Review of National Rail Trends

A Report for:
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Report

AEA TECHNOLOGY RAIL

CONTENTS

1 INTRODUCTION

1.1 BACKGROUND

After the publication of the Government's White Paper on Rail in July 2004, the responsibility for publishing National Rail Trends (NRT) passed from the Strategic Rail Authority (SRA) to the Office of Rail Regulation (ORR).

The ORR subsequently announced an intention to set up an "Information Network", to facilitate better industry decision making and increase public accountability.

In December 2005, the ORR published its Information Network Conclusions[1] document. Amongst the strategies included in this document were:

- "Identify priority areas for improving data quality and access, specifically:
  - A review of the datasets on which National Rail Trends (NRT) is based;
- Implement a data code, designed to provide a framework to assess datasets against defined criteria, to establish if they are fit for purpose".

AEA Technology Rail have been asked by the ORR to:

- Review the datasets contained in NRT and the document as a whole.
- Test the draft heads of terms in the Data Code, reviewing how they perform in practice.

The results of this review are contained in this report.

Some NRT tables are not covered by this review. These are the Penalties and Payments to Operators table, Government Support table, and the Investment in the Rail Industry table. ORR is reviewing these tables separately in conjunction with Department for Transport, Transport Scotland, and Office for National Statistics.

[1] Information Network Conclusions, ORR December 2005

1.2 REVIEW OF NATIONAL RAIL TRENDS DATASETS

Our review of NRT datasets comprised the following work streams:

- A review of the accuracy and fitness for purpose of the datasets. This included the production of an audit trail and review of individual datasets, plus a review of the document in general (e.g. presentational issues).
- 'End user' consultation with industry partners.

1.2.1 End User Consultation

We interviewed the following end users of NRT:

- ATOC.
- Network Rail.
- The DfT.
- Transport Scotland.
- Passenger Focus.

In these interviews we explored the following themes:

- What NRT is used for.
- How does the scope of NRT meet user's emerging needs?
- Whether or not users have any concerns over the accuracy and fitness for purpose of NRT datasets.
- Quality and usefulness of presentation style.

1.3 STRUCTURE OF THIS REPORT

The rest of this report is structured as follows:

- In section 2 we summarise our key recommendations.
- In section 3 we discuss more general issues relating to the scope and presentation of NRT.
- In sections 4 to 15 we review the datasets in NRT individually.
- In section 16 we compare NRT to some statistical publications from other industries.
- In section 17 we review the principles of the Data Code.

2 SUMMARY OF KEY RECOMMENDATIONS

Our review of NRT has led us to conclude that NRT is a good, well regarded publication but would benefit from a significant number of improvements (some of which would be time consuming to implement).

Our recommendations are summarised below (as well as being repeated in the relevant chapters of this report). We emphasise that none of these recommendations call for fundamental changes to be made to NRT; but we believe that their implementation would enhance what is already a good document.

2.1 GENERAL RECOMMENDATIONS

- We recommend that, where possible, non-franchised train operators are included in NRT datasets. However, these could be kept separate to maintain the consistency of the existing data series, which are used by many organisations to monitor trends.

- The text accompanying data tables in NRT should be reviewed. More information should be provided on methodology issues, and on the reasons behind 'breaks' in series. And this text should be included in each publication, instead of referring the reader to previous issues.

- After considering comments made by end users, and from our review of other statistical publications, we suggest that NRT tables would benefit from clearer separation of 'data' and 'text'.

- We suggest a contact point should be provided at the ORR as a place to obtain further information (in the first instance).

- Electronic distribution of datasets (via downloadable Excel or .csv files) should be made available from the ORR website.

- Each NRT publication should include a one page executive summary of key results. This could be achieved by incorporating parts of the press release into the main document.

- We suggest the ORR retain the 'Jemcon[2]' review process, noting the frequency with which resulting changes are made to NRT. Its effectiveness can then be reviewed at a later stage.

- The current segmentation of statistics into sectors (London South East, Long Distance and Regional) appears to be the one most useful and favoured by users. This should be retained at present, even if franchise remapping requires more TOCs to become split between sectors. The only change we would recommend is to move Gatwick Express into the London South East sector *if* it is incorporated into the Southern franchise (noting this would cause a further break in series). We understand that the DfT currently intends to use a sector based definition in its High Level Output Specification for the purposes of specifying reliability improvements. This also suggests that sector based datasets should be retained.

[2] Jemcon is the process during which NRT TOC-level datasets are reviewed annually with the TOC's own statistics.

2.2 DATASET RECOMMENDATIONS

2.2.1 Presentation

- All data tables should be reviewed to provide an appropriate number of significant decimal places.

- We recommend that a Moving Annual Average statistic is added to the PPM table to illustrate the long term trend.

- We suggest that it would be informative to show headline customer satisfaction (from the NPS table) on the same graph as rail complaints.

- We recommended that a headline 'yield' trend (revenue per km and revenue per operating journey) is included in the passenger datasets.

- The DfT and ORR should provide guidance on the statistical variability of the PiXC metric in the accompanying text, *if* this can be obtained from automatic train weighing technology.

2.2.2 Data Sources

- With respect to passenger statistics, we suggest the ORR needs to become more aware of LENNON system issues and developments in future.

- With respect to passenger statistics, we suggest that the ORR use daily LENNON data for calculating quarterly totals. Therefore, the Inter-Process will no longer be required to map rail periods to quarters. This should have a very small impact on the consistency of the series going back, although we suggest ORR verify this.

- We recommend that passenger volume data is no longer seasonally adjusted in NRT. Instead, we recommend the use of a Moving Annual Average statistic to illustrate trends.

- The ORR should check that the 'operating journeys' metric has been used consistently throughout the historic passenger journeys series (particularly pre-privatisation).

- We suggest that the July "All-Items" RPI series is used to convert revenue to a consistent price base, instead of the GDP deflator series (in both the passenger revenue and fares index tables). This index is the one used to regulate the price of fares.

- With respect to Timetabled km, we suggest (as a default) that the dates chosen to download timetable data from PERCY should coincide with the ORCATS 'sample dates'. These dates are agreed by the TOCs to be most the representative timetables of the summer/winter periods.

- We recommend that a one-off exercise is carried out using BIFS data to calculate the proportion of the freight market lifted by GB Railfreight, who are omitted from the Freight Lifted dataset. Guidance can then be given in NRT's text of the materiality of this omission. Alternatively, it is possible to generate the entire Freight Lifted table using BIFS data for all

FOCs. The ORR should consider switching to this approach, therefore no longer relying on individual FOCs to provide data.

- We suggest a one-off exercise should be undertaken using BIFS data to check the consistency of the Freight Lifted and Freight Moved tables, as the datasets are presently provided by different organisations.

- The fares index should be weighted by volume (operating journeys), not earnings.

2.2.3 Scope

- We recommend that all passenger journey enquiry channels are reported in NRT, not just telephone based.

- We recommend that ORR discuss with DfT what processes they have in place to ensure all TOCs record and report cancellations accurately, and agree on their adequacy. This will remove a risk to the accuracy of the PPM dataset.

- We recommend that the average age of rolling stock is published in the Yearbook disaggregated by TOC. Also, we suggest that the range (or quartiles) of rolling stock ages is also presented (presently, only the mean is provided).

- We suggest that the Freight Moved dataset is disaggregated by England, Scotland and Wales, at least in the Yearbook publication. We understand it is possible to do this using BIFS data.

2.3 DATA CODE RECOMMENDATIONS

In section 17 we have reviewed the draft heads of terms for the 'Data Code'. In the light of this review, we recommend the ORR consider some minor changes to the dataset assessment criteria. We provide a further discussion on this in section 17.

3 WHOLE DOCUMENT ISSUES

In this section we discuss more general issues relating to NRT. Issues specific to individual datasets are discussed in sections 4 to 15.

3.1 KEY ISSUES

In this section we distil key generic issues relating to NRT. They have been categorised into issues relating to scope (section 3.1.1), presentation issues (section 3.1.2) and miscellaneous issues (section 3.1.3).

3.1.1 Scope

During our review we have considered the following issues relating to the scope of NRT:

- It has been suggested that more datasets are included in NRT. These include safety data, industry employees, environmental data, and station usage. We have not made recommendations on this point as this falls outside our remit for this review.
- Non-franchised operators are, in general, excluded from NRT.
- Franchise re-mapping (initially 'One' and Greater Western, but in future the Midlands franchises) is making the sectorisation classification more difficult to maintain.
- Gatwick Express logically fits better in the London South East sector (particularly if they are to be incorporated into the Southern franchise).
- NRT should be synchronised, if not merged, with the Network Rail Monitor.

3.1.2 Presentation

During our review we have considered the following issues relating to the presentation of NRT:

- Electronic distribution of datasets (via downloadable Excel or .csv files) would be useful.
- NRT could usefully include a one page executive summary of key results. We note that this is already provided by a separate press release at the time of publication, but aspects of this could be incorporated into NRT.
- The document should tend towards more explanatory text on methodology issues and breaks in series, the full text of which should be included in all issues.
- Data tables should be reviewed to provide an appropriate number of significant decimal places.

In section 16 we have compared NRT to statistical publications from other industries. In general, we believe NRT compares favourably against these documents.

3.1.3 Other Issues

During the preparation of data for the NRT Yearbook, the ORR (and previously the SRA) apply what is known as the "Jemcon" process. This is a process where TOCs are consulted on the TOC level statistics in Chapter 8 of the Yearbook, and are given the opportunity to suggest alternative figures. Discrepancies are investigated if a TOC's figures differ by more than 1% from the ORR's figures. The historical documentation is not clear on the types of changes made to NRT during the Jemcon review process.

3.2 END USER COMMENTS

Five end users made general comments about NRT, discussed in sections 3.2.1 to 3.2.5 below.

3.2.1 The DfT

The DfT suggested additional datasets should be considered for inclusion in NRT. These are safety statistics, the number of people employed by the rail industry, environmental data (a general comment, no specific data series or metrics were defined), and rail station usage (noting that a limited amount of the latter is already published in the Yearbook, covering the largest stations in each region. A station usage file is also available from the ORR's internet site).

The DfT also suggested that further information should be provided on the robustness of data tables (for example, confidence intervals where applicable), methodology issues, and further details on the reasons for 'breaks' in series.

In terms of presentation and distribution, the DfT suggested that:

- More significant decimal places are required in certain tables.
- Electronic distribution of datasets (via downloadable Excel or .csv files) would be useful.
- Better use could be made of web technology for navigating the publication on-line.
- Methodology notes relating to data tables should be kept on separate pages away from the data.

3.2.2 ATOC

ATOC commented that some users of NRT are *not* rail industry data literate. The document should therefore tend towards more explanation of methodologies and series breaks. Furthermore, they suggested that a contact point at the ORR should be included to provide the reader (in the first instance) with a reference point for more information.

ATOC also suggested that more information could be provided on station usage (including interchanging passengers), although they noted that this is not necessarily straightforward to obtain.

It was also suggested by ATOC that more high-level summary statistics could be provided. Specifically mentioned was headline yield (revenue per journey, and revenue per passenger km, calculated from section 1 data). Vehicle and seat km data was also mentioned, although this cannot be derived simply from existing datasets.

ATOC suggested that the current presentation and style of text is very good, although electronic distribution of data would be useful.

3.2.3 Transport Scotland

Transport Scotland suggested that NRT and the Network Rail Monitor should be published at the same time, as they are both economic and regulatory statements about the industry.

In terms of presentation, Transport Scotland suggested putting explanatory notes and tables closer together, as they felt important 'health warnings' relating to the data were sometimes too easily missed.

3.2.4 Network Rail

Network Rail find the passenger volume and revenue information in NRT particularly useful. This reflects the fact that historically they have had no access to passenger information via LENNON or MOIRA.

Like other users, Network Rail commented that the document should tend towards more explanation of methodology issues and series breaks. In particular, they suggested that full explanatory text should be included each quarter (instead of referring the reader to previous issues).

Network Rail also suggested that additional information could usefully be included. They mentioned:

- Journey purpose information (by ticket type). Network Rail suggested this could come from the National Passenger Survey (NPS). This would be useful for rail demand forecasting, where Passenger Demand Forecasting Handbook (PDFH) recommendations are quoted for both ticket types and journey purposes.
- Passenger cordon counts at varying distances from London, by route.

Finally, Network Rail also commented that electronic distribution of datasets (via downloadable Excel tables) would be useful.

3.2.5 Passenger Focus

Passenger Focus suggested that Passenger Charter information could usefully be included in NRT, including a table indicating which TOCs are having to pay refunds to Season ticket holders. Also, they mentioned that delay causation data would be useful (disaggregated by Network Rail, TOC-on-Self and TOC-on-TOC), allowing the reader to make a judgement on who is responsible for changing levels of performance. Passenger Focus also mentioned that extending datasets back to pre-privatisation would enable better comparisons pre- and post-privatisation performance. Finally, Passenger Focus also mentioned that electronic distribution of data would be useful.

3.3 RECOMMENDATIONS

We make the following recommendations:

- We recommend that, where possible, non-franchised operators are included in NRT tables. Our justification for this is that conceptually, NRT is a publication of 'inputs' and 'outputs' of the rail industry. As non-franchised services share the same infrastructure, we believe that it is right to include them. However, these could be kept separate to maintain the consistency of the existing data series, which are used by many organisations to monitor trends.

- The text accompanying data tables should be reviewed, and more information should be provided on methodology issues, and on the reasons behind 'breaks' in series. And this text should be repeated in full in each publication, and not by referring the reader to previous issues. We also prefer more separation of numbers and text in the document, and believe that each table should have a clearly separated 'data' and 'notes' section.

- A contact point should be provided at the ORR as a place to obtain further information (in the first instance).

- Electronic distribution of datasets (via downloadable Excel or .csv files) should be made available from the ORR's website.

- NRT should include a one page executive summary of key results. This could be achieved by incorporating parts of the press release into the main document.

- Data tables should be reviewed to provide an appropriate number of significant decimal places.

- We suggest the ORR retain the Jemcon process, noting the frequency with which resulting changes are made to NRT. Its effectiveness can then be reviewed at a later stage.

- The current segmentation of statistics into sectors (London South East, Long Distance and Regional) appears to be the one most useful and favoured by users. This should be retained at present, even if franchise remapping requires more TOCs to become split between sectors. The only change we would recommend is to move Gatwick Express into the London South East sector *if* they are incorporated into the Southern franchise.

4 PASSENGER KMs, JOURNEYS & REVENUE TABLES

4.1 DATA AUDIT TRAIL

The processing of NRT tables 1.1, 1.2 and 1.3 is done 'in-house' by the ORR.

Passenger revenue and volume data is downloaded directly from LENNON, and is disaggregated by rail period, TOC, and product. The process for this is well documented at the ORR.

An adjustment is made to the volume statistics to better reflect the use of multi-modal tickets in urban areas. This is backdated to 1999/00.

The ORR apply what is known as the "Inter-Process" to allocate the thirteen rail periods to quarters. This uses a statistical process known as Temporal Disaggregation to divide some rail periods into days. An algorithm then predicts the trend and re-allocates data between sub-periods. This can sometimes result in backwards adjustments to the data.

4.2 ISSUES

During our review we have considered the following issues:

- The statistics in NRT tables 1.1 to 1.3 are processed in-house by the ORR, using data obtained from LENNON. The way in which ticket sales data is processed by LENNON is constantly evolving. For example, a recent change to assumptions regarding TOC journeys made on London Travelcards has caused a significant series break in the passenger journeys dataset.

  LENNON is owned by Rail Settlement Plan (RSP), who employ analysts responsible for keeping up-to-date with changes to the system (and indeed who collectively work to improve the system). We suggest that the ORR, at present, is not sufficiently informed of emerging changes to LENNON assumptions and processes. We suggest the NRT publication would benefit from increased knowledge at the ORR.

- The Inter-Process (described above in section 4.1) is used to convert data from rail periods (of which there are thirteen a year) into four quarters. We have several concerns over the use of this process:

  1. The technique assumes that passenger volume is a smooth, continuous statistical function. Whilst this may be the case at a high-level of aggregation, a reasonable degree of daily fluctuation in passenger volumes does occur (for example, Monday and Friday volumes are different from Midweek volumes, Weekday volumes are different from Weekend volumes, and Bank Holidays volumes will also differ from other days). Our view is that these daily volume fluctuations invalidate the use of the Inter-Process. We suggest that a simple splitting of periodic data pro-rata to the number of days in each quarter will yield results which are equally valid.

  2. The Inter-Process can lead to backwards adjustments in the series.

3. LENNON now allocates ticket sales on a daily basis, so there is now no need to obtain periodic data to allocate to quarters.

- Quarterly passenger statistics are seasonally adjusted in NRT. Seasonal adjustment is the process of estimating and removing seasonal effects from a time series in order to better reveal certain non-seasonal features. However, we are not convinced that the process is working correctly - figure 1 below demonstrates that passenger kms (table 1.1) still shows strong seasonal effects *after* seasonal adjustment.

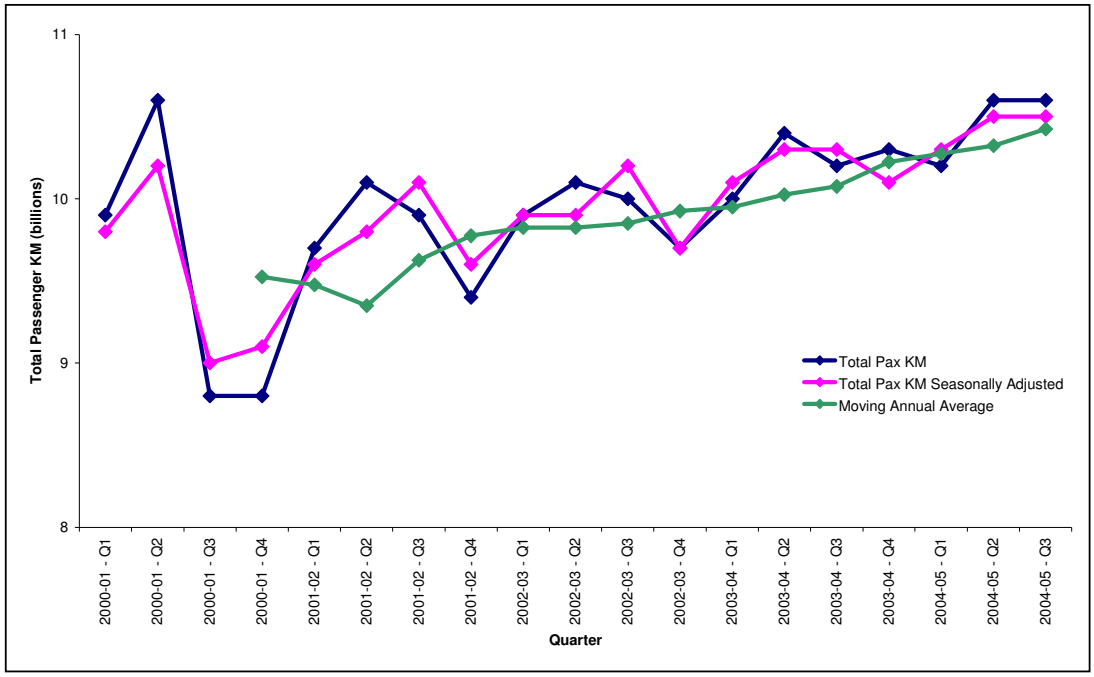

Figure 1: Passenger km, before and after seasonal adjustment
Source: NRT Yearbook 2004/05

- There is some confusion as to whether the 'operating journeys' metric has been used consistently throughout the time series in table 1.2 (passenger journeys).

- Several end users requested more explanatory text concerning the techniques used, and the reasons for breaks in the series. It would also be useful to include guidance in NRT on the materiality of double counting in the 'operating journeys' metric (discussed further in section 4.5).

- We understand the GDP Deflator series (National Statistics series reference YBGB) is used to adjust passenger revenue (in table 1.3) to constant prices. However, we understand that the "All Items" RPI series (National Statistics series reference CHAW) is used by the DfT in regulating fares. Consistency with fares policy could be beneficial to NRT.

4.3 END USER COMMENTS

Four end users commented on the passenger revenue and volume trends.

- The DfT mentioned that they were aware of differences between NRT statistics, and passenger volume statistics published by ATOC. They have never formally evaluated the error margin, but they believe it to be small. Passenger growth statistics feed into the DfT's regular "Key Achievements" report.

- Transport Scotland raised concerns over the level of passenger volume data captured by LENNON in urban areas with multi-modal fares.

- Network Rail mentioned that double counting in the 'operating journeys'[3] metric could be misleading (we discuss this in more detail in section 4.5). They suggested a note cross-referencing the regionally disaggregated passenger volume data (in section 7 of the NRT Yearbook) which *excludes* double counting would be useful. Network Rail also suggested that regionally disaggregated volume statistics would be useful in the quarterly document.

- ATOC mentioned that headline yield trends (revenue per journey, and revenue per km) could usefully be provided, calculated from section 1 data.

4.4 RECOMMENDATIONS

We make the following recommendations:

- With respect to passenger statistics, we suggest the ORR needs to become more aware of LENNON system issues and developments in future.

- That the ORR use daily LENNON data when calculating quarterly totals, therefore no longer requiring the use of the Inter-Process. This should have a very small impact on the consistency of the series going back, although we suggest ORR verify this.

- That passenger volume data is no longer seasonally adjusted in NRT. Instead, we recommend the use of a Moving Annual Average statistic to illustrate trends.

- That the ORR check that the 'operating journeys' metric has been used consistently throughout the passenger journeys table.

- That the text explaining series breaks and methodological issues is re-drafted, with more detail provided to the reader. And NRT should provide the reader with some guidance on the materiality of double counting in the 'operating journeys' metric.

- That the July "All-Items" RPI series is used to convert revenue to a consistent price base, instead of the GDP deflator series.

[3] A single ticket sold from Ipswich to Reading is recorded by LENNON as 1 'Passenger Journey' (pre-ORCATS allocation), and 2 'Operating Journeys' (post-ORCATS allocation, 1 journey from Ipswich to London, then a second journey from London to Reading).

4.5 ANALYSIS OF THE MATERIALITY BETWEEN 'OPERATING' AND 'PASSENGER' JOURNEYS

In LENNON there are two main databases that can be queried:

- The *Sales* (or pre-allocation) database that stores data downloaded from each retail outlet. This holds information on Origin, Destination, Route, Ticket Type, Gross Receipts, Journeys and Mileage on each ticket sold. Journeys are calculated using a "Journey Factor" for each ticket type. For example a single ticket has a journey factor of 1.0, a return ticket has a journey factor of 2.0, a weekly season ticket has a journey factor of 10.3, and an annual season ticket has a journey factor of 480. The mileage is calculated by the journeys multiplied by the distance between the origin and destination.

- The *Earnings* (or post-allocation) database is derived from data within the Sales database. It has the same fields of Origin, Destination, Route and Ticket Type as the Sales database but it has additional fields of TOC and Service Group. For each ticket the Net Receipts are allocated between the TOCs using by ORCATS allocations (Operational Research Computer Allocation of Ticket to Services). It is possible to use Agreed Allocations to override ORCATS allocations.

ORCATS allocates both revenue and journeys to service codes. Therefore, post-allocation journeys ('operating journeys') count one journey for each leg of a single trip (where a 'leg' means each individual train used as part of a through journey).

Following ORR concerns, we have investigated the extent to which LENNON 'operating' journeys' are inflated compared to pre-allocation 'passenger' journeys. This was done by selecting a number of origin and destinations pairs that can require a change of train to complete the journey. For each pair we downloaded annual (2004-05) LENNON data from both the Sales and Earnings databases.

Simple Example: Norwich to Cardiff

Origin	7309	Norwich
Destination	3899	Cardiff Central
Route	00400	AP Any Permitted
Ticket Type	2BAA	Standard Return 2BAA

	Revenue	Journeys	Miles
Sales Query	-	2	520
Earnings Query	-	4	520
Earnings % of Sales	100.00%	200.00%	100.00%

Service Code	TOC Code	TOC	Service Description	% Journeys
7810	HS	ONE	LER INTERCITY	100.00%
3750	HJ	First Great Western	LONDON-SOUTH WALES	100.00%

- This journey has two National Rail legs: Norwich to London Liverpool St. (on 'One' Railway), and Paddington to Cardiff (on First Great Western).

- One 'operating journey' is allocated to each TOC. The revenue and mileage remain constant.

- This is an example of double counting of journeys when the trip involves more than one operator. It has a journey inflation factor of 2.0.

More Complicated Example: Gatwick to Shrewsbury

Origin	5416	Gatwick Airport
Destination	4387	Shrewsbury
Route	00200	London
Ticket Type	2BFP	Saver Return Hi 2BFP

	Revenue	Journeys	Miles
Sales Query	-	58	11174
Earnings Query	-	174.09	11536.08
Earnings % of Sales	100.00%	300.16%	103.24%

Service Code	TOC Code	TOC	Service Description	% Journeys
2610	HL	Arriva Trains Wales	<BHM>SHREWSBURY-WREXHM-CHESTR	12.98%
3340	HL	Arriva Trains Wales	ABERYSTWYTH-SHREWSBURY <BHAM>	11.74%
4340	HL	Arriva Trains Wales	CDF-MAN/LI V/HHD	25.29%
2670	HL	Arriva Trains Wales	SHREWSBURY-CREWE	3.40%
2660	HG	Central	BHM/WVH-WLN/SHR	35.40%
3000	HG	Central	BIRMINGHAM-CREWE-LIVERPOOL	0.07%
2600	HG	Central	NEW ST-LEICS/NOTTM	10.72%
2770	HG	Central	NOTTM-NEWARK C/NG-LINCOLN	0.14%
5240	HN	First Great Western Link	OXFORD-WORCESTER-HEREFORD	0.19%
6170	HV	Gatwick Express	VICTORIA-GATWICK(DEDICATED SV)	65.48%
1520	HI	Midland Mainline	MML TURBOSTARS	17.69%
1500	HI	Midland Mainline	ST.PANCRAS-SHEFFIELD/LEEDS	4.59%
2090	HP	Silverlink	EUSTON-M.KEYNES/NORTHAMPTON	1.10%
2190	HP	Silverlink	NORTHAMPTON-BIRMINGHAM(PSO)	1.59%
6180	HW	Southern	LDN-EBN/HGS VIA LEWES	3.41%
6660	HW	Southern	LDN-WRH/PMH/SOU VIA HOVE	2.69%
6650	HW	Southern	LONDON-BOGNOR VIA ARUNDEL	4.09%
6630	HW	Southern	LONDON-BRIGHTON(FAST)	0.57%
6640	HW	Southern	LONDON-BRIGHTON(SEMI)	1.72%
2070	HX	Thameslink	THAMESLINK NORTH	12.72%
6120	HX	Thameslink	TL BRIGHTON MAINLINE	9.55%
1800	HH	Virgin Cross Country	100% CROSSCOUNTRY	0.19%
1040	HF	Virgin West Coast	EUS/BHM-LLD/BNG/HHD	1.36%
1000	HF	Virgin West Coast	EUS-BIRMINGHAM-WOLVERHAMPTON	43.02%
1120	HF	Virgin West Coast	EUSTON-GLASGOW	14.31%
1090	HF	Virgin West Coast	EUSTON-LIVERPOOL	7.60%
1080	HF	Virgin West Coast	EUSTON-MANCHESTER	2.47%
1030	HF	Virgin West Coast	EUSTON-PRESTON	6.07%

- This is an extreme example of the number of different service codes to which journeys on a flow can be allocated.

- Journeys are allocated to twenty eight different service codes and ten different TOCs. This is due to the large number of possible ways to reach Shrewsbury via London. Even with all these different service codes the inflation factor is 3. This implies that, on average, the number of different trains used to complete this journey is three.

We have drawn the following conclusions about the materiality of double counting 'operating journeys' in the metric used by NRT.

- Journey data is inflated when there are more than one "legs" to a trip i.e. where it is possible to use more than one train to complete the journey. A change of train on the predicted route will lead to a larger number of 'operating journeys' being recorded for that route (these are known as 'series' flows).

- Journey data is not inflated if there is a simple choice of through trains (with different operators or service codes) on a flow. In this case each journey is split in proportion of the percentage of journeys ORCATS allocates to each operator or service code (these are known as 'parallel' flows).

- The inflation factor is dependent on Origin and Destination, Route and Ticket Type. The table below shows the mean inflation factor for each Origin – Destination pair investigated.

Origin \ Dest	ABERDEEN	ASHFORD (KENT)	BIRMINGHAM NS	BRIGHTON	BRISTOL TM	CAMBRIDGE	CARDIFF CENTRAL	CHARING CROSS	CREWE	EDINBURGH	EUSTON	EXETER ST DAVIDS	FINSBURY PARK	GATWICK AIRPORT	GLOUCESTER	GUILDFORD	HULL	INVERNESS	KING'S CROSS	LEEDS	LEICESTER	LIVERPOOL STREET	LONDON BR	LONDON BRIDGE	LUTON	MANCHESTER PCDLY	NEWCASTLE	NORWICH	NOTTINGHAM	OXFORD	PADDINGTON	PENZANCE	PETERBOROUGH	POOLE	SHEFFIELD	SHREWSBURY	SOUTHAMPTON CTR	ST PANCRAS	SWANSEA	VICTORIA	WATERLOO	YORK
ABERDEEN		2.0	1.6	2.1	2.0	2.3	2.3		1.4	1.0	1.0	2.0		2.2	2.6	2.1	2.2	1.0	1.1	1.7	2.4		1.1		2.4	2.1	1.2	2.3	2.4	1.9		2.0	1.4	2.4	2.2	2.3	2.0		2.4			1.2
ASHFORD (KENT)	1.9		2.0	2.6	2.5	2.0	2.4	1.0	2.0	2.0	1.0	2.1	2.0	2.3	2.1	2.5	2.4	1.7		2.0	2.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.1		2.0	2.0	2.0	2.1	4.0	2.8		2.0	1.0	1.0	2.0
BIRMINGHAM NS	1.7	2.2		2.1	1.0	1.5	1.2		1.0	1.1	1.0	1.3	2.0	2.1	1.1	2.4	2.0	2.1	1.0	1.0	1.0		1.2	1.0	2.1	1.0	1.0	1.8	1.0	1.0	1.7	1.5	1.0	2.0	1.0	1.0	1.4	1.3	2.0	1.0	1.0	1.0
BRIGHTON	2.1	2.6	2.0		2.1	2.0	2.0	1.4	2.1	2.0	1.0	2.4	2.1	1.0	2.2	2.2	2.4	2.1	1.0	2.1	2.5	1.0	1.0	1.0	1.3	1.9	2.2	2.1	2.3	1.9	1.0	2.2	2.0	2.4	2.3	2.8	1.9		2.3	1.1	1.9	2.1
BRISTOL TM	2.1	2.5	1.0	2.2		2.0	1.0	1.0	1.2	1.5	1.0	1.0	2.0	2.1	1.1	2.1	2.1			1.4	2.8		1.1	1.6	2.0	1.8	1.5	2.0	2.0	2.1	1.0	1.2	2.0	2.2	1.4	1.8	1.3	1.0	1.7	1.0	1.2	1.4
CAMBRIDGE	2.3	2.0	1.2	2.0	2.0		2.0	1.0	2.0	2.1	1.0	2.1	2.0	2.0	2.1	2.0	2.7	2.3	1.0	2.1	1.2	1.0	1.0	1.0	2.0	2.0	2.1	1.1	2.2	2.1	1.0	2.0	1.1	2.0	2.5	2.6	2.0		2.0	1.0	1.0	2.1
CARDIFF CENTRAL	2.3	2.3	1.2	2.0	1.0	2.0			1.0	2.0	1.0	1.6	2.0	2.1	1.0	2.0	2.4	3.0	1.0	2.0	2.1	1.0	1.1		2.0	1.3	2.0	2.1	1.4	2.0	1.0	1.5	2.0	2.6	1.9	1.0	1.6		1.0	1.0	1.1	2.0
CHARING CROSS	1.1	1.0	1.0	1.4	1.1	1.0	1.0		1.0	1.0		1.0		1.1	1.3	1.1	1.1	1.1		1.0	1.0		1.0	1.0	1.1		1.0	1.0	1.3	1.1		1.0	1.0	1.0	1.5	2.0	1.0		1.0		1.0	1.0
CREWE	1.5	2.0	1.0	2.1	1.2	2.0	1.6			1.7	1.0	1.1	2.0	2.0	2.0	2.3	2.1	1.6	1.0	2.0	2.0		1.0	1.0	2.2	1.1	2.0	2.1	1.1	1.8	1.0	1.6	2.0	2.2	2.2	1.0	1.8	1.0	1.5	1.0		2.0
EDINBURGH	1.0	2.0	1.1	2.0	1.6	2.1	2.1	1.0	1.8		1.0	1.5	2.0	2.0	1.9	2.0	1.9	1.4	1.0	1.2	2.1		1.0	1.0	2.2	1.7	1.0	2.1	2.1	1.7	1.0	1.6	1.0	2.1	1.4	2.1	1.7		2.2	1.0		1.0
EUSTON	1.0	1.0	1.1	1.0	1.1	1.0	1.1		1.0	1.0		1.0	1.0	1.0	1.4	1.6	1.1	1.0		1.3	1.0		1.0		1.0	1.0	1.2	1.0	1.4	1.1		1.0	1.0	1.0	1.2	1.9	1.0		1.0		1.0	1.1
EXETER ST DAVIDS	2.1	2.1	1.7	2.5	1.0	2.1	1.7		1.1	1.6			2.0	2.1	1.9	2.0	2.2	2.3		1.5	2.0		1.0		2.1	1.6	1.6	2.0	2.0	2.0	1.1	1.0	2.0	3.1	1.5	1.7	2.0		1.8	1.4	1.0	1.4
FINSBURY PARK	2.1	2.0	2.0	2.1	2.0	2.0	2.0		2.0	2.0		2.0		2.0	2.1	2.0	2.5		1.0	2.0	2.0		1.0		2.4		2.0	2.3	2.5	2.0	1.0	2.0	1.4	2.0	2.5	3.7	2.0		2.0			2.0
GATWICK AIRPORT	2.1	2.3	2.0	1.0	2.1	2.0	2.1	1.1	2.0	2.0	1.0	2.1	2.0		2.2	1.3	2.4	2.2	1.0	2.1	2.4	1.0	1.0	1.0	1.3	1.9	2.1	2.0	2.5	1.9	1.0	2.0	2.0	2.7	2.3	2.8	2.4	1.0	2.2	1.0	1.4	2.1
GLOUCESTER	2.8	2.1	1.1	2.3	1.1	2.1	1.0		2.0	1.9	2.2	1.8	2.1	2.2		2.6	2.8	2.8		1.8	2.1	2.1	1.6		2.1	2.1	1.8	2.1	1.1	2.1	1.5	2.1	2.1	3.0	1.8	2.1	2.1		2.0			1.8
GUILDFORD	2.1	2.5	2.1	2.2	2.1	2.0	2.0		2.5	2.0	1.0	2.0	2.0	1.3	2.7		2.6	2.1		2.1	2.0	1.0	1.2	1.0	2.0	1.9	2.0	2.0	2.2	2.1	2.0	2.1	2.0	2.0	2.2	3.1	2.0		2.0	1.8	1.2	2.1
HULL	2.2	2.4	2.0	2.4	2.1	2.7	2.4		2.1	1.9		2.2	2.3	2.4	2.8	2.6		3.0	1.2	1.0	2.4		1.2		2.4	1.1	2.0	2.3	2.2	2.2		2.5	1.6	2.6	1.1	2.2	2.3		2.5			1.1
INVERNESS	1.0	2.1		2.2	2.2	2.3	2.9		1.5	1.3	0.9	2.2		2.2	2.8	2.6	3.1		1.1	2.2	2.4		1.1		2.2		1.3	2.3	2.6	2.2		2.2	1.4	2.2	2.2	2.8	2.2		2.6			1.5
KING'S CROSS	1.1	1.0	1.0	1.0	1.1	1.0	1.1		1.0	1.0		1.0	1.0	1.0	1.5	1.4	1.2	1.1		1.3	1.0		1.0	1.0	1.0	1.3	1.1	1.3	1.5	1.0		1.0	1.0	1.0	1.3	2.4	1.0		1.0			1.0
LEEDS	1.7	2.0	1.0	2.0	1.5	2.1	2.0		2.0	1.3	1.0	1.5	2.0	2.1	1.8	2.0	1.0	2.2	1.3		1.9		1.3	1.0	2.0	1.0	1.1	2.1	2.0	1.6	1.0	2.0	1.0	2.0	1.0	2.4	1.6	1.1	2.1	1.0	1.0	1.0
LEICESTER	2.4	2.0	1.0	2.5	2.8	1.3	2.1		2.0	2.1	1.1	2.0	2.0	1.3	2.1	2.0	2.5	2.4	1.0	1.9			1.0		1.1	1.4	2.0	1.8	1.0	2.1		2.4	1.0	2.3	1.0	1.5	2.0	1.0	2.9			1.8
LIVERPOOL STREET	1.1	1.0	1.0	1.0	1.1	1.0	1.1		1.0	1.0		1.0	1.0	1.0	1.5	1.2	1.2	1.1		1.1	1.0		1.0		1.0	1.0	1.0	1.0	1.4	1.0	0.9	1.0	1.0	1.0	1.3	2.2	1.0		1.0	1.0		1.0
LONDON BR	1.1	1.0	1.1	1.0	1.1	1.0	1.1	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.6	1.2	1.3	1.1	0.9	1.3	1.0	1.0		1.0	1.2	1.1	1.2	1.0	1.3	1.1	1.0	1.0	1.0	1.0	1.2	2.1	1.0		1.2	1.0	1.0	1.1
LONDON BRIDGE	1.1	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0		1.1	1.0	1.0	1.4	1.2	1.2	1.1	1.0	1.0	1.1		1.0		1.0	1.0	1.0	1.0	1.4	1.0		1.0	1.0	1.0	1.5	2.0	1.0		1.0	1.0	1.0	1.0
LUTON	2.3	2.0	2.0	1.3	2.0	2.0	2.0		2.2	2.2	1.0	2.1	2.4	1.1	2.1	2.0	2.4	2.8	1.0	2.0	1.1	1.0	1.1	1.0		1.7	2.3	2.0	1.5	2.0	1.0	2.0	2.0	1.7	2.8	2.0	1.0	2.0	1.0	2.1	1.0	1.0	2.1
MANCHESTER PCDLY	2.1	2.0	1.0	1.9	1.7	2.1	2.0		1.0	1.6	1.0	1.6	2.3	1.9	2.1	2.0	1.1	2.5	1.3	1.0	1.5		1.0		1.7		1.2	1.5	1.1	1.2	1.1	1.6	1.4	2.0	1.0	1.1	1.5	1.1	1.9	1.0		1.0
NEWCASTLE	1.2	2.0	1.0	2.0	1.5	2.0	2.2		2.1	1.0	1.0	1.5	2.0	2.1	1.8	2.1	1.8	1.3	1.0	1.1	1.9		1.2		2.3	1.1		2.0	2.1	1.6	1.0	1.6	1.0	2.1	1.3	2.1	1.6		2.0			1.0
NORWICH	2.3	2.0	1.7	2.0	2.1	1.1	2.1	1.1	2.1	2.1		2.1	2.3	2.0	2.1	2.0	2.4	2.3	1.4	2.2	1.7	1.0	1.0		2.0	1.1	2.0		1.0	2.1	1.0	2.1	1.1	2.1	1.1	2.3	2.1	1.0	2.1		1.0	2.0
NOTTINGHAM	2.3	2.0	1.0	2.5	2.0	2.2	1.1		1.1	2.1	1.1	2.0	2.3	1.2	1.4	2.1	2.3	2.7	1.5	2.0	1.0	1.1	1.4		1.4	1.1	2.1	1.0		2.0		2.4	1.1	2.3	1.0	1.7	2.1	1.1	2.2	1.0		2.0
OXFORD	1.8	2.0	1.0	1.9	2.1	2.1	2.0	1.0	1.8	1.7	1.0	2.0	2.0	1.9	2.1	2.0	2.3	2.3	1.0	1.5	2.1	1.0	1.1		2.0	1.0	1.7	2.1	2.1		1.1	2.1	2.0	2.0	1.7	2.0	1.0		2.1	1.0	1.3	1.7
PADDINGTON	1.2	1.0	1.8	1.0	1.2	1.0	1.1	1.0	1.0	1.0		1.1	1.0	1.0	1.5	1.6	1.2	1.1	0.9	1.0	1.0	0.5	1.0		1.0	1.1	1.0	1.0	1.3	1.1		1.0	1.3	1.1	2.6	1.9		1.2	0.9		1.0
PENZANCE	2.6	2.0	1.5	2.2	1.2	2.0	1.5		1.6	1.6		1.0		2.1	2.1	2.2	2.5	3.3		2.1	2.4		1.0		2.0	1.7	1.7	2.0	2.6	2.1	1.0		2.0	3.1	2.0	1.5	2.1		1.7		1.1	2.1
PETERBOROUGH	1.4	2.0	1.0	2.0	2.0	1.1	2.0		2.0	1.0		2.0	1.5	1.9	2.1	2.0	1.7	1.6	1.0	1.0	1.0	1.0	1.0		2.0	1.4	1.0	1.0	1.1	2.0	1.0	2.0		2.0	1.6	2.0	2.0		2.3	1.0	1.0	1.0
POOLE	2.5	2.0	2.0	2.3	2.2	2.0	2.5		2.3	2.1	1.0	3.0	2.0	2.7	3.0	2.0	2.6	2.6		2.0	2.3	1.0	1.0	1.0	2.0	2.1	2.2	2.0	2.4	2.1		3.2	2.0		2.3	3.1	1.0		3.0	1.6	1.0	2.0
SHEFFIELD	2.2	2.1	1.0	2.5	1.3	2.4	2.0		2.1	1.3	2.0	1.5	2.3	2.1	1.8	2.1	1.1	2.2	2.0	1.0	1.0		1.2		1.7	1.1	1.3	1.1	1.0	1.6	2.0	2.0	1.5	2.1		2.0	1.7	1.1	2.0			1.0
SHREWSBURY	2.4	3.8	1.0	2.7	1.8	2.5	1.0	2.0	1.0	2.2	2.1	1.8	3.0	2.8	2.2	2.9	2.1	2.7	2.0	2.3	1.6		2.1		3.0	1.0	2.0	2.3	1.8	2.0	3.8	1.8	2.0	3.1	2.0		2.4	2.1	1.2		2.0	2.2
SOUTHAMPTON CTRL	2.0	2.6	1.0	1.9	1.2	2.0	1.5		1.9	1.7		2.0	2.0	2.5	2.2	2.0	2.3	2.3		1.6	2.0	1.0	1.0		2.0	1.4	1.7	2.1	2.1	1.1	1.8	2.2	2.0	1.0	1.5	2.3			2.1	1.6	1.0	1.6
ST PANCRAS	1.1	1.0		1.0	1.0	1.0	1.0		1.0	1.0		1.4	1.0	1.0	1.5	1.9	1.2	1.1		1.1	1.0				1.0	1.3	1.0	1.0	1.4	1.1		1.0	1.0	1.0	1.2	2.2	1.0		1.0			1.0
SWANSEA	2.4	2.0	2.0	2.3	1.8	2.0	1.0	1.0	1.5	2.2		1.9	2.0	2.2	1.9	2.0	2.6	2.5		2.1	2.9		1.3		2.1	1.6	2.2	2.1	2.1	2.1	1.1	1.7	2.4	3.2	2.0	1.3	2.1				3.0	2.1
VICTORIA	1.1	1.0	1.0	1.1	1.4	1.0	1.2	1.0	1.0	1.0		1.4	1.0	1.0	1.5	1.9	1.2	1.1	1.0	1.1	1.0		1.0	1.0	1.0	1.0	1.1	1.0	1.4	1.1		1.0	1.0	1.4	1.1	2.0	1.6		1.0		0.9	1.0
WATERLOO	1.1	1.0	1.0	1.7	1.2	1.0	1.2	1.0	1.0	1.0	1.0	1.0		1.3	1.4	1.2	1.2	1.1	1.0	1.1	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.3	0.9	1.1	1.0	1.0	1.5	2.1	1.0		1.3	1.0		1.0
YORK	1.2	2.0	1.0	2.1	1.5	2.0	1.9		2.0	1.0	1.0	1.5	2.0	2.1	1.8	2.1	1.1	1.4	1.0	1.0	1.9		1.2		2.1	1.0	1.0	2.2	2.0	1.6	1.0	1.8	1.0	2.0	1.0	2.1	1.5	1.0	2.1			
Origin \ Dest	ABERDEEN	ASHFORD (KENT)	BIRMINGHAM NS	BRIGHTON	BRISTOL TM	CAMBRIDGE	CARDIFF CENTRAL	CHARING CROSS	CREWE	EDINBURGH	EUSTON	EXETER ST DAVIDS	FINSBURY PARK	GATWICK AIRPORT	GLOUCESTER	GUILDFORD	HULL	INVERNESS	KING'S CROSS	LEEDS	LEICESTER	LIVERPOOL STREET	LONDON BR	LONDON BRIDGE	LUTON	MANCHESTER PCDLY	NEWCASTLE	NORWICH	NOTTINGHAM	OXFORD	PADDINGTON	PENZANCE	PETERBOROUGH	POOLE	SHEFFIELD	SHREWSBURY	SOUTHAMPTON CTR	ST PANCRAS	SWANSEA	VICTORIA	WATERLOO	YORK

- It is evident that the examples chosen were more extreme in terms of the inflation factors. In the table the mean inflation factor is 1.6.

- Around 70% of rail journeys in the UK are into or out of London. The mean inflation factor for those journeys in the table is around 1.1. This is because most commuter services are direct to London. Also the Origin-Destination pairs in this table are atypical, most journeys would occur over a smaller distance. Therefore there would be fewer changes in service groups between stations that were in closer proximity. This means that the overall figure for passenger journeys is probably not inflated by a considerable amount.

- In April 2006, Thameslink and Great Northern will merge as will First Great Western, First Great Western Link and Wessex trains. This will not change the inflation factor between origin-destination pairs on these routes. For example Oxford-Cardiff would become a trip on a single operator, however it will still require the use of two individual trains in the new franchise.

- However, the number of 'operating journeys' could also decrease if non-direct services were replaced by direct services. For example, if the journey from Bristol to Oxford became a direct service then this would affect the journey inflation factor on this route. This is particularly important when considering the number of journeys by non-franchised operators, where a main selling point is the offer of a direct service.

5 TIMETABLED TRAIN KMs TABLE

5.1 DATA AUDIT TRAIL

Data for NRT table 1.4 is downloaded by the DfT from PERCY. PERCY is a system maintained by ATOS Origin. Its primary function is to check compliance of timetables with Passenger Service Requirements (PSRs). PERCY is populated with a .cif file downloaded from TSDB (Train Services DataBase). This is a Network Rail system which holds the national timetable 'plan of the day' (as planned at 10pm the night before operation), which is used to feed Network Rail's systems.

Downloaded data is disaggregated by peak, weekday and weekend.

The PERCY download is taken twice a year, for both the December and June timetables (Weekday, Saturday and Sunday services). The DfT undertake no further processing of the data once it is obtained from PERCY; it is passed directly to the ORR for inclusion in NRT.

The ORR have previously compared the PERCY data to timetabled train km statistics published by ATOC. The two series show similar results.

5.2 ISSUES

During our review we have considered the following issues:

- The timetable sample dates are chosen at random. Hence they may not be the most representative days within a timetable's period of operation. This may be true if short-term engineering works are scheduled for the chosen dates.
- A similar issue arises when long-term engineering blockades (such as the recent Thameslink blockade) do not align themselves to the quarters. Where this has occurred in the past extra processing has been required to produce a more accurate statistic.
- The Jemcon process has previously resulted in significant changes to timetabled train kms for some TOCs (as much as 19%).
- Franchise re-mapping has the potential to distort individual operator's figures.
- The timetabled train km metric does not reflect vehicle or train length, therefore it may not give a true reflection of changes in 'supply'.

5.3 END USER COMMENTS

Two end users commented on the timetabled train km dataset:

- ATOC noted that concerns over timetabled train km data are referred to in section 3.19 of the ORR's Information Network Conclusions report. They also questioned why data could not be taken directly from timetable systems, instead of via PERCY.

- Passenger Focus mentioned that previous research in this area had shown different sources of timetable information yield different results.

5.4 RECOMMENDATIONS

We make the following recommendations:

- As a default, the dates chosen to download data from PERCY should coincide with the ORCATS 'sample dates'. These dates are agreed by the TOCs to be the most representative timetables of the summer/winter periods.

- We suggest the DfT will still have to make manual adjustments for significant engineering works where their start or finish date does not coincide with the quarters, or when franchises are re-mapped.

- We recommend the ORR continue with the 'Jemcon' process for the foreseeable future. However, the value of this process should be reviewed at some point, taking into account the cost of the exercise, and the benefits (in terms of the number of significant backwards adjustments made to NRT statistics).

6 PUBLIC PERFORMANCE MEASURE TABLE

6.1 DATA AUDIT TRAIL

Network Rail have responsibility for producing the PPM data. The PPM statistics are calculated from files produced by ATOS Origin on their behalf. Files are downloaded by ATOS Origin containing 'lateness' data, and 'cancellations' data. These files are downloaded from DEAMS (a DfT system originally used for monitoring Schedule 7, but since developed to provide PPM data), which takes its data from PALADIN.

After Network Rail receive the data (but before it is passed to the ORR), the files are entered into a Network Rail system called IPPM, which produces national, sector and TOC level totals.

Network Rail provide PPM data to the ORR for each rail period (i.e. 13 times a year). Initially 'provisional' data is provided. Then about three weeks later, 'final' data is provided. The difference between 'provisional' and 'final' data is in the cancellation statistics. In the 'provisional' data, cancellation statistics are taken from DEAMS. But in the 'final' data, cancellation statistics are taken from TOC's own monitoring of cancellations, which is known to be more robust (TOCs provide these directly to Network Rail). Therefore, the statistics published in NRT are sourced from DEAMS (lateness), and the TOCs (cancellations).

However, where it is necessary to split rail periods between quarters, the additional "quarter days" cancellation statistics are taken from DEAMS.

Quarterly PPM statistics are generated by the ORR, and these are returned to Network Rail for 'sign off' before being published. During this sign-off, Network Rail sense check national, sector and TOC level statistics against three period averages.

The ORR perform two sense checks on the PPM statistics. First, the peak PPM is checked against the all day trend for consistency. And the statistics are also checked against the PPM results published monthly on Network Rail's website.

6.2 ISSUES

During our review we have considered the following issues:

- The NRT PPM dataset does not contain any statistic for measuring the long term PPM trend.

- The biggest risk to the accuracy of the figures appears to be that Network Rail rely on the individual TOCs to supply cancellations data in the 'final' dataset. Whilst this is known to be more accurate than the system-led approach used to generate 'provisional' data, Network Rail do not have the power of audit over TOC figures.

- Sectorisation issues have, and will continue to, impact upon the PPM dataset. For example, the possible incorporation of Gatwick Express into Southern, and the re-mapping of the Midlands franchises will both create a break in the series.

6.3 END USER COMMENTS

One end user commented on the PPM dataset in NRT.

- The DfT emphasised that quarterly PPM is the key statistic used for monitoring the rail industry, as it is the metric used in the DfT's Public Service Agreement. The PPM results are also incorporated into the DfT's regular 'Key Achievements' report. The DfT also raised the possibility of seasonally adjusting the PPM statistic.

6.4 RECOMMENDATIONS

We make the following recommendations:

- That a Moving Annual Average statistic is added to the PPM table 2.1a.

- We recommend that ORR discuss with DfT what processes they have in place to ensure all TOCs record and report cancellations accurately, and agree on their adequacy. This will remove a risk to the accuracy of the PPM dataset.

7 RAIL COMPLAINTS TABLE

7.1 DATA AUDIT TRAIL

TOCs supply passenger complaint data individually to the DfT. A standard template is used for this reporting. TOCs have a standardised definition of a "complaint" included in their Passenger Licence.

Once this data is received by the DfT, it is passed on to the ORR (one spreadsheet per TOC) with no further processing or manipulation. Data is received quarterly, noting that TOC level data is only published in the NRT Yearbook.

The ORR apply the Inter-Process[4] to the aggregated national complaints trend to convert rail periods into quarters.

LENNON passenger volume data is then used to convert total complaints into complaints per 100,000 journeys.

7.2 ISSUES

During our review we have considered the following issues:

- The rail complaints metric in NRT reflects when complaints are responded to, and *not* when they are received. Therefore, large volumes of complaints generated by an incident near the end of a quarter may not be reflected in the trend until the following quarter.

- The rate at which TOCs processes complaints can influence the trend. Some of the smaller TOCs are not geared up to handle a sudden increase in complaints. TOCs do, however, have targets set for responding to complaints in full, and success against this criteria is published in table 2.2b.

- The passenger complaints trend in NRT is open to a degree of interpretation. For example, a gradual increase in complaints may simply reflect the fact that TOCs are making it easier to lodge a complaint.

- It was suggested that the metric should change to measure the complaint date, rather than the date it is responded to. However, we understand that the earliest date recorded by TOCs Customer Relationship Management (CRM) software is the date a complaint is entered into the system. And complaints may take some time to be entered into TOC's software, particularly following a large increase in the volume of complaints (as noted in NRT's explanatory text).

[4] See section 4.1 for a further explanation of the "Inter-Process".

7.3 END USER COMMENTS

Two end users commented on the Rail Complaints table in NRT.

- The DfT commented that more clarity is needed in explaining the impact of 'response delays' on the rail complaints statistic.

- ATOC suggested that it would be useful to show headline customer satisfaction (from the NPS table) on the same graph as rail complaints.

7.4 RECOMMENDATIONS

We make the following recommendations:

- We agree that it would be informative to show headline customer satisfaction (from the NPS table) on the same graph as rail complaints, and recommend this is done.

- We recommend the rail complaints methodology text is reviewed, making the impact of delays in the complaints handling system clearer to the reader.

8 NATIONAL RAIL ENQUIRIES SERVICE TABLE

8.1 DATA AUDIT TRAIL

ATOC supply data to the DfT on calls made to National Rail Enquiry Service (NRES), the percentage answered, engaged, and ring-tone-no-reply. ATOC receives this data from its suppliers. Data is collected electronically, and all calls are logged (not just a sample).

Data is received from the DfT quarterly, disaggregated by days. The ORR aggregates the data from a daily to quarterly totals.

8.2 ISSUES

During our review we have considered the following issues:

- The market share of telephone enquiries is declining, and other forms of enquiry need to be included to understand the market trend.
- Other service quality measures (such as the percentage of calls answered within 5 minutes, and the accuracy and impartiality of information provided) are not provided.
- More significant decimal places are required on the 'percentage engaged' statistic.

8.3 END USER COMMENTS

Two end users commented on the NRES table in NRT.

- The DfT commented that internet enquiries are not reported in NRT. Also, they commented that the impact of the new 'Train Tracker' service on the statistics was unclear.
- ATOC suggested that all channel data, and not just phone enquiries, should be included. They suggested that the 'contact centre' now accounts for less than 30% of all enquiries.

8.4 RECOMMENDATIONS

We make the following recommendations:

- That other journey enquiry channels are reported in NRT, not just telephone based.
- More significant decimal places are provided in the NRES table.

9 FREIGHT MOVED AND LIFTED TABLES

9.1 DATA AUDIT TRAIL

Data in table 3.1, Freight Moved, is supplied to the ORR by Network Rail. It is taken directly from BIFS (Billing for InFrastructure Services), Network Rail's freight billing system. This is sent to the ORR 13 times a year (for complete rail periods). The ORR apply the Inter-Process[5] to convert periodic data into quarterly data.

Data in table 3.2, Freight Lifted, is supplied directly by the Freight Operating Companies (FOCs), at various intervals (English Welsh and Scottish by calendar month, Direct Rail Services quarterly, and Freightliner – Intermodal and Heavy Haul - by rail period). In converting the Freightliner periodic data to quarterly, the ORR apply the Inter-Process.

Freightliner's Intermodal freight lifted statistics are calculated by multiplying an average weight by the number of boxes lifted (excluding empty boxes). They estimate, worst case, this is accurate to ±2%, but probably much more accurate. Freightliner's Heavy Haul lifted statistics are taken from Network Rail's billing information, so there exists a strong commercial incentive to collect accurate information.

EWS compile freight lifted data from three separate billing systems, which monitor their domestic, international, and maritime containers markets. The data is taken directly from client invoices, which feeds off TRUST. Again, a strong commercial incentive exists to collect accurate information.

Direct Rail Services' Intermodal statistics are generated by multiplying the number of containers lifted by an average weight. The number of containers is audited by the DfT for grant purposes, whilst the average weight (excluding container) is thought to be robust. Similarly, their nuclear traffic statistics are a multiplication of the number of trains and the weight of the nuclear flask.

9.2 ISSUES

During our review we have considered the following issues:

- Freight lifted by GB Railfreight is excluded from the Freight Lifted series.
- Also, new entrants to the freight market are not included in the series (although their market share is extremely small).
- More significant decimal places are required on table 3.1, Freight Moved.
- Concerns exists as to the consistency of the Freight Lifted and Freight Moved statistics, which are generated by different organisations.

[5] See section 4.1 for a further explanation of the "Inter-Process".

9.3 END USER COMMENTS

Four end users commented on the freight tables in NRT.

- The DfT use freight growth statistics from NRT in their periodic "Key Achievements" report. They commented that GB Railfreight do not supply data for the Freight Lifted table, and expressed concerns over the resulting accuracy of the trends. They also expressed concerns over the consistency of the Freight Lifted and Freight Moved datasets, which are generated by different organisations. Finally, the DfT suggested more explanation could be given for the series breaks in the freight tables.

- Transport Scotland commented that they would like to see Freight Moved statistics disaggregated by Scotland, to compare against Scottish Minister's targets.

- Network Rail requested that both gross and net figures for Freight Lifted are provided. Network Rail also raised concerns over the omission of GB Railfreight from the Freight Lifted series, suggesting that NRT could make this omission clearer in its text. Finally, Network Rail asked for clarification as to whether Network Rail "yellow plant" is included or excluded from the Freight Lifted series.

- Passenger Focus mentioned that GB Railfreight data was missing from the Freight Lifted table.

9.4 RECOMMENDATIONS

We make the following recommendations:

- That the Freight Moved statistic is disaggregated by England, Scotland and Wales, at least in the Yearbook publication. The ORR may wish to go further and disaggregate by Government Office Region. We understand it is possible to do this using BIFS data (from Network Rail's freight billing management information system).

- A one-off exercise should be undertaken using BIFS data to check the consistency of the Freight Lifted and Freight Moved tables, as these are presently sourced from different organisations.

- As a minimum, a one-off exercise should be carried out using BIFS data to calculate the amount of freight lifted by GB Railfreight. Guidance can then be given in NRT's text of the materiality of their omission. Alternatively, it is possible to generate the entire Freight Lifted table using BIFS data for all FOCs. The ORR should consider switching to this approach, therefore no longer relying on individual FOCs to provide data.

- That the freight tables are reviewed to provide a sensible number of significant decimal places in each table.

- That the text accompanying the freight tables is reviewed, and more details are given on the reasons for historic breaks in series and methodology changes.

10 AVERAGE AGE OF ROLLING STOCK TABLE

10.1 DATA AUDIT TRAIL

The DfT compile a spreadsheet containing the age of all rolling stock (excluding locomotives) leased by the TOCs, operating services pursuant to a franchise agreement. This is updated quarterly and provided to the ORR for publication in NRT.

To maintain this spreadsheet, the DfT collect information from the TOCs, ROSCOs, and their own internal Rolling Stock team. The TOCs require the DfT's approval to change vehicle leases, and this is the mechanism by which the DfT capture changes.

For all rolling stock entering service post-privatisation, the age is taken as the date of entry into passenger service. Pre-privatisation, the age is assumed to be the mid-point of a build range, (which can be between 2 and 6 years wide).

The DfT presently attempt to maintain the current sectorisation in NRT, by allocating the 'One' and Greater Western franchises between the appropriate sectors. However, this practice may be reviewed by the DfT as the franchise map evolves.

10.2 ISSUES

During our review we have considered the following issues:

- The time series only goes back to 2000/01, one of the shortest time series in NRT. However, we understand it is not possible to extend this back further.
- The average age of rolling stock metric does not reflect refurbishment of rolling stock, which impacts considerably on passenger comfort. It is also not a passenger weighted metric.
- No TOC level statistics are published. The DfT have been asked for this, and we also understand Parliamentary Questions have been asked regarding this.
- Only franchised operators are included. Open Access operators are excluded.
- Only the average age of rolling stock is presented. For this dataset, the range (maximum and minimum) or quartiles may also be useful.
- No graphical representation of the statistics are provided.
- We understand small marginal errors may occur from the ROSCOs delaying notification to the DfT of vehicles coming off lease, but that the overall impact of this is marginal.

10.3 END USER COMMENTS

No comments were made by NRT end users regarding the average age of rolling stock dataset.

10.4 RECOMMENDATIONS

We make the following recommendations:

- That the average age of rolling stock by TOC is published in the NRT Yearbook.
- That the range of rolling stock ages are also presented with the mean (for example, minimum, maximum, or quartiles).
- That a graphical representation of the dataset is included in NRT.
- As suggested in our 'general' recommendations section, we suggest that non-franchised operators be included.

11 PASSENGERS IN EXCESS OF CAPACITY TABLE

11.1 DATA AUDIT TRAIL

TOCs in the London South East sector procure Autumn passenger counts from a list of three authorised survey companies. Recounts are obtained at a later date if rail disruption affects the principal fieldwork day. The passenger counts are combined with the train plan in the 'Green Book'.

The Passengers in Excess of Capacity is calculated for each train according to standard capacity assumptions, defined by the SRA.

Data is provided to the DfT by the TOCs, who forward it to the ORR for publication in NRT.

11.2 ISSUES

During our review we have considered the following issues:

- Only TOCs in the London South East sector are currently required to provide PiXC data. Therefore, within the London region, gaps in the data are associated with Gatwick Express (who are currently classified in the Regional sector), and Long Distance TOCs serving the capital's peak market (Great Western, 'One' Railway long distance services, GNER, Cross Country and Midland Mainline). However, we understand that the new Franchise Agreements for TOCs serving London (including those recently agreed with GNER and 'One') contain a requirement to provide passenger counts. It should be noted that long-distance services are generally less crowded than services operated by 'commuter' franchises.

- At present, information only covers the London peak market. No other urban area is currently included.

- Users have expressed concerns over the statistical robustness of counts. In particular, some indication of confidence intervals would be useful. Some TOCs may soon be moving to automatic train counting using PLD (Peak Load Determination) to produce their Green Books. This has the potential to perform several counts a year cost-effectively, which could be used to provide information on the variability and seasonality of loads.

11.3 END USER COMMENTS

One end user commented on the Passengers in Excess of Capacity (PiXC) datasets in NRT.

- Network Rail requested that additional Green Book information is published in NRT, for example, seats numbers and peak passengers.

11.4 RECOMMENDATIONS

We make the following recommendations:

- The ORR should include PiXC data for the Gatwick Express franchise, *if* this is incorporated into the Southern franchise.

- The DfT and ORR should provide guidance on the statistical variability of the PiXC metric in the accompanying text, if this can be obtained from automatic train weighing technology.

- We do not agree that additional Green Book information should be included in NRT, like seat and passenger numbers. This is because series on supply and demand are covered by other NRT tables.

12 FREIGHT KEY PERFORMANCE INDICATORS TABLE

12.1 DATA AUDIT TRAIL

Data on rail freight's market share is supplied by the DfT, as is information on road haulage impacts.

12.2 ISSUES

No issues were raised during the review of freight KPI data.

12.3 END USER COMMENTS

We received no comments from end users on the freight key performance indicator (KPI) tables.

12.4 RECOMMENDATIONS

None.

13 NATIONAL PASSENGER SURVEY TABLE

13.1 DATA AUDIT TRAIL

NPS data is received directly from Passenger Focus. No significant processing of data occurs after it has been passed to the ORR.

13.2 ISSUES

During our review we have considered the following issue:

- It was commented that a large proportion of the Yearbook is devoted to the NPS, roughly 7 pages in total. It was questioned whether passenger satisfaction should receive such a disproportionate amount of coverage in the document.

13.3 END USER COMMENTS

One end user commented on the National Passenger Survey (NPS) tables in NRT.

- ATOC commented that NPS data could be included in two of the quarterly publications, using the results of the Autumn and Spring survey waves.

13.4 RECOMMENDATIONS

We make the following recommendations:

- We suggest that it would be informative to show headline customer satisfaction (from the NPS table) on the same graph as rail complaints.

14 RAIL FARES INDEX TABLE

14.1 DATA AUDIT TRAIL

The rail fares index is calculated 'in house' by the ORR (and previously by the SRA). The data upon which it is based is generated by ATOS Origin, who download the information from LENNON.

Two data files are received by the ORR. The first contains a list of flows (by TOC), with the following fields: Old price, new price, and 'weight' (TOC earnings).

The second file is similar, but contains "unmatched" fares, or those where no new or old price is available (which may be due to changing fares structures and products). This file is used to calculate the percentage of each TOCs revenue which is excluded from the index calculation.

The ORR merge onto these files a field indicating whether or not the fare is regulated.

Calculating the index involves a significant amount of processing by the ORR. We have seen evidence that this process is well documented.

14.2 ISSUES

During our review we have considered the following issues:

- The method chosen to calculate the rail fares index is essentially a weighted change of comparable products (year on year). The weights used are the passenger earnings associated with the product in year n-1.

- This approach has some drawbacks. Primarily, a significant proportion of some TOCs revenue may not have a comparable fare if the fares structure changes, and products are created or withdrawn. This may lead to significant amounts of revenue falling into the 'unmatched' category, and being excluded from the index (the highest unmatched proportion last time was 18% of Midland Mainline's revenue). On an annual basis, these problems do however correct themselves once the change to fares has worked through. However, if an index is published over several years the error would remain built in to the index (as the index consists of the product of all the annual factors).

- The weights used in the calculation are, by definition, one year out of date. If prices on a flow are changed relative to one another, and as a result passengers switch between products, this will not be reflected in the index. For example, if full fares were increased by 5%, and reduced fares by only 1%, a number of passengers may trade down to the cheaper fare (cross elasticities in the PDFH suggest this may be significant for some rail markets). As this is not reflected in the index, the calculation in this example would over-estimate the overall increase.

- Alternatively, it has been suggested that an average yield approach could be adopted (after correcting for changes to the average distance travelled). Whilst this overcomes the drawbacks with the current approach, it also has deficiencies. Primarily, it measures the

average fare paid, rather than the fare increase which passengers would pay if they wished to make the same journey again.

- There are a small number of cases where new fare prices are incorrectly entered into the fares database by the TOCs. These are often amended later. However, the fares index is a snapshot of the prices on one day (about 4 to 6 weeks after the fare change). These amendments are not incorporated in the index.

- The fares index is currently weighted by earnings (as the Office of National Statistics' RPI and CPI indices are also revenue weighted). However, we suggest that a volume weighted index is a more accurate method of calculation (the DfT's fares baskets are also volume weighted).

14.3 END USER COMMENTS

Three end users commented on the rail fares indices contained in the Yearbook:

- The DfT commented that fare increases disaggregated by TOC are consistently being requested by various organisations, including requests made under the Freedom Of Information Act. They also commented that historic information disaggregated by TOC would be useful. Also, the DfT suggested that the fares indices could be presented more helpfully.

- ATOC noted that concerns over the NRT fares indices are referred to in section 3.20 of the ORR's Information Network Conclusions report.

- Passenger Focus commented that a TOC level fares index would be useful.

14.4 RECOMMENDATIONS

We make the following recommendations:

- We do not suggest that individual TOC indices should be included in the NRT Yearbook. Because of the method of calculation, the results are likely to become more volatile as the national index is further disaggregated (because of the unmatched prices issue). We believe calculating TOC indices would place too much of a burden on the ORR in terms of checking, explaining and communicating the reasons behind movements in several individual indices. However, ORR will need to take its own view on the resource impacts relative to its other priorities.

- We have already recommended that a headline 'yield' trend is included in section 1. This should be cross referenced by the rail fares index section, and the differing assumptions behind the indices explained.

- We recommend that the July "All-Items" RPI series is used to convert the fares indices to real changes, instead of the GDP deflator series. This is consistent with fares regulation policy.

- The fares index should be weighted by volume (operating journeys), not earnings.

15 INFRASTRUCTURE TABLE

15.1 DATA AUDIT TRAIL

Data is supplied to the ORR by Network Rail. The route kms open to traffic is calculated in a manner consistent with Network Rail's Annual Returns Capabilities Measure C2 methodology. The derivation of the statistic involves querying about 220,000 running line records in a system called GEOGIS. This method of calculation is very accurate. Some further assumptions need to be made to obtain the sub-total which is electrified, but Network Rail believe this element is still accurate to ±0.5%.

15.2 ISSUES

None.

15.3 END USER COMMENTS

One end user commented on the Infrastructure table contained in the NRT Yearbook:

- The DfT requested a better explanation of series breaks in the Infrastructure table. Because of the nature of the metric, it should be possible to make factual causative statements. At present, the text simply states that series breaks are due to a "change in methodology".

15.4 RECOMMENDATIONS

We make the following recommendation:

- The text next to the infrastructure table should be reviewed to provide information on series breaks.

16 COMPARISON OF NRT WITH STATISTICAL PUBLICATIONS FROM OTHER INDUSTRIES

In Appendix 2 we have included examples of statistical bulletins from other transport and regulated industries. We have compared these to the NRT publication.

In summary, we suggest NRT compares favourably against these other examples, particularly in terms of presentation.

However, we believe the presentation of NRT could be improved by adopting some features of these examples:

- We recommend NRT includes a one page Executive Summary. In Appendix 2 we have included a Bus and Light Rail Statistics Press Release from December 2005 (source: DfT). We recommend a similar summary is provided in NRT. This could be achieved by incorporating the press release which is currently released with NRT.

- Many of the documents in Appendix 2 have a very clear separation of 'data tables' and 'methodology notes'. Some documents even relegate the explanatory notes to an appendix. We suggest that some datasets in NRT are cluttered by the explanatory text (for example, chart 2.1a PPM), and the document would be clearer with more separation of notes and data. Some end users also commented that this would be beneficial. However, we do not recommend that important notes are relegated to NRT's appendices, otherwise important 'health warnings' may be missed by the reader.

- Most statistical publications name an individual who may be contacted for further information (in the first instance). We suggest this is included in NRT.

17 REVIEW OF THE PRINCIPLES OF THE DATA CODE

17.1 BACKGROUND

The ORR has recently published draft heads of terms for the Data Code in its Information Network Conclusions document (published December 2005). The purpose of the Data Code is to provide a framework to assess datasets against defined criteria, to establish if they are fit for purpose.

The ORR consider the application of the Data Code to be a two-stage process. First, a "data assessment workplan" should be defined, before the assessment is undertaken.

The draft heads of terms for the Data Code are:

Quality Assurance

- Documented evidence of quality assurance process, appropriate to the type of data and its significance.
- Data quality standards/objectives defined.
- Audit trail.
- Evidence of measures taken to ensure there is professional competence in the statistical processes.
- Checks on data supplied through the use of third parties.

Integrity and Transparency

- Understanding any limitations with respect to data quality, and reasons.
- Consistency within data series.
- Clarity of definitions.
- Appropriate units of measurement.
- Analytical methods/sampling techniques used by third parties.

Accessibility

- Description and justification of any restrictions on access or use.
- Explanation on how data is presented to avoid any unnecessary barriers to use.
- Form of data transfer.
- Place and time of availability if limited.
- Version control.
- Availability of archived data.

Enhancement Proposals

- Explanation and justification of enhancement proposals, including how proposals maximise benefits to the industry.
- How stakeholder's views are taken into account.
- Long term view of industry benefit.
- Fit with existing data to maximise value.
- Common standards in data management.

User Consultation Engagement

- Explanation of how users have been engaged in changes to collection methods, data processes, and outputs.
- Explanation of how responses to formal and informal feedback are handled.

Efficiency and Charging

- Approach to ensuring efficiency in data collection and analysis.
- Justification for charging policy.

All of the criteria stated above are to be applied recognising both the costs and benefits of changes.

17.2 REVIEW

Our remit for this review does *not* involve assessing the NRT datasets against the draft heads of terms, to make judgements on their fitness for purpose.

Instead, our remit covers reviewing the draft heads of terms in the light of our NRT review, and making recommendations for their improvement. Therefore, we have reviewed the performance of the heads of terms to the processes involved in generating the PPM and Passenger km datasets (these are arguably two of the most important datasets in NRT).

Primarily, the heads of terms are designed to test a dataset's *fitness for purpose*. But nowhere in the Data Code is a statement of *purpose* of the dataset required. We suggest this is added to the draft heads of terms.

One of the criteria contained in the draft heads of terms is "*understanding any limitations with respect to data quality, and reasons*". Nearly all datasets in NRT rely upon other organisations (other than the ORR) to supply data, which is often downloaded from industry systems. Quite often, expert knowledge of the industry's management information systems (and their limitations), resides only in the organisation responsible for the system. Therefore, we recommend a further criteria is added to the Integrity and Transparency section, requiring the analyst to consider the plan for communicating dataset limitations to other users of data outside their own organisation.

A further criterion in the Data Code is "Consistency within data series". In practice, we suggest this can be very hard to achieve over the long term as the organisation of the industry is constantly evolving (the changing franchise map, and entry of open access operators into the market are two good examples of this). Therefore, we suggest that this criterion be amended to suggest that whilst consistency within data series is clearly desirable, as a minimum analysts should evaluate and communicate the materiality of 'breaks' in series where that cannot be avoided.

The Data Code calls for "*evidence of measures taken to ensure there is professional competence in the statistical processes*". For many NRT datasets, the statistical methods applied to the datasets are relatively straightforward (i.e. averaging), compared to the computational effort required to generate the data into the required format. We suggest this criterion be amended to read "evidence of measures taken to ensure there is professional competence in the statistical *and computational* processes".

The Data Code also requires that checks are performed on data received from third parties. On one level, simple checking (such as sense checking a sample of records) can be achieved relatively simply. However, more thorough checks can be difficult to perform, particularly on processes employed by third parties to extract and manipulate data from in-house systems. It is rare in the rail industry for one organisation to have power of audit over data suppliers (for example, the PPM dataset requires Network Rail to accept TOC cancellations figures on good faith, with limited opportunities to conduct detailed checks). Therefore, it could be useful if a further criterion is added to the Data Code stating that organisations satisfy themselves that the management procedures and systems processing at data suppliers is sufficiently robust.

APPENDIX 1: LIST OF CONSULTEES

The following users of NRT were interviewed during this review:

- Jacob Wilcock, Rail Statistician, DfT.
- David Mapp, Commercial Director, ATOC.
- Jonathan Pugh, Transport Scotland.
- Julie Rickard (Network Planning Manager), Steve Knights (Demand Forecasting Specialist) and Ana Chan (Economic Analyst), Network Rail.
- David Greeno (Passenger Researcher), Andrew Regan (Knowledge and Data Researcher), Passenger Focus.

Other comments were received from:

- Richard Hope, Contributing Editor of Rail Business Intelligence.
- Hugh Wallis, ATOC.
- Tejpal Singh and Chris Scoggins (ATOC - NRES).

We are also grateful to the following individuals, who supply data for inclusion in NRT, for their contribution to the review:

- Bill Whitton, Lorraine Pengelly and Angelique Tjen, Network Rail.
- Peter Painter, Ariel Brook and David Williams, DfT.
- Angus Johnston, Freightliner
- Grant Pyke, EWS
- David Stubbs, Direct Rail Services

APPENDIX 2: EXAMPLES OF OTHER STATISTICAL PUBLICATIONS

In this appendix we provide examples of other statistical publications, namely:

- Bus and Light Rail Statistics GB: July to September 2005 (*DfT Press Release*)
- Complaints Received By CCWater: B y Company (*WaterVoice, October 2005*)
- Complaints per 10,000 connections 2004/5 and 2003/4 (*WaterVoice 2005*)
- Light Rail Statistics England: Key Facts (*DfT 2004*)
- Transport Statistics Bulletin: Traffic speeds in English Urban Areas: 2004 (*DfT 2005*)
- Transport Statistics Bulletin: Sea Passenger Bulletin: Q2 2005 (*DfT 2005*)
- Transport Statistics Bulletin: Traffic in Great Britain: Q3 2005 (*DfT, National Statistics 2005*)
- Regional Transport Statistics (*DfT, November 2005*)
- Provisional Airport Statistics (CAA, November 2005)
- Financial Resources of Major United Kingdom Airlines 1995 – 2003 (*CAA, 2004*)
- Major Outputs of UK Airports 1976 – 2004 (*CAA, 2005*)
- Levels of Service for the Water Industry in England and Wales (*OFWAT, 2005*)

APPENDIX 3: REPORT CONTROL SHEET

Title	Review of National Rail Trends
Customer	ORR
Customer reference	
Confidentiality, copyright and reproduction	AEA Technology Rail in Confidence This document has been prepared by AEA Technology plc in connection with a contract to supply goods and/or services and is submitted only on the basis of strict confidentiality. The contents must not be disclosed to third parties other than in accordance with the terms of the contract.
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