

Rail Accident Report



**Road vehicle incursion onto the railway at
Aspatria, Cumbria
26 October 2013**

Report 14/2014
June 2014

This investigation was carried out in accordance with:

- the Railway Safety Directive 2004/49/EC;
- the Railways and Transport Safety Act 2003; and
- the Railways (Accident Investigation and Reporting) Regulations 2005.

© Crown copyright 2014

You may re-use this document/publication (not including departmental or agency logos) free of charge in any format or medium. You must re-use it accurately and not in a misleading context. The material must be acknowledged as Crown copyright and you must give the title of the source publication. Where we have identified any third party copyright material you will need to obtain permission from the copyright holders concerned. This document/publication is also available at www.raib.gov.uk.

Any enquiries about this publication should be sent to:

RAIB	Email: enquiries@raib.gov.uk
The Wharf	Telephone: 01332 253300
Stores Road	Fax: 01332 253301
Derby UK	Website: www.raib.gov.uk
DE21 4BA	

This report is published by the Rail Accident Investigation Branch, Department for Transport.

(Cover images courtesy of Network Rail)

Road vehicle incursion onto the railway at Aspatria, Cumbria, 26 October 2013

Contents

Summary	5
Introduction	6
Preface	6
Key definitions	6
The incident	7
Summary of the incident	7
Context	8
Events preceding, during and following the incident	11
The investigation	13
Sources of evidence	13
Key facts and analysis	14
Background information	14
Identification of the immediate cause	17
Identification of causal factors	17
Occurrences of a similar character	18
Summary of conclusions	21
Immediate cause	21
Possible causal factor	21
Other reported actions	22
Recommendations	23
Appendices	24
Appendix A - Glossary of terms	24

This page is intentionally left blank

Summary

At 10:01 hrs on Saturday 26 October 2013, an unattended commercial vehicle on the B5299 Brayton Road, Aspatria, ran away down the road. It crossed the main A596 Lawson Street, broke through a wooden fence and rolled down the side of a cutting onto the railway. Although a passenger train from Carlisle to Lancaster was approaching Aspatria at the same time, prompt action by those concerned resulted in this train being stopped about 2.4 km (1.5 miles) from the incident site. There was therefore no collision with the commercial vehicle on the track, and none of the passengers or crew on the train were actually put at risk.

The management of road vehicle incursions onto the railway is described in guidance published by the Department for Transport (DfT). The RAIB's investigation found that the guidance does not explain how to assess the risk of a vehicle that has lost control on a side road (eg a runaway on a side road with a downhill gradient towards the railway). Also, the guidance does not describe how this risk should be combined with the risk of road vehicle incursion from the corresponding main road to give an overall risk ranking score.

The RAIB has made two recommendations; the first to the DfT to review and amend the guidance on road vehicle incursions; and the second to railway infrastructure managers, with highway authorities, to provide additional mitigation against vehicle incursions at sites where there is a significant risk of road vehicles from side roads, including of vehicles running downhill onto the railway.

Introduction

Preface

- 1 The purpose of a Rail Accident Investigation Branch (RAIB) investigation is to improve railway safety by preventing future railway accidents and incidents, or by mitigating their consequences. It is not the purpose of such an investigation to establish blame or liability.
- 2 Accordingly, it is inappropriate that RAIB reports should be used to assign fault or blame, or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.
- 3 The RAIB's investigation (including its scope, methods, conclusions and recommendations) is independent of all other investigations, including those carried out by the safety authority, police or railway industry.

Key definitions

- 4 All dimensions and speeds in this report are given in metric units, except speed and locations on Network Rail which are given in imperial units, in accordance with normal railway practice. Where appropriate the equivalent metric value is also given.
- 5 Mileages in this report are measured from a zero mileage datum at Maryport for the line from Carlisle to Maryport and Workington.
- 6 The terms 'up' and 'down' in this report are relative to the direction of travel along the railway. The up direction is towards Maryport and Workington; the down direction is towards Carlisle.
- 7 The report contains technical terms (shown in *italics* the first time they appear in the report). These are explained in appendix A.

The incident

Summary of the incident

- 8 On Saturday 26 October 2013 at 10:01 hrs, an unattended Nissan Cabstar commercial vehicle that had been parked facing uphill on the B5299 Brayton Road, Aspatria (figure 1) ran away down the road. It crossed the main A596 Lawson Street, broke through the wooden railway boundary fence, and then rolled down the cutting side onto the railway, blocking the up line and becoming foul of the down line.
- 9 According to its driver, the vehicle had been parked for around two minutes with its handbrake applied before it began to roll away. The police reported that it was well under its permitted laden weight.
- 10 The 09:39 hrs passenger service from Carlisle to Lancaster (reporting number 2C42) was approaching Aspatria, but was stopped about 2.4 km (1.5 miles) from the incident site when its driver received an emergency call from Network Rail's *Route Control* on the train's radio system. Route Control had become aware of the incident when they received a telephone call from Cumbria Police.

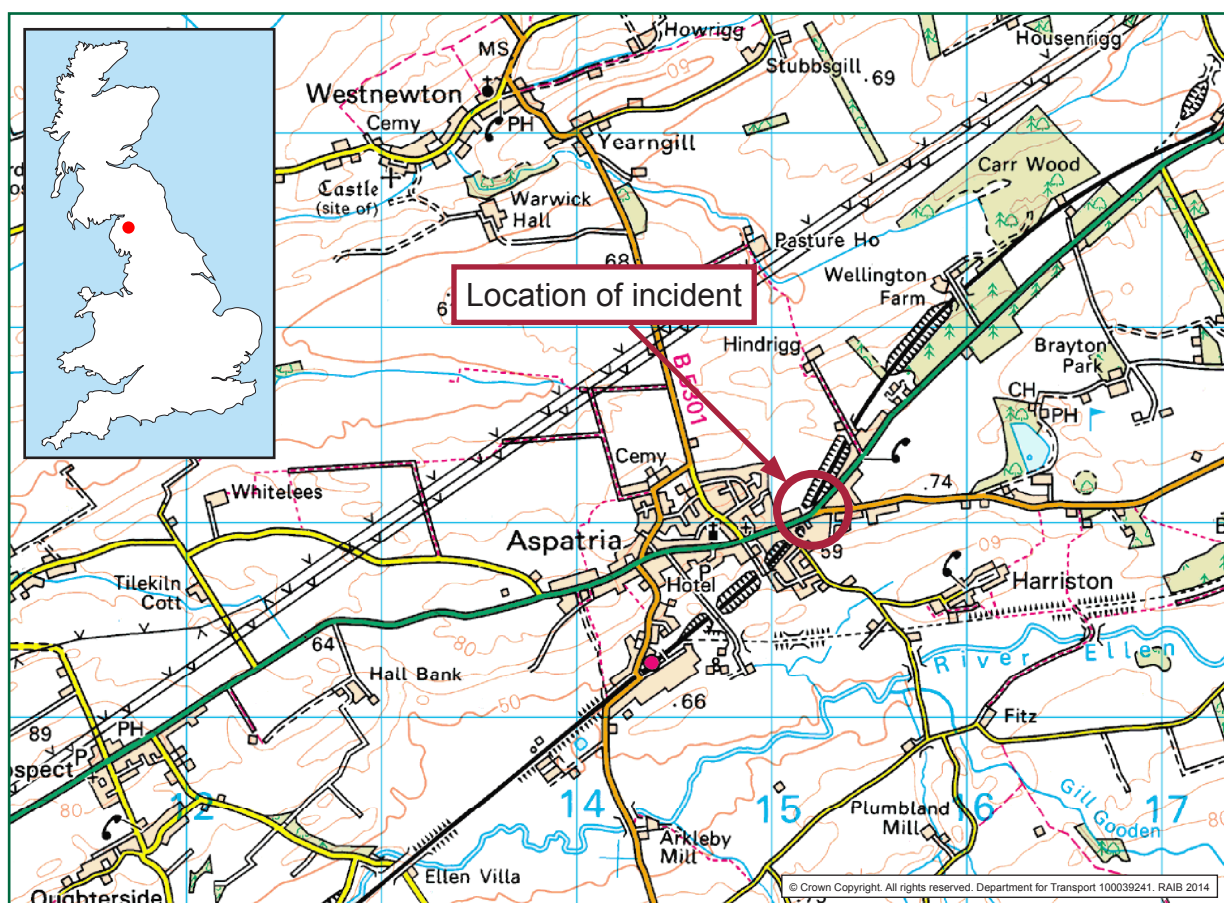


Figure 1: Extract from Ordnance Survey map showing location of the incident

- 11 The vehicle's driver sustained minor injuries when he fell over while pursuing the runaway vehicle. The vehicle was badly damaged when it turned over onto its roof as it rolled down the side of the cutting. There were no other casualties and there was no damage to railway infrastructure, other than to the boundary fence.

Context

Location

- 12 The incident occurred at Aspatria immediately to the east of bridge 49 (otherwise known as Aspatria tunnel) (figure 2) at 8 miles 40 chains¹ on the double track railway from Workington to Carlisle. This line is in Network Rail's London North Western *Route* and is mainly used by passenger trains operating a service at roughly hourly intervals in each direction. A few freight trains also operate on the route. The maximum permitted speed of passenger trains is 60 mph (90 km/h). Freight trains can also travel at a maximum speed of 60 mph (90 km/h) approaching Aspatria, but there is a *permanent speed restriction* requiring them to slow to 20 mph (32 km/h) between 8 miles 40 chains and 7 miles 68 chains in each direction because of the condition of the track.



Figure 2: Bridge 49 at Aspatria

- 13 The line is signalled on the *absolute block* principle with the signal boxes located at Wigton, to the east of Aspatria, and Maryport, to its west.
- 14 Trains operating on the route through Aspatria are fitted with radios operating on the *national radio network* system. Network Rail's Route control in Manchester is able to contact a driver directly using this system should an emergency occur.

¹ One chain is equal to 22 yards (20 metres).

- 15 Bridge 49 carries the A596 road over the railway at a significant skew resulting in the width of the bridge between the *parapets* being 51.2 metres (56 yards). The A596 road runs from Thursby, just outside Carlisle, to Maryport and Workington and approaches the bridge from the north-east running broadly parallel to the railway until it crosses over it. It was classified as a *trunk road* until it was formally *detrunked* on 1 April 2003. Just before the road crosses the railway, there is a junction with the B5299 Brayton Road, approaching from the east (figure 3).

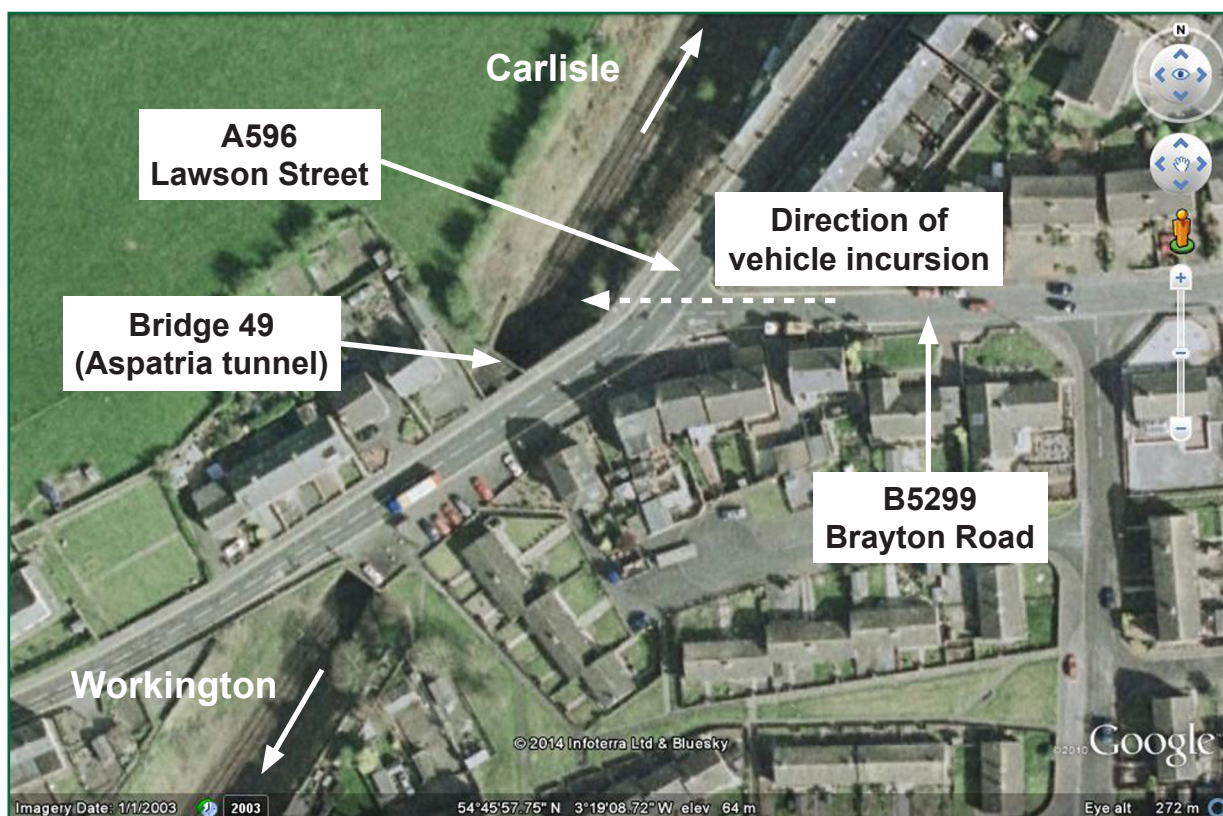


Figure 3: Site location, Aspatria

- 16 Brayton Road approaches the junction with the A596 on a downward gradient of about 3% (1 in 33) and directly opposite the junction the railway boundary is protected by a wooden fence. Beyond the fence, the railway lies in a cutting immediately before bridge 49. Between the end of the wooden fence and the bridge parapet there is a section of parapet laid on top of the cutting's *retaining wall* (figures 4a, 4b, 5a and 5b).

Organisations involved

- 17 Network Rail owns and maintains the track onto which the runaway vehicle fell.
- 18 Cumbria County Council has been the *highway authority* since the road was formally detrunked. It owns bridge 49 and is responsible for its inspection and maintenance. It is also responsible for the operation and maintenance of the A596 road and has appointed a contractor, Connect CNDR Limited, to undertake this.

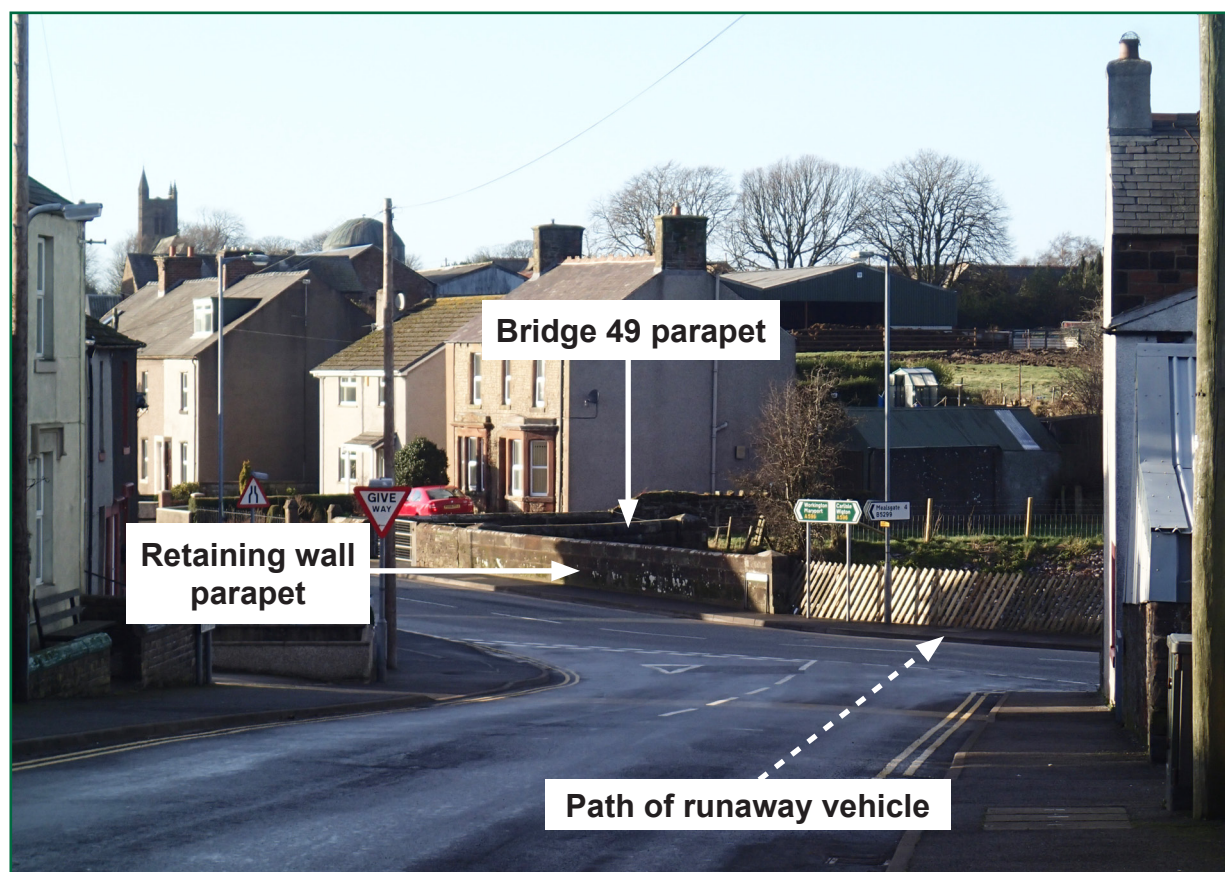


Figure 4a: The wooden fenced boundary opposite the A596/B5299 junction



Figure 4b: The wooden fenced boundary opposite the A596/B5299 junction

- 19 Connect CNDR was appointed under a *private finance initiative* (PFI) for a 30-year contract to construct a bypass around the west side of Carlisle and to operate and maintain 150 km of existing roads, including the A596, in Cumbria. The contract commenced on 1 October 2009 and Connect CNDR sub-contracted the day-to-day operation and maintenance of the roads it was responsible for to Balfour Beatty Regional Civil Engineering Limited.
- 20 Prior to the road being detrunked, the *Highways Agency* was the highway authority and was responsible for its operation and maintenance.
- 21 All parties freely co-operated with the investigation.

Events preceding, during and following the incident

- 22 The vehicle driver parked the Nissan Cabstar on the offside of Brayton Road, facing uphill, about 100 metres from its junction with the A596, shortly before 10:00 hrs on 26 October.
- 23 About two minutes later, according to its driver, the vehicle ran away onto the railway (figures 5a and 5b). The police reported that it appeared part of the handbrake had failed, although it was not possible to determine which part because of the damage caused to the vehicle.



Figure 5a: The consequences of the runaway from the B5299/Brayton Road (courtesy of Network Rail)

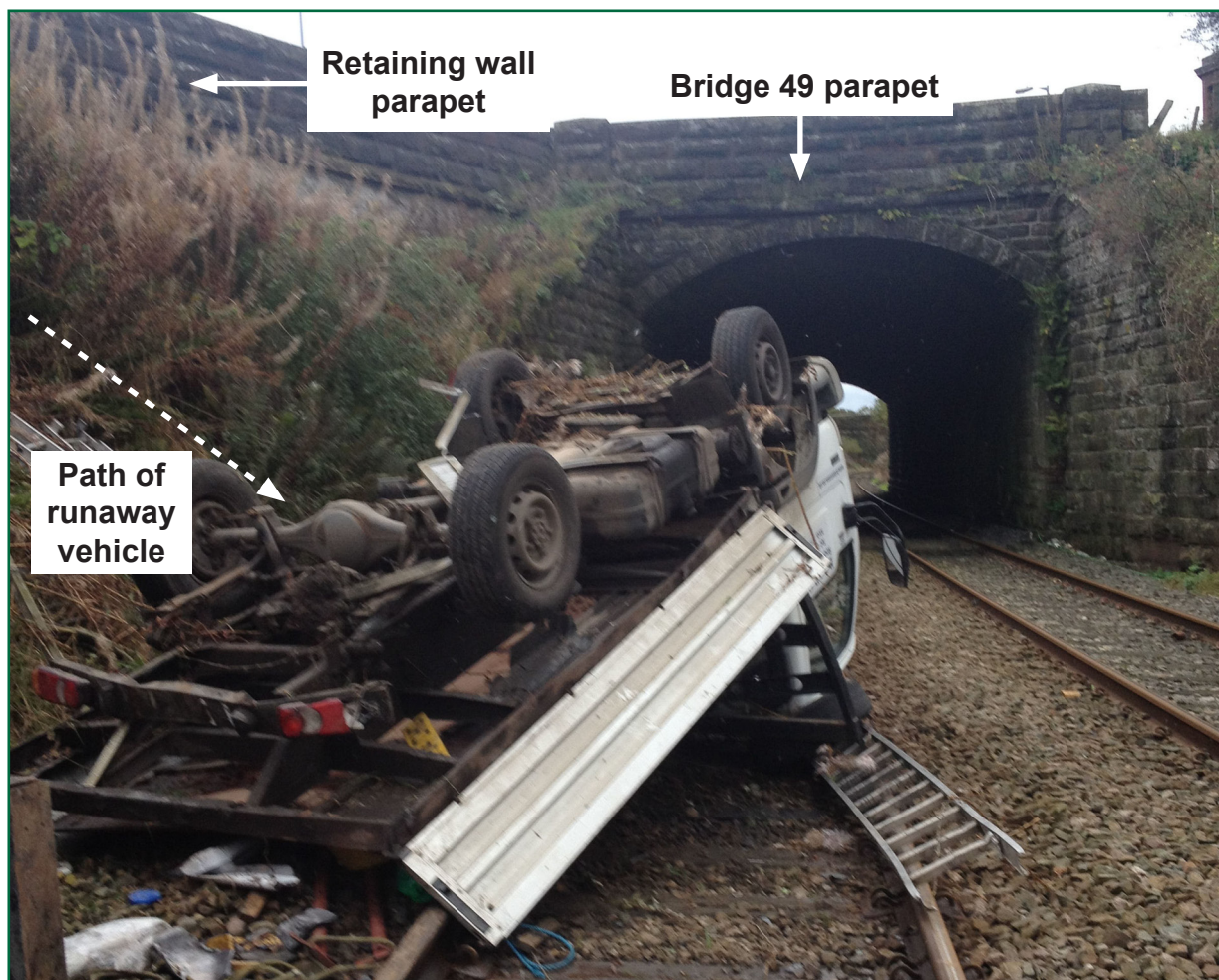


Figure 5b: The consequences of the runaway from the B5299/Brayton Road (courtesy of Network Rail)

- 24 At 10:01 hrs, a member of the public called Cumbria Police to advise them of the incident, and at 10:03 hrs the police called Network Rail's Route control in Manchester.
- 25 At the same time that one of the Route controllers was receiving the call from the police, a second controller, who had overheard the report from the police, made an emergency stop call on the national radio network to the driver of train 2C42, which stopped on the approach to Heathfield crossing at 9 miles 76 chains, about 2.4 km (1.5 miles) from the road vehicle obstructing the track. The train subsequently returned to the previous station at Wigton where the passengers were detained, before returning empty to Carlisle.
- 26 Prompt reporting and action by those involved therefore ensured that the train that was approaching the site of the incursion was stopped well before reaching it.
- 27 Cumbria Police arranged for the road vehicle to be recovered and normal railway operation was resumed at 14:43 hrs.

The investigation

Sources of evidence

28 The following sources of evidence were used:

- site photographs;
- Network Rail log reports;
- previous assessments made by Network Rail of road vehicle incursions and related documentation;
- applicable guidance and standards concerning the management of the risk of road vehicle incursion onto the railway;
- evidence from staff working for Network Rail, the DfT, Cumbria County Council and Connect CNDR; and
- previous RAIB investigations relevant to this incident.

Key facts and analysis

Background information

Assessing the risk of road vehicle incursion and financing mitigation measures

- 29 On 28 February 2001, a train struck a road vehicle on the railway at Great Heck, North Yorkshire, resulting in ten passengers and railway staff being fatally injured. Following this accident, the DfT published guidance 'Managing the accidental obstruction of the railway by road vehicles' in February 2003.
- 30 The DfT guidance was implemented in Network Rail by its own guidance NR/GN/CIV/00012² 'Road Vehicle Incursions: Risk Assessment of Bridge and Neighbouring Sites', dated 7 June 2003. This essentially mirrors the content of the DfT guidance.
- 31 The DfT guidance describes a two stage assessment process to determine the risk ranking of a site, and then consider possible mitigation measures for those sites scoring above a specified benchmark figure (90). The guidance also envisaged that highway and rail authorities should at least consider the practicability of improvements at lower risk sites scoring between 70 and 90. Three risk ranking techniques are included to cover the differing situations of:
 - a single carriageway road passing over a railway on an *overbridge* (completed on a form 1a);
 - a dual carriageway road (including a motorway) passing over a railway on an overbridge (completed on a form 1b); and
 - a neighbouring (or parallel) site (completed on a form 2).
- 32 A neighbouring site is a coincident length of railway and road, eg a road that runs parallel to a railway, or a cul-de-sac that ends at or close to the railway boundary, where accidental road vehicle incursion onto the railway is a realistic possibility. The approach of the A596 road from the north-east to bridge 49 at Aspatria is a neighbouring site where it runs broadly parallel to the railway. The site includes the junction with the B5299 road.
- 33 The process of risk ranking is carried out by scoring the factors specified on the relevant form 1a, 1b or 2, depending on the nature of the site concerned. The individual scores of the factors are then summed to derive the risk ranking total. The guidance also includes a mitigation spreadsheet which calculates whether a proposed mitigation measure would be cost effective. Sites scoring less than 90 are likely to justify only low levels of safety expenditure on improvements, such as road markings or signage³.
- 34 The DfT guidance states that for neighbouring sites any site should be assessed where there is a feasible chance of incursion, and that each distinct section of a site should be considered separately.

² RT/LS/G/00012 when first published.

³ The DfT guidance suggests an indicative spend of £200 (at price levels that pertained when the guidance was published in 2003) per site for sites scoring less than 90.

- 35 While the risk ranking process provides a method to list sites in order of vehicle incursion risk, if the risk can arise from two distinct sections such as a side road and a main road, there is no mechanism in the guidance to take account of the vehicle incursion risk from the side road in conjunction with the contribution from the main road. This could lead to the overall vehicle incursion risk at a site being under-estimated.
- 36 Network Rail provided evidence of assessments of parallel roads containing junctions where it had assessed the whole length of the parallel road and then, if the risk ranking score was more than 90, separately assessed specific sections containing road junctions within it. It used the results to inform decisions concerning mitigation, including not implementing mitigation on sections scoring less than 90 within the whole parallel site.
- 37 The DfT guidance stresses that there should be a joint approach by highway and railway authorities and where mitigation is required each party should pick up their own costs with a 50:50 split for any physical works.

Road vehicle incursion assessments at bridge 49, Aspatria

- 38 In response to the publication of the DfT's guidance, Network Rail commissioned consultants to risk rank overbridges and neighbouring sites in Cumbria. Bridge 49 was scored using form 1a sometime between October 2002 and April 2003 (the exact date is not known as the risk ranking was carried out as a bulk exercise of many sites over the same period). The site scored 82 and no action was taken as a result, because it was below the 90 threshold (paragraph 31). The neighbouring site on the road approach from the north-east was scored as a separate exercise using form 2 on 20 April 2003. The score was 79 and, again, resulted in no action being taken to implement any mitigation measures.
- 39 Prior to the contract referred to in paragraph 19 being let, Connect CNDR commissioned consultants to carry out a survey of the condition of the assets for which it was to be responsible. The condition survey was carried out in March 2008 and included a risk assessment of bridge 49. The report on the condition survey of bridge 49 commented that 'the timber fence to the east end of the stone wall will provide no resistance to vehicle impact' and went on to say 'there is a danger of vehicle incursion, through the timber fence, onto the railway at this point'. It recommended that 'consideration should be given to possibly installing some safety fencing on vulnerable approaches'.
- 40 The consultants made their recommendation to Connect CNDR despite the relatively low score derived from the risk ranking carried out in accordance with the DfT's guidance, which, under that guidance, would only have justified a very low level of safety expenditure (paragraph 32).
- 41 In response to the recommendation in the condition survey, another consultancy, working for Balfour Beatty Regional Civil Engineering, assessed bridge 49 using Interim Advice Note 97/07 'Assessment and Upgrading of Existing Vehicle Parapets'. This is a Highways Agency document providing advice on the assessment of parapet and safety barrier supporting members on bridges and retaining walls. It includes the overbridge risk ranking tools in the DfT's guidance, and also a method of judging whether the upgrading of parapets is *reasonably practicable*.

- 42 In applying Interim Advice Note 97/07, the consultancy used a simple formula applicable to bridge parapets to assess the incursion risk of the wooden fence. One of the factors in the formula is the extent of containment by the parapet. On the assumption that it was part of the bridge parapet, the fence was assumed to have zero containment, based on its ability to withstand a vehicle incursion. Consequently, the result derived from the formula was that the protection offered by the wooden fenced section should be upgraded and the consultancy proposed that providing a safety barrier along its length was the appropriate means to do so.
- 43 The RAIB has concluded that the approach adopted was inappropriate, because the wooden section of fence, forming the boundary between the A596 road and the railway, is not part of the bridge 49 parapets. The wooden fence adjoins the section of the parapet built on the cutting's retaining wall before the bridge is reached (paragraph 16 and figure 4a).
- 44 The consultancy also risk ranked the bridge using form 1a (paragraph 31) and derived a score of 87. This implied that only a low level of safety expenditure (and significantly less than the cost of the proposed barrier⁴) was justified (paragraph 32).
- 45 In 2011, the consultancy sent details of the proposed safety barrier to Network Rail, which responded that while it did not object in principle to the installation of a barrier, it would be likely to object to any direct fixing of the barrier to the existing parapet. This was because it would be difficult to prove whether the parapet would be able to withstand the possible loads.
- 46 After further consideration of the scheme proposed, Network Rail advised the consultancy of its view that the site of the proposed barrier was a 'neighbouring site' under the DfT's guidance (paragraph 31), and should be assessed under that guidance rather than Interim Advice Note 97/07. Network Rail had previously scored this site in 2003 with a score of 79 (paragraph 38) and believed (correctly) that Interim Advice Note 97/07 was only intended to be applied to the assessment of bridge parapets, and therefore did not apply to the wooden fenced section.
- 47 Following Network Rail's response no more work was done to progress the scheme further. The RAIB has not been able to establish whether this was because the consultancy (and Balfour Beatty Regional Civil Engineering) accepted Network Rail's position, or because personnel changes in the organisations concerned caused the scheme to stall.

⁴ The RAIB was advised that the safety barrier would have cost in the region of £35-40000.

Identification of the immediate cause⁵

- 48 The unattended road vehicle ran away down the B5299 Brayton Road towards the railway and neither the roadside kerb nor the wooden fence forming the railway boundary opposite the road junction with the A596 Lawson Street prevented the road vehicle entering the railway infrastructure.

Identification of causal factors⁶

- 49 The risk ranking process in the DfT's guidance does not describe how the risk from a runaway vehicle that has lost control on a side road (eg a runaway on a side road) with a downhill gradient towards the railway, should be assessed and then taken into account in conjunction with the risk of road vehicle incursion from the corresponding main road so that an overall risk ranking score may be derived. This was a possible causal factor.
- 50 The two distinct sections of the neighbouring site at Aspatria (the main road and the side road) were not assessed separately, and the vehicle incursion risk ranking score reflects the risk arising from the main road (A596). The presence of the junction with the B5299 side road was taken into account in the scoring insofar as its effect on the risk from road traffic on the main road was concerned (one of the factors to be scored is 'site specific hazards increasing the likelihood of a road traffic accident').
- 51 The risk ranking process followed in the DfT's guidance may therefore lead to the vehicle incursion risk being under-estimated at some locations, as was possibly the case at Aspatria. The consultant which carried out the condition survey prior to the start of the PFI contract may have recognised the additional risk in the vicinity of bridge 49 at Aspatria, as its subjective assessment led it to propose that enhanced protection should be considered (paragraph 39).
- 52 The risk ranking scores obtained using the guidance were less than 90 and therefore there was no immediate requirement to consider additional mitigation to prevent vehicle incursions on the parallel approach to, or at bridge 49.
- 53 Although the guidance states that sites scoring more than 70 should also be considered for mitigation, the evidence of Network Rail was that priority is being given to completing the mitigation works identified as necessary at sites that have scored 90 or more (paragraph 28). Furthermore, for sites scoring less than 90, the level of expenditure that may be justified on mitigation works is very limited (paragraph 29) and not enough to have prevented the vehicle incursion at Aspatria.

⁵ The condition, event or behaviour that directly resulted in the occurrence.

⁶ Any condition, event or behaviour that was necessary for the occurrence. Avoiding or eliminating any one of these factors would have prevented it happening.

Occurrences of a similar character

- 54 There is no record of any other vehicle incursion through the wooden fence between the A596 road and the railway at Aspatria, but imagery dated May 2009 on Google Earth shows that the fence at the location where the vehicle incursion occurred had previously been damaged. The nature of the damage suggests the fence had been hit by a road vehicle.
- 55 According to figures from *RSSB*, over the five year period from 2008/09 to 2012/13, there was an average of 59.6 vehicle incursions per year on to railway infrastructure per year. Most of these gained access via fences or level crossings (as opposed to railway access points and bridges), and most did not result in a collision with a train (in 2012/13, for example, only three incursions resulted in a collision with a train).
- 56 A vehicle incursion incident occurred at Bingley, West Yorkshire, on 11 November 2013, which was similar in nature to the incident at Aspatria. Just before 20:43 hrs, an unattended Vauxhall Corsa car parked on Healey Avenue ran away down the hill and, at a T-junction with an unmade road, carried straight on through a wooden gate in the railway boundary wall and ended up on the railway track (figure 6). The vehicle was subsequently struck by train 2H70, the 20:26 hrs from Leeds to Skipton (figure 7). There were no injuries and the train was not derailed.



Figure 6: The location of the vehicle incursion incident from Healey Avenue, Bingley, on 11 November 2013



Figure 7: The accident at Bingley following the runaway from Healey Avenue onto the railway (courtesy of Northern Rail)

- 57 Healey Avenue was risk ranked using form 2 only two weeks before the accident occurred. This was because the site had only recently been identified following an exercise in response to recommendation 3⁷ of the RAIB's investigation of the road vehicle incursion and subsequent collision with a train at Stowmarket Road on 30 November 2011 (report 25/2012). The site at Healey Avenue was risk ranked with a score of 98, but mitigation measures had not been determined at the time of publication.
- 58 The RAIB obtained reports of other road vehicle incursion incidents on Network Rail's managed infrastructure since the beginning of 2009 from RSSB's safety management information system. In most cases, there was insufficient detail in the 33 reports provided to be able to determine whether the incidents had similar factors to those at Aspatia and Bingley. However, from the 33 reports, the RAIB has identified three incidents that occurred in 2011, and one in 2013 that definitely resulted from an unattended vehicle reaching railway tracks:
- 13 February 2011, at Totnes (Devon), a car rolled onto the railway from the owner's driveway following the apparent failure of its electronic handbrake;
 - 3 May 2011, near Alresford (Essex), a car that was parked on a nearby driveway rolled onto a level crossing;
 - 6 December 2011, at Clarkston (East Renfrewshire), a car ran away from a road that is a cul-de-sac onto the track following the apparent failure of its push button operated handbrake; and
 - 9 September 2013, at Church Brampton (Northants), an unattended skip lorry rolled down an embankment onto the railway. It is not known how the vehicle became unsecured when its driver left it to visit a farm building.

⁷ Network Rail should review its current data on road vehicle incursion sites, possibly making use of internet tools (eg Google Earth/Street View), to determine whether its knowledge of all current road vehicle incursion locations is complete and to assess any that had not previously been considered.

- 59 On 18 December 2008 a southbound passenger train from Manchester to Stoke-on-Trent derailed at North Rode, between Macclesfield and Congleton, after it struck an unoccupied car that had rolled from a private car park onto the track. A northbound train struck debris from the collision but was not derailed. The RAIB investigated this accident (RAIB report 33/2009, published on 14 December 2009) and made three recommendations, one of which was on Network Rail to reduce the risk of vehicle incursion from private land onto Network Rail's infrastructure by establishing a method to identify the sites where the risk of incursion is highest, and to secure the improvement of those sites by those responsible for them.
- 60 The Office of Rail Regulation has reported in response to this recommendation that Network Rail will use the risk ranking process in the DfT's guidance to assess vehicle incursion risk from private sites, but it has not yet identified all such sites.

Summary of conclusions

Immediate cause

- 61 The unattended road vehicle ran away down the B5299 Brayton Road towards the railway and neither the roadside kerb nor the wooden fence forming the railway boundary opposite the road junction with the A596 Lawson Street at Aspatria prevented the road vehicle entering railway infrastructure (**paragraph 48**).

Possible causal factor

- 62 The risk ranking process in the DfT's guidance does not describe how the risk of a vehicle that has lost control on a side road (eg a runaway on a side road with a downhill gradient towards the railway) should be assessed and then taken into account in conjunction with the risk of road vehicle incursion from the corresponding main road so that an overall risk ranking score may be derived (**paragraph 49, Recommendations 1 and 2**).

Other reported actions

- 63 At the time of publication, Network Rail was working on the design of a safety barrier to be implemented to reduce the risk of vehicle incursion opposite the B5299/A596 junction. The funding for this would be shared between Network Rail and the highway authority.

Recommendations

64 The following recommendations are made⁸:

- 1 *The intent of the recommendation is to reduce road vehicle incursion risk by ensuring that the risk of vehicles from side roads, including running downhill onto the railway, is properly taken into account when sites are risk ranked.*

The Department for Transport, in liaison with highway authorities and railway infrastructure managers, should review and amend the current guidance 'Managing the accidental obstruction of the railway by road vehicles' published in 2003 so that it adequately takes into account in the risk ranking process for neighbouring sites the risk of road vehicles on side roads, including those that are unattended, running downhill onto a railway. The guidance, when amended, should clearly describe how this risk should be derived and included in the overall risk ranking score (paragraph 62).

- 2 *The intent of the recommendation is to provide additional mitigation against road vehicle incursions from side roads, including where vehicles may run downhill onto the railway.*

Following the completion of Recommendation 1 above, railway infrastructure managers, with highway authorities, should use the new guidance to implement a time-bound plan to review the risk ranking scores for sites where there is a significant risk from side roads, in particular with respect to road vehicles running downhill onto a railway. Additional risk mitigation measures justified by increased risk ranking scores should be considered and implemented (paragraph 62).

⁸ Those identified in the recommendations, have a general and ongoing obligation to comply with health and safety legislation and need to take these recommendations into account in ensuring the safety of their employees and others.

Additionally, for the purposes of regulation 12(1) of the Railways (Accident Investigation and Reporting) Regulations 2005, these recommendations are addressed to the Office of Rail Regulation to enable it to carry out its duties under regulation 12(2) to:

- (a) ensure that recommendations are duly considered and where appropriate acted upon; and
- (b) report back to the RAIB details of any implementation measures, or the reasons why no implementation measures are being taken.

Copies of both the regulations and the accompanying guidance notes (paragraphs 200 to 203) can be found on the RAIB's website www.raib.gov.uk.

Appendices

Appendix A - Glossary of terms

Absolute block	A method of signalling whose principle is to only allow one train to occupy a defined section of line between two signal boxes at a time.
Detrunked	A road has been detrunked following a formal process when it no longer forms part of the strategic road network. Its control passes from the Secretary of State for Transport to a local authority such as a county council.
Highway Authority	An organisation responsible for the maintenance of public roads whose role is defined in the Highways Act 1980. In England, Scotland and Wales, the highway authorities for trunk roads and trunk motorways are the Highways Agency, Transport Scotland and the Welsh Assembly respectively. For all other roads and public rights of way, the highway authority is usually the county council or unitary authority for a particular area.
Highways Agency	An executive agency of the DfT responsible as the highway authority for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport.
National radio network	A train radio system that allows train drivers to communicate by radio with Network Rail Route controls and allows controls to send out emergency broadcast messages to train drivers within a radio cell area.
Overbridge	In the context of a railway, a bridge that passes over a railway.
Parapet	A wall constructed along the outside edges of a bridge, or along the top of a retaining wall, whose purpose is to contain vehicles and pedestrians within the roadway/footway.
Permanent speed restriction	A speed restriction applied permanently to a length of track.
Private finance initiative	A method of funding public infrastructure projects using private capital by means of a 'public-private partnership' in which a public sector authority signs a contract with a private sector body created for the purpose for a delivery of a specified service, typically over a period of 25-30 years.

Reasonably practicable	Determining whether something is reasonably practicable involves weighing the risk on the one hand against the sacrifice (money, time or trouble) needed to avert the risk. This is more than comparing the safety benefit of a measure with its cost (a cost benefit analysis) because the risk reduction measure should be implemented unless it requires a sacrifice that is grossly disproportionate.
Retaining wall	A structure intended to retain soil at a higher level on one side than the other.
Route	Organisationally, the Network Rail system is divided up into a number of 'Routes' responsible for the operation and maintenance of their respective areas.
Route Control	The Network Rail organisation in each Route responsible for monitoring the operation of the railway and coordinating any action required when out-of-course events occur.
RSSB	A not-for-profit company owned and funded by major stakeholders in the railway industry, and which provides support and facilitation for a wide range of cross-industry activities. The company is registered as 'Rail Safety and Standards Board', but trades as 'RSSB' (see www.rssb.co.uk).
Trunk road	A major road that forms part of the strategic road network and which typically carries vehicles that are travelling long distances. They are managed by the Highways Agency.

This page is intentionally left blank

This report is published by the Rail Accident Investigation Branch,
Department for Transport.

© Crown copyright 2014

Any enquiries about this publication should be sent to:

RAIB	Telephone: 01332 253300
The Wharf	Fax: 01332 253301
Stores Road	Email: enquiries@raib.gov.uk
Derby UK	Website: www.raib.gov.uk
DE21 4BA	