

## NARRATIVE RISK ASSESSMENT – PASSIVE TEMPLATE FINAL v2.0

### PASSIVE LEVEL CROSSING RISK ASSESSMENT

#### 1. LEVEL CROSSING OVERVIEW AND ENVIRONMENT

##### 1.1 LEVEL CROSSING OVERVIEW

This is a risk assessment for Thurston Station level crossing.

Crossing details	
Name	Thurston Station
Type	SBCMSL
Crossing status	Domestic
Overall crossing status	Open
Route name	Anglia
Engineers Line Reference	CCH, 32m, 45ch
OS grid reference	TL918650
Number of lines crossed	2
Line speed (mph)	75
Electrification	N/A
Signal box	Colchester Signal Box

Risk assessment details	
Name of assessor	Mike Lewis
Post	Level Crossing Manager
Date completed	04/12/2019
Next due date	04/03/2022
Email address	mike.lewis@networkrail.co.uk
Phone number	07715133092

ALCRM risk score	
Individual risk	D
Collective risk	4
FWI	0.003934376

##### 1.2 INFORMATION SOURCES

The table below shows the stakeholder consultation that was undertaken as part of the risk assessment.

Consulted	Attended site
Local resident	No

*Stakeholder consultation and attendance notes:*

MOP Stayed until train arrived

The reference sources used during the risk assessment included:

- Census, Other (Previous RA), CCIL, SMIS.

### 1.3 ENVIRONMENT



DSCA



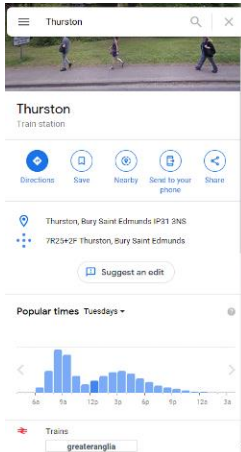
USCA



DSAC



USAC



The environment surrounding Thurston Station level crossing

It is a domestic level crossing. The level crossing is at a station.

At Thurston Station level crossing the orientation of the road/path from the north is 180°; the orientation of the railway from the north to the up line in the up direction is 270°. Low horizon can result in sun glare; sun glare is a known issue.

There are planned or apparent developments near the crossing which may lead to a change or increase in use or risk.

*Site visit general observations:*

There has been planning permission submitted regarding plans of an extra housing being built within the Thurston vicinity

## 2. LEVEL CROSSING USAGE

### 2.1 RAIL

The train service over Thurston Station level crossing consists of passenger and freight trains. There are 115 trains per day. The highest permissible line speed of trains is 75mph. Trains are timetabled to run for 24 hours per day.

*Assessor's notes:*

Various lengths of trains consisting of freight and passenger with stopping and non-stopping trains.

### 2.2 USER CENSUS DATA

A 24 hour census was carried out on 23/10/2019 by Mike Lewis. The census applies to 100% of the year.

The census taken on the day is as follows:

<b>Pedestrians</b>	160
<b>Pedal cyclists</b>	0
<b>Horses / riders</b>	0
<b>Animals on the hoof</b>	0

Available information indicates that the crossing has a high proportion of vulnerable users.

*Vulnerable user observations:*

Children in education do use the crossing so vulnerable users have been added

Available information indicates that the crossing has a high number of irregular users.

*Irregular user observations:*

Crossing is used to gain access to the up platform so in use 24hours a day

Information gathered indicates that Thurston Station level crossing has a high number of users during the night or at dusk.

*Site visit night / dusk user observations:*

At a station so does have usage

*Assessor's general census notes:*

Covert camera installed for 9 days average given for 24 hours
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### 2.3 USER CENSUS RESULTS

ALCRM calculates usage of the crossing to be 0 road vehicles and 160 pedestrians and cyclists per day.

### 3. RISK OF USE

#### 3.1 SIGHTING AND TRAVERSE

At Thurston Station level crossing, the decision point and traverse lengths are calculated as:

	Decision point (m)	Traverse length (m)	Measured from
Up side	2	9	White stop line.
Down side	2	9	White stop line.

Rubber decking is provided over the level crossing. The decking is considered to be wide enough for all users of the crossing. It is fitted with a non slip surface.

The traverse times are calculated as:

	Traverse time (s)
Pedestrians	11.35

The current census has identified a high proportion of vulnerable users. The pedestrian traverse time has been increased by 50% to account their traverse.

*Assessor's traverse time notes:*

Traverse time is as low as possible but by fitting a wider deck would remove the chance of pedestrians blocking back as this can happen if there is a large amount of people leaving train while a large amount catches train
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Sighting was measured by the following means:

- Using Range Finder

Sighting, measured in metres, at Thurston Station level crossing is recorded as:

All distances are recorded in metres	Minimum sighting distance required	Measured sighting distance	Sighting distance measured to	Is sighting compliant?	If deficient, is sighting distance mitigated?	Notes on deficient sighting time mitigations
Up side looking toward up direction train approach	381	345	Over bridge	No	YES	MSL installed
Up side looking toward down direction train approach	381	1499	Gt Barton Overbridge	Yes	NO	Sighting is compliant
Down side looking toward up direction train approach	381	345	Vegetation past Overbridge	No	YES	MSL installed.
Down side looking toward down direction train approach	381	1499	Gt Barton Overbridge	Yes	NO	Sighting is compliant.

Sighting restrictions are recorded as follows:

	Up Direction	Down Direction
Nothing; vanishing point	YES	NO
Track curvature	NO	YES
Permanent structure (building/wall etc)	NO	NO
Signage or crossing equipment	NO	NO
Vegetation	NO	NO
Bad weather on the day of visit	NO	NO
Other	NO	NO

There are known obstructions that could make it difficult for users to see approaching trains. There are known issues with foliage, fog or other issues that might impair visibility of the crossing, crossing equipment or approaching trains.

Actions to improve sighting have not been identified.

*Assessor's improving sighting and decision point notes*

MSL could be moved but sighting is mitigated by the MSL

*Assessor's general sighting and traverse notes:*

Sighting is slightly obscured by the MSL equipment on the down side.

### 3.2 EVALUATION OF MITIGATIONS

Thurston Station level crossing is provided with warning lights.

	Designed strike in time (Obtainable from RAM)	Is the observed warning time > the traverse time by at least 5s?	Are audible alarms provided?	Are the warning lights routinely ignored (e.g. at a station or due to excessive warning time)?	Comments on the visibility of warning lights (e.g. visible from all approaches) and audible alarms where fitted
Up line	25	Yes	Yes	Yes	MSL is visible
Down line	25	Yes			MSL is visible

*Assessor's notes on warning light suitability as a risk control*

The census has increased so the chance of MOP misusing the crossing while a train is in the platform will only start to increase

### 3.3 CROSSING APPROACHES

The signs at Thurston Station level crossing are located on the direct route a user would take over the level crossing, they are positioned so that they are clearly visible to users taking a

direct route over the level crossing. The visibility of the signs is not reduced at night or at dusk as crossing is at station so there is additional lighting

*Assessor's notes:*

There has been a car park meter placed as you enter the station on the down side I feel the users will be more worried about paying for there car park ticket and catching the train than adhering to the msl equipment there for I feel the car park machine needs to be removed away from the entry to the downside decision point

There are adjacent sources of light or noise that could affect a users' ability to see or hear approaching trains.

*Assessor's general crossing approach notes:*

Crossing is at the station, so lighting is present down road is not a matching deck

### 3.4 AT THE CROSSING – ANOTHER TRAIN COMING RISK

Trains are occasionally known to pass each other at this crossing.

*Assessor's another train coming notes:*

Trains can be stopping trains while the other road can be a through train so if anyone was to misuse the crossing while one was stopped it could be a near miss or worse

### 3.5 INCIDENT HISTORY

A level crossing safety event has been known to occur at Thurston Station level crossing in the last twelve months.

*Assessor's incident history notes:*

**23-11-19-LC Misuse-14:27MOM** at Thurston. Reported train approached several people crossed to catch the train over Thurston MWL crossing. MOM advised that crossing lights working and At 13:54

Driver of 2W16 reported 4 youths crossed in front of the train as it was approaching the platform at Thurston MWL level crossing. The driver did not report it as a near miss or EBA.

**20-7-19-LC Misuse** - Staff reported that two couples crossed the crossing as train pulled into the station at Thurston Station Level Crossing and at 09:50 the driver of 2W08 (09:20 Ipswich - Cambridge) near miss at Thurston crossing with a member of the public. The person was observed to have run across the crossing as the train approached the station. The driver was fit to continue. The BTP were advised. A MOM attended at 11:43 and confirmed that all signage was present and correct.

**27-1-19-LC Misuse**-At 10:05 hours the Colchester SSM reported driver of 2W09

09:14 Cambridge - Ipswich reported level crossing misuse at Thurston station footpath crossing, a women walked across in front of his train as he was approaching the station, driver reported that he did not make any additional brake applications as he was slowing down for the station.

**7-1-19-LC Misuse-**At 19:30Driver2W29 18:47 Cambridge-Ipswich reported 3 youths ran across the track in front of him at Thurston crossing. Driver did not report it as a near miss and was okay to continue. The Driver of 2W28 was cautioned as a result.

#### 4. ALCRM CALCULATED RISK

##### Thurston Station level crossing ALCRM results

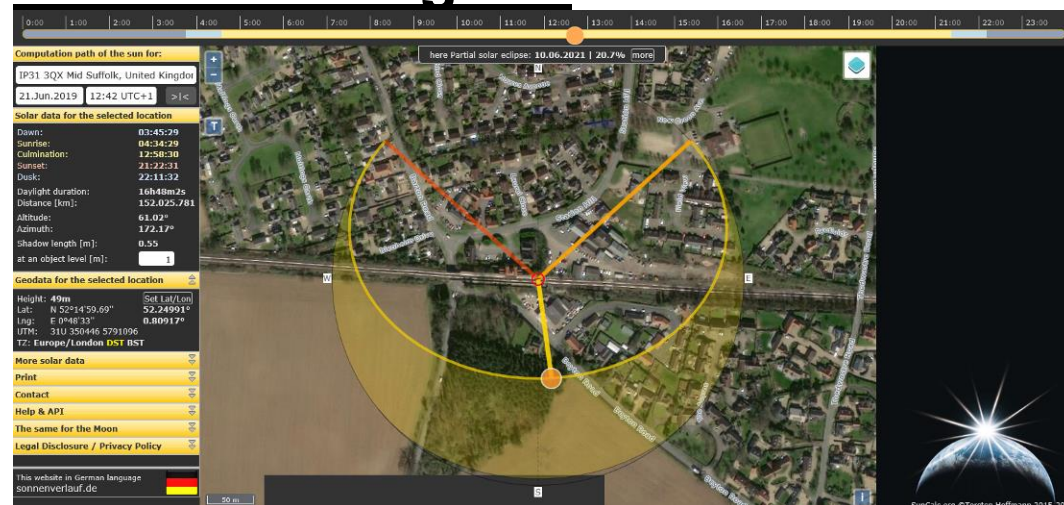
**Key risk drivers:** ALCRM calculates that the following key risk drivers influence the risk at this crossing:

- Frequent trains
- Large number users
- Low sighting
- Near station
- Sun glare

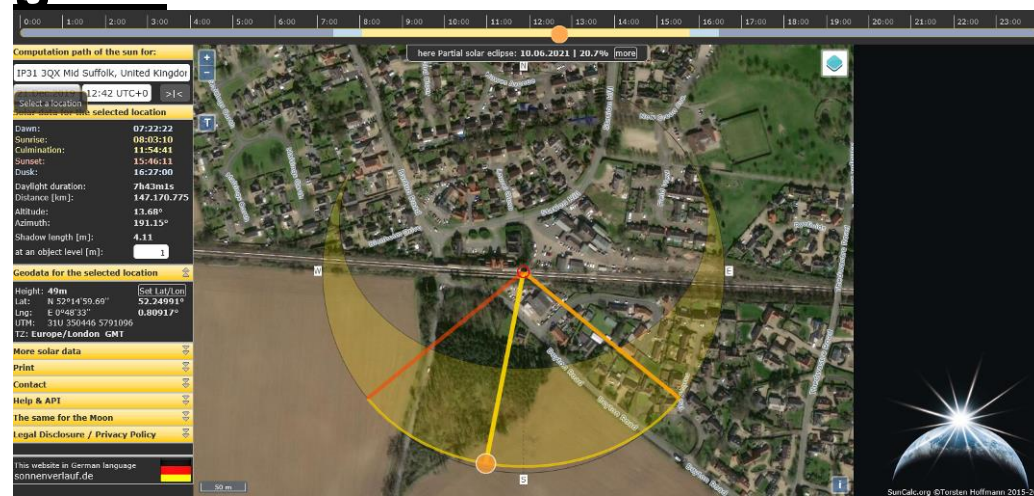
##### Assessor's key risk drivers notes

Car park ticket machine distracting MOP from railway instructions

## Summer sun glare



# Winter sun glare



Safety risk				
Compared to other crossings the safety risk for this crossing is	Individual risk		Collective risk	
	D		4	
	Individual risk (fraction)	Individual risk (numeric)		
Car	0	0	0	
Van / small lorries	0	0	0	
HGV	0	0	0	
Bus	0	0	0	
Tractor / farm vehicle	0	0	0	
Cyclist / Motor cyclist	0	0	0	
Pedestrian	1 in 29788	0.00003357	0.003920978	
				<b>Derailment contribution</b>
Passengers			0	0
Staff			0.000013398	0
<b>Total</b>			0.003934376	0
<b>Collision frequencies</b>	<b>Train / user</b>	<b>User equipment</b>	<b>Other</b>	
Vehicle	0	0	0	
Pedestrian	0.002679652	0	0.079322751	
<b>Collision risk</b>	<b>Train / user</b>	<b>User equipment</b>	<b>Other</b>	
Vehicle	0	0	0	
Pedestrian	0.002175877	0	0.001745101	



## 5. OPTION ASSESSMENT AND CONCLUSIONS

### 5.1 OPTIONS EVALUATED

The options evaluated to mitigate the risks at Thurston Station crossing include:

Option	Term <sup>1</sup>	ALCRM risk score	ALCRM FWI	Safety Benefit	Cost	Benefit Cost Ratio	Status	Comments
Close and divert	Long term	M13	0.0	0.003934376	£3.5m	0.02	Accepted in Option meeting 12-2-2020	This is the preferred option as the population around Thurston is growing with new housing etc
Move car park meter	Long term	D4	0.003934376	0.0	Third party		Passed to Greater Anglia	This was installed by Greater Anglia and requires to be moved away from the entrance
Widen crossing deck wide enough for large influx of users	Short term	D4	0.003934376	0.0	£10K	0	Accepted in Option meeting 12-2-2020	As the population is growing around Thurston and the census is growing it would be a good option to install a wider crossing deck in case large numbers enter and exit the station at the same time

#### NOTES

Network Rail always evaluates the need for short<sup>1</sup> and long term risk control solutions. An example of level crossing risk management might be; a short term risk control of a temporary speed restriction with the long term solution being closure of the level crossing and its replacement with a bridge.

<sup>1</sup> Includes interim

CBA gives an indication of overall business benefit. It is used to support, not override, structured expert judgement when deciding which option(s) to progress. CBA might not be needed in all cases, e.g. standard maintenance tasks or low cost solutions (less than £5k).

The following CBA criteria are used as a support to decision making:

- a. benefit to cost ratio is  $\geq 1$ : positive safety and business benefit established;
- b. benefit to cost ratio is between 0.99 and 0.5: reasonable safety and business benefit established where costs are not grossly disproportionate against the safety benefit; and
- c. benefit to cost ratio is between 0.49 and 0.0: weak safety and business benefit established.

## 5.2 CONCLUSIONS

### Assessor's notes:

Thurston Station crossing is located in Thurston village IP31 3QT and is located at the Haughley end of Thurston station which is on the CCH at 32Miles and 45Chains. It provides access from the down platform to the up platform and an exit from the up platform to exit the station as there is no other means of exiting the station.

The crossing is protected by Miniature warning lights (MSL) Which show RED to stop and a GREEN to proceed there is also Yodels which give an audible warning. The MSL provides mitigation against the reduced sighting travelling in the up direction.

There is a kee klamp chicane on the down side approach as you enter the station to put the pedestrians in plain view of the MSL and it makes the cyclists dismount.

Ticket machines have been placed as you approach the down side I feel if a mop was running late and had to get both train ticket and car park ticket and a was trying to catch the up train they could misuse the crossing as they are on the approach to the decision point and miss the crossing signage therefor they would need to be moved to a different location and these were installed with no consultation to myself

There have been numerous planning applications been approved since the last risk assessment and the census details has risen by 31 users and with new developments planned this number will rise to an unacceptable figure increasing the risk

With the safety communication manager working with the developers briefing and handing out leaflets to the occupants on the new dwellings this will inform them on correct usage at the crossing, but I feel the closure and creating the new access/exit to the up platform should be progressed and in the meantime a wider deck should be installed as this will cope with the influx of large amounts of users trying to exit and enter the crossing at the same time

### Options

#### Widen crossing deck to 3.6m on both roads

By doing the above this would stop blocking back on the crossing as the crossing would benefit when large number of passengers are entering and exiting the station at the same time as blocking back is possible due to the narrow crossing deck

#### Relocation of ticket machines

These can cause users to ignore the crossing signage as they are on the approach to the level crossing decision point these have been installed by Greater Anglia with out myself being consulted about location

#### Closure with diversion

Closure and construction of a pedestrian ramp, layby and changes to the public road and footpath layout by redirecting the users for the up side, a ramp could be constructed exiting the station by means of a pedestrian ramp/steps adjacent to the up side and along the roadway as there is land adjacent to platform with the census growing from last Risk assessment and new houses being built this is the preferred option

### **Update Option meeting 12-2-2020**

Option table has been updated and the option review form is below with the following options going forward

Closure via diversion to new ramp on upside  
Widen crossing deck to 3.6m (Maintenance)  
Ticket machine to be moved by Greater Anglia



**ANNEX A – ADDITIONAL PHOTOGRAPHS**



**USUDTA**

**USDDTA**



**DSDDTA**

**DSUDTA**

Optioneering Review Meeting

Crossing Name -		Thurston station barrow MSL		12/02/2020	
ALCRM ID		Attendees:			
2976					
Options			Accept / Reject (Brief Reason why Rejected)	Owner	
Closure by diversion			Accept	Liabilities/Sponsor	
Widen crossing deck to 3.6m			Accept	Maintenance	
Relocate of Greater Anglia ticket machines			Accept	LCM / AGA	
IN SIN 120					
Name and Role		Signature		Date	
B. RUSSELL LCM					
A. Walsing LCM					
T. CLIFTON LCM					
D. LINCOLN LCM					
P. WAREINGHAM AREA MGR					
J. BURMAN					
M. PUGH					
J. NASH (Area Manager)					
J. PUGH - LCM (WA)					
T. GAGAN LCM					
W. SEMARO Liabilities					

Maintenance tracker updated? ✓  
 Optioneering " " " " ? ✓ 13/2/20 JP

## ANNEX B – HAZARD IDENTIFICATION AND RISK CONTROLS

The table below is intended for use by risk assessors when identifying hazards and risk control solutions. It is not an exhaustive list or presented in a hierarchical order.

	Hazard	Control
<b>Road vehicle and train collision risk</b>	<p>Examples at the crossing include:</p> <ul style="list-style-type: none"> <li>insufficient sighting and / or train warning for all vehicle types; known to be exacerbated by the driving position, e.g. tractor</li> <li>level crossing equipment and signage is not conspicuous or optimally positioned</li> <li>instructions for safe use might be misunderstood e.g. signage clutter detracts from key messages, conflicting information given</li> <li>high volume of unfamiliar users, e.g. irregular visitors, migrant workers</li> <li>known user complacency leading to high levels of indiscipline, e.g. failure to use telephone, gates left open</li> <li>type of vehicle unsuitable for crossing; <ul style="list-style-type: none"> <li>large, low, slow making access or egress difficult and / or vehicle is too heavy for crossing surface</li> <li>risk of grounding and / or the severity of the gradient adversely affects ability to traverse</li> </ul> </li> <li>poor decking panel alignment / position on skewed crossing</li> <li>where telephones are provided, users experience a long waiting time due to: <ul style="list-style-type: none"> <li>long signal section (Signaller unaware of exact train location)</li> <li>high train frequency</li> </ul> </li> <li>insufficient or excessive strike in times at MSL crossings</li> <li>high chance of a second train coming</li> <li>high line speed and / or high frequency of trains</li> <li>unsuitable crossing type for location, train service, line speed and vehicle types</li> </ul>	<p>Controls can include:</p> <ul style="list-style-type: none"> <li>optimising the position of equipment and / or signs</li> <li>removing redundant and / conflicting signs</li> <li>engaging with signalling engineers to optimise strike in times</li> <li>upgrading of asset to a higher form of protection</li> <li>downgrading of crossing by removing vehicle access rights</li> <li>optimising sighting lines and / or providing enhanced user based warning system, e.g. MSL</li> <li>re-profiling of crossing surface</li> <li>engaging with stakeholders / authorised users to reinforce safe crossing protocol, legal responsibilities and promote collaborative working</li> <li>widening access gates and / or improving the crossing surface construction material</li> <li>realigning or installing additional decking panels to accommodate all vehicle types</li> <li>implementing train speed restriction or providing crossing attendant</li> </ul>
<b>Pedestrian and train collision risk</b>	<p>Examples include:</p> <ul style="list-style-type: none"> <li>insufficient sighting and / or train warning</li> <li>ineffective whistle boards; warning inaudible, insufficient warning</li> </ul>	<p>Controls can include:</p> <ul style="list-style-type: none"> <li>optimising the position of equipment and / or signs</li> <li>removing redundant and / conflicting signs</li> </ul>

	Hazard	Control
	<p>time provided, known high usage between 23:00 and 07:00</p> <ul style="list-style-type: none"> <li>• high chance of a second train coming</li> <li>• high line speed and / or high frequency of trains</li> <li>• level crossing equipment and signage is not conspicuous or optimally positioned</li> <li>• location and position of level crossing gates mean that users have their backs to approaching trains when they access the level crossing, i.e. users are initially unsighted to trains approaching from their side of the crossing</li> <li>• instructions for safe use might be misunderstood e.g. signage clutter detracts from key messages, conflicting information given</li> <li>• surface condition or lack of decking contribute to slip trip risk</li> <li>• known high level of use during darkness</li> <li>• increased likelihood of user error, e.g. crossing is at station</li> <li>• free wicket gates might result in user error</li> <li>• high volume of unfamiliar users, e.g. irregular visitors / ramblers, equestrians</li> <li>• complacency leading to high levels of indiscipline, e.g. users are known to rely on knowledge of timetable</li> <li>• high level of use by vulnerable people</li> <li>• where telephones are provided i.e. bridleways, users experience a long waiting time due to: <ul style="list-style-type: none"> <li>- long signal section (Signaller unaware of exact train location)</li> <li>- high train frequency</li> </ul> </li> <li>• insufficient or excessive strike in times at MSL crossings</li> <li>• unsuitable crossing type for location, train service, line speed and user groups</li> <li>• high usage by cyclists</li> <li>• degree of skew over crossing increases traverse time and users' exposure to trains</li> <li>• crossing layout encourages users not to cross at the designed decision point; egress route unclear especially during darkness</li> </ul>	<ul style="list-style-type: none"> <li>• upgrading of asset to a higher form of protection</li> <li>• optimising sighting lines, e.g. de-vegetation programme, repositioning of equipment or removal of redundant railway assets</li> <li>• implementing train speed restriction or providing crossing attendant</li> <li>• providing enhanced user based warning system, e.g. MSL</li> <li>• engaging with stakeholders / authorised users to reinforce safe crossing protocol, legal responsibilities and promote collaborative working</li> <li>• installing guide fencing and / or handrails to encourage users to look for approaching trains, read signage or cross at the designed decision point</li> <li>• re-design of crossing approach so that users arrive at the crossing as close to a 90° angle as possible</li> <li>• installing lighting sources</li> <li>• engaging with signalling engineers to optimise strike in times</li> <li>• providing decking or improving crossing surface, e.g. holdfast, strail, non-slip surface</li> <li>• providing cyclist dismount signs and / or chicanes</li> <li>• straightening of crossing deck</li> </ul>



	Hazard	Control
	schools, local amenities or other attractions are known to contribute towards user error	
<b>Pedestrian and road vehicle collision risk</b>	<p>Examples include:</p> <ul style="list-style-type: none"> <li>• a single gate is provided for pedestrian and vehicle users where there is a high likelihood that both user groups will traverse at the same time</li> <li>• the position of pedestrian gate forces / encourages pedestrian users to traverse diagonally across the roadway</li> <li>• road / footpath inadequately separated; footpath not clearly defined</li> <li>• condition of footpath surface increases the likelihood of users slipping / tripping into the path of vehicles</li> </ul>	<p>Controls can include:</p> <ul style="list-style-type: none"> <li>• providing separate pedestrian gates</li> <li>• clearly defining the footpath; renew markings</li> <li>• positioning pedestrian gates on the same side of the crossing</li> <li>• improving footpath crossing surface so it is devoid of potholes, excessive flangeway gaps and is evenly laid</li> <li>• improving crossing surface, e.g. holdfast, strail, non-slip surface</li> </ul>
<b>Personal injury</b>	<p>Examples include:</p> <ul style="list-style-type: none"> <li>• skewed crossing with large flangeway gaps results in cyclist, mobility scooter, pushchair or wheelchair user being unseated</li> <li>• condition of footpath surface increases the likelihood of users slipping / tripping</li> <li>• degraded gate mechanism or level crossing equipment</li> <li>• barrier mechanism unguarded / inadequately protected</li> </ul>	<p>Controls can include:</p> <ul style="list-style-type: none"> <li>• improving fence lines</li> <li>• reducing flangeway gaps and straightening where possible</li> <li>• providing decking or improving crossing surface, e.g. holdfast, strail, non-slip surface</li> <li>• straighten / realign gate posts</li> <li>• fully guarding barrier mechanisms</li> </ul>

## ANNEX C – ALCRM RISK SCORE EXPLANATION

ALCRM provides an estimate of both the individual and collective risks at a level crossing.

The individual and collective risk is expressed in Fatalities and Weighted Injuries (FWI). The following values help to explain this:

- **1** = 1 fatality per year or 10 major injuries or 200 minor RIDDOR events or 1000 minor non-RIDDOR events
- **0.1** = 20 minor RIDDOR events or 100 minor non-RIDDOR events
- **0.005** = 5 minor non-RIDDOR events

### INDIVIDUAL RISK

This is the annualised probability of fatality to a 'regular user'. *NOTE: A regular user is taken as a person making a daily return trip over the crossing; assumed 500 traverses per year.*

Individual risk:

- Applies only to crossing users. It is not used for train staff and passengers
- Does not increase with the number of users.
- Is presented as a simplified 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)
  - Allows comparison of individual risk to average users across any crossings on the network

Individual Risk Ranking	Upper Value (Probability)	Lower Value (Probability)	Upper Value (FWI)	Lower Value (FW)
A	1 in 1	Greater than 1 in 1,000	1	0.001000000
B	1 in 1,000	1 in 5,000	0.001000000	0.000200000
C	1 in 5,000	1 in 25,000	0.000200000	0.000040000
D	1 in 25,000	1 in 125,000	0.000040000	0.000008000
E	1 in 125,000	1 in 250,000	0.000008000	0.000004000
F	1 in 250,000	1 in 500,000	0.000004000	0.000002000
G	1 in 500,000	1 in 1,000,000	0.000002000	0.000001000
H	1 in 1,000,000	1 in 2,000,000	0.000001000	0.000000500
I	1 in 2,000,000	1 in 4,000,000	0.000000500	0.000000250
J	1 in 4,000,000	1 in 10,000,000	0.000000250	0.000000100
K	1 in 10,000,000	1 in 20,000,000	0.000000100	0.000000050
L	Less than 1 in 20,000,000	Greater than 0	0.000000050	Greater than 0
M	0	0	0	0

## COLLECTIVE RISK

This is the total risk for the crossing and includes the risk to users (pedestrian and vehicle), train staff and passengers.

Collective risk:

- Is presented as a simplified 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)
  - Can easily compare collective risk between any two crossings on the network

Collective Risk Ranking	Upper Value (FWI)	Lower Value (FW)
1	Theoretically infinite	Greater than 5.00E-02
2	0.050000000	0.010000000
3	0.010000000	0.005000000
4	0.005000000	0.001000000
5	0.001000000	0.000500000
6	0.000500000	0.000100000
7	0.000100000	0.000050000
8	0.000050000	0.000010000
9	0.000010000	0.000005000
10	0.000005000	0.000001000
11	0.000001000	0.000000500
12	0.0000005	0
13	0.00E+00	0.00E+00