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 trigger risk assessment for Simpsons level crossing.

Crossing details	
Name	Simpsons
Type	FPW
Crossing status	Public Footpath
Overall crossing status	Open
Route name	Southern, Kent
Engineers Line Reference	VIR, 43m, 32ch
OS grid reference	TQ886647
Number of lines crossed	2
Line speed (mph)	90
Electrification	Yes, DC
Signal box	SITTINGBOURNE

Risk assessment details	
Name of assessor	Gemma Kent
Post	Level Crossing Manager
Date completed	02/03/2020
Next due date	06/02/2021
Email address	Gemma.Kent@netwokrail.co.uk
Phone number	07801902008

ALCRM risk score	
Individual risk	C
Collective risk	3
FWI	0.00966433

1.2 INFORMATION SOURCES

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

Consulted	Attended site
None	None

Stakeholder consultation and attendance notes:

Stakeholder not required as part of the risk assessment

The reference sources used during the risk assessment included:

- Trust for train data
- Sotera Census
-

1.3 ENVIRONMENT

Up side crossing approach

Down side crossing approach

The environment surrounding Simpsons level crossing consists of rural area with fields or other open land in the vicinity.

It is a public footpath level crossing. There are no stations visible at the level crossing.

At Simpsons level crossing the orientation of the road/path from the north is 30°; the orientation of the railway from the north to the up line in the up direction is 310°. Low horizon can result in sun glare; sun glare is not 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:

Simpsons is a footpath crossing situated in Bobbing which is approx. 2.5 miles from Sittingbourne. The crossing sits behind the Bobbing Premier Inn and underneath the A249. The footpath leads to the A2 on the upside and on the downside it leads to the Premier Inn, The Bobbing Apple Pub and also a McDonalds, as well as to various housing estates. The crossing has two schools close by, Grove Park Primary and Westlands School, the crossing is used by pupils from both these schools. There is also Evolution kids club and Nursery close by. The Redrow and Archers Park residential developments have been completed recently and there is a proposed new school located east of Vellum Drive, which will provide places for 168 young people with Autism Spectrum Disorder or speech, language and communication needs. Such developments are likely to increase the level of usage at the crossing and potentially also the vulnerability of the users. Pedestrians seeking to get access to the potential new school from the south are more likely to utilise the Woolett Road/Vellum Drive underpass.

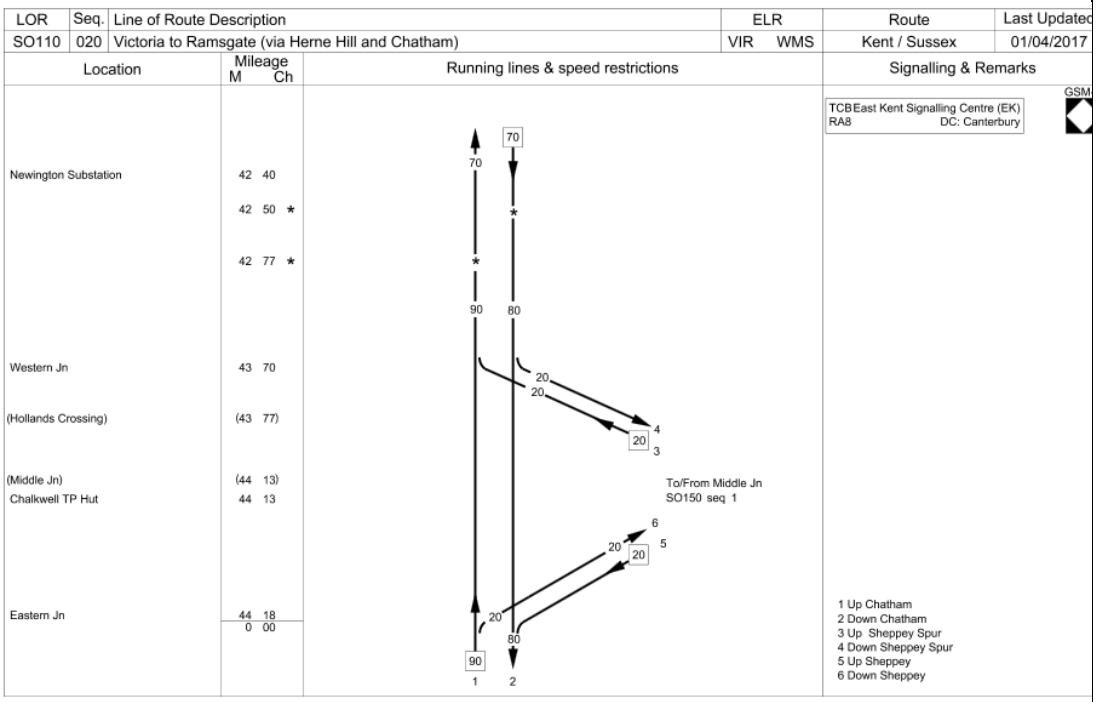
2. LEVEL CROSSING USAGE

2.1 RAIL

The train service over Simpsons level crossing consists of passenger trains. There are 186 trains per day. The highest permissible line speed of trains is 90mph. Trains are timetabled to run for 24 hours per day.

Assessor's notes:

Total number of trains per day = 186 trains (92 up trains and 94 down trains)



Train count for ALCRM is
1-Train type = Passenger, Number of trains 83, Train length 160 metres, Speed = 80 mph.
2-Train type = Passenger, Number of trains 84, Train length 160 metres, Speed = 90 mph.
3-Train Type = Passenger, Number of trains 19, Train length 120 metres, Speed = 75 mph.

The first group are trains formed of various lengths from 4 to 12 carriages (80 to 240 metres).
The second group are trains formed of various lengths from 4 to 12 carriages (80 to 240 metres).
The third group are passenger trains which are formed of various lengths between 2 cars (40 metres) and 10 cars (100 metres) formed of slower class 465 and / or 466 units which can only reach 75mph.
No account has been taken of station stops or differing line speeds including accelerating / braking for these speeds.

Further Information

This crossing is located on the Gillingham to Sittingbourne line and Gillingham to Sheerness-on-Sea line. All passenger trains are operated by the Southeastern franchise.

Rolling stock used is in the form of Electrical Multiple Units. Class 375s operate on the Victoria / Cannon Street services via Gillingham towards Faversham / Dover and the Thanet area. A small number of trains (usually class 465/466 traction) operate between Victoria and Dover Priory also trains heading towards the Sheerness line. There is an half - hourly service from / to St Pancras formed of 6 car class 395 high speed Javelin trains with the odd peak hour train running as a 12 carriage service.

Typically, there are 5 trains per hour in each direction on this line off peak.

The busiest hours during the peak periods are 1800 to 1900 and 1900 to 2000 when 12 trains per hour operate.

All passenger trains are powered by the third rail at 750dc.

Actual count

Up Trains	Trains (Number of coaches / type of train)	Down Trains
35	6 / 395 (High Speed trains)	34
2	12 / 395 (High Speed trains)	2
14	4 / 375 Electrostar	14
6	7 / 375 Electrostar	8
18	8 / 375 Electrostar	21
(1) 7	(11) or 12 / 375 Electrostar	(1) 4
1	10 / 465+465+466	0
7	6 / 465+466	8
0	4 /465	1
1	2 / 466	1

There are no booked freight trains on this route. Occasionally additional traffic operates in the form of engineers trains and Southeastern empty coaching stock between Gillingham and Faversham sidings or Ramsgate depot.

Night time rail traffic. The line is open 24 hours a day 7 days a week.
Traffic can be expected over the crossing at any time of the day or night.
During the NTQP there are 6 up trains and 7 down trains timetabled to operate.

Last train on the up is at 01:02. First train on the up is at 05:11
Last train on the down is at 01:13. First train on the down is at 05:07

Standard Off peak hourly trains over the crossing expected on the up at 11, 15, 32, 40 & 47 past
Standard Off peak hourly trains over the crossing expected on the down at 12, 20, 41, 50 & 58 past.

2.2 USER CENSUS DATA

A 9 day cameras census was carried out on 06/01/2018 by Sotera cameras. The census applies to 40% of the year.

The census taken on the day is as follows:

Pedestrians	60
Pedal cyclists	0
Horses / riders	0
Animals on the hoof	0

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

Vulnerable user observations:

There is a high number of vulnerable users -the crossing is used by children, elderly, pushchairs

Available information indicates that the crossing does not have a high number of irregular users.

Irregular user observations:

The crossing does not have a high amount of irregular users as it is used mostly by locals from the area

Information gathered indicates that Simpsons level crossing does not have a high number of users during the night or at dusk.

Site visit night / dusk user observations:

There was not a heavy used at night

Assessor's general census notes:

Census taken by Sotera in 2018 and I don't believe the census would have changed much if at all - another census is going to be completed in the summer 2020

Second user census

An estimated 24 hour census has been used. The census was estimated on 08/03/2018 by Gemma Kent. The census applies to 60% of the year.

The census taken on the day is as follows:

Pedestrians	120
Pedal cyclists	0
Horses / riders	0
Animals on the hoof	0

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

Vulnerable user observations:

LCM has observed vulnerable users on numerous site visits and through reviewing the camera footage, as well as engaging with local schools.

Available information indicates that the crossing does not have a high number of irregular users.

Irregular user observations:

Not a high amount of irregular users- used by people from the local area and school

Simpsons level crossing does not have a high number of users during the night or at dusk.

Site visit night / dusk user observations:

Not heavily used at night

Assessor's general census notes:

The Sotera census was taken in January and so I only used the census for 40% of the year. The second census is for the rest of the year as during the dryer months the crossing is used a lot more with dog walkers and youths going from the local schools to Mcdonalds.

2.3 USER CENSUS RESULTS

ALCRM calculates usage of the crossing to be 0 road vehicles and 96 pedestrians and cyclists per day.

3. RISK OF USE

3.1 SIGHTING AND TRAVERSE

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

	Decision point (m)	Traverse length (m)	Measured from
Up side	2	9	Between the wing fence posts

Down side	2	9	Between the wing fence posts

Timber 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	12

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 increased by 50% for vulnerable users

Sighting was measured by the following means:

- Using Range Finder

Sighting, measured in metres, at Simpsons 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	375	382	Drum on Downside	Yes	n/a	TSR- 70mph
Up side looking toward down direction train approach	482	853	Second bridge	Yes	n/a	n/a
Down side looking toward up direction train approach	375	421	Down side signal	Yes	n/a	TSR- 70mph
Down side looking toward down direction train approach	482	853	Bridge	Yes	n/a	n/a

Sighting restrictions are recorded as follows:

	Up Direction	Down Direction
Nothing; vanishing point	NO	YES
Track curvature	YES	NO
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 no known obstructions that could make it difficult for users to see approaching trains. There are no 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

Vegetation needs to be maintained on the upside in the down direction

Assessor's general sighting and traverse notes:

There is currently a speed restriction on the up line of 70mph due to a lack of sighting and whistle boards being removed because of noise complaints.

3.2 EVALUATION OF MITIGATIONS

3.3 CROSSING APPROACHES

The signs at Simpsons 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 reduced at night or at dusk.

The approaches to the crossing within the boundary fence are not considered to be steep, slippery or present a tripping hazard to users.

Assessor's notes:

The steps up to the crossing on the downside were improved and the step ups onto the deck removed.

There are no adjacent sources of light or noise that could affect a users' ability to see or hear approaching trains.

Assessor's general crossing approach notes:

User would need personal light source at night as the area is unlit

3.4 AT THE CROSSING – ANOTHER TRAIN COMING RISK

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

Assessor's another train coming notes:

Trains are not timetabled to pass each other at this location, however due to it being a very busy line with 186 trains per day and freight or engineering train also operate, trains do occasionally pass at this location.

3.5 INCIDENT HISTORY

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

Assessor's incident history notes:

There was a near miss here on the 21.02.20, which resulted in this trigger risk assessment. There have been a number of incidents at Simpsons in the last year. There has also been a couple of suicides at this crossing in the past. 25.05.19 – Youths crossed in front of train 22.06.19 – Women holding a child crossed infront of train

4. ALCRM CALCULATED RISK

*Simpsons **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

Assessor's key risk drivers notes

- There are 186 trains per day. Due to increased passenger and train demand this is unlikely to decrease in the future.
- There are up to 120 people using the crossing per day and due to the local schools, attractions and increasing housing estates this is unlikely to decrease.

Due to a curve in the track there is low sighing on the up side of the crossing.

Safety risk				
Compared to other crossings the safety risk for this crossing is	**Individual risk**		**Collective risk**	
	C		**3**	
	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 7295	0.000137066	0.009605578	
				Derailment contribution
Passengers			0	0
Staff			0.000058752	0
Total			0.00966433	0
Collision frequencies	**Train / user**	**User equipment**	**Other**	
Vehicle	0	0	0	
Pedestrian	0.011750476	0.000841715	0.002305638	
Collision risk	**Train / user**	**User equipment**	**Other**	
Vehicle	0	0	0	
Pedestrian	0.009541386	0.000013467	0.000050724	

5. OPTION ASSESSMENT AND CONCLUSIONS

5.1 OPTIONS EVALUATED

The options evaluated to mitigate the risks at Simpsons crossing include:

Option	Term[1]	ALCRM risk score	ALCRM FWI	Safety Benefit	Cost	Benefit Cost Ratio	Status	Comments
Closure with ramped approaches onto A249	Long	M13	0	0.00966433	1m	0.57	Complete	See section 5.2
Closure with diversion to Sheppey Way road bridge	Long	M13	0	0.00966433	1m	0.57	Complete	See section 5.2
Closure with Stepped footbridge	Long	M13	0	0.00966433	3m	0.19	Complete	See section 5.2
Closure with ramped footbridge	Long	M13	0	0.00966433	3m	0.19	Complete	See section 5.2
Closure and underpass	Long	M13	0	0.00966433	5m	0.11	Complete	See section 5.2
Closure via divert	Long	M13	0	0.00966433	100,000	1.55	Complete	See section5.2
MSL	Long	C3	0.005500635	4.16E-03	1m	0.00	Complete	See section 5.2

NOTES
Network Rail always evaluates the need for short[1] 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.
[1] 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).

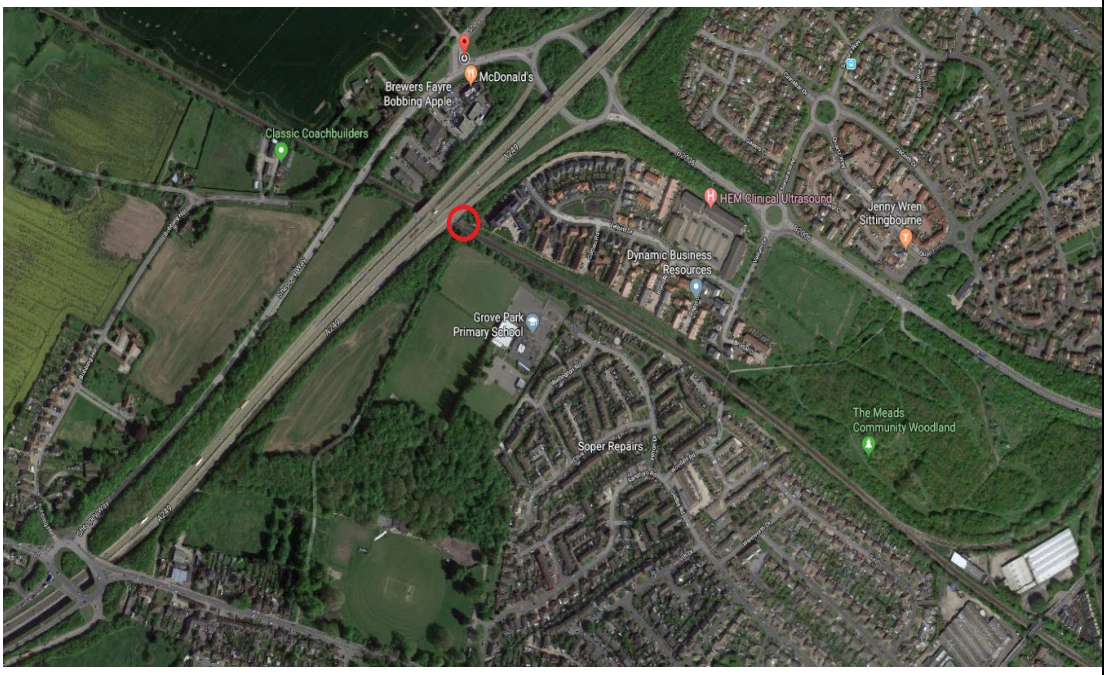
The following CBA criteria are used as a support to decision making:

a. benefit to cost ratio is ≥ 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:

Simpsons is a footpath crossing situated in Bobbing which is approx. 2.5 miles from Sittingbourne. The crossing sits behind the Bobbing Premier Inn and underneath the A249. The footpath leads to the A2 on the upside and on the downside it leads to the Premier Inn, The Bobbing Apple Pub and also McDonalds, as well as to various housing estates.
The crossing has two schools close by, Grove Park Primary and Westlands School, the crossing is used by pupils from both these schools. There is also Evolution kids club and Nursery close by. The crossing also has a lot of houses close by, some of which were built in recent years.



Current Risk
Simpsons is ranked 13/341 for level crossing risk in Kent and 2/168 for Footpath risk in Kent.
The crossing has remained as a C3 for a number of years.

Risk Reduction
There is currently a project looking at the options for this crossing, which are as followed:

Closure with ramped approached onto A249
A249 road bridge is nearby and has suitable route for pedestrians including a 3.6m wide pavement protected by an Armco barrier. This is potentially a realistically feasible method to provide ramps on the approaches as they could be constructed using the existing embankment. It should be noted that Highways England are currently opposed to this. In consultation, the Council have stated a preference that any grade separated solution should have ramps even though the existing crossing has steps. A cost estimate for the project has been made based on no provision to increase parapet height beyond 1.5m or for further segregation of the footpath from the road beyond supplying a handrail.

Closure with diversion to Sheppey Road Bridge
The Sheppey Way Road bridge is 160m from the crossing and there is potential to divert to this location. The road has a 40mph speed limit and so there would be not be requirement to have an ARMCO barrier separating the footpath from the road. There is an existing pavement of approximately 2m in width although the pavement would have to be extended at least to the steps to the entrance to the Premier Inn/Brewers Fayre and probably to the road entrance about 50m further on.

Consultation with Kent County Council has indicated that their preference is for the shorter diversion to the A249 bridge and diversion to the Sheppey Way road bridge would only be considered if the diversion to the A249 road bridge proves not to be feasible.

Closure via stepped footbridge
The council have been approached and they are likely to object to a solution that does not have ramped provision. As such, a stepped only solution is not considered to be feasible.

Closure with ramped footbridge
There is insufficient room for a ramped bridge on the Down side. A ramped structure would be extremely large and encroach on nearby housing. Even if a structure could be fitted in, it is very likely to receive objections and would be equally unlikely to get through planning.

Closure and underpass
The construction would be a cut and cover type construction after removal of the tracks and could probably carried out in a prolonged (54hr) possession. Extremely challenging construction - two routes on Down side. If floor of subway was 3m below ground level ramps of 60m would be required for 1:20 gradient. This would result in a long subway, which may be unattractive particularly on the Down side where the subway would have to connect with footpaths running parallel with the railway. Feasible but safety benefits would not justify high cost. Likely to be subject to flooding and so drainage would be an issue. Underpasses can attract anti-social behaviour.

Closure via diversion
The crossing is well used. While a diversion to the underpass 460m from the crossing on the south side of the railway, there is an existing right of way through that underpass. Two thirds of the crossing users utilise the subway under the A249. For these users, there is an additional 1km walk to go via the railway subway, which is unlikely to be considered to be 'convenient'. Discussions with Kent County Council indicate that closure without making alternative arrangements is unlikely to be acceptable.

MSL
Signal EK4200 lies inside the potential strike in point and so an overlay MSL not feasible in this location. An MSL interlocked with signalling likely to require significant investment, particularly as it will require strike in from both sides of Western junction and from two locations depending whether EK4200 is at red. If an MSL was installed, there would be a need to provide to provide a phone as back-up in case the MSL was not operational. A phone is likely to receive a large amount of mis-use in this location, which would affect train performance as the signaller will have to caution trains if the phone is left off the hook. MSL not preferred by operational personnel for this reason and would also have high capital cost.

<u>Recommendation</u>
Taking into consideration the above and also my own knowledge of the crossing, as well as the continued misuse and the high amount of vulnerable users I am recommending closure of the crossing.
Network Rail will pursue stopping up at this location in due course.

ANNEX A – ADDITIONAL PHOTOGRAPHS

Upside across crossing

Downside across crossing

Upside up direction train approach

Upside down direction train approach

Downside up direction train approach

Downside down direction train approach

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
Road vehicle and train collision risk	Examples at the crossing include: • insufficient sighting and / or train warning for all vehicle types; known to be exacerbated by the driving position, e.g. tractor • level crossing equipment and signage is not conspicuous or optimally positioned • instructions for safe use might be misunderstood e.g. signage clutter detracts from key messages, conflicting information given • high volume of unfamiliar users, e.g. irregular visitors, migrant workers • known user complacency leading to high levels of indiscipline, e.g. failure to use telephone, gates left open • type of vehicle unsuitable for crossing; - large, low, slow making access or egress difficult and / or vehicle is too heavy for crossing surface - risk of grounding and / or the severity of the gradient adversely affects ability to traverse • poor decking panel alignment / position on skewed crossing • where telephones are provided, users experience a long waiting time due to: - long signal section (Signaller unaware of exact train location) - high train frequency • insufficient or excessive strike in times at MSL crossings • high chance of a second train coming • high line speed and / or high frequency of trains • unsuitable crossing type for location, train service, line speed and vehicle types	Controls can include: • optimising the position of equipment and / or signs • removing redundant and / conflicting signs • engaging with signalling engineers to optimise strike in times • upgrading of asset to a higher form of protection • downgrading of crossing by removing vehicle access rights • optimising sighting lines and / or providing enhanced user based warning system, e.g. MSL • re-profiling of crossing surface • engaging with stakeholders / authorised users to reinforce safe crossing protocol, legal responsibilities and promote collaborative working • widening access gates and / or improving the crossing surface construction material • realigning or installing additional decking panels to accommodate all vehicle types • implementing train speed restriction or providing crossing attendant
Pedestrian and train collision risk	Examples include: • insufficient sighting and / or train warning	Controls can include: • optimising the position of equipment and / or signs • removing redundant and / conflicting signs

	Hazard	Control
	• ineffective whistle boards; warning inaudible, insufficient warning time provided, known high usage between 23:00 and 07:00 • high chance of a second train coming • high line speed and / or high frequency of trains • level crossing equipment and signage is not conspicuous or optimally positioned • 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 • instructions for safe use might be misunderstood e.g. signage clutter detracts from key messages, conflicting information given • surface condition or lack of decking contribute to slip trip risk • known high level of use during darkness • increased likelihood of user error, e.g. crossing is at station • free wicket gates might result in user error • high volume of unfamiliar users, e.g. irregular visitors / ramblers, equestrians • complacency leading to high levels of indiscipline, e.g. users are known to rely on knowledge of timetable • high level of use by vulnerable people • where telephones are provided i.e. bridleways, users experience a long waiting time due to: - long signal section (Signaller unaware of exact train location) - high train frequency • insufficient or excessive strike in times at MSL crossings • unsuitable crossing type for location, train service, line speed and user groups • high usage by cyclists • degree of skew over crossing increases traverse time and users' exposure to trains	• upgrading of asset to a higher form of protection • optimising sighting lines, e.g. de-vegetation programme, repositioning of equipment or removal of redundant railway assets • implementing train speed restriction or providing crossing attendant • providing enhanced user based warning system, e.g. MSL • engaging with stakeholders / authorised users to reinforce safe crossing protocol, legal responsibilities and promote collaborative working • installing guide fencing and / or handrails to encourage users to look for approaching trains, read signage or cross at the designed decision point • re-design of crossing approach so that users arrive at the crossing as close to a 90° angle as possible • installing lighting sources • engaging with signalling engineers to optimise strike in times • providing decking or improving crossing surface, e.g. holdfast, strail, non-slip surface • providing cyclist dismount signs and / or chicanes • straightening of crossing deck

	Hazard	Control
	• crossing layout encourages users not to cross at the designed decision point; egress route unclear especially during darkness schools, local amenities or other attractions are known to contribute towards user error	
Pedestrian and road vehicle collision risk	Examples include: • 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 • the position of pedestrian gate forces / encourages pedestrian users to traverse diagonally across the roadway • road / footpath inadequately separated; footpath not clearly defined • condition of footpath surface increases the likelihood of users slipping / tripping into the path of vehicles	Controls can include: • providing separate pedestrian gates • clearly defining the footpath; renew markings • positioning pedestrian gates on the same side of the crossing • improving footpath crossing surface so it is devoid of potholes, excessive flangeway gaps and is evenly laid • improving crossing surface, e.g. holdfast, strail, non-slip surface
Personal injury	Examples include: • skewed crossing with large flangeway gaps results in cyclist, mobility scooter, pushchair or wheelchair user being unseated • condition of footpath surface increases the likelihood of users slipping / tripping • degraded gate mechanism or level crossing equipment • barrier mechanism unguarded / inadequately protected	Controls can include: • improving fence lines • reducing flangeway gaps and straightening where possible • providing decking or improving crossing surface, e.g. holdfast, strail, non-slip surface • straighten / realign gate posts • fully guarding barrier mechanisms

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