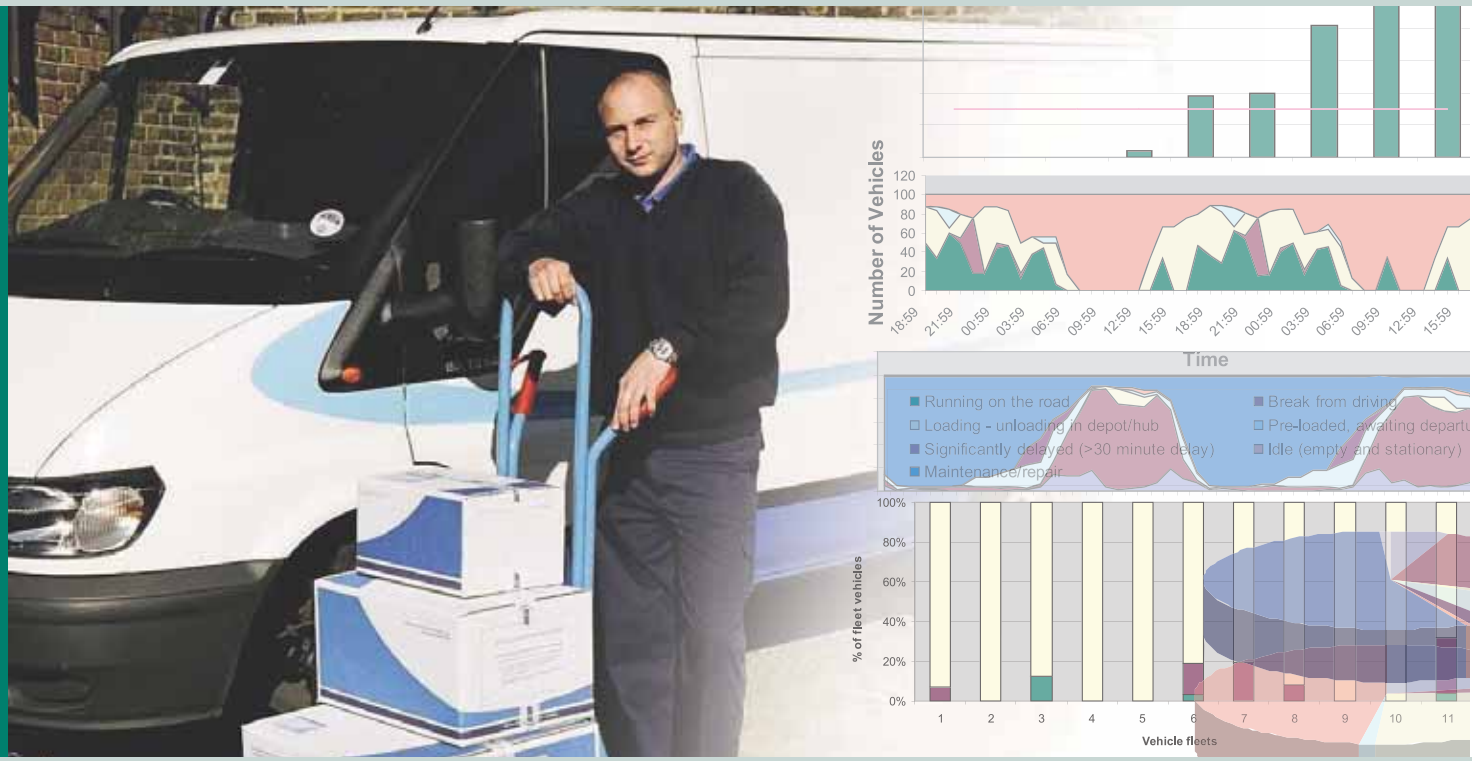
FreightBestPractice

Department for Transport

Key Performance Indicators for the Next-day Parcel Delivery Sector

Benchmarking Guide



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1 Background

Every successful organisation needs to manage its assets effectively and can benefit from benchmarking its performance against that of direct competitors and those held to be excellent in its sector.

The Department for Transport, through its Freight Best Practice programme, has supported a series of benchmarking surveys that have developed a range of key performance indicators (KPIs) in a variety of industry sectors.

Already published are 'Key Performance Indicators for Non-Food Retail Distribution', 'Key Performance Indicators for the Food Supply Chain' and 'Key Performance Indicators for the Pallet Sector'. All of these publications are available FREE of charge from the Freight Best Practice website **www.freightbestpractice.org.uk** and from the Hotline **0845 877 0 877**.

KPIs used in external benchmarking are essential tools for the freight industry to understand and then improve its performance. They provide a consistent basis for measuring transport efficiency across the fleets of different operators, comparing like with like.

This benchmarking survey considers the parcel sector, focusing on next-day deliveries for both home and business-to-business consignments. This guide reports on the survey work and further develops the programme's portfolio of benchmarking surveys. These surveys have delivered KPI comparisons between the participating fleets and produced recommendations for the operators.

The survey aimed to:

- Show participating companies how their own performance compared with that of others
- Highlight how the best operators in class are able to achieve their ratings

Operators in the next-day parcel delivery sector can use this benchmarking guide to identify real opportunities to maximise transport efficiency, reducing both running costs and environmental impact.

1.1 Measuring Performance in Your Own Business

If you want to make well-informed, tactical and strategic decisions about your operation, you will need to be able to accurately measure the resources you use to deliver your services. Only then can you identify areas for improvement and assess how effective any operational changes have been.

The starting point for any performance improvement programme should be to understand the current performance of your operation. This means collecting data on key aspects of your operation and turning this information into specific measures that can help you to identify areas for improvement - for instance, how much it costs you to deliver products to your customers, how many miles your vehicles run empty or the number of late deliveries you make. These measures are known as key performance indicators (KPIs).

A KPI on its own will not tell you much. Individual measures and data need to be turned into information that can help you to make decisions. This means setting a target and measuring and monitoring KPIs over a period of time to see how your operation performs against this target. Weekly, monthly and annual reports allow you to monitor progress and see which areas need the greatest improvement. Producing graphs or charts will often be the best way of showing performance progress.

1.2 What Should a Key Performance Indicator Be?

There are many different KPIs that can be used to measure performance in a freight transport operation and it can be difficult to know which ones might be right for you. This section is intended to explain the characteristics of useful KPIs that can be applied in various types of operation and by different people. However, there are a number of things you can consider beforehand in order to decide which ones may be right for you. A KPI should be relevant and it should also be SMART - Specific, Measurable, Achievable, Realistic and Timed.

Specific

KPIs should be specific, simple to use and easy to understand. Complicated statistics and formulae can lead to confusion and uncertainty about what is actually being measured in the first place. If KPIs are specific and kept simple, they can be easily communicated across the business and there is no need for staff to have an in-depth knowledge of the area being measured.

Measurable

KPIs can show changes in performance over time. For this to happen it is essential to compare like-with-like data. It is easy to fall into the trap of comparing two drivers on different routes for time utilisation or miles per gallon (MPG). If one route is more demanding than the other, this could be misleading. Similarly, comparing drivers when they drive vehicles of substantially different age or vehicle type can also be deceptive. There are ways you can get around these problems however, such as rotating drivers onto different vehicles and different routes and then monitoring both driver and vehicle performance, to spot consistently high and poor performers.

Achievable

Any targets that are set should be achievable. It may seem beneficial to set high targets in the hope that this leads to greater improvements in performance, but people can become disillusioned when they continually fall short of the targets set for them. Regularly reviewing performance towards targets and then resetting the targets to encourage smaller incremental (but cumulative) improvements may work much better in the long run.

Realistic

Remember that decisions and management actions will be taken as a result of the data collected and presented, so the data collection method needs to be realistic, reliable and consistent. It is important that the data required to produce the particular KPI can be collected easily and on a regular basis, as comparison over time forms the basis of benchmarking and then improving performance.

Timed

The frequency of monitoring is an important consideration. Weekly or monthly monitoring is recommended for many KPIs but this can depend on the measure and the needs of a particular business. Some information may have to be collected on a daily basis, such as staff absences in the warehouse, daily delivery drops or nightly trunking volume. If certain measures are not recorded and presented to the agreed timescales, the risk of changes in performance going unnoticed rises.

1.3 Which KPIs Are Right for Me?

The size, type and management structure of a company is likely to influence the range of KPIs you might use. KPIs can be used to help managers develop strategy, plan and make decisions, while at the operational level they can show clearly the areas that need improvement, or a change in approach.

An individual KPI can tell you how well you are performing at an operational level. However, when looked at in combination with other measures, a picture can be provided of how you are performing in terms of revenue and profitability and overall fleet efficiency and in relation to customer service and legal obligations.

Figure 1 shows a basic step-by-step process for measuring performance. The Performance Management Checklist on page 3 shows some important questions you can ask to help set up a performance measurement system in your organisation.

The Freight Best Practice programme offers an easy to use Microsoft Excel © spreadsheet tool called the **Fleet Performance Management Tool** which allows you to measure 22 different KPIs.

See the Freight Best Practice publication **'Fleet Performance Management Tool'** which is available free from the website **www.freightbestpractice.org.uk**

Figure 1 The Process of Selecting and Measuring KPIs

Performance Management Checklist	✓ or ✗
Have you reviewed your existing KPIs or looked at those that might be appropriate for your type of operation?	
Are they Specific, Measurable, Achievable, Realistic and Timed? (SMART)	
Have you set targets for these KPIs?	
Do you know how well your operation is performing against your targets?	
Do you need to raise or lower them?	
Have you considered external benchmarking to compare your operation's performance with that of others?	
Have you reviewed or set up a data collection system to give you the information you need?	
Do you have a good system in place for analysing and reporting your KPIs?	
Do you use information technology systems to help you?	
Have you considered actions that can be taken to improve your operation's performance and meet new, higher targets in the future?	

1.4 External Benchmarking

The basic process of measuring performance internally is extremely useful but to fully understand how your operation compares with that of your competitors, you must benchmark your performance with the best-in-class performers in your sector.

This process of external benchmarking will enable you to understand the characteristics displayed by the best-in-class performers across a range of KPIs. In other words, understanding exactly why some operators perform better than others in certain KPIs will help you to decide the best measures to implement in your own operation to improve operational efficiency.

This benchmarking survey guide in the parcel sector is designed to highlight the performance of some of the best-in-class operators within the sector, enabling you to compare the relative efficiency of your own fleet operation.

2 Introduction to the Parcel Sector Survey

The KPIs in this guide refer to transport efficiency and concentrate mainly on fuel-related indices. This is because fuel is a major component of cost for the participating companies and is also the central motivating factor of the Freight Best Practice programme in seeking to promote operational efficiency. It should also be said that there are many other overarching business KPIs that are of strategic importance to organisations, including customer service, productivity and financial performance.

2.1 The Benchmarking Guide

This guide describes how the next-day parcel delivery sector benchmarking survey was conducted, outlines which KPIs were measured in the survey and focuses on the analysis, results and recommendations for operational improvement.

The benchmarking survey was managed by Faber Maunsell on behalf of the Freight Best Practice programme.

The steering group for the survey was made up of representatives from nine companies operating in the sector. The survey process involved consultation with the sector, through site visits and the hosting of a workshop to discuss and agree the KPIs to be measured.

Four parcel-carrying companies participated in the survey.

2.2 Nature of the Next-day Parcel Delivery Sector

The next-day parcel delivery sector is important for the UK economy. It often involves complex delivery patterns to both businesses and households, operating in national and international markets. The way in which the sector organises itself is often dictated by time-critical operations consisting of multiple stops to deliver and collect small quantities of freight. Operations are often run by companies that have national networks with regional depot coverage, running a range of vehicle types on both local collection and delivery (C&D) and longer distance trunking activities.

These characteristics can offer opportunities for improvements at both the strategic and the tactical operational level.

The next-day parcel delivery sector continues to grow. In recent years the growth of the internet and home shopping has led to a wide range of people frequently sending and receiving small consignments. Businesses frequently depend on their ability to move small items efficiently, cost-effectively and reliably overnight.

The nature of operations in the sector involves local collections and deliveries, predominantly during the day, and longer distance trunking activity, usually overnight.

In most operational models, companies have a network of depots nationwide and each depot has a designated service area. Early in the morning, small, locally based vehicles start the deliveries of the day, which are often due to be completed by specified times. Usually vans and small rigid HGVs are used for this delivery activity.

After finishing deliveries, in most operations the same C&D vehicles start collecting the parcels that are due to be delivered elsewhere the following day. In some operations, vehicles will deliver and collect consignments along their route. When vehicles return to the depot at the end of the day, parcels are off-loaded from them and loaded into the larger trunking vehicles, usually large rigid HGVs and articulated vehicles.

In most cases, these trunking vehicles carry consignments overnight to a central hub, or a network of regional hubs, where they are sorted according to the delivery postcodes and sent to the designated depots to be delivered the following morning.

It should be noted that the model described above is that most frequently identified and used within the sector. Alternative operational structures do exist.

The sector faces both pressures and opportunities for cost reductions and improvements in operational efficiency. Fierce competition and escalating operating costs in the sector have prompted carriers to pay increasing attention to using fuel and vehicles more efficiently.

On-going research and emerging technologies have generated further opportunities for operators to better monitor and plan their activity. Vehicle telematics equipment, advanced routing and scheduling software and logistic forecasting models are significant developments that are able to assist operators in the sector.

3 The Key Performance Indicators

Survey data collection and analysis were split into two parts:

- C&D activity
- Trunking activity (it should be noted that trunking activity includes regular large volume trips between customer depots and hubs, as well as trips between company depots and hubs)

The following KPIs were measured for both C&D and trunking activities.

Table 1 KPIs Measured During the Survey

C&D and Trunking Activities:
Vehicle Fill - measured as a degree of loading against the capacity of the vehicles, by volume and deck length. Any weight capacity restrictions experienced were also recorded.
Time Utilisation - measured by categories of use during a 24-hour period.
Fuel Consumption.
Trunking Activity Only:
Empty Running - percentage of miles run empty.
Deviations from schedule - covering any significant delay and its causes.

These KPIs were selected because:

- They quantify the levels of fuel use and vehicle utilisation
- They are effective reference points for monitoring and improvement
- They are relevant to the interests of operators
- They can be used by the wider sector

Additional data were also collected in order to further investigate the causes of higher than average fuel consumption and to identify both good and poor practice. This additional information included the age of the vehicles, the number of failed deliveries and the use of technology such as aerodynamic styling equipment and navigation systems.

4 General Survey Statistics

The benchmarking survey, consisting of a synchronised vehicle audit, was carried out over a continuous 48-hour period starting at 18:00 on Tuesday 11th October 2005 and finishing at 17:59 on Thursday 13th October 2005.

In total, 12 fleets from four separate parcel carriers submitted data for analysis and comparison. Not all companies provided data for all KPIs.

Each company was given an individual survey report, highlighting data collected from their particular fleets for each KPI. This enabled companies to benchmark their performance against that of other participants, the sector norms and the best-in-class.

The individual identity of each participating fleet has been kept anonymous for the purposes of reporting within this guide.

The aim of the 48-hour synchronised vehicle audit is to provide a 'snap-shot' summary of activity and efficiency levels within the sector. All participating companies have been encouraged to continue performance measurement and benchmarking on an on-going basis to identify further areas for improvement.

The activities of 444 vehicles of seven different categories ranging from cars to articulated vehicles were recorded during the 48-hour synchronised vehicle audit. Survey participants' vehicles ran a total of 111,464 kms and 863 trips were made for both collection and delivery (C&D) and trunking activities.

It should be noted that October is a peak period for this sector, potentially leading to higher than usual utilisation figures. The chosen days for the survey, Tuesday, Wednesday and Thursday, had approximately the same level of activity as the other days within that week.

Tables 2, 3 and 4 show general survey statistics.

Table 2 Survey Data: Participating Vehicles

Cars and car-derived vans	13
Larger vans	282
Rigid HGVs	107
Tractor units drawing semi trailers	42
Total vehicles	**444**

Although cars are rarely used by the sector, we have included data provided by companies operating cars during the survey period. Two out of the 12 fleets supplied data for cars used during the synchronised vehicle audit. It should be recognised that this inclusion of cars may have distorted a proportion of the survey statistics, as vans and rigid vehicles are generally more prevalent than cars in C&D operations within the parcel sector.

Table 3 Survey Data: C&D Activity

Trips*	670
Stops**	38,308
Kilometres	73,542
Kilometres per trip	110
Kilometres per stop	1.92
Stops per trip	57

*C&D trip: Each journey made by the vehicle starting from the depot and ending with its arrival back at the depot, after carrying out deliveries and collections.

**C&D stop: Each stop made by the vehicle, as part of a trip. This might be either for collecting or for delivering consignments.

Table 4 Survey Data: Trunking Activity

Trips***	193
Kilometres	37,922
Kilometres per trip	196

***Trunking trip: Each journey made by the vehicle starting with its departure from the depot and ending with its arrival back at the depot, after going to a hub for unloading and loading consignments. In some cases, the trunking movement might originate at a large customer's premises rather than a parcel depot.

On average, for C&D activity, there were 65 stops per trip made in the South, 50 stops per trip made in the Midlands and 44 stops per trip in the North.

At least 9,116 litres of fuel were consumed in C&D activity and 13,683 litres in trunking activity, given that some fleets did not provide data about fuel.

The age profile of the vehicles operated by the participating companies is outlined in figure 2. In this study, five fleets had Euro 3 vehicles, less than four years old, showing that some companies chose to operate modern, reliable fleets. Even the oldest fleet in this study had 81% of its vehicles as Euro 3. One of the 12 fleets failed to submit fleet profile information.

Figure 2 Vehicle Fleet Profile by Euro Emission Standard

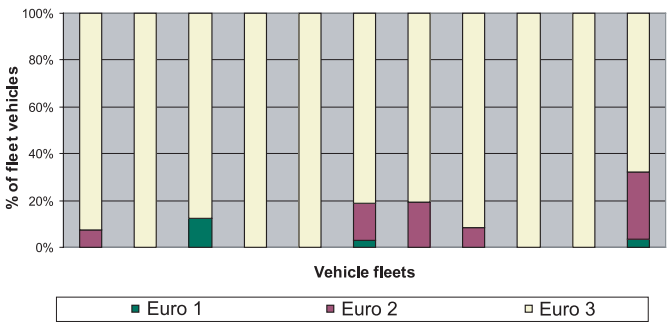


Table 5 shows the percentages of vehicles fitted with aerodynamic devices, satellite navigation equipment, in-cab engine management display, wireless proof of delivery and GPS tracking systems, broken down by categories.

4.1 Aerodynamic Styling

Aerodynamic styling kit was fitted to many heavier vehicles, particularly two-axle tractor units where 100% of the sample had equipment fitted.

4.2 Satellite Navigation Equipment

Satellite navigation systems were fitted in only a small number of vans (5% of short wheelbase and 3% of long wheelbase). None of the 7.5t GVW (gross vehicle weight) or 18t GVW vehicles used this equipment.

4.3 Engine Management

Engine management systems were present in a comparatively small number of vehicles within the sample (only 1% of tractor units were declared as using these systems). Heavy rigid goods vehicles had the greatest use with 16%.

4.4 Electronic Proof of Delivery (POD) Equipment

This equipment was used on many of the vehicles in the trial, with 86% of 7.5t GVW vehicles and 74% of 18t GVW vehicles using it. Around half of the short and long wheelbase vans (46% and 56% respectively) had electronic PODs in use. Notably, none of the tractor units in the trial had POD equipment in use, probably because the majority of them were being used on trunking activity, where customer signatures are not required.

4.5 GPS Tracking

Few vehicles had any GPS tracking equipment fitted. Only one company had two short wheelbase vans and one long wheelbase van using GPS tracking.

It is worth noting that only a select number of vehicles were used in the survey. Other fleets, in particular the higher value parcels services within a company, may use GPS tracking equipment. While this low level of fitment in the survey vehicles is surprising, given that companies in the parcels sector often offer services to their customers such as track and trace through the internet, it is possible that the tracking of items is actually done through telephone communication with drivers, with the information then being relayed on to the internet from the depot.

In summary, it appears that the parcels sector uses current technological solutions to a limited extent and there is significant potential for further uptake and use.

Table 5 Vehicle Equipment and Technology by Vehicle Type

	Car-derived Van	Van Less than 3.5t GVW, Short/Medium Wheelbase	Van Less than 3.5t GVW, Long Wheelbase	Rigid Goods Vehicle - 7.5t GVW	Rigid Goods Vehicle - 18t GVW	Tractor Unit - Two-axle
Aerodynamic Styling	None	None	None	14%	21%	100%
Satellite Navigation Equipment	None	5%	3%	None	None	None
Engine Management	None	13%	10%	7%	16%	1%
Electronic POD Equipment	None	46%	56%	86%	74%	None
GPS Tracking	None	2%	1%	None	None	None

5 Collection and Delivery (C&D) Activity Results

5.1 Vehicle Fill (C&D)

Vehicle fill was calculated from data relating to the laden state of the vehicle at the start and the end of each round trip.

Vehicle fill was calculated as an estimation of the percentage of vehicle load space cubic capacity (cube). Operators were asked to give estimations of the available cube of each vehicle.

The results were not weighted by the distance travelled in each leg, because the percentage of vehicle fill continuously changes during the trip owing to the multiple stops.

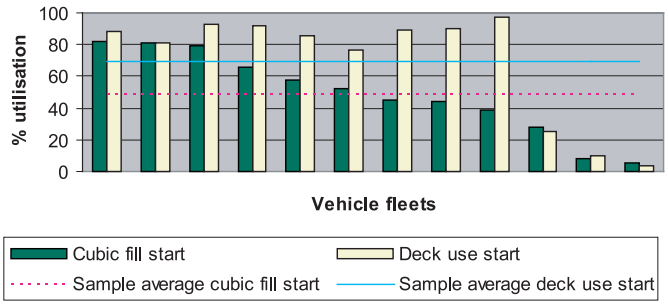
Previous benchmarking studies have also measured utilisation in terms of degree of vehicle weight capacity used. In the next-day parcel delivery sector, however, operators do not normally measure the weight of their load. This is due, at least in part, to the fact that weight is not normally the limiting factor of the operation. In most cases the limiting factor, i.e. the restriction on the amount of parcels which can be carried, is the vehicle's deck length. Survey participants did give data showing whether weight capacity was the restricting factor for any particular trip.

In practice, operators were unable to provide detailed data about the level of vehicle fill after each stop or component part of the journey. Although vehicle fill is measured at only the start and the end of the journey, the steering group concluded that this does sufficiently reflect the degree of vehicle utilisation. At the start and end of the journey, vehicles have the highest possible capacity utilisation. After commencing the journey with the maximum number of consignments, the load gradually diminishes over multiple drops. Collection activity (bringing new consignments back to the depot) commences part of the way through the journey, with the objective of returning to the depot as full as possible. Therefore, the achieved level of fill at the start and end of the journey provides a fair indication of how well operators meet customer demand, using the least possible resources.

Start of Trip Vehicle Fill (C&D)

The results for vehicle utilisation at the start of each trip, ranked by cubic fill, and the average level across all fleets are shown in Figure 3.

Figure 3 C&D Cubic Fill and Deck Use at Start of Trip



The overall average performance in cubic fill at the start was 49%. Southern depots performed better than the others with 58%, against 44% for Northern and 45% for Midlands depots.

Rigid 7.5t GVW vehicles had the best overall average performance at 71%. However, rigid 18t GVW vehicles performed exceptionally well in the Midlands, with 90% average cubic fill.

The overall average performance for deck length use at the start was 69%. Again, Southern depots performed better than the others with 72%. The differences between areas were not as significant as for cubic fill at the start, with the Midlands depots achieving 67% and Northern depots 70%.

All types of vans and rigid vehicles achieved, on average, more than 75% deck use, with the highest performance exhibited by rigid 18t GVW vehicles in the Midlands at 90%.

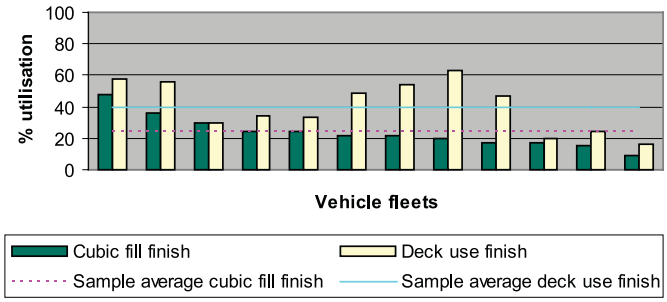
Weight capacity was a restricting factor for only one Midlands-based fleet, and applicable in 38% of its journeys.

Interestingly, the Midlands 18t GVW vehicles had the best cubic fill and deck length of any vehicle type and region, with both factors running at 90%.

End of Trip Vehicle Fill (C&D)

The results for vehicle utilisation at the end of each trip, ranked by cubic fill, for each fleet and the average level across all fleets are shown in Figure 4.

Figure 4 C&D Cubic Fill and Deck Use at End of Trip



The overall average performance for cubic fill at the end of trip was 24%. Southern depots performed better than the others with 28%. Northern depots achieved 19% and the Midlands depots achieved 24%.

In terms of vehicle fill by vehicle type, rigid 18t GVW vehicles achieved the highest overall average performance across all regions of 44%, followed by rigid 7.5t GVW vehicles with 39%. The rigid 18t GVW vehicles based in the South achieved the maximum average performance of 93% vehicle fill.

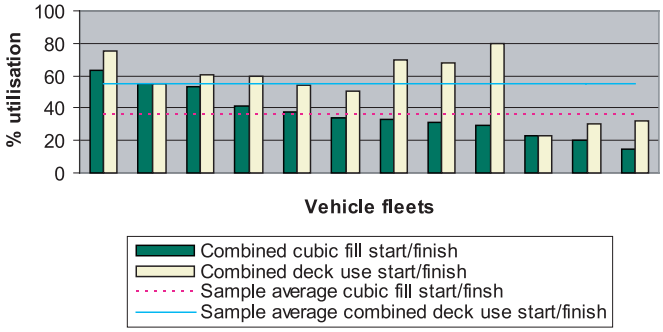
The overall average performance for deck length use at the end of trip was 40%. The Midlands depots performed better than the others, with 44% deck length use at the end of trip. Depots located in the North achieved 38% and in the South 39%. Rigid 7.5t GVW and rigid 18t GVW vehicles achieved the highest percentages, with 53% and 50% respectively.

Weight capacity was a restricting factor at the end of each trip for only two fleets. One of these fleets also had loads restricted by weight at the start of each trip and 5% of vehicle trips restricted by weight at the end. The second fleet had 17% of trips restricted by weight at the end. Both of these fleets were located in the Midlands and the reason for the weight-restricted loads might be because more dense and heavier manufacturing products were being moved on smaller vehicles.

By averaging vehicle fill at the start and vehicle fill at the end of the trips for each fleet, we get an overall average of 36% for the cubic fill and 55% for vehicle deck use.

The results are shown in Figure 5 below.

Figure 5 C&D Combined Cubic Fill and Deck Use, Start and End of Trip



5.2 Time Utilisation (C&D)

Operators provided data relating to the dominant activity of the available C&D vehicles for each hour of the 48-hour survey period. The categories into which each activity was classified were:

- Stem mileage, reflecting time spent travelling either from the depot to the first stop, or from the last stop back to the depot
- Collecting and delivering
- Taking a break from driving
- Loading or unloading in depot
- Pre-loaded, awaiting departure
- Significantly delayed (>30 minutes delay)
- Idle (empty and stationary)
- Undergoing maintenance/repair

Figure 6 shows the percentage of time spent in each of the categories during the survey period.

Figure 6 C&D Time Utilisation

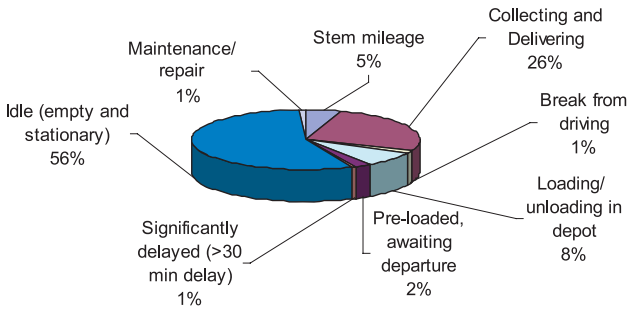
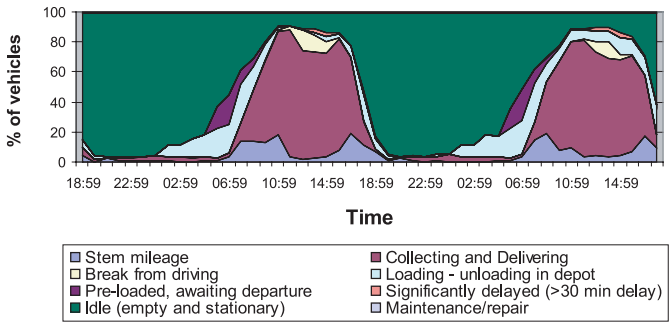


Figure 7 shows the hourly breakdown of the vehicles' activities.

Figure 7 C&D Hourly Activity Breakdown



Collection and delivery vehicles were productive for 31% of the time, either by running on the road covering the stem mileage (5%), or by collecting and delivering (26%). For 8% of the time vehicles were loading and unloading in the depot, for only 2% of the survey time vehicles were pre-loaded, awaiting departure. For the majority of available time, collection and delivery vehicles were stationary and idle. This can be partly explained by the nature of collection and delivery activity. Most vehicles start collection and delivery activity early in the morning at around 07:00 and finish at around 18:00.

However, two depots were carrying out collection and delivery activity on the night shift using a small proportion of their fleet for this purpose.

The time spent on breaks from driving, undergoing maintenance or repair and being delayed was relatively insignificant - resulting in 1% of time spent in each category.

Some C&D fleets are loaded by the night shift workers, so that the day drivers can commence their deliveries immediately after they report to work. This saves time waiting for loading to be completed. The best depot had 84% of the fleet pre-loaded by 06:00.

One depot experienced fleet delays of 6% and another had breaks from driving of around 5%. Time spent on breaks from driving varied between 0% and 5% of the day across all fleets. Some depots carrying out very local deliveries had drivers who did not require breaks from driving owing to the limited time spent at the wheel.

A closer examination of the data showed that fleets in the Midlands spent more time idle and spent less time delivering and collecting. It appears that some depots in the South started and finished the main delivery and collection activity one hour later than depots in other areas. This could have been due to traffic congestion and a preference to leave the depot later to avoid peak traffic, the arrival times of the trunking vehicles, customers' opening times, distance between the depot and the first delivery/last collection, etc.

Generally, and unsurprisingly, it was found that operators who used their vehicles longer during the day, did so relatively effectively, serving more customers per trip.

5.3 Fuel Utilisation (C&D)

Fuel utilisation was measured in three ways:

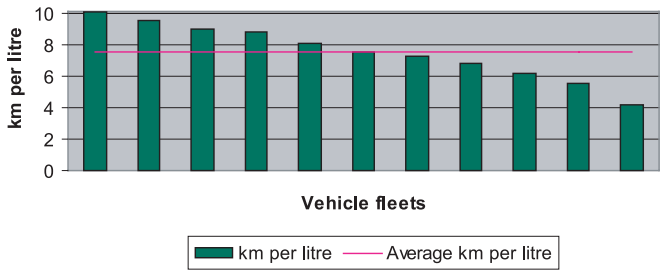
- Fuel consumption: kilometres per litre
- Fuel intensity: millilitres of fuel used to carry one consignment one kilometre
- Fuel efficiency: consignments per litre

The basic underpinning assumption in these calculations is that each consignment was from point A to point B on one consignment note. The consignment might consist of more than one item and the parcels could be of varying size, but it would require only one stop and was common for all fleets.

Fuel Consumption (C&D)

Figure 8 shows the results for the fuel consumption calculation for C&D vehicles. The overall average performance was 7.57 kms per lt. Northern depots achieved higher performance, with 8.45 kms per lt. Midlands depots achieved 8.36 kms per lt and Southern 5.33 kms per lt. The higher fuel consumption at Southern depots can be explained by a combination of the geography of the region, the density of commercial premises, traffic congestion, the greater number of stops per day and the vehicle mix.

Figure 8 C&D Kilometres per Litre of Fuel Used



It was not surprising that smaller vehicles were found to have lower fuel consumption than larger vehicles. Cars and car-derived vans performed better than the short or long wheelbase vans which, in turn, performed better than rigid HGVs. However, car-derived vans were actually found to have performed better than the cars within the survey sample. Car-derived vans achieved an average of 15.31 kms per litre, against 11.13 kms per litre for cars. One possible explanation is that the cars in the sample were significantly older than the car-derived vans, with correspondingly lower fuel performance due to more dated vehicle and engine technology.

The fuel consumption for vans less than 3.5t GVW with a short/medium wheelbase was slightly higher than for vans less than 3.5t GVW with a long wheelbase.

Table 6 displays overall fuel consumption results, by vehicle category.

The average consignments per trip and kilometres per trip for each vehicle category are shown in tables 7 and 8 and are intended to outline the productivity of the respective vehicle types.

Table 6 Overall Fuel Consumption by Vehicle Type

Vehicle Type	Kilometres per Litre
Car	11.13
Car-derived van	15.31
Van less than 3.5t GVW, short/medium wheelbase	7.29
Van less than 3.5t GVW, long wheelbase	7.85
Rigid goods vehicle 7.5t GVW	4.21
Rigid goods vehicle 18t GVW	3.41

Consignments per Trip (C&D)

Table 7 Consignments per Trip

Vehicle Type	Consignments per Trip
Car	158
Car-derived van	8
Van less than 3.5t GVW, short/medium wheelbase	59
Van less than 3.5t GVW, long wheelbase	57
Rigid goods vehicle 7.5t GVW	36
Rigid goods vehicle 18t GVW	16

Vans were found to serve, on average, over 50% more consignments per run than rigid 7.5t GVW vehicles and over treble the number for rigid 18t GVW vehicles. Cars were found to serve the most consignments per trip of all other vehicle types, essentially delivering large quantities of very small consignments, while car-derived vans served the least.

Kilometres per Trip (C&D)

Smaller vehicles ran more kilometres per trip than larger vehicles. Cars were found to travel the greatest distance per trip, with 18t GVW rigids travelling the least.

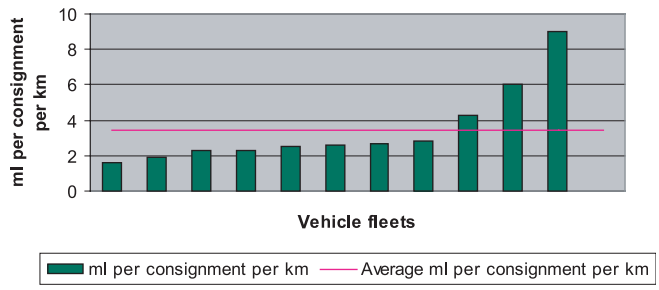
Table 8 Kilometres per Trip

Vehicle Type	Kilometres per Trip
Car	155
Car-derived van	116
Van less than 3.5t GVW, short/medium wheelbase	108
Van less than 3.5t GVW, long wheelbase	119
Rigid goods vehicle 7.5t GVW	101
Rigid goods vehicle 18t GVW	79

Fuel Intensity (C&D)

Fuel intensity was calculated using the measurement: millilitres (mls) of fuel per consignment per kilometre. Figure 9 shows the results for fuel intensity calculations. The overall average performance was 3.45 mls per consignment per km. The Midlands and Southern depots achieved closely comparable performances of 3.11 and 3.12 mls per consignment per km respectively. Northern depots achieved less, exhibiting an average of 4.03 mls per consignment per km, potentially reflecting the lower levels of vehicle fill which they had on average.

Figure 9 C&D Millilitres of Fuel per Consignment per Kilometre



The best fuel intensity performance was achieved by cars. Vans less than 3.5t GVW with long wheelbases followed in second place.

Table 9 displays the overall fuel intensity results, by vehicle category.

Table 9 Overall Fuel Intensity by Vehicle Category

Vehicle Type	Millilitres per Consignment per Kilometre
Car	1.06
Car-derived van	30.85
Van less than 3.5t GVW, short/medium wheelbase	9.43
Van less than 3.5t GVW, long wheelbase	4.62
Rigid goods vehicle 7.5t GVW	25.15
Rigid goods vehicle 18t GVW	35.40

Fuel Efficiency (C&D)

Fuel efficiency is also a key indicator of productivity, focusing on the number of consignments delivered per litre of fuel consumed. It relates the volume of activity to the amount of fuel used, thereby more realistically comparing resources spent and revenue earned. For example, an operator might appear to have good performance for kilometres per litre and fuel intensity, but the productivity may be poor as a long distance might have been covered in order to deliver a few consignments.

Figure 10 shows the results for consignments per litre. The overall average performance was 3.08 consignments per litre. The best performance was in the South with 4.53 consignments per litre. Depots in the North, on average, had 2.69 consignments per litre and those in the Midlands 2.38 consignments per litre.

Figure 10 C&D Consignments per Litre

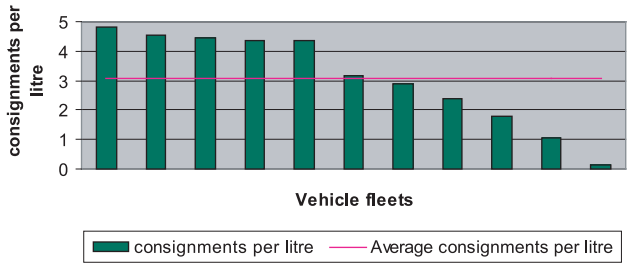


Table 10 displays the consignments per litre results by vehicle category.

Table 10 Consignments per Litre by Vehicle Category

Vehicle Type	Consignments per Litre
Car	12.27
Car-derived van	0.86
Van less than 3.5t GVW, short/medium wheelbase	5.18
Van less than 3.5t GVW, long wheelbase	4.19
Rigid goods vehicle 7.5t GVW	1.74
Rigid goods vehicle 18t GVW	2.4

General Fuel Consumption Commentary (C&D)

In both millilitres per consignment per kilometre and consignments per litre measurements, rigid 7.5t GVW vehicles and rigid 18t GVW vehicles appear to have poorer performance than smaller vehicles, other than car-derived vans.

It should be recognised that any interpretation of the results for fuel utilisation regarding each type of vehicle should take into account the number of kilometres run, the consignments carried by each type of vehicle and that each consignment went from point A to point B on one consignment note. The consignment might consist of more than one item and the parcels could be of varying size, but it would require only one stop and was common for all fleets.

Vehicles which run, on average, more kilometres per trip and deliver fewer consignments have lower fuel intensity and fuel efficiency. This explains the comparatively poor results for rigids and car-derived vans in the above measurements.

It should be noted that the fuel-related results for each fleet were calculated based on the cumulative total kilometres, consignments and litres for overall fleet comparison. However, the fuel analysis by vehicle type was based on the results for each individual trip of each vehicle type. The reason this approach was adopted for the vehicle types was to more accurately reflect the average fuel performance of each different vehicle category.

Furthermore, our findings recorded:

- A strong positive relationship between the percentage of time the vehicles were active and the consignments per litre measurement

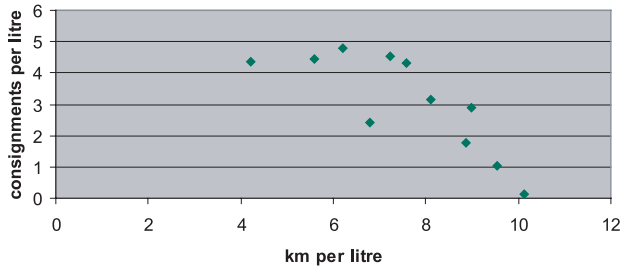
This could be an indication that those operators who used their vehicles for longer periods, did this more effectively, making better use of fuel. This statement can be further backed up by the fact that there was:

- A strong relationship between the time vehicles were running on the road and the performance for the millilitres per consignment per kilometre measurement

Collectively, this information can be taken to mean that the operators who used their vehicles longer, did so effectively and made better use of fuel. One explanation for this is that those vehicles with a very busy trip for the geographical area covered, incurred a longer total trip time and had, on average, the lowest average distance between delivery and collection locations.

By examining the relationships between the three ways of measuring fuel utilisation, only kilometres per litre versus consignments per litre appear to demonstrate a direct relationship.

Figure 11 C&D Kilometres per Litre Versus Consignments per Litre



From Figure 11, it appears that some fleets achieve good fuel consumption but exhibit limited productivity. For example, one fleet had the best fuel consumption but the worst fuel efficiency, just over 10km per litre.

Operators should therefore consider ways to increase the volume of freight they manage to carry with a given amount of fuel. Our findings suggest that some of the fleets with the best fuel consumption were not, in fact, the most efficient overall, as they delivered fewer consignments.

6 Trunking Activity Results

Operators submitted data for eight trunking fleets, reporting on vehicle fill, empty running, time utilisation and deviations from schedule.

The operators also submitted data for seven fleets, specifically relating to fuel utilisation.

One of the reported fleets covered central hub activity and accounted for 73.5% of all trunking vehicle runs surveyed. Although this provides a good sample for general trunking activity within the sector, it does not necessarily allow for reliable comparisons between different geographical areas.

Trunking activity is normally a two-leg task. It can include trips from a depot to a central hub and vice versa, as well as trips from a large customer's depot to a central hub. In the latter case, after finishing the trip to the hub, vehicles may return to the customer's depot or to the company's depot, possibly carrying back further consignments, depending on demand.

6.1 Vehicle Fill (Trunking)

Trunking vehicle fill was measured as a percentage of cubic fill and, separately, as the percentage of deck length occupied, compared to the available vehicle capacity.

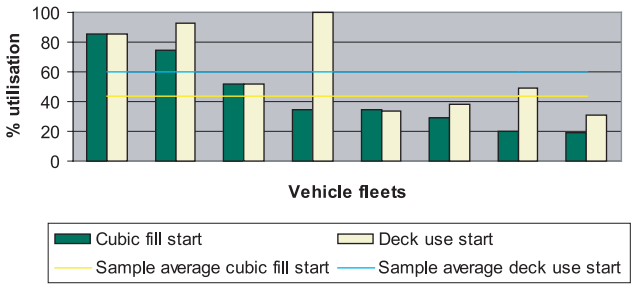
Operators were also able to confirm whether weight capacity was a constraint for any given trunking load.

As was the case for C&D activity, data were collected for both the start and the end of each trip, capturing both legs of the activity.

The overall average performance of the sector was calculated by comparing the average performance of each company. The highest overall performer was the fleet representing the central hub, accounting for 80% of the kilometres covered by the sample and employing the most vehicles. It is felt that analysis of this particular performer may offer a reliable and representative picture of general trunking operations within the sector.

The results for vehicle utilisation at the start of each trip and the average level across all fleets are shown in Figure 12.

Figure 12 Trunking Cubic Fill and Deck Use at the Start of Trip

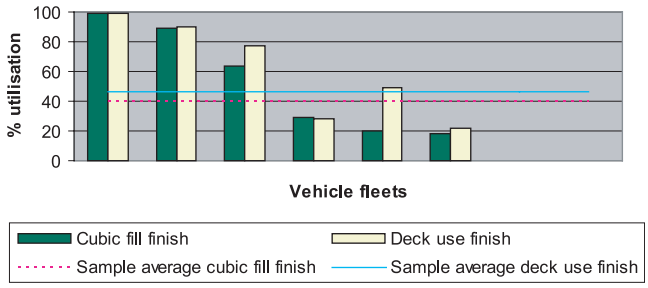


Average cubic utilisation at the start of each trip was 44%, with six out of eight fleets having utilisation below 55%.

Average deck length utilisation at the start of each trip was 60%, with five out of eight fleets having utilisation below 55%. The remaining three fleets, representing 75% of all vehicles, had a utilisation performance of 85% or above.

The results for vehicle utilisation at the end of each trip and the average level across all fleets are shown in Figure 13.

Figure 13 Trunking Cubic Fill and Deck Use at the End of Trip

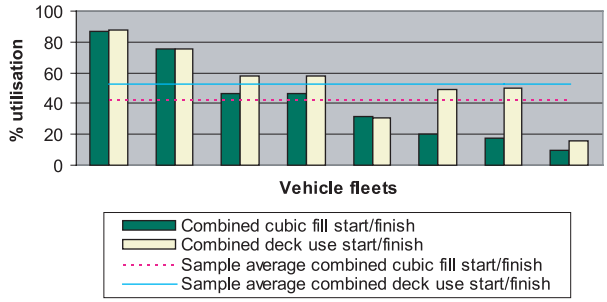


Average cubic utilisation at the end of each trunking trip was 40%, with five out of eight fleets having utilisation below 30%.

Average deck length utilisation at the end of each trip was 46%, with five out of eight depots having utilisation below 50%. There were two fleets with zero cubic fill at the end of the trip.

By averaging vehicle fill at the start of the trunking trip and at the end, for each fleet, overall sample average utilisation is 42% for cubic fill and 53% for deck length. The results are shown in Figure 14.

Figure 14 Trunking Combined Cubic Fill and Deck Use at the Start and End of Trip



None of the fleets reported weight as a constraining factor for trunking movements during the survey period.

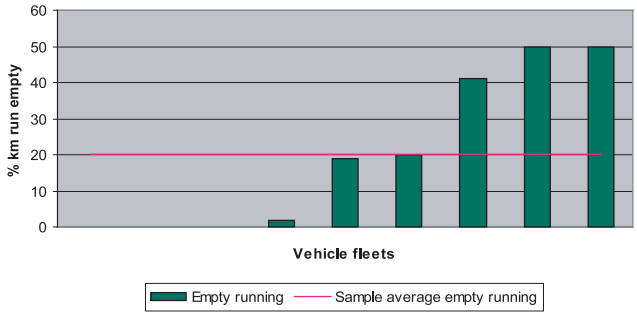
The key factor affecting trunking vehicle utilisation is the relative level of C&D demand for each respective depot. High demand for parcel collection in the postcodes covered by a depot means potentially greater utilisation of the journeys to the hub. Similarly, high demand for the delivery of parcels in the postcodes covered by a depot means potentially high vehicle utilisation on the trunking journeys from the hub to the depot.

6.2 Empty Running (Trunking)

Empty running occurs when trunking vehicles travel to or from the hub empty. This is usually the case when a significant imbalance exists between collection and delivery volumes within depot areas.

Average empty running for each trunking fleet is shown in Figure 15.

Figure 15 Trunking Empty Running



Three out of nine fleets had zero empty running and three fleets had very significant levels of empty running, one at 41% and two at 50%. Average empty running across the fleet sample was therefore 20%.

6.3 Trunking Time Utilisation (Trunking)

As was the case for C&D activity, operators provided data showing the dominant activity of the available trunking vehicles for each hour of the survey period. The categories for classification of trunking vehicle activity were:

- Running on the road
- Break from driving
- Loading/unloading in depot/hub
- Pre-loaded, awaiting departure
- Significantly delayed (>30 minutes delay)
- Idle (empty and stationary)
- Maintenance/repair

Figure 16 shows the time utilisation profile for trunking vehicles.

Figure 16 Trunking Time Utilisation

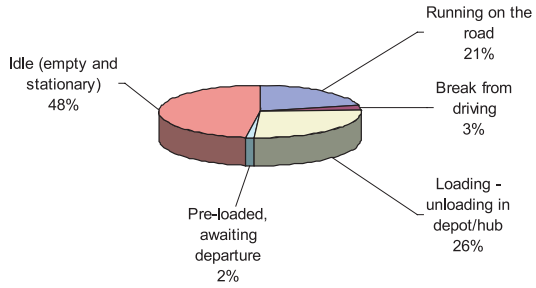
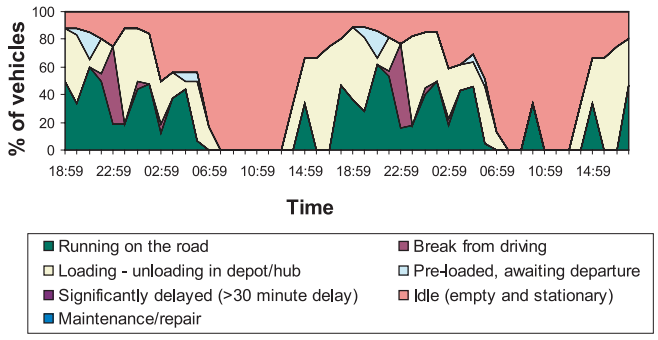


Figure 17 shows the hourly breakdown of time utilisation for trunking vehicles.

Figure 17 Trunking Hourly Breakdown



On average, trunking fleets were recorded as running on the road 21% of the time, 48% of available trunking vehicle time was spent idle, and 3% was spent taking a break from driving.

Although 26% of available time was spent loading and unloading in the hub/depot, trunking vehicles were recorded as being pre-loaded, awaiting departure for only 2% of the time.

For trunking operations, 60% of parcels were carried loose and 40% were in cages. It is likely that loading and unloading times significantly increase when more parcels are carried loose on the trunk load.

Operators reported no trunking vehicle time spent on delays and no vehicles undergoing maintenance/repair.

Main trunking vehicle activity was recorded between 18:00 and 05:00. It should be noted that some participants made use of trunking vehicles for C&D activities during the daytime.

In analysing the hourly activity profile breakdown for the sample, the high percentage of running on the road between 09:00 and 10:00 and between 14:00 and 15:00 does not particularly reflect the norm within the sector. In fact, only two fleets provided data for trunking activity during these time periods.

Trunking activity during the daytime is unusual within the sector, although increased utilisation of trunking vehicles on alternative daytime operations may be one measure to improve overall operational efficiency. This could potentially involve operations in cooperation with different sectors.

6.4 Deviations from Schedule (Trunking)

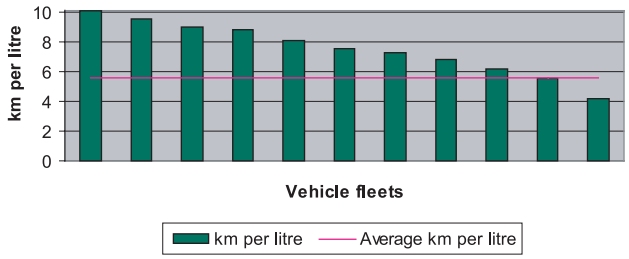
There were no recorded significant deviations from schedule by survey participants during the synchronised trunking vehicle audit.

6.5 Fuel Consumption (Trunking)

For trunking activity, fuel utilisation was measured only in terms of kilometres per litre, as the majority of trunking trip information did not include data about the number of items carried. This lack of data, combined with the fact that the sector generally does not keep information on the dimensions or the weight of the freight carried on trunking activities, meant that energy intensity and energy efficiency KPIs could not be measured.

The results for fuel consumption and the average for the whole sector are shown in Figure 18.

Figure 18 Trunking Kilometres per Litre



Average trunking vehicle fuel consumption across the sample is 5.79 kms per lt. However, it is important to note that any interpretation of these figures should take into consideration the range of vehicle types used for trunking operations, which for some fleets unusually included the use of vans less than 3.5t GVW. The following table shows kilometres per litre per vehicle type.

Table 11 Kilometres per Litre per Trunking Vehicle Type

Trunking Vehicle Type	Kilometres per Litre
Van <3.5t GVW small/medium wheelbase	6.99
Van <3.5t GVW long wheelbase	8.01
Rigid goods vehicle 7.5t GVW	6.88
Rigid good vehicle 18t GVW	4.58
Tractor unit, two axles	2.5

It must be remembered that fleets with comparatively high kilometres per litre are not necessarily fuel efficient. It is important for each company to monitor vehicle fill in relation to fuel consumption, to fully assess productivity for fuel resource used.

One anomaly to be highlighted relates to larger vans having better fuel consumption recorded than smaller vans. It may be the case that smaller vans are subject to a less fuel-efficient driving style, running at faster speeds when used on trunking activity, and operating out of the engine's 'green band' for fuel efficiency.

7 Summary and Conclusions

The main conclusions to be drawn from the next-day parcel delivery sector benchmarking study are:

- The survey results show potential for improved vehicle utilisation, in terms of both collection and delivery (C&D) and trunking operations:
  - Average cubic fill (vehicle fill at both the start and the end of each trip) was 36% for C&D activity and 42% for trunking
  - Vehicle fill was higher at the start of trips than at the end
  - Average deck utilisation was 55% for C&D activity and 53% for trunking
  - Deck utilisation was generally higher than cubic fill and was most often the restricting factor
  - Weight capacity was not a restricting factor in the majority of cases
- The time-critical nature of parcel delivery operations can be a constraint for efficiency in vehicle utilisation. The finite length of the driver's shift (within available delivery time windows throughout the day) ultimately restricts the level of vehicle fill. This is, of course, also the case in other sectors. For this sector, the main C&D activity is between 07:00 and 18:00. Normally, vehicles deliver consignments in the morning (often relating to two to three service options, priced according to earliness of delivery) and undertake collections throughout the afternoon. Ultimately, this service-driven element may restrict the volume of consignments carried on a vehicle to ensure compliance with agreed time windows
- No significant delays were recorded during the survey period. This could lead to an assumption either that external factors such as congestion had limited impact on operational efficiency, or that experienced operators plan for delays on a daily basis and build in additional journey time as a 'buffer' to ensure on-time deliveries
- The operators who kept their vehicles running on the road for a longer time, managed to do so effectively by serving more stops per trip and more stops per litre of fuel
- Some C&D fleets are loaded by the night shift workers so that the day drivers can commence their deliveries immediately they report to work. This saves time waiting for loading to be completed. The best depot had 84% of the fleet pre-loaded by 06:00
- On average, the sector served 57 stops per trip and three stops per litre of fuel
- The Midlands depots' 18t GVW vehicles had the best cubic fill and deck length utilisation of any vehicle type and region, with both factors running at 90%
- There was some significant empty running identified in trunking activity. On average, 20% of kilometres were run empty
- Failed deliveries and other types of exception that require consignments to be brought back to the depot occupy space on vehicles, reduce available 'revenue generating' load capacity and use additional resources for movement. The main exceptions recorded in the survey were:
  - The intended recipient was not available to take delivery of the consignment
  - The consignment was cancelled/refused
  - The address details were incorrect
  - The consignment was damaged

The average percentage of exceptions across fleets was 3.66%, with the dominant reason being the recipient not being available to take delivery of the consignment. One company had two fleets with the highest percentages of exceptions, 9.2% and 8.6%.

- In general, operators have mixed fleets, using different types of vehicle
- There were differences in the KPI performance of each vehicle type:
  - Rigid vehicles performed overall better than vans and cars in terms of vehicle fill
  - Rigid vehicles had 54% cubic fill and 68% deck use, vans had 39% cubic fill and 57% deck use, while cars and car-derived vans had 24% cubic fill and 23% deck use
- Geography appears to be an important factor affecting KPI performance. Southern operations tended to have greater density in terms of the number of stops within the respective areas covered. Southern operators managed to achieve higher performance in terms of vehicle cubic fill, with 43% as an average between the start and the end of the trip

- The number of vehicles fitted with modern technology (such as satellite navigation equipment, GPS tracking etc) was comparatively low. There is therefore some potential within the sector to further adopt existing technologies. Conversely, most of the vehicles within the sample were relatively new and compliant with Euro 3 engine specifications for emission reduction
- Development of drivers' skills is crucial for the sector. Drivers play a key role in determining the efficiency of freight operations and have a direct impact on the volume of fuel used by goods vehicles through the driving style they adopt. Of the drivers involved in the survey, 64% were company-employed drivers, 7% were agency drivers and 29% were self-employed. There are undoubtedly opportunities to enhance the skills of all types of goods vehicle drivers through skills development programmes, such as the Safe and Fuel Efficient Driving (SAFED) scheme, developed by the Freight Best Practice programme. The SAFED guide is available free from **www.freightbestpractice.org.uk** or the Hotline **0845 877 0 877**
- Some operators use part of their fleets for both trunking and C&D activity, in an attempt to keep vehicles on the road and make the most efficient use of resources
- It is noticeable that there are significant differences in the operational practices followed, even between depots of the same company. Agreement on and consistent application of the most efficient practices would clearly offer benefits
- There is undoubtedly potential for the sector to monitor more effectively various aspects of operational activity. During wider discussions before the synchronised vehicle audit, it was determined that few companies keep accurate data for fuel consumption as a matter of course and even fewer for vehicle fill and other operational KPIs
- There is significant variation in demand, identifiable not only in seasonal fluctuations, but also between different geographical locations. Although the number of runs undertaken and volume of consignments carried by sample operators did not fluctuate significantly during the week of the survey, throughout the year there are periods when operations are at a peak and also periods when activity is significantly lower. In most cases, resource planning by operators is carried out on the basis of coping with peak period demand. As a result, there are periods when both vehicles and drivers are under-utilised. The synchronised vehicle audit undertaken for this survey was conducted during October, which is one of the busiest months of the year for parcel carriers. This should be borne in mind when assessing the results within this benchmarking guide

8 Recommendations for Operators

The recommendations in this next-day parcel delivery sector benchmarking guide are applicable not only to the organisations involved in the study but also to the wider parcel sector and other transport sectors as well.

The context of the KPIs in this guide are based on transport efficiency, concentrating mainly on fuel-related indices. The reason for this is the Freight Best Practice programme's motivation to seek to promote freight efficiency. It should also be said that there are many other over-arching business KPIs that are of strategic importance to organisations, including customer service, productivity and financial performance.

The aim of the 48-hour synchronised vehicle audit was to provide a short 'snap-shot' summary of activity and efficiency levels within the sector. All participating companies have been encouraged to continue performance measurement and benchmarking on an on-going basis to identify further areas for improvement.

- Operators have the opportunity to improve performance monitoring. By using KPIs to measure performance internally and externally, operators can set targets, monitor progress towards these targets and compare performance internally (vehicle versus vehicle, depot versus depot) and externally (with the sector norm and with the best performers in class)
- Vehicle fill is a critically important KPI and it is recommended that operators adopt a simple process to record and analyse performance for this aspect of vehicle utilisation. A simple process would be to request drivers to record estimates of vehicle fill using an easy-to-complete debriefing sheet, completing data for the start and end of each trip
- Operators should record and analyse data over a significant time period to identify trends in performance. This will allow them to forecast the demand of each geographical area of coverage, taking into account seasonal patterns. As a result, they will be able to specify more accurately the need for vehicles, drivers and even location of depots - in other words, more accurately predict demand for resources
- The key target areas for efficiency improvements should be to:
  - Reduce stem mileage
  - Reduce the overall kilometres travelled
  - Reduce levels of empty running
  - Reduce instances of low vehicle utilisation
- By monitoring activity, each company will learn from the success or otherwise of different practices at different depots. This way, through performance management, skills and solutions used by the best depot managers and drivers can be identified and shared as best practice throughout the organisation. This requires the ability to measure performance and some operators could make use of the Freight Best Practice programme's free 'Fleet Performance Management Tool', which consists of a spreadsheet and a manual to help record and analyse a range of aspects of operational performance
- Operators should continue to investigate and, where appropriate, adopt solutions offered by technological advances. Airflow management equipment can particularly benefit trunking activity, with the greatest potential savings attributable to larger articulated vehicles. As reported in the Freight Best Practice programme's guide 'Truck Aerodynamic Styling' (available free from **www.freightbestpractice.org.uk** or the Hotline **0845 877 0 877**), for every 10 centimetres exposed to airflow on the front of a rigid body or trailer/semi-trailer, fuel consumption will worsen, on average, by 0.1 miles per gallon (MPG). Well-maintained, appropriate and well-adjusted airflow management equipment can help to reduce drag and improve fuel consumption
- Accurate vehicle specification is critical to fleet efficiency - using the right vehicle for the operation helps to ensure available load space can be optimised and instances of low levels of vehicle utilisation reduced. The Freight Best Practice programme has produced a guide entitled 'Truck Specification for Best Operational Efficiency', available free from **www.freightbestpractice.org.uk** or from the Hotline **0845 877 0 877**

- Empty running is one of the most detrimental aspects of fleet operations – essentially using resources (vehicle, driver and fuel) for no tangible output. In certain circumstances, empty running is unavoidable and can be the result of essential redeployment or relocation of equipment. Where possible, operators should endeavour to reduce levels of empty running on both C&D vehicles and trunking vehicles. This could be done by investigating opportunities to find additional back-loads, perhaps by collecting products from the company's own suppliers. It is recognised that, with the time-critical nature of the sector, it may be unlikely to withstand the pressures on equipment resulting from a delayed collection or delivery for a third party, outside of normal parcel operations. The Freight Best Practice guide 'Make Back-loading Work for You' is available free from **www.freightbestpractice.org.uk** or the Hotline **0845 877 0 877**

- GPS tracking, satellite navigation systems, journey planners and computerised vehicle routing and scheduling systems can help to optimise C&D and trunking activities. The Freight Best Practice programme has produced a 'Telematics guide' and a guide on 'Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics', to assist operators in understanding how such technology might benefit their operations and which systems might be most appropriate for their use. These are available free from **www.freightbestpractice.org.uk** or the Hotline **0845 877 0 877**

- The development of solutions to reduce the instances of failed deliveries will help to improve operational efficiency. For example, technology to notify private households of an imminent delivery will enable recipients to return home in time to receive the consignment from the delivery driver. This would avoid the need for repeat delivery attempts for the same consignment and avoid customer irritation

- Consider running driver training schemes covering both fuel economy and safe driving, and potentially with elements of destination finding. Driver performance can directly affect fuel efficiency and operational performance. The Freight Best Practice programme developed the 'Safe and Fuel Efficient Driving (SAFED)' scheme, outlining a one-day training programme to develop HGV and van driver skills in 17 key areas. The SAFED guide is available free from **www.freightbestpractice.org.uk** or the Hotline **0845 877 0 877**

- Fuel management throughout the operation is critical to improving operational efficiency, reducing operating costs and lowering environmental impact. Recognising and raising the profile of fuel as a precious operational resource can pay dividends. Based on the levels of fuel consumption recorded and reported by survey participants and assuming a five-day working week, if participating fleets managed to save just 5% of fuel used per annum, this would lead to:
  - Cost savings of approximately £114,000
  - Air pollution reduced by approximately 382 tonnes of CO_2

The Freight Best Practice programme's 'Fuel Management Guide' is designed as a key reference publication for managers wishing to embark on a fuel management programme. It provides a step-by-step outline of the key aspects of reducing fuel consumption in your freight operation, from selecting the correct fuel to use and deciding on how and where to purchase it, to how to store it safely and efficiently and how to use it most economically in your truck fleet.

Freight Best Practice publishes the following guides, case studies and support material relevant to the topics addressed in this case study, as well as a wide range of other titles. All can be obtained FREE of charge by calling the **Hotline** on **0845 877 0 877**. Alternatively, they can be downloaded from the website **www.freightbestpractice.org.uk**

Saving Fuel

Fuel Management Guide

This is the definitive guide to improving the fuel performance of your fleet. It gives step-by-step explanations of the key elements of fuel management, how to measure performance and how to implement an effective improvement programme.

Developing Skills

Proactive Driver Performance Management Keeps Fuel Efficiency on Track

This case study shows how Thorntons implemented a highly effective driver incentive scheme combining in-cab driver monitoring, service delivery levels and accident rates.

Equipment and Systems

Concise Guide to Computerised Vehicle Routing and Scheduling (CVRS)

This quick guide shows the latest routing and scheduling software products and developments.

Operational Efficiency

Home Delivery: Meeting the Needs of Customers and the Environment

Describes a trial performed in Nottingham by Royal Mail Group plc that offers an innovative, environmentally friendly solution to address the problem of failed deliveries.

Performance Management

Fleet Performance Management Tool

This PC-based spreadsheet tool has been designed to help fleet operators improve their operational efficiency using Key Performance Indicators to measure and manage performance. The KPIs include costs, operational, service, compliance and maintenance.

Public Sector

Efficient Public Sector Fleet Operations

This guide is aimed at fleet managers in the public sector to help them improve operational fleet efficiency.

November 2006.

Printed in the UK on paper containing at least 75% recycled fibre.

Performance Management