



Level Crossing Risk Assessment

Chapel-en-le-Frith crossing April 2015



Chapel-en-le-Frith crossing risk assessment 17th April 2015

Network Rail LNW Route Level Crossing Team

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1 INTRODUCTION

1.1 Background

Planning permission is being sought for the building of a number (250) of dwellings on a portion of land off Long Lane, Chapel-en-le-Frith, Derbyshire. The proposed development will be in close proximity to the Manchester to Buxton railway line and also Chapel-en-le-Frith station crossing, which provide access/egress to/from the Manchester bound platform at the crossing and is also located on a public footpath.

1.2 Reason for the risk assessment

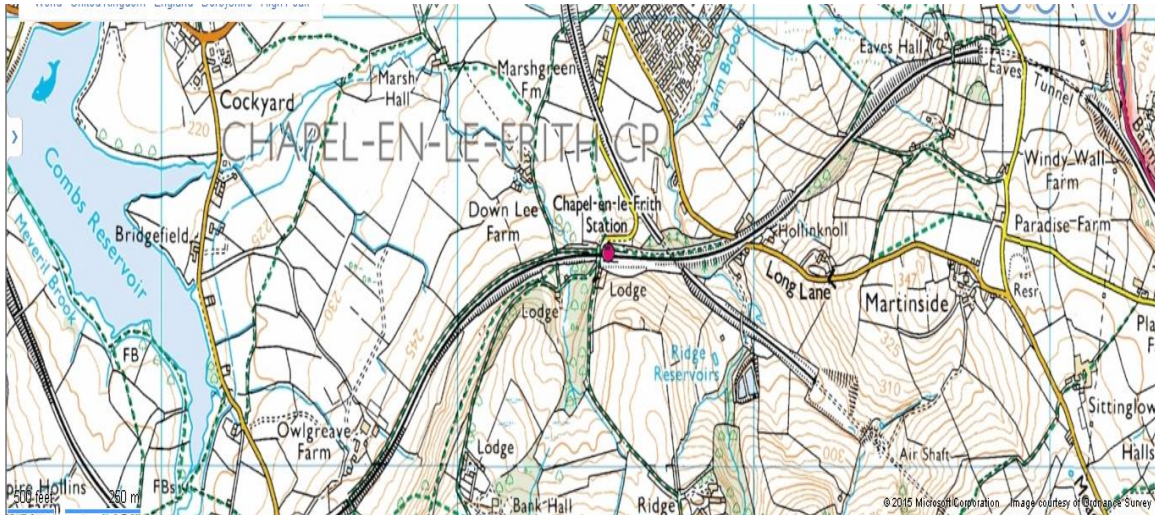
The detailed risk assessment is to investigate the impact of the housing development on the risk profile of Chapel-en-le-Frith footpath crossing and to the most suitable means of mitigation that would control the risk to a level that is so far as is reasonably practicable.

2 DESCRIPTION OF THE SITE

Crossing environment

Picture looking at crossing from Manchester board platform at Chapel-en-le-Frith station





Local properties, businesses and amenities

2.1 The crossing is located at Chapel-en-le-Frith station and is used to access/egress to/from the Manchester board platform at the station. There are numerous public footpaths in the area where the station crossing forms part of the route.

Rail approach and usage

2.2 The crossing crosses two lines on the Manchester to Buxton railway. From the down direction approach (North side) the first line met is the down line with a line speed at the crossing of 50mph. The next line is the up line, also with a line speed of 50mph.

2.3 Normal passenger services run between the hours of 0611 and 2316 with freight running through the full 24hrs.

Level crossing methods of work

2.4 The level crossing is a footpath crossing (with use by authorised users who live on the platform 2 side of the crossing) and is known as a passive crossing as there is no method of warning people using the crossing of approaching trains.

2.5 The crossing relies upon users actively stopping, looking and listening for approaching trains before deciding if it is safe to cross. Due to the layout and location of the crossing, on a curve on the rail line (photo below), whistle boards have been placed on both approaches to the crossing so that approaching trains will blow their horn to warn users on the crossing. This is to provide an additional warning to users as without them there would be insufficient time to traverse the crossing from first sight of the approaching train.

Picture looking west from platform 1



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3 HAZARDS

Identified hazards and risks

Hazard	Potential impact
Trains, potential to cause harm to crossing users.	Train hitting pedestrian using the crossing fatality
Slip, trip, falls hazards to crossing users on crossing	Single major injury
Slip, trip and fall hazard on approach to crossing on both sides due to underfoot conditions	Single major injury
Difficulty on hearing approaching trains due to inclement weather	Train hitting pedestrian using the crossing fatality
Darkness	Train hitting pedestrian using the crossing fatality. The station is lit with platform lighting however visibility of approaching trains may be impaired.
Vegetation growth between visits reducing the ability to see trains approaching crossing	Train hitting pedestrian using the crossing fatality
Frequency of use	The number of users of the crossing, currently modelled at 92 users per day, will increase following the development
Unfamiliar users	Train hitting pedestrian using the crossing fatality

4 FUTURE DEVELOPMENTS

- 4.1 There is a planned development for 250 dwellings to be built on a portion of land off Long Lane, Chapel-en-le-Frith, Derbyshire.
- 4.2 The original planning was rejected by Network Rail due to its proximity to the station footpath crossing and the increase in risk that the development would cause due to the increased usage and the change in demographic of the user.

5 OPTION CONSIDERATION

Option	ALCRM Risk score	FWI (see appendix XX)	Safety Benefit/disbenefit FWI	Cost	Benefit cost ratio	Comments
Closure by foot bridge	M13	0.0	0.007291533	£500k	0.82	Preferred option, reduces risk profile of the crossing. Cost effective over lifetime of structure
Install interlocked miniature stop lights	D4	0.001879549	0.00541199	£350k	0.38	Reduction in risk at crossing is very small; this figure also does not take into count people ignoring the lights prior to crossing the line.
Closure by underpass	M13	0.0	0.007291533	£1.2m	0.16	Limited room to allow underpass to be built. Layout of land prohibits the building of an underpass.

6 RISK ASSESSMENT FINDINGS

- 6.1 Usage of the crossing – At present the crossing has an average of 92 users each day. A nine day census was undertaken in 2014, however due to the number of users and positioning of the camera during the deployment the Level Crossing Manager feels that a greater number of users traverse the crossing. It is intended to carry out another census to ensure that all use during the deployment period has been captured. It should also be noted that due to the number of footpaths near the station crossing the station is popular with non-train users.

Following a study and information presented by the Railway Safety and Standards Board '*User observations at UWCs suggest that approximately 25% of dog walkers failed to use a leash or any other form of dog restraint*', this leads to the owners becoming distracted. RSSB evidence shows that a greater number of near misses with trains involve owners of unrestrained dogs.

Information from the 'Pet Food Manufacturers Association' shows that approximately 25% of households have pet dogs, as the development is for 250 new homes it can be assumed that there will be about 62 new dogs in the area. There are footpath routes north, south, east and west of Chapel-en-le-Frith station crossing which are all within close proximity of the proposed development, this may become a very popular 'dog walking route' and therefore increasing the crossing usage further.

- 6.2 At present, in relation to other crossings on the rail network, Chapel-en-le-Frith station crossing is ranked 15th in the high risk register. Following the development and the potential increase in use this would increase the risk further.
- 6.3 The 'sighting', the distance that can be seen in both directions for approaching trains, is shorter than required for the time required to enable an able bodied person to traverse the crossing.
- 6.4 The length of the crossing from a safe place on one side of the railway to a safe place on the other side of the crossing is 9m. The time required to traverse the crossing is 7.57 seconds (at a speed of 1.189m/s) this requires the user to be able to see trains at a distance of 169m. From the platform 1 side of the crossing it is only possible to see trains when they get within 160m of the crossing. To mitigate this whistle boards are located on both approaches to the crossing so that train drivers blow their horns to warn of approaching trains.
- 6.5 From the option consideration section it can be seen that closure of the footpath and installation of over bridge is by far the best solution. Other options considered also included the installation of telephones at the crossing, which would not reduce the risk of incidents at the crossing but would increase signaller workload and may as a result increase incidents, and pedestrians can not be relied upon to use the phones at all times. There are telephones at the crossing but these are used for the authorised users who have dwellings on the platform 2 side of the station. Closure of the crossing by diversion is not feasible due to the requirement for station platform access.
- 6.6 The installation of miniature stop lights has also been considered but due to the proximity of Chapel-en-le-Frith station the installation of these would be complex. The location of the crossing in relation to the station may also cause the lights to enter dark mode which would cause unsurety. It should also be noted that pedestrian users will often ignore the signals if a train is not visible on approach.
- 6.7 From the National Office of Statistics it can be determined that the average household has 1.2 children, again using the 250 dwellings on the development it can

be determined that a further 300 children will be living in very close proximity to open access to the railway.

- 6.8 Not only could this increase the possibility of deliberate acts of misuse of the crossing, for example 'chicken' it will also increase the potential for accidental misuse e.g. groups of children not paying cognisance to their surroundings. Details from the RSSB state

'When in a group of people, individuals are prone to following the 'herd mentality', paying less attention to their surroundings and following the decision-making of the group as a whole. This may be particularly problematic at footpath and bridleway crossings on routes used often by ramblers.

Young people in groups also exhibit more risky behaviour. A young person's attitude to risk tends to be one of a 'risk adopter'. Although most young people will not engage in extremely dangerous behaviour, peer group dynamics can encourage them to behave more dangerously than they would when on their own.'

7 CONCLUSION

- 7.1 Network Rail has a very serious legal obligation under the Health and Safety at Work Act 1974 to maintain and, where reasonably practicable, to improve health and safety on the rail network. Level crossings represent one half of the non-suicide, non-trespass fatality risk on the railway. Analysis of Network Rail and Department for Transport data shows that if an average walking trip includes a level crossing, the fatality risk to a pedestrian is about double the risk of an average walking trip without a level crossing.
- 7.2 Due to the possible increase of use of this crossing, the proximity to the planned development and numerous public footpaths leading the station crossing, installation of a footbridge is the preferred solution.

8 APPENDIX

FWI

The rail industry in Great Britain uses Fatalities and Weighted Injuries to measure safety risk. It allows low frequency high consequence incidents to be measured as well as high frequency low consequence incidents.


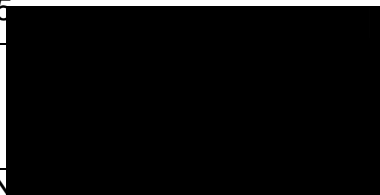
*RIDDOR reportable

RIDDOR refers to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995: a set of health and safety regulations that mandates the reporting of, inter alia, work-related accidents.

Injury / Degree	Weighting (per year)	Equivalent to... (per year)
Fatality	1	10 Major injuries 200 Minor RIDDOR 1000 Minor non-RIDDOR
*Major injury - includes losing consciousness, most fractures, major dislocations, loss of sight (temporary or permanent) and other injuries that resulted in hospital attendance for more than 24 hours.	0.1	20 Minor RIDDOR 100 Minor non-RIDDOR
*Class 1 minor injury - where the injured person is incapacitated for their normal duties for more than three consecutive days, not including the day of the injury; OR Class 1 shock / trauma - shock or trauma resulting from being involved in, or witnessing, events that have serious potential of a fatal outcome, e.g. train accidents such as collisions and derailments, or a person being struck by train.	0.005	5 Minor non-RIDDOR

<p>Minor injury (Non RIDDOR reportable) – all other physical injuries; OR</p> <p>Class 2 shock / trauma - shock or trauma resulting from other causes, such as verbal abuse and near misses, or personal accidents of a typically non-fatal outcome.</p>	0.001	-
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9 PRODUCTION, APPROVAL

			
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