



Farnborough North Level Crossing Narrative Risk Assessment



September 2021

1 INTRODUCTION

- 1.1 Network Rail has a general duty under Part 1 of the Health and Safety at Work etc., Act 1974 and under section 117 of the Railways Act 1993, to secure the health, safety, and welfare of its employees and to conduct its undertaking in a way which ensures, satisfactorily, that persons outside of its employment (i.e. those who interface with the operational railway) are not exposed to risks to their health or safety.
- 1.2 Network Rail also has a legal responsibility under the Management of Health and Safety at Work Regulations 1999. Section 3 focuses on the requirement for suitable and sufficient assessments of risk to health and safety of employees and others, in connection with its undertaking.
- 1.3 Network Rail is committed to reducing risk on the railway and has identified that one of the greatest risks to those who interface with the railway is at the site of level crossings. This is where vehicles and/or pedestrians may come into direct contact with train movements. With the support and oversight of the ORR, Network Rail is working to reduce this risk as much as reasonably practicable.
- 1.4 Network Rail has a responsibility to consider the suitability of options and mitigations, including those that provide for the warning of approaching trains and enable traversing within the required time. This document provides supporting safety information for the making of an informed risk assessment in the decision-making process in respect of the Farnborough North Level Crossing (footpath element only) (the Crossing), and to recommend the most appropriate option(s) and mitigation(s) that satisfactorily reduces the risk to as low as reasonably practicable, ALARP, to Crossing users.

2 DESCRIPTION OF THE SITE

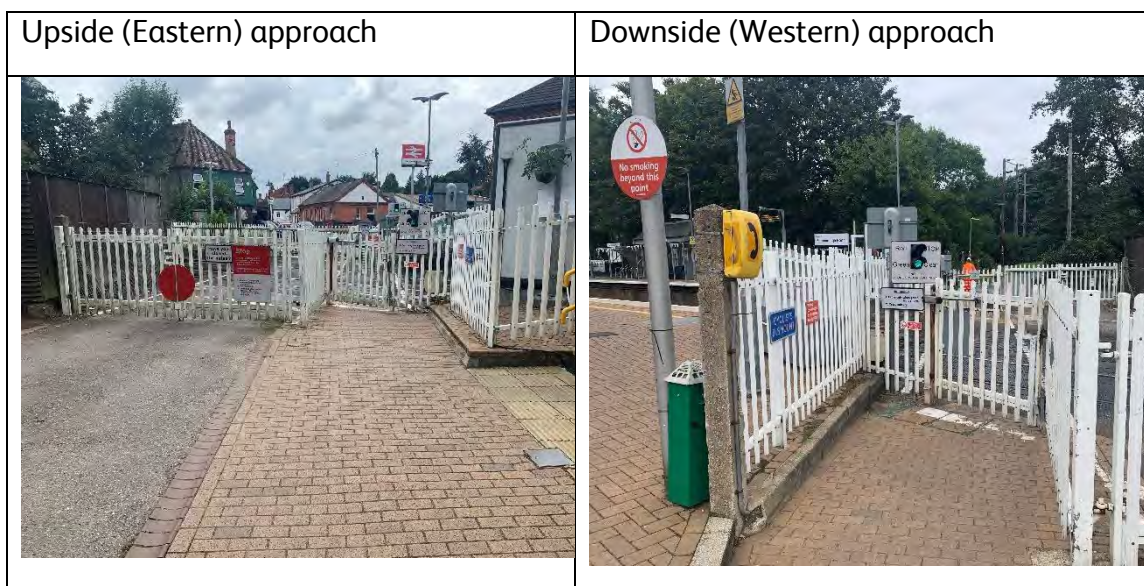
2.1 Current Level Crossing Details

Crossing Details	
Name	Farnborough North
Type	FPGM
Crossing status	Public Footpath
Overall crossing status	Open
Route name	Wessex
Engineers Line Reference	GTW2
Mileage	53 Miles 11 Chains

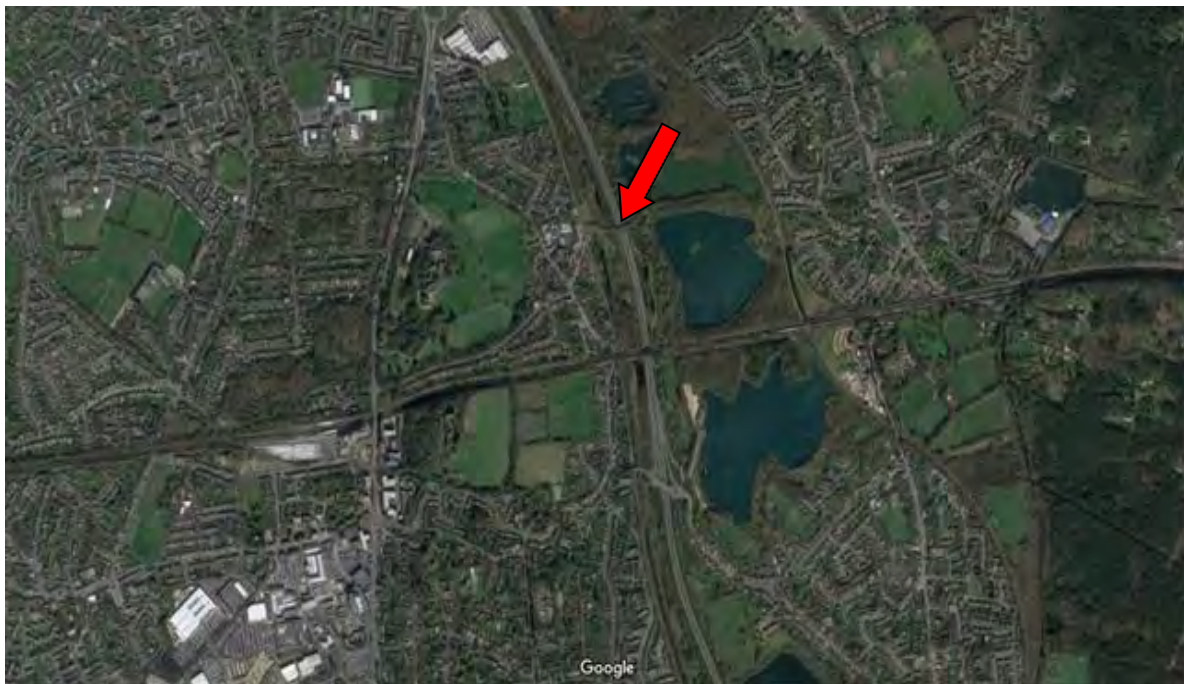
OS grid reference	SU877566
Number of lines crossed	2
Line speed (mph)	70
Electrification	None
Signal box	Guildford

2.2. Surrounding Environment

- 2.2.1 Farnborough North is a footpath crossing with Miniature Stop Lights (MSL) and is situated on the North Downs Line (Reading to Gatwick) spanning two lines of operational railway. It is located adjacent to the User Worked vehicular level crossing (UWCT) at Farnborough North Railway Station in northeast Hampshire.
- 2.2.2 The adjacent UWCT is protected with Telephones. Both crossings operate independently of each other and have separate risk assessments.
- 2.2.3 The Crossing is surrounded by residential and commercial properties to the west and private fishing lakes and wooded areas to the east.
- 2.2.4 It carries a public right of way (FP24) that links the residential areas of Frimley Green and Farnborough North. Previously a bridleway, in July 2012, Hampshire Country Council made a permanent Traffic Regulation Order to prohibit equestrian access. Network Rail then undertook a series of improvements at the Crossing.
- 2.2.5 It is reasonable to assume some users may be unfamiliar with the Crossing. For the majority of users, their journey will continue along the footpath and over Hatches footpath crossing, approximately 400m away on a parallel railway line (AAV). Hatches is a 'passive' level crossing. The decision on whether it is safe to cross is left to the user. Pictures below show the approaches to Farnborough North footpath crossing.



2.2.6 The maps below show the location of the Crossing. Ordnance Survey view and aerial view map:





2.3 Sectional Appendix

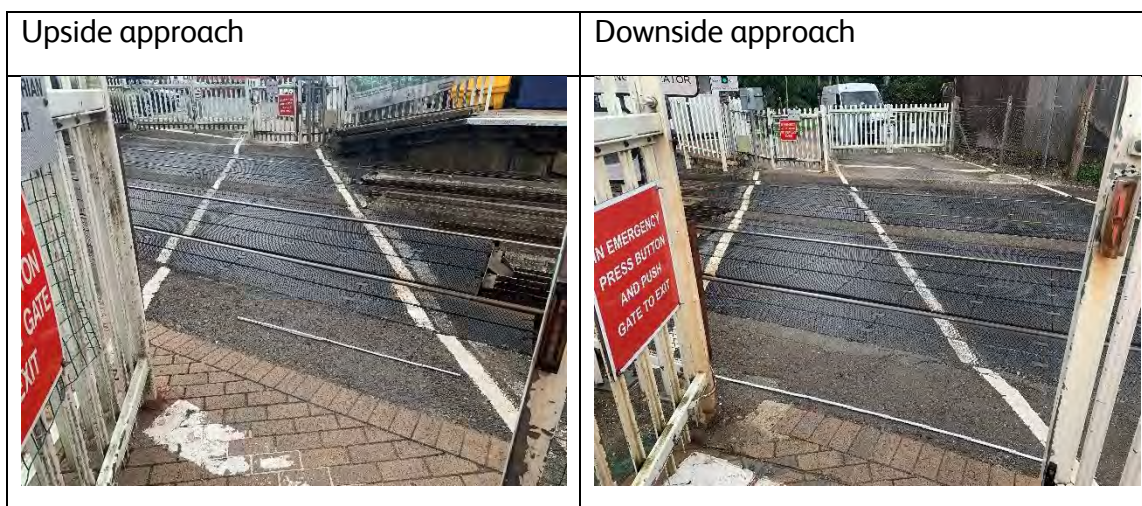
2.3.1 The Sectional Appendix describes the Crossing from the railway perspective. It shows that on the up and down line the speed is 70mph for passenger and freight trains. The controlling signal box is Guildford.

LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
SW265	003	Guildford to Wokingham	GTW2	Wessex	09/01/2015
Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks		
			TCB RAE Guildford SB (GO)		
NORTH CAMP	51 18				
North Camp LC (CCTV)	51 18				
Farnborough North Footpath LC (R/G)	53 11				
FARNBOROUGH NORTH	53 10				
Synhurst FC	54 00				

2.4 The Crossing

- 2.4.1 Farnborough North is a footpath crossing with Miniature Stop Lights (MSL). As well as being a public right of way, the Crossing provides platform to platform access and is well used by daily commuters (both station and non-station users), dog walkers, local walkers/cyclists, mothers with pushchairs, elderly users, school children and students.
- 2.4.2 Protected by MSL, they provide a visual and audible warning of an approaching train by changing from a green light to a red, and producing an audible tone.
- 2.4.3 However, in peak times the Crossing can receive 150+ users, many that need to cross immediately, to catch a train or continue their journey. Stopping trains also see students and commuters alighting that are going to the local college or other places of work.
- 2.4.4 It has been determined that the MSL alone is not sufficiently mitigating risk and since November 2014, an attendant has been in-situ between the hours of 0530-0030 Monday to Friday, Saturday 0545-0030 and Sunday 0615-0030 in order to manage the Crossing.
- 2.4.5 The gates at the crossing are locked with magnetic locks allowing the attendant to lock the gates closed to stop users using the crossing when the MSL is activated. The MSLs are positioned in a 'back-to-back' set-up so that those who are on the Crossing would be able to see the change of aspect while they were crossing. The attendants react to the lights and lock the gates when trains are approaching, ensuring that there is no-one within the confines of the gates.
- 2.4.6 The crossing attendant is to manage the Crossing usage with an additional instruction that states if there are more than 20 users waiting then the crossing gates must remain locked, until the signaller has clarified that another train is not approaching and so allowing the multiple users to cross safely. This was implemented after a near miss with 20-30 users in May 2022, when users failed to stop and held the gates open, stopping them from closing and locking.
- 2.4.7 Further duties by the crossing attendants include managing the User-Worked crossing next to the footpath crossing. This includes telephoning the signaller for permission for users to cross the crossing and also unlocking and locking the crossing gates.
- 2.4.8 Since the crossing attendants have been in-situ, deliberate misuse at both crossings has reduced; but deliberate misuse is still a considerable risk factor at the Crossing.
- 2.4.9 Both gates have metal mesh on them to discourage animals entering the crossing areas uncontrolled, and to stop users putting their hand through to operate the emergency magnetic release button on the inside of the gate.
- 2.4.10 There are signs on the fence to encouraging cyclists to dismount; however regular instances have been witnessed and recorded of users struggling through the gates whilst still mounted, and then continuing to ride across, without properly looking for approaching trains. This creates an unnecessary distraction, further raising the risk of a mounted cyclist not looking at the MSLs and crossing straight onto the deck in front of an approaching train.

- 2.4.11 There are several other signs at the crossing: *'If no light phone crossing operator'* and the instruction sign *'1. Cross only when green light shows, 2. Cross quickly'* are located at the Crossing on both sides, by the pedestrian gates, and before the decision point.
- 2.4.12 Signage is also present to encourage dog owners to keep their dogs on leads. It should be noted that dogs on leads are also an encumbrance to their handlers which automatically places them at a higher risk.
- 2.4.13 Signage warning the public not to trespass are also present, indicating a penalty of £1000.
- 2.4.14 Within the Crossing limits there are signs stating *'pedestrian exit'* and *'in emergency press button'* and *'push gate to exit'* on adjacent to both gates. There is a green push button next to the gates whilst within the railway corridor, that will release the magnetic locks if a pedestrian user gets trapped when the gates are locked.
- 2.4.15 There is a history of the signage being vandalised in the past and the LCM replaces the signs when required.
- 2.4.16 Telephones are positioned at the crossing approaches in event that the MSL fail, and users are instructed to phone the crossing operator. The telephones are also there for the user-worked crossing to contact the crossing operator before crossing with vehicles.



- 2.4.17 Ground conditions reflect the approaches and are fully tarmacked on both approaches.
- 2.4.18 The Crossing deck is made of a rubberised material offering extra traction over the railway. With the deck being level to the rails, with excellent approaches, there are no tripping or slipping hazard. Either side of the deck timber anti-trespass guards are fitted. The Crossing has self-closing gates on both approaches.
- 2.4.19 By displaying correct signage, providing gates and having no tripping hazards throughout the Crossing, there are no other mitigations that can be employed to further mitigate residual risk.
- 2.4.20 Nevertheless, in comparison with other footpath crossings, accidental and deliberate misuse is unacceptable and is a regularly reported issue, even though the crossing attendants, along with the MSLs, manage the Crossing and also act as a deterrent.

2.4.21 The visibility of the signs is reduced at night or at dusk with only lights from surrounding residential housing, the station, and lamp posts either side of the crossing gate to illuminate the area. There are no excessive adjacent sources of light or noise that could affect a user's ability to see or hear approaching trains.

2.5 Crossing status

2.5.1 The reduction in status to Public Footpath and Station Passenger Crossing in July 2012 was based on non-equestrian usage and a positive attempt to make cyclists dismount, which would then allow Network Rail to upgrade the crossing to meet the safer public footpath crossing standards.

2.6 Train movements

2.6.1 A total of 78 trains per day are timetabled over 21 hours at the crossing. This is made up of 48 passenger stopping services, 26 passenger non-stopping services and 4 freight trains. Other trains may run on the line that are not part of the timetabled movements, such as rail treatment trains, etc.

2.6.2 There is a proposed future increase to rail services, which partially commenced in May 2020 as part of the North Downs line timetable aspirations of First Great Western to increase the train service from 2 to 3 trains per hour in each direction; but at the time of completing the risk assessment the future increase had not been fully implemented. Any proposed increase will be further risk assessed once known.

2.6.3 Passenger trains are timetabled to operate on a similarly hourly basis throughout the day. There is a standard pattern of stopping trains that means that arrival of two trains approaching from differing directions within a few minutes of each other is a regular, recognised pattern of movement. This further increases a higher level of usage from passengers at those times.

2.6.4 The arrival of two trains at similar times makes the job of the crossing attendant critical, particularly where there are large groups that have alighted. A large group coming off the train to Guildford will congregate at the Crossing and wait for their train to pass before the lights return from red to green. However, there may be a very small window of time to allow them to traverse before the train approaching on the opposite line turns the lights to red again, with limited time for a large group to clear the Crossing.

2.6.5 Freight and passenger trains often travel at different speeds, and when a crossing is located near a station then stopping and non-stopping services will clearly travel at different speeds, thereby further increasing the risk.

2.7 Sighting

2.7.1 Sighting for approaching trains at the Crossing is non-compliant within Network Rail standards; hence the provision of the MSL.

2.7.2 The recommended Decision Point for a foot crossing stands at a minimum of 2 metres from the nearest running rail. From this position a crossing user should be able to determine if it is safe to cross. The length of traverse is then calculated from this point until 2 metres past the furthest running rail.

- 2.7.3 At the Crossing there is a traverse length of 10.0 metres, so providing a traverse time of 12.62 seconds for users to reach the point of safety on the opposite side of the railway. The crossing traverse time includes an increase of 50% traverse time due to the identification of a high number of vulnerable and encumbered users.
- 2.7.4 The 'Up' side (Frimley side) decision points, looking in both directions, is obscured at 2m by either the crossing attendants hut or the house. This forces a user to enter the 'danger zone' and move to a point of danger approximately 1.2m from the running rail in order to achieve clearer sighting.
- 2.7.5 The 'Down' side decision points, looking in both directions, is obscured at 2m by MSL equipment and fencing. This forces a user to enter the 'danger zone' and move to approximately 1.5m from the running rail in order to achieve clearer sighting.
- 2.7.6 If all fixed structures were removed from both sides at the 2-metre decision point, sightings still could be impeded due the number of users waiting on the platforms, either side, that could obscure sighting of an approaching train in the up direction.
- 2.7.7 The sighting measurements taken from the Decision Point at the time of the assessment (by laser rangefinder) are set out in the table below. Sighting is non-compliant with the minimum required sighting in one direction for vulnerable/incumbent users, as mentioned above, which has been increased by 50%.

Sighting measurement from the Decision Point

	Required Minimum Sighting for 12.62s traverse time	Ideal Sighting Distance	Measured Sighting	Actual Warning time	Measured from crossing to?
Upside looking towards Up direction train approach	395m	489m	489m	15.62 s	Vegetation on upside curvature
Upside looking towards Down direction train approach	395m	489m	366m	11.71s	Vegetation on upside curvature
Downside looking towards Up direction train approach	395m	489m	437m	13.97s	Vegetation on upside curvature
Downside looking towards Down direction train approach	395m	489m	309m	9.87s	Vegetation on upside curvature

- 2.7.8 Upside, Up direction train approach at 1.2m Decision Point



2.7.9 Upside, Down direction train approach at 1.2m Decision Point



2.7.10 Downside, Up direction train approach at 1.5m decision point



2.7.11 Downside, Down direction train approach at 1.5m decision point



- 2.7.12 All of these sighting calculations become irrelevant if Crossing users obey the MSL. It forms the over-riding mitigation by providing a direct indication to the user of an approaching train so that the user no longer is required to look for approaching trains.
- 2.7.13 The MSL strike in point for activation is designed to give 30 seconds warning before the arrival of a train at the Crossing on the up line and 31 seconds on the down line, based on 70mph line speed.
- 2.7.14 The MSL activation warning exceeds the minimum warning time required for all types of users of 12.62s. Multiple users (in excess of 20) traversing at the same time would exceed the maximum MSL activation time.
- 2.7.15 Additional mitigations to control multiple users have been put in place. The crossing attendants are mandated to manage the crossing usage with a special instruction. This states that if there are more than 20 users wishing to cross at one time then the crossing gates remain locked until permission is granted by the signaller to make sure there are no other approaching trains. Other approaching trains would limit the ability for multiple users to cross safely.
- 2.7.16 There is a possibility of a first train obscuring the approach of a second train at the Crossing. This phenomenon, known as 'second train coming' is where a User looks for approaching trains, but due to the proximity of train on the first line, they cannot see or hear the train approaching on the other line. This scenario is heightened when a train is leaving the platform and a user who disembarked that train is waiting at the crossing for that train to leave; and the moment the train has passed the crossing the user steps out directly into the path of the second approaching train.
- 2.7.17 MSL mitigates the risk from 'second train approaching' but only if users adhere to the MSL warnings.

2.7.18 External influences, such as being in a hurry, wearing headphones, or simply the noise of the train passing, may also impact on the user's decision-making process to identify if another train is coming.

2.8 Crossing Usage

2.8.1 A motion sensor camera was deployed 20th-28th March 2021 by an external company and then a 24-hour average was used over the period and then inputted into ALCRM.

2.8.2 The census was conducted in a period that the country was still recovering from the Coronavirus restrictions and the road map to normal times was still in place.

2.8.3 The data for each of the users have been multiplied by 3 to give a usage to what would be classed as normal. The data taken from ORR station usage figures 2019/20 gives a similar figure as the census data multiplied by 3 (Note: the ORR data does not consider the non-station users).

2.8.4 The average daily figures recorded during the 9 days are shown below.

Cyclists	78
Pedestrians	1,863
Horse riders	0
Animal herders	0

2.8.5 The average daily use was 1863 pedestrians and 78 cyclists and is consistent with the previous census that had 1,843 pedestrians and 100 cyclists.

2.8.6 The types of vulnerable users are elderly, unaccompanied children, those who are mobility impaired, people with prams, family groups with children, mounted cyclists, dogs walkers and fishing persons with fishing kit trolleys. See section on vulnerable use.

2.8.7 There was evidence of usage after the crossing attendants have left site, at 00.30 to 05:30 Mon-Fri, Sat 00.30 to 05:45 and Sun 00:30 to 06:15. This consisted of 11 pedestrian users and 7 cyclists throughout the 9-day census period.

2.8.8 The peak time increase of users is a high risk, when 150+ users want to cross at once. As previously stated, this is due to the high number of passengers, students and commuters, alighting from the train. The crossing attendant at site must manage this risk, as required.

2.8.9 In the morning peak it has been witnessed that multiple users when crossing failed to stop when the MSLs were activated and showing 'red' aspect, and they continued to cross. Also seen are instances when, after the lights have turned to red and the attendant attempts to lock the gates, users will hold the gate open for other users. On many occasions where this has happened the attendant has had to leave their operating position and physically close the gates to allow the locking mechanism to activate.

2.8.10 Unchecked, the scenario above could lead to a multiple fatality event.

2.8.11 The picture below shows the set-up prior to the introduction of the attendants. It highlights not only the high number of people wishing to cross, but also of the behaviours that were common practice to gain access over the crossing, on exiting the station by passing over the trespass guards.



2.8.12 Although the behaviours are currently controlled, the number of students and commuters remains high. This situation could be exacerbated by the planned train service pattern, which means that if there is a second train approaching the station, a longer wait will be required.

2.8.13 Known deliberate misuse and accidental human error when crossing still remains at an unacceptable level at the Crossing. Regular misuse is witnessed by the LCM and the crossing attendant. LCM and crossing attendants regularly inform users of their misuse and offer advice on safe use of level crossings.

2.8.14 The LCM or crossing attendant often witness users riding bicycles over the Crossing. These were adults as well as school children, even though there are signs at the Crossing requesting cyclists to dismount when traversing over the Crossing.

2.8.15 Many types of users are witnessed crossing over the Crossing using mobile phones or wearing headphones and/or wearing hoodies with hoods up, thereby restricting their sighting whilst using the Crossing.

2.8.16 Against these behaviours, the main risk at the Crossing is when there are multiple users and the crossing attendant is not on duty.

2.8.17 It has been determined that the majority of users are regular users of the crossing. Although at the start of each educational year, there will be students that may not have crossed a footpath crossing, and would not be familiar with Farnborough North crossing.

2.8.18 The chart below shows the recorded census captured between 20th March–28th March 2021.

Date	Day	Direction	Period (24hr)	Pedestrians	Pedal Cycle
20 March 2021	Sat	East	0000-0000	243	17
20 March 2021	Sat	West	0000-0000	221	9
20th March 2021 Total				464	26
21 March 2021	Sun	East	0000-0000	244	27
21 March 2021	Sun	West	0000-0000	237	26
21st March 2021 Total				481	53
22 March 2021	Mon	East	0000-0000	272	10
22 March 2021	Mon	West	0000-0000	378	15
22nd March 2021 Total				650	25
23 March 2021	Tue	East	0000-0000	278	17
23 March 2021	Tue	West	0000-0000	501	7
23rd March 2021 Total				779	24
24 March 2021	Wed	East	0000-0000	298	7
24 March 2021	Wed	West	0000-0000	468	5
24th March 2021 Total				766	12
25 March 2021	Thu	East	0000-0000	240	6
25 March 2021	Thu	West	0000-0000	485	11
25th March 2021 Total				725	17
26 March 2021	Fri	East	0000-0000	218	8
26 March 2021	Fri	West	0000-0000	451	6
26th March 2021 Total				669	14
27 March 2021	Sat	East	0000-0000	244	22
27 March 2021	Sat	West	0000-0000	258	12
27th March 2021 Total				502	34
28 March 2021	Sun	East	0000-0000	245	15
28 March 2021	Sun	West	0000-0000	305	11
28th March 2021 Total				550	26
Grand Total				5586	231

The figures above were multiplied by 3 to give a true reflection of normal usage based on previous census data.

2.9 Vulnerable use

- 2.9.1 The census data gathered at the Crossing shows a high percentage of vulnerable users. The types of vulnerable users regularly observed are elderly, unaccompanied children, those who are mobility impaired, people with prams, family groups with children, mounted cyclists, dogs walkers and fisherpersons with fishing kit trolleys.
- 2.9.2 There are many people traversing over the crossing walking their dogs, some with more than one dog and some walking dogs on extended leads.
- 2.9.3 Observations when at the crossing conducting inspections show that most dog walkers do keep their dogs on their leads. 'Keep dogs on leads' signs are in-situ to remind dog owners to keep their animals under control while using the crossing.

- 2.9.4 Perception with some users with dogs on leads is that they do not easily personally accept an assessed view that they are vulnerable users. However, the user will often remain distracted, watching or controlling their animals, and not appropriately focussing on traversing – in any event, they may be an encumbered user; for example, dog behaviour is unpredictable; the dog may itself become distracted, bark, or pull, when approached by other users approaching in the opposite direction (or by any other event). This in turn causes distraction to the user from properly watching out and listening for approaching trains, etc.
- 2.9.5 Users with multiple dogs further increases the difficulty to maintain adequate and safe control; and dogs off leads represent a much greater hazard to the user. If, for example, a dog strays onto the railway, their owners are more likely to try to follow or react to them, or focus on them, which increases the scope for hazardous distraction and risk, not only from trains, but also from slipping on the sleepers or tripping over the rails.
- 2.9.6 The Crossing has a high number of school/student children on route to and returning from school or college. Many of these school/students children traverse the Crossing with bicycles and have been recorded misusing the Crossing by not dismounting as requested by crossing signage.
- 2.9.7 The crossing is considered to have a higher than usual number of vulnerable users, including school/student children, large groups, and encumbered users (i.e. Fishing persons with fishing kit on trolleys or carrying large bags). Evidence also shows that headphones are often worn by users.

2.10 Incident history [SMIS] (Safety Management Information System) data 1st Jan 2014 – 1st Sept 2022

- 2.10.1 The Crossing has a long history of misuse and near misses. These incidents are cyclists and pedestrians traversing straight over the Crossing with total disregard to the MSL warning.

Event Date	Description
May 19,2022	LC Misuse - a MOP had put their hand over the crossing to operate the green release button when the barriers were closed at Farnborough North Level Crossing.
May 19,2022	LC Near Miss - 1V38 07:02 Gatwick Airport – Reading involving a group of 20 - 30 users crossing Farnborough North Public Footpath Crossing (MSL). EBA applied.
Aug 14,2020	LC Misuse - Nuisance calls made to the signaller from Farnborough North level crossing
Jan 26, 2020	LC Misuse & Trespass - Two youths at Farnborough North level crossing were jumping over the gate before running on the tracks between the two platforms
Jun 9, 2018	LC Misuse - 2V46 (GWR 05:24 Gatwick Airport to Reading) reported a person ran across Farnborough North foot crossing in front of the train and on to the platform in an attempt to board the train
Oct 10, 2017	Misuse LC – Crossing keeper reported a male walked the round locked gates at Farnborough North LC.
Jul 27, 2016	LC Misuse - A young male ran across as a train was approaching at Farnborough North LC, Farnborough - Reported by crossing keeper

Jun 30, 2016	LC Misuse - Cyclist was seen to cross over Farnborough North LC, Farnborough as a train was approaching - Reported by 1052
Apr 13, 2015	LC Misuse - 2V50 0624 Redhill to Reading reported person crossed in front of train at Farnborough North Foot Crossing. Not near miss.
Dec 1, 2014	ATTENDANT NOW IN SITU*
Nov 11, 2014	LC Misuse - 2V65 1529 Redhill - Reading reported a person walk in front of train at Farnborough North LC
Sep 18, 2014	LC Misuse - 2044 1604 Reading - Redhill reported person ran out across Farnborough North LC
Sep 12, 2014	LC Misuse - 2V631434 Redhill - Reading reported two girls crossed in front of the train at Farnborough North Level Crossing - Not near miss.
Jul 19, 2014	LC Misuse - 2V67 1634 Redhill - Reading reported a MOP cross in front of train at Farnborough North LC. Not a near miss.
Jul 10, 2014	LC Misuse - Person walked across Farnborough North LC from the Down to the Upside as 2044 1604 Reading - Redhill was approaching.
Jun 26, 2014	LC Misuse - 2050 1904 Reading - Shalford reported that person ran out across Farnborough North LC in front of train
May 25, 2014	LC Misuse - 1076 1318 Reading - Gatwick reported 2 teenagers run across track at Farnborough North LC
May 9, 2014	LC Misuse - 2029 07 34 Reading - Gatwick Airport reported person crossed against warnings at Farnborough North Level Crossing.
Apr 4, 2014	LC Misuse - 2027 0606 Reading to Shalford reported crossing misuse at Farnborough North Level Crossing.
Mar 31, 2014	LC Misuse - 2038 1204 Reading - Redhill reported a MOP walk from down to up line at Farnborough North LC
Mar 15, 2014	LC Misuse - 2053 2134 Reading - Gatwick Airport reported that MOP ignored road lights at Farnborough North LC & walked across

- 2.10.2 Note that the misuse significantly reduces when the level crossing attendant are introduced at the level crossing in December 2014.
- 2.10.3 The recorded data shows that there are high numbers of deliberate misuse and accidental human error, many which could easily have resulted in a fatality. In the year of 2014 there were 11 events reported by train drivers of misuse, with the potential of a fatality. The misuse significantly reduces when the level crossing attendant was introduced at the level crossing in December 2014.
- 2.10.4 The recorded data shows that there are still unacceptable instances of deliberate misuse and accidental human error events after the crossing attendant was introduced, with 9 events between 2014 and September 2022.
- 2.10.5 The misuse appears to tail off between 2019 and 2021 which could be due to the Coronavirus restrictions that were implemented in March 2020. These temporarily changed the way the Crossing was being used; i.e. less commuters and school/student children and more people taking exercise locally.
- 2.10.6 Given that the Crossing has no permanent recording methods, unless covert CCTV is employed, in practice, these incidents will only be captured if witnessed by passing train drivers, railway staff or members of the public formally reporting. Experience shows that incidents of formal reporting is significantly less than the level of actual incidents which take place.

2.10.7 Evidence from site visits by the LCM also concur that unreported misuse takes place as this has been regularly witnessed during inspections and risk assessments.

2.10.8 The majority of potential misuse events are when the crossing is activated, and the users want to cross the railway to get on the train the other side. The LCM or crossing attendant will intervene to advise the user not to cross for their own safety and others. This can lead to verbal abuse from the users directed at the LCM or crossing attendant.

2.11 Unpredictable use at footpath crossings

2.11.1 Since the pandemic in 2020, there has been notable changes in the levels of use at level crossings. These changes include:

- More people exploring local walking routes
- A shift from a standard working hours
- More people working remotely and not travelling into an office
- More dog walker

With the student population returned, all of these issues have resulted in an increase in use of public footpaths, and therefore more people using level crossings. This trend has also been recognised nationally. It has resulted in many level crossings having an increased risk rating.

2.11.2 The previous relatively stable, but small increase in use that was recorded over previous years has now become less predictable. The current increase in use is still being felt although not to the levels at the height of the pandemic.

2.11.3 The trend identified has been from a general increase in use across the whole network, including previously remote, very low use sites, to notable increases just at busier sites within the footpath network such as the Crossing.

2.12 Vegetation

2.12.1 Vegetation is an ongoing issue at the Crossing. Regular inspections take place to assess the level of growth. Vegetation can limit sighting lines and reduce the available sighting of approaching trains. Vegetation cut-back is often actioned by the LCM or lineside inspectors, to as far as the boundary fence line, so that as much as possible of the Crossing user's sighting remains. This is less relevant at the Crossing as the user should rely on the MSL.

2.13 Future local development

2.13.1 The risk assessment of the Crossing incorporates a check of the local area to highlight any local increases in residential development, and therefore, leading to additional use of the Crossing.

2.13.2 If noted prior to the development, negotiations can then take place with the developer to understand the likely impact and imported risk on the Crossing, through modelling of increased user and type of user in ALCRM.

2.13.3 Currently, there are no known housing or commercial development plans in this area which may have an impact on the crossing.

Key factors that can affect the future use are:

- Local developments (e.g., opening schools, retail outlets, factories);
- Increasing pressures for new residential and commercial development;
- Increased number of people living in Britain (i.e. more crossing users);
- The requirement to run additional train services and convey more passengers;

2.13.4 Discovery of new developments is not always easy, and it tends to only be the larger developments that are offered to Network Rail as consultees resulting in increases in use only being highlighted at the next assessment.

2.13.5 The introduction of the Farnborough North community garden started in 2021 on the upside of the crossing which does receive regular visitors and school children but not in high numbers and does not affect the crossing extensively.

2.14 Adverse Weather

2.14.1 During site visits the Level Crossing Manager has witnessed all types of weather conditions whilst carrying out inspections at Farnborough North crossing.

2.14.2 Network Rail have guidance documents for carrying out risk assessments at level / foot crossings: (LCG13) is guidance for sun glare and (LCG21) is a guidance for fog.

2.14.3 As with any foot crossing in the country, adverse weather can affect the crossing User's safety when using the crossing, whether it is low sunlight, fog, or even heavy rain and/or high winds. It would be advisable for the Users to avoid using any crossing during these times if possible.

2.14.4 Weather conditions tend to limit sighting, whether that be by low sunlight obscuring the approach of a train or fog and/or heavy rain reducing visibility.

2.14.5 Below is a graph from the nearest weather station (South Farnborough) to the Crossing highlighting recorded fog conditions at the crossing for the last 5-years.

Level Crossing Weather Station Data Finder

(PC Version)

Date: 21/10/2021

Issue: 1.0

Select Level Crossing: **Farnborough North**

Select or type level crossing name into above drop-down list to plot the monthly fog days from the nearest weather station.

NOTE: If the above drop-down menu does not function on your computer, please use the 'Tablet' version of this form

Crossing Information

Crossing Type: **Private User worked Crossing with Telephone**

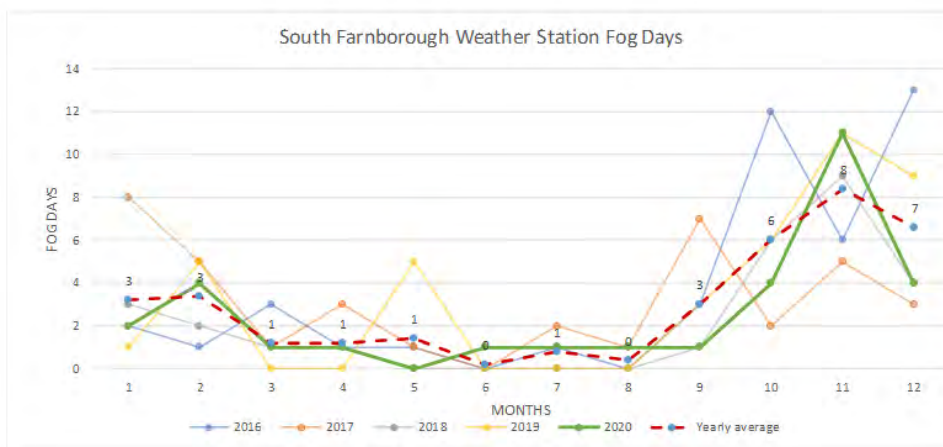
Location: **No Location Information Available for Crossing**

ELR: **GTW2** **053** Miles **0249** Yards

Weather Station

Nearest Weather Station: **South Farnborough**

Distance to nearest weather station: **2.72km** *Data Accuracy: Adequate*



South Farnborough Weather Station Fog Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2016	2	1	3	1	1	0	1	0	3	12	6	13	43
2017	8	5	1	3	1	0	2	1	7	2	5	3	38
2018	3	2	1	1	0	0	0	0	1	6	9	4	27
2019	1	5	0	0	5	0	0	0	3	6	11	9	40
2020	2	4	1	1	0	1	1	1	1	4	11	4	31
Average	3	3	1	1	1	0	1	0	3	6	8	7	

2.14.6 The data shows that during the colder months of the year Farnborough North is more susceptible to fog days. It has been noted by the LCM that cold days with little to no wind can result in the area suffering from fog that can last for several hours, with particular build-ups in the morning hours.

2.14.7 It is noted that the MSL combats the fog which would have to be extremely dense to disguise the light output.

2.15 Second train coming

2.15.1 A common feature at locations with two or more lines of rails is that there is a high risk that ‘another train approaching’ the Crossing on the second set of rails can become fully obscured by a train that has just passed a user on the nearer line, and the user could then step out onto the deck to cross without seeing or hearing the ‘second train coming’.

- 2.15.2 The risk is that a user would observe the first train approaching and wait for it to pass without realising that another train is approaching on the far line. They would then step out behind the first train and directly into the path of the second train which they would not see or hear, with the first train masking the view and sound of the second approaching train.
- 2.15.3 Freight operating companies have paths over the crossing. These trains can vary in length from an engine car to 200 metres plus train of carriages.
- 2.15.4 The length of these trains will severely restrict the sighting for another train coming on the other line after the train has passed over the Crossing.
- 2.15.5 Although the crossing is double tracked, the MSL warnings warn users of approaching trains, so they mitigate the risk of second train coming as long as the warnings are adhered to.

2.16 Train speeds

- 2.16.1 The line speed is 70mph on both lines for passenger and freight trains. It is understood that not all trains will be travelling so fast. Freight and passenger trains often travel at varying speeds and when a crossing is located near a station then stopping and non-stopping services will clearly travel at different speeds.
- 2.16.2 The variation in speed of trains, as at the location of the Crossing, separately introduces a distinct hazard in so far as waiting times will vary as the timing on the MSL is set to allow enough time for the fastest service to approach safely. Slower, stopping services will extend that waiting time causing frustration and potentially lead to poor behaviours from those not prepared to wait for extended periods.

3 ALCRM (All Level Crossing Risk Model) results

- 3.1 The ALCRM (All Level Crossing Risk Model) provides a prediction of risk which it classifies in the following ways:

Risk per traverse (identified by a letter A (high) to M (low), which defines the risk for a single traverse over the Crossing.

Collective risk (identified by a number 1 (high) to 13 (low), which relates to the total risk generated by the crossing. This considers the overall risk of death and injury for crossing users, train crew and passengers.

- 3.2 The current risk assessment rating of the Crossing in ALCRM is **E2** with an FWI scoring of 0.011559092 based on data from the September 2021 assessment.
- 3.3 This ranks the Crossing as high risk, placing it forth of 151 open footpath crossings on the Wessex route at the time of risk assessment. The risk score is based on 1941 pedestrians and cycle users and 78 trains per day.

3.4 Within the model, 90% of the risk has been averted by the presence of the crossing attendants. Without them present, the risk score would be 90% higher. This would then place the crossing as the highest risk score crossing.

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

- Second train coming (43%)
- Does not observe lights/barriers (30%)
- Slips, trips, falls or snagged on crossing (11%)
- Distracted / forced by dog (loss of control) (8%)
- Railway cause: slow moving / short warning (7%)
- Railway cause: train unexpected (0.7%)
- Unaware of crossing (0.3%)

3.6 The top two risk drivers for pedestrian equate to 73 percent, with top 'Second train coming' being 43 percent and 'Does not observe lights/barriers' being 30 percent based on 100 percent. At Farnborough North mitigating the top 2 events for pedestrians the risk driver would significantly reduce the risk at the crossing. This has been mitigated by the provision of attendants who operate the gate at the crossing controlling access to the railway. This has allowed approximately 90% overall of the risk to be controlled but this crossing still ranks in the top five footpath crossings.

3.7 The risk of being 'distracted / forced by dog (loss of control)' is dependent on users paying attention to signage (Please keep dogs on leads) and using the crossing correctly. So, with human factors being a factor the risk involved are not always able to be mitigated completely.

3.8 'Slips, trips, falls or snagged on crossing' is partially mitigated with a compliant decking with no tripping hazards but it is still reliant on the user paying attention to their foot fall as they cross the crossing.

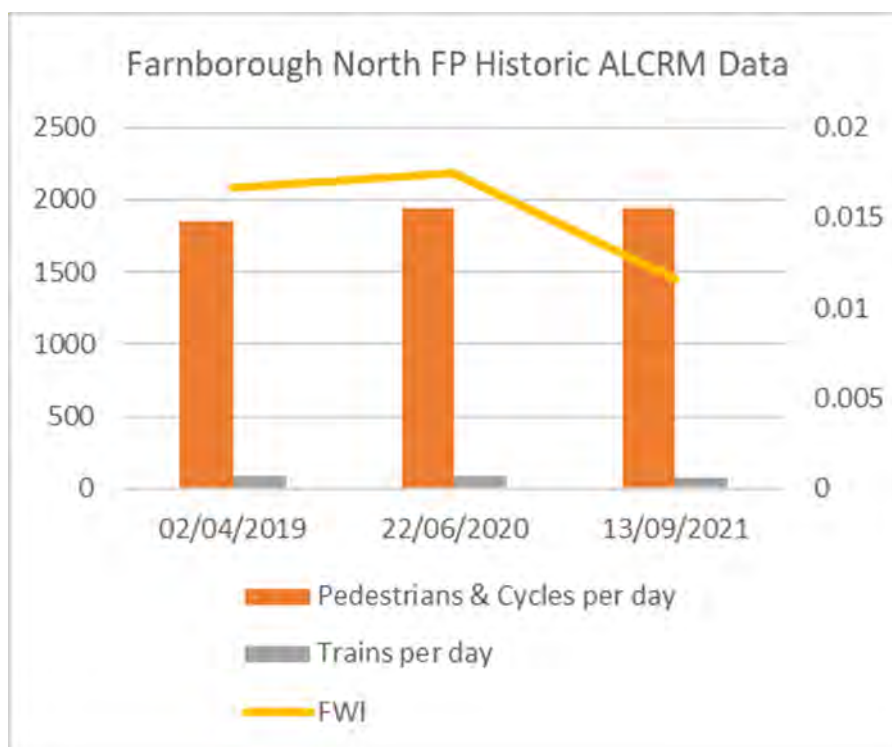
3.9 Railway cause: slow moving / short warning are dependent on users paying attention to the MSL warnings and signage and using the crossing correctly. So, with human factors being a factor the risk involved are not always able to be mitigated completely but again the crossing attendant helps mitigate the risk.

3.10 Details of which risks sum into the risk score are presented in the output table below. The main risk is to the crossing user, with a smaller percentage applied to train staff, namely the train driver.

	Risk per Traverse (Letter)	Collective Risk (Number)
The calculated safety risk for this crossing is:	E	2
	Risk per Traverse (FWI)	Collective Risk (FWI)
Cars / car-based vans / quad bikes	0	0

Large vans / small lorries / large 4x4s		0
Buses / Coaches		0
HGVs	0	0
Tractors / large farm vehicles		0
Cyclists		0.000436626
Pedestrians		0.010428643
Horse Riders	0.000000015	0
Animal Herders		0
Vehicles user in pedestrian mode		0
Train Passengers	0	0
Train Staff	0.000000024	0.000693823
Derailment Risk		0
Weighted Average (Users)	0.000000015	
Total Risk		0.011559092
	Average Consequence	0.0833
	Collision Frequency	0.138764607

3.11 The historic ALCRM data below shows a slight increase in FWI between 2019 and 2020 which is attributable to increases in pedestrian & cycle users per day. There is a steep decrease between 2020 and 2021 which is attributable to the ALCRM algorithms more accurately reflecting risks at crossings.



3.12 Another contributory factor to the decrease in risk is the change in the way the risk model, ALCRM, assigns risk. The changes made have aligned the risk modelling more closely with the Safety Risk Model produced and updated by the Rail Standards and Safety Board (RSSB). The change saw the risk profile change crossing risk scores both up and down, with most footpath crossings increasing their risk score while protected road crossings reduced their risk score. This change took place in April 2021.

4 OPTION ASSESSMENT

4.1 Each of the options hypothetically considered represent opportunities to eliminate or reduce risk. Options that achieve closure of the Crossing must always be the primary consideration, as in any hierarchy where the elimination of the risk is the most favoured option.

4.2 Cost Benefit Analysis (CBA)

4.2.1 This process allows each of the proposed options to be assessed for their 'value for money'. Any given safety mitigation must show that there is a sufficient safety reduction for the cost of the solution.

4.2.2 The Business Cost Ratio (BCR) is the value that is the output of the CBA. The ratio indicates whether there is a sufficient business case to proceed. If the BCR is equal or above 1.0 then there is a positive business case, but if it is less than 1.0 then there is not.

4.2.3 Prior to the incorporation of weighting under Gross Disproportionality, (see below) there was a case to argue for those that scored between 0.5 and 1.0 should be progressed, as the cost was not grossly disproportionate to the benefits achieved by implementing the solution, and therefore a justifiable option. The GDF process has now provided a clearer, and safety led decision-making tool.

4.3 Gross Disproportionality Factor (GDF)

4.3.1 The Office of Rail and Road (ORR) raised concerns that Network Rail's Cost Benefit Analysis (CBA) tool did not adequately account for gross disproportion, as required to comply with health and safety law. The Health and Safety at Work Act 1974 places duties on Network rail to conduct its undertaking to ensure, so far as is reasonably practicable, that it does not expose level crossing users to risks to their health and safety. In doing so, Network Rail must consider the cost of implementing risk control measures (in terms of money, time, and effort) against the reduction in risk those measures might achieve.

4.3.2 To provide structure and a consistent framework in determining whether an option is grossly disproportionate, Network Rail has introduced Gross Disproportion Factors (GDF) that can be applied to the CBA calculation. To be grossly disproportionate, the cost of implementation must significantly outweigh the risk to the user.

- 4.3.3 When determining the GDF through a series of questions, the highest GDF level achieved is the GDF applied, even if it is not the most recurrent.
- 4.3.4 The below table illustrates the range of suitable Gross Disproportion Factor multipliers that can be applied to the CBA result.

GDF Level	GDF multiplier
Medium	1.5
High	2.5
Exceptional	6

- 4.3.5 If the CBA is multiplied by the relevant GDF scale and produces an answer greater than 1.0 then there is an acceptable business case.
- 4.3.6 The results of the GDF evaluation for the Crossing are available in Appendix 1. The CBA results and GDF scales are presented in the options table in the Cost Benefit Analysis section of the report.
- 4.3.7 For reference, the Crossing produced a Exceptional GDF level, resulting in a multiplying factor of 6 to the CBA results.

4.4 Closure via extinguishment

- 4.4.1 Closure of a crossing would always be the preferred option within Network Rail, as it separates the public from trains and is therefore the safest option.
- 4.4.2 Closure of the Crossing would fully eliminate the risk. The Crossing currently ranks as the fourth highest risk of Network Rail Wessex's footpath crossings at the time of writing, due to the high amount of passing trains and public usage, plus the levels of misuse and accidental events linked with the location.
- 4.4.3 However, stopping up of the rights and closure of the Crossing has been rejected. This would immediately create a problem in providing key access to pedestrians who are catching or embarking from a train.
- 4.4.4 Further, extinguishment of the right of way over the crossing without providing an alternative route is not an option, due to the lack of suitable alternative routes over the railway within the vicinity of the crossing. It would require changing the route of the path to one that already existed. There would be no convenient alternative to the existing route, there would be no suitable route.
- 4.4.5 The diversionary route highlighted in red below is 2.4 miles.



4.5 Closure by stepped footbridge

- 4.5.1 This option has also been rejected. It had been proposed that a stepped bridge could be built at the current site of the Crossing.
- 4.5.2 However, with a known high number of vulnerable users who could not negotiate a stepped structure, this would not meet NRs Public Sector Equality Duty under the Equality Act 2010, for those with protected characteristics. The diversity and inclusion report highlighted that those with vulnerable characteristics would be disadvantaged by this option and may prevent some disabled users from using the trains.
- 4.5.3 The option to have a stepped bridge for able-bodied users whilst keeping the crossing open for non-able-bodied users is not a viable solution. The crossing attendant would have to remain at the Crossing and others would try and use it rather than climbing the steps of the bridge.
- 4.5.4 The risks at the Crossing would thus remain, and would not meet NRs obligation to reduce risk at the Crossing to ALARP.

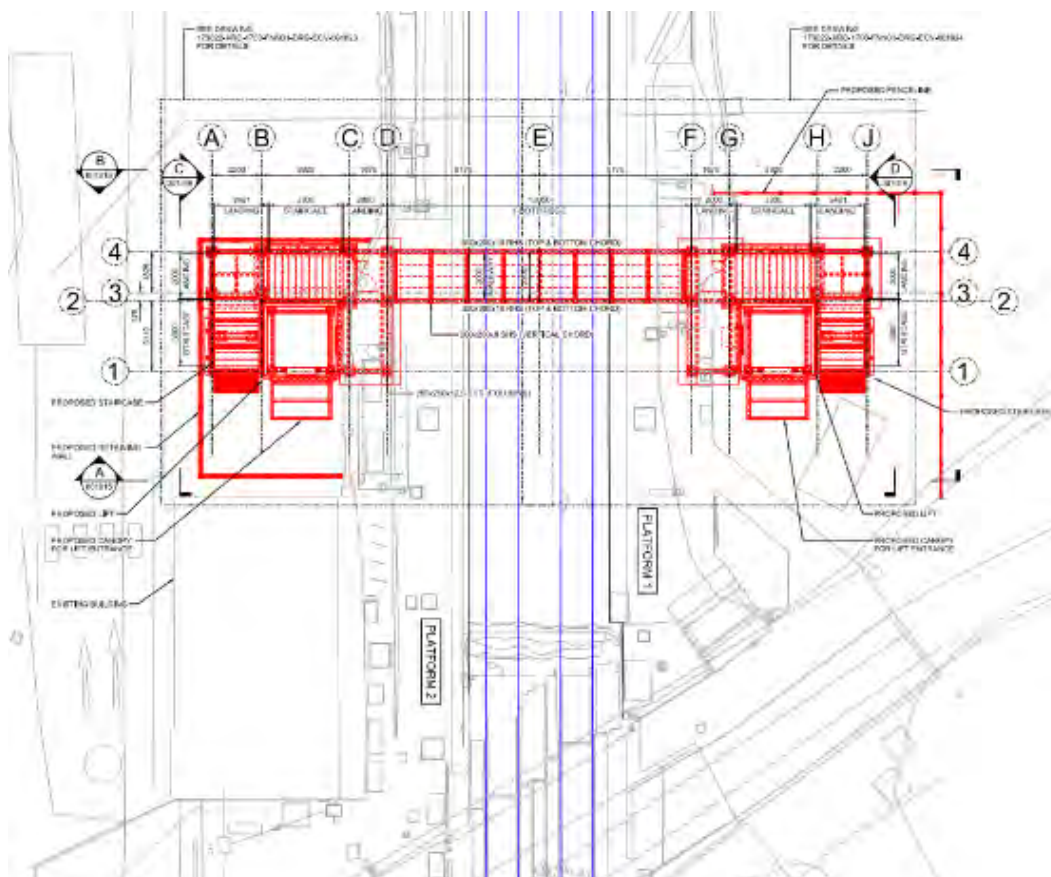
4.6 Closure by provision of an underpass

- 4.6.1 This option has been rejected.
- 4.6.2 The construction of an underpass at the location of the Crossing would require a vast area to construct the approach slopes to an underpass. It would no doubt necessitate compulsory purchase of third-party land. Those dwellings adjacent to the Crossing would require shoring up at high cost and inconvenience to the owners, to prevent them being undermined.
- 4.6.3 Network Rail has found that underpasses are spaces that can attract anti-social behaviour and are not favoured by the British transport Police.
- 4.6.4 It is also noted in the area that there are large bodies of water and the water table in this area would mean that the underpass would easily flood and would require frequent

pumping in order to keep it open for use. Drainage of rainwater and other run-off would be an issue.

4.7 Closure by diversion and provision of a new EA-compatible bridge with lifts

- 4.7.1 This option has been recommended. A stepped bridge, with lifts built in accordance with British Standards will fulfil Network Rail’s PSED to those with protected characteristics, and will also fulfil the station requirement for assisted travel. It is proposed an accessible bridge with lifts can be built to the north of the current crossing as part of the station platform area.
- 4.7.2 The bridge and lifts would provide a suitable alternative, grade separated, route over the railway on a similar alignment to the previous path. The benefit is that passenger users will retain uninterrupted platform to platform access at all times.
- 4.7.3 The risks at the Crossing will be completely removed while allowing the large vulnerable population safe passage.
- 4.7.4 This option is reliant on the purchase of third-party land for a path to be constructed, linking back to the existing paths on either side of the Crossing.
- 4.7.5 This option removes all risk at the Crossing.
- 4.7.6 Applying the Gross Disproportionality Factor, there is a business case for this option.
- 4.7.7 The following two diagrams give an indication of the expected stepped and lift structure that would be implemented as part of this proposal.





4.8 Construction of a Ramped and Stepped Footbridge

- 4.8.1 This has been discounted. Although this option would fulfil NR's PSED, to those with protected characteristics, there is insufficient room to construct such a large structure with ramps either side at lengths around 250 metres.

4.9 Retail the Crossing with only current mitigations

This is not a viable option as Network Rail is subject to the requirements of the Health and Safety at Work Act etc 1974 to reduce risk 'so far as is reasonably practicable' and a 'do nothing' option, or in only applying collective minor adjustments, will not meet Network Rail's obligation to reduce the risk at the crossing to ALARP.

5 COST BENEFIT ANALYSIS

Option	Term ¹	ALCRM risk score	ALCRM FWI	Safety Benefit	Cost (£)*	Benefit Cost Ratio	BCR with GDF (6)	Status	Comments
Closure via extinguishment *	Long	M13	00E+00	1.16E-02	100,000	5.05	30.3	REJECTED	No suitable alternative route across the railway.
Closure via extinguishment **	Long	M13	00E+00	1.09E-01	100,000	46.14	276.4	REJECTED	No suitable alternative route across the railway.
Closure by stepped footbridge (composite) *	Long	M13	00E+00	1.16E-02	600,000	0.84	5.04	REJECTED	Does not meet NRs Public Sector Equality Duty under the Equality Act 2010.
Closure by stepped footbridge (composite) **	Long	M13	00E+00	1.09E-01	600,000	7.69	46.14	REJECTED	Does not meet NRs Public Sector Equality Duty under the Equality Act 2010.
Closure by provision of an underpass *	Long	M13	00E+00	1.16E-02	2,500,000	0.11	0.66	REJECTED	Restricted by land restraints
Closure by provision of an underpass **	Long	M13	00E+00	1.09E-01	2,500,000	1.81	10.86	REJECTED	Restricted by land restraints
Closure by diversion via an EA Bridge & lifts *	Long	M13	0.00E+00	1.16E-02	6,740,000	0.07	0.42	RECOMMENDED	Safety and business benefit does not justify the cost of enhancement if the crossing attendants stay in situ
Closure by diversion via an EA Bridge & lifts **	Long	M13	0.00E+00	1.09E-01	6,740,000	0.68	4.08	RECOMMENDED	Safety and business benefit justifies the cost of enhancement based on crossing attendants removed.
Leave as is	Long	C2	1.16E-02	0	0	N/A	N/A	REJECTED	Not a viable long-term option

* Calculation and risk score factoring in attendant in situ – ALCRM risk reduction at 90% - cost per annum 160k

** Calculation and risk score based on no attendant in situ and increase risk score

6 CONCLUSION AND RECOMMENDATION

- 6.1** When carrying out a level crossing risk assessment in line with Network Rail and Office of Rail and Road (ORR) policy¹, one must look to eliminate the hazard through the hierarchy of risk controls. Risk controls should, where practicable, be achieved through the elimination of level crossings in favour of bridges, underpasses, or diversions.
- 6.2** The risk assessment process provides evidence of the decision-making process on whether to invest in supplementary safety measures or, to pursue permanent closure of a crossing.
- 6.3** The current risk assessment score in the ALCRM is E2 with an FWI score of 0.011559092. This ranks the crossing as high risk. This score makes the Crossing the forth-highest risk crossing out of the 299 crossings on the Wessex route. Clearly, this risk is not considered as tolerable or as low as is reasonably practicable. Leaving the Crossing in its current form has been rejected as an option.
- 6.4** Census information and evidence gathered from standard cyclical risk assessments at the Crossing indicates that it is used by a combination of vulnerable user types, including elderly, unaccompanied children, mobility impaired, people with prams, family groups with and without children and fisherpersons with fishing kit trolleys.
- 6.5** Closure via extinguishment is not considered a viable one due to lack of suitable alternative routes over the railway within the vicinity of the crossing.
- 6.6** Closure via stepped footbridge does not meet NRs Public Sector Equality Duty under the Equality Act 2010 and there is insufficient land within NR's land ownership, or available to acquire to accommodate a ramped and stepped structure.
- 6.7** Closure via underpass would require third-party land to construct and may be restricted by land constraints, also recognising that underpasses are spaces that can attract anti-social behaviour.
- 6.8** Crossing attendants required to lock gates is not a sustainable long-term solution. It has a high operational expenditure which will increase each year. Also, as events have shown, there are ways in which this protection can be overcome leading to near miss events and ongoing danger to the public.
- 6.9** The approved option, and one that Network Rail seeks to pursue, is closure by the diversion onto a Stepped Bridge with lifts. This option, which will fulfil NRs PSED, shows a positive business case in the cost-benefit analysis, when applying the Gross Disproportionality Factor. Studies show that there is sufficient space to install such a structure at the Crossing with a small purchase of third-party land.
- 6.10** There is a strong, reasonable, business case to build a footbridge and lifts which will close the crossing. First, the cost is justifiable against the removal

¹ Principles for managing level crossing safety, Office of Rail and Road, June 2021


of the attendant manning, which is no longer required, and secondly, removing the unacceptable inherent risk.

- 6.11** It is the conclusion of this risk assessment that closure remains the only appropriate option to eliminate the risk at the Crossing, by the most applicable means possible.

8 APPROVALS

Date of NRA Sign-off	30 st September 2022
Prepared By: Jamie Eyers	Signature: Held on file
	Job Title: Level Crossing Manager
Approved By: Sam Pead (RLCM)	Signature: Held on File
	Job Title: Route Level Crossing Manager

Appendix 1 – GDF result

GDF question set tool to support level crossing cost benefit analysis							
 Version 1.1							
Crossing name		Farnborough North					
ELR, m, ch	GTW2 53m 11ch	Crossing type	FPGM				
Name of person completing this form		Jamie Evers					
Date of completion	30/09/2022	GDF result	Exceptional				
Culpability - accounting for suicides, deliberate misuse and user errors					Comments		
What is the level crossing incident history since the last risk assessment?	Suicide events only	0 - 5 incidents	6 - 25 incidents	>25 incidents	GDF Score	Medium only 2 instances	
	Medium	Medium	High	Exceptional			Medium
Vulnerability - a greater responsibility exists for those less able to protect themselves							
Who uses the level crossing?	No vulnerable users identified	Vulnerable User CAT 1 <i>Cyclists and dog walkers only</i>	Vulnerable User CAT 2 <i>Those with protected characteristics, e.g., children, elderly, encumbered, disabled, parents with young children</i>		GDF Score	high volumes of vulnerable users .	
	Medium	Medium	High				High
Societal Aversion - addressing the absence of public appetite for credible mass casualty events							
What is the worst-case consequence in the most likely scenario for a single event involving a train	Event with the potential of a single specified injury to 5 specified injuries	Event with the potential of between 5 specified injuries and 2 fatalities	Event with the potential of between 2 and 10 fatalities	Event with the potential of greater than 10 fatalities or 10 FWI	GDF Score	Potential 20-30 fatalities as high number of users cross at once.	
	<i>Between 0.1 and 0.5 FWI</i>	<i>Between 0.5 and 2 FWI</i>	<i>Between 2 and 10 FWI</i>				Medium
Uncertainty - how confident are we that we understand crossing usage correctly?							
Does the level crossing currently have a passive or active warning?	Active	Passive	GDF Score		Crossing attendant on site		
	Medium	High	Medium				
Does the local environment create uncertainty about how the crossing is used and by whom?	No	Yes	GDF Score		Census conducted and users seem to be local mainly or frequent visitors		
	Medium	High	Medium				
Uncertainty for private level crossings							
Who uses the crossing?	Authorised users or regular, controlled users only		Irregular/unfamiliar users (delivery drivers etc.)		GDF Score		
	Medium		High			Medium	
Can we be certain about the types of vehicles that use the crossing?	Confirmed by census and other smart sources of information	Described and confirmed by authorised users	Unable to confirm through census or discussion with authorised users		GDF Score		
	Medium	High	Exceptional			Medium	
Uncertainty for public road level crossings							
What level of protection is provided at the crossing?	Full barrier	Half barrier <i>(or open crossing if line speed is equal to or less than 25mph)</i>	Open crossing <i>(if line speed is greater than 25mph)</i>		GDF Score	CCTV full barrier crossing	
	Medium	High	Exceptional				Medium