Quick Guide to Computerised Vehicle Routing and Scheduling (CVRS)
Appendix 1 - Questions for Potential Suppliers

Appendix 2 - Main CVRS System Suppliers in the UK

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1 Introduction

1.1 Do You Want to Make Better Use of Your Transport Resources?

In today’s competitive market, no organisation can afford to make less than optimum use of its resources. Doing more with the same resources or doing the same with fewer resources has to be the aim. But can you use your transport resources more efficiently without compromising your level of service?

Planning vehicle operations involves the processing of large amounts of information. Even the best manual system is subject to the occasional human error. Many operators of larger fleets are benefiting by using computerised vehicle routing and scheduling (CVRS) systems to optimise vehicle operations, but many more organisations - large or small - could also benefit. Are you missing out?

A survey of CVRS users (results taken from an e-mail survey of some 700 members of the Freight Transport Association (FTA), conducted during August and September 2004) found that there was little difference, in terms of fleet size and business sector, between companies that have chosen to use CVRS and those that have not. Over 90% of users were satisfied with their systems and reaping benefits - could you be, too?
1.2 How Can this Guide Help?

A large barrier to the uptake of CVRS is considered to be lack of knowledge of the capability of modern systems. On top of this, many organisations feel unable to spare either the time or the resources to be able to investigate them.

If you are trying to find new ways of improving transport efficiency, or are contemplating a CVRS system but need more information, this guide is intended to:

- Provide you with a brief introduction to CVRS and its benefits
- Help you to decide whether CVRS is suited to your operations
- Outline what it would involve to implement CVRS
- Point you to further information

For more detailed information on CVRS and how it can help you to improve your transport operations, read ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’. To order your free copy, contact the Freight Best Practice Hotline on 0845 877 0 877 or visit the website at www.freightbestpractice.org.uk

Further Help

The Department for Transport under the Freight Best Practice programme offers free, independent and practical information and advice to help companies improve the cost effectiveness of their transport operations. Guides, DVDs and case studies on topics such as fuel management, safe driving and truck specification are available through the Hotline on 0845 877 0 877 or from the website at www.freightbestpractice.org.uk
2 Understanding CVRS

2.1 What Is CVRS and Why Should You Use It?

CVRS can help you to plan the best routes and schedules to fulfil your orders, both quickly and accurately, using a set of digital maps and user-set parameters. In-house knowledge is not lost - users interact with the systems, to check the feasibility of the routes and schedules generated and to make changes as necessary until they are satisfied that the best solution has been found.

Even the simplest systems can:
- Reduce planning time
- Reduce journey times
- Minimise vehicle mileage
- Reduce fuel costs
- Improve customer service

In addition, more sophisticated systems will match customer locations and requirements and the types and quantities of goods to be delivered and/or collected, to available vehicle capacity, in order to produce the most economical routes and achievable schedules. As a result, these systems provide the additional benefits of:
- Less manual data entry, reducing the risk of errors or forgotten orders
- Reduced administration time
Reduced operating costs
A more reliable delivery and collection schedule
Better utilisation of transport resources

You can also use sophisticated systems to ‘model’ possible changes to your transport operation. For example, you may want to know if using different size vehicles would reduce the number of vehicles needed to meet current requirements, or what impact it would have if you took on a major new customer. In addition, you can carry out strategic reviews, helping you to plan for the future.

2.2 Could CVRS Benefit You?

It is a commonly held belief that only large operations can benefit from using a computerised system to help plan routes and schedules. In reality, the benefit is more related to the type of operation.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Do you operate a large fleet (more than 25 vehicles of over 3.5 tonnes)?</td>
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<tr>
<td>Do you operate many different vehicle types?</td>
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<tr>
<td>Do you provide a multi-drop delivery service?</td>
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<tr>
<td>Do you have a large number of customers?</td>
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<tr>
<td>Do you deliver and/or collect a wide range of order sizes and product types and sizes?</td>
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<tr>
<td>Do your customers have a range of individual requirements, for example, set delivery windows, short lead times, specific vehicle types, etc?</td>
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<tr>
<td>Does your delivery and collection requirement change from day to day or from week to week?</td>
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<tr>
<td>Is a limited amount of time available for load planning?</td>
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<tr>
<td>Are delivery options, service levels, vehicle types or depot locations likely to change?</td>
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<tr>
<td>Do you think that you may not always be making best use of your transport resources?</td>
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</table>
If you answer ‘Yes’ to any of these questions, your organisation could benefit from some form of CVRS. The more times you answer ‘Yes’, the more likely that a full vehicle routing and scheduling system is needed; fewer ‘Yes’ answers probably means a simpler system will suffice.

2.3 What Types of System Are Available?

Two types of computerised systems are available: the less sophisticated journey planners and the comprehensive vehicle routing and scheduling systems.

Journey Planners

Journey planners use digital maps and information on roads, such as road category and speed limits, to calculate the best route between any two given locations, including any number of specified call points. They can also be used for a range of monitoring purposes, including checking distances on tachograph records and haulier invoices, identifying the number of customers within a given distance of a depot, and so on.

Journey planners are generally used to plan single journeys. Users review the orders to be fulfilled and assemble them into provisional routes with specific call points, before using the journey planner to determine the best route (shortest, fastest or avoiding certain roads) and the best call sequence. Users review routes, making changes and re-using the journey planner until the optimum solution is found. At this point, users can print journey plans in map form or as a series of directions, for issuing to drivers.

As journey planners cost considerably less than vehicle scheduling systems, they are more affordable for smaller organisations. They can prove very effective in organisations operating a small fleet, perhaps five or six vehicles, where the number of routes to be planned or the number of calls to be routed is small.

If you think that a journey planner may be the best solution for your organisation, further information is contained in the Freight Best Practice guide, ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’. To order your free copy, contact the Freight Best Practice Hotline on 0845 877 0 877 or download a copy from the website at www.freightbestpractice.org.uk
Vehicle Routing and Scheduling Systems

Vehicle routing and scheduling systems are more sophisticated software packages, which can provide benefits in many areas in addition to rapid planning of routes. In addition to digital maps, vehicle routing and scheduling systems hold much more information, including details of:

- Customer locations
- Delivery and collection windows
- Quantities and types of goods to be delivered or collected
- Vehicle availability
- Vehicle capacities
- Driver shift patterns

Customer orders are input into the system (often directly from other management systems), which then calculates the best set of routes and schedules to meet them. Users - usually transport planners or schedulers - assess the routes and use their expertise to refine them as necessary before passing them to other personnel for order picking and loading.

Vehicle routing and scheduling systems are typically used by organisations operating fleets of ten or more vehicles, particularly for multi-drop work, where the scheduling task is complex. Systems will also bring real benefits where only limited time is available for planning.

If you think that a full computerised vehicle routing and scheduling system might be the right option for your organisation, read on...
3 Making the Most of CVRS

3.1 A CVRS System Can Provide Much More than Reduced Planning Time

A survey of CVRS users (results taken from an e-mail survey of some 700 members of the Freight Transport Association (FTA), conducted during August and September 2004) found that, although the majority of businesses were using CVRS for daily or weekly vehicle routing tasks, a significant number were also using their systems for strategic reviews and business development purposes. Over 90% of CVRS users were either ‘satisfied’ or ‘very satisfied’ with their choice of system and supplier, and reported a wide range of benefits. Over three-quarters of users had noticed efficiency improvements, with lower operating costs, reduced fleet size and lower fuel costs also being widely reported. On top of this, many users cited better management reports and improvements to customer service, along with enhanced business planning.

These benefits could give you the edge over your competitors.

3.2 In What Ways Can CVRS Help?

Most businesses use a CVRS system for operational, commercial and strategic tasks.
Make the Most of Your Operations

CVRS can have a direct and positive impact on the active operation of your business by facilitating:

- Dynamic daily scheduling
- Weekly scheduling
- Validation and/or optimisation of existing manually planned routes
- Scheduling from multiple depots

Dynamic daily scheduling may produce major cost benefits, particularly if your operation has no regular daily delivery pattern (e.g., home deliveries). If your transport planners are aware of projected delivery requirements for at least one week ahead, such as with supply chains, weekly scheduling will reap benefits. If you are a multi-depot organisation, you can assign depots to customers or let the CVRS system select the most cost-effective option.

Could Changes Further Improve Your Operations?

Do you ever need to find out what resources and costs would be involved if you made changes to current operations? A CVRS system could help you to:

- Work out what vehicle and man-hour requirements would be needed to meet new contracts, particularly useful when preparing quotes
- Model changes to the business
- Find the most cost-effective way of meeting customer service requirements

Plan for the Future

Many organisations wonder 'What if...?' with regard to different set-ups and future business developments. A CVRS system could help you to:

- Plan resource requirements and budget for forecast business, seasonal variations in demand or new or revised regional depot structures
- Evaluate alternative options (e.g., is it more effective to use in-house or third-party distribution?)
- Test the effect on resources and costs of various alternatives
- Test the effect of service level changes for all customers, or groups of customers
3.3 Could You Use Better Reports and More Data?

There can be few organisations that wouldn’t welcome better reports, more comprehensive data and the ability to link management systems. Today’s CVRS systems offer all these, with data outputs including:

- Reports on routes, use of resources and costs
- Daily traffic sheets, showing drivers and vehicles used on routes
- Reports on performance, comparing actual results with those projected
- Route summaries
- Despatch reports
- Charts showing the time spent on driving, other duties and break and rest periods

You can produce reports directly from the system or export data to other data packages for customising to other management software systems.
3.4 What Benefits Might You Expect?

Improvements to Operational Efficiency

Most companies introduce CVRS to help them to use their transport resources more efficiently. With CVRS, you should be able to:

- Plan better routes in less time
- Fit in late orders
- Reduce administration effort and paperwork, making better use of planners’ time
- Achieve a better vehicle fill
- Run fewer miles to meet the same workload
- Make better use of available time and resources
- Where applicable, centralise the planning process for multi-depot operations, enabling depots to support each other rather than one depot having to bring in additional vehicles

All of these factors will reduce your transport costs, increasing your profitability and your competitiveness.

Enhancements to Service Levels and Management Benefits

Equally importantly, although less easy to define, CVRS can lead to improvements in overall service levels and improve overall management. For example, with CVRS you can:

- Create an efficient organisation that will enable you to expand the business without compromising service levels
- Plan more achievable routes and schedules, resulting in fewer missed calls
Improve communications between people and between systems, such that orders are more likely to be fulfilled on time, increasing customer satisfaction

Forecast the effects of changes, such as the number of customers or business levels, allowing accurate forward planning

3.5 Do All Companies Benefit Equally from CVRS?

You will get the most benefits from a CVRS system where:

- Large amounts of information need to be considered when generating routes
- Limited time is available for route planning and scheduling
- It can be integrated with other supply chain management software, such as systems for sales order processing and manufacturing planning

3.6 So What Are the Drawbacks?

Making a significant change to working practices is bound to have some drawbacks. For a start, there is often resistance to change, and current staff may feel that their jobs are threatened by computers. In reality, CVRS performs best when it is operated by experienced planners and schedulers, who can review and modify routes using their expertise, local knowledge and customer relationships to end up with the best possible solution.

In addition, CVRS is often seen as:

- **Complicated to implement** - it is true that you may have to put in considerable amounts of both time and money to ensure success, but you should see a rapid return on investment
- **Complex to operate** - you will need to train, support and encourage system operators if you are to get the best results
- **Inflexible** - CVRS does impose some rigidity in the way that things are done, but today’s systems can be tailored to your individual requirements, minimising any problems

It is worth remembering that most CVRS users (in response to an e-mail survey of 700 members of the Freight Transport Association (FTA) conducted during August and September 2004, over 90% of CVRS users were either ‘satisfied’ or ‘very satisfied’ with their choice of system and supplier) are very satisfied with the performance of their systems. Few users would wish to return to pigeon holes, maps, pins and string or whiteboards.
4 The Importance of Finding the Right System

By now, you should have a good idea as to whether implementing a CVRS system is the right option for your organisation. If you have decided that it is, you need to get a better idea of the possible costs and payback, as well as guidance on how to go about finding the right system and supplier.

4.1 What Might a CVRS System Cost?

Today’s CVRS systems tend to be customised to meet customers’ needs. It is therefore difficult to say how much a system will cost because it depends on so many factors, such as:

- The functions required
- How many users it will have
The size of vehicle fleet to be routed and scheduled

The number of depots within the organisation

The number of customers

The number of calls to be routed

Once you know what you want, the best way to get an idea of the likely system cost is from a supplier. A supplier can also advise you of any other costs you may incur, such as those involved with creating interfaces to existing systems, customising and calibrating the system, staff training or buying extra computers. As guidance, a single-user system set up to plan the work for a fleet of 20 - 25 vehicles can typically cost in the region of £25 - £30,000 for the software alone, with ongoing licences and support likely to cost around £3,000 per year.

These costs may seem high, but they should be considered alongside the benefits that will result from the system. Most companies that implement CVRS:

- Reduce transport costs by 10 - 20%
- Find they can meet increasing demand without having to increase staffing levels or fleet size
- Operate more efficiently and offer a higher level of customer service for the same resource

Indeed, financial savings alone tend to offer a rapid return on investment, with typical paybacks being months rather than years. Ongoing savings and other service benefits could give you the edge over your competitors.

4.2 Find the Right Product and Supplier

Make Sure You Can Work with Your Supplier

A CVRS system is not a ‘fit and forget’ system. Not only will you have to work closely with your chosen supplier throughout project implementation and system set up, but also throughout system upgrades, staff training and perhaps user groups. It may be worth talking with other organisations that have implemented CVRS, or take up customer references from the websites of potential suppliers.

You must pick the right company if working together is to be successful.
Find out What Support, Training and Development Are Available

Support, training and ongoing development are as vital as the initial system itself. Find out all you can about what is offered, either directly from suppliers or from their customers.

It is probably worth generating a list of questions about support and training that you can use as a checklist. For example:

- How long does training take?
- Do users need to be computer experts?
- How frequently are updates issued and how are they distributed?
- Is support available 24 hours a day? Or on-line?
- Is a software manual provided?
- Does the system hold digital maps for all countries where you operate?

Ask the Right Questions

Although there are a lot of common features in modern CVRS systems, each product will have its individual characteristics, and there is likely to be one that best suits the way your organisation works and your requirements. It is important that you take time to explore the possibilities and find the right product.

Look carefully at a number of systems. Review your questions, and maybe add some more. Alternatively, you can use the list of questions (reproduced from the Freight Best Practice guide ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’) in Appendix 1 to this guide, adding or removing questions as necessary to meet your individual requirements.

To order your free copy of the Freight Best Practice guide, ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’, contact the Freight Best Practice Hotline on 0845 877 0 877 or download a copy from the website at www.freightbestpractice.org.uk
5 What Might a CVRS Project Involve?

Implementing CVRS is a major project that needs careful planning and proper management. The specifics of the project will vary from company to company, affected by many factors such as the size of the operation and what is expected from the system. However, most projects will involve four distinct phases:

- Drawing up a project plan
- Defining system requirements, consulting suppliers and deciding to proceed
- Installing the system, carrying out training and putting CVRS into use
- Fine tuning the system and optimising its performance

5.1 Draw up a Project Plan

As with all major projects, a carefully-constructed plan is essential. Try to list all tasks involved, with realistic timescales. Typically, projects will take months to complete. Remember to include regular staff briefings throughout the project.

![Project Plan Gantt Chart]

A CVRS project plan may look something like this. Tasks will vary from company to company, but the main steps will be common to all projects.
5.2 Define and Select the Right System

In the second phase of the project, you will need to:

- **Begin staff briefing** - at this stage, there may be some resistance to the proposed project, particularly where staff feel that their jobs are threatened by the move. It is important that you offer reassurance that this will not be the case: knowledgeable user input is essential if you are to implement, customise and operate the system to get the maximum benefits. You do not want staff to leave.

- **Define system requirements** - this will enable the search for a suitable system to get off to an organised and structured start. Consult planning and scheduling staff, as they will have the best idea of what you need. Remember, the system may not mimic the current logistics operation: you are looking to find the ideal solution, not just an automated version of what you already have.

- **Evaluate potential systems** - arrange demonstrations or visit sites where systems are already in operation. If you narrow the choice down to a few systems, compare costs and training, support and development options.

- **Decide to proceed** - at this stage you may need to revise the project plan to reflect any changes made during system definition or any additional training needs identified during staff briefing.

5.3 Obtain the System and Put it into Use

During this third phase, you will carry out the following stages.

- **Select the final system and place the order** - other project tasks can advance while awaiting system delivery.

- **Create and test links with other IT systems** - amongst the most common links are with sales order processing, customer service software, manufacturing planning and business reporting systems.

- **Plan training** - planning and scheduling staff will need specific training in the use of the CVRS system, even where previous experience exists. Make sure that enough people are trained to provide cover when regular users are sick or on holiday, or if they leave.

- **Assemble data** - this is a complicated process, but one that cannot be short-circuited or avoided. Accurate data on customers, orders, vehicles, drivers and so on, are vital if CVRS is to provide high-quality results. Data needs to be gathered and checked. Correct any errors you find and then recheck. Import data wherever possible from external sources, such as other computer databases, to minimise the chance of introducing data errors. Allow enough time to set up and test data. Details of the data required and what assembly involves are contained in ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’.
## What sort of data is needed at this stage?

To plan the optimum routes and schedules to meet your workload, you will need to enter data on:

- **Order and product volumes**, so that the CVRS system can work out the fit on a vehicle
  - Customer details, including:
  - Unique customer reference number
  - Name
  - Full address with postcode or grid reference, so that the system can locate the customer on in-built digital maps
  - Specified delivery day
  - Specified time windows
  - Specified vehicle types

- **Customer orders**
  - Unique order reference number
  - Order size
  - Delivery or collection

- **Vehicle parameters**

- **Driver details**

- **Other data**
  - Sequence of delivery
  - Priority
  - Booked times
  - Loading and unloading times

As well as these, you will also need to enter information on road speeds. Although the system will have default settings based on road classifications, you will have a better idea of the speeds your vehicles actually achieve. CVRS systems also allow you to set more advanced parameters that will customise the system to your particular operations. These settings should improve the first time routes generated by the system and minimise the amount of tweaking required by users. For example, you can enter details on depots (including location, vehicles and drivers), overnight stops, the number of returns to depot allowed per route, and so on. Again, more details are contained in ‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’.
5.4 Fine Tune and Optimise Your System

Your CVRS system should quickly deliver benefits, but there will be some work involved if it is to continue to produce the best solutions and keep pace with any changes within your organisation. The final phase of the project will involve:

- **Fine-tuning** - a number of weeks, or perhaps even months, after implementation, arrange a meeting between system users and the supplier. There may be as yet unused features within the system which could bring additional benefits, or changes to some of the detailed parameters which may generate better routes and schedules, without having to rely as much on user input.

- **Ongoing system optimisation** - constant developments and improvements come to market each year. Stay in touch with your system supplier and take up upgrades. Also keep an eye on the wider marketplace in case there is an enhancement that could benefit you.
Find Out More

There is lots of free advice available to help you improve the efficiency of your transport operations.

The Freight Best Practice programme offers practical advice and solutions to help you improve the cost effectiveness of your transport operations. Free Freight Best Practice publications are available from the Freight Best Practice Hotline on 0845 877 0 877. You can also download all publications from the website at www.freightbestpractice.org.uk

Some particularly relevant publications include:

‘Computerised Vehicle Routing and Scheduling (CVRS) for Efficient Logistics’. This guide goes into greater detail about CVRS systems, providing you with more information on how they work, how to select the best one for your operations and the stages involved in implementing a project. It also contains a list of suppliers, suggested questions for suppliers and case studies revealing how CVRS has helped a wide range of businesses to improve their performance and make savings.

‘Telematics’. Vehicle telematics is not an integral part of CVRS, but is linked, and its use will become more widespread in the next few years. This guide provides practical information on transport telematic systems.
# Appendix 1 - Questions for Potential Suppliers

The following questions may help you to evaluate the characteristics and capabilities of potential systems. The lists are not exhaustive and should be used as a guide only - additional questions will be needed to determine the suitability of a system to meet your individual requirements.

<table>
<thead>
<tr>
<th>1</th>
<th>Data set-up and handling</th>
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<tbody>
<tr>
<td>1.1</td>
<td>Can you import data electronically (eg from spreadsheet or order processing system via interface)?</td>
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<tr>
<td>1.2</td>
<td>Which data elements are entered into the system manually?</td>
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<tr>
<td>1.3</td>
<td>How are changes made to individual and multiple call point or order data?</td>
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<tr>
<td>1.4</td>
<td>What is the process for address verification?</td>
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<table>
<thead>
<tr>
<th>2</th>
<th>Data parameters</th>
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<tbody>
<tr>
<td>2.1</td>
<td>Can the system plan deliveries for nominated days?</td>
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<tr>
<td>2.2</td>
<td>What is the maximum planning period?</td>
</tr>
<tr>
<td>2.3</td>
<td>What is the maximum number of customers and calls?</td>
</tr>
<tr>
<td>2.4</td>
<td>How does the system accommodate vehicles of different types and capacities (eg multiple compartment, temperature controlled)?</td>
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<tr>
<td>2.5</td>
<td>Can the system accommodate customer restrictions on vehicle types and collection and delivery times?</td>
</tr>
<tr>
<td>2.6</td>
<td>What range of different driver and vehicle shifts can be accommodated by the system (including double shifting)?</td>
</tr>
<tr>
<td>2.7</td>
<td>What scope is there for variations to road speeds?</td>
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<tr>
<th>3</th>
<th>Scheduling parameters</th>
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<tbody>
<tr>
<td>3.1</td>
<td>Can the system route and schedule a fixed fleet?</td>
</tr>
<tr>
<td>3.2</td>
<td>Can the system schedule a variable number of vehicles and types?</td>
</tr>
<tr>
<td>3.3</td>
<td>Can nominated day and time windows be overridden?</td>
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<tr>
<td>3.4</td>
<td>Can deliveries be planned to a specific delivery time with a tolerance set by the user?</td>
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<tr>
<td>3.5</td>
<td>Can the system model pre-allocated routes (with or without predetermined sequence)?</td>
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<tr>
<td>3.6</td>
<td>Does the system allow manual alterations to individual routes after initial routing?</td>
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<tr>
<td>3.7</td>
<td>Does the system warn when manual changes break constraints?</td>
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<tr>
<td>3.8</td>
<td>What system priorities can be set? (eg minimise time, distance?)</td>
</tr>
<tr>
<td>3.9</td>
<td>Can the system extend customer opening time to permit completion of a delivery?</td>
</tr>
<tr>
<td>3.10</td>
<td>Does the system allow for vehicles to commence a new trip part way through a working shift?</td>
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<tr>
<td>3.11</td>
<td>Can the system show reasons for orders not routed?</td>
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<tr>
<td>3.12</td>
<td>Can the system ensure all deliveries are done on the first day of a multi-day route?</td>
</tr>
<tr>
<td>3.13</td>
<td>Can the system schedule ‘tramping’ (ie collecting from one point on a route and delivering to another point on the same route)?</td>
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### 4 Advanced parameters

| 4.1 | Can the system schedule vehicles based at several depots as a single combined fleet? |
| 4.2 | Can the system spread deliveries at specified intervals (eg weekly or fortnightly) over an extended schedule period? |
| 4.3 | Can the system schedule nearest calls first? |
| 4.4 | Can the system prioritise orders for delivery? |
| 4.5 | Can calls be manually selected from a map and routed? |
| 4.6 | Can the system schedule tractor units and trailers separately? |
| 4.7 | Can the system split large consignments across a number of vehicles? |

### 5 Mapping

| 5.1 | What level of mapping detail is available and for what countries? |
| 5.2 | Can the user choose whether or not to display the map when scheduling? |
| 5.3 | Can calls and routes be altered on the map? |
| 5.4 | Can route paths be displayed? |
| 5.5 | Can individual trips be displayed? |
### 6 Modelling

**6.1** What is the system’s capability for modelling (eg strategic or operational schedules)

**6.2** What address or mapping level does the system route down to?

### 7 Management reports

**7.1** What management reports are produced by the system?

**7.2** Can the user generate customised reports?

**7.3** What other transport management software can be interfaced with the system eg telematics, fuel management, GPS?

**7.4** Can data and reports be exported electronically?

### 8 Support, training and technical support

**8.1** What is the typical frequency for software updates?

**8.2** What is the typical frequency for map updates?

**8.3** What is the training time required for an average operator?

**8.4** What are the system’s hardware requirements?

**8.5** Is there a help desk? What are its hours of availability and how many staff support it?

**8.6** What arrangements do you have for ongoing software development?

### 9 Cost

**9.1** What is the budget cost for a single user system?

**9.2** What is the budget cost for additional copies?

**9.3** Do these costs include any training?

**9.4** What is the cost of annual updates?

### 10 Market

**10.1** How many UK companies use your system?

**10.2** What is their approximate range of fleet sizes?

**10.3** What sort of transport operations do you see as your target market?
Appendix 2 - Main CVRS System Suppliers in the UK

The table below lists the suppliers of the main systems currently available in the United Kingdom. The list is by no means exhaustive, as additional companies come into the market from time to time, perhaps from Europe or the United States.

Note: The inclusion of a supplier does not represent an endorsement of their system from the Freight Best Practice programme or the Department for Transport, nor does the inadvertent exclusion of any supplier imply any criticism of their system.

<table>
<thead>
<tr>
<th>System name(s)</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiPS</td>
<td>Distribution Planning Systems</td>
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<tr>
<td></td>
<td>Bridge House</td>
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<tr>
<td></td>
<td>Bewdley</td>
</tr>
<tr>
<td></td>
<td>Worcestershire DY12 1AB</td>
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<tr>
<td></td>
<td>Tel: 01299 400528</td>
</tr>
<tr>
<td></td>
<td>Website: <a href="http://www.dips.co.uk">www.dips.co.uk</a></td>
</tr>
<tr>
<td>LogiX (also online system <a href="http://logixcentral.com">logixcentral.com</a>)</td>
<td>DPS Ltd</td>
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<tr>
<td></td>
<td>Lygon Court</td>
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<td></td>
<td>Hereward Rise</td>
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<td></td>
<td>Halesowen</td>
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<tr>
<td></td>
<td>West Midlands B62 8AN</td>
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<tr>
<td></td>
<td>Tel: 0121 585 6633</td>
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<tr>
<td></td>
<td>Website: <a href="http://www.dps-int.com">www.dps-int.com</a></td>
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<tr>
<td>Optrak</td>
<td>Optrak Distribution Software Limited</td>
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<td></td>
<td>Orland House</td>
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<td></td>
<td>Mead Lane</td>
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<td>Hertford</td>
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<td></td>
<td>SG13 7AT</td>
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<td></td>
<td>Tel: 01992 517100</td>
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<td></td>
<td>Website: <a href="http://www.optrak.co.uk">www.optrak.co.uk</a></td>
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<td>System name(s)</td>
<td>Supplier</td>
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<td>Dorking</td>
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<td></td>
<td>Surrey RH4 1AY</td>
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<td></td>
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<tr>
<td></td>
<td>Website: <a href="http://www.paragonrouting.com">www.paragonrouting.com</a></td>
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<tr>
<td>Roadnet</td>
<td>121 Systems</td>
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<tr>
<td></td>
<td>Sutton Place</td>
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<td></td>
<td>49 Stoney Street, The Lace Market</td>
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<tr>
<td></td>
<td>Nottingham NG1 1LX</td>
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<tr>
<td></td>
<td>Tel: 0115 959 7980</td>
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<tr>
<td></td>
<td>Website: <a href="http://www.121logistics.com">www.121logistics.com</a></td>
</tr>
<tr>
<td>Descartes Delivery Management Solution</td>
<td>Descartes Systems UK Limited</td>
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<tr>
<td></td>
<td>The Mill House Business Centre</td>
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<tr>
<td></td>
<td>Station Road</td>
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<td></td>
<td>Castle Donington</td>
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<td></td>
<td>Derby DE72 2NJ</td>
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<tr>
<td></td>
<td>Tel: 0870 164 6355</td>
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<tr>
<td></td>
<td>Website: <a href="http://www.descartes.com">www.descartes.com</a></td>
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<tr>
<td>TruckStops</td>
<td>Kingswood MapMechanics</td>
</tr>
<tr>
<td></td>
<td>Canal Court</td>
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<td></td>
<td>155 High Street</td>
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<td></td>
<td>Brentford TW8 8JA</td>
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<tr>
<td></td>
<td>Tel: 020 8568 7000</td>
</tr>
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<td></td>
<td>Website: <a href="http://www.mapmechanics.com">www.mapmechanics.com</a></td>
</tr>
</tbody>
</table>
Help us to Help You

Quick Guide to Computerised Vehicle Routing and Scheduling (CVRS)

We would welcome your comments or suggestions on this guide. Please photocopy this page, fill it in and return to: Freight Best Practice, C/o Faber Maunsell, Lynnfield House, Church Street, Altrincham, Cheshire WA14 4DZ or fax to 0161 927 8399.

1. Did you find the guide easy to read and understand? Yes ☐ No ☐
   Which sections did you find easiest to read and understand?
   .....................................................................................................................................................

   Which sections do you think could be improved to make the guide easier to read and understand?
   .....................................................................................................................................................

2. Did you find the information useful and relevant? Yes ☐ No ☐
   Which sections did you find particularly useful and why?
   .....................................................................................................................................................

3. Are you purchasing or planning to purchase a CVRS system? Yes ☐ No ☐

4. Please use this space for any other comments or suggestions you may have about this guide and how it might be further improved to help your business:
   .....................................................................................................................................................
   .....................................................................................................................................................

Your details:

Name ................................................................. Position .............................................................
Organisation ..................................................... Number of vehicles in fleet .............................
Address .............................................................................................................................................
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Postcode ............................................................
Tel ........................................................................ Fax ..............................................................
Email ...................................................................................................................................................

Thank you

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