Department for Transport

VanBestPractice

Efficient Vans:

A Best Practice Guide to Cost-effective Van Use

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Overview

This guide has been produced as part of the Department for Transport's Van Best Practice programme. The Van Best Practice programme is funded by the Department for Transport and managed by AEA to promote and improve operational efficiency within van operations in England.

The Van Best Practice programme offers FREE essential information and advice for van users, covering topics such as operational efficiency, driver management, safety, saving fuel and performance management.

All FREE materials are available to download from www.businesslink.gov.uk/vanbestpractice or can be ordered through the Hotline on 0300 123 1133.

This guide will be useful to a wide range of organisations, irrespective of the number of vans they operate, and will be an invaluable tool for van drivers and managers.

This guide addresses 'efficient van operations'. It is one of a series of guides for van users that cover several best practice areas including safety. It aims to:

(i) Discuss the ways in which your organisation can benefit from operating vans efficiently

(ii) Present a step-by-step guide to obtaining an understanding of your current van operations and developing an action plan to improve efficiency. As part of this action plan, this guide explains how to define the requirements of your vans, write a policy and monitor improvements in your efficiency

(iii) Suggest a range of efficiency measures that you could implement

(iv) Provide checklists and reports that drivers can copy and use

Introduction

This section introduces the importance of efficient vehicle management and fuel efficiency in an increasingly cost-driven and environmentally aware society. It also describes the aims of the guide and how it is intended to be used.

1.1 Who is this Document Aimed At?

This guide is aimed at managers and drivers of van based vehicles weighing up to 7.5 tonnes. In your daily job you may be known as a fleet manager, operations manager or procurement manager, however, this guide refers to two roles: the manager and the driver. The manager is the individual responsible for managing the vans in your company. It does not matter whether your organisation has only one van or many.

The drivers are those behind the wheel. In some cases, you may fulfil both roles. This guide is relevant to companies with a large or small number of vans.

In this case, 'van' refers to van based vehicles weighing up to 7.5 tonnes.

1.2 The Importance of Van Efficiency

With society becoming increasingly aware of the threats and impacts of a changing climate, both now and in the future, it is important that van managers begin to assess their fuel efficiency. This can lead to an improvement in their organisation's environmental credentials as well as a reduction in costs and help towards meeting client expectations.

In addition, the Government has set a target for cutting carbon dioxide (CO_2) emissions by 80% by 2050[1]. To achieve this target, businesses will need to improve their operations so that they become more efficient and reduce their emissions.

In addition to the need to consider the environmental impacts associated with running vans, considerable cost savings can be made in the following ways:

- Making the correct vehicle choice
- Considering vehicle depreciation values
- Reducing fuel consumption
- Reducing incident costs

[1] SDC (2009) 80% CO_2 target available from: www.sd-commission.org.uk/pages/sdc-welcomes-80-co2-target.html

- Reducing the cost of missed deliveries and parking fines
- Making sure the work of the vans is well organised

1.3 What is Efficient Van Use?

Efficient van use can be defined as where:

- The deployment of vans is well organised
- The most appropriate vehicles are operated
- Mileage is being managed
- Costs are being managed
- Drivers are motivated to improve performance
- Performance is measured
- Continuous improvement programme is being delivered

1.4 The Five Golden Rules

To undertake a review of your fleet or van operations in any way, we need to use the five 'golden rules':

- Understand
- Prioritise
- Assess
- Implement
- Review

These principles will guide and provide an effective method template for looking at areas of a fleet's operations.

1.5 How Should this Guide be Used?

This guide aims to provide van operators of all backgrounds with guidance on how to ensure that vans are operating efficiently and to promote efficient van operations.

This guide will take you through a step-by-step process. It starts with collecting information to develop an understanding of your current situation, then takes you through the decision-making process to developing an action plan. Finally, it helps you to identify and implement improvement actions, and then how to monitor those improvements.

This guide is designed to be easy to understand and uses flow diagrams and real-life examples to illustrate points where appropriate. Diagrams, graphics and colour coding are used to make it easy to navigate and for users to see the main topics at first glance. Links to relevant sections or documents are highlighted throughout. Key definitions are highlighted in black and case studies in blue. An outline of individual sections is provided here.

Chapter 2
Benefits of Efficient Van Operations

This section gives a description of the benefits that can be achieved by implementing a more efficient van management and operating system.

Chapter 3
Efficiency Review

This section highlights the key stages for improving van operations and explains how they link together. Reference will be given to other sections of this document and other guides that are available.

Chapter 4
Efficiency Improvements

This section gives details of how to go about improving the efficiency of your van operations. It is split into five sub-sections:

4.1: Understand: Establishing Your Baseline

4.2: Prioritise: Identify Areas for Improvement

4.3: Assess: Root Causes and Solutions

4.4: Implement: Making the Change

4.5: Review: How Have You Done?

Chapter 5
Options for Improvement

This sections details topics to investigate that could lead to efficiency improvements within your fleet if appropriate for your fleet and if implemented.

Appendix: Useful Forms

This section contains example templates that you may find useful for your van operations.

Understanding the Benefits of Efficient Van Operations

This section highlights the benefits of having efficient van operations. A description of the benefits in terms of financial savings, the environment, safety, customer, efficiency and legal compliance is presented. The benefits are described and discussed with reference to examples of where other van users have successfully implemented an improvement – we call these case studies.

2.1 Overview of Benefits

By implementing actions to improve the operational and performance efficiency of your vans, you will be able to realise a number of benefits for your business. These benefits will range in scope from local financial savings to your business, to wider customer satisfaction and helping to improve local air quality through lower emissions associated with your vehicle movements. The scale and scope of the benefits realised will depend on the degree to which you choose to improve the efficiency of your vans, and the number and nature of the efficiency measures you implement.

Some of the benefits that could be achieved are:

- Specification of the optimum vehicle results in lower overall operating costs
- Improved standards of driving mean lower fuel costs, fewer and less serious accidents
- Improved vehicle maintenance results in lower support costs and more reliable operation of the business
- Improved vehicle specification and utilisation mean lower CO_2 emissions
- Robust management practices result in reduced legal compliance risks
- Less stressful driving methods
- Longer lifetime of vehicles as a result of better maintenance and driving style

Table 2.1: Benefits that can be achieved by targeting your van's efficiency

Examples of benefits	
Costs	A reduction in running costs can be achieved through more efficient management of a van's deployment and usage. More efficient driving practices, resulting from better training and instruction, could help reduce fuel consumption and the associated cost. Better maintenance will help increase a van's life expectancy and lead to financial savings.
Environment	Lower fuel consumption will lead to decreased carbon dioxide outputs and other harmful emissions. This can contribute to legislative emissions reduction targets that have been put in place to help tackle climate change. More effective route planning can help minimise the distance travelled and, therefore, reduce fuel usage and the associated emissions. Choosing vans that are suitable for the required purpose can help avoid unnecessary use of larger vans. This will help save fuel and reduce emissions.
Customer satisfaction	Better route planning, more efficient driving style and lower emissions as a result of putting your van best practice procedures in place can all contribute to a positive image for your business. There is an increasing consumer demand for corporate social responsibility and better environmental performance. By implementing these strategies and letting your customers know what you are doing, you may improve customers' perception of your company and win more repeat business.
Legal compliance	Better maintenance, route planning and van management can result in a reduction in the number of fines such as speeding, vehicle faults and penalty charge notices. This will also contribute to savings with the financial costs associated with operating your vans.

Table 2.1 describes the nature of these benefits and ways these could be achieved. Full descriptions of the types of activity you can implement are given in section 5.

Case Study

Premier Watercoolers
Reduced Mileage

Premier Watercoolers uses panel vans for its 14 mobile technicians. The technicians are home-based, and service and maintain products at various dispersed customer locations. The business found that the technicians' annual mileage was exceeding expectation and subsequently incurring unplanned costs. As a result, a number of actions were put in place that included reallocation of the technicians' territories (many had evolved with the growth of the business and had not been reviewed previously), regular local stock replenishment to prevent unnecessary trips and accounting for miles driven. The result of undertaking these simple actions was a 14% reduction in van mileage.

2.2
Compliance: the Foundation of Best Practice

Compliance with current legislation is the essential starting point for achieving best practice. If your vans are not being used in accordance with the law, there is the distinct possibility that you will be fined and your vans impounded.

The following list, in alphabetical order, highlights some of the main legislation that van users must adhere to, thus ensuring their vans are compliant:

- Carriage of dangerous goods
- Construction and use (vehicle roadworthiness)
- Driver certificate in professional competence
- Driving licences
- Lifting equipment
- Mobile phone use
- Operating weight limits
- Operator licensing
- Smoking
- Speed limits
- Tachographs
- Taxation
- Trailers and towing
- Transportation of perishable goods
- Working and driving hours

It must be recognised that this list is not exhaustive as the type of legislation impacting upon your business is directly related to the type of work you carry out.

The Van Best Practice programme aims to improve van use by highlighting essential best practice techniques for improving efficiency and safety. Compliance with legislation is a legal requirement, while best practice progresses this beyond compliance. Therefore, the Van Best Practice programme does not aim to provide information on van-related legislation, as many Government agencies already provide such details.

Therefore, for further information on van-related legislation, please visit:

Vehicle and Operator Services Agency (VOSA):
www.vosa.gov.uk

Driver and Vehicle Licensing Agency (DVLA):
www.dvla.gov.uk/drivers or
www.dvla.gov.uk/vehicles

Driving Standards Agency (DSA):
www.dsa.gov.uk

Business Link:
www.businesslink.gov.uk

HM Revenue and Customs:
www.hmrc.gov.uk/vans/index

In addition to Government sources, a number of industry trade associations provide their members with a wealth of information on important legislation, e.g.:

Road Haulage Association:
www.rha.net

Freight Transport Association:
www.fta.co.uk

British Vehicle Rental and Leasing Association:
www.bvrla.co.uk

The Efficiency Review Process

This section highlights the key stages in improving the efficiency of van operations and shows how they link together. References are given to sections of this document and other guides that can provide further guidance at each stage.

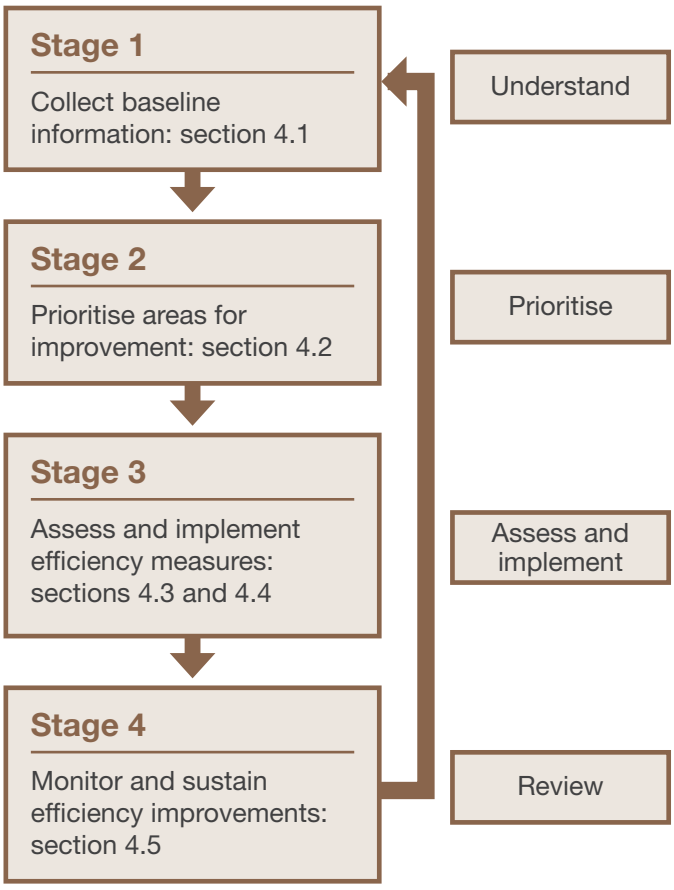
The process of improving the efficiency of your van operations is a simple cycle, as illustrated in Figure 3.1.

Figure 3.1 should help guide you through the stages that are necessary and will point you in the direction of relevant material and sections of this document for further information.

As illustrated in Figure 3.1, the process is ongoing. Once your key priorities have been targeted, you will be able to address more areas of your van operations and allow for a continual cycle of improvement to take place.

It is important that there is an individual or group in the organisation who is familiar with the process and is able to take a lead on implementing the actions. They should keep it on track and be clear about the changes that are taking place and who should be involved at each stage.

Figure 3.1: Overview of the process for improving the efficiency of your van operations



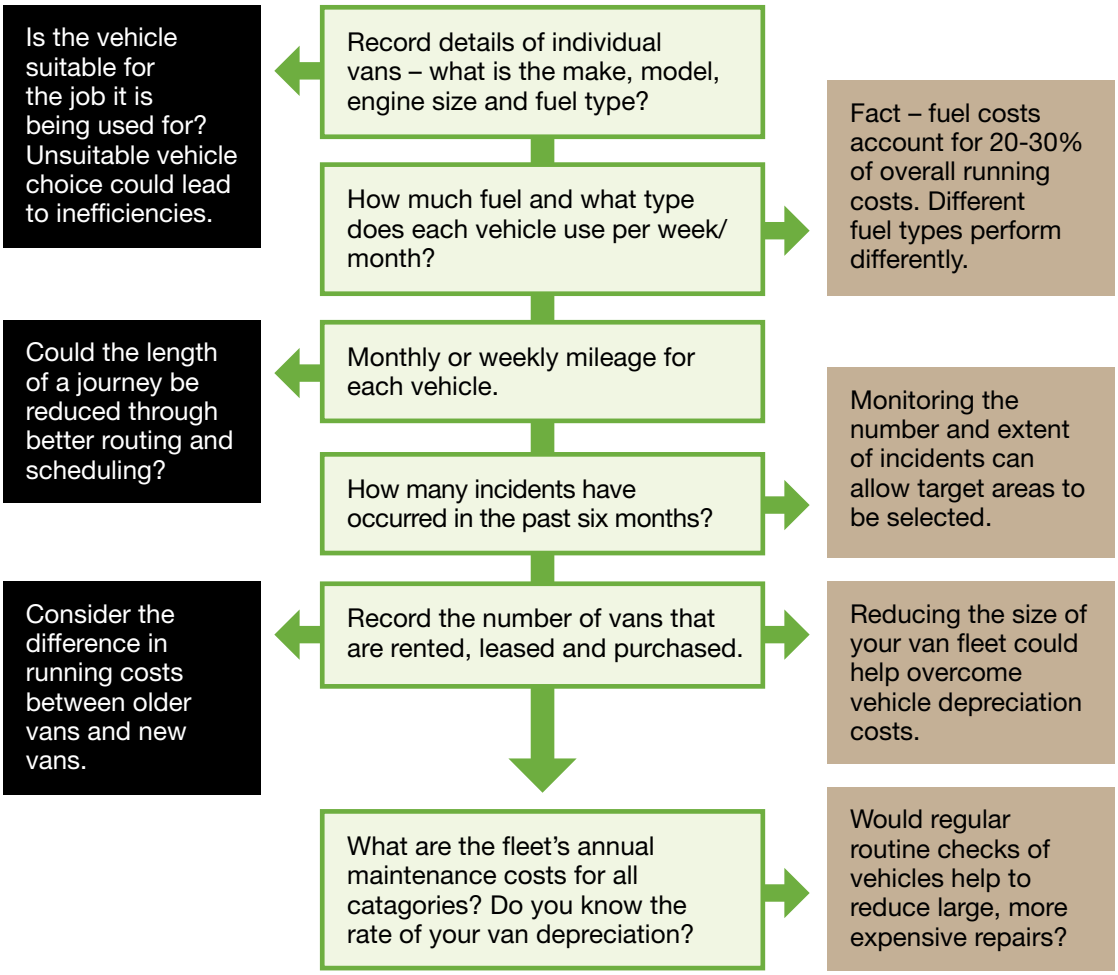
Improving Your Efficiency

This section gives details of how to go about improving the efficiency of your van operations.

4.1
Understand: Establish Your Baseline

This section guides managers through the process of understanding the van fleet as it is now. A simple, easy-to-use process diagram, Figure 4.1, is presented to assist you in the completion of this review. This is accompanied by a description of what actions are required in each stage.[2]

Figure 4.1: Understanding your vans, key questions



[2] Department for Transport and Energy Saving Trust.
Adapted from The essentials of fleet management – a guide to the basics of managing car and van fleets.

4.1.1
Gathering the Data

Running vans can add significant costs to your overheads if they are not managed effectively.

The first step towards improving efficiency is to carry out a review of your van practices to establish where improvements can be made so that these can be targeted, thus reducing operating costs. This initial data collection is one of the most important steps to allow you to improve your van efficiency. Without data, you will be unable to identify the areas of your van operations that you should address.

You may already have much of this information, so it may just be a case of accessing it. However, with other data it might be necessary to obtain more details.

Figure 4.1 illustrates the type of information you need to gather and will help you identify where you may need to obtain further information.

The responsibility for collecting the data will vary. For example, it will be up to individual van drivers to log their mileage and fuel data. Alternatively more sophisticated electronic devices can be installed in vehicles to automatically record mileage. The Van Best Practice programme has created a simple tool to analyse data which can be downloaded from the website.

Data on van repairs and other running costs may need to be obtained from the person in your organisation who is responsible for overall van management or maintenance, or other depots.

4.1.2
Using the Data

Once you have collected data, it is important that you are able to use and present it in a meaningful manner.

This will allow you to identify priority areas that should be addressed. It will then also allow you to identify efficiency measures that you can put in place during the next stages to improve your van operations. An activity undertaken here could involve dividing the data you have gathered into general categories such as:

- Monthly fuel costs
- Maintenance costs
- Average costs per mile
- Average distance per journey

4.2
Prioritise: Identify Areas for Improvement

Looking at your baseline will allow you to determine how the key areas can be addressed to meet your business and operational priorities.

The baseline data collection will be used to inform what the priorities are for your business. During the previous stage, you will have developed an understanding of the current efficiency of your van usage.

This could lend itself to a benchmarking exercise against external fleets or against internal measures. The next stage is to identify where you would like to improve your van operations.

Following this, you should identify where your current practices fall short of your aims. These areas can form the main target areas to be addressed.

4.3
Assess: Root Causes and Solutions

Once you have established your baseline and prioritised those areas upon which you will focus, you will need to assess the root causes. This may give rise to further questions, for example, if one of the priorities is to reduce the expenditure on fuel, questions which might be considered include:

- Are we paying too high a price for fuel when we buy it?
- Are we getting reasonable miles per gallon yield from the fuel we buy?
- Are we driving unnecessary miles?

This will then allow correcting actions to be determined, perhaps addressing some of the root causes identified as noted above including:

- Fuel consumption
- Drivers' mileage
- Maintenance costs
- Vehicle specification
- Journey duration
- Average vehicle spend
- Average vehicle operating capacity

It is important that changes are ambitious but attainable and to think of timescales by which you want to bring about these changes. Concentrate on two or three major areas initially where progress is likely to be made given your particular circumstances. Focusing on these areas, you can then refer to section 5 of this document that highlights methods that could be put in place to address these areas. Further details on each of these and the associated implications are also provided.

4.4
Implement: Making the Change

A table such as Table 4.1 could provide a useful method for communicating problems and priorities to your business. Communication of the initial ideas to those employees likely to be involved is important for strategies to get approval and to help increase co-operation.

An action plan will only work if it is given time to be considered. This involves planning changes carefully and discussing them with all relevant areas of the business. From the known starting points and the arrangements to measure progress, you should establish key points for targets and enforce completion dates. This will allow you to keep on track with your progress and to make sure it does not slip. Having time-bound actions will provide additional motivation for ensuring progress is made.

Indicators are measurements that can be used to show the progress or state of an activity or project. There are a range of different indicators that can be used to represent your needs. A range of indicators will be required to show the change and improvement achieved in all areas of the business. For some aspects of your van operation, it may be necessary to have more than one indicator. Indicators could include information on vehicle usage, fuel costs and vehicle performance.

Having suitable indicators will allow you to clearly monitor and report on the progress of your van operations and make adjustments as required.

Examples of Indicators

The indicators chosen should allow your business to see how it is progressing and address any issues that may arise.

Examples of indicators that could be included are:

- Monthly fuel consumption in relation to vehicle mileage
- Number of annual repairs to vans
- CO_2 emissions in relation to vehicle mileage of fleet

Setting Targets

This stage is important so that you are able to see how your business is progressing and then address the issues that were identified earlier. By having targets, you will be able to identify when these are met and they can also act as a motivator to aid uptake and promote your business practices to customers. Achievement could be communicated to clients by being incorporated into environmental statements highlighting the action taken and the improvements made.

To calculate your van CO_2 output, the Van Best Practice programme has created a simple tool to analyse data which can be downloaded from the website.

The targets will depend on the current practices of your business and the areas on which you choose to focus.

Table 4.1: Actions and targets[3]

Key action	Target benefit	Target date
Buy cheaper fuel through bunkering	Lower fuel costs	End of quarter
Check business mileage claimed	Ensure company is only paying for business fuel	Within six months
Evaluate route planning	Reduce annual mileage	End of next quarter

[3]Transport energy and Mayor of London (2003) Green Fleet Management: An essential guide to how to run your fleet efficiently.

The preparation required and target completion dates should be ambitious, but attainable. Early successes will be highly motivating, whereas early disappointments will demoralise. Think of the implications of any changes you want to introduce.

Brainstorming with colleagues is an effective technique for identifying financial and operational benefits, and any barriers to success. Initially, test any ideas for change using actual drivers/ users to aid early identification of any potential problems or barriers to implementation. This also ensures buy-in at the user end of the operation. Any action plan will only work if it is given time and resources. This involves planning changes carefully and discussing them with all relevant parts of the business.

Examples of Targets

The targets chosen should allow your business to monitor progress against the indicators you have chosen. Examples of targets that could be included are:

- An improvement in fuel efficiency by 10% in two years
- Decrease vehicle breakdowns by 5% per year
- Improve environmental performance by reducing CO_2 emissions by 20% over five years

SMART Targets

Specific: This means that the indicator must be narrow enough to accurately portray what you are trying to measure.

Measurable: The objective should be able to be recorded without massive resources being devoted to research and evaluation.

Achievable: There is little point in setting a target that is so far out of reach and is unlikely to ever be met. Therefore, when deciding on the value of your target, an important consideration will be to decide what the realistic level of achievement can be.

Relevant: The objectives should also add useful value within the context of where they are being set, and be aligned with methods and higher goals.

Time bound: Provide timescales by which the targets should be met. Having a timescale gives an idea of priority of different areas and should help to prevent the process from carrying on over too long a period.

The Van Policy or the Van Mission Statement

For any organisation to maintain an effective van management system, there is the need to develop a strong van policy. The policy is the main way in which an organisation can demonstrate to its employees and customers its efforts to improve efficiency and reduce environmental impact. The policy will constitute a written statement of what you are trying to achieve and how it will be undertaken.

An effective policy for efficiency will cover a number of areas. This guide has taken you through the process of determining your priorities, establishing indicators and setting targets. Based on the priorities you identified, you will be able to produce a policy that is suitable for communicating how you aim to meet these needs and overcome any obstacles. In addition, the policy should list the targets you have set for achieving your goals. It is envisaged that the van policy should resemble the following template.

In [Name of Organisation], we are committed to:

Improving the efficiency of our van operations to ensure a more effective working practice, which will benefit our employees, clients and the wider community

Managing fleet efficiency to help us reduce costs and our environmental impact

We will strive to achieve this through:

Activity one	(e.g. train 10% of drivers in efficient driving styles by quarter one)
Activity two	(e.g. obtain and utilise mapping software)
Activity three	(e.g. install telematics in 50% of the vehicles)
Activity four	Further activities as appropriate to your organisation

To be signed and dated by:
Chief Executive Officer/Managing Director

4.5
Review: How Have You Done?

This section discusses how your organisation can monitor the success of the action plan and fleet policy you have put in place. It will indicate how to collate and present the baseline data necessary, select indicators, set targets and undertake ongoing monitoring and measuring to allow you to feedback your results into the actions you have put in place.

Key questions that are answered in this section include:

- How to keep track of your indicators?
- What data do you need to collect?
- What is the time frame for doing these reviews?

4.5.1
Monitoring

Monitoring and measuring is the process by which you can review and illustrate the progress made during any activity. Monitoring and measuring against baseline conditions allows your business to clearly identify what progress has been made in relation to your efficiency targets. Each target or action that will be monitored and reviewed must be assessed on an individual basis. This information can then be used to allow areas of success to be highlighted and reported upon, and areas of weakness to be identified so they can be addressed as necessary.

This is a critical stage as it allows you to identify the level of impact the strategies you have put in place have had and allows this information to be communicated to employees and customers. This section gives an overview of the meaning of all of these terms and gives examples for illustration.

By this stage, your organisation should have an idea of the areas on which it wants to focus the methods it is going to put in place. The next stage is to be able to assess the impact of your chosen strategies. Figure 4.2 illustrates that having a monitoring and review system in place is a continuous procedure and allows your operations to be continually reviewed and adapted.

Figure 4.2: Efficiency improvement cycle

4.5.2
Reviewing Performance

Ongoing review is necessary to show the progress made in overcoming key problem areas. Due to the different targets and activities introduced to try to meet them, you might need different timescales.

For example, some activities might need to be monitored continuously for several months after initially setting the target to ensure it's going smoothly (and make sure that employees aren't simply paying lip service to the changes), whereas other monitoring activities may be suited to a week/day's snapshot. An annual review of the van operations will, however, allow your procedures to be evaluated and changes made to suit current best practice.

4.5.3
Measuring Progress Towards Targets

Depending on the type of target set, the progress made could be viewed in a variety of ways. For discrete, qualitative tasks (e.g. appointment of van operation co-ordinator), these could be organised into checklists and when each one is completed they could be highlighted so it is easy to review what has been achieved.

Quantitative targets (e.g. number of drivers completing weekly checklist, fuel costs, mileage) could be monitored and highlighted using tools such as graphs to show how much progress is being made towards the target and highlight the trends to date. Target points and key dates should be illustrated so it is clear what you are trying to achieve and by when. Such graphs can also be annotated with key events, such as dates when new strategies were implemented to allow the impact of

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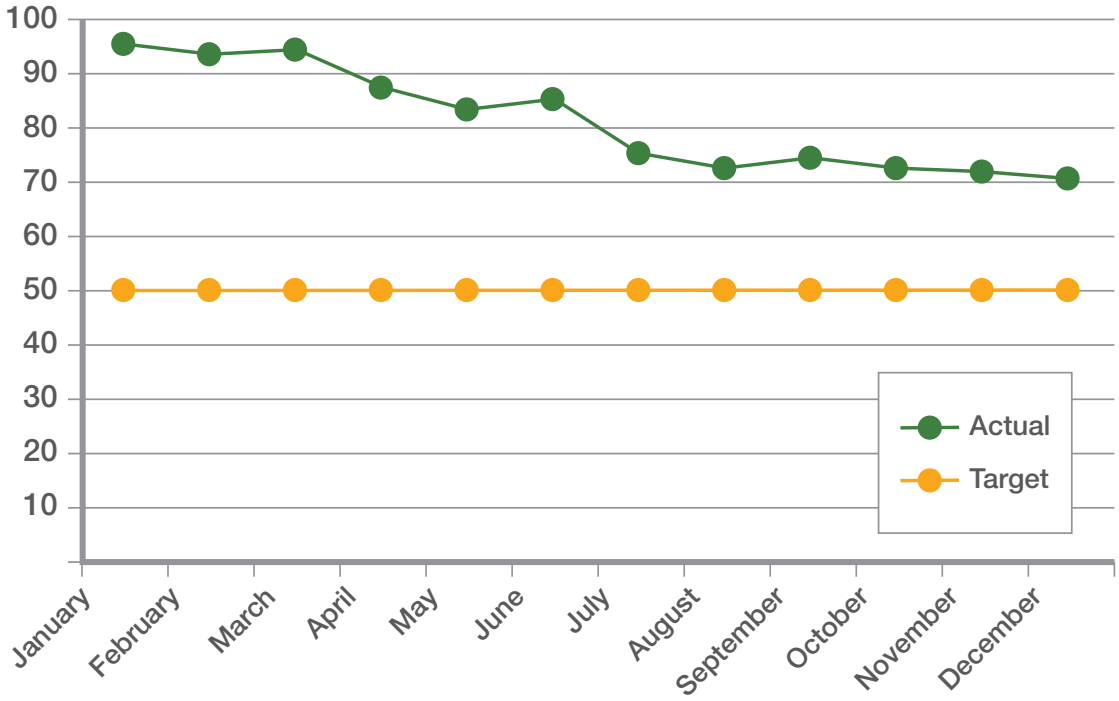
Figure 4.3: Example graph to show the progress during the year to meeting a set target



certain events and changes to be highlighted. It is suggested these graphs, like the one illustrated in Figure 4.3, should be displayed in prominent places around your office (e.g. in the tea room) to allow staff to be clear about the impact they are having.

Where you find that your targets are not being met, you should carry out further information gathering to assess:

- Why anticipated results have not been achieved
- If employees have been effectively trained in new processes
- If the reasoning for operational changes has been effectively communicated to employees to ensure co-operation
- If targets and priorities have been misidentified
- If the timeframe allocated to make changes and monitor effectiveness has been inadequate – either too short a timeframe to be able to assess the effectiveness for your business or too long, which could allow employees to lose sight of the aims
- If sufficient resources have been provided to optimise implementation

On an annual basis, all the data collected should be reviewed with the aim of feeding back into the running of your van operations and the activities that are carried out.

4.5.4
Communicating Results

Having a thorough reporting and presenting procedure in place is important. This will allow you to keep track of the progress you are making with your van operations and enable identification of strong/weak areas. It will also allow you to communicate to your staff the impact that their efforts are having and, in addition, you will have the ability to publicise this information to your customers and clients.

There are a number of ways that allow you to present the results to employees and clients. Examples include:

- Driver league tables – could act as an incentive (e.g. for most fuel-efficient driving)
- Company newsletters – provide a good tool by which results can easily be shared across the whole company. Individuals and groups can be recognised for their efforts and information can be communicated on any updates or changes
- Email updates – provide occasional updates on new procedures that have been put in place
- Charts and graphs – displayed in the office allow results to be easily visible to staff and customers

Options for Improvement

This section provides you with descriptions and examples of the activities that you can put in place to improve the efficiency of van operations within your organisation.

The measures discussed include management choices, van specifications, and driver behaviour and practices. The methods have been split into seven key sections outlined below. The information under these headings includes descriptions, methods and comparisons between the various options and case studies.

- Fuel Monitoring and Management
- Evaluating Cleaner Fuels and Technologies
- Mileage Reduction Measures
- Technology Support Systems
- Evaluating Vehicles
- Servicing and Maintenance
- Driver Management

You will need to assess each option to see which works best for your type of organisation.

5.1 Fuel Monitoring and Management

Monitoring is a critical stage in the management process. The amount of fuel used by vans will vary depending on their exact use and miles driven. However, it is always a cost associated with running your fleet. Therefore, it is important to have an understanding of how much fuel you are using and how much you should be using, as this could allow significant changes to be made if this area is of concern.

- Frequency of fuel monitoring
- Performance indicators for fuel use
- What should be done with this information
- Presenting and using data to make improvements
- Management of the monitoring process
- Appointed person and their responsibilities
- Motivation techniques for staff

Users should refer to the Fuel Management Pack for further information.

To help ensure optimum fuel consumption, you should:

- Carry out regular vehicle checks
- Develop a servicing and maintenance policy

A well-maintained older van will use less fuel than a badly maintained one of the same age, so better maintenance can save owners money by cutting down on fuel use and may avoid expensive breakdown costs.

Monitoring the level of fuel use is a critical stage in the van management process as ultimately, if you are not measuring something you cannot control it. In addition to seeing what progress has been made to date, you will be able to look at future priorities and identify the direction in which you want to take your van operations. To control fuel costs, the five key data points of fuel efficiency that must be captured on a regular basis are as follows:

- Driver identification
- Vehicle registration/identification
- Date of fuel fill
- Amount of fuel
- Cost of fuel purchased

With these data, it is possible to compare the performance of your fleet with that of others. Monitoring enables problems to picked up straight away. It enables problems to be identified immediately, along with the spread of costs within the fleet.

The fuel used by each van should be measured regularly and accurately. The frequency of measurements should be sufficient to provide management with up-to-date information, with minimal paperwork. It is also necessary to measure, at the same frequency, the output that has been achieved by the fuel consumed (i.e. the distance travelled). It is essential that the mileage and fuel consumption figures cover the same period of time.

To achieve effective fuel monitoring you should require drivers to log details such as amount of fuel used, price and mileage. This can be used in a spreadsheet to look at trends and outputs for different vehicles and drivers. Users should refer to the Fuel Efficiency Calculator resource for further information.

Alternatively, there is a range of devices available to make this process easier. Electronic devices can be fitted to vehicles that automatically record mileage and fuel consumption. These data can be downloaded to a PC and key indicators can then be identified easily.

To effectively manage your fuel consumption, the most direct action that can be put in place is to improve driver skills through training. The Energy Saving Trust offers 'Fleet Health Checks' that provide help and advise on making your van practices more environmentally friendly[4].

[4] EST (2001) Green Fleet Review. Available from: www.energysavingtrust.org.uk/business

Case Study

British Gas
Fuel Monitoring

British Gas supplies gas and electricity to UK residential and business customers, and provides central heating and gas appliance installation services. Its fleet comprises about 10,200 vans (mainly light vans and panel vans).

British Gas has implemented a fuel monitoring programme, with engineers being provided with feedback and practical advice on improving their efficiency based on their fuel use. Fuel cards are used to collect the appropriate fuel and mileage data, which is then used to create league tables based on miles per gallon (MPG). Additional training is targeted at those engineers who continue to achieve a lower than expected MPG performance.

British Gas has started a process of combining its vehicle incident and fuel use data to verify the relationship between excessive fuel use and poor road safety. This work is seen as a quick and easy way to identify poor driving behaviour.

5.2
Evaluating Cleaner Fuels and Technologies

It is important that van operators consider a range of different fuel types. Therefore, this section provides an overview of the different types of fuel that are available, and their benefits, costs and availability.

The cleaner fuels and technologies that are covered include:

- Natural gas
- Liquefied petroleum gas
- Electricity
- Hybrids
- Biofuels

Summary of Alternative Fuel Vehicle Performance

Natural Gas

The Fuel
The natural gas used as a vehicle fuel is mostly methane, which is extracted from oil and gas fields around the world. When stored in a compressed form, it is known as compressed natural gas (CNG). Alternatively, when held at extremely low temperatures (about -162°C) it liquefies and is then known as liquefied natural gas (LNG).

Vehicles
Typically available as dual fuel – using diesel and natural gas together, and can be available as bi-fuel (i.e. using the fuels alternatively within the same engine).

Environment
Can be quieter than diesel, vehicles produce 10-15% less CO_2 and significantly less other emissions.

Cost
Vehicles are more expensive to buy, but fuel is cheaper. Vehicles are exempt from the London Congestion Charge.

Refuelling
Limited refuelling points are available at the moment. Operators tend to purchase in bulk, holding fuel to issue to themselves. However, it is important to understand the health and safety implication of having onsite fuel tanks.

Liquefied Petroleum Gas

The Fuel
Liquefied petroleum gas (LPG) is a blend of propane and butane produced either as a by-product of oil refining, or from natural gas (methane) fields. It is stored under light pressure conditions (15 lbf/in^2 (psi) 103x10^3 Pa), making it a liquid.

Vehicles
At present, LPG is available as a bi-fuel variant for a wide variety of petrol-fuelled vans. This can be specified as a manufacturer option, or more commonly as a retrofit. However, when retrofitting it is important to use a recognised LPG installer.

Environment
LPG produces 10-15% less CO_2 and significantly less other emissions.

Cost
All LPG vehicles are exempt from the London Congestion Charge and their running costs are around 30% lower than the petrol equivalent.

Refuelling
There are about 1,300 LPG refuelling sites across the UK, 47 of which are in London.

Electricity

The Fuel
Electricity attracts no fuel duty. The drives for electric vehicles consist simply of a rechargeable battery (usually lead acid, nickel metal hydride or lithium-ion), which stores electrical energy and is coupled to an electric motor that powers the vehicle. This combination is far more efficient than internal combustion engine power.

Vehicles
This technology is currently available in a number of vans. Battery management is important, but no more so than checking the oil in a diesel engine. In addition, the batteries may be leased, thereby bypassing some maintenance issues.

Environment
Electric vehicles produce zero emissions where they are being used. However, as they draw electricity from the electricity supply network, there are associated emissions from electricity generation. These are still significantly less than those from diesel fuelled engines and some electricity suppliers will guarantee renewable sources for power generation.

Cost
Purchase costs are high, but savings accumulate from the first day of running. In addition, electric vehicles are exempt from the London Congestion Charge and vehicle excise duty and have other company tax benefits.

Recharging
This is normally undertaken at the operators' premises overnight. The majority of electric vehicles available have a range of up to 100 miles on an overnight charge.

Hybrids

The Fuel
The basic concept is to capture energy that would normally be dissipated as heat during braking and reuse it to assist the engine.

Vehicles
A number of van manufacturers are developing hybrid technology that is currently on trial. In addition, a variety of engineering firms have developed retrofit diesel hybrid systems, which are available now.

Environment
Hybrid vans can offer fuel savings of up to 30% in urban environments, with a corresponding reduction in CO_2 emissions versus the standard diesel equivalent.

Cost
Costs to purchase are higher than petrol or diesel equivalents, but savings accumulate from the first day of running.

Recharging
Hybrid vehicles recharge their batteries during normal operation, so they just need to be fuelled with diesel as for a conventional vehicle.

Biofuels

The Fuel
The two main types of fuel are biodiesel and bioethanol. Bioethanol is primarily a substitute for petrol and not of real significance to the van industry.

Biodiesel is produced from the oil of crops including oilseed rape, sunflowers and soybeans, as well as from waste cooking oils or rendered animal fats. It is available in blends from 5% to 100% biodiesel – these are known as B5 for the 5% blend, and so on.

Vehicles
At present, biodiesel is used most commonly as a B5 blend. In fact, most diesel purchased at the pumps is now B5. Manufacturers will guarantee vehicles to use this blend; some will guarantee their vehicles for operation on blends up to B30. For higher percentage blends, engine modification is likely to be required.

Environment
Biodiesel can offer carbon savings compared with conventional diesel. However, the indirect effects of biodiesel are being re-examined to ensure sustainability.

Cost
There are no vehicle modification costs associated with running a vehicle on a B5 blend. There are no London Congestion Charge reductions for vehicles using biodiesel because such vehicles can also use conventional fuels.

There is a fuel duty incentive of 20 pence per litre (biodiesel component only) until April 2010.

Refuelling
Diesel can be sold with up to 5% biodiesel added and does not need to be separately identified at the pumps. There is limited availability of higher percentage blends and operators may need to consider holding a supply in their own storage and dispensing facilities.

Table 5.1: Summary of alternative fuels

	Natural gas	LPG	Electricity	Hybrids	Biofuels
Emissions	✓	✓	✓	✓	✓
London Congestion Charge	✓	✓	✓	✓	-
Vehicle costs	X	X	X	X	-
Running costs	✓	✓	✓	✓	-
Vehicle excise duty	✓	-	✓	✓	-

Key:

- ✓ Better than conventional vehicles/fuels
- \- Comparable with conventional vehicles/fuels
- X Worse than conventional vehicles/fuels

Vans with diesel engines are the most popular choice in the UK. Users will need to consider their journey profiles when thinking about alternative fuels and technologies. For example, in the urban environment, traffic congestion and congestion charges will have an influence on fuel choice.

5.3
Mileage Reduction Measures

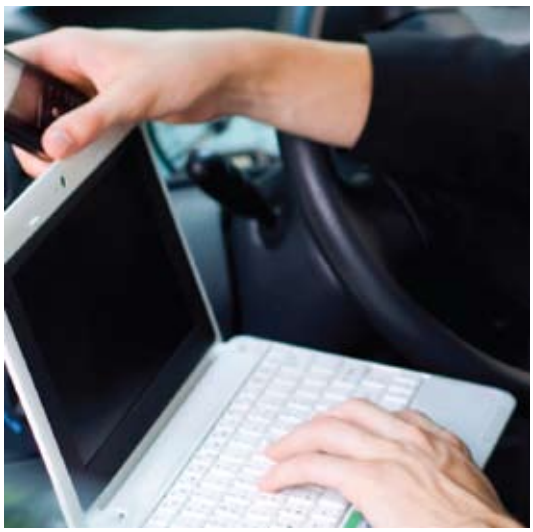
Unnecessary or avoidable van mileage will cost an organisation much more than just the cost of fuel. These additional miles will contribute to van depreciation, maintenance and servicing costs, and the unproductive use of your time. Such costs can quite easily be overlooked or even become an accepted business nuisance. Quite often, van routes and schedules can evolve over time and not necessarily be the most logical. Therefore, a review of routes can be beneficial.

To reduce mileage, you should take steps to make careful planning of vehicle movements. This can be undertaken by a variety of methods that can include manual map based planning or the purchase of commercially available IT packages.

The decision will depend on a cost benefit analysis – in other words whether you think the information provided will enable you to save sufficient money to justify the expenditure. However, a starting point for review could be questioning the necessity of the journey itself:

- Are there alternatives?
- Could the journey be combined with another task?
- Is the route the most efficient?
- Is the driver familiar with the journey?

5.3.1
Routing and Scheduling Software



There is a range of software packages commercially available that can help you to manage your vans by determining more efficient route planning and scheduling of vehicle movements. By using this sort of software, the following benefits could be achieved:

- Reduce transport costs by cutting mileage and improving driver and vehicle utilisation
- Improve customer service with real-time information
- Cut CO_2 and other harmful emissions
- Increase control of transport through better management reporting
- Reduce delivery lead times
- Improve strategic decision making
- Reduce administration costs

- Underpin strategic growth objectives through access to detailed information

Overall, having technology support systems can help to enhance vehicle performance through:

- Allowing vehicle problems to be addressed proactively (i.e. before they become expensive repairs) through the use of real-time vehicle diagnostic data
- Automatic capture of accurate odometer readings without driver input
- Eliminating unnecessary idling to save on fuel costs and engine wear
- Eliminating unnecessary mileage and lifecycle costs

In addition, on-board telematics allow you to monitor and record your van movements and could allow for some of the following to be achieved:

- Easily monitor and eliminate excessive speed
- Reduce unauthorised use
- Reduce accidents
- Enhance driver safety
- Protect against theft/loss
- Improve driver behaviour behind the wheel
- Reduce risk

5.4 Technology Support Systems

There is a range of technology systems available that can assist with easier and more efficient van management. The types of system available and what they will allow the user to achieve are explained here.

Vehicle Tracking

Vehicle tracking provides the ability to monitor the real-time location, movement and status of the vehicle through a GPS receiver or mobile communication network and a device in the vehicle. This information can be transmitted to PC software, which can then be combined with mapping software.

This information can be used to help manage the movement and deployment of your vehicles as you will always know their location.

Vehicle Diagnositics

A range of devices are available that are able to indicate whether there is a problem with the vehicles. Systems are able to keep records of temperatures (e.g. in refrigerated vans) and are able to control the temperature automatically or give a warning if it becomes too hot or cold. Therefore, this can prevent perishables from spoiling. In addition, you should be able to highlight poor driving performance (e.g. sharp acceleration and braking, and excessive idling) and produce thorough beginning and end–of-day reporting on performance.

5.5 Evaluating Vehicles

It is important that you have an understanding of your fleet and that the vehicles are suitable for your requirements. To evaluate vehicles, information will need to be gathered under the following headings:

- Job requirements/vehicle specifications
- Running costs
- Whole-life costs
- CO_2 data
- Vehicle road tax

A further description of these and their importance is given below, with further details being provided in the Van Specification Resource.

Job Requirements/Vehicle Specifications

It is essential that all vehicles brought into the fleet are fit for purpose. This means that key factors are considered ahead of the purchase. For vans, the key issue is load capacity, which may be a weight limit (for dense loads) or a volume limit (often called 'cube') for bulky, but light, loads. How often will the van be nearly empty (e.g. on return journeys)? Loading height and access are also important – is a side door advisable or even necessary?

If you need to have specialist bodywork you must consult experts to avoid potentially very expensive mistakes. Vehicle choice is usually based on some form of allocation hierarchy. This will depend on the individual organisation, but an illustration could include:

- Vehicle list price
- Vehicle invoice price
- Vehicle rental costs from contract hire company
- Vehicle whole-life cost, from some recognised and standard tables
- Emission profile (subject to the kind of use and the fuel choice)
- Fuel consumption
- Insurance group

However, overall, the vehicle must be selected so that it meets the following categories:

- Overall volume of load-space (the cube)
- Overall weight capacity (payload)
- Door openings/access
- Gross vehicle weight (for driver and operator licensing requirements)

Any van being considered needs to be tested with the typical payloads to make sure the load fits (this includes fixtures such as racking), can be handled and accessed appropriately and is within the overall weight category for the vehicle.

Running Costs

Day-to-day running costs include fuel costs, tyres, repairs and

maintenance of the vehicle, but do not take into account the purchase cost of the vehicle and depreciation. Thus, it will not provide an accurate estimate of your true vehicle costs. However, it is useful to consider on an annual basis how much it costs to run your vehicle in terms of fuel use and maintenance.

Whole-life Costs

It is generally acknowledged that the best way to understand and control van expenditure is through the process known as whole-life costs. This provides the most accurate way to predict the overall costs of the vans to the business. Typically, all aspects of the cost profile would be included. The elements of a whole-life cost equation will vary with fleet circumstances. However, in general, the major elements are depreciation (that is, initial cost less projected residual value); fuel (either all fuel or that percentage of the total fuel cost borne by the employer for business mileage); maintenance (including warranty effects and reliability factors); funding costs and vehicle excise duty. In a full whole-life cost calculation, the relevant insurance premium should also be included.

A variety of industry bodies and publications produce van running costs, so it is important that you always use the same source when comparing vehicles.

As a first step, you should ensure vehicles are allocated on the basis of whole-life cost rather than the cash price or monthly leasing rental.

Typical Elements of Van Costs

Gross vehicle weight (GVW): this is the gross vehicle weight in kilograms (i.e. combined weight of vehicle, driver and payload). This gives an indication of the carrying capacity of the vehicle and identifies those vans that exceed 3,500 kg and may require an Operator's Licence and DfT goods vehicle plating and testing. This is used to categorise your van.

Depreciation (Depr): for a given replacement cycle (e.g. 36 months/90,000 miles), the projected residual value is deducted from the vehicle list price, to produce an anticipated depreciation figure. This is then divided by the relevant mileage to produce a depreciation value expressed in pence per mile.

Service, maintenance and repair (SMR): this is the projected cost of keeping a van in good repair over the mileage stated. In addition to scheduled routine servicing, the examples in Table 5.2 take into account anticipated tyre costs and vehicle excise duty. Once again, this is expressed in pence per mile.

Table 5.2: Typical van running costs

Typical Van Running Costs (pence per mile)							
Description		36 months/90,000 miles			48 months/100,000 miles		
Van type	GVW (kg)	Depr	SMR	Total	Depr	SMR	Total
Car-derived van	1,585	6.86	2.49	9.35	6.45	3.67	10.12
Light van	2,040	9.43	3.37	12.80	8.99	4.24	13.23
Panel van	3,300	16.39	5.16	21.55	15.30	6.45	21.75

Source: Fleet Van (Dec 2008)

Carbon Dioxide Emissions

The environmental performance of your van may prove to be an important consideration, as the lower the CO_2 emissions, the greater the MPG and the greater potential fuel efficiencies. Reducing your environmental impact will help to create a positive image for your business and help to reduce emissions that are associated with climate change.

Carbon dioxide emission values for new vans are available on the Vehicle Certification Agency website. The actual emission performance of vans is very much affected by the van use; however, the published values offer valuable guidance to support the selection of new vehicles. For further information, please see the VCA website at : www.vca.gov.uk.

Van users can calculate their CO_2 emissions by measuring fuel use and then use the Fuel Efficiency Calculator resource. Alternatively, fuel use and the resulting emissions can be measured at follows:

- Petrol – 2.3154 kg of CO_2 per litre
- Diesel – 2.6304 kg of CO_2 per litre
- LPG – 1.4951 kg of CO_2 per litre

Vehicle Road Tax (Vehicle Excise Duty)

The rates set for 2009/10 are:

- £125 for vans not over 1,549 cc (Tax Class 11) and registered before 1 March 2001
- £190 for vans over 1,549 cc (Tax Class 11) and registered before 1 March 2001
- £185 for vans (Tax Class 39) registered on or after 1 March 2001
- £125 for Euro 4 compliant vans (Tax Class 36) registered between 1 March 2003 and 31 December 2006
- £125 for Euro 5 compliant vans (Tax Class 36) registered between 1 January 2009 and 31 December 2010

5.6 Servicing and Maintenance

A well-maintained vehicle can significantly reduce fuel consumption and emissions. Data from the records of some large fleet operators indicate that strict maintenance practice can reduce fuel consumption by up to 7% and unexpected repair costs are also reduced. Data from the Department for Transport show that fuel consumption can increase by as much as:

- 10% with under/over inflated tyres
- 10% with an out-of-tune engine
- 10% with a clogged air filter
- 6% with misaligned wheels

Under each of these headings, descriptions will be given indicating how to carry out these activities and what should be included. For example, under vehicle checks, a checklist will be provided to indicate the key things to investigate and the frequency with which they should be checked.

Vehicle Checks

Keeping vans properly serviced and roadworthy is an important aspect of management because of the costs involved and the road safety implications. There is also an important environmental aspect to this – a well-maintained van will generally use less fuel and produce lower emissions than one that is not properly maintained.

Drivers must carry out routine maintenance checks on vans.

Some companies have ensured these happen by conducting on-the-spot checks, asking employees to confirm their compliance when claiming monthly expenses or making the failure to carry them out a disciplinary matter.

A log needs to be kept of vehicle checks so that it is clearly visible how frequently these are being carried out. Improved vehicle emissions standards can be cancelled out by poor vehicle maintenance, which can increase pollution and reduce fuel efficiency.

The condition of the vehicle at the end of its life is important with regard to maximising resale value or mitigating end of contract costs being levied due to the condition. For further information, please see the industry guide to 'Fair Wear and Tear' as published by BVRLA www.bvrla.co.uk

A typical inspection schedule should include the following areas and frequency:

Daily

- Visual inspection of a vehicle to make sure there is no (new) body damage
- Visual inspection of tyres for obvious under or over inflation
- Check that all lights are in full working order
- Check that windscreen, side and rear screens are clean, with good visibility from external mirrors

Weekly

- Check brake performance
- Check for service requirements against time and/or mileage
- Check screenwash levels
- Oil and water checks (when weekly mileage is over 500 miles)

Monthly

- Check tyre pressures
- Full check of under bonnet fluid levels
- Check for exhaust leaks (indicated by increased noise)
- Check that steering runs 'true' and that brakes do not pull to one side

When carrying out these inspections the things that you may want to look for include:

- **Brakes** – wear should be checked to avoid the possibility of damaged discs or drums that can be expensive to replace
- **Wheels and tyres** – regular checks lead to safer driving and legal compliance. Experience from fleet operators and tyre companies indicates that wheels that are out of alignment can cost up to 6% of fuel costs, while under inflation of tyres can also increase fuel consumption
- **Oil** – as oil ages, it loses a great deal of its lubricating properties. This accelerates engine wear, which can cause higher fuel and repair bills
- **Exhaust emissions** – regular checks on performance can avoid the risk of failure at a roadside check – which might bring the possibility of a fine, in addition to the disrupted journey

Servicing and Maintenance Policy

A servicing and maintenance policy ensures that your employees carry out the monitoring and checks that are suggested above. The policy can be a simple statement outlining the requirement for the above checks to be carried out and a log (which is stored at a central location) created to show these have taken place.

The policy can be accompanied by checklists to ensure drivers are clear on what they have to do and when. Carrying out spot checks of drivers/vehicles to ensure they meet the standards and making failure to comply a disciplinary offence can then reinforce this policy.

5.7 Driver Management

Drivers will ultimately determine the overall performance and efficiency achieved from the vans they drive. To ensure the driver is driving in an efficient manner, guidelines are given under the following headings to improve performance and ensure best practice:

- Driver training
- Driver incentives

Driver Training

Changes to the way vans are driven can have a big impact on a vehicle's fuel efficiency – cutting costs and carbon dioxide emissions. Driver training that shows how to drive in a safer and more fuel-efficient way can cut fuel use by between 10% and 30%[5], depending on the driver and type of journey being undertaken.

Major business users have saved expenditure on fuel bills by introducing driver training schemes. Safe and Fuel Efficient Driving (SAFED) for Vans has been available

[5] Based on SAFED for Vans training results.

as a DfT-backed training scheme since 2006. This is a one-day course delivered directly to the van driver by an instructor. This training helps a driver by illustrating more efficient driving styles (e.g. less aggressive driving, reduced heavy braking and improved vehicle handling), which has safety and fuel efficiency benefits. Average on-the-day fuel savings are 16%. Further information is available at www.safed.org.uk

Driver Incentives

The boom in Internet shopping has contributed to a record number of vans travelling along the UK's roads. Simultaneously, time pressures on van drivers to meet ever-tighter delivery deadlines and service schedules are increasing, as the demands of today's businesses and customers are met. These factors, together with the need to beat ever-increasing traffic congestion, are prompting companies to use telematics, which can help them to:

- Route plan
- Improve vehicle deployment (and ultimately reduce operating costs)
- Cut van emissions
- Improve safety

In addition, companies themselves can offer incentives for good driving practices, but must not encourage illegal driving activity. This could be through the use of league tables and rewards leading to special recognition and bonuses for the most efficient drivers and those who are showing the greatest improvement. By offering such a scheme, drivers will be encouraged to change their driving style and the benefits of this will be passed on to the business.

Appendix:

Useful Forms

Appendix 1: Vehicle Maintenance and Condition Report

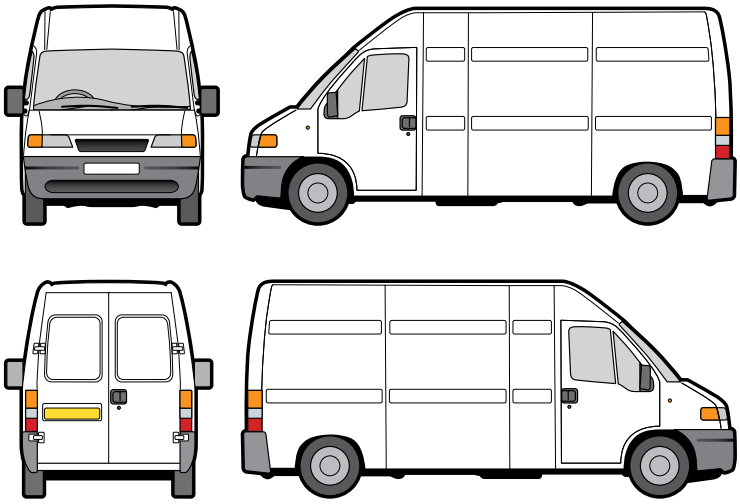
General information			
Month:		Vehicle registration:	
Driver:			
Odometer reading (beginning of month):		Odometer reading (end of month):	
Monthly mileage:		Total mileage:	
Fuel used during month (litres):		Fuel consumption (MPG):	

Monthly checklist		
Item	Checked	Comments
No instrument panel warning lights showing		
All lights, indicators and horn operational		
Windscreen and other glass (including mirrors) undamaged		
Wiper blades and washers serviceable		
Tyre condition and tread OK		
Tyre pressure OK		
Spare wheel serviceable		
Wheel brace, jack and tool kit available		
Roof rack and/or tow bar secure		
Engine oil and other fluid levels adequate		
Emergency equipment serviceable (e.g. first-aid kit, fire extinguisher, hi-vis jacket)		
Seat belts operational		
Generally clean and tidy		

Servicing/repairs during month

Date	Odometer reading	Brief details/cost	Name of garage

Bodywork condition
(list details of any damage and mark position on diagram)



Any other comments

Driver's signature:		Date:	
Manager's signature:		Date:	

Appendix 2: Driver's Daily Vehicle Checklist and Fault Report

Checks to be conducted before use of the vehicle

Date:		Vehicle registration:	
Driver:			
Vehicle make/type:		Odometer reading:	

Marking Key:

✔ Satisfactory/available
X Critical fault
- Defective/missing
N/A Not applicable

NB: If any items are deemed critical, the driver must not drive the vehicle until the fault has been rectified.

External vehicle condition

Item	Mark	Comments
Condition of vehicle bodywork, windscreen, windows, lights		
Condition of windscreen wiper blades		
Cleanliness of windscreen, windows, mirrors, lights, number plate		
Security of load, trailer, roof rack		
Condition of tyres, tyre pressures, tyre wear		
Availability of spare wheel, jack and tools		
Under-vehicle inspection: leaks, loose parts, foreign material		

Fluids

Item	Mark	Comments
Engine oil level		
Coolant level		
Windscreen wash level		
Brake/clutch fluid		
Power steering fluid		
Condition of battery, acid level, fixings and connections		
Oil or other fluid leaks		

Vehicle interior and equipment

Item	Mark	Comments
Condition and function of seat belts		
Head restraint adjustment		
Mirror adjustment		
Tax disc showing and in date		
First aid kit		
Fire extinguisher		
Torch		
Warning triangle		
Vehicle handbook		

Functional checks before starting the journey

Item	Mark	Comments
Warning lights in instrument panel working		
All lights		
Horn		
Washers and wipers		
Brakes		
Fuel		
Trailer connection and functioning of trailer lights		

Functional checks during the journey

Item	Mark	Comments
Warning lights in instrument panel off		
Abnormal noise		
Abnormal vibration		
Abnormal smell		

The driver of this vehicle has confirmed they are aware that vans are subject to lower speed limits than cars. Please tick:	

All the items above have been checked and any defects and omissions reported.			
Driver's signature:		Date:	
Manager's signature:		Date:	

Appendix 3: Vehicle Fuel Fill-up Record

Vehicle:			Reg. No:				
Start date:		Start miles:	End date:			End miles:	
To be completed whenever the vehicle is refuelled							
Location	Date	Odometer	Trip	Price(p/l)	Volume (l)	Cost of fill (£)	Office use
For office use							
Total distance covered (miles)		Average fuel price paid (p/l)		Total fuel used (l)		Total cost (£)	
Fuel performance indicators:							

Fuel Management Pack

Safe Vans

Case Studies

Efficient Vans

Carrying Goods Safely

Driver Essentials

Van Specification

VBP1002 October 2009

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