

13/09/22

FAO The Secretary of State for Transport  
c/o Transport Infrastructure Planning Unit,  
Department for Transport,  
Great Minster House,  
33 Horseferry Road,  
London SW1P 4DR

**RE: Cambridge Re-signalling, Relock and Recontrol (C3R) Meldreth Road Crossing**

Dear Minister,

I'm writing to you to register my objections to the above matter which you will read below has failed to effectively consult and model the impact of the proposal, this relates to a single site on the re-signalling works at Meldreth Road in Shepreth.

I should note I am a professional chartered structural engineer and therefore familiar with infrastructure projects hence the thoroughness of my reply.

**Introduction**

As some background to my response, I used to commute to Cambridge from Shepreth Station, passing both the Meldreth Road level crossing (LC) and the Shepreth station LC. The Shepreth station LC was upgraded in 2018 to the same 4 barrier LC that is proposed on Meldreth Road, this type of barrier requires more down time as the sequence is – train detected, 2 barriers descend, 2 more barrier descend creating a secure crossing, this box is then checked on CCTV by the signaller before the crossing is safe for the train, this must be completed a number of signals away to allow for a train to stop safely. It is well documented that the installation at Shepreth Station has caused significant issues in the area (<https://www.royston-crow.co.uk/news/shepreth-level-crossing-frustrations-5156526>) and the "down time" has been unacceptable causing people to miss trains (there is no foot bridge) and traffic to build up. Hence why I looked in interest at the consultation for Meldreth road. I instantly queried why there wasn't accurate information on the eventual down time at Meldreth road with some analysis to demonstrate the balance of risk of maintaining the LC as it is compared with the 4 barrier system. That analysis wasn't completed at the initial consultation. So along with the local rail group I objected.

When the consultation conclusion was released on the 8<sup>th</sup> of August I was surprised that my views and the views of many others had been ignored. I had to e-mail the communications manager Stephen Deaville to then get access to the Traffic modelling report that has since been completed after the consultation, I then had to e-mail again to get the modelling methodology report.

The following reports are referenced and discussed below–

*Modelling Methodology – Level Crossing study MG0172 03 June 2021 Issue 2.* (The Methodology report)

*Performance Report – Level Crossing Study – MG0172 14 June 2022 Issue 4* (The Modelling report)

It is these reports, and the basis for their conclusion and that of the main consultation that I consider inadequate and not transparent, I have set out my objections as below and the consequence of the error:

## Objections

1. The modelling report base data is based on data from another LC sites.

No.	Level Crossing	Min Barrier Down Time (s)	Min Barrier Down Time + Hinxton Difference (s)	Min Barrier Down Time + Hinxton Difference (mm:ss)
1	Milton Fen	150	231	03:51
2	Waterbeach	125	206	03:26
3	Dimmocks Cote	149	230	03:50
4	Croxton	119	200	03:20
5	Six Mile Bottom	140	221	03:41

Year Scenarios

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OFFICIAL

ing Methodology - Level Crossing Study

MG0172 - Level Crossing Study, Cambridgeshire

No.	Level Crossing	Min Barrier Down Time (s)	Min Barrier Down Time + Hinxton Difference (s)	Min Barrier Down Time + Hinxton Difference (mm:ss)
6	Dullingham	113	194	03:14
7	Meldreth		214*	03:24

**TABLE 5.1: CALCULATED BARRIER DOWN TIMES FOR UPGRADED LEVEL CROSSINGS**

*\*For the Meldreth level crossing, as no other data is available, the barrier down time has been based on the average time from all of the other level crossings.*

Figure 1 extract pages 26 and 27 from the Methodology report.

Consequence – to effectively establish the current situation at Meldreth road the existing minimum down time should be used. This should be calculated by survey.

2. The modelling report increase in downtime data is based on information from another crossing (Hinxton) rather than by maths.

Consequence – to effectively establish the impact to the LC, accurate modelling of what will happen is required. As noted in the introduction the situation at Shepreth Station the locals have encountered has not been satisfactory and there is something funny with the arrangement nearby that is the cause of this. You can see below the track layout for the Hinxton Crossing (middle bottom) compared to Meldreth (top right).

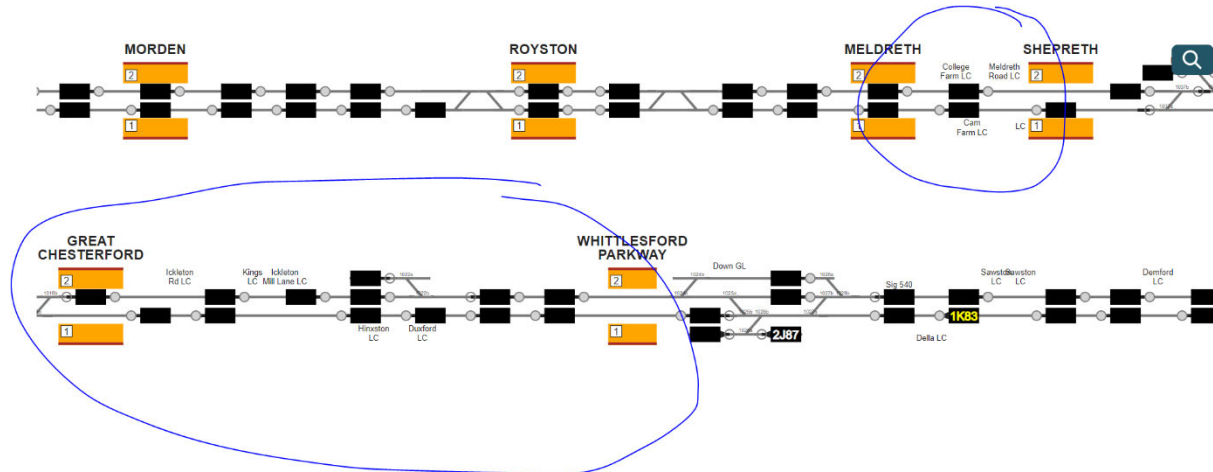


Figure 2 Track arrangement comparison.

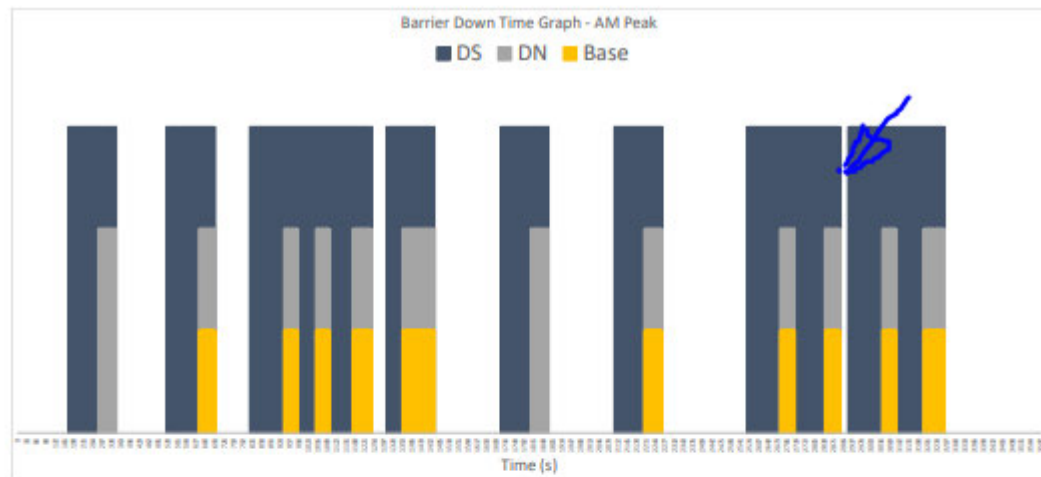
As you see the Hinxton Crossing is well between two stations at a distance of 2km and 3.3km. Whilst the Meldreth station is 0.5km and 2.5km from the adjacent stations. Why this matters is that the 4 barrier LC down time does not discriminate between fast and slow (stopper) services. The increased down time at Shepreth is compounded by the fact that a number of trains are breaking to stop at the station. This means added down time for those trains. As the LC at Meldreth road is closer to stations it is therefore impacted more by this.

It is also noted that the Hinxton Station is also on a different line and it isn't clear if the balance of slow, fast and goods services is the same.

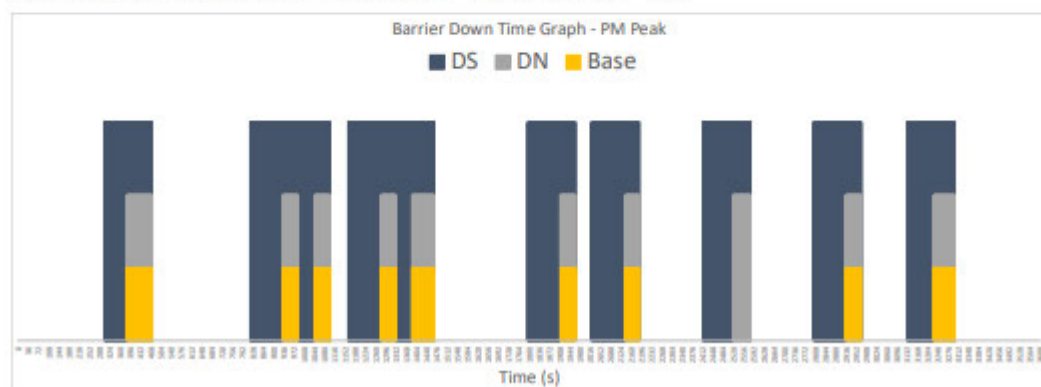
Therefore the use of the Hinxton data is not believed to be correct or yielding accurate results. It should be simple maths "a train is travelling at X speed and decelerates constantly etc etc" to establish the true figures.

There isn't a check in the modelling where these strike points and signals are to verify if they are compatible data sets.

- The modelling for the downtime demonstrates significant increase in downtime but this is not reflected in the conclusion which cites “no significant impact on the network” and “modest increases in journey time”.



**FIGURE 8.1: BARRIER DOWN TIMES – MELDRETH – AM**



**FIGURE 8.2: BARRIER DOWN TIMES – MELDRETH – PM**

*Figure 3 the “Vissim” model peak time in seconds across the bottom.*

Consequence: again failure to report results from the modelling does not allow for suitable critique of the proposal. The above figure shows that the downtime is not only increased but overlaps a number of trains. (Current barriers are down for the yellow/grey blocks circa 90 seconds, the proposal is for the blue blocks which range 3-6 minutes). The gap on the top right arrow is 30 seconds between two 6 minutes blocks and could easily result in a 12 minute down time especially as the modelling data is based on inaccurate information and trains aren’t always on time. The record at Shepreth station is circa 17 minutes.

The total barrier down time at peak time is approximately 60% of the whole peak hour, this is an increase from 26% as the current base. That is a doubling of down time at peak and is significant and not addressed.

4. The conclusion is that modest increases in wait times time, however this is based on an average through the day rather than the impact of the maximum delay.

Consequence – Human behaviour isn't based on averages. We make judgements on worse case scenarios rather than the balance of probability. For example Recency bias. People will change behaviours because they get caught by the train for a long time. This will have an impact on the network as those vehicles will increasingly go other ways. This is not considered and the alternative routes are not short, the impact on emergency services could be critical to a patient.

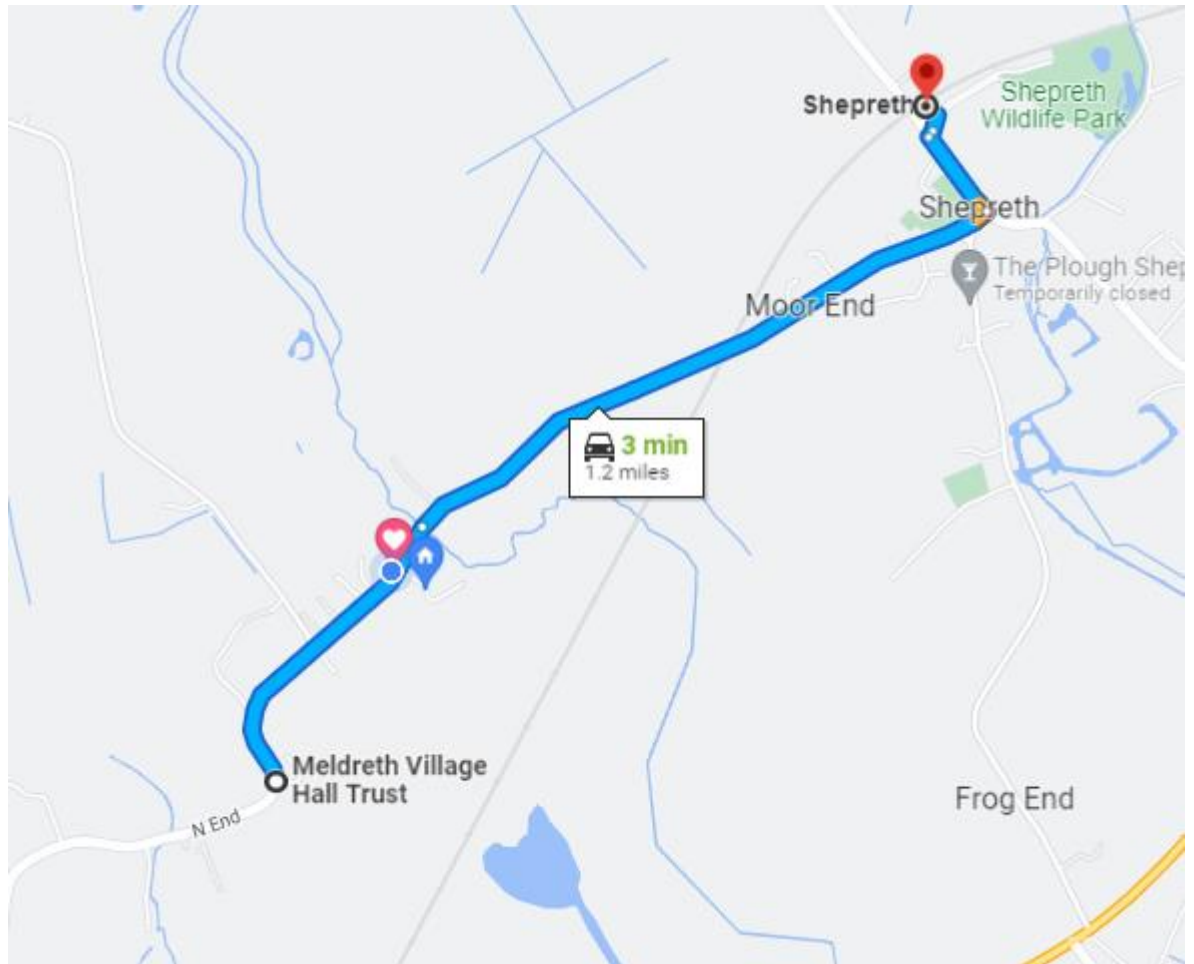


Figure 4 standard route top of Meldreth to Shepreth 3 minutes

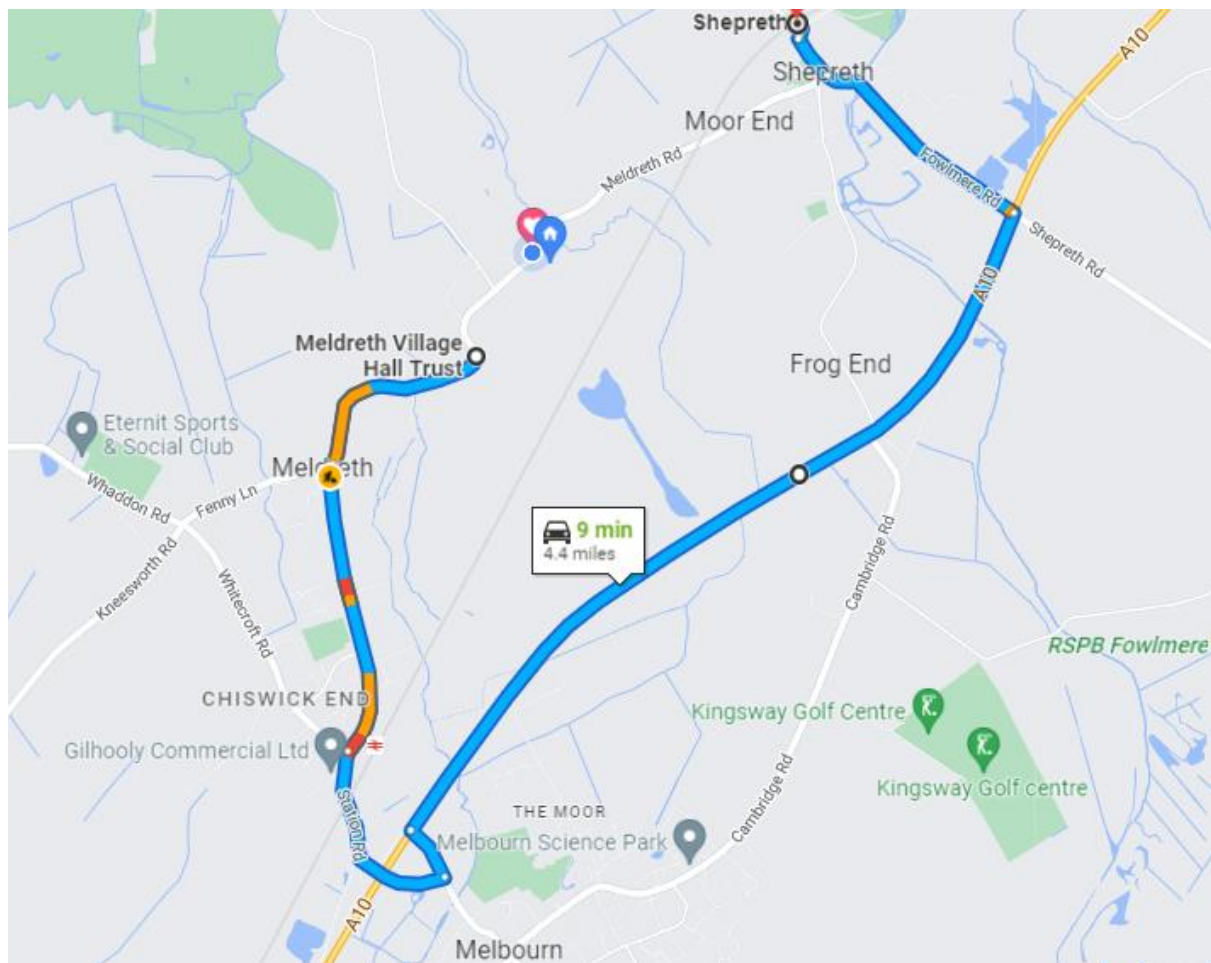


Figure 5 alternative route south 9 minutes



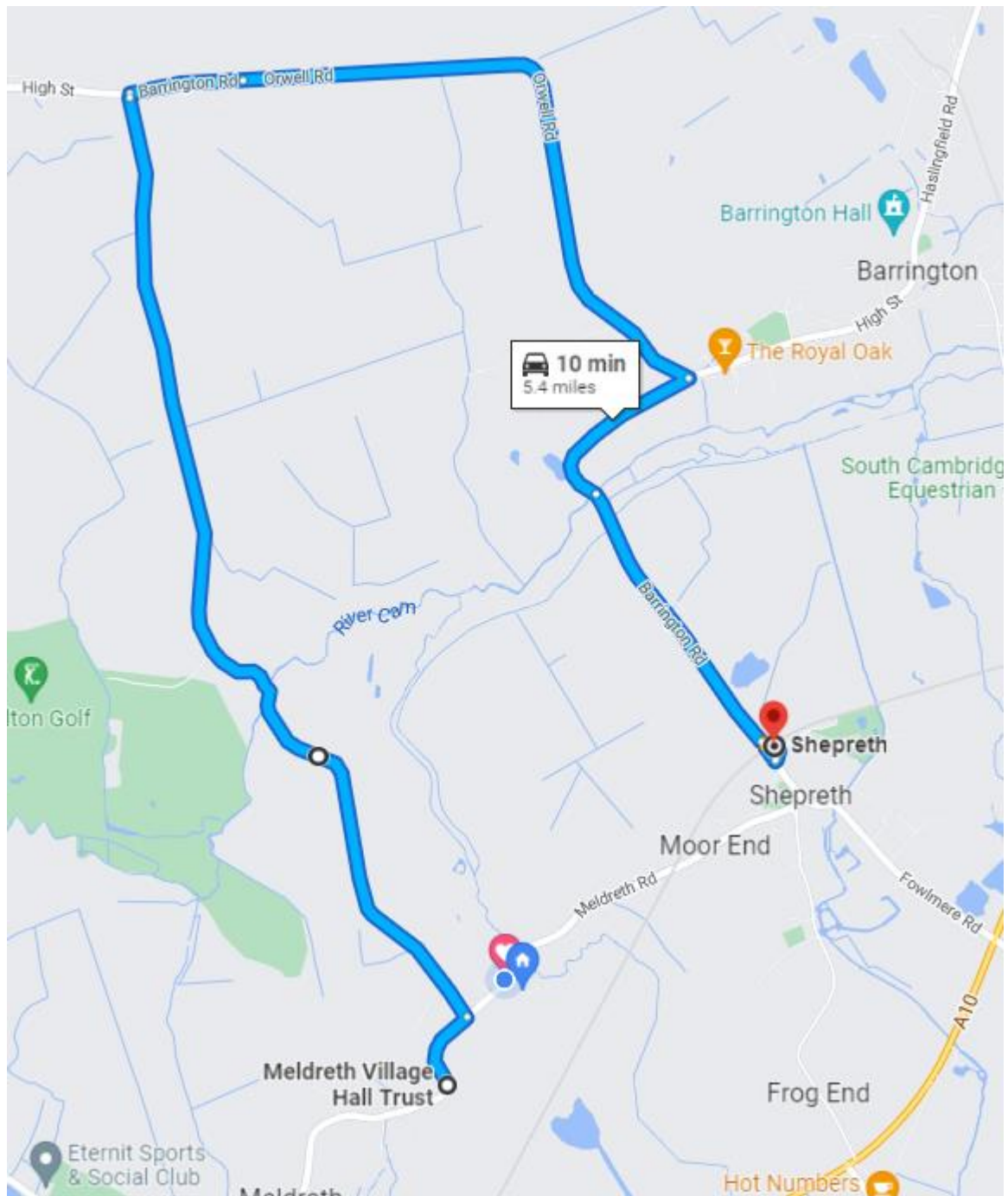


Figure 6 alternative route north 10 minutes

5. The added time creates a significant journey issue for those who travel across both crossings to catch a northbound train. The combination of both Shepreth station LC and Meldreth LC down time is prohibitive to those rail users.

Consequence – fewer rail users, dangerous driving behaviour, frustrated drivers. A straw poll on the local facebook group “spotted in Shepreth” confirmed this. Only limited comments are included but there are many more, my understanding is that nobody has surveyed the Shepreth LC against the original design assumptions–



I always go via Foxton if I can because the barriers go up and down between trains whereas I've sat at shepreth for 15 minutes before while four trains have gone though and the barriers have stayed down throughout. I've wasted so many hours of my life sitting at that crossing now and done nothing for my blood pressure! 😞  
With Foxton road closed at the moment there's no choice than to face the stress of shepreth crossing to go south from Barrington.

They went on –



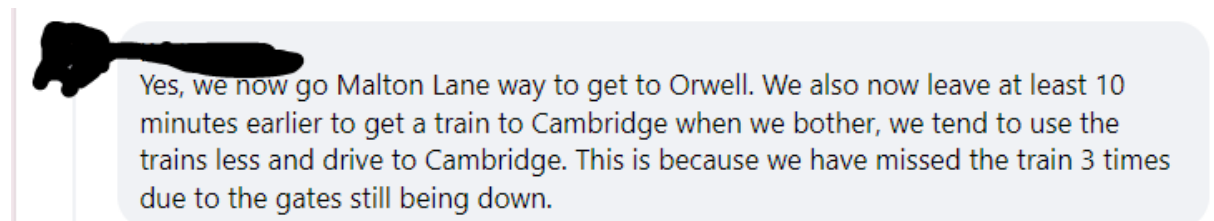
**Roger Faires** please do! My Mum and Dad have been living in shepreth since last December and I've been caring for my mum with her Alzheimer's. The most frequent message I must have sent my Dad this year when he's been waiting for me coming from Barrington to help with Mum has been 'stuck at crossing' 😞

I believe it is controlled from Foxton and some of the controllers seem to have the wit/confidence(?) to lift the barriers between trains while others don't. From a safety point of view I have also seen people climb over the barriers and cross the track when they are down because they're going to miss the train so the full barriers have made the whole situation into a farce and ridiculously stressful for local people. I must admit if I see them coming down I do put my foot down which I'm sure is not safe but it's a gut reaction against a possible 15 minute wait when you've got to get somewhere. [OBJ] [OBJ]

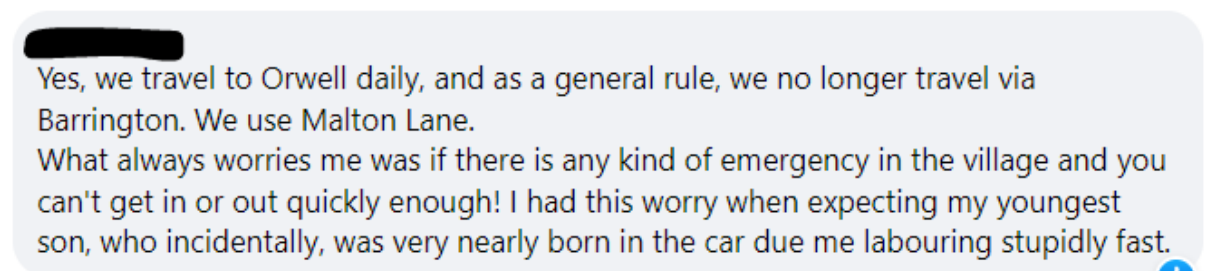
It would be terrible if they did it to the barriers at the other end of the village because it would virtually block your northern exit from Meldreth and if you were trying to get to Barrington you'd have to negotiate two sets of them. I'm in a cold sweat even thinking about the potential stress of it. I know this sounds highly dramatic but the times I've been sitting waiting at the station crossing really needing to be on the other side asap makes it trigger that reaction in me. [OBJ]



Another comment -



Another comment –



*Figure 7 Facebook replies on experiences of the Shepreth crossing. Note permission was granted by the individuals for the inclusion of the comments.*

6. The route is a popular cycling route with races coming through this way, bike groups cycle the Meldreth road en mass (easily up to 20 cyclists) at weekends.  
Consequence – Waiting possibly 12 minutes for a LC is frustrating, especially as you don't know how long you will be there, this winds drivers up. The crossing doesn't allow for cycle waiting or passing as the road after is narrow. In the worst case scenario there is to be a 69m of queue of traffic (this length doesn't account for 2 blocks merging as point 3). This means that there could be a queue of cars desperate to get across, before the barrier comes down again, behind cyclists whilst against an opposing queue with no overtaking, this is a recipe for accidents.  
It is also noted that the extent of the queue as shown in figure 8.8 of the modelling report appears inaccurate scale and the queue should be shown longer.



Figure 8 view to Shepreth with car queue back 70m. Note cars parking in distance on the left. This will cause issues when traffic is released

7. It is felt by experience that the Foxton crossing is more reliable and less prone to excessive waits, this is possibly because the signalperson there has full view of the crossing (as the signal box is adjacent) rather than CCTV view and hence reacts quicker.  
Consequence – no study has been taken to confirm that the signal person has enough time to monitor this new crossing in addition to current workload or if they will be able to monitor it as modelled.
8. The traffic modelling report was not issued for the consultation, it even says “*These results should be presented to the local authorities for further discussion on the impact to road users and the local road network*” there is no evidence this has occurred.

Consequence – the traffic modelling is key to the impact of the scheme. Consultees could not comment on information that is missing. As you will see below the potential down time in the report is lengthy, this will change behaviours and routes. Should the emergency services not be consulted?

## Conclusion

Risk has to be managed and clearly a 2 barrier system has risk but in this location there doesn't seem to be an argument presented for the new system beyond network rail reducing a small risk to a smaller one. But in doing that they increase journey times, impact emergency services routes, put off locals from using an access road and station, frustrate drivers, walkers and cyclists and causes queuing.

They have not presented the information to the public for consultation at the right time (reference point 8) or considered it properly themselves. It is generally felt locally that the previous station crossing upgrade was botched and I wonder if the traffic survey for those works suggested little to no impact which is clearly proved wrong. (It should have also had mitigation with a passenger bridge and a north side carpark to stop people standing for over 10 minutes the wrong side of the barrier having bought a ticket to them miss their train).

This LC upgrade needs to be fully reviewed with accurate modelling of what is and will happen not vague approximates based on averages. It may be that following this review repositioning the signals in the area could yield a significant time saving. It may be that there is a better system that differentiates between slow and fast trains or even a sensor system for the current arrangement rather than the 4 barriers. These options need to be considered as the alternative routes are long. If this 4 barrier system is installed then I believe it will change behaviours for some and frustrate others and is therefore more likely someone behaves dangerously trying to avoid getting stuck for over 10 minutes. My worse fear is an ambulance stuck on the wrong side on the way to a heart attack. As I write this, an ambulance just went past having come from the LC, would they chance a long wait at the crossing or go the long way round? Maybe someone should have asked them.

Thank you very much for your time and consideration of my objection, I look forward to your favourable response.

Yours Sincerely

*Roger Faires*

MEng CEng FIStructE

**From:** [REDACTED]  
**To:** [TRANSPORTINFRASTRUCTURE](#)  
**Subject:** Re: Cambridge Re-signaling, Relock and Recontrol (C3R)  
**Date:** 23 September 2022 10:09:40

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Hi Ms Shenaz,

Further to my comments I have a couple of additional points -

1- The brief poll on the local facebook group has plenty of comments and this week it seems that the locals have twigged that the upgrade is proposed and they are quite angry with the idea so lots of comments! I am happy to provide more quotes from them if requested. However it clearly shows the experience of the village of the station crossing is terrible and hence the rosey predictions of the Meldreth road will be incorrect.

2- It has come to my attention that there is a requirement for Network Rail to identify complex track and signalling layouts which may lead to the excessive warning times as experienced in Shepreth, which we expect will then occur at the Meldreth road crossing. If so then where is this review and what does it show?

Extract from an article in Rail engineer -

"The recommendations included a requirement for Network Rail to identify complex track and signalling layouts that may lead to excessive warning times at all automatic crossings, and a review of ARS data preparation processes where there is interaction with level crossing controls."

[Level crossing insight - Rail Engineer](#)

Thank you again for your time.

Best Regards

Roger

On Thu, 22 Sept 2022 at 15:31, Roger Faires [REDACTED] > wrote:  
Hi Ms Shenaz,

Indeed it did. I have found it. Thank you again for your correspondence.

best regards

Roger

On Thu, 22 Sept 2022 at 15:17, TRANSPORTINFRASTRUCTURE  
<[TRANSPORTINFRASTRUCTURE@dft.gov.uk](mailto:TRANSPORTINFRASTRUCTURE@dft.gov.uk)> wrote:

Dear Sir,

I have emailed your acknowledgement letter to the email from your original email. Maybe my email could be in your spam folder.

Kind regards

Shenaz Choudhary

**Ms Shenaz Choudhary** | Planning Casework Officer, Transport Infrastructure Planning Unit, Department for Transport  
1/14 | 07971 146036 |

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**From:** [REDACTED]  
**Sent:** 22 September 2022 15:12  
**To:** TRANSPORTINFRASTRUCTURE <[TRANSPORTINFRASTRUCTURE@dft.gov.uk](mailto:TRANSPORTINFRASTRUCTURE@dft.gov.uk)>  
**Subject:** Re: Cambridge Re-signaling, Relock and Recontrol (C3R)

Thank you for your reply, with the post as it is this week I expect your letter is delayed.

Many thanks again.

Roger

Sent from my iPhone

On 22 Sep 2022, at 14:53, TRANSPORTINFRASTRUCTURE  
<[TRANSPORTINFRASTRUCTURE@dft.gov.uk](mailto:TRANSPORTINFRASTRUCTURE@dft.gov.uk)> wrote:

Dear Sir,

Thank you for your email. I can confirm receipt of your original email and I have previously sent you a letter acknowledging your objection to the above scheme.

Kind regards

Shenaz Choudhary

**Ms Shenaz Choudhary | Planning Casework Officer, Transport Infrastructure Planning Unit, Department for Transport**  
1/14 | 07971 146036 |

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**From:** Roger Faires [REDACTED]  
**Sent:** 22 September 2022 12:38  
**To:** TRANSPORTINFRASTRUCTURE <[TRANSPORTINFRASTRUCTURE@dft.gov.uk](mailto:TRANSPORTINFRASTRUCTURE@dft.gov.uk)>  
**Subject:** Re: Cambridge Re-signaling, Relock and Recontrol (C3R)

Hi,

Further to the below, can you confirm receipt?

Best Regards

Roger

On Mon, 19 Sept 2022 at 21:05, Roger Faires [REDACTED] wrote:

Dear Minister,

Please note the attachment which sets out my objections to the Meldreth Road, Shepreth Level



crossing works.

Thank you for your consideration.

Best Regards

Roger Faires

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Network Rail  
One Stratford Place  
Montfichet Road  
London E20 1EJ

23 November 2022

Dear sir/madam

**Ref: Cambridge Resignalling, Relock and Recontrol (C3R) programme – Network Rail's response to objections received against proposed upgrade of Meldreth Road level crossing**

Network Rail are aware of the concerns raised by the residents of Meldreth and Shepreth in relation to the proposed safety upgrade at Meldreth level crossing, where a full barrier solution is being proposed to replace the existing half barrier as part of the wider Cambridge Resignalling (C3R) project.

We are writing to residents, interest groups and the Parish Council in response to their objections and representations made during the statutory objection period related to our submission of a Transport and Works Act Order (TWAo) in August 2022, to provide further information in relation to our proposals. Based on a review of these we have sought to provide further information in line with the broad themes of the objections and representations which are as follows:

- We have firstly set out the background to the project and the need for the level crossing upgrades as part of the wider C3R project;
- We have then set out the process of consultation that the project has gone through in terms of the submission of the TWAo;
- Based on the objections received we have provided a more detailed justification for the safety upgrade of the level crossing from the existing half barrier to a full barrier solution in line with Network Rail's Risk Assessment of the existing level crossing;
- Commentary on the potential increased queue lengths and journey time delays that would result from a longer barrier downtime due to the safety upgrade of the level crossing has then been provided; and
- Finally we have set out the next steps in terms of further consents required and ongoing engagement and consultation with stakeholders.

**BACKGROUND TO THE CAMBRIDGE RE-SIGNALLING PROJECT**

The aim of the C3R project is the renewal of the signalling system in the Cambridge area. This is currently at the end of its life (life expired). This £194m investment will improve reliability for both passenger and freight users as well as reduced maintenance costs and a system compatible with more modern digital technologies.

The project includes the following works:

- An upgrade of the signalling control equipment at Cambridge power signal box;
- The upgrade of the signalling safety interlocking equipment with modern signalling technology;
- Decommissioning of three mechanical signal boxes and relocating control of signalling to the Cambridge power signal box;



- Renewal of the telecommunications and power supplies to support the new systems; and
- Upgrade of seven level crossings from half barrier to full barriers to improve safety for all crossing users.

As part of this project Network Rail have identified cost benefits (combined signalling upgrade, reduced impact on train services and construction synergies) to undertaking the upgrade of the seven level crossings including Meldreth level crossing prior to the agreed renewal date as assessed in the Signalling Infrastructure Condition Assessment (SICA – i.e. the Route Asset Manager assessed date by which renewal of the crossing will be required). The SICA renewal date for Meldreth level crossing is currently the 5 March 2029.

## **PUBLIC CONSULTATION UNDERTAKEN TO DATE**

A Public Consultation event was held in March 2021 (subject to ongoing Covid Restrictions at the time) to raise awareness of the project and invite feedback on the initial proposals. Our published Consultation Report explains the findings of that Public Consultation in full, along with other engagement and statutory consultations undertaken as part of the TWAO Process<sup>1</sup>.

The March 2021 Public Consultation event was advertised in local media and through a leaflet drop in the communities surrounding the proposed level crossing upgrades. Including the consultation letters to statutory consultees, local authorities, councillors approx. 10,000 letters/leaflets were posted out. The consultation materials are still available to view at Network Rail - Citizen Space website<sup>2</sup>.

In total the March 2021 Public Consultation received 244 contacts. The responses are summarised as follows:

- 215 no. responses were provided to the online survey;
- Responses from 29 no. individual stakeholders (5 no. stakeholders provided responses to both the online survey and via e-mail) including a variety of organisations, local stakeholder groups and the public were submitted to the project email address (CambridgeC3R@networkrail.co.uk); and
- During the consultation period, the project received 1 no. telephone call.

From the responses received, 11 % 'did not support' and 22 % 'strongly did not support' specifically the proposed level crossing safety upgrades as part of the project. Within these responses 11 % of the 'did not support' and 45 % of the 'strongly did not support' responses related specifically to the proposed Meldreth Level Crossing safety upgrade.

An information round leaflet providing updates on the project was posted to the local communities and parties in September 2022. As part of the information made available to the public we provided a set of Traffic Modelling undertaken in response to the concerns raised as part of March 2021 Public Consultation and a set of Frequently Asked Questions that are available to view from the project website<sup>3</sup>.

In response to specific queries from the Meldreth, Shepreth and Foxton Community Rail Partnership a briefing was sent for discussion at their steering meeting in September 2022. The briefing

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<sup>1</sup> [www.networkrail.co.uk/cambridge-resignalling](http://www.networkrail.co.uk/cambridge-resignalling)

<sup>2</sup> <https://consultations.networkrail.co.uk/communications/c3r-consultation/>

<sup>3</sup> <https://www.networkrail.co.uk/running-the-railway/our-routes/anglia/improving-the-railway-in-anglia/cambridge-resignalling/>

specifically setting out summary findings of traffic impacts and the TWAO Process – see Attachment A.

## **TRANSPORT AND WORKS ACT ORDER APPLICATION OBJECTION PERIOD**

Although the majority of the works that make up the project can be undertaken on existing railway land, we may have to temporarily acquire land to carry out the renewal work. Some land may also be permanently acquired. At Meldreth level crossing these powers may be required for areas of land outside of existing operational and landownership boundaries.

On 5 August 2022, we submitted an application for a TWAO seeking the above powers to compulsory acquire land and rights in land at Meldreth level crossing (along with another 6 level crossings in the wider area). The powers sought will allow us to upgrade the level crossing by allowing temporary and permanent land for the proposed barrier upgrade.

Network Rail are engaged with the specific landowners at all seven of the level crossings areas as part of private treaty negotiations in relation to the required land and rights as part of a separate but related process to the powers sought as part of the TWAO. This process has continued throughout the process.

Following the submission of the TWAO to the Secretary of State for Transport, a period of objection opened and ran until Friday 23 September 2022 to allow anyone with an interest to register an objection or representation with the Department for Transport (DfT). As part of the statutory process for the TWAO we publicised the application and relevant documentation via the below:

- Published notices of the TWAO application in the Cambridge Independent, Cambridge News, Norwich Evening News and the London Gazette;
- Issued a Network Rail press release<sup>4</sup> to other local publishers and broadcasters across Anglia;
- Published the TWAO documents on our project webpage<sup>5</sup>;
- Issued an email notice to statutory consultees;
- Issued an email notice to county, district and parish councils; and
- Issued an email to non-statutory consultees including over 200 members of the public who responded to the March 2021 consultation.

As part of this ‘Objection Period’ the DfT received 28 objections and five representations. Twenty-four of the objections from the public related to the proposed Meldreth level crossing safety upgrade. In summary the broad themes within these 24 objections were:

- Lack of justification for the safety upgrade of the level crossing from the existing half barrier to a full barrier solution;
- Concerns in relation to the increased queue lengths and journey time delays that would result from a longer barrier downtime due to the safety upgrade of the level crossing.

The below information sets out the projects response to each of these concerns:

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<sup>4</sup> <https://www.networkrailmediacentre.co.uk/news/powers-sought-to-upgrade-level-crossings-as-part-of-major-signalling-upgrade-programme-for-cambridge>

<sup>5</sup> <https://www.networkrailmediacentre.co.uk/news/powers-sought-to-upgrade-level-crossings-as-part-of-major-signalling-upgrade-programme-for-cambridge>

## JUSTIFICATION FOR THE SAFETY UPGRADE OF THE MELDRETH LEVEL CROSSING FROM HALF BARRIER TO FULL BARRIER SOLUTION

Level crossings are inherently dangerous as they provide an opportunity for people to come into contact with trains and we as Network Rail have a legal duty to keep people safe. They were built as part of a 19<sup>th</sup> Century rail network, when there were fewer and slower trains, with little or no vehicular traffic. Today's level crossings operate within a vastly different environment that extends beyond the railway, having economic as well as safety impacts with a number of significant changes evident:

- trains that are generally now more frequent, quieter and travel at higher speeds than before;
- the population has increased resulting in more and different types of road users with a higher level of interaction between these and existing level crossings;
- Changing population (e.g. increased diversity, access by more vulnerable people);
- Changes in public attitudes and expectations that risks are designed out, increasing the likelihood of errors; and
- the growth of personnel electronic equipment and other technologies that can distract such users when using level crossings.

If we were to build a railway today it would not have any level crossings with the majority of modern rail networks not including any (e.g. HS1 does not include any level crossings.).

The result of this is that existing level crossings are one of greatest risks to public and passenger safety on the rail network today.

Level crossing safety is a priority for The Office of Rail and Road (ORR), the independent safety and economic regulator for Britain's railways. It is responsible for ensuring that railway operators comply with health and safety law. The ORR have recently issued their annual safety statistics, including accidents and safety incidents to passengers, workforce and members of the public. The report states that *'Level crossings continue to be a major source of risk on the railway. The moving annual average for all level crossing events had worsened by 15.9% by the end of the year and fatalities at crossings worsened considerably. There was a total of seven level crossing fatalities over the year. This is three more than last year and two more than each of the preceding years'*<sup>6</sup>.

We as Network Rail have an explicit legal duty under the Health and Safety at Work etc. Act 1974 (HSWA) to so far as reasonably practicable, not expose our passengers, the public or our workforce to risk at our level crossings.

We believe the most effective way of reducing level crossing risk is to eliminate the crossing completely by closing it. Where we practically cannot do this we will look at options to make the crossing safer. 'Enhancing Level Crossing Safety'<sup>7</sup> is our strategy to manage the safety and reliability of level crossings in Great Britain for the next 10 years. It is aligned to the rail industry strategy 'Leading Health and Safety on Britain's Railway'<sup>8</sup> which targets improved safety at level crossings as one of its 12 key priorities.

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<sup>6</sup> [Annual report of health and safety on Britain's railways - 2021-22 \(orr.gov.uk\)](https://www.orr.gov.uk/publications/annual-report-of-health-and-safety-on-britain-s-railways-2021-22)

<sup>7</sup> <https://www.networkrail.co.uk/wp-content/uploads/2020/03/Enhancing-Level-Crossing-Safety-2019-2029.pdf>

<sup>8</sup> [Leading Health and Safety on Britain's Railway \(LHSBR\) \(rssb.co.uk\)](https://www.rssb.co.uk/leading-health-and-safety-on-britain-s-railway)



### Meldreth level crossing

To inform the justification for the safety upgrade of a level crossing such as at Meldreth, Risk Assessments are undertaken by Network Rail and updated on an ongoing basis. The frequency at which Network Rail assesses a level crossing is dependent on the level of risk the crossing poses but generally is undertaken at intervals of between one and three years or if any significant changes are made.

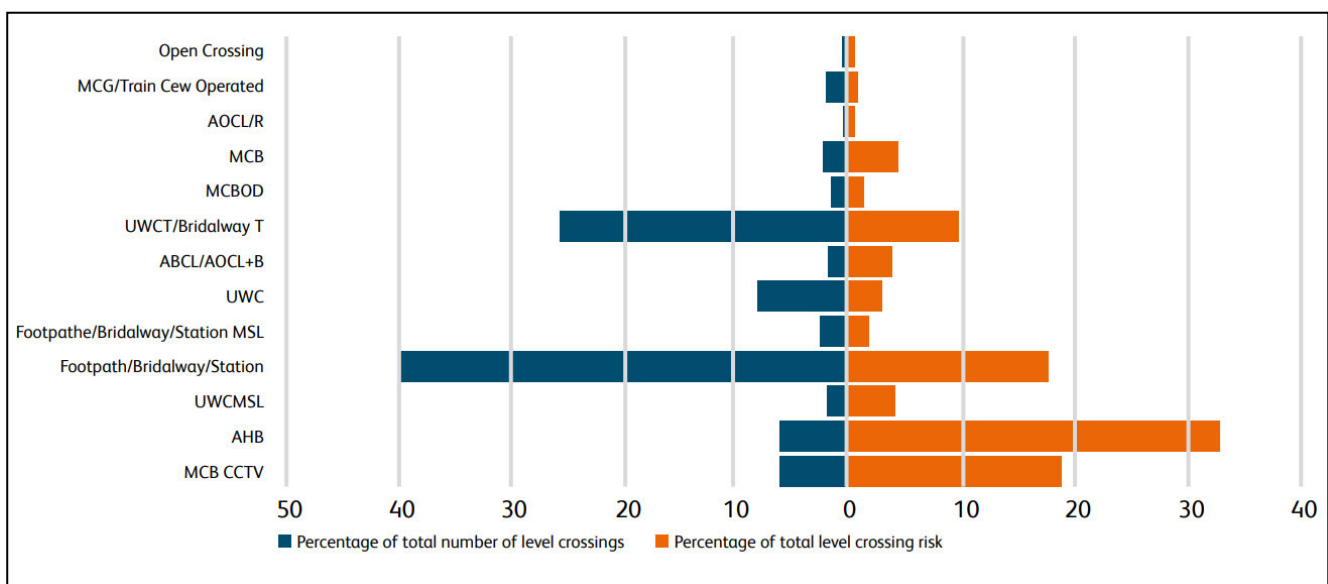
The Risk Assessments include the All Level Crossing Risk Model (ALCRM), a web-based risk tool used by Network Rail, to support it in managing the risk to crossing users, passengers and rail staff by assessing the risks at each crossing and targeting those crossings with the highest risk for remedial measures. The Risk Assessments also include an incident history at each level crossings including reporting of 'near misses' and level crossing misuse.

The findings of the ALCRM which supports Network Rail's level crossing safety assessments are available for public viewing via Network Rail's Level Crossing Safety page on their website<sup>9</sup>

### Existing situation at Meldreth level crossing

Meldreth level crossing is located between Royston and Shepreth Branch Junction. There are two tracks at the crossing, and it is electrified with a 25kV overhead line. It is a highly utilised stretch of line with a weekday average of 139 trains per day (approximately 70 passenger trains in each direction). The level crossing is currently an Automatic Half Barrier (AHB) crossing, with two half-width barriers and four LED type Road Traffic Lights (RTL). The crossing is monitored from Cambridge signal box.

The overall ALCRM for the entire network identifies (see below) that while AHB crossings of this type account for just 6 % of the total estate, they hold 32 % of total modelled risk and 75 % of our level crossings require the user to make the decision on whether it is safe to cross. AHB type crossings are therefore higher risk crossings compared to other types or full closures.



<sup>9</sup> <http://www.networkrail.co.uk/communities/safety-in-the%20community/level-crossing-safety/>

### Existing Pedestrian Environment

The ORR categorises pedestrian footways over crossings into three classes based upon usage by pedestrians and the frequency of rail traffic. The volume of pedestrian and train flow is determined by the train pedestrian value (TPV). The TPV is the product of the maximum number of pedestrians and the number of trains passing over the crossing within a period of 15 minutes. The TPV at Meldreth Road, based upon a 9-day census, is 8. This places the crossing in the lowest usage category – ‘class C’ (having a TPV of up to 150).

For this class, the ORR recommends that the footways are 1.5m wide. The ORR also indicates that the footway width can be reduced to 1.0m where the daily number of pedestrians is less than 25. Census data for the Meldreth site indicates a weekday average pedestrian frequency of 25 and a weekly average of 27. The footways are, therefore, not in compliance with the minimum width of 1.5m specified in ORR guidance for a pedestrian category C crossing. There are also no tactile thresholds on the footways at this barrier. As part of the proposed works at the level crossing Network Rail will be addressing this issues.

### Incident/near miss history at Meldreth level crossing

As part of the TWAO ‘Objection Period’, a number of received objections queried the level of incidents or near misses at Meldreth level crossing stating that there have been no or little such recorded events.

The Risk Assessment for Meldreth Level Crossing has recently been updated (Risk Assessment for Meldreth Road AHB Level Crossing’ - Doc no. 157001-SRK-REP-ESS-000010 – 21 October 2022).

As part of this update a nine-day, 24-hour traffic census by continuous recording was carried out at the crossing between 18th and 26th June 2022. This is an update to the previous census carried out in April 2013, which served as the previous basis of the risk assessment.

During the nine-day census, a total of 70 incidents of RTL running were identified with incidents recorded on every day of the census. RTL running is categorised as a vehicle passing the lights after initiation with sufficient warning on approach.

The Risk Assessment also includes ten years of Incident data up to August 2016 with 11 incidents recorded (versus an average of 18 for a crossing of this type).

The following recorded incidents are noteworthy at Meldreth Level Crossing:

- Two reported incidents of a ‘near miss’ with a pedestrian;
- One reported incident of a ‘near miss’ with a cyclist;
- One reported incident of a road vehicle obstructing the crossing; and
- Three reported incidents of other misuse by a road vehicle.

More recent Safety Management Information System data, for one year to 13th March 2019, shows one reported incident of a road vehicle zig - zagging around the lowered barriers (16/12/2018).

It is important to note that not all incidents or near misses are reported into Rail Safety and Standards Board Safety Management Intelligence System database and passed onto Network Rail.

Overall, the Risk Assessment of Meldreth level crossing shows:

- The Individual Risk ranking is **D** (the ranking allocates individual risk into rankings **A to M**, A is highest, L is lowest, and M is 'zero risk' e.g. temporary closed, dormant or crossings on mothballed lines)
- The Collective Risk ranking is **2** (this ranking allocates collective risk into rankings **1 to 13**, 1 is highest, 12 is lowest, and 13 is 'zero risk' e.g. temporary closed, dormant or crossings on mothballed lines).

The ACLRM score is therefore D2, placing the level crossing in the high risk category of crossings. Network Rail in line with its legal duty under the HSWA Act 1974 and in line with their strategy of upgrading high risk AHB crossings are therefore required to look at options to minimise risks at this crossing, so far as is reasonably practicable.

#### Options considered for safety upgrade of Meldreth level Crossing

Noting the high risk ACLRM score Network Rail have considered a number of options to enhance safety at Meldreth Level Crossing.

The risks to individuals and the likelihood and severity of the consequences of an incident at a level crossing, have been taken into account along with the specific characteristics of the crossing.

This has been weighed against the cost, time and effort of options to eliminate, reduce, or mitigate risk as summarised below.

<b>Options Considered</b>	<b>Summary Outcome</b>
<b>Maintain existing AHB Crossing</b>	Renewal of a crossing with an ALCRM score of D2 as an AHB would be contrary to Network Rail's strategy of upgrading high risk AHB crossings when renewal is required.
<b>Closure of the crossing</b>	The crossing is on the main road between Meldreth and Shepreth. There is an alternative route along the busy and congested A10 and may involve a detour of up to 8km. Given the usage of the crossing (1,500 vehicles, 100 pedestrians and cyclists per day) this is not a viable closure option.
<b>Closure + pedestrian bridge</b>	Main use is road vehicles so would not enable closure as above.
<b>Closure + road bridge or underpass</b>	A road bridge or underpass at this location is not likely to be feasible without purchasing significant land and existing houses as exist in three corners of the level crossing currently and any potential route for an off-line bridge has been eliminated by recent house building on Collins Close.
<b>Closure with Bypass</b>	Diverting the road to Barrington Road and crossing the railway at Shepreth station was considered. It would need about 800m of new undesignated road. There would also need for an additional ramped footbridge at Meldreth Road. This was estimated as having a potential cost of £4.5m consisting of construction and land costs
<b>Renew as an Automatic Barrier Level Crossing, Locally-monitored</b>	Not a viable option due to the restriction in line speed that would be necessitated.
<b>Renew as an automatic full barrier (AHB+)</b>	Meldreth Road level crossing has a very high benefit to cost ratio for Controlled Barrier Level Crossing with Obstacle Detection (MCB-OD) rather than AHB+ as the costs of a MCB-OD or AHB+ are similar (there are no additional signals for the MCB-OD) and there is a higher safety benefit for the MCB-OD type. Other considerations are road closure time and the proximity of Meldreth Road to Shepreth Station CCTV level crossing. Having different modes of operation for two crossings in close proximity

	introduces additional hazards in the event of a signalling failure. This reinforces the case to upgrade Meldreth Road as an MCB-OD type crossing.
<b>Upgrade to an Manually-Controlled Barrier Level Crossing with CCTV</b>	Both options are considered feasible. They would however share the protecting signals with Shepreth (on Shepreth station platform) which would increase the road closure time. The other signal is about 200 metres from the crossing. Future 'busiest hour' road closure time of Shepreth station and Meldreth Road may not be sustainable.
<b>Controlled Barrier Level Crossing with Obstacle Detection</b>	

In summary, the closure of the level crossing was not considered a preferred option noting the impact that this may have on the nearby Shepreth Level Crossing in terms of increased usage of an already busy crossing and so would also not reduce risk in the area. The capital cost of such options would also be in the region of twice as much as upgrading the existing half barriers to full barrier solutions as proposed and would have significant environmental effects both locally and in the wider area (land take, physical structures, environmental impacts such as noise, air quality, landscape & visual and construction related impacts).

Retaining the existing AHB crossing would not be the preferred option as it presents a high level of risk as shown by the ACLRM score (D2) with renewal of such crossing types being contrary to Network Rail's strategy of upgrading high risk AHB crossings when renewal is required.

Meldreth Road level crossing has a very high benefit to cost ratio when a Manually Controlled Barrier – Obstacle Detection (MCB-OD) or a Manually Controlled Barrier – CCTV (MCB-CCTV) barrier is installed versus that of an AHB+, as the costs of a MCB-OD and AHB+ are similar (there are no additional signals for the MCB-OD or CCTV) and there is a higher safety benefit for the MCB-OD (or MCB-CCTV) type when measured against the AHB+ crossing type. Other considerations are road closure time and the proximity of Meldreth Road to Shepreth Station CCTV level crossing. Having different modes of operation for two crossings in close proximity introduces additional hazards when in operating in degraded working scenarios (signal failures etc.). This reinforces the case to upgrade Meldreth Road as an MCB-OD (or MCB-CCTV) type crossing.

There is potential to control Meldreth Road level crossing from Foxton gate box at little or very low operational cost. Operationally, having the same type of crossing as Shepreth Station (also an MCB-CCTV type crossing) is more straightforward for the degraded mode situation (where signalling technology fails) where the shared protecting signals are at danger due to a right side signalling failure. An MCB-CCTV crossing is therefore concluded to have a slightly lower capital cost, similar operational cost and some operational simplicity benefits from having two similar type crossings between shared protecting signals. For these reasons, an MCB-CCTV type crossing is the preferred option at Meldreth level crossing.

## TRAFFIC IMPACTS OF PROPOSED UPGRADE

As part of the March 2021 Public Consultation the potential for increased barrier downtimes as a result of the proposed upgrade was highlighted and queried as part of a number of responses.

In response to these comments and engagement with the relevant Highways Authorities, Network Rails Transport Consultant (Modelling Group, in partnership with Tracsis Traffic Data Ltd) undertook Traffic Surveys and Modelling to assess the potential impacts of the increased barrier downtimes at each level crossing on all roads users and the surrounding highway networks.

Ongoing meetings were held throughout 2021/2022 with the relevant Highways Authorities to agree the methodology for the Traffic Modelling with agreement on the locations of traffic surveys, the highways networks to be modelled and assessed with consideration of the ongoing Covid

restrictions and their impact on traffic data discussed in July 2021. Traffic Surveys were undertaken in July 2021 (with further surveys undertaken in April 2022).

The following documentation and assessment have been produced and provided to the relevant Highways Authorities prior to meetings to discuss their outcomes:

- Level Crossing Study - Modelling Methodology;
- Level Crossing Study - Local Model Validation; and
- Level Crossing Study - Performance Report

The above documentation was made available via the project website.

The Traffic Modelling was based on 'do nothing' (this assessed a scenario with no upgrade at Meldreth Level Crossing but including future traffic demand) and 'do something' (this included the proposed crossing MCB-CCTV upgrade and future traffic demand) scenarios against the existing situation (existing scenario).

These scenarios were then used to assess the network performance including the average delays that may be experienced by road users. The agreed scenarios for Meldreth level crossing are shown below with the increased barrier downtimes shown for each scenario.

Scenario	Period – AM and PM	No. of times barrier called within period	Average Barrier Downtime (seconds)
<b>Base Model - Existing Barrier Downtime</b>	AM Peak - 08:00 to 09:00	10	62
	PM Peak - 16:30 to 17:30	9	62
<b>Do-Nothing scenario - No barrier upgrade and future traffic demand</b>	AM Peak - 08:00 to 09:00	12	62
	PM Peak - 16:30 to 17:30	10	62
<b>Do-Something Scenario - future traffic demand and proposed barrier upgrade</b>	AM Peak - 08:00 to 09:00	12	169
	PM Peak - 16:30 to 17:30	10	169

For the above scenarios the modelling shows that the 'Do Something' scenario would result in the existing 62 second barrier downtime increasing to 169 seconds in both the AM and PM peak - Downtimes would differ throughout the day depending on train timetables but these scenarios were modelled for both the AM and PM 'Peak' traffic periods to illustrate a reasonable worst case scenario.

Based on the above barrier downtimes and scenarios an assessment of network performance on the road was undertaken. This showed that the average delay at Meldreth Road after the upgrade will increase as shown below:

- In the AM Peak the average delay will increase from the existing figure of 63.9 seconds to 91.8 seconds ( an increase of 27.9 seconds)
- In the PM Peak the average delay will increase from the existing figure of 50.8 seconds to 72.3 seconds (an increase of 21.5 seconds).

The traffic modelling also shows that the following impacts as result of the proposed upgrade:



- Modest increases in the average and maximum queue lengths at the crossing. The highest increase is 52m, which is observed for the westbound direction in the AM peak. This equates to approximately 9 vehicles; and
- The proposed upgrade will have a minimal impact on eastbound journey times (2 seconds), with an approximate 65 second delay to westbound traffic, which is not considered significant.

### In Summary

The risk to public safety at level crossings depends on their configuration, the volume of pedestrian and vehicle traffic traversing the crossing, and rail traffic and has been assessed through the Risk Assessment method as noted above. The only way to eliminate this risk completely is to close each crossing.

However, in relation to Meldreth Level Crossing, Network Rail consider its closure impracticable, given the impact on local road networks, nearby level crossings and the related costs with greater potential environmental and social impacts.

Network Rail's proposals to upgrade this level crossing therefore involves striking a balance between the convenience the local communities in being able to cross a railway and maintaining public safety in line with our legal requirements.

On balance it is considered that the proposal will increase safety at this location and result in the least environmental and social impacts, noting that a Do Nothing Scenario is not considered viable based on existing ACLRM score (D2) at the level crossing.

The proposed MCB-CCCTV option is considered to have a slightly lower capital cost, similar operational cost and some operational simplicity benefits from having two similar type crossings between shared protecting signals. For these reasons, an MCB-CCTV type crossing is the preferred option at Meldreth Level Crossing.

## **NEXT STEPS**

### Transport and Works Act Order

Following the end of the 'Objection Period' for the TWAo, the DfT will decide if a Public Inquiry is required on the 2 December 2022. If a Public Inquiry is required the inquiry must take place within 22 weeks of this date. This will be advertised in a similar manner to the TWAo application.

### Planning Permission

The submitted TWAo, if granted (or made) by the Secretary of State for Transport does not include a request for planning permission to undertake the works at Meldreth level crossing. Network Rail intend to submit an application for full planning permission via the Town and Country Planning Act 1990 for the works associated with Meldreth level crossing to South Cambridgeshire District Council (SCDC) before the end of 2022. SCDC have provided an Environmental Impact Assessment (EIA) Screening Opinion (Cambridge Shared Planning Service Planning Refs: 21/03205/SCRE & 21/03253/SCRE) stating that the proposed development is not considered EIA development. As part of this request SCDC sought consultation responses from a number of consultees, receiving response from the following:

- Natural England;
- Cambridgeshire County Council (Highways Authority);
- The Environment Agency; and
- South Cambridgeshire and Cambridge City Council Health Development Officer and Ecology Department

Although the development is not considered EIA development, the application for full planning permission will be accompanied with a full set of planning documentation in line with the SCDC Local Validation planning list. This will include a full set of planning drawings; application forms and a suite of environmental documentation including a Transport Assessment; Construction Management Plan; Arboriculture Assessment and an Preliminary Ecological Assessment reporting the outcomes of ecology surveys on site and an assessment of potential impacts and proposed mitigation (Ecological Impact Assessment).

#### Further Consultation

The Planning and Compulsory Purchase Act 2004 requires that at any time a decision is made on an application for express planning permission, stakeholders and the local community should have the opportunity to comment on any aspect of the proposal.

Consultation on planning applications will take place with both statutory and non-statutory consultees. Who is consulted on each individual application will depend on the nature of the proposal and its location. All consultees have 21 days from the issue of the consultation notice to make comments on the application (extended as appropriate where the period extends over public or bank holidays). The minimum statutory requirements are set out in the Town and Country Planning (Development Management Procedure) (England) Order 2015.

The statutory consultation process for applications for express planning permission under the TCPA 1990, where required as part of the Scheme will be undertaken via SCDC once the application has been submitted providing further opportunity to raise and respond to issues.

We hope this response is helpful in setting out in more detail, the justification for upgrading the level crossing on Meldreth Road and Network Rail's position ahead of any possible Public Inquiry.

If you have any further queries, you can contact us by emailing [CambridgeC3R@networkrail.co.uk](mailto:CambridgeC3R@networkrail.co.uk) or our 24/7 helpline, 03457 11 41 41 or visit [www.networkrail.co.uk/contactus](http://www.networkrail.co.uk/contactus).

You can also follow us on Twitter @networkrailANG

Yours faithfully,



Stephen Deaville  
Snr Communications Manager (Anglia)

Sent on behalf of the C3R project team.

Dear Minister,

**Meldreth Road Level crossing Enquiry Supplemental commentary on NR response and further information**

Further to the request for evidence/information for the enquiry I have sent over my previous objection for consideration which is still valid. It covers my belief that there are errors in the documentation that supports the proposal. One of my key points is that the poor assessment of downtime for the crossing and hence the time drivers wait will change behaviour and that has not been addressed in the risks. This letter sets out my response and considerations since Network Rail issued their report/response reference *Cambridge Resignalling, Relock and Recontrol (C3R) programme – 23 November 2022 - Network Rail's response to objections received against proposed upgrade of Meldreth Road level crossing* and also references *Meldreth Road AHB Crossing Narrative Risk Assessment 09.05.22* which is appended to the Statement of Case document issued on the 20<sup>th</sup> of January.

- In their response to the objections Network rail explained that they tried to eliminate all options with a table under the heading “Options considered for safety upgrade of Meldreth level Crossing” they omitted the ANPR option set out in the risk assessment document without explanation and focus on the silly idea such as a bridge/large diversion etc. Why is an ANPR camera trap system not a viable solution here?
- Network rail have still failed to assess the down time for the crossing based on actual timetabled trains with respect to the arrangement of the signals and rely on a traffic model which is neither specific or accurate to the site. Even their base data is inconsistent. It states an average downtime currently is 62 seconds whilst the Narrative risk assessment states 52 seconds. There is no consideration or statement for the maximum down time realistically possible and if once this upgrade is installed the timings in the reports are found to be inaccurate then it will be too late.
- Following a FOI request I requested the adjacent Shepreth station crossing incident data. It flagged the following –  
In the time period (2015 – 2021 inclusive) there were 2 incidents prior to the crossing upgrade at Shepreth and 3 incidents after the crossing upgrade (upgrade believed to be circa 2018 and halfway through this).  
2015 – 2  
2019 - 2  
2020 - 1  
Whilst I don't believe it is statistically significant to suggest an increase it does show that incidents still occur when a 2 arm level crossing is replaced with a 4 arm. So this isn't a case of eliminating risk but reducing it. However that risk isn't balanced with a realistic set of data of how behaviour will change with the added down time.
- The narrative risk assessment sets out risks of concern such as weaving cars and pedestrians wandering across without realising or chancing a crossing.  
No other solution to stopping weaving have been proposed such as a central island between the lanes which blocks the lead car from weaving out, whilst this would involve some land purchase to increase the carriage way it would be preferable. There is no option on

improving the pedestrian approach with better paving and tactile surface to indicate to stop. Again, this may reduce incidents but is not considered.

- With no review of how the signals would work and trigger and therefore the actual time that the crossing would be down there is no review if that could be optimised. For example, reading the Network rail risk assessments for the various sites there appear a number of different down times and these are a function of trigger point locations. With the new crossing system is there any adjustments to optimise the downtime. The proposed slightly cheaper MCB-CCTV option is put forward, but it isn't clear if a slightly more expensive solution could yield time savings. The reports only focus on reducing risk and does not spend time looking at how to reduce impact.
- One aspect that is repeated but not qualified is that maintenance on the crossing, and crossing issues cause rail delays. It is unclear as to how a mechanical system with twice as many moving parts (4 arms) is more reliable with a replacement system that matches the existing and has only 2 moving parts.
- The village has already suffered with the botched Station level crossing upgrade, so taking a holistic view this crossing is further detriment to the lives of residents without mitigation or improvement such as a pedestrian bridge at the station and reinstatement of the carpark on the north side of the station.

I urge you to consider the information and objections and demand that Network rail completes a full analysis of the impact of the crossing such that a reasoned risk based approach can be made.

Yours Sincerely,

*Roger Faires*