 400m along that road, the pedestrian could expect to be passed by 9 vehicles.
- 2.12 In this context, it is extremely important for the designer to understand how much traffic uses a specific road along which pedestrians are to be diverted. For example, subject to other factors such as carriageway width, availability and quality of verges etc, it could be argued that the risk of a collision between pedestrians and vehicles is low on a road carrying 1,000 vehicles per day and therefore acceptable. In contrast, a road carrying over 10,000 vehicles per day would result in a significantly higher risk of collision between pedestrians and vehicles and therefore segregation of these two road user groups would be required to reduce the risk.

Influence of speed

- 2.13 Speed has for a long time been identified as a causation factor in the number of accidents. It is also a critical factor in the severity of injury incurred in a pedestrian – vehicle accident.
- 2.14 Research shows that the risk of a pedestrian who is hit by a car being killed increases slowly until impact speeds of around 30 mph. Above this speed, the risk increases rapidly, so that a pedestrian who is hit by a car travelling at between 30 mph and 40 mph is between 3.5 and 5.5 times more likely to be killed than if hit by a car travelling at below 30 mph (*RoSPA, Inappropriate Speed Factsheet, February 2017*).
- 2.15 Vehicle speed is influenced by a number of factors including road width, road curvature, forward visibility, statutory speed limits and traffic volumes. In particular research has shown that vehicle speed tends to increase as traffic volumes decrease.
- 2.16 In the case of a rural road this introduces a paradox for pedestrians walking in the carriageway. Whilst on a busy rural road there is a higher risk of a collision with a vehicle than on a quieter rural road, a collision on a quieter rural road is more like to result in a killed or seriously injured (KSI) collision.

Separation distance

- 2.17 The separation distance is the distance between the edge of where vehicles are travelling and the path along which pedestrians are walking. There is no definitive guidance on what is an acceptable distance. Notwithstanding this, it is noted that a distance of 450-500mm between the edge of carriageway and street furniture is usually allowed for in highway design to avoid vehicle wing mirrors / other protrusions from hitting street furniture.
- 2.18 Guidance in Manual for Streets recommends a minimum width of 0.75m to cater for a single pedestrian (relevant extract provided at [Appendix OBJ/036/W10/2-4](#)).

- 2.19 Guidance on the safety of pedestrians working in the carriageway is provided in Chapter 8 of the Traffic Signs Manual (TSM). This requires, where there is an enforced speed limit of 50mph, a minimum distance of 1.2m between the space in which people are walking / working and the live carriageway for safety purposes. Where this is not achievable, TSM Chapter 8 recommends that speed limits should be lowered to 40mph or 30 mph and enforced. The absolute minimum separation is stated as 0.5m, which corresponds with the standard highway design approach I refer to above.
- 2.20 This means that where a verge or footway is less than 500mm, a vehicle on the carriageway would not be able to pass a pedestrian who was walking along the verge without the risk that the pedestrian would be hit by part of the vehicle.
- 2.21 Turning to pedestrians walking in the carriageway itself, highway design guidance recommends a minimum carriageway width of 4.8m where vehicles and pedestrians share the same surface and the vehicles are almost exclusively cars. However this is based on the assumption that vehicle speeds are low (between 20mph and 30mph) and the volumes are low. Higher speeds would require wider carriageways to cater for two-way vehicular traffic and pedestrian movements. For example a bus and / or lorry requires 3m width (6m for two-way traffic) and a van / horsebox requires 2.4m (4.8m for two-way traffic).

3.0 Network Rail's Road Safety Audit

General

- 3.1 I refer in Section 2 of my evidence to the importance of understanding the volume of traffic using a route and its speed to understand the danger a pedestrian is placed in if required to walk in the carriageway. In this context I note that the Road Safety Audit (RSA) submitted by NR in support of the diversion routes (document **NR16**) contains no data relating to traffic volume or traffic speed – other than noting what the speed limit of a road is. The road safety audit brief for the RSA states that:

"No traffic data is available at the moment, however traffic surveys and level crossing census surveys are being commissioned as part of the project and the data will be available at Stage 2."

- 3.2 However I note that the Inspector is being asked to make a decision on the basis of the Stage 1 RSA and not the Stage 2 RSA. In this respect I consider the safety audit work to be inadequate for the purposes of this Inquiry because the diversions will already have been allowed notwithstanding that the traffic surveys may lead the safety auditor at Stage 2 RSA to conclude that the that diversion proposed and being audited is not suitable on road safety grounds.
- 3.3 In the alternative, should the Inspector consider that the RSA1 is adequate for the purposes of the Order, I would urge the Inspector to recommend that all recommendations arising from the Stage 2 RSA should be binding on NR to implement. Furthermore that the Local Highway Authority should be the project sponsor for and commission the Stage 2 RSAs (at the cost of NR) rather than NR, as the Local Highway Authority will be the statutory organisation responsible for safety on those parts of diversions on public highway once implemented.

Compliance with Guidance

Relevant road safety guidance

- 3.4 The Highways England (formerly Highways Agency) document HD 19/15, 'Road Safety Audit' (Volume 5, Section 2, Part 2 of the Design Manual for Roads and Bridges or DMRB) is mandatory on the motorway and trunk roads network. Elsewhere, it has been adopted as the relevant guidance for Road Safety Audits by many local highway authorities although some, including Transport for London, have developed their own independent standards. Nevertheless, HD 19/15 represents widely accepted good practice within the field and the RSA1 submitted by NR claims to be prepared in accordance with HD 19/15.

Completeness of data

- 3.5 Paragraphs 2.87 to 2.90 of HD 19/15 address the Audit Brief, requiring the Project Sponsor (a person from the highway authority) to approve the Audit Brief and issue it to the Audit Team. The Brief must include sufficient information to enable an efficient and effective RSA to be undertaken.
- 3.6 Paragraph 2.89 provides a list of items that should be contained within a RSA Brief, including (among a number of other things) "*General scheme details...including design speeds, speed limits, traffic flows, queue lengths, NMU flows and desire lines...*" and, for on-line schemes, "*the previous 36 months personal injury collision data in the form of 'stick plots' and interpreted listings*". Stick plots are a systematic way of analysing road collision data primarily with a view to identifying common causation factors. An example of a stick plot is shown below:

Accident Reference	1	2	3	4	5	6	7	8	9
Day	0111CW11515	0111CW12276	0113EK40273	0114EK40026	0114EK40419	0114EK40848	0114EK41003	0114EK41087	0115EK40111
Date	SUNDAY	MONDAY	SATURDAY	THURSDAY	MONDAY	SATURDAY	MONDAY	TUESDAY	THURSDAY
Time	14/08/2011	17/10/2011	11/05/2013	23/01/2014	19/05/2014	04/10/2014	01/12/2014	16/12/2014	12/02/2015
Light Conditions	09:20	09:30	23:00	09:15	10:20	14:45	15:46	12:30	11:50
Road Surface	DARK	LIGHT	DARK	LIGHT	LIGHT	LIGHT	DARK	LIGHT	LIGHT
Severity	DRY	DRY	WET	DRY	DRY	WET	DRY	DRY	DRY
Conflict	SLIGHT	SERIOUS	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
Pedestrian Location									
Contributory Factors	405 V003 A 602 V003 A	410 V001 A	408 V001 A 410 V001 A	403 V001 B 509 V001 A 405 V001 A	403 V002 A 404 V002 A 602 V002 A	405 V002 A 406 V002 A 308 V002 A 408 V001 A	602 U005 A 605 U005 A	X 402 V001 A 602 V001 A 601 V001 B 304 V001 B	406 V002 A 403 V002 A 602 V002 A

Example of a stick plot for use in road collision analysis

- 3.7 These requirements do not vary according to Audit Stage.
- 3.8 It is acknowledged that some non-trunk road RSAs do not comply fully with the HD 19/15 in this respect, which may be reasonable where, for example, the works to be audited are minor in nature. In this case, given the nature of the proposals and the road user groups most likely to be affected, I consider that traffic flows, NMU flows, collision data and road traffic speeds would have assisted the Stage 1 Audit and should therefore have been included within the Brief.
- 3.9 Paragraph 2.30 of HD 19/15 is relevant to this matter. It states that; *"it is essential that Stage 1 Road Safety Audits consider any road safety issues which may have a bearing on land take, licence or easement before the draft Orders are published or planning consent is applied for"*. I do not consider that this requirement has been satisfied.
- 3.10 I note that road collision data, traffic flows and NMU flows will be considered at a later date in the Stage 2 Road Safety Audit. However the Secretary of State is being asked to approve the closure of crossings and creation of alternative pedestrian routes solely on the basis of the RSA1, which does not contain this critical data.
- 3.11 In this context I would strongly recommend the Secretary of State to either reject the application or else defer a decision until road collision data, traffic flows, NMU flows and road traffic speeds have been collected, analysed and included in the RSA1 and interested parties had the opportunity to scrutinise the revised RSA1.

Road Safety Audit Process

- 3.12 I have already raised in correspondence with the Inquiry my concerns regarding the road safety audit process followed by NR with regards to the proposed closures. In particular I have raised concerns regarding the separation of the Road Safety Audit team and the design team noting that Part 2, HD 19/03 Road Safety Audit paragraph 1.6 states in full:

"It is recommended that Design Teams include staff with Road Safety Engineering experience to ensure that safety issues are considered during design. However, road safety engineers within the Design Team will not be permitted to be part of the Road Safety Audit Teams due to their lack of independence from the scheme design as their views may be influenced by familiarity and a natural pride of authorship. The involvement of a Road Safety Engineer within the Design Team should not be considered to be a satisfactory or acceptable substitute for undertaking a Road Safety Audit."

- 3.13 The above document also defines in paragraph 1.21

"Audit Team: A team that works together on all aspects of the audit, independent of the Design Team and approved for a particular audit by the Project Sponsor on behalf of the Overseeing Organisation. The team shall comprise a minimum of two persons with appropriate levels of training, skills and experience in Road Safety Engineering work and/or Accident Investigation. The members of the Audit Team may be drawn from within the Design Organisation or from another body".

- 3.14 My recommendation to the Inspector is that the RSA1 reports should not be relied on as they have been checked and approved by people who are members of the design team and therefore not an independent road safety audit. A copy of my correspondence setting out my concerns is provided at **Appendix OBJ/036/W10/2-5**.

4.0 Audit and Assessment of Proposed Closures

Preamble

- 4.1 This section of my evidence presents the audit and assessment of each of the proposed alternative footpath routes along with my conclusions regarding the suitability of each.
- 4.2 For each of the alternative routes I provide a description of the existing route, a description of the proposed diversion, my assessment of the diversion route and my conclusions.

Screening

- 4.3 My instructions were to consider all proposed railway crossing closures that were the subject of the Stage 1 RSA (document **NR16**) and / or included in the NR Statement of Case (document **NR26**).
- 4.4 Many of the closures do not include diversion routes on to highway. I therefore undertook a screening assessment to determine which closures had the potential to result in adverse highway safety impacts.
- 4.5 I initially reviewed all closures contained within the Stage 1 RSA (document **NR16**). This review identified the following closures that I considered had the potential to result in adverse highway safety impacts:
 - ▶ S01 - Sea Wall
 - ▶ S02 - Brantham High Bridge (Blue Route)
 - ▶ S05 - Pannington Hall (Broomhaughton)
 - ▶ S06 – Daines Mayhew
 - ▶ S14 – Steggals
 - ▶ S19 - Rectory Road
 - ▶ S20 – Beecroft
 - ▶ S23 – Higham / S24 - Higham Ground Frame
 - ▶ S27 – Barrels / S28 - Grove Farm
 - ▶ S31 - Mutton Hall
 - ▶ S38 – Lox Farm Fps
 - ▶ S46 – Blaxhall
 - ▶ S51 – Fordly Hall
 - ▶ S53 – Mells
 - ▶ S69 – Bacton
- 4.6 I cross-referenced these with the closures contained within NR’s Statement of Case (document **NR26**) and identified that the following crossings that were considered in the Stage 1 RSA had been removed from the Order:
 - ▶ S06 – Daines Mayhew
 - ▶ S38 – Lox Farm Fps
 - ▶ S46 – Blaxhall

- ▶ S51 – Fordly Hall
 - ▶ S53 – Mells
- 4.7 In addition to these, I understand that the following closures are no longer the subject of the Order:
- ▶ S05 – Pannington Hall
 - ▶ S14 – Steggals;
 - ▶ S19 – Rectory Road;
 - ▶ S20 – Beecroft; and
 - ▶ S26 – Great Barton;
 - ▶ S32 – Haughley Green.
 - ▶ S33 – Westerfield;
- 4.8 I also understand that the blue route for S02 - Brantham High Bridge has been removed from the Order.
- 4.9 The result of this screening assessment was that I considered that the following closures that I considered had the potential to result in adverse highway safety impacts:
- ▶ S23 – Higham / S24 - Higham Ground Frame.
 - ▶ S27 – Barrels / S28 - Grove Farm.
 - ▶ S31 - Mutton Hall.
 - ▶ S69 – Bacton
- 4.10 My evidence therefore provides an assessment of the six proposed closures listed above. The routes of the proposed diversions are taken as those shown on the plans contained within the *Network Rail (Suffolk level crossing reduction) order, Statement of Case for the Applicant, Network Rail*. Copies of these are provided at my [Appendix OBJ/036/W10/2-6](#).

Sites S23 – Higham

Existing route

- 4.11 The existing pedestrian route connects Higham Road with the A14 westbound on-slip. From the point where the route reaches the one-way westbound on-slip, pedestrians are able to cross the on-slip to reach a wooded area of land between the on-slip and the mainline of the A14. Pedestrians can make their way through the woodland to reach Coalpit Lane.

Proposed diversion

- 4.12 For people approaching from the south, the proposed diversion would follow Higham Road past the war memorial and northwards to cross the railway line at the existing road bridge on Higham Road. Higham Road at this point is a two-way single, rural carriageway between 4.5m and 5.0m wide. It is unlit and subject to the national speed limit which is 60mph for this type of road. Higham Road is a bus route with bus stops for the 312 Newmarket – Bury St Edmunds service located at the war memorial.
- 4.13 The diversion then continues northwards to the junction with the A14 westbound on-slip / Higham Road. The A14 westbound on-slip / Higham Road is a two-way single, rural carriageway approximately 7.0m wide. It is unlit and subject to the national speed limit which is 60mph for this type of road. To the west of its junction with Higham Road it becomes a one-way (westbound) two-lane on-slip serving the A14 only.

- 4.14 At this junction a new footway is proposed on the southern side of the A14 westbound on-slip / Higham Road leading pedestrians eastwards to the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane. Coalpit Lane is a two-way single, rural carriageway between 5.5m and 6.5m wide. It is unlit and subject to the national speed limit which is 60mph for this type of road. Pedestrians are then required to cross the A14 westbound on-slip / Higham Road to return to the route they would have previously taken.
- 4.15 For people approaching from the north, the proposed diversion follows the reverse.

Assessment

- 4.16 The proposed footway along the southern section of the A14 westbound on-slip / Higham Road is welcomed and will provide a safer environment for pedestrians to walk in than were they required to walk in the carriageway or on a narrow grass verge.
- 4.17 However there are two areas of safety concern regarding the proposed diversion route which comprise:
- ▶ Carriageway walking on Higham Road; and
 - ▶ Crossing the A14 westbound on-slip / Higham Road.
- 4.18 Considering these in turn, the diversion route proposes that pedestrians follow Higham Road between the existing footway (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road. The proposal is that pedestrians walk in the verge along this section of Higham Road and NR drawing number MMD-367516-S23-GEN-005 (provided in document **NR26**) shows the route as "Verge Available (No Footway)".
- 4.19 NR's claim that there is a verge available is incorrect. During my site visit I noted the following:
- ▶ There is no continuous highway verge on this stretch of Higham Road.
 - ▶ There are sections that have no highway verge available for pedestrian use.
 - ▶ The highway verge that is available is narrow in some places.
 - ▶ The usable highway verge is not along the same side of the road. This means that pedestrians will need to cross the road on more than one occasion to continue using a highway verge.
 - ▶ The distance between the railway bridge parapet walls is approximately 6.0m. The verges crossing the railway bridge are less than 0.5m wide and sloped making them unusable for pedestrians other than to jump onto in an emergency.
- 4.20 As a consequence pedestrians using this diversion route as currently proposed will, contrary to NR's claim, need to walk part of this section of the diversion route within the carriageway including the Higham Road road crossing of the railway line.
- 4.21 Turning to the crossing of the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane, currently pedestrians using the existing crossing will cross the A14 westbound on-slip to the west of its junction with Higham Road at a point where all the traffic is travelling in one direction only.
- 4.22 With the proposed diversion route, pedestrians will be led to cross the A14 westbound on-slip / Higham Road at a location where traffic can be approaching them in four directions comprising:
- ▶ eastbound on the A14 westbound on-slip / Higham Road.
 - ▶ Straight ahead movement from the A14 westbound off-slip to A14 westbound on-slip / Higham Road (to access Higham Road).
 - ▶ Right turn from Coalpit Lane into the A14 westbound on-slip / Higham Road.
 - ▶ Left turn from Coalpit Lane into the A14 westbound on-slip / Higham Road.

- 4.23 All the above roads are subject to the national speed limit with traffic allowed to travel up to 60mph. No mitigation is proposed to facilitate safe crossing of the A14 westbound on-slip / Higham Road at the location proposed by NR. Given that the crossing requires pedestrians to be aware of traffic travelling in four different directions at a busy highway interchange compared to the existing situation of traffic approaching from a single direction, I would expect the risk of pedestrian – vehicle collisions to increase to the detriment of pedestrian safety.

Recommendations

- 4.24 Due to the lack of continuous verge on the section of the proposed diversion route on Higham Road (contrary to NR's claim) pedestrians will need to walk part of this section of the diversion route within the carriageway including the Higham Road crossing of the railway line. This would be detrimental to pedestrian safety.
- 4.25 Similarly leading pedestrians to cross at a point in the highway network at which they need to be aware of traffic turning at them from four directions rather than a single direction would be detrimental to pedestrian safety in the absence of mitigation.
- 4.26 In this context I recommend an OBJECTION to this level crossing closure.
- 4.27 Notwithstanding this, this crossing closure could be made acceptable in terms of safety were NR to include:
- ▶ A continuous off-carriageway pedestrian route between the existing footway between Higham Road and the A14 westbound on-slip (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road; and
 - ▶ Measures to improve safety for pedestrians crossing the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane.

Site S24 - Higham Ground Frame

Existing route

- 4.28 The existing pedestrian route connects Footpath 006 Barrow to the A14 westbound off-slip. From the point where the route reaches the one-way westbound off-slip, pedestrians are able either to continue westwards along the southern side of the A14 off-slip or else to cross the off-slip and continue westwards along the northern side of the A14 off-slip to make their way to Coalpit Lane.
- 4.29 In both cases there are wide grassed verges which on the northern side of the A14 off-slip is combined with a section of tarmacked layby.

Proposed diversion

- 4.30 For people approaching from the south along Footpath 006 Barrow seeking to reach Footpath 003, Higham, the footpath is extinguished where it reaches the railway line. Pedestrians would be diverted westbound on a new footpath along the southern side of the railway line as far as Coalpit Lane. At this location a further new section of footpath leads pedestrians southwards in the field edge as far as Footpath 005 Higham.
- 4.31 The diversion route then follows Footpath 005 Higham as far as an unnamed road where it turns northwards to meet Higham Road at the war memorial. The unnamed road is a two-way single, rural carriageway road between 4.0m and 4.5m wide. It is unlit and subject to the national speed limit which is 60mph for this type of road.
- 4.32 At the war memorial the diversion route then follows the same diversion route as proposed for S23 between the war memorial and the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane.

- 4.33 For people approaching from the north, the proposed diversion follows the reverse.

Assessment

- 4.34 For people approaching from the south on Footpath 006 the diversion would take them to a point on Coalpit Lane just south of the railway line that is approximately 155m from the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane. To reach the same point following the proposed diversion, a pedestrian would be required to walk an additional 1.2km approximately: a total diversion route distance of approximately 1.355km as opposed to 0.155km following the direct route along Coalpit Lane.
- 4.35 In terms of time, the diversion route would take approximately 18.75 minutes to walk compared to 2.15 minutes for the direct route along Coalpit Lane: an additional 16.5 minutes approximately. In this context there is a high risk that pedestrians are more likely to walk along Coalpit Lane because looking solely on a map, the Coalpit Lane route is shorter and much more direct.
- 4.36 Pedestrians choosing the more direct Coalpit Lane route would be forced to walk in the road because for most of the route there is no suitable verge. There is also a bend with limited visibility. This would result in a high risk of collision between pedestrians and motorists. This danger is identified in the "Transport & Works Act Order (TWAo) Anglia Route GRIP 1 Review, Suffolk Stage 1 Road Safety Audit" (reference **NR16** paragraph 2.8.3) and acknowledged by the design team in the "Transport & Works Act Order (TWAo) Anglia Route GRIP 2, Suffolk Stage 1 Road Safety Audit Response Report" (reference **NR16** paragraph 2.15.3). GRIP refers to "Governance for Railway Investment Projects".
- 4.37 For those pedestrians who follow the proposed diversion route to Higham Road via Footpath 005 Higham, there are two remaining areas of safety concern regarding the proposed diversion route which are the same as I raise for Site S23 but repeat below.
- 4.38 The diversion route proposes that pedestrians follow Higham Road between the existing footway (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road. The proposal is that pedestrians walk in the verge along this section of Higham Road and NR drawing number MMD-367516-S23-GEN-005 marks the route as "Verge Available (No Footway)".
- 4.39 NR's claim that there is a verge available is incorrect. During my site visit I noted the following:
- ▶ There is no continuous highway verge on this stretch of Higham Road.
 - ▶ There are sections that have no highway verge available for pedestrian use.
 - ▶ The highway verge that is available is narrow in some places.
 - ▶ The usable highway verge is not along the same side of the road. This means that pedestrians will need to cross the road on more than one occasion to continue using a highway verge.
 - ▶ The distance between the railway bridge parapet walls is approximately 6.0m. The verges crossing the railway bridge are less than 0.5m wide and sloped making them unusable for pedestrians other than to jump onto in an emergency.
- 4.40 As a consequence pedestrians using this diversion route as currently proposed will, contrary to NR's claim, need to walk part of this section of the diversion route within the carriageway including the Higham Road road crossing of the railway line.

- 4.41 The diversion route requires pedestrians to cross the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane. Currently pedestrians using the existing crossing will cross the A14 westbound on-slip to the west of its junction with Higham Road at a point where all the traffic is travelling in one direction only.
- 4.42 With the proposed diversion route, pedestrians will be led to cross the A14 westbound on-slip / Higham Road at a location where traffic can be approaching them in four directions comprising:
- ▶ eastbound on the A14 westbound on-slip / Higham Road.
 - ▶ Straight ahead movement from the A14 westbound off-slip to A14 westbound on-slip / Higham Road (to access Higham Road).
 - ▶ Right turn from Coalpit Lane into the A14 westbound on-slip / Higham Road.
 - ▶ Left turn from Coalpit Lane into the A14 westbound on-slip / Higham Road.
- 4.43 All the above roads are subject to the national speed limit with traffic allowed to travel up to 60mph. No mitigation is proposed to facilitate safe crossing of the A14 westbound on-slip / Higham Road at the location proposed by NR. Given that the crossing requires pedestrians to be aware of traffic travelling in four different directions at a busy highway interchange compared to the existing situation of traffic approaching from a single direction, I would expect the risk of pedestrian – vehicle collisions to increase to the detriment of pedestrian safety.

Recommendations

- 4.44 The proposed diversion adds an unreasonable additional distance for pedestrians. As a consequence it is expected that many pedestrians will ignore the diversion route and follow the more direct route along Coalpit Lane. This would result in a high risk of collision between pedestrians and motorists.
- 4.45 For those pedestrians who follow the proposed diversion route, due to the lack of continuous verge on the section of the proposed diversion route on Higham Road (contrary to NR's claim) pedestrians will need to walk part of this section of the diversion route within the carriageway including the Higham Road crossing of the railway line. This would be detrimental to pedestrian safety.
- 4.46 Similarly leading pedestrians to cross at a point in the highway network at which they need to be aware of traffic turning at them from four direction rather than a single direction would be detrimental to pedestrian safety in the absence of mitigation.
- 4.47 In this context I recommend an OBJECTION to this level crossing closure.
- 4.48 Notwithstanding this, this crossing closure could be made acceptable in terms of road safety were NR to include:
- ▶ A suitable footway or footpath alongside Coalpit Lane between the railway bridge and the A14 to enable pedestrians to continue without walking within the carriageway.
 - ▶ A continuous off-carriageway pedestrian route between the existing footway between Higham Road and the A14 westbound on-slip (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road; and
 - ▶ Measures to improve safety for pedestrians crossing the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane.

Site S27 – Barrels & S28 – Grove Farm

- 4.49 Sites S27 and S28 are spatially close together. I have therefore considered the closure of these in combination.

Existing route

- 4.50 The existing route, Footpath 005, Thurston, connects Barrells Road adjacent to a property referred to as Woodlands located to the north of the railway line, with Birds Road adjacent to a property referred to as the Willows located to the south of the railway line.

Proposed diversion

- 4.51 The proposed diversion would route pedestrians south of railway to the west along Birds Road and then north along Barrells Road utilising the existing railway crossing on Barrells Road. Birds Road is a single carriageway road approximately 3.0-4.0m wide with grass verges along both sides for most of its length. It is a no through road that serves a very limited number of properties and as such effectively acts as the driveway to these properties rather than as a public highway. Barrells Road is of a similar standard to Birds Road and is a through road providing a local connecting road for the rural community.
- 4.52 The existing bridge over the railway line on Barrells Road is steeply humped with warning signs for motorists on both approaches. Forward visibility for pedestrians and motorists is poor as shown on photograph 3 below.



Photograph 3 – Barrells Road railway bridge looking northwards.

- 4.53 NR propose to undertake mitigation works at the Barrells Road railway crossing (these are detailed at 3.2.1.2 of document **NR12**). These comprise:
- ▶ Clearing the vegetation from the road across the bridge and replacing it with a “rural carriageway”. I do not know what NR means by “rural carriageway” as this is a term that it is not used in the Design Manual for Roads and Bridges (DMRB). I assume that NR means that the soft verges will be replaced by hard surfacing such as asphalt or tarmac.
 - ▶ Provide new white lining edge marking offset 0.45m from the west parapet and 1.0m from the east parapet to create a carriageway width of 3.0m. This layout will delineate a safe space for pedestrians across the bridge.
 - ▶ Remove 10m length of verge from the east and the west approaches to the bridge (north and south approaches) and extend carriageway to provide safe standing area for pedestrians. Existing road camber to be maintained to remove need for drainage measures.
 - ▶ Overgrown hedges to be cut back on approaches to the bridge.
- 4.54 The proposed diversion for pedestrians south of the railway would add a detour of approximately 1km.

- 4.55 For pedestrians heading east, the proposed diversion follows a new section of footpath provided to the south of and parallel to the railway line as far as an existing highway. Pedestrians are then required to walk in the carriageway to cross the railway line using the existing road bridge over the railway line. They then follow the highway walking in the carriageway until it reaches Footpath 011, Thurston. The railway bridge on this road is less humped than that on Barrells Road. Nonetheless, as shown on photograph 4 below, it is sufficiently humped to interfere with clear forward visibility between motorists and pedestrians.



Photograph 4 – Unnamed Road to east of S27 / S28 diversion looking southwards.

Assessment

- 4.56 From a highway perspective I am satisfied with most of the proposed diversion route in terms of design for pedestrians. The two proposed new sections of footpath are welcomed.
- 4.57 However I remain concerned regarding the use of the existing road bridges over the railway line due to the necessity for pedestrians to walk in the carriageway at these locations at which visibility between pedestrians and vehicles is restricted. This will result in a risk of collision between pedestrians and motorists.
- 4.58 Considering first the Barrells Road railway crossing, I welcome the mitigation measures proposed by NR. However I do not agree that they will be effective in creating a safe space for pedestrians crossing the bridge.
- 4.59 NR states (paragraph 3.2.1.2 of **NR12**) that the existing carriageway across the bridge is 2.87m. From this NR claims that the road only allows for single way use across the bridge (paragraph 3.2.1.1 of **NR12**). NR also notes that the width between the parapet walls of the bridge is 4.5m (0.45m plus 1.0m plus 3.05m as set out in paragraph 3.2.1.2 of **NR12**).
- 4.60 It is common practice in rural areas that on narrow roads, vehicles utilise adjacent grass verges to drive on in order to pass on-coming traffic. This can be seen on photograph 3 on which tyre marks in the grass verge are visible. The area of over-run is marked in red on the extract of photograph 3 shown below.



- 4.61 Design guidance set out in the Manual for Streets (relevant extracts provided at [Appendix OBJ/36/W10/2-7](#)) recommends a minimum carriageway width of 4.1m to allow two cars to pass. In this context the existing carriageway including the soft highway verges provides sufficient width for two-way car traffic.
- 4.62 My understanding of the NR proposal is that the grass verges would be removed and replaced by a hard material. This would increase the width of the “carriageway” to 4.5m which is wider than the 4.1m minimum recommended width for two-way traffic. NR also propose to delineate a safe space for pedestrians crossing the bridge by use of a white line. This is only a safe space if motorists comply with the intention of the white lines and take up a central position in the bridge and choose to operate one-way across the bridge. I consider it more likely that motorists will keep to the left in order to reduce the risk of colliding with on-coming cars. The use of a white line would not prevent motorists from doing this either by reason of imposing a legal sanction or physically.
- 4.63 I therefore consider that it is more likely that there will be two-way traffic over the bridge as a consequence of NR’s proposed mitigation than were no mitigation provided. In either case (mitigated or not mitigated) there is a risk of collision between pedestrians (who have been diverted from the existing public rights of way network) and motorists.
- 4.64 Turning to the crossing of the Unnamed Road to the east of the S27 / S28 diversion, whilst less humped than the railway bridge crossing of Barrells Road, I have similar concerns regarding restricted forward visibility leading to an increased risk of collision between pedestrians (who have been diverted from the existing public rights of way network) and motorists.

Recommendations

- 4.65 Due to the visibility restrictions at both the Barrells Road railway crossing and the railway crossing of the Unnamed Road to the east of the S27 / S28 diversion and the requirement for diverted pedestrians to walk in the carriageway at these locations and the associated risk of collision between these diverted pedestrians and motorists I recommend an OBJECTION to this level crossing closure as currently proposed.
- 4.66 Notwithstanding this, this crossing closure could be made acceptable in terms of road safety were NR to include:

- ▶ Physical separation of the proposed safe space on Barrells Road railway bridge for example through the inclusion of a kerb to the 1.0m wide safe space to the east of the bridge in order to create a footway that vehicles less likely to drive onto.
- ▶ Provision of advance signs on the Barrells Road railway bridge crossing warning motorists that it is single way traffic and that there are likely to be pedestrians in the road.
- ▶ Replication of the proposed mitigation for Barrells Road railway bridge with the modifications I recommend above) at the railway crossing of the Unnamed Road to the east of the S27 / S28 diversion.

Site S31 - Mutton Hall

Existing route

- 4.67 The existing level crossing connects Footpaths 020 Wetherden and 036 Wetherden on the northern side of the railway line to Footpath 035 Wetherden on the southern side of the railway line.

Proposed diversion

- 4.68 The proposed diversion would route pedestrians south of the railway on Footpath 035 Wetherden eastwards along a new section of footpath to reach Kates lane. Pedestrians are then routed northwards over the existing railway bridge on Kates Lane. This section of Kates Lane has no suitable highway verge to walk in requiring pedestrians to walk in the carriageway.
- 4.69 On reaching Footpath 020 Wetherden pedestrians are routed westwards along Footpath 020 Wetherden to continue their journey.
- 4.70 Kates Lane in the vicinity of the railway bridge is a single, rural carriageway with one lane in each direction and is approximately 5.0-5.5m wide. It is subject to the national speed limit (which is 60mph in this location) and unlit.
- 4.71 To the south of the railway bridge on Kates Lane there is good forward visibility for pedestrians and motorists. To the north of the railway bridge on Kates Lane the road bends to the northeast and as a consequence there is restricted visibility between a pedestrian walking in the carriageway at the railway bridge and traffic travelling southwards towards them.
- 4.72 NR proposes to undertake mitigation works at Kates Lane railway crossing (these are detailed at 3.3.1.2 of document **NR12**). These comprise:
- ▶ Clear vegetation from road across bridge and replace with "rural carriageway". I do not know what NR means by "rural carriageway" as this is a term that it is not used in the Design Manual for Roads and Bridges (DMRB). I assume that NR mean that the soft verges will be replaced by hard surfacing such as asphalt or tarmac.
 - ▶ Remove 10m length of verge from both approaches to bridge and extend the carriageway to provide safe standing area for pedestrians. Existing road camber to be maintained to remove need for drainage measures.
 - ▶ Provide new white lining edge marking offset 0.85m from west parapet and 0.45m from east parapet. Centreline may be relocated 0.2m to the east.
 - ▶ Overgrown hedges to be cut back on approach to bridge from north.
 - ▶ Solar powered VMS 'Slow' sign to be installed both approaches to bridge.
- 4.73 It is noted that there is a permissive footpath located along the northern side of the railway line connecting Footpath 020 Wetherden to Kates Lane. This appears to be an alternative footpath provided by the landowner for pedestrians seeking to use Footpath 020 Wetherden that crosses a working stables. As well as providing a permissive footpath, access to Footpath 020 Wetherden has been blocked as shown on photograph 5 below.



Photograph 5 – Footpath 020 Wetherden where it meets Kates Lane

- 4.74 Photograph 5 shows that to utilise Footpath 020 Wetherden a pedestrian would need to climb over a fence that has been erected across the footpath in front of the footpath sign. Once over the fence the pedestrian is in land that looks on site like a private garden and has dogs roaming freely in it. Given the physical barrier of the fence and subsequent free roaming dogs on private land, I consider that this section of Footpath 020 Wetherden is impassable. I am surprised that these physical facts, or the existence of an alternative permissive footpath, were not mentioned in the Stage 1 RSA (document **NR16**), NR's statement of case (document **NR26**) or NR's design guide (document **NR12**) as they would have been immediately apparent to anyone visiting the site.

Assessment

- 4.75 From a highway perspective I am satisfied with most of the proposed diversion route in terms of design for pedestrians.
- 4.76 However I have concerns regarding the following elements of the proposed diversion route:
- ▶ Use of Footpath 020 between Kates Lane and the level crossing (S31); and
 - ▶ Visibility between pedestrians walking in the carriageway at Kates Lane railway bridge and vehicles approaching from the north.
- 4.77 Considering first the use of Footpath 020 Wetherden I acknowledge that it is not the responsibility of NR to maintain free and unobstructed access to the PROW network. However I am surprised that NR is proposing a diversion route that is clearly impassable on the ground without making comment regarding the impassability of the diversion route that they are proposing or how it could be made passable. I consider it reasonable that NR should identify and deliver measures to ensure that this section of Footpath 020 Wetherden is passable and will remain passable in the future. This is because the closure of level crossing S31 will result in an intensification of use of this section of Footpath 020 Wetherden compared to its use in the absence of NRs proposal to close level crossing S31.

- 4.78 Turning to the visibility between pedestrians walking in the carriageway at Kates Lane railway bridge and vehicles approaching from the north I note that the Stage 1 RSA (document **NR16**) was undertaken without the benefit of vehicle speeds. In the absence of vehicle speeds the default design forward visibility is set out TD9/93 of DMRB (extract provided at **Appendix OBJ/36/W10/2-8**). For a rural road subject to the national speed limit the desirable minimum forward visibility is 215m. Actual forward visibility from a pedestrian standing at the north-western corner of the railway bridge looking northwards is approximately 77m. As can be seen from the extract from TD9/93 (**Appendix OBJ/36/W10/2-8**) this level of forward visibility is commensurate with a design speed of between 50kph and 60kph (31mph – 37.5mph). In the absence of vehicle speed data, my conclusion is that the visibility between pedestrians walking in the carriageway at Kates Lane railway bridge and vehicles approaching from the north is significantly less than the desirable minimum for highway safety. As a consequence there is an increased risk of pedestrian and vehicle collisions due to drivers not seeing pedestrians walking in the carriageway in sufficient time.
- 4.79 I note that NR is proposing mitigation measures for pedestrians walking across Kates Lane railway bridge (these are detailed at 3.3.1.2 of document **NR12**). I welcome the mitigation measures proposed by NR but I do not agree that they will be effective in creating a safe space for pedestrians crossing the bridge.
- 4.80 The mitigation measures include the intention by NR to delineate a safe space for pedestrians crossing the bridge by use of a white line. However this is only a safe space if motorists comply with the intention of the white lines and take up a central position in the bridge. I consider it more likely that motorists will keep to the left in order to reduce the risk of colliding with on-coming cars. The use of a white line would not prevent motorists from doing this either by reason of imposing a legal sanction or physically.
- 4.81 I therefore consider that there remains an increased risk of pedestrian and vehicle collisions due to drivers not seeing pedestrians walking in the carriageway in sufficient time.

Recommendations

- 4.82 Due to:
- ▶ the impassability of a section of Footpath 020 Wetherden; and
 - ▶ the restricted visibility between pedestrians walking in the carriageway at Kates Lane railway bridge and vehicles approaching from the north and the requirement for diverted pedestrians to walk in the carriageway at these locations with the associated risk of collision between these diverted pedestrians and motorists;
- 4.83 I recommend an OBJECTION to this level crossing closure as currently proposed.
- 4.84 Notwithstanding this, this crossing closure could be made acceptable in terms of road safety were NR to include:
- ▶ Physical separation of the proposed safe space on Kates Lane railway bridge for example through the inclusion of a kerb to the 0.85m wide safe space to the west of the bridge in order to create a footway that vehicles are less likely to drive onto.
 - ▶ Acquisition of access rights to the permissive footpath currently being used between Footpath 020 Wetherden and Kates Lane to establish this as a PROW.

Site S69 – Bacton

Existing route

- 4.85 The existing level crossing is located on Footpath 013 Bacton which connects the western part of the village of Bacton (at a point located on Pretymen Avenue) with Bacton United '89 FC ("Bacton FC") and other destinations to the east of the railway line.

Proposed diversion

- 4.86 The proposed diversion would route pedestrians east of the railway eastwards along Footpath 013 Bacton to where it meets Broad Road. At this point pedestrians are diverted northwards along Broad Road. NR drawing number MMD-367516-S69-GEN-005 (provided in document reference **NR26**) indicates that diverted pedestrians are able to walk in the verge along Broad Road.
- 4.87 Broad Road at this location is a rural single carriageway with one lane in each direction. Where Footpath 013 Bacton meets Broad Road, Broad Road is subject to the national speed limit which is 60mph at this point. Approximately 120m north of this point a 30mph speed limit comes into force. The road is approximately 5m-6m wide and is unlit.
- 4.88 Where Broad Road reaches Pound Hill, pedestrians are routed westwards along Pound Hill. For most of the route along Pound Hill pedestrians are able to utilise the existing footways on Pound Hill. The exception is passing through the Pound Hill railway underpass crossing at which point the footways are discontinued.
- 4.89 Pedestrians continue along Pound Hill until they reach Birch Avenue which they can follow southwards to arrive at Pretymen Avenue.
- 4.90 NR proposes to undertake mitigation works at Pound Hill railway crossing (these are detailed at 3.4.1.2 of document **NR12**). These comprise:
- ▶ Clear vegetation from road through under bridge and replace with rural carriageway if needed. I do not know what NR means by "rural carriageway" as this is a term that it is not used in the Design Manual for Roads and Bridges (DMRB). I assume that NR mean that the soft verges will be replaced by hard surfacing such as asphalt or tarmac.
 - ▶ Remove 10m length of verge from both approaches to bridge (eastbound side) and install new footway to provide safe standing area for pedestrians. Kerbing to be provided.
 - ▶ Provide new white lining edge marking – amend affected side to provide minimum 0.8m space (currently varies from 0.6 – 0.95m)
 - ▶ Overgrown vegetation to be cut back on approaches to bridge.
 - ▶ Drainage improvement measures associated with Network Rail ditches to be investigated further.
 - ▶ Additional road marking (SLOW) and signage warning of pedestrians in the carriageway to be provided.
- 4.91 The proposed diversion route from east of the railway line to Pretymen Avenue is approximately 1.14km long (approximately 15.8 minutes' walk). The existing PROW route is approximately 0.11km long (approximately 1.5 minutes' walk).

Assessment

- 4.92 I welcome the additional lengths of footpath being provided which are indicated on NR drawing number MMD-367516-S69-GEN-005 although these appear to be almost entirely related to the closure of level crossing S13 Fords Green.
- 4.93 However I have concerns regarding the following elements of the proposed diversion route:
- ▶ Carriageway walking along Broad Road; and
 - ▶ Lack of footway at Pound Hill railway underpass.
- 4.94 Considering first the carriageway walking on Broad Road I note that NR drawing number MMD-367516-S69-GEN-005 shows this as "Verge Available (No Footway)". This is incorrect as there is no continuous verge for pedestrians to walk in along Broad Road. This will result in a risk of collision between pedestrians and vehicles.

- 4.95 This risk is identified by the road safety auditors. At paragraph 2.12.1 of the "Transport & Works Act Order (TWAo) Anglia Route GRIP 2, Suffolk Stage 1 Road Safety Audit Response Report" (reference **NR16**) the auditor states

"Risk of vehicle to pedestrian collisions.

The standard of verge varies along Broad Road with a minimal verge in places and several sections where vegetation is overgrown restricting the available width for pedestrians. This is likely to result in pedestrians walking within the carriageway. Traffic speeds were observed to be high particularly on the straight section and towards the southern end of Broad Road there is a sharp bend which may restrict forward visibility of pedestrians in the carriageway. These factors could result in collisions between vehicles and pedestrians.

It is recommended that a suitable footway is provided to enable pedestrians to continue along Broad Road without walking within the carriageway."

- 4.96 In relation to this concern raised in the Stage 1 RSA, the design team response set out in the "Transport & Works Act Order (TWAo) Anglia Route GRIP 2, Suffolk Stage 1 Road Safety Audit Response Report" (reference **NR16**) states:

"Agreed – Further consideration of footway provision will be given."

- 4.97 Given my assessment and the concern raised by the safety auditor and the factual statement of the auditor that the verge is "minimal" in places, I am surprised to see that the current proposal continues to state that pedestrians are safely able to walk in highway verge along Broad Road. This is incorrect. Pedestrians are likely to walk in the carriageway for part of this section of the diversion route which could result in collision between vehicles and pedestrians.

- 4.98 Turning to the Pound Hill railway underpass I note that NR is proposing mitigation measures for pedestrians walking under the railway bridge (these are detailed at 3.3.1.2 of document **NR12**). I welcome the mitigation measures proposed by NR but I do not agree that they will be effective in creating a safe space for pedestrians crossing the bridge.

- 4.99 The mitigation measures include the intention by NR to delineate a safe space for pedestrians crossing the bridge by use of a white line. However this is only a safe space if motorists comply with the intention of the white lines and take up a central position in the bridge. I consider it more likely that motorists will keep to the left in order to reduce the risk of colliding with on-coming cars. The use of a white line would not prevent motorists from doing this either by reason of imposing a legal sanction or physically.

- 4.100 I therefore consider that there remains an increased risk of pedestrian and vehicle collisions due to drivers not seeing pedestrians walking in the carriageway in sufficient time.

Other Matters

- 4.101 Whilst it is outside the scope of my evidence, I note that the fence proposed to close the railway crossing is relatively low. Given the significantly longer distance that the pedestrians would need to walk to get between the village to the west of Bacton FC and Bacton FC itself, I would expect that there will be a significant number of pedestrians who will choose to climb the fence and cross the railway line illegally in order to avoid the almost 15-minute detour on what is a less than 2-minute walk – especially as the detour includes two sections of carriageway walking on relatively busy roads. This is despite the warning signs of fines for trespassing.
- 4.102 I consider that this will particularly be the case with minors although many adults may also take the "risk" – the risk more than likely being considered to be being caught and fined rather than hit by a train.

4.103 I also note that the census counts commissioned by NR for this crossing (document **NR25** census reference 3267-LON-S69) were undertaken at the end of June. This is outside of the football season and so demand to use the crossing would potentially be significantly lower than during the football season.

4.104 I would recommend that the Inspector seek details from NR regarding how this closure would be enforced.

Recommendations

4.105 Due to:

- ▶ Carriageway walking along Broad Road; and
- ▶ Lack of footway at Pound Hill railway underpass

4.106 I recommend an OBJECTION to this level crossing closure as currently proposed.

4.107 Notwithstanding this, this crossing closure could be made acceptable in terms of road safety were NR to include:

- ▶ Physical separation of the proposed safe space under the Pounds Hill railway bridge for example through the inclusion of a kerb.
- ▶ A suitable footway or footpath is provided alongside Broad Road so that pedestrians do not need to walk in the carriageway.

5.0 Summary and Conclusions

- 5.1 My evidence has been prepared on behalf of the Ramblers' Association. It has considered matters of highway design and safety with respect to the Proposed Network Rail (Essex and Others Level Crossing Reduction) Order (hereafter referred to as "the Order") which seeks to close a number of level crossings on footpaths within the Essex area and replace them with alternative pedestrian routes.
- 5.2 I am familiar with the footpaths that I have considered within my evidence having visited each of them and walked both the existing route and the associated proposed alternative route.
- 5.3 My evidence has solely considered the suitability of alternative pedestrian routes from a highway design and safety perspective. There are other factors which affect the suitability of pedestrian routes including, but not limited to, distance, amenity, fear and intimidation (arising from proximity of traffic and in particular its speed and composition), the number of turns pedestrians are required to make to re-join the footpath and road crossing delays. These matters are dealt with in evidence presented by others.
- 5.4 My evidence does not make reference to the legal status of Public Rights of Way (PROWs) or any other matter relating to law. This is outside my scope of expertise.
- 5.5 I have provided an overview of design guidance and best practice of relevance to my evidence. In particular I have identified that a disproportionate number of pedestrian deaths caused by road collisions occur in rural roads compared to urban areas. I have noted the importance of speed and traffic volume in influencing the number and severity of pedestrian accidents.
- 5.6 I have provided comment regarding the suitability of Network Rail's (NR) Stage 1 Road Safety Audit (RSA1) carried out on the alternative pedestrian routes. I have noted that the RSA1 has been undertaken in the absence of any data regarding vehicle volumes, collision data, NMU flows or observed traffic speeds. This data is apparently to be considered at a later date in the Stage 2 Road Safety Audit. In this context I have strongly recommended that the Secretary of State either rejects the Order or else defers any decision until road collision data, traffic flows and NMU flows have been collected, analysed and included in the RSA1 and interested parties had the opportunity to scrutiny the revised RSA1.
- 5.7 My evidence neither objects to nor supports the Order in principle. Instead it considers each closure individually with my conclusions advising, in terms of highway design and safety, whether an individual alternative pedestrian route is:
 - a. Acceptable; or
 - b. Acceptable subject to modifications and / or long term safeguards; or
 - c. Unacceptable and an objection should be made to the closure of the associated level crossing.
- 5.8 A summary of my conclusions is provided below. For each diverted route I recommend that clear signing is provided along the route.

Level Crossing Reference	Recommendation	Reason / Modifications
S23 – Higham	OBJECTION	<p>Lack of continuous verge on the section of the proposed diversion route on Higham Road (contrary to NR's claim).</p> <p>Leading pedestrians to cross at a point in the highway network at which they need to be aware of traffic turning at them from four directions rather than a single direction would be detrimental to pedestrian safety in the absence of mitigation.</p> <p>This crossing closure could be made acceptable in terms of safety were NR to include:</p> <ul style="list-style-type: none"> a. A continuous off-carriageway pedestrian route between the existing footway between Higham Road and the A14 westbound on-slip (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road; and b. Measures to improve safety for pedestrians crossing the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane.
S24 - Higham Ground Frame.	OBJECTION	<p>The proposed diversion adds an unreasonable additional distance for pedestrians which is likely to result in pedestrians using Coalpit Lane.</p> <p>Lack of continuous verge on the section of the proposed diversion route on Higham Road (contrary to NR's claim).</p> <p>Leading pedestrians to cross at a point in the highway network at which they need to be aware of traffic turning at them from four directions rather than a single direction would be detrimental to pedestrian safety in the absence of mitigation.</p> <p>This crossing closure could be made acceptable in terms of safety were NR to include:</p> <ul style="list-style-type: none"> a. A suitable footway or footpath is provided alongside Coalpit Lane between the railway bridge and the A14 to enable pedestrians to continue without walking within the carriageway. b. A continuous off-carriageway pedestrian route between the existing footway between Higham Road and the A14 westbound on-slip (to be closed) and what is known as Aran Service centre where a footway commences on the eastern side of Higham Road; and c. Measures to improve safety for pedestrians crossing the A14 westbound on-slip / Higham Road at the junction of the A14 westbound on-slip / Higham Road, A14 westbound off-slip and Coalpit Lane.

Level Crossing Reference	Recommendation	Reason / Modifications
S27 – Barrells / S28 – Grove Farm.	OBJECTION	<p>Visibility restrictions at both the Barrells Road railway crossing and the railway crossing of the Unnamed Road to the east of the S27 / S28 diversion and the requirement for diverted pedestrians to walk in the carriageway at these locations</p> <p>This crossing closure could be made acceptable in terms of road safety were NR to include:</p> <ol style="list-style-type: none"> Physical separation of the proposed safe space on Barrells Road railway bridge for example through the inclusion of a kerb to the 1.0m wide safe space to the east of the bridge in order to create a footway that vehicles are less likely to drive onto. Provision of advance signs on the Barrells Road railway bridge crossing warning motorists that it is single way traffic and that there are likely to be pedestrians in the road. Replication of the proposed mitigation for Barrells Road railway bridge with the modifications I recommend above) at the railway crossing of the Unnamed Road to the east of the S27 / S28 diversion.
S31 – Mutton Hall	OBJECTION	<p>The impassability of a section of Footpath 020 Wetherden.</p> <p>Restricted visibility between pedestrians walking in the carriageway at Kates Lane railway bridge and vehicles approaching from the north and the requirement for diverted pedestrians to walk in the carriageway at these locations with the associated risk of collision between these diverted pedestrians and motorists.</p> <p>This crossing closure could be made acceptable in terms of road safety were NR to include:</p> <ol style="list-style-type: none"> Physical separation of the proposed safe space on Kates Lane railway bridge for example through the inclusion of a kerb to the 0.85m wide safe space to the west of the bridge in order to create a footway that vehicles are less likely to drive onto. Acquisition of access rights to the permissive footpath currently being used between Footpath 020 Wetherden and Kates Lane to establish this as a PROW.
S69 – Bacton	No objection	<p>Carriageway walking along Broad Road.</p> <p>Lack of footway at Pound Hill railway underpass</p> <p>This crossing closure could be made acceptable in terms of road safety were NR to include:</p> <ol style="list-style-type: none"> Physical separation of the proposed safe space under the Pounds Hill railway bridge for example through the inclusion of a kerb. A suitable footway or footpath is provided alongside Broad Road so that pedestrians do not need to walk in the carriageway.