

# Network Rail Cambridgeshire Level Crossing Reduction

## Statement of Case

### Objection to the proposed closure of C04 – No 20 Pedestrian Crossing

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#### Introduction

I am a resident of Meldreth and member of the Meldreth Parish Council.

My objection to the proposal for closure considers:-

- the evidence presented for the decision to identify C04 – No 20 as a candidate for closure,
- the safety case presented for the closure decision,
- the unsatisfactory and unsafe proposal of the alternative suggested route and
- the loss of amenity / strength of local objections to the closure.

#### Summary

The case for closing our local pedestrian rail crossing (C04 – No 20) has been pursued on the grounds of ‘rail safety’ and continued despite the very many objections raised in the consultation process. The closure has been justified from data which has itself been heavily criticised by the House of Commons Transport Select Committee and has been applied without full public access or adequate explanation. Of greatest concern is that a myopic analysis has been made which considers only safety at the level rail crossing and which ignores the alternative route for pedestrians which is neither adequate nor safe.

In this objection, I use the limited publically available data from Network Rails own analysis (the ALCRM national data set dated 20.04.2017) to reinforce the recent legal criticism of the quality of the data and to demonstrate that C04 – No 20 should not be a candidate for closure. According to ALCRM it is not a priority dangerous crossing in national terms (in the third decile of risk [n=6000]) or even in Meldreth itself. This asks the question as to whether the Network Rail (NR) assessment is sound and the priorities it produces are sensible.

Next I provide the local evidence for both the safety, in rail terms, of C04 – No20 and the dangers of the alternative road route. The risks inherent in the road bridge crossing are well known to the local councils and are under investigation, yet NR dismissed their concerns and objections during the consultation. In risk modelling studies, you can only confirm the predictions of the model by a tragic accident. Here with even a simple pedestrian risk model we can demonstrate the substantially higher dangers of the road crossing and document the catalogue of ‘near-miss’ events on the bridge.

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<sup>1</sup> Fellow of the Operational Research Society ([www.theorsociety.com](http://www.theorsociety.com)) the professional body dedicated to the “application of advanced analytical methods to make better decisions”

The local objections have been many and we have fully engaged with the consultation processes. It is clear however that the objections have been ignored and the key evidence on which the case is based has not been forthcoming in the public consultations.

The flyposting used for the consultation was poorly designed with the details of the appeal only on the reverse side of a double-sided notice. In many locations, and predominantly those around the crossing site, this was mounted in such a way as to prevent people viewing the full content. Despite this obfuscation, accidental or deliberate, the local opposition to the Meldreth closure was proportionately the highest in the Cambridgeshire closure proposals.

## The Safety Case

I understand that the overall objective of the proposed closure lies with improving the safety of level crossings<sup>2</sup>. It is an objective we would all agree with and support.

To reduce the potential for harm we need to restate the objective remembering that level crossings themselves are not hazardous. The hazard arises from the use of the crossing by people in pursuit of their objectives. The case as presented considers only risk reduction for the crossing rather than taking the hazard to the pedestrian using the crossing or the alternatives. In the event of the closure of C04 – No 20 the alternative route is demonstrably more hazardous and this has not been considered or assessed in the Network Rail submission.

## The Flawed Use of the Network Rail Risk Assessment Process (ALCRM)

The case to close C04 – No 20 is based upon an internal risk assessment process (ALCRM risk scores). At the public consultations<sup>3</sup> I asked questions to learn about the basis of the risk assessment in general and the evaluation of C04 – No 20 in particular. No evidence or case material was provided.

The House of Commons Transport Committee Safety at level crossings Eleventh Report of Session 2013–14<sup>4</sup> provides some background and evidence for the closure programme:-

- [para 17] The process of safety assessment (ALCRM risk scores) is used to “so that Network Rail can allocate resources to the highest risk crossings”. *The same paragraph also reports that “Models are only as good as their underlying data and assumptions”.*
- [para 18] Although the importance of local factors was emphasised to us, these are not incorporated into the scores produced by ALCRM. The RAIB has previously identified this as a weakness in the risk assessment process.

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<sup>2</sup> House of Commons Transport Committee Safety at level crossings Eleventh Report of Session 2013–14

<sup>3</sup> I attended the Round 2 Cambridge consultation on 08/09/2016 and specifically asked about the basis of the ‘safety assessment’ no information was provided or justification attempted as to why C04 – No 20 was deemed ‘unsafe’

<sup>4</sup> HC 680 The Stationery Office Ltd, accessed at <https://publications.parliament.uk/pa/cm201314/cmselect/cmtran/680/680.pdf>

- [para 19] The quality of Network Rail's risk assessments, including ALCRM, was recently the subject of judicial criticism.
- [para 20] The meaning of the risk scores is not readily understandable and accompanying guidance is of limited use. It is difficult to discern which level crossings present a high fatality risk to individual, frequent level crossing users, who are assumed to make 500 traverses each year.
- [para 21] Network Rail has voluntarily published a list of level crossing locations and their ALCRM risk scores. Some external organisations have been able to make use of the data, including for the production of maps of level crossing locations. However, the data is not refreshed frequently and is not complete because full risk assessments are not published.

This source also specifies the intent to the Network Rail risk reduction programme under which these closure proposals lie<sup>5</sup>:-

- [para 23] ORR has set Network Rail a target to reduce level crossing risk by a further 25% over Control Period 5 (2014-19).<sup>35</sup> Network Rail's funding settlement for Control Period 5 includes dedicated funding of £109 million to close a further 500 level crossings and improve safety at hundreds more of the highest risk crossings.

Taking this source as the over-arching guide to the proposed closure I have used Network Rail's own figures (ALCRM) to investigate the risk scores for the 5 crossings in Meldreth<sup>6</sup>. Of these the proposed C04 – No 20 closure addresses only the 3rd most unsafe crossing with the two more dangerous crossings not being considered. Equally suspect is that the crossing immediately adjacent to C20 [C19] which is less than 200 metres away on the same straight stretch of track is rated in the safest category of M13 (the lowest ranking possible). This difference cannot be explained simply by the difference in the number of pedestrians using the service.

*I am forced to conclude the proposal to close C04 – No 20 owes more to whimsy than to a rigorous and robust analytical procedure.*

The ALCRM scores are also the basis of Network Rail's strategic investment in safety. C04 No 20 lies around 1373 in the UK. There are 258 equally 'risky' crossings in the UK which when rank ordered by hazards, with the most dangerous positioned at number 1, occupy the range 1218-1476 from the list of 6000+. Even if the ALCRM for C04 – No 20 is valid this crossing is not the place to start if the limited funds for investment are set to 'hundreds of closures'. If C04 – No 20 were to be assessed equivalently to its near neighbour C19 the rank ordering would fall to 6462 and C20 would be one of the safest in the country!

*I suggest that in seeking to close C04 – No 20 NR is failing to address its duty (communicated to the Transport Select committee) to focus on the crossings of highest risk: "Network Rail can allocate resources to the highest risk crossings".*

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<sup>5</sup> The criticisms of the ALCRM approach were under review, from 2014, but as yet there is no public material available – see <https://www.rssb.co.uk/pages/research-catalogue/t936.aspx>

<sup>6</sup> Source data the compilation of level crossing ALCRM available as an Excel file from <http://archive.nr.co.uk/transparency/level-crossings/> - data set produced on 20/04/2017

## The Local Situation

Although the case for closure is developed from national audit data local factors are significant as noted in the critique reported by the Transport Committee “[para 18] Although the importance of local factors was emphasised to us, these are not incorporated into the scores produced by ALCRM”.

The local situation can be summarised simply: *“Network Rail propose to close a pedestrian crossing on a straight and level section of track with excellent visibility in both directions. They plan to route pedestrians through an industrial working site and across a narrow footway over a railway bridge which itself has a history of accidents”*.

Fortunately, we are in the position that no fatal accidents have occurred on either the road or the railway crossing. Any decision can only then be made on assessments of the potential for harm, and these assessments are based on models and the history of incidents (near misses) for risk mitigation the study of ‘near misses’ is an important and standard approach<sup>7</sup>.

The site and route alternatives are represented on the annotated Google satellite image which follows. The green route shows the current footway, the red route shows the proposed road based alternative and the yellow circles the photo points used for the following photographs.<sup>8</sup>

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<sup>7</sup> Investigating accidents and incidents – the Health and Safety Executive.

<sup>8</sup> Note: all of the photographs except that sources from Google were taken with my mobile phone with a fixed focal length lens, the images were then subject to consistent treatments with image manipulation or foreshortening.



My local evidence for the safety of the C04 – No 20 rail track crossing comes from site photographs of the clear and unrestricted visibility at the crossing point (estimated at around 2.4km in either direction).



My evidence for the unsafe nature of the alternative pedestrian path across the road bridge starts with the gamut of activities on the new route which include (depending on the route).

1. BioHazard from passing a working Turkey farm.
2. Pedestrian hazard from traversing the 'hard standing' of a number of busy vehicle repair companies.



3. {An alternative longer route along the railway boundary of the field was considered but dismissed as the path was “not really fit for purpose<sup>9</sup>”}.
4. Pedestrian / traffic hazard from traversing the bridge [Cambridgeshire County Council raised their objection of the safety of the footway on the bridge but this was dismissed by NR as “not part of the current phase of works<sup>10</sup>”].
5. Double crossing of the road to follow the footway at the Burltons Farm entrance/corner and at the Fieldgate Nursery entrance/corner<sup>11</sup>.

In all cases these hazards were identified in the consultation process<sup>12</sup> but the only remediation offered was the suggestion to complete the last stretch of footway (in response to the hazard introduced under point 5). At the public consultation in Cambridge the status of this additional footway on Station Road was queried, viz the question was asked *is the construction of the new [2m wide unsurfaced] footpath [approximately 100 mtrs in length to St Johns Farm<sup>13</sup>] guaranteed?* There was no such assurance it was claimed it ‘might be considered<sup>14</sup>’.

The bridge crossing is a notorious local hazard, with a history of multiple ‘bumps, scrapes and near misses’. The following recent photograph evidence is a snapshot of the history of the risk and the reason why the Parish Council, District and County Council regards it as an area for risk reduction **not** as a safe area to promote even more pedestrian use.

The bridge approaches are narrow, windy and obscured. The traffic is mixed, heavy and at speed. Pedestrians join this hazard with an inadequate footway and the need to cross the road twice at corners to stay on hard paving.

In February 2017 a ‘white van’ ran off the road and was suspended on the bushes, it was cleared within a couple of hours without police report or intervention but the crash site and damage is clear from photograph P2 (behind the blue car which can be seen braking from the sudden approach of the on-coming vehicle).

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<sup>9</sup> p93 of the C04 – No 20 responses, first response

<sup>10</sup> p95 of the C04 – No 20 responses, second response

<sup>11</sup> p93 of the C04 – No 20 responses, fourth response “consideration of this was taken forward and the final proposal has the proposed diversion located in field margins partially on the south side of the railway to reduce roadside walking”

<sup>12</sup> As reported in Appendix D (Project Team Response) of the Statement of Consultation NR5-CCC (February 2017)

<sup>13</sup> p 37 in Volume 2 of the Design Guide (NR12-CCC)

<sup>14</sup> Verbatim answer at the public consultation

P1:C20 Blind Approach & Crash Site



The Burltons Farm corner is the first crossing point for the footway and has particularly poor visibility, as is evident from the skid marks there is a tight bend and no room for manoeuvre [and this is currently a pedestrian crossing point!].

P3:C20 Blind Corner & Footpath End



The street view from Google Maps provides a perspective on the narrowness of the footway and the blind cornering across the bridge, it also bears witness, via the skid marks, of yet another 'close shave' for people and vehicles crossing the bridge



The width of the footway over the bridge is particularly dangerous. At its widest point it barely reaches 1 metre and along much of the length the width is little more than 0.8 metre. The unsafe behaviours these restriction produce is vividly demonstrated in the following series of images<sup>15</sup>:-

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<sup>15</sup> The pictures are un-staged and taken between 13.40 and 13.47 on October 29<sup>th</sup> 2017.



P6:C20 Narrow Path & Pedestrian Encroachment



P7:C20 Motorists 'Pushed' to Crown of the Road



P8:C20 If there is space  
and time to react!



*Many users have no  
Options but the road*



*The van on the right came to  
a complete halt on the brow*

## Quantifying the Alternative Risk Profiles

The criticism of the NR ALCRM process on which the closure decision has been predicated has already been noted. Quantitative risk assessment is a challenging task and no readily accepted model for the relative risk of the rail crossing and the road crossing exists. However, in the material presented by NR there has been no quantitative or comparative assessment of the risk *to the pedestrians on the road crossing*.

A competent analysis will consider a risk framework such as that used in road safety training manual and would apply this equally to the rail crossing route and the road crossing route in order to *determine the risk to the pedestrians on either of the two routes*.

The risk framework has elements which need to be considered<sup>16</sup>:-

- Factors influencing exposure to risk – such as safe/unsafe options, mix of traffic and vulnerable users, number of vehicles, period of risk vulnerability
- Risk factors influencing crash involvement – such as design speeds, safe places, warning measures, avoidance measures, visibility
- Risk factors influencing crash severity – such as actual speed, type of vehicle, type of pedestrian, visual or mobility impairment
- Risk factors influencing post-crash outcome of injury – rescue and recovery of victims, difficulty of evacuation and extraction from vehicles

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<sup>16</sup> Peden M et al. World report on road traffic injury prevention. Geneva, World Health Organization, 2004.

Here the alternative road bridge crossing develops a risk profile many orders of magnitude worse than the rail crossing. The risk profile builds as follows: -

1. *Frequency of hazards:* There are more vehicles on the road than trains on the railway NR figures suggest 166 train crossings per 24 hours the road bridge has 10 times this many peaking at around 250 during school & work rush periods. *Road is an order of magnitude worse.*
2. *Visibility & danger notice:* For a pedestrian crossing on the track it would take well over 1 minute for the train (traveling at 90 mph) to reach the crossing from the sighting distance, for the same pedestrian crossing the road a car (traveling at 30 mph) arrives in about 6 seconds. *Road is an order of magnitude worse.*
3. *Duration of the period of risk:* The exposure to risk on the rail endures for the period of crossing or transit time of say 10 seconds. For the road bridge user the risk accumulates over the transit time of walking over the bridge, estimated at 2 minutes. *Road is an order of magnitude worse.*
4. *Event consequence:* In the event of an event the survivability of a train incident at 90 mph is approximately zero, for a road traffic incident at 30 mph the survivability is 50%. *Rail is a factor of two worse (although many trains are slowing to stop at Meldreth and will be travelling under 30 mph at C04 – No 20).*

This is not the opportunity for a complete analysis but it is already clear that the road option exposes a significantly higher risk to pedestrians than the rail crossing option. It is this which lies at the local councils concerns and their attempts to mitigate the existing pedestrian risk. It is unsafe and foolhardy to add to the volume of foot traffic on this route before bridge widening has been carried out.

## Remediation

Network Rail have proposed the closure of the crossing and the transfer of the pedestrian traffic onto a dangerous road. In other parts of the network safety remediation has retained the crossing but invested in additional safety measures, NR's own information for the region<sup>17</sup> show safety investment which have maintained the crossing (with crossings on the same ALCRM score as C04 – No 20) with additional safety measures.

Closure is not the only option if there is a genuine priority for safety improvements at C04 – No 20. Other options can be considered which prevent the use of the dangerous road crossing and these should be introduced. Signage and automatic train detection/warning systems would reduce any residual risk from poor visibility<sup>18</sup>.

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<sup>17</sup> <https://www.networkrail.co.uk/feeds/safety-improvements-made-at-six-footpath-level-crossings-across-suffolk-and-essex/>

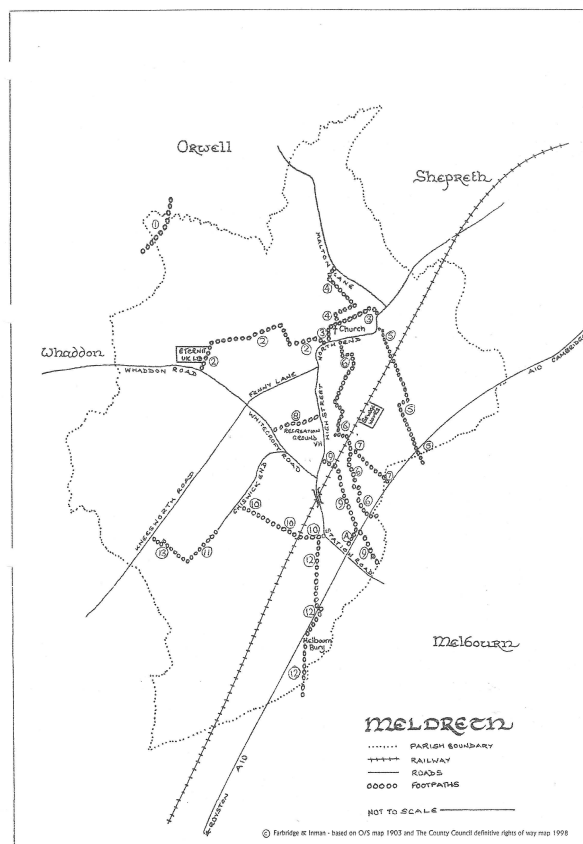
<sup>18</sup> Transforming Level Crossings 2015-2040

## Amenity

Safety concerns over level crossings on the railway means that it is very unlikely that any new crossings will be permitted. This means that once a decision to close a crossing is allowed it will not be re-opened and rights of way and public amenities will forever be lost<sup>19</sup>.

The irrevocable nature of the closure formed the basis of the strong public opposition during consultation including individuals, the village working groups and the layers of councils. The crossing closure had only one favourable response in round 1 and none in round 2 producing statistics against closure of 85% in round 1 and 100% in round 2. Weighted by the evidence of Network Rail's own use audit on the use of the crossings in Cambridge the proposed closure of C04 – No 20 proportionately raised the greatest number of objections across the region.

The rail crossing is a vital element of a number of pedestrian routes around the village and is recognised as such by our community and also by the neighbouring communities, such as Melbourn. We recognise the value of the amenity and are concerned for those parishioners will be subjected to the dangers of the bridge crossing if C04 – No 20 is closed. C04 – No 20 is an integral link on the Definitive Map of Public Rights of Way in Cambridgeshire (TL34NE) and an important element of the public amenity of the local community. The rail crossing also provides safe access to our local businesses such as Fieldgate Nursery, Davey's and Bury Lane Farm.



<sup>19</sup> ORR Railway Guidance Document New Level crossings: RGD-2014-06