



Technical Support for Shadow Running of Compensation Regime for Freight Operators
Final Report

Possessions Compensation Policy Group
9 July 2008

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1. Background

1 Background

1.1 Background

Under the current arrangements, freight operators are compensated by Network Rail for possessions by two mechanisms:

- Under Schedule 4 of the Track-Access Agreements, freight operators are compensated for short-notice RoUs that have not been notified in all material aspects by 12 weeks of the timetable day (T-12).
- Freight operators can also claim for the disruptive effects of Network Change RoUs under Part G of the Network Code.

The Network Code Industry Steering Group (ISG) has been asked to review the arrangements for compensation, and has proposed revised arrangements as follows:

- That the current provisions for compensation for disruption caused through possessions which have not been notified in all material respects by T-12 should remain in place and be unaffected by this review.
- That provision under Part G of the Network Code should be removed, and instead should be replaced with an additional tier of compensation within a freight Schedule 4 mechanism.
- This additional tier of compensation should compensate for extreme levels of planned disruption caused by possessions advised before T-12, and provide a broadly equivalent level of financial protection as under Part G of the Network Code.
- The additional mechanism should work in a similar way to the existing Service Variation mechanism. A set of disruption criteria will be identified, and operators will identify services which trigger these criteria, with these services then being verified by Network Rail. This meets the ISG objective that the compensation available should be a function of the scale and impact of disruption rather than of the type of work being carried out in possessions.

This report summarises the outputs of this review process.

1.2 Principles of a New Mechanism

We have identified a number of issues of principle that need to be addressed in determining how the new compensation mechanism might be configured:

- Freight train operators should receive some compensation for the disruption caused to their services by possessions, proportionate to the impact of the possessions upon their costs.
- Existing arrangements within current Schedule 4 for possessions notified after T-12 should be left unchanged by these proposals.
- The annual sum to be disbursed by Network Rail by the new compensation mechanism should be broadly comparable with that currently paid out in settlement of claims dealt with under Part G of the Network Code ("Network Change").
- The compensation arrangements proposed should be applicable to all possessions affecting all Freight services (i.e. there should no longer be a distinction drawn between Part G possessions and others).
- That the new compensation mechanism should:
 - incentivise Network Rail to plan possessions, and re-schedule freight services in a way that minimises detriment to freight business on rail, and
 - does not involve complex and costly transactions.

Deriving a new mechanism that conforms to these principles will remove the weaknesses of the existing system. The main weakness is the incentive on all parties to dispute whether or not a possession is covered by Part G of the Network Code. As operators can claim compensation for a network change, there is also an incentive for Network Rail to only renew on a like-for-like basis, and thus avoid a network change.

1.3 Summary of outputs

The output from this review process has been to propose a two-tiered mechanism, with a liquidated damages regime for the majority of possessions, and the provision to claim actual costs beyond a set of thresholds for extreme circumstances.

Within the liquidated damages regime, there would be two rates, differing by a factor of 10. Compensation would be provided at the higher rate for loaded services which suffer one of:

- A cancellation;
- A gauge restriction;
- The need for an extra loco or the substitution of a diesel locomotive.

Compensation would be provided at the lower rate for loaded services which suffer one of:

- A departure time change of more than 60 minutes;
- An arrival time change of more than 60 minutes;
- A mileage change of more than 10 miles.

Actual costs could be claimed if any one of the following thresholds applies:

- Access to a terminal is blocked.
- A gauge-cleared route to the terminal is not available for more than 60 hours;
- Goods need to be transported by road;
- One or more diesel units had been added or have replaced electric traction.

Additionally, the difference in value between the formulaic compensation mechanism and the actual cost for trains affected in this way by the possession should exceed a minimum value to be determined, possibly of £10,000 per possession.

1.4 The rest of the report

The rest of this report contains:

- Our assumptions about the overall level of compensation that the new mechanism will provide;
- An estimate of the actual costs to operators of possessions;
- A discussion about a method to make special provision for extremely disruptive possessions;
- A discussion about the most appropriate set of compensation triggers, and some example liquidated sums compensation regimes.

The appendix to this report describes the process we have gone through to generate the matrix of data on which the calculations in this report are based.

2. Deriving a New Compensation Regime

2 Deriving a New Compensation Regime

2.1 Setting the overall level of compensation

The annual sum to be disbursed by Network Rail under the new compensation mechanism should provide a broadly equivalent level of financial protection as under Part G of the Network Code.

The train operators do not have a complete set of historic claims under Part G of the Network Code for the previous financial year 2007/08. This is either because they have not been able to capture their costs in sufficient detail to make a claim, or because they have yet to make the claim. This means that the historic payments over 2007/08 will be lower than total value of compensation under Part G that the operators were entitled to.

Network Rail's records suggest that that the annual payments to freight operators under Part G for 2007/08 were around £6.3m.

In the absence of further information, we have rounded this up and assumed that a total annual compensation of **£10m** is reasonable. As the total value of compensation from the new regime is still under review, if the £10m figure is revised, this will need to be fed through to the rest of the calculations in this report.

2.2 Factoring down to periods 12 and 13

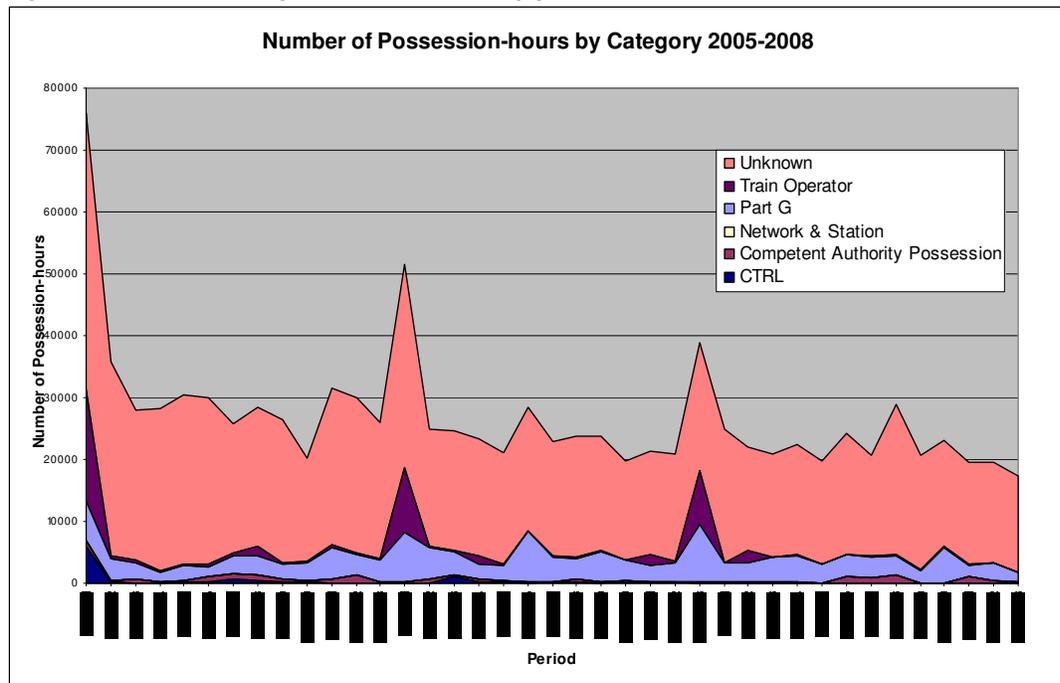
In order to test different options for the new compensation regime, we have derived a matrix of trains affected by potential compensation triggers. This matrix has been based on periods 12 and 13 of financial year 2007/08. We need to be able to derive the total value of compensation for these two periods.

Previous analysis of PPS data, suggested a ratio of 6.35 to factor up from period 12 and 13 possessions to the whole financial year (Faber Maunsell report *InterimReport_080602.doc*). However this analysis weighted every possession equally, irrespective of duration/impact etc.

We have now revised this analysis to take into account the duration of the possession. Figure 2.1 demonstrates that the final two periods (12 and 13) have a lower number of hours of possessions than the average for the whole year. This gives a revised ratio of **7.7** to factor from periods 12 and 13 to the whole year.

Based on a total annual compensation of £10m, the compensation for periods 12 and 13 would be **£1.3m**. This is a revision from the previous figure of £1.5m, which was based on the old factor of 6.35.

Figure 2.1 – Number of possession hours by period



2.3 Estimating the actual costs of possessions

To date we do not have information on the actual costs of possessions. In order to get an idea of the order of magnitude of costs, we have applied the current Schedule 4 rates to all services affected by possessions in periods 12 and 12 of 2007/08. This assumes that:

- Each cancellation is compensated at £1,000;
- Each service variation is compensated at £450 per instance.

where the definition of a cancellation and a service variation is as for Schedule 4.

Schedule 4 allows for one claim per round trip. As the timetable data has not allowed us to easily identify the parts of a round trip, we have taken loaded journeys as a proxy for a round trip.

Table 2.2 – Estimated costs under Schedule 4 rates

	No. of Services	Rate	Costs
Cancelled (loaded services only)	611	£1000	£ 611,000
Service Variation (loaded services only)	1971	£450	£ 886,950
Gauge restriction	143		
Diesel substitution or extra loco	55		
Mileage changed by > 5 miles	1451		
Start time changed by > 30 minutes	130		
End time changed by > 30 minutes	161		
Additional reversing move	31		
Not affected	932	£	-
Not loaded	1138	£	-
Total	4652		£ 1,497,950

To test the sensitivity of the results to the parameters of 5 miles and 30 minutes, we have calculated the number of services meeting each criterion under various scenarios:

Table 2.3 - Compensation under Schedule 4 rates for various trigger thresholds

	5 miles 30 mins	10 miles 30 mins	20 miles 30 mins	10 miles 60 mins	20 miles 60 mins	20 miles 120 mins
Cancelled	611	611	611	611	611	611
Service Variation	1971	1660	1372	1508	1110	901
Gauge restriction	143	143	143	143	143	143
Diesel substitution or extra loco	55	55	55	55	55	55
Mileage changed	1451	1016	506	1016	506	506
Start time changed	130	173	281	112	148	40
End time changed	161	225	332	123	171	52
Additional reversing move	31	48	55	59	87	105
Not affected	932	1243	1531	1395	1793	2002
Not loaded	1138	1138	1138	1138	1138	1138
Total	4652	4652	4652	4652	4652	4652
Total Cost (£000s)	£ 1,498	£ 1,358	£ 1,228	£ 1,290	£ 1,111	£ 1,016

When a journey experiences more than one form of service variation, each journey is counted only against the “first” category of variation. Therefore, when the mileage parameter is tightened, the number of services that meet the mileage change criteria reduces from 1451 to 1016. Some services which have a mileage change between 5 and 10 miles and an additional reversing move were previously captured in the 1451, but now move to the start time category, which increases from 130 to 173.

The current Schedule 8 review has identified an average cost of a cancellation of £4,000. This higher rate will apply when the number of cancellations goes beyond a benchmark level. In the analysis above, increasing the cancellation rate from £1,000 to £4,000 would increase the costs from around 1.5 million to 3.3 million:

Table: 2.4 – Estimated costs under revised Schedule 4 rates

	No. of Services	Rate	Costs
Cancelled (loaded services only)	611	£4000	£ 2,444,000
Service Variation (loaded services only)	1971	£450	£ 886,950
Gauge restriction	143		
Diesel substitution or extra loco	55		
Mileage changed by > 5 miles	1451		
Start time changed by > 30 minutes	130		
End time changed by > 30 minutes	161		
Additional reversing move	31		
Not affected	932		£ -
Not loaded	1138		£ -
Total	4652		£ 3,330,950

Although these calculations give an order of magnitude for the actual costs incurred by operators as a result of possession, the new compensation mechanism is not intended to cover all operator costs and losses. The objective is to only capture extremely disruptive possessions, and to provide a broadly equivalent level of financial protection as under Part G of the Network Code.

2.4 Provision to use actual costs instead of the new compensation mechanism

We understand that there will always be possessions or groups of possessions which will have an extremely significant impact on train operators. In such extreme cases any formulaic compensation mechanism will be inadequate, and therefore some provision should be made to allow operators to claim on an actual costs basis beyond a defined set of thresholds. The thresholds selected must not be ambiguous or subject to dispute. It is also preferable for the thresholds to be based on criteria that can be known as early as possible in the possession planning process.

Discussion with the operators has suggested the actual costs should be claimed if any one of the following thresholds applies:

- Where access to a terminal is blocked. This would include situation where the transport of goods to the terminal was not possible due to gauging issues.
- Where goods need to be transported by road.
- Where one or more diesel units had been added or have replaced electric traction.

In addition, the difference in value between the formulaic compensation mechanism and the actual cost must be greater a minimum amount (e.g. £10,000) per possession.

We assume that moving from the basic cost compensation scheme to a scheme to cater for exceptional circumstances, will be administered on the basis that the train operator will file a claim, supporting that claim by reference to these criteria. The requirement on the part of the operator to submit a claim with supporting documentation should help to prevent the situation where the transaction costs of making a claim are higher than difference between the formulaic compensation mechanism and the actual costs.

We envisage that the regime will operate in such a way that operators will be able to claim under the basic cost compensation mechanism for all affected services that meet the necessary criteria. In addition, operators will be able to choose to make an additional claim for actual costs, if at least one of the actual costs thresholds is met. The basic cost compensation would be subtracted from the claim based on actual costs.

2.4.1 *Possession duration as a threshold*

There is still concern on the part of some operators that the extremely disruptive thresholds described above will not necessarily identify all extreme cases where an operator would want to claim actual costs. The other type of threshold that has been discussed is trigger based on the duration of the possession.

However the convention of using duration of possession as a measure of the severity of impact of a possession has its origins more in the terms of the Passenger Track Access Contract (Schedule 4), and relates primarily to the extent to which weekend disruption intrudes into the normal passenger working week. For freight operators, the length of possession is not necessarily a good indicator of seriousness of the impact. For example, a 24 hour possession and a 3 hour possession in the same location might impact an operator to exactly the same extent, if they only have one path through the location in the 24 hour period, and it happens to fall in the 3 hour window. This is a particular issue in relation to mid-week night possessions.

Table 2.6 shows the number of services by the duration of the possession which potentially affected them.

Table: 2.6 – Number of services affected by possessions by duration

Possession Duration (hours)	No. of Services	No. of Loaded Services	% of Loaded Services
0-6	1887	1451	41%
6-12	1556	1155	33%
12-24	72	44	1%
24-48	344	240	7%
48-54	255	206	6%
54-60	60	36	1%
60-120	260	196	6%
120 plus	218	186	5%
Total	4652	3514	100%

Our view is that it would be better to find other criteria than a duration based threshold. A threshold of 60 hours will add 382 more services to those that meet the thresholds for an actual costs claim. In our view this would be too many. Even a threshold of 120 hours would almost double the number of services currently identified.

2.4.2 *Estimating actual costs of services triggering extremely disruptive thresholds*

In section 2.1 we discussed the size of annual sum to be disbursed by Network Rail under the new compensation mechanism. We concluded that we would work with a value of £10m, or £1.3m over our two sample periods. Now we need to deduct the value of the actual costs for the services which would trigger these extremely disruptive thresholds, and therefore be compensated on an actual costs basis.

In our two sample periods, we have identified 104 services which we have assumed were affected by one or more of the extremely disruptive thresholds and therefore would allow the operator to claim actual costs. We were not able to get complete information about these services from all operators. In particular, we have had to assume that any gauge restrictions caused by possessions over 60 hours in length will prevent goods from reaching the terminal. Although our 104 services are not necessarily the correct list of services which pass the thresholds, they represent about 2% of the total 4652 services. Our view is that this is the right kind of proportion of services to be treating as exceptional circumstances during the two periods of historic data.

We need to estimate the actual costs of these 104 services. We have assumed a value of £4000 for every loaded service. This gives a total of **£0.33m**:

Table: 2.5 – Estimated claim for services above the thresholds (“Yellow Flags”)

	No. of Services	Rate	Costs
Cancelled (loaded services only)	0	£4000	£ -
Gauge restriction	14	£4000	£ 56,000
Diesel substitution or extra loco	55	£4000	£ 220,000
Amended origin	6	£4000	£ 24,000
Amended destination	5	£4000	£ 20,000
Mileage changed by > 10 miles	0	£4000	£ -
Start time changed by > 60 minutes	0	£4000	£ -
End time changed by > 60 minutes	0	£4000	£ -
Not affected	3	£4000	£ 12,000
Not loaded	21		£ -
Total	104		£ 332,000

2.5 Triggers for the new compensation mechanism

In recommending suitable triggers for a new compensation mechanism, there are number of principles that we need to bear in mind:

- Any criteria that trigger a compensation payment should incentivise Network Rail to manage possessions in the way that best minimises both disruption and detriment to Train operators;
- The criteria should be easy to understand, and as far as possible should reflect the commercial issues that arise as a result of disruption;
- The criteria should be easy to identify, so that the new mechanism is easy to administer.

The possible compensation triggers that we have collected data for are:

- The affected service is cancelled;
- The affected service commences its journey from an alternative origin;
- The affected service has to operate to an alternative destination;
- The planned departure time differs from that of the original service by more than 'X' minutes;
- The planned arrival time at destination differs from that of the original service by more than 'X' minutes;
- The end to end journey of the affected service exceeds that of the original service by more than 'Y' miles;
- The imposition of any more demanding length, weight or gauge restrictions for the affected service;
- The use of at least one additional locomotive on the affected service or use of a diesel locomotive as a substitute for an electric locomotive;
- The addition of at least one planned reversing movement for the affected service.

Of the 4652 individual services (single journeys) where a service would probably have been required to operate in the path or paths obstructed by the possessions, we found that 907 of these single journeys were cancelled. Of 3745 services which ran, 1652 appear to have run in their booked paths (i.e. the possession was cancelled, or was modified to accommodate the service subsequent to the Informed Traveller summaries), and the other 2093 ran, but were subject to one or more forms of "Service Variation".

Table: 2.7 – Single journeys in periods 12 and 13

	Total no. of single journeys		
	Total	Loaded	Not Loaded
Single Journeys Cancelled	907	611	296
Not affected/ ran in booked path	1652	1334	318
Journeys operated subject to Service Variation	2093	1569	524
Total	4652	3514	1138

We have further analysed the "Journeys operated subject to Service Variation", by the nature of the variation, according to a number of criteria (Table 2.8).

In the left hand part of the table every instance of every kind of service variation is quoted: those journeys that experience more than one form of service variation are multiple counted. This gives us a crude ranking of the most frequent cause of Service Variation. In the right hand analysis each journey is counted only against the "first" (within the terms of the left hand ranking) category of variation that it experiences. Thus, a service which has a change in end

time of more than 60 minutes and a mileage change of more than 10 miles will only appear in the mileage change category. Of the 591 journeys where the “End time changed by > 60 minutes”, 277 (= 591 - 314) also qualified as “Mileage changed by > 10 miles”.

Table: 2.8 – Journeys subject to service variation

Type of Service Variation	Total no. of single journeys			Single journeys by “first” cause of variation		
	Total	Loaded	Not Loaded	Total	Loaded	Not Loaded
Mileage changed by > 10 miles	1353	1101	252	1353	1101	252
End time changed by > 60 minutes	591	388	203	314	198	116
Start time changed by > 60 minutes	478	270	208	88	43	45
Amended origin	324	154	170	71	22	49
Amended destination	285	193	92	60	45	15
Additional reversing move	289	182	107	102	58	44
Length/weight/gauge restriction	143	143	0	93	93	0
Extra loco	35	29	6	2	1	1
Diesel substitution	28	26	2	10	8	2
Total				2093	1569	524

The tables above allow us to draw two simple conclusions

- Of the services which were ultimately affected by a possession, approximately 25% resulted in cancellation, whereas 75% operated under some form of variation;
- The incidence of different causes of variation ranges widely.

2.5.1 *Triggers with significant impact on the ability of a operator to trade*

Not all of the possible compensation triggers are of equal impact. The criteria can be differentiated qualitatively, as between those cases which add an element of pro-rata incremental cost (extra mileage being the obvious example), those which require a significant extra lump of cost (e.g. an extra loco), and those which effectively prevent the train operator from trading, and directly impact upon tonnes lifted (any cancellation, or the lack of a diversionary route with compatible gauge characteristics). It is clearly not the case that the scale of impact on the train operators will be similar for each cause of service variation.

Our recommendation is that a compensation mechanism should differentiate between those potential impacts of possessions that are financial show-stoppers, and those which are more by way of aggravations. A compensation regime that is focussed on the “show stoppers” is likely to be more effective at encouraging “better behaviour”. Therefore our recommendation is to choose a mechanism which has a tighter definition of triggers, and a higher compensation rate per incident.

Discussion with the operators suggests that the triggers which have a significant impact on the ability of an operator to trade and/or adds a significant extra lump of cost are:

- A cancellation;
- A gauge restriction;
- The need for an extra loco or the substitution of a diesel locomotive.

Other significant triggers are:

- A departure time change of more than X minutes;
- An arrival time change of more than X minutes;
- A mileage change of more than Y miles.

The view of the operators is that the cost impact of the first three triggers is about ten times the impact of the second three triggers.

2.6 Options for a liquidated sums compensation mechanism

We have already assumed that the overall value of the regime is to be £10m, or £1.3m in periods 12 and 13, and that in periods 12 and 13 a total of £0.33m would be claimed for services which meet the thresholds which allow the operator to claim actual costs, this leaves £0.97m be disbursed in a liquidated sums regime.

The following series of tables show a number of options for a liquidated sums regime. Services which meet the extremely disruptive thresholds which would allow the operator to claim actual costs have been removed.

In each option, we have assumed that there are a number of criteria which have very significant impact, and that these are compensated at ten times the value of the other criteria.

Table: 2.9 – Liquidated Sums Regime Example 1

	No. of Services	Rate	Costs
Loaded Cancellation	611	£1,110	£ 678,210
Loaded Gauge restriction	129	£1,110	£ 143,190
Loaded Diesel substitution or extra loco	0	£1,110	£ -
Loaded Amended origin	144	£111	£ 15,984
Loaded Amended destination	172	£111	£ 19,092
Loaded Start time changed by > 60 minutes	170	£111	£ 18,870
Loaded End time changed by > 60 minutes	190	£111	£ 21,090
Loaded Mileage changed by > 10 miles	631	£111	£ 70,041
Not affected	1384		£ -
Not loaded	1117		£ -
Total	4548		£ 966,477

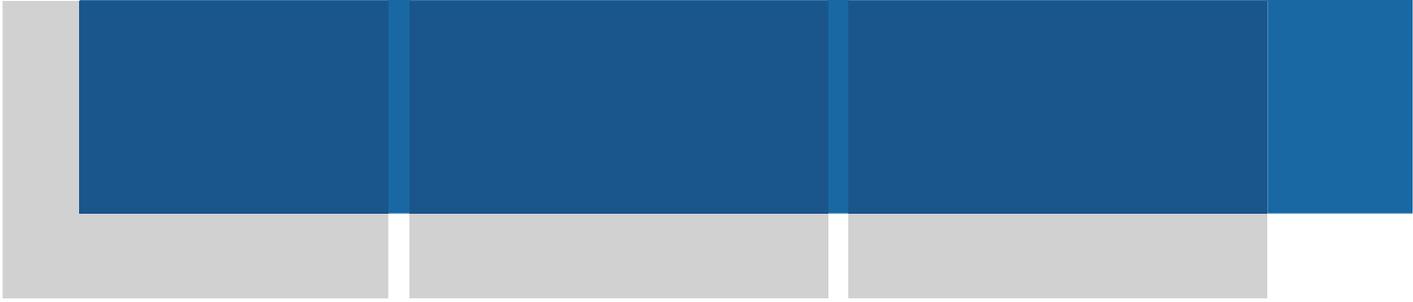
Table: 2.10 – Liquidated Sums Regime Example 2

	No. of Services	Rate	Costs
Loaded Cancellation	611	£1,120	£ 684,320
Loaded Gauge restriction	129	£1,120	£ 144,480
Loaded Diesel substitution or extra loco	0	£1,120	£ -
Loaded Start time changed by > 60 minutes	265	£112	£ 29,680
Loaded End time changed by > 60 minutes	273	£112	£ 30,576
Loaded Mileage changed by > 10 miles	702	£112	£ 78,624
Not affected	1451		£ -
Not loaded	1117		£ -
Total	4548		£ 967,680

Table: 2.11 – Liquidated Sums Regime Example 3

	No. of Services	Rate	Costs
Loaded Cancellation	611	£1,210	£ 739,310
Loaded Gauge restriction	129	£1,210	£ 156,090
Loaded Diesel substitution or extra loco	0	£1,210	£ -
Loaded Start time changed by > 120 mins	99	£121	£ 11,979
Loaded End time changed by > 120 mins	91	£121	£ 11,011
Loaded Mileage changed by > 20 miles	397	£121	£ 48,037
Not affected	2104		£ -
Not loaded	1117		£ -
Total	4548		£ 966,427

Our recommendation for a new compensation regime would be to develop a two-tiered mechanism, with a liquidated damages regime as in Table 2.11 for the majority of possessions, and the provision to claim actual costs beyond a set of thresholds, as described in Section 2.4 above.



3. Appendix

3 Appendix

3.1 Summary

We have created a matrix of services affected by possessions against a set of possible compensation triggers. This data has been collected for periods 12 and 13 of financial year 2007/08 for the following freight train operators:

- EWS;
- Freightliner Intermodal;
- Freightliner Heavy Haul;
- GB Railfreight.

The source data for the matrix was a set of Informed Traveller/Engineering Notices which listed 16,250 timetabled services potentially affected by a possession. This gross total includes timetabled paths for services which may well not run on every occasion, and some duplicate records where, for example, the same service is affected by more than one possession, or the paths affected are parts of Y paths. We have reduced the 16,250 services to a list of 4652 individual services (single journeys) where a service would probably have been required to operate in the path or paths obstructed by the possessions.

This appendix sets out the process by which we have arrived at the matrix of 4642 services affected by possessions by potential triggers. The purpose of the appendix is to capture the complications that we have come across. This is with a view to identifying where there are likely to be difficulties in implementing such a system as part of a compensation mechanism.

We have circulated the matrix to the train operators. The only concern raised has been that the number of cancellations identified for Freightliner is probably too high. Freightliner are content that we have implemented our stated methodology correctly, but suggest that many of the services flagged as cancelled would actually be run on an alternative day. However, it has been agreed that there is no easy way of identifying which cancellations genuinely represent loss of business, and which are replaced by a path taken up an alternative day.

A summary of the main problems that we have encountered in constructing the matrix are as follows:

- T-12 documents are not in a consistent format from operator to operator and sometimes even within the same operator;
- The T-12 documents do not give a reliable description of the effect of the possession on a train. For example a train marked as liable to be cancelled may subsequently be reinstated, and run;
- Complications in distinguishing between service variations as a result of the possession or as a result of other operational and commercial reasons;
- Determining whether the path of a cancelled train would have been taken up in the absence of a possession;
- Removal of unused Y-path options and other duplicate records;
- Some trains do not have an official base schedule in the WTT despite running regularly (e.g. Z headcode trains);
- Trains subject to permanent base timetable recasts between the publishing of the T-12 documents and the date of the possession.

3.2 Identifying services affected by a possession

At our progress meeting on 28 April, we discussed a definition of services that are affected by a possession and therefore potentially eligible for compensation. Our conclusion was that the definition should include all paths planned before the possession, irrespective of when that path was taken up. More formally, this definition becomes:

Those Train Slots incorporated into TSDB as operable on the date in question, by the date at which the possession is first proposed.

We have identified this list of trains from the following sources:

- EWS - T-4 Informed Traveller documents;
- Freightliner Intermodal – Engineering Notices;
- Freightliner Heavy Haul – Engineering Notices;
- GB Railfreight – list supplied by Kevin Crane.

3.2.1 Removing overlap with Schedule 4

From these documents, we have removed the possessions which were notified after T-12 and therefore were covered by Schedule 4.

Where the same train is affected by a possession notified in advance of T-12, and also by a possession covered by Schedule 4, disruption to these services should only be paid for once under Schedule 4. We have also removed any services that we could identify in this category. Whilst we have a full list of services paid for under Schedule 4, it is not easy to match up the data in the current format.

3.2.2 Extracting data from Informed Traveller/Engineering Notices

These documents are free-form Word files, and therefore extracting the information into some form of standardised database is difficult. Within a file, the format of each row is generally the same, but not always. The Informed Traveller documents are also a slightly different format to the Engineering Notices.

For each possession, the affected services are listed in a format similar to the extract below:

```
GW500 P2007/939454, 957492 -94  
HEYWOOD ROAD JN -FAIRWOOD JN  
DOWN AND UP AVOIDER BLOCKED.  
2200 FSX -0600 MSX
```

```
6A20 2044 FSX WHATLEY QUARRY -ACTON T.C. via Swindon HAW.PAD.113  
(CONSTRUCTION STABLE)
```

```
7C43 2309 THO HINKSEY SDGS -WESTBURY DOWN T.C. via Newbury  
(NETWORK NDS NON-STABLE)  
Divert from Didcot North Jn., via Swindon, Wootton Bassett Jn.,  
Thingley Jn.,Bradford Jn., Hawkeridge Jn., Westbury.
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6C50 1940 FSX ACTON T.C. -WHATLEY QUARRY via Swindon (CONSTRUCTION  
STABLE)
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There are a number of issues with the data in these T-12 documents which makes extracting the information difficult:

- In the example above the possession runs 2200 FSX – 0600 MSX, and this affects the 6A20 which runs FSX. Here the FSX note against the 6A20 does not describe the days that the train runs on, but the days that the possession potentially affects the train. This single record needs expanding to four records for the 6A20 on Monday – Thursday.

- However, In the case of Freightliner Heavy Haul documents the FSX note *does* refer to the occurrence of that train in the timetable. The train may or may not be affected by the possession on all these days. The days on which this train was actually affected by the possession has to be deduced from the information on the start and end times and dates of the possession.
- The informed traveller and engineering notice documents cover a period from Saturday to Friday inclusive. For Friday trains care has to be taken to deduce the date of the train affected by the possession as this could refer to a train affected by a Friday night to Saturday morning possession at the beginning of the week or on Friday during the day at the end of the week. This was sometimes explained in the notes in the document but otherwise this had to be deduced from the time of the train in question and the time of the possession.
- The documents are also inconsistent in the way that re-timed trains are documented. Sometimes the time specified in the document is the original path, in other cases the time specified is the revised schedule. In some cases the train has two records, one with the original time and a note saying “cancelled” and another with the revised time and a note saying “revised vice XXXX”.
- The documents include a considerable number of repeats – sometimes because there is a duplicate row in the file, but more generally because the service was affected by more than one possession, or because both legs of a Y-path have been listed.

Although these documents contain the information that is required, in their current format they would not be suitable as the basis for some form of systemised/automated compensation mechanism.

These documents include a considerable number of repeats and paths which are not taken up. Once the process of expanding the information across the days is complete, we have 16250 records over the two periods.

3.3 Cancelled Services

3.3.1 *Identifying cancelled services*

If a service is cancelled there is no record of it running in TRUST. However, a path that was not taken up also has no record in TRUST. In order to identify cancelled services, we have first assumed that a note of the cancellation has been made in the T-12 Documents. Then from the list of services which are noted as cancelled, we have looked to see whether there is a record in TRUST.

Of the 16250 records, 5600 are noted as cancelled.

3.3.2 *Noted as cancelled but actually ran*

Of the 5600 services which were noted as cancelled in the T-12 documents, 523 of these have recordings in TRUST and therefore actually ran.

We found one instance where this was because the train just did the very first part of its journey, presumably for operational reasons:

Informed Traveller: 21/03/2008 11:43 4M87 Felixstowe - Trafford Park
Plan of the Day: 21/03/2008 08:49 4M87 Felixstowe - Ipswich

So although our process identifies this as a service which ran, in practical terms this train is cancelled as it could not run the majority of its route.

However, most trains which were noted as cancelled but had actual recordings in TRUST were genuinely run. Often the cancellation was one leg of a Y-path, but the other leg was run. The documents sometimes record these as two records, one of which is cancelled and one of which is re-timed or diverted.

It cannot be assumed that if the T-12 documents note that a service will be cancelled, that this is what actually happened.

3.3.3 *The 28 Day Rule*

Having identified trains which are noted as cancelled and did not run, we still have to determine whether the service was genuinely cancelled, or whether the path was not required. For this we have used the same '28 day rule' as for Schedule 4:

If a train of the same headcode, origin and destination has run in the last 28 days, we consider the train to be cancelled. Otherwise we consider it to be a path that was not taken up.

In our two periods we found 1159 cancelled services using the 28 day rule.

3.3.4 *Cancellations which are not picked up*

Of course, the 28 day rule will omit some services which were genuinely cancelled, but will include some which were not. For example:

Informed Traveller: 09/03/2008 22:47 6M12 Portbury – Fiddlers Ferry

The 6M12 Portbury - Fiddler's Ferry ran on an almost daily basis up until 15th February. It has not run since, presumably for commercial rather than operational reasons. The Informed Traveller documents indicate that this train was due to be cancelled due to a possession on the 9th March. As this date meets the 28-day rule for identifying trains which are eligible for cancellation compensation, they appear in our process as cancelled even though in reality it appears that the service would not have run for reasons other than the possession.

3.4 Identifying The Plan of the Day

3.4.1 *Identifying paths that are taken up*

For services which were not cancelled we identified whether or not the path was taken up by looking for a record of that service in TRUST.

We considered the TRUST record to be a match for the record in Informed Traveller/ Engineering Notices if it is run by the same operator with the same headcode, and has either the same origin or the same destination. We only considered services with a departure date/time within +/- 6 hours of the specified date/time. We also checked that the record in TRUST showed that the service did run.

This process identifies 4790 services which actually ran.

3.4.2 *The +/- 6 hour rule*

Care had to be taken with trains where the origin time had been re-timed the other side of midnight. These trains were matched to the correct schedules by applying the +/- 6 hour condition as explained above. For example:

T-12 Documents: 26/02/2008 03:15 4M60 Barrow Road – Calvert
Plan of the Day: 25/02/2008 23:10 4M60 Barrow Road – Calvert

It is possible that some trains were re-timed by more than 6 hours, although this is very rare. For example:

T-12 Documents: 13/03/2008 05:15 4E69 Southampton Western Docks - Wakefield
Plan of the Day: 13/03/2008 12:30 4E69 Southampton Western Docks - Wakefield

Of the 737 trains which departed from their origin more than 30 minutes different from their schedule, only 11 were more than +/- 5 hours different. This suggests that a +/- 6 cut-off is a reasonable rule of thumb.

3.4.3 *The Plan of the Day*

From the TRUST record we can find the amended schedule that the service was intended to run to. This is not necessarily what the train actually did, but what it was planned to do on the day. We will refer to this as the Plan of the Day.

Comparing with the Plan of the Day in this way makes the key assumption that any amendment from the original WTT schedule is as entirely as a result of the possession, and not for any other commercial reason.

Our process also makes the assumption that the original path has been replaced with only one rescheduled path. We found one instance where this was not the case:

T-12 Documents: 13/03/2008 19:53 4L60 Garston - Felixstowe
Plan of the Day: 13/03/2008 19:53 4L60 Garston - Felixstowe

Although the 4L60 ran almost as originally planned, the diversion around Camden Junction – Wembley meant that W10 containers could no longer run. Therefore a special service:

T-12 Documents: 12/03/2008 07:25 4Z42 Garston – Crewe

conveyed the 9'6" containers to Crewe, from where they were subsequently forwarded onto Felixstowe on the regular 4L75 11:44 Crewe – Felixstowe service.

Using the criteria described above we sometimes find more than one record in TRUST which matches the service. Where we have more than one possible match, we prefer the record which matches the specified time exactly, rather than just falling in the +/- 6 hour window.

This left 35 services for which we identified the correct record manually.

3.4.4 *Changes to the Plan of the Day for Operational Reasons*

We found a handful of examples where the Plan of the Day had clearly been altered for other operational reasons, rather than just the possession:

T-12 Documents: 03/02/2008 09:30 6D24 Dollands Moor – Wembley
Plan of the Day: 03/02/2008 09:30 6D24 Dollands Moor – Dollands Moor

It appears that this train ran out of Dollands Moor headed for Wembley as planned by the T-12 documentation but in the course of its journey was unable to get through to Wembley (due to some operational problem on the day). This train eventually returned to Dollands Moor and EWS train planners revised the schedule in TRUST to reflect the fact that the loco and wagons were now still at Dollands Moor rather than Wembley. This overwrote the original planned schedule for the day so the planned Dollands Moor – Wembley schedule does not exist in the TRUST database for a match.

We have no way of identifying these on a systematic basis, so we cannot estimate the size the scale of the problem.

Sometimes the Plan of the Day divides a single schedule into multiple "legs". For example:

T-12 Documents: 16/02/2008 14:23 6E28 Dalzell – Tees
Plan of the Day: 16/02/2008 12:18 6E28 Dalzell – Millerhill
16/02/2008 16:13 6E28 Millerhill – Tees

The process initially returned these as two matches, one with amended destination (Dalzell – Millerhill) and one with amended origin (Millerhill – Tees). We manually combined the TRUST records taking the Dalzell origin data and the Tees destination data and matching to this new

record (with correct origin and destination locations). We have to make a manual adjustment like this for 9 trains.

3.5 Identifying The Original WTT Schedule

In order to see how the service has been amended we need to identify the original schedule in the first WTT (before any amendments have been made).

We considered the WTT record to be a match for the record in Informed Traveller/Engineering Notices if it is run by the same operator with the same headcode, and has either the same origin or the same destination. We also checked that the WTT schedule is valid on the day of running.

Using these criteria we sometimes found more than one record in the WTT which could be the original path for the service. Where we have more than one possible match, we preferred the record which matched both origin and destination.

For services which have the same origin and destination, but various alternative paths via different routes (e.g. the Dollands Moor services which have alternative paths via Maidstone, Orpington or Redhill) we preferred the route that goes via the correct location.

This left 119 services for which the process identified more than one possible WTT schedule, from which we manually chose the most appropriate one.

3.5.1 *Changes to the WTT*

We had particular difficulties with the Peak Forest services, as these have been subject to a permanent timetable recast in the period between the issuing of the T-12 documents and the date of the possession. In our process we had to be careful to match to the new schedules (i.e. the schedules in force at the date of the possession rather than those in force at T-12). For example:

T-12 Documents: 28/03/2008 04:22 6J46 Peak Forest – Hope St. Sidings
Plan of the day: 28/03/2008 10:19 6J46 Peak Forest – Hope St. Sidings
WTT Schedule: 28/03/2008 10:19 6J46 Peak Forest – Hope St. Sidings

In the timetable recast the departure time is 10:19 and the train did not have to be altered as a result of the possession. Had we matched with the old 04:22 WTT schedule, it would have appeared as an amended origin time – departing 6 hours late.

3.5.2 *Schedules not listed in the WTT*

Not all the services identified as affected by possessions had schedule in our extract of the WTT. However, as the list of services are identified as those that a path before the possession was in place, by definition there must be some 'original path' for all services.

By looking through TRUST at previous instances when the same service had run, we could see that there was always a 'normal schedule' for these services. We have manually extracted the most common previous working for these services.

Several trains are listed in the T-12 documentation as the 1820 6M66 Mossend – Wembley, many of which are followed by the comment "discontinued from WTT". As would be expected no WTT schedules exist on this route for this train on the days listed, however TRUST records that these trains always ran with one of two schedules:

- Mossend – Wembley (e.g. 27th February);
- Mossend – Arpley (e.g. 11th March).

As both of these schedules have been running regularly despite not being in the WTT we have defined a schedule for both of these options according to the most common route and timings in BIFS for trains unaffected by possessions. We have then manually matched these trains to either the Wembley or the Arpley schedule for comparison.

We found 211 services for which we needed to manually look up an original schedule.

3.6 Removal of Y-paths

The process described so far has produced a list of services which are either cancelled or amended. For each service we have the Plan of the Day schedule and the original WTT schedule. At this point we had 5949 records, of which 1159 were cancellations and 4790 were services which actually ran.

Many of these records refer to the same train. This is generally because a service was affected by more than one possession and was repeated in the original T-12 documents, or because both legs of a Y-path have been listed.

The next step is to reduce the list to one row per train. Where a train is affected by more than one possession we have randomly chosen a possession number to list it under.

If two records in the T-12 documents have been matched to the same record in TRUST, we know that they must be a repeat, and so we have eliminated one. For example:

T-12 Documents: 03/03/2008 00:34 6M62 Immingham – Rugeley
 Plan of the day: 03/03/2008 01:27 6M62 Barrow Hill – Rugeley
 WTT Schedule: 03/03/2008 00:34 6M62 Immingham – Rugeley

T-12 Documents: 03/03/2008 01:34 6M62 Barrow Hill – Rugeley
 Plan of the day: 03/03/2008 01:27 6M62 Barrow Hill – Rugeley
 WTT Schedule: 03/03/2008 01:34 6M62 Barrow Hill – Rugeley

Both records refer to the same train from Barrow Hill – Rugeley. These are two legs of the same Y-path. We have kept the second record, where the WTT schedule is the leg of the Y-path that was actually taken up.

Checking for the same record in TRUST cannot eliminate the case where one leg of the Y has been listed as cancelled, and the other has been treated as an amended service. We have identified these by looking for records where the WTT schedules have the same origin location and origin date/time, or the same destination location and destination date/time. For example:

T-12 Documents: 18/03/2008 23:22 6E55 Dowlow Hindlow - Cottam
 Plan of the day: cancelled
 WTT Schedule: 18/03/2008 23:22 6E55 Dowlow Hindlow - Cottam

T-12 Documents: 18/03/2008 23:22 6L20 Dowlow Hindlow - Barham
 Plan of the day: 18/03/2008 23:22 6L20 Dowlow Hindlow - Barham
 WTT Schedule: 18/03/2008 23:22 6L20 Dowlow Hindlow – Barham

We have kept the second record, where the WTT schedule is the leg of the Y-path that was actually taken up.

Occasionally we found an example where part of both legs of the Y-path had been used:

T-12 Documents: 11/02/2008 03:02 4N00 Drax – Tyne Dock
 Plan of the day: 11/02/2008 01:51 4N00 West Burton – Tyne Dock

T-12 Documents: 11/02/2008 03:02 4N31 Drax - Butterwell
 Plan of the day: 11/02/2008 03:44 4N31 Haverton Hill - Butterwell

In this case we have kept both records, and have not attempted to associate them. Therefore, both of the schedules above would appear as an amended origin, and would both be counted separately by our process.

We had to manually identify the correct record in 49 cases.

The whole process left 4652 records remaining, of which 907 are cancellations, and 3745 were services which actually ran.

3.7 Identifying service variations

As the T-12 Documents are not reliable guides to how services were actually affected by a possession, we have compared the Plan of the Day to the WTT records for each train in the T-12 documentation.

3.7.1 *Amended origin/destination*

The process compares the origin/destination of the Plan of the Day to and the WTT Base Schedule to check for an amended origin or destination as a result of the possession.

One problem with this approach is that different naming systems are used for the Plan of the Day data and the Base Schedule data and in some cases the process was unable to match locations which are in reality the same place. In these instances the process wrongly identified these trains as having an amended origin or destination when in fact the trains ran to/from their usual origins and destinations. We manually identified the locations which were in fact matches and refined the process to accept these pairs as matches. These pairs are listed below:

TRUST	WTT
Hoo Junction Up Yard	HOO JN
Sheerness Steel Works	SHEETNESSW
Soton W Docks Shed 107	SOUTHAMPTON WESTERN DOCKS
Hope Sidings (B.C.I.)	HOPE (EARLES SIDINGS) EWS
Peak Forest R.M.C. Sdgs	PK FOREST
Kngsbycol	KINGSBURY SDGS
Southampton M.C.T.	MILLBROOK HANTS..F.L.T.
Millbrook Hants..F.L.T.	SOUTHAMPTON M.C.T.

In the above list Southampton MTC and Millbrook Hants are not identical places on the rail network but in day-to-day operations these are commonly interchanged depending on where capacity is available. Changes of origin/destination arising from these are due to operational reasons rather than the effect of the possession, so the refined process considers these to be the same place.

3.7.2 *Diversions*

We compared the mileage from the Plan of the Day to the mileage stated in the WTT path to identify diversions and the additional mileage entailed. We found that the mileage recorded in the Plan of the Day from TRUST is not reliable and in some cases is inaccurate. Differences in mileage of a couple of miles between the Plan of the Day and the Base Schedule are usually due to this rather than a difference in route of a couple of miles. This will need to be taken into account when setting thresholds for service variation compensation.

3.7.3 *Double counting services*

In order to avoid double counting of round trips where only one leg is revenue-earning, we considered whether a train is loaded or not. For these purposes all intermodal trains are loaded.