National Audit Office

Reducing passenger rail delays by better management of incidents

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL | HC 308 Session 2007-2008 | 14 March 2008

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Reducing passenger rail delays by better management of incidents

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7 March 2008

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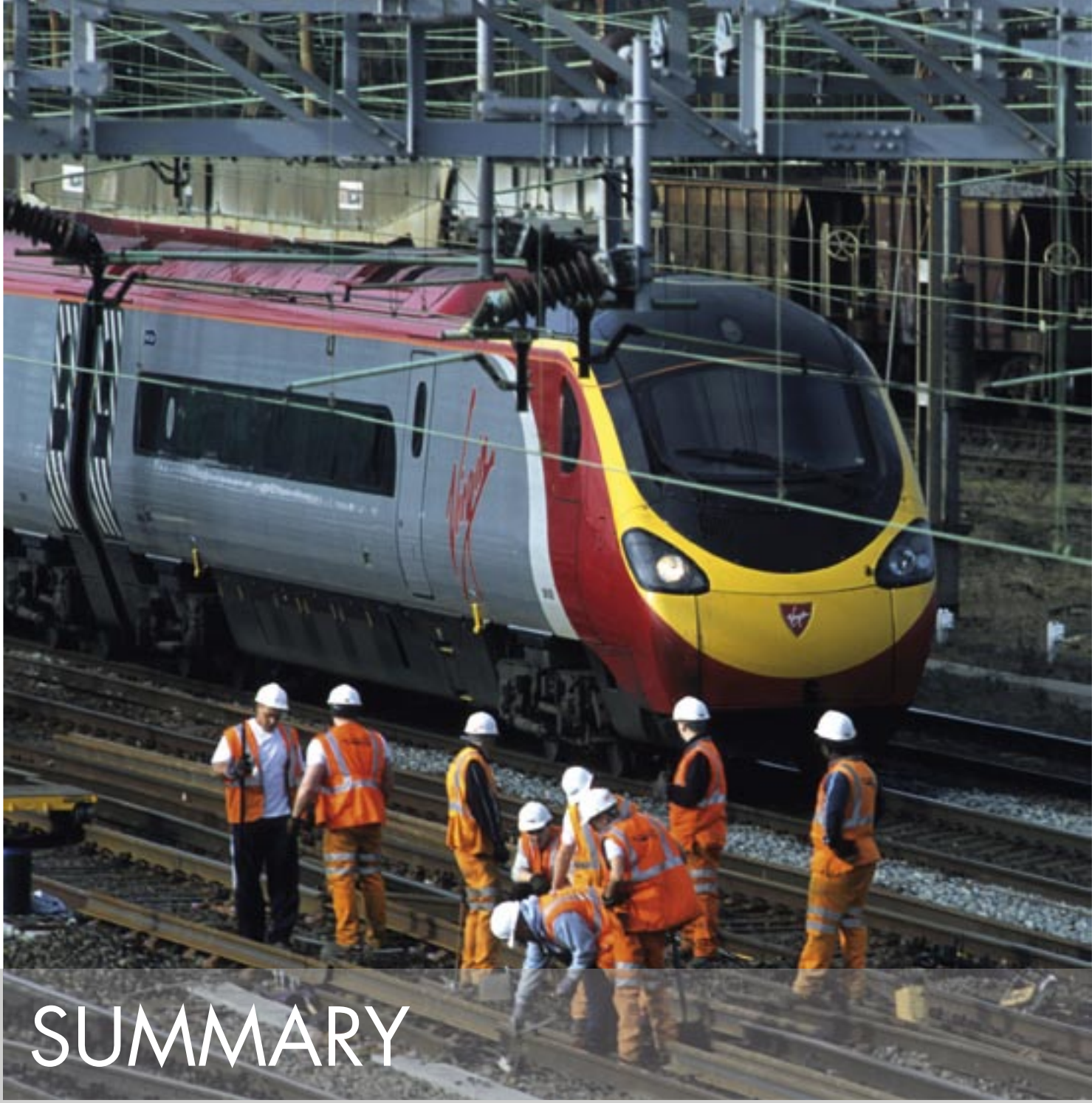


SUMMARY

1 Passenger rail services are being used more heavily than at any time for almost sixty years. While rail performance has steadily improved since the Hatfield derailment in October 2000, incidents such as infrastructure faults, fleet problems, fatalities and trespass still cause significant delays to the travelling public. In 2006-07, 0.8 million incidents led to 14 million minutes of delay to franchised passenger rail services in Great Britain, costing a minimum of £1 billion (averaging around £73 for each minute of delay) in the time lost to passengers in delays. Of these incidents 1,376 each led to over 1,000 minutes of delay. Managing the consequences of incidents and getting trains running normally again is vital to reducing delays. We examined how well Network Rail and the Train Operating Companies work together and with the emergency services in resolving unexpected rail incidents that affect franchised passenger rail services in England.

2 In 2006-07 the Department for Transport's Rail Group provided £3.4 billion in grants to Network Rail and £1.7 billion in net franchise payments to Train Operating Companies. It sets rail policy and awards franchises for running train services to the Train Operating Companies. It also monitors the performance of Train Operating Companies in delivering the services agreed in their franchises in England and reports to the Secretary of State each month on their performance. The Office of Rail Regulation monitors the overall performance of the rail industry, including the percentage of services arriving at

their final destinations on time and the length of delays attributable to Network Rail. It does not routinely monitor how well the industry manages incidents but its annual assessment of Network Rail's performance includes an analysis of the delays attributed to Network Rail. It also investigates individual incidents that cause particularly severe disruption to services. For example, it investigated the major disruption caused by overrunning engineering works at Rugby and London Liverpool Street over Christmas 2007 and the New Year. The Office of Rail Regulation reported its findings on this in late February 2008.

3 Network Rail is accountable for the overall performance of the railway and has primary responsibility for managing incidents, including those suffered by Train Operating Companies as a result of other Train Operating Companies' actions. There are well-established procedures for dealing with and recovering from all types of incidents. Responsibility is shared between:

- Network Rail for keeping the rail network open, taking decisions about closing lines and cancelling trains (subject to industry-agreed criteria including consideration of the impact on passengers); and
- the Train Operating Companies for organising train services and looking after passengers, for example by providing information.

4 Since 1999-2000 the total number of delay minutes to franchised passenger services has increased by two per cent, while the number of incidents has fluctuated year on year around 900,000 before falling by 10 per cent in 2006-07 to some 793,000. This is against a background of growth in rail usage with passenger journeys increasing by 25 per cent and the distance travelled by trains increasing by six per cent in the same period. Under the delay attribution system, Network Rail is held responsible for delays caused by infrastructure faults and those caused by external factors, such as bad weather.

5 Infrastructure faults caused the most delay minutes in four of the last five years, and in 2006-07 they were responsible for 42 per cent of total delay minutes (5.9 million out of 14 million minutes). From 1999-2000 to 2002-03, when Railtrack was responsible, the number of delay minutes caused by infrastructure faults almost doubled from 4.9 million to 9.7 million minutes. Delay minutes caused by infrastructure faults since Network Rail was established fell by 3.8 million minutes to 5.9 million minutes between 2002-03 and 2006-07.

6 While fewer in number, the total delay minutes for incidents caused by events such as adverse weather, fatalities and vandalism has increased from 2.0 million to 2.9 million minutes (45 per cent) from 1999-2000 to 2006-07 accounting for 20 per cent of total delay minutes in 2006-07. The average delay due to externally-caused incidents (45 minutes) was around double that caused by infrastructure faults, and four times that of incidents caused by Train Operating Companies. Many external incidents require the involvement of third parties such as the emergency services which can make incident management more complex and can result in control of the incident site passing to the emergency services, limiting the scope for Network Rail and operators to minimise delays to services and passengers.

7 Train Operating Companies caused 38 per cent of the total delay minutes in 2006-07 but have reduced the number of delay minutes they cause from 6.8 million to 5.3 million minutes (22 per cent) between 1999-2000 and 2006-07.

8 We reviewed 412 of Network Rail's incident reports between 1 April 2006 and 31 March 2007 and 74 incident reports from Train Operating Companies. Where comments were made, we found as follows:

- although contingency plans do not have to be rigidly followed, they were available and correctly implemented in most incidents. However, there were 20 cases where trains were not cancelled as planned, or there was no plan available;
- almost all the incidents were dealt with by the appropriate level of personnel both within Network Rail and the Train Operating Companies, with only 11 incidents where the correct procedure was not followed; and
- there were some concerns about communication and cooperation, which was better where Network Rail and Train Operating Company staff were brought together in Co-located and Integrated Control Centres. It has not been possible to determine the extent to which co-location and integration have in themselves improved incident management. There is, however, general enthusiasm for the concept of co-location within the industry and Network Rail considers that co-location has contributed to significant performance improvements.

9 Further findings emerged from interviews with the rail industry and the emergency services:

- Network Rail staff felt that local police force practices could be unhelpful in some cases, making it more difficult to resolve the incident and, on occasion, presenting a risk to the safety of passengers on delayed trains and at overcrowded stations when services are disrupted;
- there was evidence to suggest that emergency personnel are not always aware of whom to contact within Network Rail during an emergency;
- there are agreements between Network Rail and the emergency services on how to deal with the most severe types of incidents but little evidence of agreements for the serious but more common incidents such as fatalities, trespassing or road vehicles hitting railway bridges. The Highways Agency is making progress in establishing memoranda of understanding with the emergency services that the rail industry currently does not have;
- medical and other emergency protocols take precedence over rail industry procedures and protocols which can prolong incidents, for example, where medical staff treat ill passengers in situ rather than moving them; and
- individual emergency personnel attend rail incidents infrequently, do not normally undergo formal training on railway incidents or track safety and may not receive all the available Network Rail guidance, and so may not be aware of how to work safely on the railways.

10 There is scope to develop the incident review process to achieve greater sharing of the lessons learnt from incidents, for example by involving the emergency services in the review process or disseminating lessons outside the local Network Rail area. Some Train Operating Companies could also produce more detailed reviews of incidents.

11 The National Passenger Survey for autumn 2007 showed that 35 per cent of passengers were satisfied with the way that delays were handled, and 29 per cent were dissatisfied. Of passengers who were unhappy, 75 per cent did not feel that they had received sufficient information. There is no franchise service level for how often information should be provided to passengers during service disruption. In December 2007, the Association of Train Operating Companies issued passenger information good practice guidance which sets out standard announcement templates and recommends that operators should inform passengers of any delays within two minutes. We also found that visual display units on trains were not used to provide messages about delays. Network Rail and some Train Operating Companies told us that they were taking steps to increase the number of staff at key stations during disruption and had contingency plans so that staff could respond quickly and provide information on alternative transport routes. The Association of Train Operating Companies told us that, in autumn 2007, the rail industry introduced specific arrangements to review the handling of passengers and the provision of information to them following every major incident. The reviews involve all affected Train Operating Companies, Network Rail and Passenger Focus.

Overall conclusion

12 Network Rail has had primary responsibility for managing incidents since October 2002. It has succeeded in working with the Train Operating Companies to reduce the number of incidents on the passenger network to the levels recorded before the Hatfield derailment in October 2000, and the number of delay minutes recorded in 2006-07 is not significantly more than in 1999-2000. We found from the sample of incidents that we examined that Network Rail has well-established protocols and procedures with Train Operating Companies for dealing with incidents which, generally, are applied appropriately. More could be done, however, particularly in dealing with incidents which require the cooperation of third parties. There is scope to build more effective relationships and to improve contingency planning. There are also shortcomings in the way that passengers are handled when incidents occur and there is scope for the rail industry to keep them better informed when they are delayed.

Recommendations

On working with the emergency services

13 Network Rail should have in place:

- procedures for notifying emergency services personnel of relevant telephone numbers to be used during incidents and should examine the costs and benefits of introducing a dedicated national telephone number for emergency services personnel to call to direct them to the appropriate Network Rail staff (paragraph 2.17);
- national memoranda of understanding with each of the emergency services' national associations setting out the respective roles and responsibilities, which can be used to develop local agreements with individual emergency services providers (paragraph 2.18); and
- should work with emergency services to identify and remove blockages in the distribution of training materials (such as leaflets, videos and DVDs) on railway safety to the emergency services (paragraph 2.19).

14 The Office of Rail Regulation should provide assurance that Network Rail is engaging with third parties such as the emergency services to resolve incidents and has appropriate mechanisms in place to do so.

On providing information to passengers

15 Train Operating Companies should:

- implement the good practice guidelines issued by the Association of Train Operating Companies for the provision of accurate and useful initial information to passengers and the frequency with which passengers should be updated (paragraph 3.4).

16 Train Operating Companies and Network Rail should:

- identify and use other means of communicating information, for example through visual displays onboard trains (where technically feasible) and at stations which may be particularly helpful to deaf and hard-of-hearing passengers (paragraph 3.6); and
- highlight in contingency plans for incidents the need to provide information to passengers (paragraph 3.8).

On learning from best practice

17 The Office of Rail Regulation should work with Network Rail to build on its arrangements for learning lessons from managing incidents and for sharing best practice.

18 Network Rail should:

- analyse its own incident review reports centrally to draw together lessons from across the network (paragraph 2.26).

19 Train Operating Companies should:

- complete more detailed incident reports to cover best practice and lessons to be learned, as well as issues such as communications with Network Rail and other Train Operating Companies, and how passengers were served (paragraph 2.27); and
- follow the example of some companies by providing contingency plans for stations so that staff can respond quickly to disruption and more staff are available in stations at such times (paragraph 3.8).

20 Organisations across the transport sector including Network Rail, the British Transport Police and the Highways Agency have much experience in managing incidents and could learn lessons from each other. The Department for Transport should work with these bodies to encourage the sharing of best practice and experience across the sector, for example through conferences or specific training events and seminars (paragraph 2.20).

PART ONE

Introduction

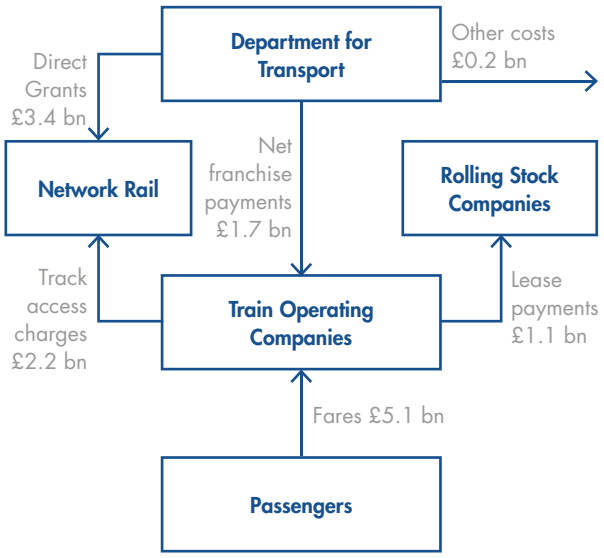
Impact of incidents on passenger rail services

1.1 Between 1 April 2006 and 31 March 2007 there were almost 0.8 million incidents[1] that led to 14 million minutes of delay to passenger rail services across the rail network, of which 1,376 were serious incidents each leading to over 1,000 minutes of delay. Delays to passenger rail services are an inconvenience to passengers, have a negative impact on the overall performance of the rail industry[2] and a financial cost to both Network Rail and the Train Operating Companies, and to the taxpayer, who provided £5.3 billion of public funding to the industry in 2006-07. With more than one in 10 passenger services running late, we estimate that this cost at least £1 billion in 2006-07 in terms of the time lost to passengers.

Accountability in the rail industry

1.2 During 2006-07 funding to the rail industry comprised £3.4 billion in grants to Network Rail, £1.7 billion in net franchise payments to Train Operating Companies and £0.2 billion in freight grants, project development costs and overheads **(Figure 1)**. Passengers paid £5.1 billion in fares to Train Operating Companies.

1 Simplified funding streams in the rail industry 2006-07



Source: Department for Transport (unaudited figures)

NOTE

Figures relate to domestic services and therefore exclude £1 billion in funding from the Department for the Channel Tunnel Rail Link (High Speed 1).

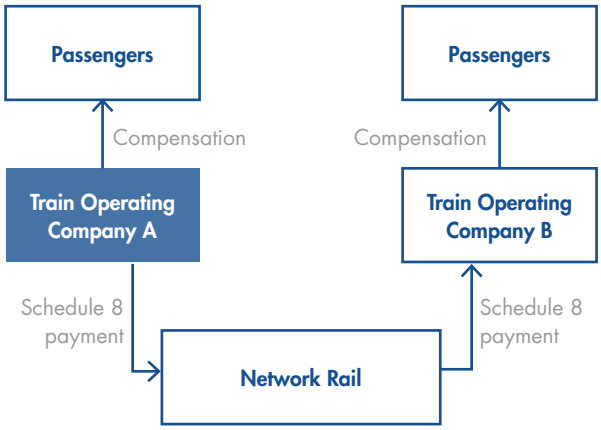
1 Throughout this report we use the term "incident" to refer to any event that can cause delay to timetabled passenger services, such as infrastructure and train faults, and other factors such as poor weather, fires and fatalities (which are referred to in this report as "external" incidents). Delay minutes are measured for a single train against its timetabled journey time between two points where three minutes of delay or more are incurred. The 1,000 delay minutes threshold is made up of the cumulative delay minutes for all trains affected by an incident, for example 100 trains each delayed by 10 minutes.

2 We have used this as a collective term to refer to both Network Rail and the Train Operating Companies.

1.3 Money is transferred between Network Rail and Train Operating Companies under the terms of schedule 8 of the franchised passenger operators' track access contracts which is underpinned by the "delay attribution process". Using evidence gathered about the causes of incidents, staff from Network Rail and Train Operating Companies attribute all delay minutes of three minutes or more to either Network Rail or a Train Operating Company. The responsible party is obliged to compensate any affected parties for the revenue lost. Where a Train Operating Company's services have been affected by delays due to the actions of another company, compensation will be paid to the "victim" operator by Network Rail. Separately Network Rail will receive payments from the operator that caused the delay. This is because contractual relationships exist only between Network Rail and each Train Operating Company and not between individual Train Operating Companies **(Figure 2)**.

1.4 The Department sets rail policy, awards franchises to run passenger services in England to Train Operating Companies and monitors their performance, reporting to the Secretary of State on a monthly basis. The franchises to run passenger services in Scotland and Wales are monitored by Transport Scotland and the Welsh Assembly Government respectively, who will also award future rail franchises for Scotland and Wales. Franchises set performance targets for Train Operating Companies to achieve over a number of years, and Train Operating Companies must implement plans to improve performance where targets are not met. Franchises may also require operators to take more specific steps to deal with incidents and delays, such as introducing service disruption management plans and specific training programmes for staff. The Department's rail group meets with key staff of each Train Operating Company every month to discuss operational performance, financial performance and service quality levels. The group may discuss individual incidents that caused disruptions where they affected the overall performance figures, but it does not examine the Train Operating Company's management of the incidents themselves.

2 Flow of money following delays caused by Train Operating Company A



Source: National Audit Office

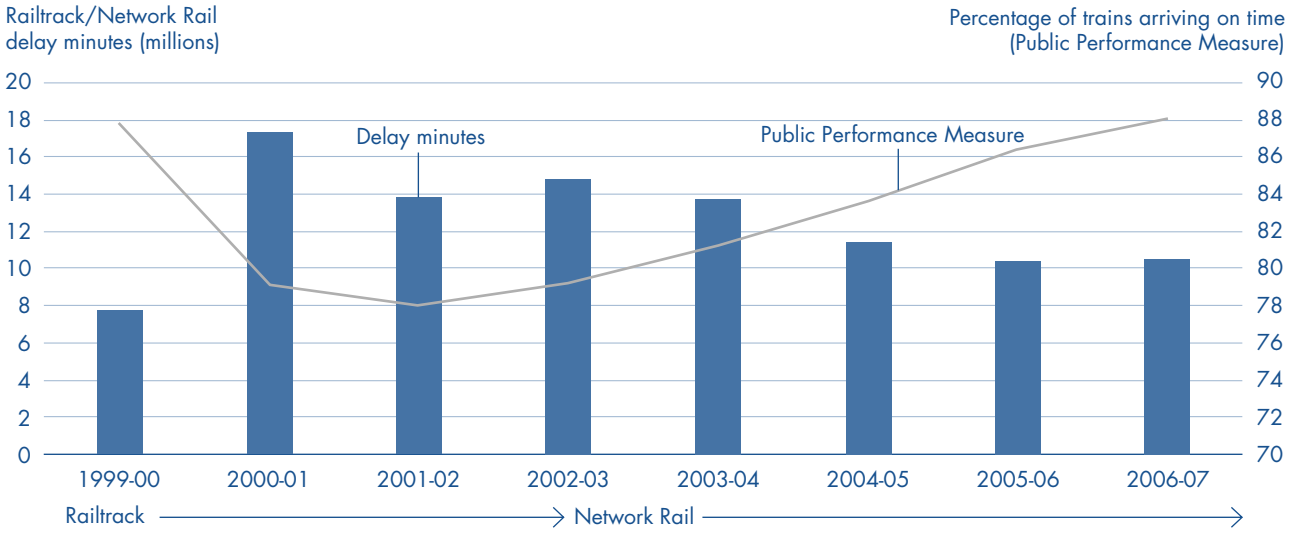
1.5 The Office of Rail Regulation, as the economic regulator of the railways, monitors the performance of the rail industry in a number of ways[3], including two key measures, as shown in **Figure 3 overleaf**:

- the Public Performance Measure is the standard rail industry measure and takes into account both punctuality and reliability, expressed as a percentage of services arriving at their final destinations on time having called at all stations en route. It therefore accounts for services that are either completely cancelled or that do not fulfil the timetabled service. The actual performance figure at the end of 2006-07 was 88.1 per cent of trains on time against a target developed by the Department and the rail industry of 87.6 per cent; and
- delay minutes – the length of delays suffered by passenger and freight services that are attributed to Network Rail. The actual delay minute total attributed to Network Rail for 2006-07 was 10.53 million minutes against the Access Charges Review 2003 target of 10.6 million minutes.[4] This was a small increase on the 2005-06 figure of 10.45 million minutes, and above Network Rail's own internal target of 9.8 million minutes.

3 The Office of Rail Regulation publishes a range of reporting documents on its website, including the National Rail Trends, National Rail Review, Network Rail Monitor (all quarterly) and the Annual Assessment of Network Rail.

4 The Access Charges Review 2003 was published by the Office of Rail Regulation in December 2003 to set the track access charges payable by franchised passenger rail operators to Network Rail to operate, maintain and renew the network over the five year period from April 2004. It also set out the outputs Network Rail must deliver in terms of reducing delay minutes.

3 Key measures of rail performance



Source: Office of Rail Regulation Annual Assessment of Network Rail 2006-2007

NOTE

This chart includes delay minutes caused by Railtrack/Network Rail that were incurred by both passenger and freight services. A train is defined as "on time" if it arrives within five minutes of the planned destination arrival time for London, South East and Regional operators, and within ten minutes for Long Distance operators.

1.6 The Office of Rail Regulation publishes an annual assessment of Network Rail's performance each September. This includes an analysis and commentary on delays to train services attributed to Network Rail, as well as issues such as infrastructure renewals, major projects, efficiency and Network Rail's financial position.

1.7 The Office of Rail Regulation will investigate incidents in more detail when it considers it necessary, such as where there is extremely severe disruption to services. For example, it investigated the disruption to train services caused by snow on 24 January and 8 February 2007, and found that frozen points had been a significant factor. Further analysis showed that Network Rail had fallen behind in its programme to renew points heaters, and had only renewed 307 heaters against its own target of 1,088 for 2006-07. The Office of Rail Regulation asked Network Rail to explain why this had been allowed to happen, and sought reassurances that the backlog would be addressed. Progress on dealing with the backlog was initially hampered by supply problems, but efforts have been made to improve the performance of the heaters already in place. The Office of Rail Regulation is continuing to monitor the situation.

1.8 Under the Railways Act 2005 Network Rail is accountable for the overall performance of the rail network under the terms of its network licence issued by the Secretary of State for Transport and administered and enforced on the Minister's behalf by the Office of Rail Regulation. It publishes an annual return each autumn which reports on operational performance, network capability, asset management, activity volumes, safety, expenditure, efficiency and financing. Network Rail is ultimately responsible for taking the operational decisions to minimise the impact of incidents, whatever the cause, through service alterations, diversions and cancellations, while the Train Operating Companies are responsible for delivering the services agreed in their franchises and liaise with Network Rail to help agree the best course of action to respond to incidents.

Roles and responsibilities during significant incidents

1.9 The rail industry has well-established procedures for dealing with, and recovering from, all types of incidents and follows recognised protocols for managing serious incidents. For example, the Network Code, the Railway Operational Code and the code of practice for contingency planning and service recovery agreed between Network Rail and the Train Operating Companies all set out a recognised framework for incident planning. The roles and responsibilities of individual rail industry staff vary in line with the nature and scale of the incidents.

1.10 Rail staff resolve incidents arising from infrastructure problems trying to take account of third parties and working with other industry partners. In such incidents Network Rail sends the relevant local maintenance team to diagnose and repair the fault. If the problem is serious, it despatches a Mobile Operations Manager to the incident site to take the lead and act as the focal point for liaison with the appropriate control centre. **Case Example 1** illustrates the chain of events and key personnel involved in fixing a typical infrastructure fault.

CASE EXAMPLE 1

Incident managed by the rail industry

Wimbledon Area Signalling Centre noted a track circuit failure at Queenstown Road near London Waterloo station at 4.45am on 25 April 2006, which was probably the result of damage caused during overnight engineering work. Network Rail's Signalling and Telecommunications team from Waterloo were already in the area and began to diagnose and repair the fault. The local Network Rail Mobile Operations Manager was sent to the site at 7.10am and the Network Rail Route Control Manager and Network Rail Train Running Controller advised on the situation. A command structure was set up at 8am while repairs were made to a number of damaged parts which were completed by 10am. Services were severely disrupted during the morning peak, with four trains part cancelled (not completing their planned journeys) and small delays continuing until 1pm.

Total delay minutes attributed to this incident: 1,868

Estimated value of delays to passengers from this incident: £200,000.

Source: National Audit Office analysis of Network Rail Significant Performance Incident Review

NOTE

The calculation of the estimated value of delays to passengers is explained at Appendix 3.

1.11 For incidents where the emergency services are involved the Control Centre Manager appoints the Mobile Operations Manager as the Rail Incident Officer to act as the focal point of communication at the incident site between the rail industry and the emergency services. For more serious incidents Network Rail will also appoint a Rail Incident Commander to coordinate with senior emergency services officers from the control centre. The British Transport Police acts as the lead organisation for incidents such as fatalities,[5] and will take responsibility once its officers arrive on site. If necessary, local police officers will cordon off the area and manage access to the site. The police must inform the local coroner about any fatalities that have occurred, and the coroner may choose to attend the site if the police consider the cause of death to be suspicious. **Case Example 2** illustrates the chain of events where the emergency services attended a railway incident.

CASE EXAMPLE 2

Incident involving the emergency services

The driver of a Gatwick Express service reported to the Network Rail signaller that his train had struck a person at a station in south London at 6.55pm. The signaller informed the control centre and all trains in the area were stopped. The Network Rail Mobile Operations Manager reached the site within 10 minutes, and was appointed the Rail Incident Officer to liaise with the emergency services. The Metropolitan Police assumed initial control of the investigation site before handing over control to officers from the British Transport Police when they arrived at 7.10pm. Following discussions with the train driver the British Transport Police declared the incident as non-suspicious at 7.25pm, allowing some services to run through (but not to stop at) the station, which remained closed for cleaning until 10.40pm. Train services were severely disrupted, with 25 services fully cancelled and another 22 services part cancelled.

Total delay minutes attributed to this incident: 5,758

Estimated value of delays to passengers from this incident: £600,000.

Source: National Audit Office analysis of Network Rail Significant Performance Incident Review

NOTE

The calculation of the estimated value of delays to passengers is explained at Appendix 3.

5 In this report "fatalities" refers to deaths on the rail network through suicides, accidents or as a result of trespassing, and excludes passenger deaths from medical conditions.

Overall trends in delays

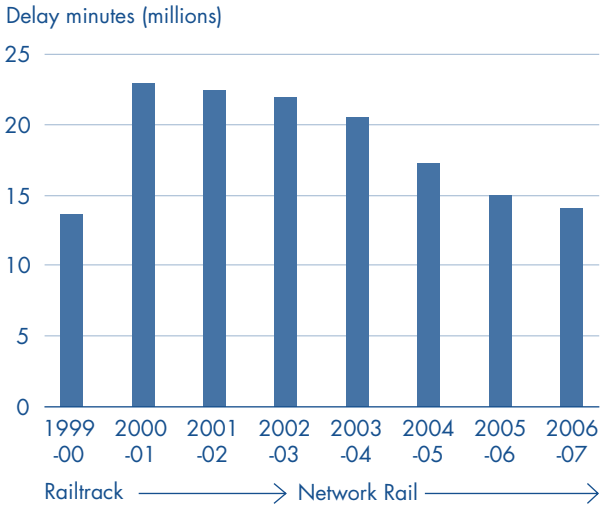
1.12 Rail services are being used more now than at any time in the last sixty years. Between 1999-2000 and 2006-07 the number of passenger journeys increased by 25 per cent to some 1.2 billion, and the distance covered by train services increased by 11 per cent to 464 million kilometres. Network Rail data on the total number of delay minutes **(Figure 4)** and on the annual number of incidents **(Figure 5)** between 1999-2000 and 2006-07, shows that:

- in 2000-01, the number of incidents rose by eight per cent, and the total delay minutes rose by 68 per cent due to the extensive programme of engineering work to check and repair rails following the Hatfield derailment in October 2000;
- since 2000-01, the number of delay minutes has fallen in each of the last six years with the largest fall (16 per cent) in 2004-05; and
- the number of incidents fell steadily from a peak of 950,000 in 2003-04 to 880,000 in 2005-06 and then dropped by 10 per cent to 800,000 in 2006-07.

1.13 Under the delay attribution system (paragraph 1.3) Network Rail is held responsible for delays caused by infrastructure faults and those caused by external factors such as bad weather.[6] Infrastructure faults caused the most delay minutes in four of the last five years, and in 2006-07 they were responsible for 42 per cent of total delay minutes **(Figure 6)**, with signalling, track and points problems causing the most delays. Incidents caused by external factors such as weather, trespass and fatalities were responsible for around 20 per cent of delay minutes. Train Operating Companies were responsible for the remaining 38 per cent of delay minutes in 2006-07, primarily because of train faults.

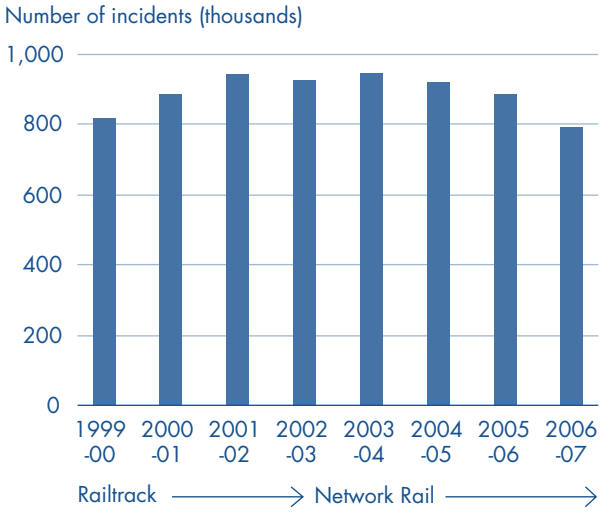
1.14 Since 2001-02 delay minutes caused by Network Rail and Train Operating Companies have fallen every year apart from a small increase for Network Rail in 2002-03. Overall, delay minutes caused by Train Operating Companies fell by 23 per cent between 1999-2000 and 2006-07, but Network Rail caused 21 per cent more delay minutes than Railtrack had in 1999-2000. Since it took over from Railtrack halfway through 2002-03, Network Rail has reduced the number of delay minutes it has caused every year. External factors caused 43 per cent more delay minutes in 2006-07 than in 1999-2000, largely because of adverse weather conditions. The impact of weather conditions on train services can vary significantly between years, and caused 0.7 million delay minutes in 2006-07, compared with 0.3 million in 2005-06. The number of delay minutes caused by vandalism and theft increased by almost 30 per cent from 2005-06 to 2006-07, largely because of a spate of cable thefts in the north east of England.

4 Total annual delay minutes, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

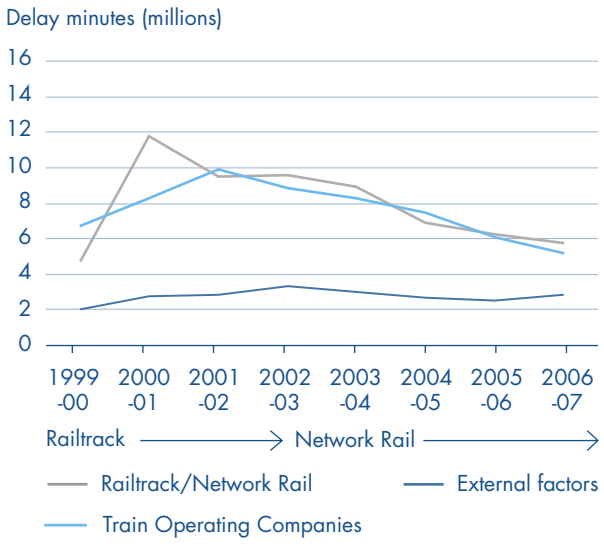
5 Annual number of incidents, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

6 Delays caused by external factors are attributed to Network Rail under the rail industry delay attribution process. Our analysis of the delay data is explained in detail at Appendix 2.

6 Total annual delay minutes analysed by cause, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

1.15 Network Rail's annual return for 2006-07 noted that increases in externally-caused delays had outweighed the improvements it had made to infrastructure and operational delays. Many of these external incidents require the involvement of third parties, adding to the complexity of incident management. These can result in control of the incident site passing from Network Rail to the emergency services. While smaller in number, on average an externally-caused incident results in twice as many delay minutes as one caused by Network Rail and almost four times as many as one caused by a Train Operating Company.

Study scope and methodology

1.16 Our examination focused on how well Network Rail and Train Operating Companies work together, and with the emergency services when they are involved, in resolving rail incidents that cause serious disruption to passengers on franchised rail services in England.[7] We defined serious disruption as those incidents that resulted in delays of over 1,000 minutes, typically affecting a large number of trains. We did not examine how incidents are prevented, nor did we review the system of delay attribution and performance incentive regimes.

1.17 Our methodology is described in detail in Appendix 1 and consisted of:

- analysis of Network Rail delay data between 1999-2000 and 2006-07. Although outside our scope, the data available covers all of Great Britain and cannot be easily separated into English, Welsh and Scottish delays;
- a review of 412 incident reports produced by Network Rail covering incidents that caused delays exceeding 1,000 minutes during the period 1 April 2006 to 31 March 2007;
- a review of 74 incident reports produced by Train Operating Companies covering incidents that caused delays between 158 minutes and 8,620 minutes between 1 April 2006 and 31 March 2007;
- a review of annual assessments on Network Rail published by the Office of Rail Regulation from 2000-01 to 2006-07, and of Network Rail's Annual Returns from 2000-01 to 2006-07;
- interviews with operations staff from Train Operating Companies;
- a survey of local police forces;
- meetings with representatives of the British Transport Police, the Ambulance Service Network, the Chief Fire Officers' Association and staff from the Highways Agency; and
- discussions with staff from Network Rail, the Office of Rail Regulation, the Association of Train Operating Companies, the rail group of the Department for Transport, and Passenger Focus.

7 Our report focuses on franchised passenger rail services in England, and therefore does not cover open-access operators or freight services. We did not examine planned delays such as temporary speed restrictions due to track conditions and planned engineering work. These accounted for less than one half of one per cent of the total delay minutes in 2006-07.

PART TWO

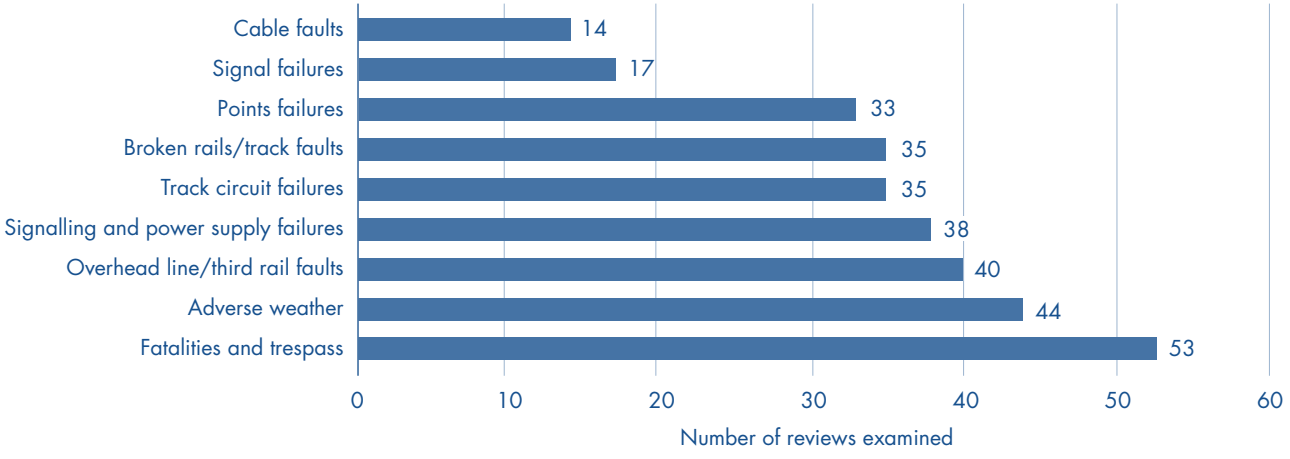
The management of railway incidents

Our review

2.1 We reviewed a sample of 412 reports produced by Network Rail staff on incidents which had each caused more than 1,000 minutes of delay **(Figure 7)**. These were drawn from across the network and were illustrative of the key causes of significant delay attributed to Network Rail during the period covered by our examination. We found that:

- the average length of delay incurred was 2,459 minutes;
- the most delay minutes incurred on a single incident was 18,625 minutes caused by damage to overhead line equipment at Milton Keynes in December 2006;
- ninety five incidents (23 per cent of our sample) involved third parties, mainly the British Transport Police and local police, but also the ambulance and fire and rescue services, coroners and undertakers;
- the most common incident category in our review was "fatalities and trespass", with some 53 incidents (13 per cent of our sample);
- staff commented most frequently on their speed of response to an incident and these comments were largely positive; and
- staff commented least on availability of equipment, but these comments tended to be negative, focusing on issues such as the lack of spare parts at local depots.

7 Most common incident causes in our review of Network Rail incident reports



Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

NOTE

The nine most common incident types shown above accounted for 309 of the 412 reviews (75 per cent) that we examined. Twenty other incident categories made up the remaining 103 incident reviews.

2.2 We also reviewed a sample of 74 reports produced by staff in 18 Train Operating Companies on incidents that caused the most significant disruption to services and found that:

- the average length of delay incurred was 1,701 minutes;
- the most delay minutes incurred on a single incident was 8,620 minutes caused by a widespread power failure in the Sevenoaks area in November 2006;
- fourteen incidents (19 per cent of our sample) involved third parties;
- the most common incident category in our review was "train faults", with some 48 incidents (65 per cent of our sample); and
- the most frequently raised concerns were about communications both within the Train Operating Companies and with Network Rail.

2.3 The reports contain the rail industry's assessment of its management of the incident, covering issues such as planning, speed of response, communication, cooperation, train service management, and the participation of third parties such as the emergency services. A full analysis of these reviews is at Appendix 2.

Incident planning

2.4 Under the terms of the Railway Operational Code, Network Rail and Train Operating Companies must maintain contingency plans to provide for potential disruptions to services.[8] These plans typically include revised train schedules, available diversionary routes, and alternative transport options for passengers. The Code stipulates that Network Rail should lead the process to review and update the contingency plans on a periodic basis.[9] Network Rail and Train Operating Companies expect their staff to use their expertise and judgement to manage incidents, and plans need not necessarily be followed rigidly. However, appropriate plans should always be available and ready to be implemented if needed. Most of the reviews did not comment on the availability of contingency plans, but in those that did the comments indicated that plans were generally available and implemented correctly in the vast majority of cases, but there were 63 incidents (15 per cent) where this was not the case, including where:

- there was no contingency plan available (six incidents);
- the plan was inadequate or unsuitable (16 incidents), either because it failed to manage services effectively or contained out of date information such as the location of emergency access points;
- the plan was implemented poorly, or not adhered to – for example, trains were not cancelled as planned (20 incidents); and
- the plan was not implemented at all, or only after a significant delay (10 incidents).

Thirty one of the 63 incidents where rail staff had assessed the use of plans as poor were in the London North Western and Scotland routes. A map of Network Rail routes is at Appendix 5.

2.5 Most of the Train Operating Companies' reviews also made no comment on contingency plans, but there were 12 incidents where contingency plans and procedures were considered not to have been carried out properly. In nine of these cases the correct plan was either implemented poorly, or not adhered to, including three cases where Train Operating Companies did not follow their own "cut and run" policies, whereby train faults should only be given a short period of time to be fixed before being brought out of service.

2.6 Some Train Operating Companies told us that they have started to hold their plans electronically on their intranets to give accurate and consistent information to their staff and to help speed up the flow of information to passengers. Some Train Operating Companies are also considering issuing their staff with hand held computers as a way of providing them with consistent and up to date information and plans.

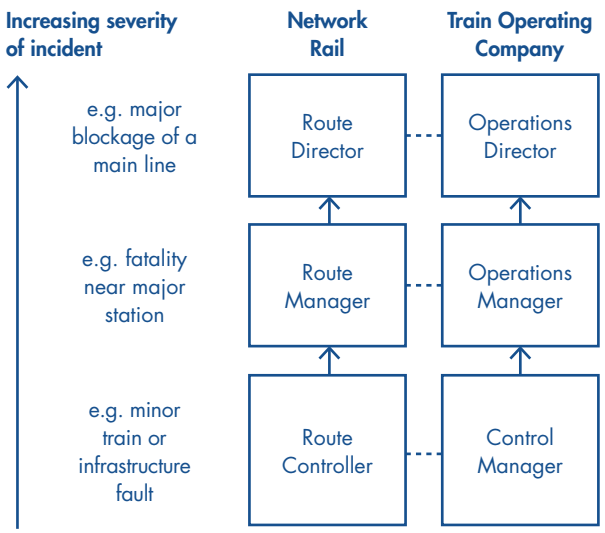
8 The Railway Operational Code forms part of the Network Code created to sustain the operation of train services on the network and restore operation of the network following disruption. The Network Code is a common set of rules that apply to all parties who have a contract for rights of access to the track owned and operated by Network Rail.

9 Network Rail, Railway Operational Code, paragraph 7.2.2.

Incident management

2.7 As explained in paragraphs 1.9 to 1.11, there are procedures so that the management of incidents is led by rail industry staff of appropriate seniority for the degree of disruption that is expected. The vast majority of incidents are handled by the Network Rail Route Controller and the Train Operating Company Control Manager. Where the incident has the potential to cause more serious disruption because of factors such as the location, nature and timing of the incident and its estimated duration and geographic extent, the companies nominate more senior staff to lead the response **(Figure 8)**. Most of the reviews did not comment on whether these procedures were followed, but there were 11 incidents where the escalation process was not followed within Network Rail (of which five incidents occurred on the London North West Route) and one incident where the process had not been applied by a Train Operating Company.

8 Escalation process for managing incidents



Source: Interviews with Train Operating Companies and Network Rail

NOTE

Incident examples are illustrative, and other factors will influence how responsibility for the incident is escalated.

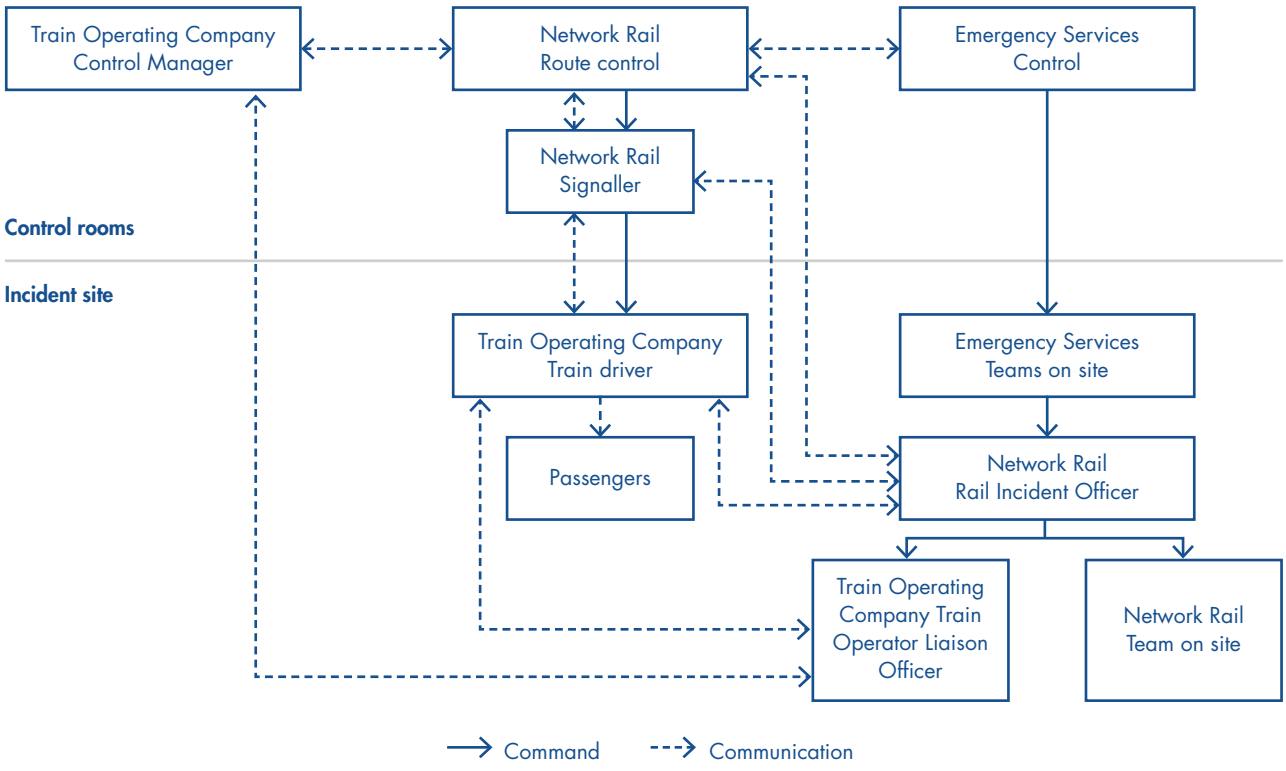
2.8 When incidents occur that require the attendance of the emergency services Network Rail normally appoints a Rail Incident Officer to coordinate activities at the incident site and to act as the focal point for communications between its control centre and the emergency services **(Figure 9)**. In nine of the Network Rail reviews, staff commented that a Rail Incident Officer had not been appointed to carry out these duties, with five incidents occurring on the Western Route and four in Scotland. Railway staff commented in these incidents that communication and coordination between the site and the control centre was poor and that decisions were not made promptly.

2.9 Where more general comments were made about communication within Network Rail, these were evenly mixed; of the 412 Network Rail reviews, 81 assessed communications as good, while 80 assessed them as poor. In 25 incidents, problems in communication were recorded between Network Rail staff at the incident site and at the relevant control centre. These failures in communication led to such consequences as:

- sections of track were blocked for repairs without controllers being consulted;
- repair staff were not informed of plans for revised train manoeuvres;
- engineers made repairs without proper consultation because on-call operations staff could not be contacted;
- repairs were carried out immediately rather than being delayed until the off-peak period;
- emergency speed restrictions were imposed on trains rather than repairs being done straightaway;
- staff were sent to the wrong location; and
- mobile phones were not available for staff to use.

Twenty-one of the Train Operating Company reports also noted a variety of internal communication problems, of which six cases related to problems obtaining technical advice needed to diagnose faults on failed trains.

9 Typical incident command structure



Source: Interviews with Train Operating Companies and Network Rail

2.10 Of the 412 incident reviews produced by Network Rail, 91 commented specifically about the quality and effectiveness of communications between Network Rail and the Train Operating Companies. In 67 cases rail staff considered that communication had been good compared to 24 incidents where they judged communications to be poor. Eighteen of the 74 reviews produced by Train Operating Companies concluded that communication with Network Rail had been poor, compared with only six where it had been noted as good. In five cases the review noted that the communication between the driver and signaller had been poor.

2.11 One example of poor communication practice is an absence of conference calls or meetings between staff from Network Rail and Train Operating Companies. To be effective these should be held at an early stage to clarify how the incident will be managed and repeated at various stages throughout the incident, depending on the length of the disruption. In 14 cases from the 412 Network Rail reviews and three of the 74 Train Operating Company reviews staff commented that conferences were either not held at all or only when several hours had elapsed after the start of the incident.

2.12 Network Rail and the Train Operating Companies are seeking to improve communication and decision-making by locating their control staff in Co-located and Integrated Control Centres at key points on the network. There are currently two Integrated Control Centres at London Waterloo (with South West Trains) and Croydon (Southern), where all key strategic decisions are made by the Route Control Manager, who is a Network Rail employee. In the Co-located Control Centres (which now cover all the remaining franchised operators except Chiltern Railways), however, Network Rail and Train Operating Company managers work together but have not nominated an individual manager to be responsible for ultimate decision-making.

2.13 The case for full integration in this way has not been established across the network, for example where the Train Operating Company route is geographically widespread and shares tracks with a number of other Train Operating Companies. There is, however, general enthusiasm for the concept of co-location within the industry, as part of the whole-industry approach to improving performance. Network Rail has also found that co-location has contributed to significant performance

improvements. For example, it found that the Public Performance Measure (showing punctuality and reliability) for Southern services increased from 81 per cent to 89 per cent once staff were co-located. It is also monitoring the impact of full integration on the Wessex route, where performance improved from 75 per cent to 88 per cent with co-location, and up to 90 per cent with full integration. In discussions with Train Operating Companies and Network Rail we were told that in both cases other factors also contributed to these improvements in performance, such as better timetabling, improved rolling stock reliability and better management of train crew resources. It has therefore not been possible to determine the extent to which co-location and integration have in themselves improved incident management.

2.14 We found 11 incident reports where co-location was explicitly cited as a positive factor in allowing rail staff to communicate more effectively to help manage incidents. For example, when an overhead line developed a fault near Basildon in November 2006, Network Rail managers at the Anglia Co-located Control Centre agreed to allow c2c's services to operate at reduced speeds during the evening peak rather than cancelling services to allow engineers to fix the problem quickly. This meant that, although passengers were delayed, they were not faced with cancellations and resulting overcrowding.

Cooperation between the rail industry and the emergency services

2.15 Third parties often have to respond to incidents on the railway such as fatalities, vandalism and lineside fires. These incidents will usually involve one or more of the British Transport Police, the local police, and the ambulance and fire and rescue service, but they may also involve coroners, undertakers and utility companies. The emergency services attended 96 of the 486 incidents for which we had reports, of which 53 incidents involved fatalities or trespass, as well as 13 fires and nine cases where road vehicles had struck railway bridges.

2.16 Under standard procedures once the emergency services reach the incident site they have overall jurisdiction in deciding how to manage the incident, not the rail industry. In incidents involving fatalities, however, coroners have jurisdiction, with the British Transport Police or local police working on their behalf. British Transport Police takes the lead role where its officers are present at an incident; otherwise this will fall to the attending local police force. While the priority of the rail industry is to run services safely for the benefit of its customers and meet its performance targets, the emergency services have other responsibilities and priorities which can lead to disagreements over how to manage the incident. For example:

- with fatalities the main priority of the police is to establish the cause of death. Where they judge a death to be suspicious the police declare the site as a scene of crime to preserve evidence, which can lead to serious disruption for rail services;
- ambulance staff need to give priority to the condition of the patient, and act according to their standard clinical guidelines and protocols which state that they must conduct an initial assessment of the patient before considering moving them. Ambulance staff may also decide to stabilise or treat a patient at the scene, which can add to delays; and
- similarly, a key priority of the fire and rescue services is to protect the public from potential hazards. For example, if they suspect that acetylene gas cylinders are present in a fire they will impose a 200 metre exclusion zone, evacuating people within that area and preventing any rail services operating through it **(Case Example 3)**. These restrictions can last for 24 hours or even longer for a major fire, and cause huge disruption to rail services.

CASE EXAMPLE 3

Communication with the emergency services (1)

In one incident in June 2006 a fire and rescue service established a 200 metre hazard zone around a fire that they suspected involved potentially explosive acetylene gas cylinders, closing the main line near a major rail terminus during the evening rush hour and trapping passengers on trains. The subsequent incident review process identified that no meetings had taken place between Network Rail, the police and the fire and rescue service at the tactical (Silver) level of command. The review team considered that more effective communications between Network Rail and the emergency services at a senior level may have avoided the blockage of lines and stranding of passengers. One hundred and eight services were completely cancelled and another 39 partly cancelled.

Total delay minutes attributed to this incident: 6,473

Estimated value of delays to passengers from this incident: £680,000.

Source: National Audit Office analysis of Network Rail Significant Performance Incident Review

NOTE

The calculation of the estimated value of delays to passengers is explained at Appendix 3.

Where they may risk the safety of others, for example through dangerous overcrowding on stations or stranded trains, the emergency services may need to apply a more flexible interpretation of their procedures. For example, in one lineside fire involving unidentified gas canisters a fire and rescue service carried out a dynamic risk assessment of the situation in line with nationally agreed operational guidelines and were able to reduce the size of the exclusion zone below the standard 200 metre limit to allow some services to operate.

2.17 The rail industry considers that the British Transport Police understands the needs of the railways and appreciates the wider implications of an incident, such as the risks associated with station overcrowding and passengers trapped on trains. The British Transport Police similarly feels that it has a positive working relationship with the rail industry and that communication is good. This assessment was not shared by all the emergency services, however. For example, both the Ambulance Service Network and Chief Fire Officers' Association stated that their control centre staff did not always know which local Network Rail telephone number to use, especially where a service's area covered a number of Network Rail Routes, each with different control centres. Network Rail does not consider this to be a widespread problem, and that where this is an issue the relevant emergency services should contact Network Rail to ensure that contact details were kept up to date.

Joint planning between the rail industry and the emergency services

2.18 Network Rail has plans at a national level to deal with the most severe types of incidents, such as derailments or acts of terrorism, which are agreed with the emergency services. Its National Emergency Plan (which it circulated to all the emergency services and Category 1 responders via the Local Resilience Forums)[10] sets out the responsibilities of Network Rail staff in the event of an accident, incident or emergency, as well as the responsibilities of other stakeholders such as Train Operating Companies and the emergency services. This is a Network Rail document which other stakeholders have contributed to, but not been asked to sign up to (although it is available to them as guidance), and only five police forces mentioned it when asked to state what protocols existed between themselves and Network Rail. Two forces mentioned that they had local site-specific plans in place with Network Rail, such as for major stations and key tunnels, but that incidents that occur more often, such as bridge strikes, fatalities, vandalism or trespassing, are not covered by formal plans.

2.19 Network Rail sets out generic guidance for emergency services that should be applicable to a range of incidents, including how personnel should make contact during incidents, and how they should safely access and work on the railway. However, comments from the emergency services and the incident reports indicated that either this guidance is not reaching emergency service personnel or is not being followed. The British Transport Police also commented that it receives many requests for information on rail safety from other emergency services and other agencies that should be directed at Network Rail itself, suggesting that Network Rail's efforts to disseminate guidance and information to the emergency services are not always effective.

2.20 In contrast, the Highways Agency, which manages incidents on motorways and trunk roads in England, signed the Traffic Incident Management Strategic Agreement with the Association of Chief Police Officers in January 2007 which sets out their respective roles and responsibilities, and there are also more detailed local agreements between the Highways Agency and each individual police force. The Highways Agency also has a national memorandum of understanding with the Chief Fire Officers' Association and is in the process of agreeing memoranda of understanding with individual NHS Ambulance Trusts.

2.21 The main opportunities for contact between Network Rail and the emergency services are the Local Resilience Forums, which were set up following the Civil Contingencies Act 2004 to maintain levels of preparedness for large civil emergencies. They are located within the geographical footprint of each police force's area of responsibility and are the main point of contact for Network Rail and the emergency services to meet and discuss incident management issues. The Ambulance Services Network and the British Transport Police told us that they find the attendance of Network Rail to be very useful, but noted that this did not always happen. Network Rail has set up its own coordination groups in each Route to specifically discuss rail issues with the emergency services every quarter, as well as twice-yearly meetings at the national level.

10 Category 1 responders under the Civil Contingencies Act 2004 include the emergency services and local authorities. Network Rail and Train Operating Companies are classed as Category 2 responders.

2.22 Eight police forces also commented that more training (such as seminars, and tabletop and practical exercises) would be beneficial. Three forces noted that they had experienced difficulties in organising exercises with Network Rail in recent years. The British Transport Police commented that until the late 1990s it had received funding from Railtrack (Network Rail's predecessor) to provide multi-agency training for rail incidents, and confirmed that it would be happy to reinstate such a training programme again, should funding be made available. Because many emergency service personnel attend incidents on the railway only rarely, Network Rail is taking steps to improve the training of its Rail Incident Officers to help them educate the emergency services at incident sites.

The presence of the emergency services at incidents

2.23 The incident reports, and discussions with Network Rail, Train Operating Companies and the emergency services, indicated that the British Transport Police is the emergency service most likely to attend a significant railway incident, although it is often not the first to reach the incident site. Our review of 486 incidents included 60 incidents involving the British Transport Police, 40 with the local police, 21 with an ambulance service, and 22 with a fire and rescue service.

2.24 Of the 49 incidents where comments were made about the British Transport Police, 40 assessments were positive and only nine were negative. Of the 33 incidents where comments were made about local police forces, 22 assessments were positive and 11 were negative. In two incidents the local police prevented the Network Rail Mobile Operations Managers from attending the incident site and fulfilling their roles, and in another two cases the local police failed to inform Network Rail of their whereabouts on the railway, causing additional delays to services. There were also two cases where ambulance services did not inform Network Rail that they were entering or leaving the railway, which led to further disruption as well as presenting risks to the safety of personnel **(Case Example 4)**.

2.25 British Transport Police figures show that almost three-quarters of fatalities on the railways are non-suspicious by nature (195 of the 267 fatalities on the rail network in 2006-07), and the British Transport Police and the rail industry representatives we spoke to agreed that the vast majority of these are suicides. When dealing with fatalities, British Transport Police officers are trained to speak to the train driver as soon as possible since they are often the only witness to the incident. This helps them to assess the situation and decide whether to treat the incident as suspicious, or to allow the site to be cleared and for trains to run with minimal delay. Local police officers, who do not have the specialist expertise that British Transport Police officers have, deal with fatalities on the railway as they would elsewhere in accordance with their established procedures. These require them to protect the incident site as a potential crime scene to preserve any evidence that may be needed. They hand over control of the incident to British Transport Police officers when they arrive. This process can cause delays to services, but fatalities need to be handled in line with police procedures and with appropriate sensitivity, both for the deceased and for others affected, such as any train drivers involved.

CASE EXAMPLE 4

Communication with the emergency services (2)

In one incident during July 2006 a helicopter air ambulance landed between two sets of tracks without permission from Network Rail in response to reports that a train had struck a person near Maidenhead. This forced Network Rail to stop all train services in the area, and stranded passengers on trains in hot conditions. Five services were completely cancelled and 15 services partly cancelled. Network Rail's National Emergency Plan states that in the event of an air ambulance helicopter being deployed to a rail incident, under no circumstances should the helicopter land on or within three metres of the railway track. Improved circulation of guidance to emergency services could help prevent similar problems in future.

Total delay minutes attributed to this incident: 1,713

Estimated value of delays to passengers from this incident: £175,000.

Source: National Audit Office analysis of Network Rail Significant Performance Incident Review

NOTE

The calculation of the estimated value of delays to passengers is explained at Appendix 3.

The incident review process

2.26 The incident reviews completed by Network Rail are comprehensive and also seek to identify best practice and areas for improvement. The discussion that leads to the incident review document is one way in which Network Rail and Train Operating Companies can consider problems and challenge those responsible to improve their performance. We found no evidence, however, that the issues identified during the reviews were communicated outside the local Network Rail areas where incidents had occurred. Local staff are required to send incident reports to Network Rail's performance improvement team in London, but they do not always do so. Furthermore, Network Rail does not carry out any overall analysis of the individual review findings, thereby limiting the spread of best practice across its eight geographic routes.

2.27 Many of the Train Operating Companies' review reports lacked detail, although some Train Operating Companies have begun to adopt aspects of the review style used by Network Rail. Once fully introduced, the revised reports would provide an improved basis from which to identify recurring themes and potential solutions.

2.28 We found that the emergency services were rarely involved in the review process, and there was little evidence that the results were shared with them. The incident review process is an important forum in which stakeholders can discuss the practicalities of incident management, and the regular involvement of the emergency services would help encourage more effective cooperation. Alternatively, Local Resilience Forums (paragraph 2.21) may offer a more convenient opportunity for the emergency services and Network Rail to discuss recent incidents.

2.29 The Association of Train Operating Companies told us that, in autumn 2007, the rail industry introduced specific arrangements to review the handling of passengers and the provision of information to them following every major incident. These reviews, which are in addition to the incident review reports discussed above, are led by the Association of Train Operating Companies under the auspices of the Passenger Information Strategy Group and involve all Train Operating Companies affected by a specific incident, Network Rail and Passenger Focus.

PART THREE

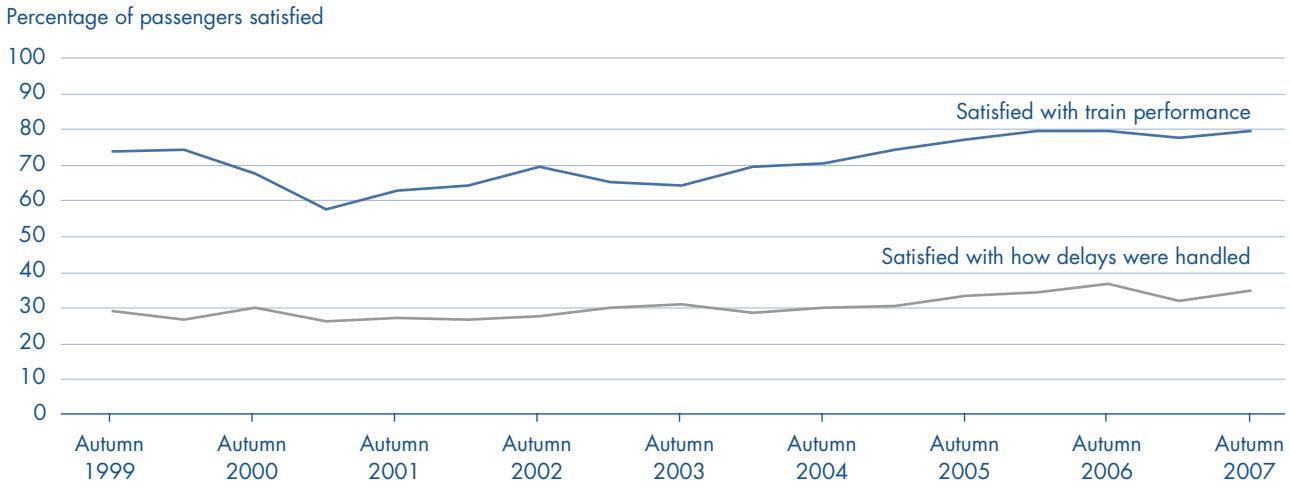
How passengers are treated when incidents occur

Passenger satisfaction with the way delays are handled

3.1 The national trend of passenger satisfaction with rail performance (punctuality and reliability) since 2001 is one of steady improvement and currently stands at 79 per cent. But, while passengers accept that services will occasionally be disrupted, the level of satisfaction about the service they receive when they do suffer delays remains very low. The National Passenger Survey of autumn 2007, conducted by Passenger Focus, reported that only one-third of passengers were satisfied with the way the delay to their journey was handled – a level of satisfaction that has remained broadly unchanged since 1999 **(Figure 10)**.

3.2 The Survey recorded a marked difference in the degree of satisfaction expressed by passengers on the services of different types of Train Operating Companies **(Figure 11)**. Although it is a complicated picture, Passenger Focus believes that passengers have generally tended to rate Train Operating Companies running long distance services more favourably than other Train Operating Companies, at least in part because of the different type of services they operate and the different passenger groups they cater for. Nationally, the overall satisfaction rating has improved, and some Train Operating Companies have made significant improvements to their individual ratings. South West Trains, for example, has attributed its improved ratings (from 22 per cent in spring 2002 to 42 per cent in autumn 2007) to a number of factors including a new timetable introduced in December 2004, the opening of the Wessex Integrated Control Centre in February 2005 and improved fleet reliability.

10 Passengers' satisfaction with train performance and the way delays are handled

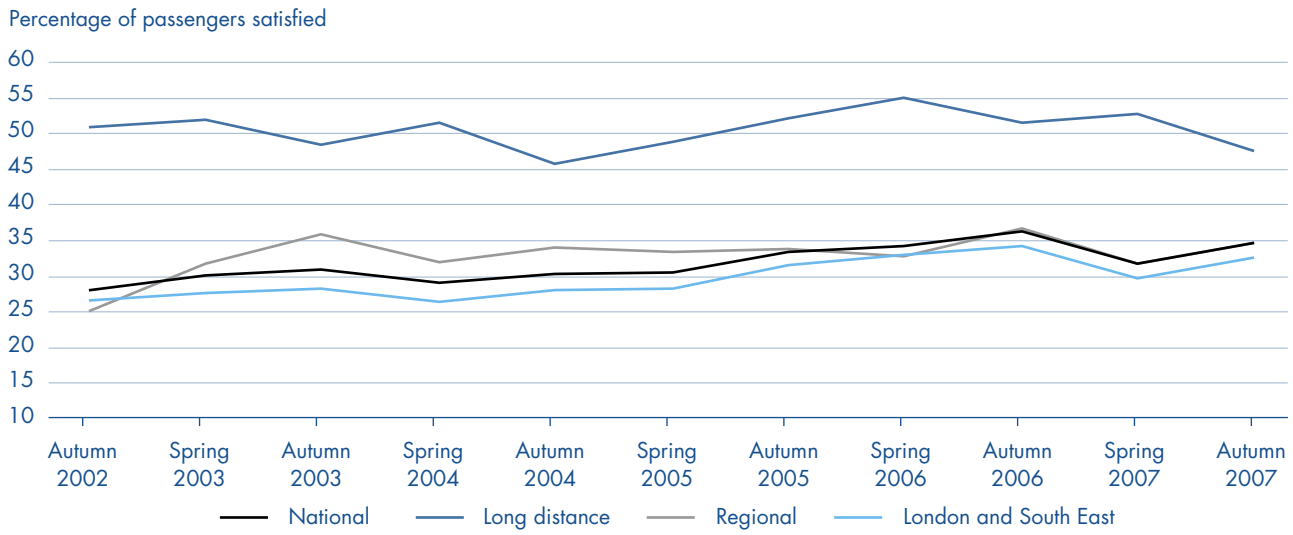


Source: National Passenger Survey

The provision of information to passengers during incidents

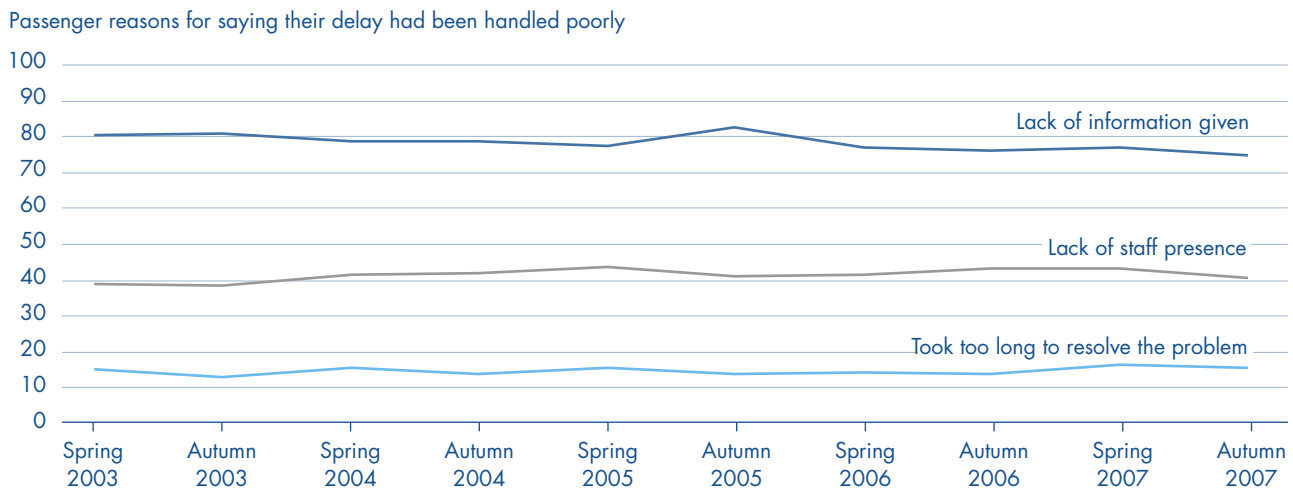
3.3 The Survey indicated that passengers who were unhappy with the way delays had been handled were most dissatisfied with the lack of information they received. Three-quarters of these passengers felt that they had not received sufficient information. As **Figure 12** shows, this degree of dissatisfaction has also remained broadly unchanged since the National Passenger Survey began including this question in 2003. The Survey showed that passengers were relatively happy with the speed with which incidents were resolved, with fewer than 20 per cent of passengers expressing dissatisfaction.

11 Percentage of passengers satisfied with how well the Train Operating Company dealt with their delay, 2002 to 2007



Source: National Passenger Survey

12 Passengers' reasons for their dissatisfaction with the way delays were handled



Source: National Passenger Survey

NOTE

See Figure 37 for details of all reasons given by passengers to explain their dissatisfaction with the way that delays were handled. Survey results for this question are shown from Spring 2003, when the presentation of the question was changed. Results before Spring 2003 are not comparable and have therefore been omitted.

3.4 There are no franchise service levels for how often information should be provided during service disruption. In December 2007 the Association of Train Operating Companies produced a good practice guide for its members. These guidelines are in line with the recommendations made in 2004 by Passenger Focus[11] and suggest that Train Operating Companies make announcements at stations and on trains within two minutes of services being disrupted, and further announcements every three or four minutes. It states that even when there was little information to pass on to passengers a brief announcement offered a degree of reassurance that the situation was being monitored and that more information would be provided when available. It also provides suggested announcement templates to ensure that announcements provide the information that passengers want and find most useful. The guidance also builds on Passenger Focus' finding that passengers preferred to listen to verbal announcements from the driver or guard, as they perceived any information provided in this way to be likely to be more up to date and credible than information on visual displays.

3.5 The Train Operating Companies we contacted acknowledged that passengers did not always receive adequate information when services were disrupted. Possible reasons for delays in this flow of information include:

- initial uncertainty while rail staff assess the situation at the incident site;
- too many rail staff trying to contact the control centre at the same time, blocking important channels of communication; and
- a perceived reluctance among drivers to speak to passengers.

3.6 Some passengers may not hear announcements – particularly deaf people and the hard-of-hearing for example, who currently make up approximately one per cent of rail passengers.[12] While display indicator boards at rail stations can be used to provide information to passengers when services are disrupted, passengers on trains currently have to rely on announcements from the train crew. Trains introduced into service since the Rail Vehicle Accessibility Regulations came into force in November 1998 must have interior visual displays, but they are currently only used to provide basic information, such as the scheduled stops on the service.[13] The displays are not currently used to provide other messages about service conditions and delays. Londonlines (a group that includes Gatwick Express and c2c) told us that it is currently investigating how to make more use of onboard displays.

3.7 The National Passenger Survey reported that passengers were unhappy with the availability of staff during periods of disruption. It is unrealistic to expect all Train Operating Companies to be able to provide enough staff to meet the needs of all passengers, particularly when services are disrupted over a wide area. Train Operating Companies are, however, taking steps to address this situation at key stations during disruption. For example, Southeastern and Londonlines now train their office staff so that they can be sent to stations to supplement frontline staff and offer additional assistance to passengers during periods of severe disruption. Network Rail told us that it is also training its office and support staff to provide assistance to passengers during disruption at the 18 major stations which it manages.

3.8 Some Train Operating Companies, such as First Capital Connect and Southeastern, also have contingency plans for their stations so that staff can respond quickly in times of disruption and provide reliable information to passengers. These plans include information such as key contact telephone numbers, alternative transport options, pre-printed information posters and guidelines on what staff are able to offer customers (such as booking taxis) in different situations. Disabled passengers may require extra assistance during disruption.

Industry incentive and compensation regimes

3.9 There is a perception among the Train Operating Companies that we consulted that Network Rail does not fully appreciate the importance of meeting the needs of passengers, and that it makes decisions that are not always in passengers' best interests, such as cancelling busy trains during periods of disruption rather than allowing services to continue, albeit behind schedule. We did not find evidence of this in our review of significant incident reports. However, we did find several instances where Network Rail had actively taken into account the needs of Train Operating Companies in deciding how to manage train services during and after incidents, despite the negative impact these actions would have on performance statistics and the financial penalties it would incur (paragraph 1.3).

11 Passenger Focus, *What, When, Where and How*, 2004.
12 Passenger Focus, National Passenger Survey Spring 2006.
13 The Rail Vehicle Accessibility Regulations were made under the provisions of the Disability Discrimination Act 1995, came into force on 1 November 1998 and have applied to all new trains entering service since 1 January 1999. They cover a range of features to help disabled people access rail vehicles including wheelchair accessibility, the design of on-board accessible toilets, the size and location of handrails, handholds and control devices as well as requirements for both visual and audible passenger information systems.

In this respect, such decisions are in line with the Railway Operational Code which states that, although Network Rail's primary objective should be to improve the Public Performance Measure, it should avoid "disproportionate delay or inconvenience to passengers".[14]

3.10 On replacing Railtrack in the aftermath of the Hatfield derailment, Network Rail's immediate priorities were initially to establish control over the industry and then to bring the maintenance functions in-house. The incentives in place mean that Network Rail has recently focussed on meeting its performance targets, which it has so far been able to achieve. Network Rail told us that it is now working to improve its customer focus; its own survey of Train Operating Companies shows that, while their overall satisfaction with Network Rail remains slightly negative, the rating has significantly improved over the three years it has been measured. The Office of Rail Regulation acknowledges that Network Rail recognises the importance of this issue and is giving it serious attention, but the Office of Rail Regulation is calling for it to be more explicitly incorporated into management incentives.[15] However, despite its lead role in the industry, Network Rail is not currently required to meet any customer service targets against passenger satisfaction.

Passenger compensation payments

3.11 Under the terms of the National Rail Conditions of Carriage, passengers are entitled to claim compensation from their Train Operating Company of 20 per cent of the value of the appropriate single ticket for all delays to their journeys of more than one hour. All 20 franchised Train Operating Companies have set more generous compensation arrangements in their individual Passenger Charters, but there is a variety of compensation regimes (Appendix 4). Consequently, passengers taking the same journey, but using different Train Operating Companies, could be eligible for different levels of compensation for the same delay, as illustrated in **Figure 13**. Furthermore, Train Operating Companies are not obliged to offer compensation as a result of delays outside the control of the rail industry, such as vandalism, trespass, suicides, fires outside railway property, security alerts or exceptionally severe weather conditions.

3.12 The Department is currently looking to simplify compensation schemes through the progressive introduction of "Delay/Repay" arrangements as part of the new round of franchise agreements it is negotiating with Train Operating Companies. Under this system all Train Operating Companies will offer the same compensation terms which will apply for all delays, regardless of cause **(Figure 14)**. This will also apply to season ticket holders who will need to claim for individual delays, rather than receiving discounts when renewing their season tickets as was previously the case.

13 Compensation arrangements for services from Leeds to Newcastle

Operator	CrossCountry	Trans Pennine Express
Departs Leeds	07:57	08:12
Arrives Newcastle	09:26	09:49
Duration	1 hour 29 minutes	1 hour 37 minutes
Ticket price (open single)	£34.60	£34.60
Compensation for 45 minute delay	£17.30	£34.60

Source: National Rail website and Passenger Charter information (correct at 7 February 2008)

14 Compensation terms under the new Delay/Repay system

Ticket	Length of delay (minutes)	Compensation as percentage of price paid
Single	30 – 59	50
Single	More than 60	100
Return	More than 119	100

Source: Department for Transport

14 Network Rail, *Railway Operational Code*, paragraph 4.3.3a.
15 Train Operating Company managers are asked to rate how they feel about Network Rail on a scale of -2 (would be critical without being asked) to +2 (would speak highly without being asked). The overall score in the autumn 2006 survey was -0.14, compared to -1.00 in 2002.

APPENDIX ONE

Methodology

Analysis of Network Rail delay data

The signalling system on the rail network generates data which is fed into the Train Running System (TRUST) used by Network Rail to monitor performance. We analysed the data in two ways:

- trend analysis of all incidents on the network since 1999 by incident frequency, total delay and average delay per incident by delay cause; and
- analysis of the 1,376 incidents which resulted in over 1,000 minutes of delay between 1 April 2006 and 31 March 2007. We interrogated the data to identify the main causes of significant delays by frequency, total delay and average delay to inform our understanding of the most disruptive incidents on the network.

Examination of rail industry incident reviews

After incidents that have caused significant delays to services Network Rail and Train Operating Companies conduct reviews to: identify the cause; assess whether the incident was preventable; analyse the industry response; and identify lessons to be learned, areas for improvement and examples of best practice. These reviews are led either by Network Rail or one of the Train Operating Companies depending on which party was responsible for the incident. All parties affected by the incident should attend the formal review meeting to ensure that the reviews capture all the relevant information. Network Rail leads reviews where incidents for which they are responsible caused over 1,000 minutes of delays to services, while Train Operating Companies will conduct reviews according to their own internal thresholds.

We collected and examined 412 reviews performed by Network Rail and 74 reviews performed by Train Operating Companies. We ensured that our sample was geographically diverse and covered all of Network Rail's eight territorial routes (see Appendix 5 for a map of these routes). Most of the incidents were near urban areas, which tend to be the most congested and complex parts of the network – an incident in these areas would normally cause more delay minutes than a similar problem on a rural branch line.

Our examination of these reviews was based on the findings and conclusions of the incident review panel, rather than our own interpretation of what could or should have been done. Our analysis of their conclusions covered issues including communication, the speed of response, diagnosis and repair, the use of contingency plans, cooperation between Network Rail and Train Operating Companies, the treatment of passengers, and the involvement of the emergency services.

Visits to Train Operating Companies

We visited the offices and control centres of nine Train Operating Companies (c2c, First Capital Connect, Gatwick Express, Northern, Silverlink, Southeastern, Southern, South West Trains, and Virgin West Coast). We discussed a range of issues with Operations Managers, Performance Directors and Customer Service Directors:

- planning for incidents;
- incident management;
- emergency services;
- passenger needs; and
- learning lessons and sharing best practice.

Survey of police forces

We asked the 43 local police forces in England and Wales for information and their opinions about:

- how the local police plan for rail incidents;
- the existence of protocols for cooperation with the rail industry;
- communication between the police and the rail industry during incidents; and
- barriers to more effective cooperation and the sharing of best practice.

We received responses from all 43 police forces.

Discussions with representatives of the emergency services

We either met or spoke with key personnel from the following organisations to discuss how they plan for, and manage, incidents on the railways, and their working relationships with the rail industry:

- British Transport Police;
- Ambulance Service Association;[16] and
- Chief Fire Officers' Association.

Comparison with the work of the Highways Agency

We met with staff from the Highways Agency at their headquarters in London and at the West Midlands Regional Control Centre to gain an understanding of the way it manages incidents on the motorway and trunk road network.

Calculation of the value of delays to passengers

We used rail industry data to calculate the average number of passengers per train, which we then divided into the three standard categories of journey type (commute, work, other). For each of these categories we applied the Treasury GDP deflator to the Department's 2002 value of time figures to calculate the cost of each delay minute for each category of passenger in 2006-07 terms. We then multiplied these costs with the total delay minutes to passenger services for 2006-07 and applied the Department's delay multiplier factor, which accounts for the additional cost for unplanned delays. See Appendix 3 for details.

Assessment of levels of passenger satisfaction

We used the data gathered by Passenger Focus as part of its biannual National Passenger Survey to assess how satisfied passengers are with the services they receive, particularly when they experience delays. This is the most comprehensive and detailed survey of rail passengers conducted in the United Kingdom, completed by approximately 25,000 passengers in each survey wave.

Stakeholder meetings

In addition to the meetings mentioned above we also met with staff from Network Rail, the Office of Rail Regulation, the Association of Train Operating Companies, the rail group of the Department for Transport, and Passenger Focus to discuss general study issues.

16 The Ambulance Service Association merged with the NHS Confederation in January 2008 to become the Ambulance Service Network.

APPENDIX TWO

Overview of rail industry data used in this report

1 We used two main sources of data:

- summary data for all rail incidents in England, Scotland and Wales drawn from Network Rail's Train Running System (TRUST), which we analysed to identify trends in incident frequency and delays between 1999-2000 and 2006-07. This data showed the number of incidents, total delay minutes and average delay per incident for each railway period (four weeks) for each of the 44 incident categories we analysed during this period; and
- more detailed data for 2006-07, on significant incidents which each led to over 1,000 minutes of delay, which we analysed to identify regional trends and to identify the main causes of significant delays by frequency, total delay and average delay to inform our understanding of the most disruptive incidents on the network.

How the data is generated

2 Under the terms of the Network Code, and the Performance Data Accuracy Code incorporated within it, Network Rail is obliged to operate a system to monitor accurately train performance. It does this largely through its own signalling system, which automatically tracks the passage of trains at key recording points (stations and key junctions) and feeds data into the Train Running System (TRUST). Approximately five per cent of data is manually entered into the system where signalling is less advanced.

3 The TRUST system compares the data against the planned timetable for each service to identify any delay minutes (where the delay is at least three minutes), at which point it seeks to attribute the delay to a known problem in that area (which Network Rail sets up on the System and codes according to the type of problem). The System directs any unattributed delay minutes to a Network Rail control centre or signal box for explanation so that Network Rail can apply the correct code to the delay. The Delay Attribution Guide, produced by the Delay Attribution Board (comprising representatives from Network Rail and Train Operating Companies), gives guidance on the proper coding and attribution of delays and is established by the Network Code.

4 Delay minutes can be directly incurred on an affected service or services (known as "primary" delay), or indirectly as a knock-on effect caused by delayed services running out of their schedules and delaying other trains (known as "reactionary" delay). Both types of delay are included in the total delay minutes figures attributed to a specific incident.

5 Although it does record train cancellations associated with individual incidents (and these are used to calculate the Passenger Performance Measure and Passengers' Charter refunds), Network Rail does not factor cancelled trains (either where services do not run at all or run only part of the scheduled service) into the delay minutes data we have used. Consequently, our data understates the disruption that passengers might face from an incident. The degree of disruption to services as a whole can be interpreted as the combination of delay minutes and total and part cancellations, but this requires specialist industry expertise on a case by case basis.

6 Because our Report focuses on how *unexpected* incidents are managed, we have excluded two incident categories (Temporary Speed Restrictions due to track condition, and Planned) from our analysis. These categories contributed less than one half of one per cent of the total delay minutes recorded for 2006-07. We also excluded incidents categorised as occurring in freight yards and depots as these delay freight services and not passenger services.

The robustness of the data

7 The rail industry uses delay data to drive performance improvements through an improved understanding of the causes and impact of delays. The Independent Reporter (currently Halcrow), appointed by Network Rail as required by the Office of Rail Regulation, audits the underlying data each year as part of its audit of Network Rail's annual return and found it to be robust, reliable and accurate for 2006-07. Network Rail and Train Operating Companies also audit the performance data, as it is the mechanism through which Network Rail and the Train Operating Companies compensate each other for delays.

8 Given the assurance provided by the Independent Reporter, we have not audited either the systems that generated the data, or the data itself, that is used in this report.

Overview of rail incidents since 1999-2000

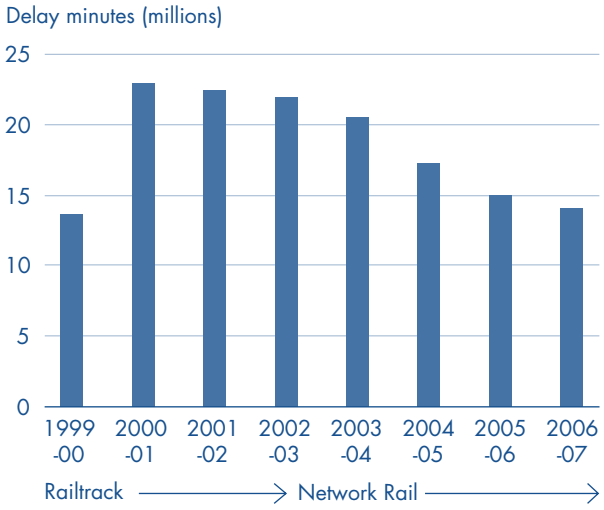
9 We examined Network Rail delay data for each four-weekly railway period between 1999-2000 and 2006-07, on the number of incidents, the total delay minutes incurred and the delay minutes per incident.

10 **Figure 15** shows the total number of delay minutes for each year between 1999-2000 and 2006-07, while **Figure 16** shows the total number of incidents in each year. These figures show that:

- the number of incidents rose by eight per cent, and the total delay minutes rose sharply in 2000-01 by 68 per cent due to the extensive programme of engineering work to check and repair rails following the Hatfield derailment in October 2000;
- the number of delay minutes has fallen in each of the last six years since the peak in 2000-01 with the largest fall (16 per cent) in 2004-05;
- the number of incidents fell steadily from a peak of 950,000 in 2003-04 to 880,000 in 2005-06 and then dropped by 10 per cent to 800,000 in 2006-07.

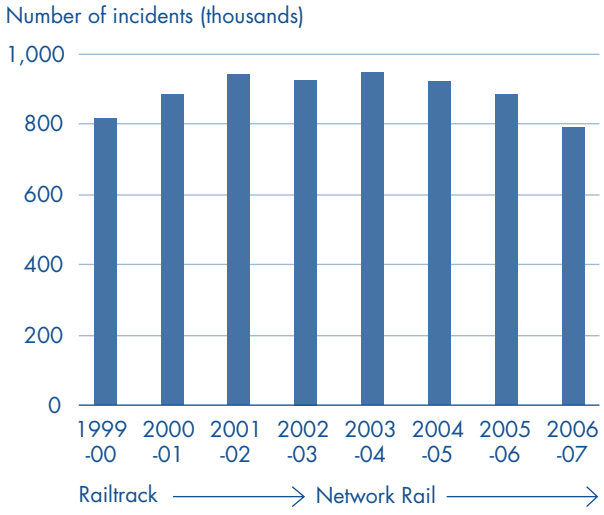
In summary, following the increase in 2000-01, the number of delay minutes has decreased at a greater rate than the number of incidents, until 2006-07, when there has been a bigger drop in the number of incidents and a lesser drop in the number of delay minutes.

15 Total annual delay minutes, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

16 Annual number of incidents, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

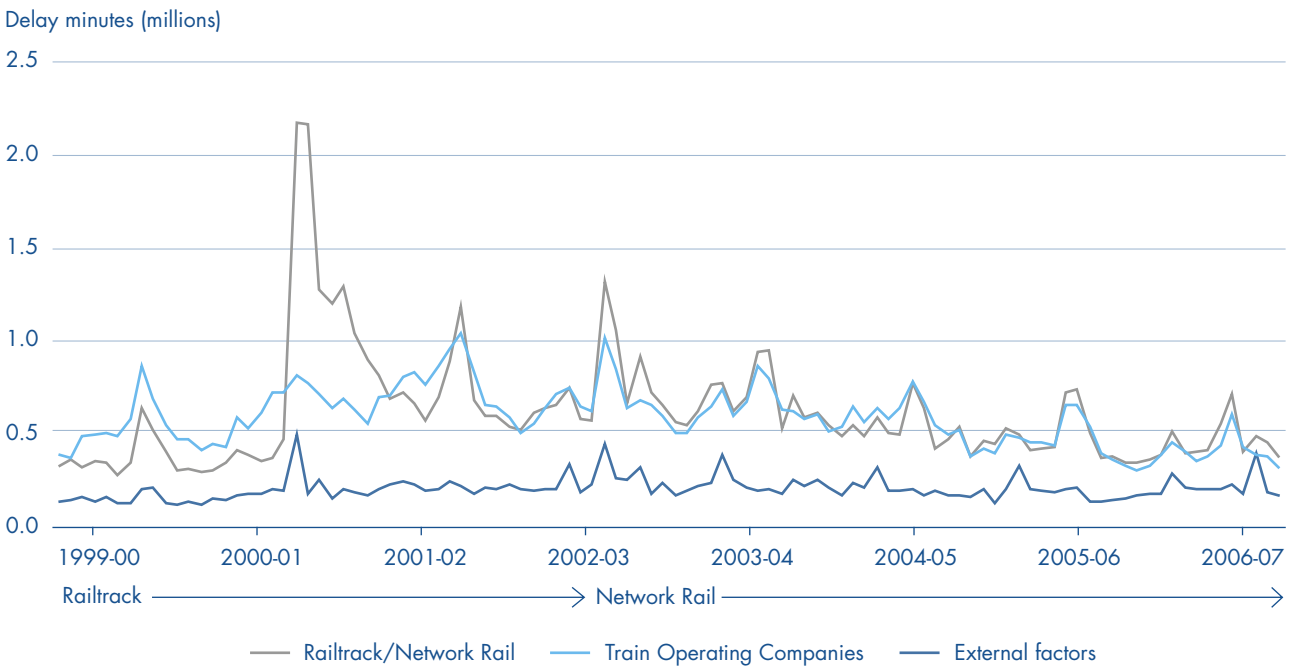
11 The data shows that there are seasonal variations **(Figure 17)**. Apart from the highest peak in late 2000 (caused by the Hatfield derailment, and to a lesser extent, to extremely heavy and prolonged rainfall) there were smaller peaks in delay minutes every November, largely caused by weather conditions, including the effects of leaf fall.

12 In exploring the overall trends in performance further, we attributed the cause of incidents in line with industry guidance to Network Rail or Train Operating Companies. Factors attributed to Network Rail broadly cover infrastructure issues, such as problems with signalling, points, track and power supplies, while those attributed to Train Operating Companies are mainly caused by faults with the trains or with train crews. We created a third category (external factors) to identify separately those incidents that affect the infrastructure but are outside the control of the rail industry, such as adverse weather, fatalities, fire and vandalism.[17] Our analysis, therefore, differs from most analyses produced by the rail industry which attributes these external delays to Network Rail. Figure 18 shows the total annual delay minutes caused by Train Operating Companies, Network Rail and external factors since 1999-2000.

13 Infrastructure faults caused the most delay minutes in four of the last five years, and in 2006-07 they were responsible for 42 per cent of total delay minutes (Figure 18), with signalling, track and points problems causing the most delays. Incidents caused by external factors such as weather, trespass and fatalities were responsible for around 20 per cent of delay minutes. Train Operating Companies were responsible for the remaining 38 per cent of delay minutes in 2006-07, primarily because of train faults.

14 Since 2001-02 delay minutes caused by Network Rail and Train Operating Companies have fallen every year apart from a small increase for Network Rail in 2002-03. Overall, delay minutes caused by Train Operating Companies fell by 23 per cent between 1999-2000 and 2006-07, but Network Rail caused 21 per cent more delay minutes than Railtrack had in 1999-2000. However, since it took over from Railtrack halfway through 2002-03 Network Rail has reduced the number of delay minutes it has caused every year. External factors caused 43 per cent more delay minutes in 2006-07 than in 1999-2000, largely because of adverse weather conditions. The impact of weather conditions on train services can vary significantly between years, and

17 Total delay minutes by railway period analysed by cause, 1999-2000 to 2006-07



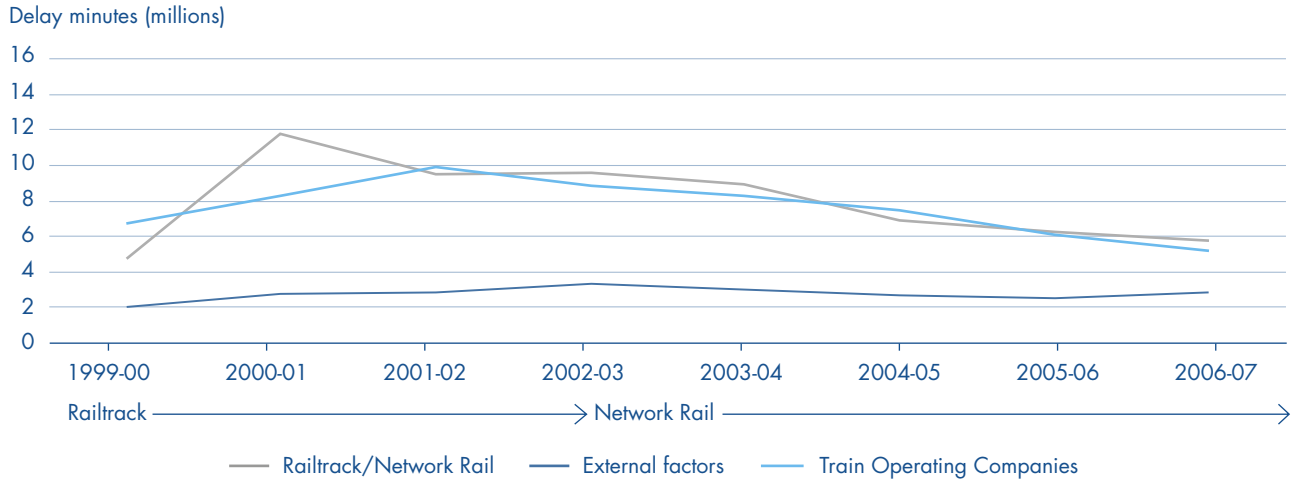
Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

17 While these incidents are outside its control, Network Rail is, nevertheless, responsible for managing the infrastructure up to and including the railway's public boundary, except at leased stations.

caused 0.7 million delay minutes in 2006-07 (an increase of 155 per cent on 2005-06). The number of delay minutes caused by vandalism and theft increased by almost 30 per cent from 2005-06 to 2006-07, largely because of a spate of cable thefts in the north east of England.

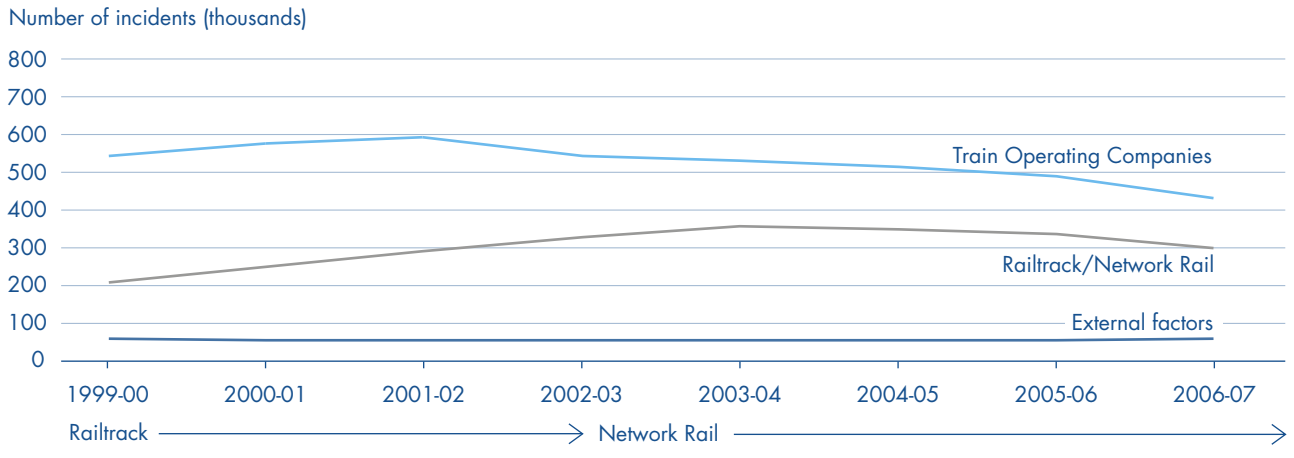
15 While incidents caused by the Train Operating Companies and Network Rail are more frequent and cause more delay minutes in total than external factors **(Figures 18 and 19)**, other than in 2000-01, the average delay per incidents caused by external factors was significantly greater than incidents caused by either Network Rail or Train Operating Companies **(Figure 20 overleaf)**. The average number of delay minutes incurred by incidents caused by Network Rail and Train Operating Companies was also lower in 2006-07 than in 1999-2000, while incidents caused by external factors caused, on average, 50 per cent more delay minutes in 2006-07 than in 1999-2000.

18 Total annual delay minutes analysed by cause, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

19 Annual number of incidents analysed by cause, 1999-2000 to 2006-07



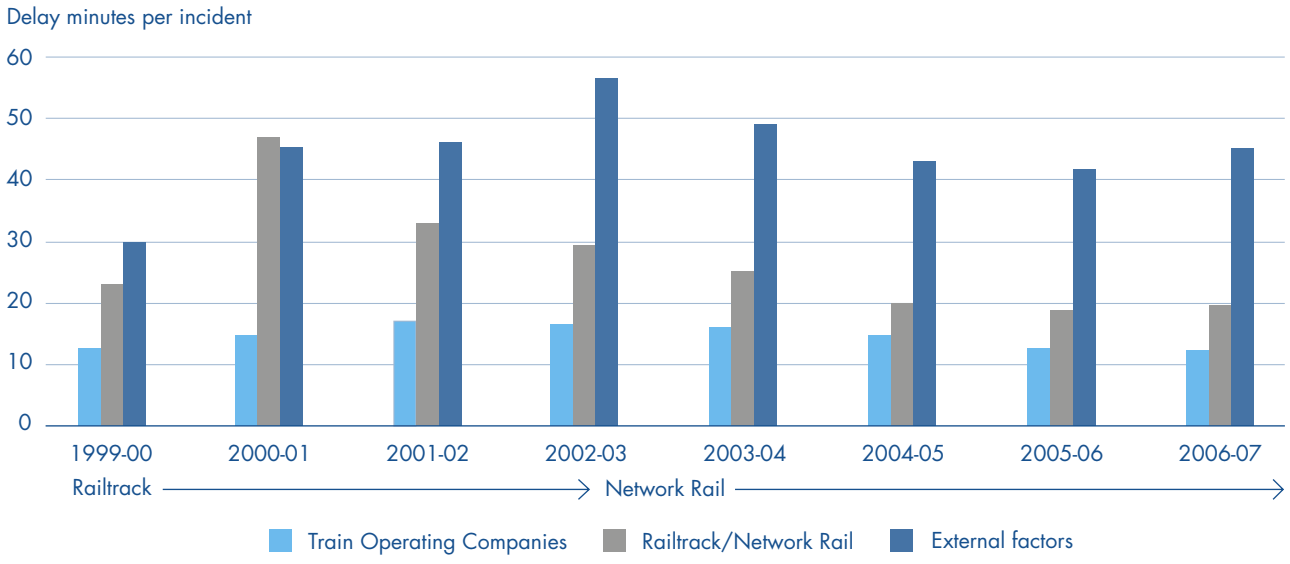
Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

Rail incidents during 2006-07

16 **Figure 21** sets out the 2006-07 data for each category of incident used by the rail industry, ranked in descending order of incident occurrence. It should be noted that there are many more categories used for Network Rail incidents than for incidents attributed to Train Operating Companies. Figure 21 shows that:

- the most frequent incidents were caused by train operations, fleet problems, delays at stations and train crew causes. They were all caused by Train Operating Companies;
- excluding station delays, these incident types also caused the most delay minutes in total. The three categories of track circuit failures, adverse weather, broken rails and track faults, although significantly less frequent, caused the next highest total number of delay minutes, accounting for over 700,000 delay minutes each; and
- the five incident categories that caused the most delay minutes per incident were: cable faults (201 minutes), overhead line equipment and third rail faults (155 minutes), lineside structure defects (139 minutes), adverse weather (131 minutes), and bridge strikes (134 minutes).

20 Average delay minutes per incident analysed by cause, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

21 Incidents during 2006-07 analysed by category

Incident category	Cause	Number of incidents	Delay minutes	Delay minutes per incident
Train operations	Train Operating Companies	163,756	726,803	4
Engineering – Fleet causes	Train Operating Companies	101,387	3,039,739	30
Station delays	Train Operating Companies	77,251	544,834	7
Train crew causes	Train Operating Companies	76,895	849,197	11
Commercial Responsibility: Takeback	Network Rail	75,202	357,784	5
All Z codes – Unexplained	Network Rail	59,976	284,804	5
Production responsibility	Network Rail	58,410	583,173	10
External Causes (Train Operator)	External factors	30,234	613,701	20
Commercial responsibility: Train Planning	Network Rail	27,663	278,497	10

21 Incidents during 2006-07 analysed by category *continued*

Incident category	Cause	Number of incidents	Delay minutes	Delay minutes per incident
Leaf Fall Neutral Zone – Passenger	Network Rail	13,751	138,976	10
TOC Neutral Zone (Passenger)	Train Operating Companies	11,015	94,832	9
External fatalities and trespass	External factors	10,706	522,390	49
Points failures	Network Rail	9,076	652,232	72
Other infrastructure	Network Rail	8,557	277,717	32
Track Circuit Failures	Network Rail	7,963	720,254	90
Broken Rails/Track Faults	Network Rail	7,681	715,671	93
Signal Failures	Network Rail	7,369	304,541	41
External infrastructure damage – Vandalism/Theft	External factors	6,038	338,458	56
External, weather impact	External factors	5,467	718,685	131
Signalling System & Power Supply Failures	Network Rail	3,997	342,608	86
Possession over-run and related faults	Network Rail	3,890	210,235	54
External level crossing/road incidents (not bridges)	External factors	3,084	70,931	23
Animals on line	External factors	3,008	130,990	44
Wheel slip due to leaf fall	Network Rail	2,389	61,357	26
Level crossing failures	Network Rail	2,365	100,019	42
External other	External factors	1,965	134,933	69
Overhead line/Third Rail faults	Network Rail	1,706	264,729	155
Other signal equipment failures	Network Rail	1,706	62,926	37
Bridge strikes	External factors	1,688	225,470	134
Telephone failures	Network Rail	1,220	38,429	31
Problems with trackside signs	Network Rail	1,201	35,675	30
Commercial responsibility: other	Network Rail	1,044	11,821	11
Possession Work Left Incomplete	Network Rail	988	79,351	80
Mishap – infrastructure causes	Network Rail	741	65,047	88
Lineside structure defects	Network Rail	695	96,454	139
External fires	External factors	633	75,828	120
Cable faults (signalling & comms)	Network Rail	628	125,963	201
External police on line/security alerts	External factors	529	29,826	56
Fires starting on infrastructure	Network Rail	285	32,385	114
Track circuit failures – leaf fall	Network Rail	281	11,223	40
Vegetation Management Failure	Network Rail	267	11,959	45
Change Of Aspects	Network Rail	242	12,247	51
TOC Neutral Zone (Freight)	Train Operating Companies	189	146	1
Gauge Corner Cracking	Network Rail	91	7,534	83
Total		**793,229**	**14,000,373**	**18**

Source: National Audit Office analysis of summary Network Rail delay data

Trends in incident categories between 1999-2000 and 2006-07

17 Delays caused by fleet problems caused more delay minutes than any other category in 2006-07, and have fallen from 3.6 million minutes to 3 million minutes, a fall of 15 per cent. The number of incidents caused by fleet problems has also fallen by 22 per cent over this period from 129,000 to 101,000. The average delay per incident rose from 27 minutes in 1999-2000 to 30 minutes in 2006-07, and peaked at 39 minutes in 2002-03 and 2003-04. This pattern can be attributed to the introduction of new trains during this period, and the subsequent resolution of teething problems.

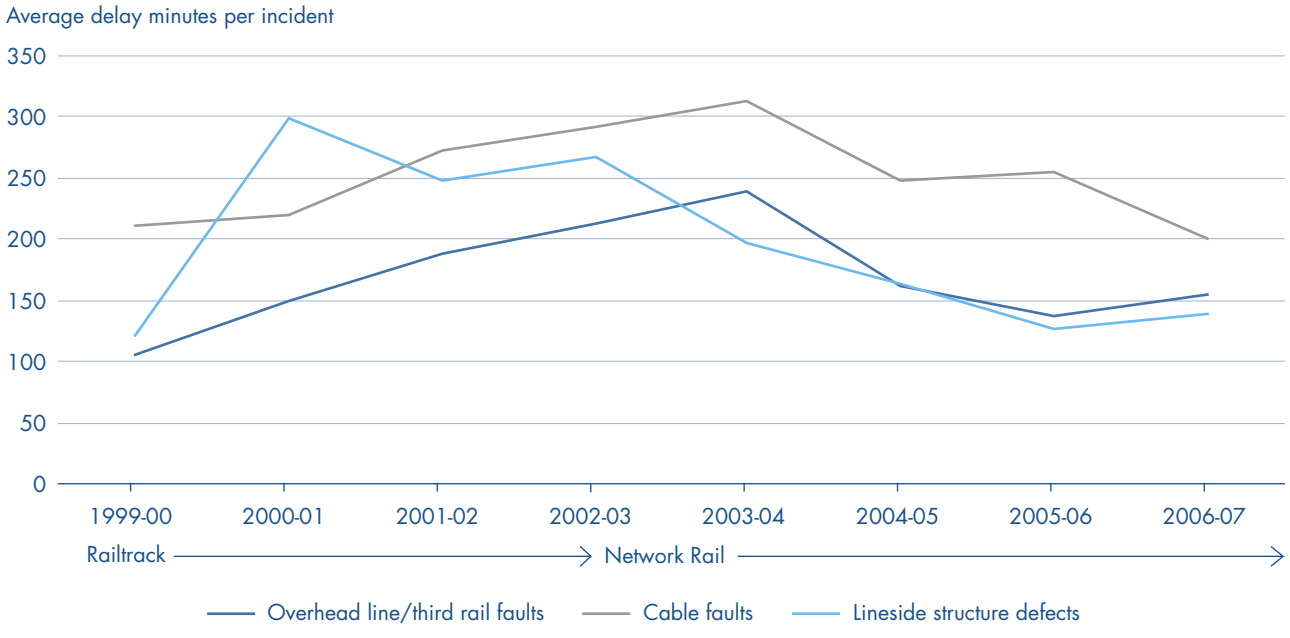
18 The three incident categories that caused the most average delay minutes during 2006-07 were cable faults (201 minutes), overhead line/third rail faults (155 minutes) and lineside structure defects (139 minutes). The average delay minutes per incident for these three categories has fallen during the Network Rail era **(Figure 22)**, but remains higher than in 1999-2000 for overhead line/third rail faults and lineside structure defects.

19 The three externally-caused incident categories that caused the most average delay minutes during 2006-07 were bridge strikes (134 minutes), adverse weather (131 minutes) and external fires (120 minutes). Again, Figure 21 shows that incidents under these categories occur relatively infrequently, but can cause severe disruption to services. The average delay per incident caused by bridge strikes and external fires were both significantly higher in 2006-07 than in 1999-2000. The average delay for incidents caused by the weather is slightly lower in 2006-07 compared to 1999-2000, but there have been significant variations in the average delay in the intervening years. **Figure 23** illustrates how the average delay minutes has changed for these three incident categories during this period.

Significant incidents during 2006-07

20 As Figure 18 shows, Train Operating Companies were responsible for 38 per cent of all delay minutes on the rail network during 2006-07. However, when only significant incidents (which we have classed as those incidents that generated at least 1,000 delay minutes) are included, this figure falls to 19 per cent. Network Rail and external factors are responsible for the majority of significant incidents, and each of these incidents incurred almost 23 per cent more delay minutes, on average, than incidents caused by Train Operating Companies in 2006-07.

22 Incident categories with the three highest average delay minutes per incident, 1999-2000 to 2006-07

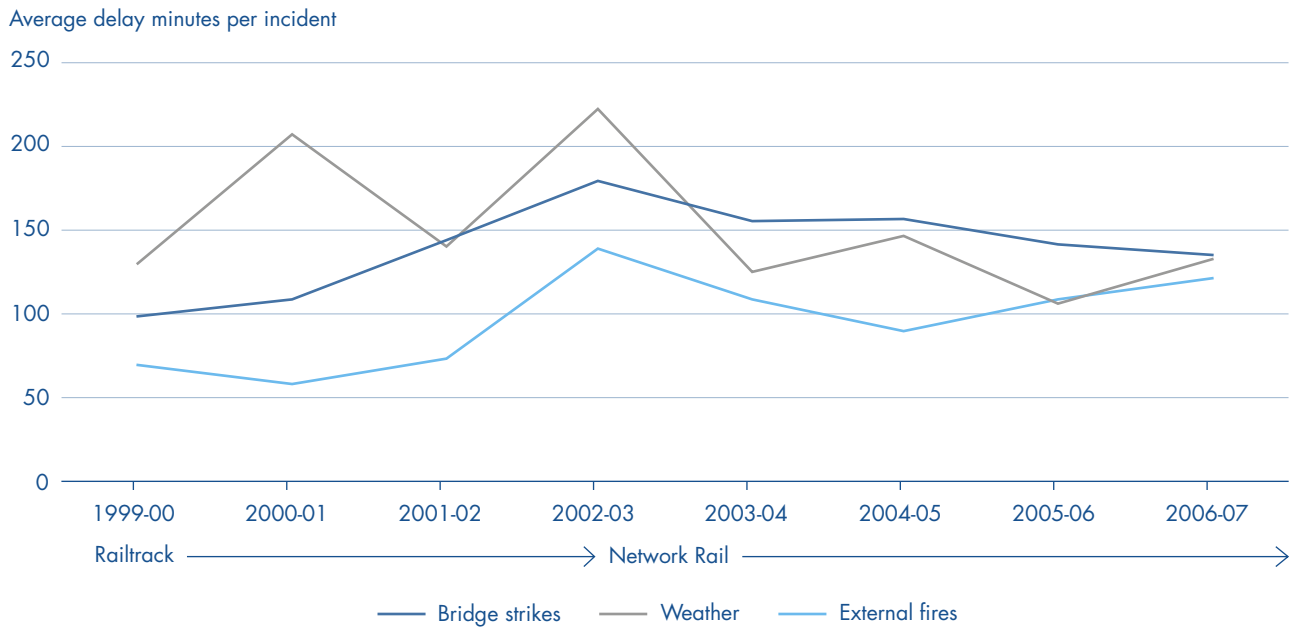


Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

Analysis of significant incidents by Network Rail route

21 **Figure 24** shows the distribution of the 1,376 significant incidents occurring in 2006-07 across the eight geographic routes of Network Rail, analysed in terms of number of incidents, total delay minutes, and average delay per incident. It shows that the London North East and London North West routes had the highest number of significant incidents and highest total of delay minutes of all the routes, and together accounted for 46 per cent of the national significant incidents by number and 43 per cent of the national delay minutes. Scotland had the fewest significant incidents and the lowest number of delay minutes. These findings are in line with the size and complexity of these routes. Explanations of the variations in average delay minutes per incident between the different routes are given below.

23 Externally-caused incident categories with the three highest average delay minutes per incident, 1999-2000 to 2006-07



Source: National Audit Office analysis of summary Network Rail delay data 1999-2000 to 2006-07

24 Incidents causing over 1,000 minutes of delay in 2006-07 by Network Rail route

Network Rail route	Number of incidents		Delay minutes		Delay minutes per incident
	Number	Percentage	Minutes	Percentage	
Anglia	169	12	353,118	13	2,089
Kent	82	6	170,342	6	2,077
London North East	296	22	542,610	19	1,833
London North West	332	24	684,982	24	2,063
Scotland	66	5	110,296	4	1,671
Sussex	89	6	200,929	7	2,258
Wessex	103	7	270,860	10	2,630
Western	239	17	488,670	17	2,045
Total	**1,376**	**100**	**2,821,807**	**100**	**2,051**

Source: National Audit Office analysis of detailed Network Rail delay data for incidents causing over 1,000 delay minutes, 2006-07

Network Rail routes with significantly above-average delay minutes per incident

22 Two Network Rail routes recorded average delays per incident significantly above the average for 2006-07. Wessex's performance was severely affected by overrunning engineering work in late 2006, particularly three incidents that each caused between 8,000 to 10,000 minutes of delay. The storms of 18 January 2007 also caused over 22,000 delay minutes, and because it was treated in Wessex as one single incident, increased the average delay per incident figure. Other Network Rail routes accounted for delays due to the storms as separate incidents, for example, Sussex treated the storms on that day as causing seven separate incidents. However, we have not found any other incident categories where this interpretation of accounting for incidents together or separately was an issue, and therefore do not consider it to be important when interpreting the data.

23 The performance of the Sussex route was affected by a number of fatalities at Clapham Junction and East Croydon stations during 2006-07. These are two of the busiest stations on the network where complex incidents can cause severe disruption resulting in very high total delay minutes. Fatalities on the Sussex route caused over 40,000 delay minutes, averaging almost 2,900 minutes per incident, almost 40 per cent more than the national average of just fewer than 2,100 minutes per incident.

Network Rail routes with significantly below-average delay minutes per incident

24 Two routes recorded significantly lower than average delays per incident in the year. Scotland was relatively unaffected by the adverse weather that caused disruption to services across much of England, particularly in January 2007. Although weather was responsible for more incidents than any other category in Scotland, the average delay incurred was less than 1,900 minutes, compared to almost 2,200 minutes nationally. The second most commonly occurring incident type in Scotland was problems with the fleet, and the average delay was the lowest of all Network Rail routes at almost 1,350 minutes compared to 1,750 nationally.

25 London North East had by far the highest number of incidents caused by vandalism, some 61 of the 94 incidents that occurred nationally during 2006-07. These were caused by thefts of lengths of copper cable, a problem that worsened significantly in 2006-07 as the price of copper increased.

Analysis of significant incidents by Network Rail period

26 **Figure 25** shows the distribution of significant incidents for each of the 13 railway periods during 2006-07. Broadly, the average delay per incident was marginally higher during the summer and winter months though no marked trend emerged. The high average delay per incident for period 11 was largely due to the storms of 18 January 2007. The highest average delay per incident, for period six, was caused by a small number of incidents that incurred particularly high delay minutes, such as two faults with the overhead line equipment at Shenfield and Chelmsford on the Anglia route (13,067 minutes and 9,331 minutes respectively).

Our examination of rail industry incident reports

27 We also analysed the reports produced by Network Rail and the Train Operating Companies for incidents that caused significant delays. Network Rail produces reports for incidents caused by infrastructure faults and externally-caused events such as weather, vandalism and fatalities, where services have been delayed by at least 1,000 minutes. In general, Train Operating Companies produce reports for train-related incidents, such as train faults, vandalism or fires on trains, or driver error. However, they may also produce their own reports for the most disruptive incidents caused by other factors, such as lineside fires. Train Operating Companies adopt a more flexible approach to producing reports, taking into account the nature and severity of the disruption, rather than simply the number of delay minutes. Unlike Network Rail, therefore, Train Operating Companies do not share a common threshold of delay minutes which trigger incident reports, nor is a single threshold applied to all incident types within individual companies, meaning that reports are produced for incidents that caused varying periods of disruption across the network.

28 Incident reports are produced following review meetings where key rail personnel discuss the cause, management and resolution of each incident. Staff complete reports to different levels of detail, depending on the nature of the incident (for example, major infrastructure failures may result in thorough technical reviews that feed into the reports) and their impact on services. The reports contain key information such as the unique incident reference number, the date and location, the type of incident and the delay cause code assigned to it, and the delay minutes incurred and number of cancellations. They also contain information on the cause of the incident, whether it could have been prevented, the incident response and the management of train services. Reports also consider what went well and badly, and what lessons can be learned.

25 Incidents causing over 1,000 minutes of delay in 2006-07 by period

Period	Start date	Number of incidents		Delay minutes		Delay minutes per incident
		Number	Percentage	Minutes	Percentage	
1	1 April 2006	66	5	131,854	5	1,998
2	29 April 2006	80	6	154,086	5	1,926
3	27 May 2006	87	6	169,291	6	1,946
4	24 June 2006	141	10	290,779	10	2,062
5	22 July 2006	83	6	172,233	6	2,075
6	19 August 2006	104	8	238,892	8	2,297
7	16 September 2006	84	6	180,670	6	2,151
8	14 October 2006	120	9	237,157	8	1,976
9	11 November 2006	140	10	277,447	10	1,982
10	9 December 2006	97	7	197,361	7	2,035
11	6 January 2007	189	14	406,334	14	2,150
12	3 February 2007	98	7	204,754	7	2,089
13	3 March 2007	87	6	160,949	6	1,850
Total		**1,376**	**100**	**2,821,807**	**100**	**2,051**

Source: National Audit Office analysis of detailed Network Rail delay data for incidents causing over 1,000 delay minutes, 2006-07

Network Rail incident reports

29 Between 1 April 2006 and 31 March 2007 there were 1,073 incidents where Network Rail or external factors caused incidents leading to delays that exceeded 1,000 minutes. We reviewed 412 reports produced by Network Rail, making up 38 per cent of the relevant incidents during this period.

30 The reports we selected were those that were held centrally. We compared the sample with the overall population of 1,073 incidents to satisfy ourselves that it was representative but found that incidents on Network Rail's Kent route, and incidents caused by vandalism on Network Rail's London North East route, were underrepresented. Network Rail told us that, although all incident reports should be sent to their head office, this does not always happen in practice.

31 **Figure 26 overleaf** shows the structure of our sample by Network Rail route against the population of 1,000 minute incidents caused by Network Rail in 2006-07. **Figure 27 overleaf** shows the structure of our sample for the 10 most common incident categories.

Train Operating Company incident reports

32 We reviewed 74 reports produced by Train Operating Companies, which covered incidents that caused delays ranging from 158 minutes to 8,620 minutes. We wrote to 19 of the 20 franchised Train Operating Companies in existence in July 2007 to ask for all incident reports that they had written for incidents causing more than 1,000 delay minutes (Network Rail and the Office of Rail Regulation asked us not to approach First Great Western for information as the Company was already being heavily scrutinised at the time by the Office of Rail Regulation). Because some Train Operating Companies had experienced very few, or no, such incidents during the period we then asked them to provide five further incident reports to ensure we gathered information from them all. We received reports from all the Train Operating Companies. A number of the reports we received were for very minor incidents and contained little information which we therefore excluded from our analysis (including all the reports submitted by Merseyrail). Because we received reports from Train Operating Companies for incidents that caused less than 1,000 minutes of delay, and because the reports produced by Train Operating Companies were not produced to the same template of questions, we have analysed and presented the data separately. Furthermore, the Train Operating Company incident reports generally contained less detailed information and comment than was recorded in Network Rail reports, and so our analysis of these reports is less detailed.

26 Our review of Network Rail incident reports by route, 2006-07

Network Rail route	1,000 minute incidents		Network Rail reports reviewed	
	Number of incidents	Percentage of total	Number of reports reviewed	Percentage of total
Anglia	133	12	64	15
Kent	63	6	7	2
London North East	243	23	64	15
London North West	260	24	81	20
Scotland	53	5	36	9
Sussex	74	7	30	7
Wessex	85	8	36	9
Western	162	15	94	23
Total	**1,073**	**100**	**412**	**100**

Source: National Audit Office analysis of detailed Network Rail delay data for incidents causing over 1,000 delay minutes, 2006-07, and of 412 Network Rail Significant Performance Incident Reviews

27 Our review of Network Rail incident reports by incident category, 2006-07

Incident category	1,000 minute incidents		Network Rail reports reviewed	
	Number of incidents	Percentage of total	Number of reports reviewed	Percentage of total
Weather	141	13	44	11
Broken rails/track faults	106	10	35	8
Fatalities and trespass	98	9	53	13
Overhead line/third rail faults	95	9	40	10
Vandalism/theft	94	9	9	2
Points failures	75	7	33	8
Signalling system & power supply failures	72	7	38	9
Track circuit failures	66	6	35	8
Cable faults	34	3	14	3
Possession over-run and related faults	33	3	12	3
Other	259	24	99	24
Total	**1,073**	**100**	**412**	**100**

Source: National Audit Office analysis of detailed Network Rail delay data for incidents causing over 1,000 delay minutes, 2006-07, and of 412 Network Rail Significant Performance Incident Reviews

33 Of the 74 reports we reviewed, 54 (73 per cent) were for incidents caused by Train Operating Companies, and the remaining 20 reports (27 per cent) for incidents caused by Network Rail and external factors. **Figure 28** shows the structure of our review by incident cause. The largest single cause was "train faults", accounting for 48 (65 per cent) of the incidents we reviewed.

How we analysed the reports

34 We analysed the rail industry's assessment of its management of the incidents covered by the reports, and rated the reported performance as either good, bad or neutral in 10 categories:

- planning (whether contingency plans were available, used or suitable);
- speed of response to site;
- diagnosis and repair (whether these were done quickly and correctly);
- availability of equipment (tools, spare parts and machinery);
- staff availability and expertise;
- decision-making (whether staff made the correct decisions);
- train service management;
- communication within Network Rail or the Train Operating Company;
- communication between Network Rail and Train Operating Companies; and
- cooperation between Network Rail and Train Operating Companies.

35 We also analysed comments made about third parties, primarily the emergency services, in four categories: speed of response, cooperation, communication, and speed of resolution.

36 We then used this information to identify issues, such as the geographical variations in quality of incident management, the relationship between Network Rail and the Train Operating Companies, and the performance of the emergency services in attending rail incidents.

Analysis of Network Rail incident reports

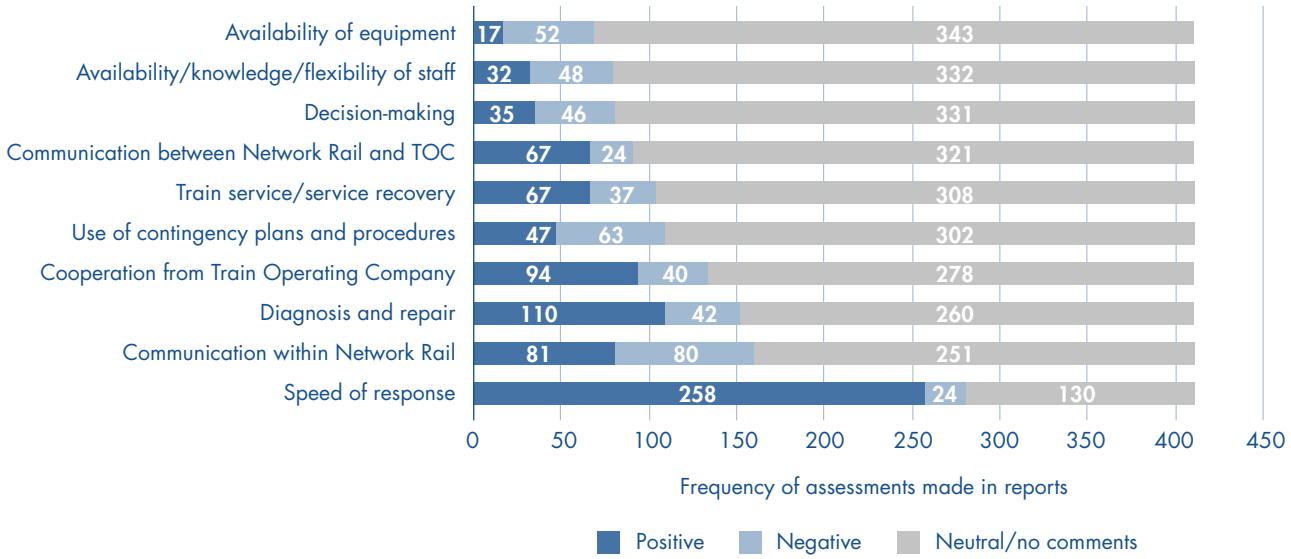
37 Our analysis of the 412 incident reports produced by Network Rail shows that Network Rail staff commented the most on their speed of response to an incident and that these comments were largely positive **(Figure 29 overleaf)**. The area which attracted the least comments but also the most criticism was the availability of equipment. Where staff provided further explanation, the most frequent comments concerned spare parts not being available at local depots, the unreliability of "unimog" vehicles (used to repair overhead line electrification equipment) and shortages of radios or mobile phones for staff at incident sites. The availability of staff and the use of contingency plans also attracted some negative comments.

28 Our review of Train Operating Company incident reports by incident category, 2006-07

Incident category	Cause	1,000 minute incidents	Train Operating Company reports reviewed
Train faults	Train Operating Companies	217	48
Fatalities and trespass	External Factors	98	5
Overhead line/third rail faults	Network Rail	95	6
Signalling system & power supply failures	Network Rail	72	1
Track circuit failures	Network Rail	66	1
Train operations	Train Operating Companies	57	3
Traincrew causes	Train Operating Companies	27	2
Bridge strikes	External Factors	25	1
External causes (Train Operator)	External Factors	22	6
Station delays	Train Operating Companies	2	1

Source: National Audit Office analysis of detailed Network Rail delay data for incidents causing over 1,000 delay minutes, 2006-07, and of 74 Train Operating Company Significant Performance Incident Reviews

29 Comments made on Network Rail incident management



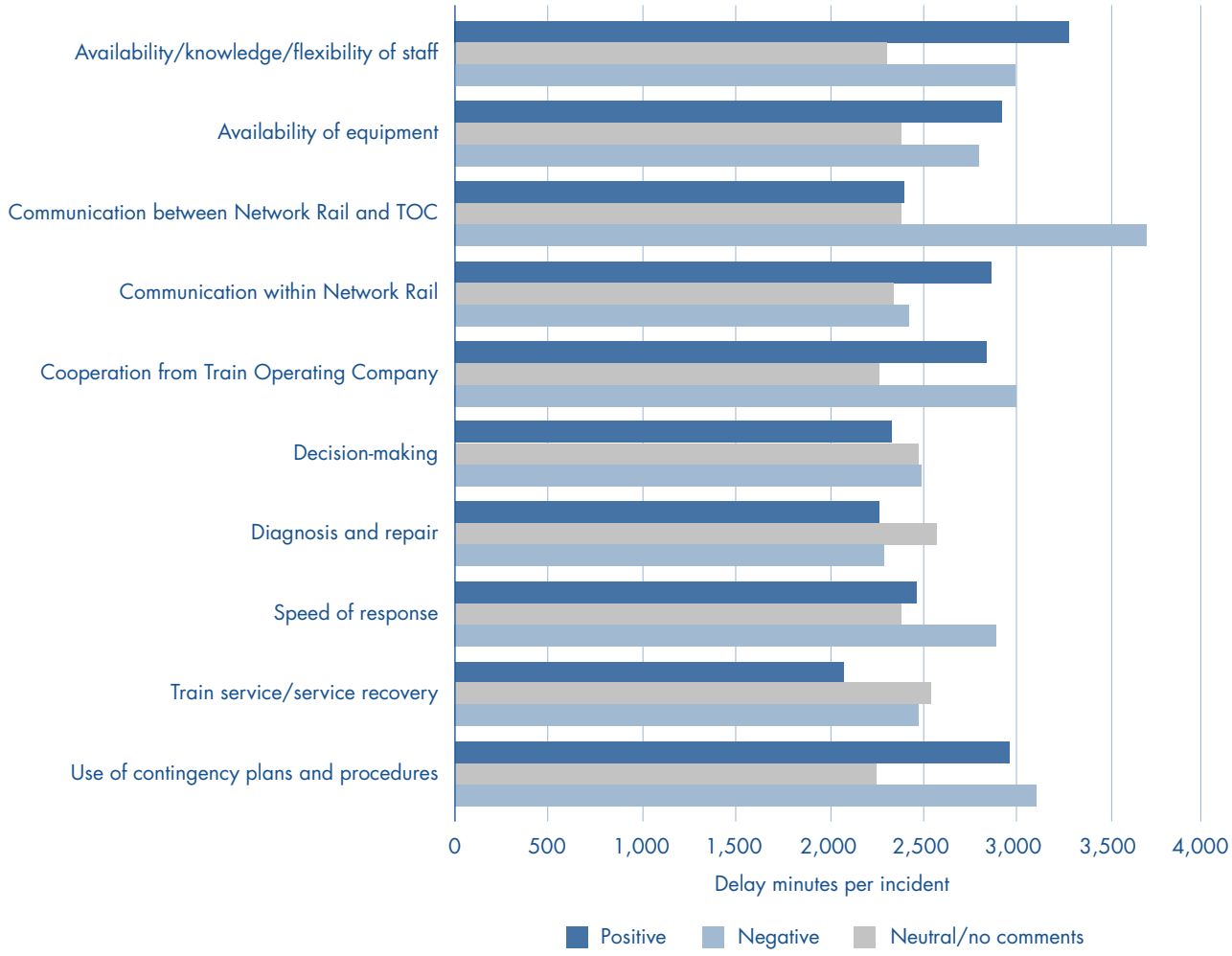
Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

38 We found no simple link between the nature of the comments made in the reports and the number of delay minutes incurred **(Figure 30)**. There were some categories where the nature of the comments were reflected in the average number of delay minutes per incident. For example, the most significant result was for communication between Network Rail and Train Operating Companies – a factor acknowledged as vital to effective incident management by those we spoke to in the rail industry – where the average delay per incident was 2,399 minutes where communication was judged to be good, compared to 3,696 minutes where it was judged to be poor. A similar pattern can also be seen for the speed of response to the incident and the subsequent recovery of train services. However, those incidents where comments about communication within Network Rail were positive incurred more delay minutes on average (2,860 minutes) than those incidents where it had been judged to be poor (2,428 minutes). Such incidents included those related to adverse weather, points and signal faults.

Third party involvement

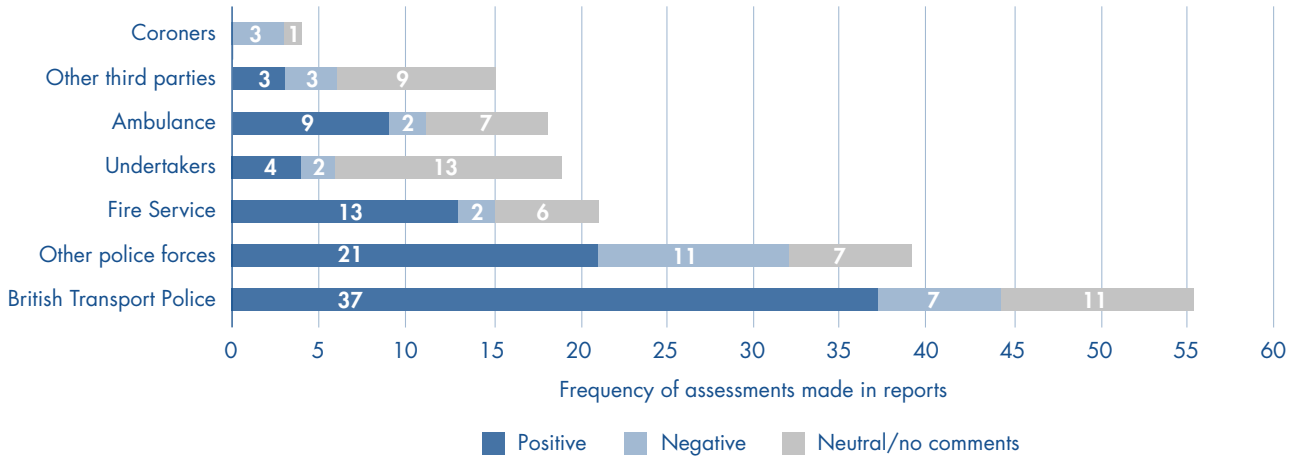
39 **Figure 31** shows that Network Rail viewed the involvement of British Transport Police in incidents as overwhelmingly positive, with 37 positive assessments (67 per cent) and only seven negative assessments (13 per cent) of their involvement out of the 55 incidents they attended. Local police forces also received broadly positive assessments (54 per cent of incidents they attended), but a larger proportion of negative assessments (28 per cent). Coroners received the largest share of negative comments (75 per cent), although their involvement was only commented on in four incidents. The three negative comments concerned coroners insisting on using their preferred undertakers, instead of allowing Network Rail's contracted undertakers to operate.

30 Average delay minutes per incident according to the comments made on 10 key aspects of Network Rail's incident management



Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

31 Comments on third party involvement



Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

40 As **Figure 32** shows, the pattern is repeated for the most common category of incidents that third parties attend – fatalities and trespassing (of which we reviewed 53 incident reports). The British Transport Police and local police forces were particularly praised for the speed of their response to incidents, but a small number of negative comments were made about local police forces not informing Network Rail of their whereabouts on the track and delaying the resumption of services.

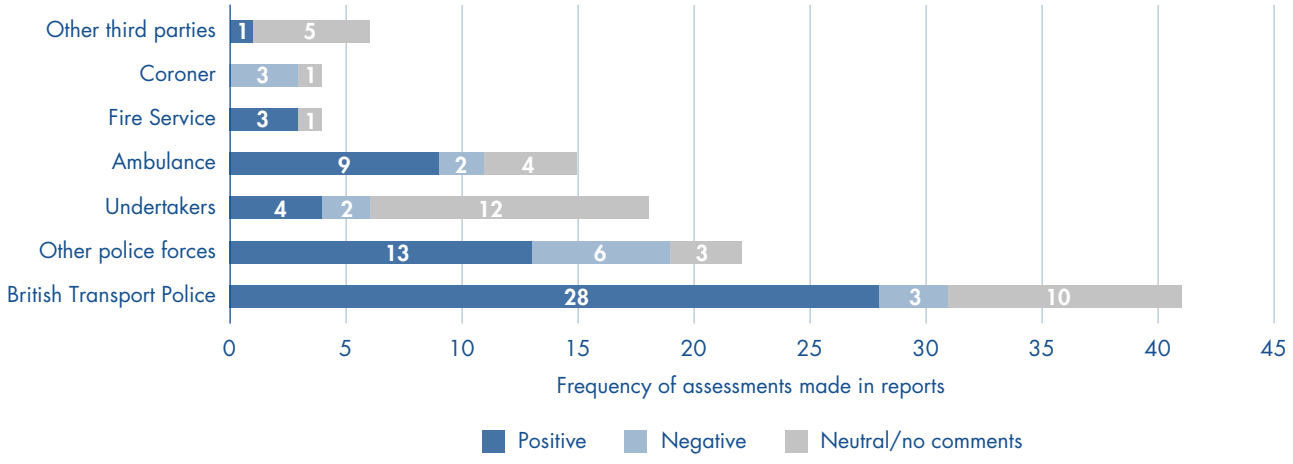
41 Delays were not significantly longer when third parties were involved. On average, incidents involving third parties resulted in 2,551 minutes of delay compared to 2,431 minutes where they were not involved. And we found no consistent relationship between the comments made by rail staff about third party involvement and the average delay minutes incurred per incident **(Figure 33)**. Most noticeably, incidents where the involvement of a fire and rescue service had been rated positively incurred far higher minutes for those incidents where its involvement had been rated poorly. However, this was due to the low number of incidents (two) where they had been rated poorly which were for relatively small fires which caused fewer delay minutes, compared to a larger number of major fires where they were rated more positively.

Analysis of Train Operating Company incident reports

42 **Figure 34** shows the results of our analysis of the comments made in the Train Operating Company incident reports. While many reports were silent or neutral in their comments on the factors with which we were concerned, the most frequently raised issues in the reports were about communication, both internally within Train Operating Companies and with their Network Rail colleagues. The most positive aspects commented on concerned the speed of the response and the diagnosis and repair of the problem itself.

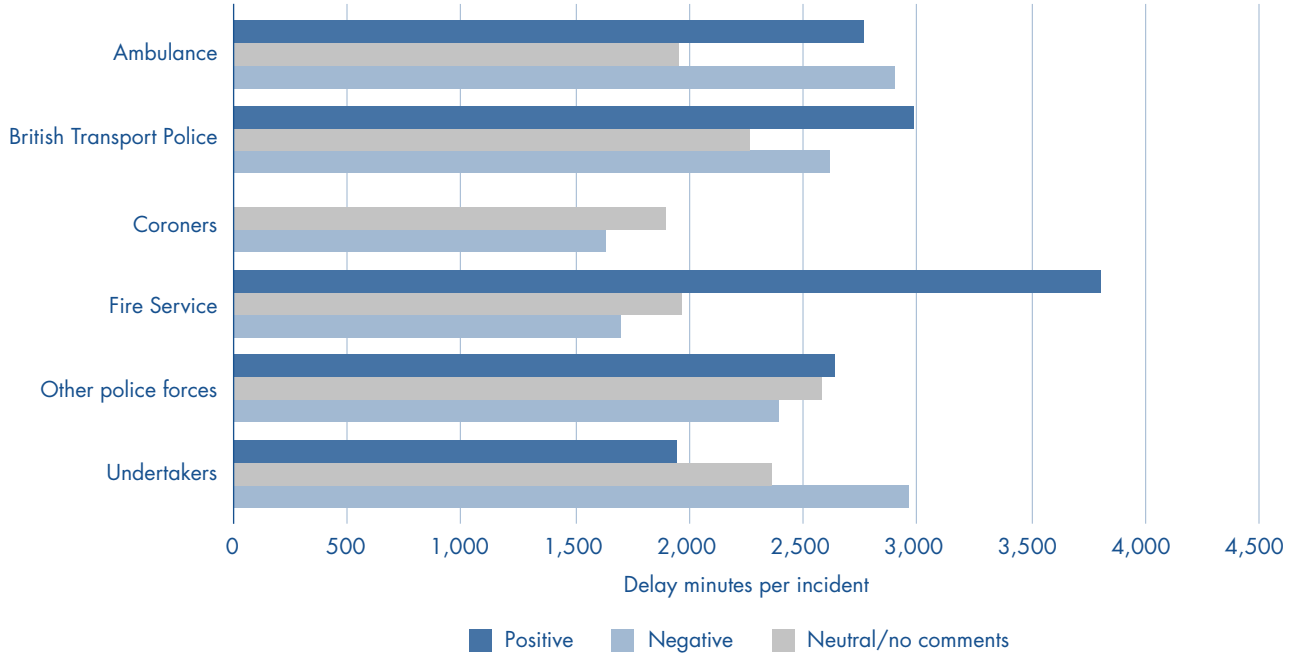
43 Of the 74 incident reports we reviewed, third parties (from outside the rail industry) were involved in 14 incidents. However, there were very few comments on how these third parties had contributed to the management of the incident. Three comments related to the presence of British Transport Police officers, of which two were positive and one negative. We also noted three comments on the shortage of replacement buses available when services were severely disrupted.

32 Comments on third party involvement in incidents involving trespassing and/or fatalities



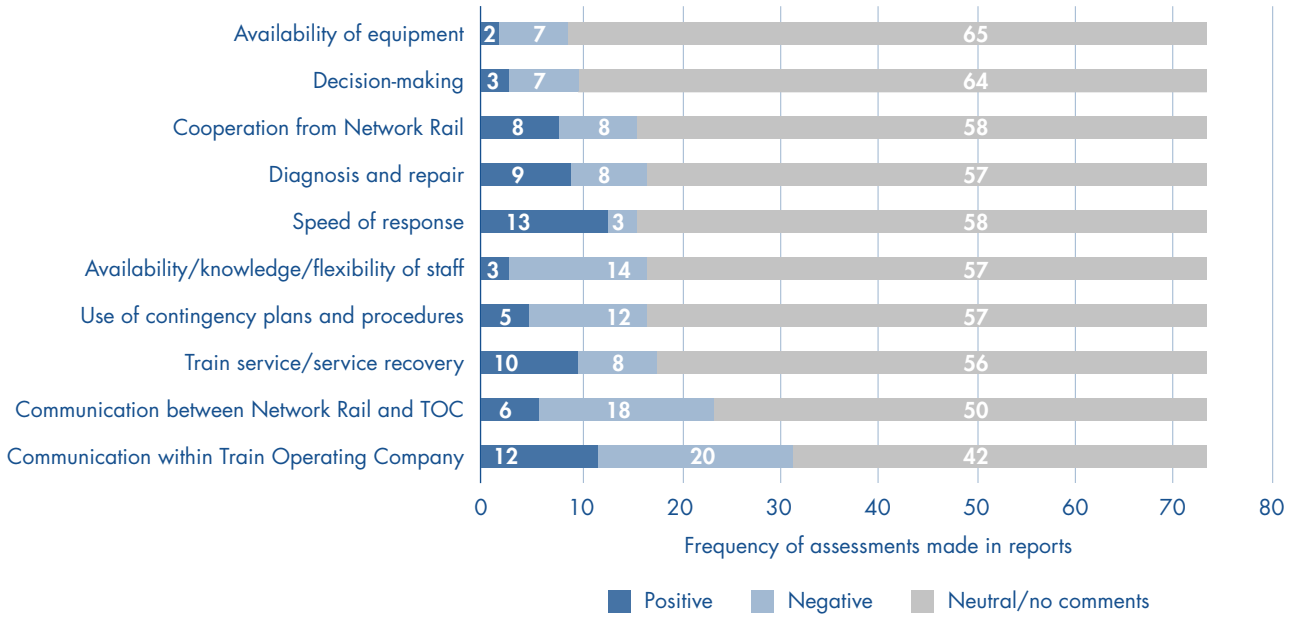
Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

33 Average delay minutes per incident according to the overall comments made on third parties attending incidents



Source: National Audit Office analysis of 412 Network Rail Significant Performance Incident Reviews

34 Comments made on incident management in Train Operating Company incident reports, 2006-07



Source: National Audit Office analysis of 74 Train Operating Company Significant Performance Incident Reviews

Analysis of National Passenger Survey data

44 Passenger Focus, the independent rail consumer watchdog, conducts the National Passenger Survey twice a year. Passenger Focus was formed in July 2005 to replace the Rail Passengers Council and regional Rail Passengers Committees. Although it is funded by the Department its independence is guaranteed by the Railways Act 2005. Passenger Focus also campaigns for passengers' rights, provides passengers with advice and helps to resolve complaints raised by passengers.

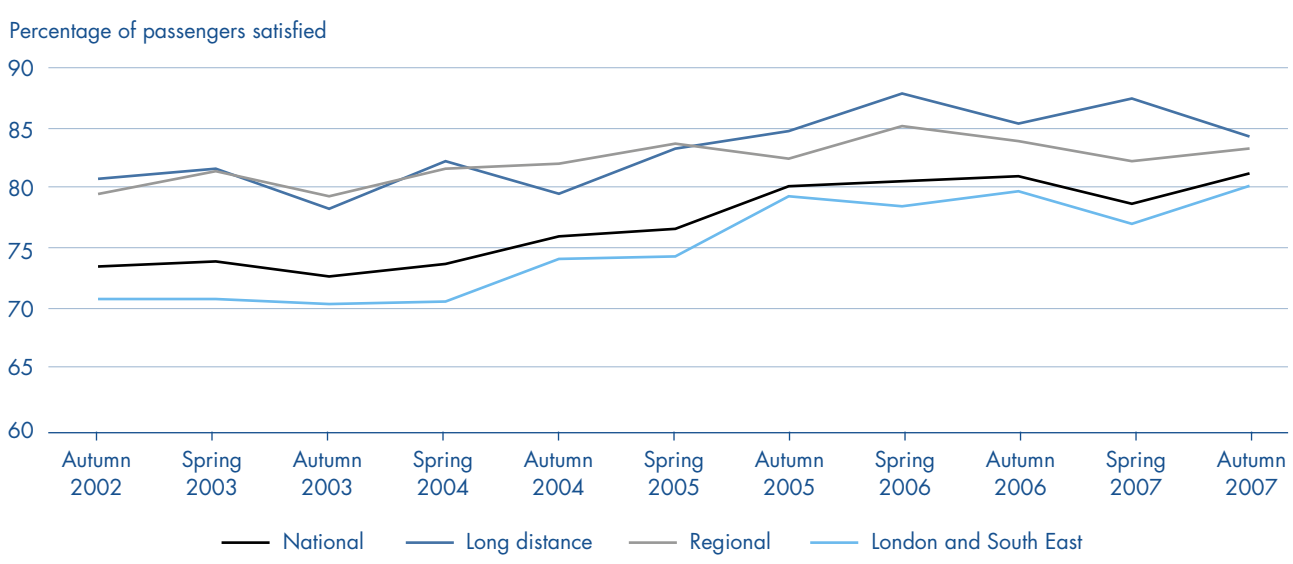
45 Passenger Focus carries out the fieldwork for the surveys over two 10-week periods in spring and autumn, gathering data from passengers through self-completion questionnaires which are distributed at different times of the day and on all days of the week at 650 stations across the network. Approximately 25,000 questionnaires are completed in each survey and passengers are asked to complete these in relation to a particular trip and Train Operating Company. Results for each question are presented in three main ways: nationally, by type of train operator (long distance, regional and London and the South East), and by individual Train Operating Company.

46 The National Passenger Survey is the only survey of its type that allows direct comparisons to be drawn between Train Operating Companies, and over time (it was set up by the now-defunct Strategic Rail Authority in autumn 1999, which passed responsibility for it to Passenger Focus in 2005). Individual Train Operating Companies do carry out surveys of their own services, but use different methodologies and ask different questions, meaning that the results are not comparable. When they were asked for their opinions of the National Passenger Survey in February 2006, Train Operating Companies agreed that the findings were consistent with the findings of their own surveys.[18]

47 Passenger satisfaction has improved over the last five years, as **Figure 35** shows. Nationally, 81 per cent of passengers rated their overall opinion of their journey as either satisfactory or good in autumn 2007, compared to 76 per cent in autumn 1999 and a low of 69 per cent in spring 2001. Passengers using long distance and regional services have consistently expressed higher satisfaction levels than passengers on services in London and the South East. The national results closely reflect those for services in London and the South East because more passengers use these services than long distance or regional services.

48 Passengers' opinions about the punctuality and reliability of services have also improved since 2002, with 79 per cent of passengers rating it satisfactory or good in autumn 2007 compared to 70 per cent in autumn 2002 **(Figure 36)**. Long distance services enjoy the highest satisfaction rating of 82 per cent, and have improved by 16 percentage points from the low point of autumn 2003.

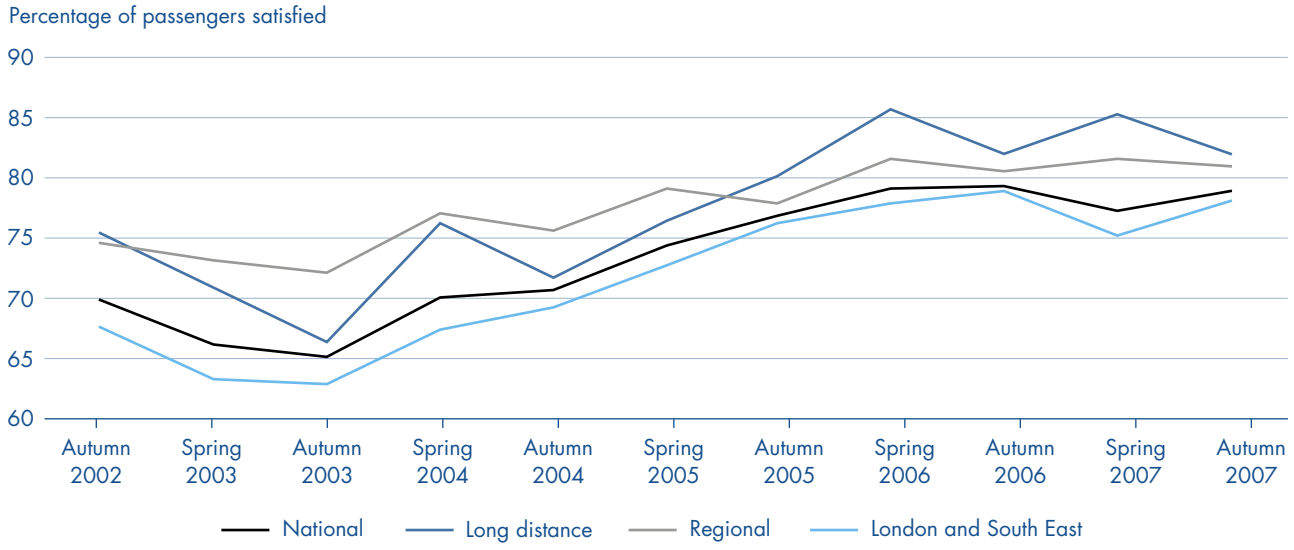
35 Percentage of passengers satisfied with overall journey, 2002 to 2007



Source: National Passenger Survey

18 Findings of a review of the National Passenger Survey, February 2006.

36 Percentage of passengers satisfied with punctuality and reliability, 2002 to 2007



Source: National Passenger Survey

49 Passengers rated the way that Train Operating Companies had handled the delays to their journeys consistently lower than they rated the overall journey or the punctuality and reliability of the service (Figure 10). Nationally, satisfaction has increased from 28 per cent to 35 per cent of passengers, although it was as high as 37 per cent in autumn 2006. Most noticeably, passengers of long distance services rated this aspect much more favourably than passengers on other services. **Figure 37** shows the range of reasons given by passengers who were dissatisfied with the way their delay had been handled (Figure 12 shows the trend since 2002 for the most commonly given reasons).

37 Reasons given by passengers who rated how well the Train Operating Company dealt with their delay as poor, Autumn 2007

Explanation given	Percentage of responses
Lack of information given	75
Lack of staff presence	41
Took too long to give information	26
Took too long to resolve problem	17
Incorrect information given	16
No alternative transport provided	13
Other reasons	24
Don't know/no answer	1

Source: National Passenger Survey

NOTE

Respondents were able to give more than one reason for rating the way the delay had been handled poorly.

APPENDIX THREE

Value of delays to passengers

1 Our calculation of the value of delays to passengers is based on the methodology used by the Department when appraising new transport schemes (the New Approach to Appraisal, available at http://www.webtag.org.uk/). This calculates how many minutes of peoples' time would be saved by a scheme, and multiplies this by the monetary value each person making use of the scheme would pay to reduce their journey time by a minute.

2 The model splits rail passengers into three groups, who each value their time differently. Business travellers have the highest value of time (the cost to their employer's business), followed by commuters and then other travellers. We then applied the Treasury GDP deflator to bring the values of time from 2002 to 2007 prices of £41.33, £5.64 and £4.99 per hour respectively. We then applied the "delay multiplier" factor of three to these values, which is used by the rail industry to recognise that unexpected delays are more costly to passengers.

3 The model also factors in the proportion of each passenger type that travels by train, which varies according to the time of day (such as a higher proportion of commuters between 7–10am and 4–7pm). For our calculation of the total delay cost from all delays we have used the Department's average figures for all journeys throughout the week (7.6 per cent business travellers, 52.2 per cent commuters and 40.3 per cent others). For delay costs of individual case studies we have applied the relevant splits calculated by the Department for different times of the day according to when the incident took place.

4 Using data from Network Rail and the Office of Rail Regulation we calculated the average number of passengers per train and applied the Department's percentage split to produce an average train containing 14 business travellers, 95 commuters and 73 other passengers. Multiplying these figures by their respective values of time produced an average of £73.47 per minute of delay for each train. For the individual case examples we estimated the number of passengers affected by using passenger data only for `those Train Operating Companies involved in the incidents. This resulted in estimates higher than the national average because the incidents affected Train Operating Companies with higher average passenger numbers. However, these are still average passenger numbers, and do not reflect the fact that the actual train loadings were likely to be higher than average because they occurred during peak times. The value of delays to passengers for the case examples are therefore likely to be underestimates.

5 For the overall national value of delays to passengers (£1.03 billion) we multiplied the average figure of £73.47 per minute by the total number of delay minutes to passenger services for 2006-07 of 14 million.

APPENDIX FOUR

Passenger compensation

38 Compensation levels for different lengths of delays, showing the percentage of the price of a single ticket due in compensation

Train Operating Company	30 minutes to 1 hour	1 to 2 hours	Over 2 hours
Arriva Trains Wales	20	100	100
Chiltern Railways	50	100	100
CrossCountry	50	100	100
c2c	0	50	50
East Midlands Trains	[1]	100	100
First Capital Connect	50	100	100
First Great Western[2]	0	200	200
First Great Western (former First Great Western Link services)[2]	100[3]	100	100
First Great Western (former Wessex Trains services)[2]	0	100	200
First ScotRail	50	100	100
First TransPennine Express	100	100	100
Gatwick Express	50	100	100
London Midland	50	100	100
London Overground	100	100	100
Merseyrail	0	20	20
National Express East Coast	50	100	100
Northern Rail	0	50	50
'one'	50	100	100
South West Trains (including Island Line)	0	100	100
Southeastern	50	100	100
Southern	0	50	100
Virgin West Coast	0	25	100

Source: Train Operating Companies' Passenger Charters

NOTES

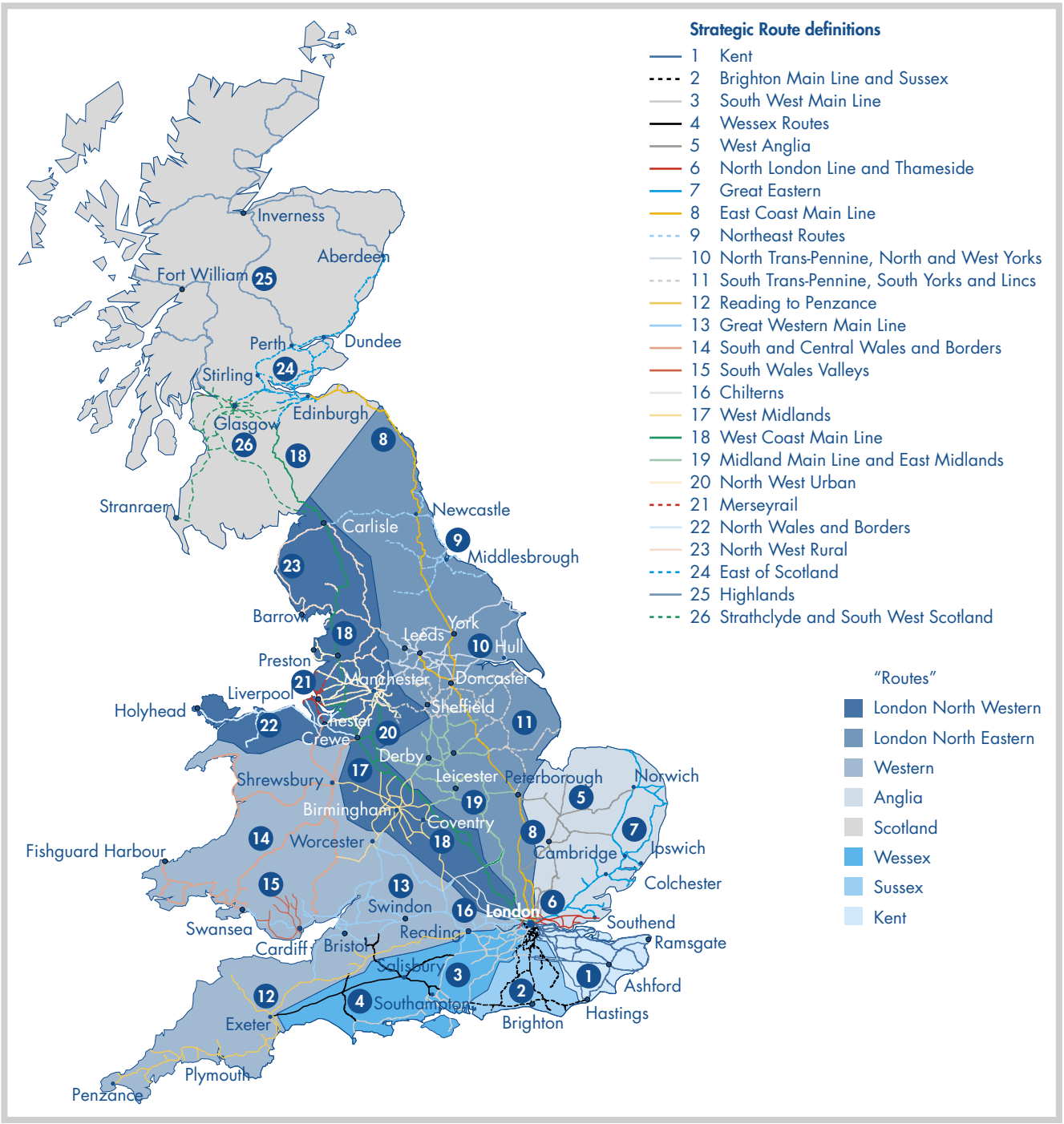
1 Claims treated on their merits.

2 The compensation arrangements for the First Great Western franchise are in line with those that existed when three previous franchises were merged in 2006. The figures for First Great Western reflect its decision, taken in January 2008, to increase the amount of compensation payable to passengers in light of the poor performance on its services. From January 2008 to January 2009 compensation will be double the rates that existed prior to January 2008. From January 2009 to January 2010 compensation will be 50 per cent higher than the rates that existed before January 2008.

3 Available for delays over 30 minutes on services of less than an hour.

APPENDIX FIVE

Network Rail route map



GLOSSARY

Acetylene	A gas, used for industrial tasks such as welding and cutting, which can decompose explosively when subjected to high temperature or mechanical shock, possibly causing the cylinder to explode.
Ambulance Service Network	Represents the 16 NHS ambulance services across England, Wales and Northern Ireland aiding them in providing the highest standards of clinical care. This organisation was created in January 2008 when the Ambulance Service Association merged with the NHS Confederation.
Association of Train Operating Companies	An unincorporated association owned by its members, the Train Operating Companies. It is the official voice of the passenger rail industry and provides its members with a range of services that enable them to comply with conditions laid on them in their franchise agreements and operating licences.
British Transport Police	The national police force for the railways providing a policing service to rail operators, their staff and passengers throughout England, Wales and Scotland.
Chief Fire Officers' Association	The professional voice of the United Kingdom Fire Service, assisting and supporting its members to fulfil their leadership role in improving the well being of local communities in all matters relating to the Fire Services' activities.
Delay/Repay	A new, standardised, system to compensate passengers for delays currently being introduced with the award of new franchises. Passengers will be entitled to claim compensation for all delays, regardless of the cause.
Department for Transport	Provides funding and strategic direction for the rail industry through a five year High Level Output Statement and Statement of Funds Available. Also responsible for specifying and letting contracts to Train Operating Companies to run franchised passenger services in England and inter-city services to and from Scotland and Wales.
Highways Agency	The Highways Agency is an Executive Agency of the Department for Transport, responsible for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport.
Network Code	A common set of rules that apply to all parties who have a contract for rights of access to the track owned and operated by Network Rail. The Network Code is incorporated into, and therefore forms part of, each such bilateral contract.
Network Rail	Network Rail is the owner, operator and infrastructure manager of the main railway. It is a private company limited by guarantee but without shareholders. Instead it has members drawn from the rail industry and the public. It is accountable to its members and regulated by the Office of Rail Regulation.

Office of Rail Regulation	An independent statutory body established on 5 July 2004 under the Railways and Transport Safety Act 2003. Its primary economic function is to apply independent, fair and effective regulation to ensure that Network Rail manages the network efficiently and in a way that meets the needs of its users.
Passenger Focus	An independent public body set up by the Government and funded by the Department for Transport to protect the interests of Britain's rail passengers. It conducts the biannual National Passenger Survey, which is completed by approximately 25,000 passengers each wave.
Public Performance Measure	The percentage of franchised passenger trains arriving at their destination on time, including all delays and cancellations, regardless of cause.
Railtrack	The private company responsible between 1996 and 2002 for the operation and ownership of Britain's rail infrastructure. It went bankrupt in October 2001, and was in Railway Administration until it was replaced by Network Rail in October 2002.
Railway Operational Code	A part of the Network Code created to sustain the operation of train services on the network and restore operation of the network following disruption.
Significant Performance Incident Review	A review of the cause and management of an incident on the rail network performed by Network Rail and Train Operating Companies conducted within a few days of the incident to highlight areas for improvement and identify lessons to be learned.
Train Operating Companies	As at 1 January 2008 there were 20 franchised Train Operating Companies operating passenger rail services in Great Britain.
Transport Scotland	Launched in January 2006 as an executive agency of the Scottish Executive directly accountable to Scottish Ministers, Transport Scotland has responsibility for the majority of rail powers in Scotland, including responsibility for awarding the franchise for passenger services in Scotland.
Welsh Assembly Government	A co-signatory to the Wales and Borders Franchise, and responsible for managing service levels and regulated fares for Wales only and Welsh services.

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Reducing passenger rail delays by better management of incidents

A report by the Comptroller and Auditor General

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