RTIG

UK Real Time Information Group

Demand Responsive Transport Systems Review

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1 Introduction

1.1 About this document

1.1.1 This document has been produced by Centaur Consulting Limited (Centaur) for the Real Time Information Group (RTIG), Department for Transport (DfT), the Scottish Executive (SE) and the Welsh Assembly Government (WAG)[1]. It reviews the current and future provision of real time information (RTI) technology in Demand Responsive Transport (DRT) schemes across Great Britain.

1.1.2 The presentations of individual schemes have been validated by the contacts. Each contact has been given the opportunity to comment on how we have represented them.

1.1.3 This version is **final**.

1.2 Context

1.2.1 Demand Responsive Transport (DRT) offers public transport to areas which would not normally benefit from a regular bus service. Rural areas are the usual beneficiaries of DRT schemes as their low population and relative remoteness do not make them attractive for bus companies looking to run profitable bus routes.

1.2.2 The DRT 'concept' includes both semi-flexible bus services that will pick-up passengers who live off of a fixed route and more 'taxi-like' services that will roam around a bordered area picking up passengers as trips are requested.

1.2.3 DRT first came to prominence during the 1970s in the UK, however its use was limited by technology and political backing and has only seen its popularity grow since the late 1990s. Government concerns over poor access to facilities to non-car owners resulted in the creation of the Rural Bus Challenge in 1998, whereby Local Authorities were invited to bid for money to deliver additional and innovative public transport services. By 2000, when the Urban Bus Challenge was launched, the majority of bids focused on DRT schemes. In addition, a number of Government reports suggested that DRT could be used to solve a number of transport issues, both in the rural and urban contexts.

1.2.4 DRT schemes generally serve to connect rural areas with urban centres, however some do solely serve the urban environment. Schemes are usually run by the local authority alongside a bus operator who provide the vehicles.

1.2.5 RTI technology is becoming increasingly popular with local authorities who wish to provide the public with up-to-the-minute information for bus services. In order to do this, vehicles will be equipped with on-board equipment and a Global Positioning System (GPS) unit which will communicate to a central computer and signs mounted on bus stops. The signs will broadcast departure and arrival information for the next two to three buses leaving from a stop and whether the bus is expected to be late.

1.2.6 The GPS unit, combined with scheduling software, also allows fleet managers to monitor the progress of their buses and their exact position at any point in time. Through wireless communications, fleet managers can inform their drivers of any incidents that they should avoid, or advise them to speed up or slow down to avoid 'bunching'.

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[1] There is one significant DRT scheme in Wales, BWCABUS. Contact was made, but members of staff were too busy to take part in the review.

1.2.7 Recently, DRT schemes have adopted this technology to monitor their buses and routes and, alongside scheduling software, provide passengers with the option to book trips 'on-demand' over the telephone instead of having to book 24 or even 48 hours before they intend to travel. These management systems are known as 'Demand Responsive Transport Systems' (DRTS).

1.2.8 However, any other use, or potential use, of the technology that makes up DRTS by DRT schemes is currently unknown. Thus, the key aims of this document are:

- to review and assess the level of uptake of DRTS by DRT schemes in the UK;
- how DRTS are used by scheme managers and what for;
- to understand the use of DRTS by DRT schemes;
- to explore future usage of RTI technology by DRT schemes.

1.3 Methodology

1.3.1 Initial research to find out how existing DRT schemes operate and utilise RTI technology was initially carried out and a list complied of potential case study volunteers. Initial research centred on scheme typology, with the following four types being identified:

- Interchange service – DRT collect passengers from their door and transfers them to another transport node;

- Network-enhancement service – DRT has been introduced as an additional service to current bus services offered;

- Destination-specific service – link to a specific destination such as a hospital or leisure centre;

- Substitute service – DRT scheme has replaced one or more bus services due to a lack of demand.

1.3.2 The following 17 schemes were contacted by telephone and asked if they would like to take part in the review during June 2006:

- Ring n' Ride – Strathclyde;
- CanGo – Hampshire;
- Call and Go – Hampshire;
- Call Connect – Lincolnshire;
- BWCABUS – Glamorgan;
- Dart – Bedfordshire;
- Dial-a-Bus – Strathclyde;
- UCALL – Sunderland Coalfield;
- Corlink – Penzance and Cornwall;
- DoRIS – West Sussex;
- Rover – East Sussex;
- MyBus – Nottingham;
- Flexline – Nottinghamshire;
- Wigglybus – Wiltshire;
- Phone and Go – Northumberland;
- A2B Dial-a-Bus – Aberdeenshire;
- Merseylink – Merseyside.

1.3.3 The following 9 schemes agreed to take part in the review, with the remainder deciding not to take part due to pressures of work:

- A2B Dial-a-Bus – Aberdeenshire;
- CanGo/Call and Go – Hampshire;
- Call Connect – Lincolnshire;
- Corlink – Penzance and Cornwall;
- MyBus – Nottingham;
- Wigglybus – Wiltshire;
- Ring 'n' Ride/Dial-a-Bus – Strathclyde.

1.3.4 A brief, prepared by Centaur Consulting in conjunction with DfT, was first sent to the participants for consideration and a follow-up telephone interview took place two weeks later at a pre-arranged date and time.

1.3.5 A brief case history was written for each authority who returned the questionnaire. This outlined their approach to RTI and any special circumstances which affected their implementations. These case studies appear in the appendix to this document.

1.3.6 Key trends were examined and are presented in this document with the aid of explanatory text, tables and figures.

1.3.7 Finally, all case studies were validated by respondents to ensure accuracy. Any changes were added or inaccuracies amended.

1.3.8 In addition, contact was made with two DRTS providers – Mobisoft and Trapeze. New functionality was also discussed and demonstrated.

1.3.9 The results of these visits and telephone conversations can be found in section 3.

1.4 Document structure

1.4.1 This document is in two substantive parts. The first, short, part (sections 1-6) present an overview of the current and future use of RTI technology by DRT schemes as part of their DRTS, collated from participant schemes.

1.4.2 The second part (Appendices A-F) presents a review of each scheme and its current approach to RTI. These case studies were developed as a result of research and through phone interviews with scheme managers/operators.

2 General DRT information

2.1 Introduction

2.1.1 This section presents general information on the DRT schemes profiled such as type, how they were funded and what levels of patronage they attract.

2.2 Scheme information

2.2.1 Table 2.1 summarises information for the schemes profiled:

Scheme name	Operator	No of vehicles	Passenger journeys PM
A2B Dial-a-Ride	*Aberdeenshire CC*	8	2,500
CanGo	*Hampshire CC*	8	NA
Call Connect	*Lincolnshire CC*	20	9,219
Corlink	*Cornwall CC*	3	2,500
MyBus	*Nottingham Community Transport Ltd*	1	1,600
Wigglybus	*Wiltshire CC*	7	10,000
Ring N' Ride	*Strathclyde CC*	9	5,000
Dial-a-Bus		23	23,000

Table 2.1: DRT information

2.3 Types of scheme

2.3.1 The majority of schemes profiled were either network-enhancement or substitute types. Lincolnshire, one of the larger schemes, provides all types of services. The general feeling gathered from the case study work was that the services were designed to compliment and/or replace underperforming bus routes, as well as providing key interchange provision.

2.3.2 The type of scheme does not seem to influence the type of technology used. Current DRTS are flexible enough to accommodate all of the types profiled in this report.

2.4 Funding DRT

2.4.1 All of the English schemes profiled were initially funded by awards from Rural or Urban Bus Challenges. These challenges encouraged local authorities to come up with innovative public transport projects and submit them for award. The Rural Bus Challenge awarded £49m between 1998 and 2003 and the Urban Bus Challenge awarded £46m between 2001 and 2003. The majority of this money was spent on initial capital outlay.

2.4.2 One English scheme, MyBus (Nottinghamshire), is now run by a commercial operator but is a free for all service.

2.4.3 The Scottish schemes were funded in a slightly different way, with A2B receiving assistance from the Scottish Executive and NESTRANS. The latter invested £60,000, with £50,000 a year for implementing new services. On going revenue funding is supplemented by the Rural Transport Fund.

2.4.4 The two Strathclyde schemes have received support from the Rural Transport Fund, and are now run by commercial operators, with SPT providing the call centre and staff.

2.4.5 Full award amounts for each scheme profiled can be seen in the table below:

Scheme name	Award amount
A2B Dial-a-Ride	Unknown
CanGo	£735,732
Call Connect	£859,562
Corlink	£748,000
MyBus	£479,000
Wigglybus	£1,439,450
Ring N' Ride	Unknown
Dial-a-Bus	Unknown

2.5 Current patronage levels

2.5.1 Patronage varied between the schemes analysed, ranging from 1,600 to 10,000 passenger journeys per month. Patronage will vary according to the area served and the number of services available.

3 RTI Technology and DRT

3.1 Introduction

3.1.1 This section considers the technology used by DRT schemes and future developments.

3.2 Technology currently being used by DRT schemes

Definition of DRTS

3.2.1 The key factor to RTI technology adoption is the replacement of the traditional 'paper and pen' approach to booking, scheduling and dispatching DRT trips. DRT schemes will adopt DRTS technology when they seek to streamline bookings and allow minimal pre-booking lead times. Schemes will also be of a certain size and carry a relatively high number of passengers. In many cases this approach has been superseded by automated DRTS systems which will utilise some or all of the following system elements:

- Telephone call centre;
- Automatic vehicle location equipment;
- Remote communications;
- Scheduling software;
- Comprehensive user database;
- Automatic vehicle scheduling;
- Automatic vehicle routing;
- Comprehensive monitoring and reporting facilities;
- Internet booking;
- Real Time Passenger Information (RTPI).

3.2.2 Both the automatic vehicle location equipment and remote communications elements will require equipment to be installed on the vehicle and will need some form of wireless data transfer to relay information between the vehicle and the control centre. In many cases this is done via a GPRS network. With this equipment, DRTS will allow orders to be taken, scheduled according to vehicle position, route, occupancy and then organise an optimised route according to pick-up location.

3.2.3 Suppliers will tend to provide these elements as a complete DRTS package. Options will be tailored to suit the needs of the scheme. In some cases functionality has been developed as clients have requested it.

3.2.4 A number of smaller schemes (such as MyBus in Nottingham) are able to provide on demand bookings by simply communicating with the driver via a mobile phone. However, those systems with larger numbers of passengers and more complicated routes found the RTI technology indispensable.

3.2.5 The majority of schemes have decided not to broadcast RTPI from signs as most of the pick-ups are from people's houses. However Lincolnshire plan to broadcast RTI from at-stop signs in the future, by linking their DRT vehicles with the existing Ineo RTI system. Both of the Strathclyde schemes offer passengers the opportunity to call the control centre to find out when their bus is estimated to arrive.

3.2.6 DRTS also offer an internet booking module. Call Connect (Lincolnshire) are using the internet to book trips – via a web chat function. A2B Dial-a-Ride (Aberdeenshire) and Wigglybus (Wiltshire) both have the module but which they plan to switch on in the near future. Both schemes will be using their current website to book trips via forms, and passengers will be able to manage their bookings.

3.2.7 Tables 3.1 and 3.2 below summarises key functionality of the profiled DRT schemes, including passenger journey figures, booking functionality and the manufacturer of their scheduling equipment (if used):

Scheme name	On-demand booking	Automated scheduling and dispatch	Internet booking	Min. booking time	Max. booking time	DRTS supplier
A2B Dial-a-Ride	Yes	Yes	Planned	No limit	7 days	Trapeze
CanGo	Yes	Yes	No	30 mins	3 months	Mobisoft
Call Connect	'Network dependant'	Yes	Yes	2 hours	unknown	Mobisoft
Corlink	Yes	Yes	No	1 hour	7 days	Mobisoft
MyBus	Yes	No	No	1 hour	No limit	-
Wigglybus	Yes	Yes	Planned	20-30 mins	6 months	Mobisoft
Ring N' Ride	Yes	Yes	Planned	2 hours	30 days	Trapeze
Dial-a-Bus	Yes	Yes	Planned	2 hours	30 days	Trapeze

Table 3.1: DRTS Functionality

3.3 Key elements

Control and dispatch centre

3.3.1 All schemes profiled have a control and dispatch centre, even if they do not have automated booking functionality. According to whether the control centre is equipped with the appropriate DRTS equipment, a telephoned order is either entered into the scheduling software (which may have an existing passenger database) or recorded by hand. Orders which have been made in advance will be scheduled by the software for the appropriate day and on-demand schedule updates will be relayed to the bus driver either by GPRS or by mobile phone.

3.3.2 The use of a graphical interface will allow controllers to view vehicle progress and inform concerned passengers where their vehicle is and when it is expected to arrive. Controllers will normally allow a 15 minute window either side of the pick-up time so that more efficient routing can be calculated.

3.3.3 Control centres will either be run by a local authority or by a tendered company (in the case of MyBus). In some cases a call centre will control two or more DRT schemes (Wigglybus and Corlink share the same call centre, which is based in Exeter).

Scheduling and dispatch software

3.3.4 Through interaction with the GPS technology, the scheduling and dispatch software allots pick-ups according to vehicle position, route, occupancy and destination. Seven of the schemes profiled currently have scheduling software as part of their DRTS.

Control centre to vehicle communications

3.3.5 In order for schedule updates to be sent to the driver, a communications method is required. This will range from a mobile phone to a high speed GPRS network. All schemes have this key functionality, however one – Lincolnshire – experience unreliable GPRS network coverage due to the geography of the area served. As a result, on-demand trips are not always possible and passengers are encouraged to book their trips at least a day in advance.

Equipped vehicle

3.3.6 In order to provide the control centre with up to date positional information and for the driver to receive journey updates and changes, each vehicle will have a GPS receiver and a driver information unit fitted. Seven schemes currently have this functionality.

3.3.7 On-board driver units are key to a successful DRTS and will take the form of a fixed unit, a PDA or a mobile phone. The majority of schemes profiled have fixed units; however Mobisoft will soon be introducing GPS equipped PDAs. These units are the fraction of the cost of fixed on-board units and can easily be moved from vehicle to vehicle.

3.3.8 Alternatively, a vehicle may not have any equipment. The driver will instead have a mobile phone which will be the main form of communication with the control centre.

3.4 Future developments and scheme enhancements

3.4.1 Wiltshire CC suggested that they would like to see the introduction of equipment that could easily be moved between vehicles. This is currently a 'want' for larger bus companies as a great deal of fleet movement takes place in the bus industry. As these industries are comparable, it maybe that this technology will be available to DRT schemes in the future.

3.4.2 Four schemes will be using internet booking by the end of 2007. They are:

- A2B Dial-a-Ride (Aberdeen)
- Wigglybus (Wiltshire)
- Ring N' Ride (Strathclyde)
- Dial-a-Bus (Strathclyde)

3.4.3 Both of the Strathclyde schemes will be introducing SMS based RTPI (trip details and estimated arrival time) and a call back service which alerts the passenger of the arriving vehicle.

3.4.4 Other scheme managers were keen to emphasise that although they do not use technology to run their DRT schemes, they may need to if they expand in the future. It was clear that patronage levels and the number of vehicles utilised by a scheme is key to technology take-up. This will be discussed further in later sections of this document.

3.5 Comparisons with bus RTI technology

3.5.1 The use of RTI technology by DRT schemes is very similar to that used in bus RTI systems. The basic components of a 'traditional' bus RTI system are as follows:

- a vehicle location system;
- an on vehicle computer;
- a radio communications device on the vehicle;

- a radio network to facilitate communications between vehicle and depot/central system;
- a RTI central computer system;
- Public Transport Traffic Management Systems;
- passenger displays;
- information provision to new media.

3.5.2 These components allow RTI to be displayed at bus stops and other locations such as shopping centres and universities and to provide public transport vehicle operation centres with historical positional and performance data. Managers are also be able to manage fleet movements in real time and send communications to bus drivers via radio and SMS, however this function isn't widely used at the present time.

3.5.3 With regard to DRTS the emphasis on publicly viewable RTI is not as important, due to the nature of the service. Thus, at-stop RTI signs are rarely specified and RTPI, if at all, is broadcast to mobile devices or given over the telephone by a controller. Instead DRT managers focus on the fleet management aspect that RTI systems can offer, with the added feature of real-time scheduling.

3.5.4 Fleet management has been used to great effect by DRT schemes and is largely thought to be the driving force behind the DRT resurgence. In essence the DRT approach is the opposite of the one taken by bus managers – RTPI is, at the moment, largely seen as unnecessary and the management of buses in real time is seen as key.

3.5.5 The next section will explore the benefits of using DRTS, as cited by the DRT schemes profiled.

4 Benefits of technology to DRT

4.1 Introduction

4.1.1 This section discusses the benefits of GPS positioning and scheduling technology to DRT schemes. Interviewees were generally positive about RTI technology and praised it for allowing passengers to book trips at relatively short notice. It is clear that without the tracking and scheduling elements, DRT would not be able to offer such as flexible service as many of the schemes presently do.

4.1.2 The most cited benefits were (in order of frequency):

- flexible booking and vehicle tracking;
- reducing costs;
- increasing patronage;
- giving passengers piece of mind;
- achieving policy goals;
- improving interchanges on feeder routes;
- maintaining customer records.

4.2 Flexible booking and vehicle tracking

4.2.1 In order to run a flexible door-to-door service DRT schemes need to be able to keep track of their vehicles and add trips as people demand them. This approach allows passengers to make quick decisions, rather than plan a journey one or two days before. Having to plan so far ahead in advance may discourage passengers from taking the vehicle and instead using an available car. In other words it takes the pressure off of the passenger and allows the operator to cater for their journey needs.

4.2.2 In some cases this is done 'by hand' and schedule changes are relayed to the driver directly via mobile phone.

4.2.3 However, for larger schemes with more complex routes and multiple vehicles, DRTS and its component parts will play a major role in the booking of on-demand trips. Alongside GPS technology it allows high volumes of bookings and complex journeys to be planned relatively simply and in a short space of time. The software can find journey and driver availability, and then routes can be updated immediately. Then, through radio, mobile phone or GPRS communication, the driver can receive updated trip information and asked to alter his route accordingly.

4.3 Reducing costs

4.3.1 Using technology to book and route services frees up a great deal of time for DRT controllers. They no longer have to use pen and paper to log journeys and work out schedules. This in turn saves money.

4.3.2 However, booking by telephone has proved to be expensive for some local authorities, mainly due to the staff levels that are needed to answer high call volumes. By introducing internet booking it is hoped that call volumes can be lowered and, therefore, revenue costs. Some authorities are offering incentives such as lower fares to encourage their passengers to use the internet to book journeys.

4.3.3 Schemes have also reported savings in vehicle mileage as scheduling software allows for more efficient route allocation. However, accidents and road works cannot be added into the map-based interface, but this is being developed.

4.4 Increasing patronage

4.4.1 A number of schemes have experienced gradual patronage increases since DRT schemes were introduced. SPT relate their patronage increase with the use of DRTS technology, as they can provide such a flexible and personalised service. Although this is difficult to prove Ring N' Ride has been using DRTS since its introduction, with only Dial-a-Bus having any pre-DRTS history. Further exploratory work may address this issue.

4.5 Giving passengers piece of mind

4.5.1 If a vehicle is late or has broken down, controllers can relay messages to passengers via the phone. This means that passengers do not have to wait at bus stops and can remain in their home. With future functionality such as SMS updates passengers will feel more confident about their journey.

4.6 Improving interchanges on feeder routes

4.6.1 A number of schemes, including MyBus, use DRT to allow passengers to continue their journeys on main bus routes. Without DRT provision many people would not be able to access these bus routes as they are some distance from where they live. Scheduling software allows calculations to be made so that the DRT feeder service reaches the interchange at the correct time. This is complicated but the software seems to handle this situation well.

4.7 Achieving policy goals

4.7.1 The majority of schemes interviewed operated in rural areas, often with low rates of car ownership (such as Cornwall and Aberdeenshire). DRT services provide accessibility and therefore allow the public to have access to essential services.

4.7.2 All of the DRT schemes that were profiled allowed the general public to use their services. In the long term, this may encourage modal shift. The Wiltshire Wigglybus service carries over 3,000 trips per month in areas that had little public transport before 1999. 10-15% of these trips were previously made as car drivers, 35-40% of these trips were previously made as car passengers and 20-30% were not previously made at all due to lack of any transport.[2]

4.8 Maintaining passenger records

4.8.1 Both the Mobisoft and the Trapeze systems allow schemes to build up a client database. This streamlines further the booking process as the controller will be able to see the client's start-point and 'favourite' trips. It also allows a scheme to determine where demand lies and adjust their services and marketing accordingly.

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2 South West and South Wales Multi Modal Study, Rural Access to the Main Corridors, Final Report, 2002

5 Current issues

5.1 Introduction

5.1.1 A number of schemes have experienced some teething problems with their DRTS systems. These problems have mainly been with getting the technology operating correctly and training staff. Time and effort has meant the majority of issues have been overcome, however some schemes still have reservations over the technology used and the costs of running call centres.

5.1.2 This section will focus on issues raised by interviewees and what has been done to resolve them.

5.1.3 The most cited issues were (in order of frequency):

- Running costs;
- Communications problems;
- System limitations;
- Denied trips.

5.2 Running costs

5.2.1 One authority raised the issue of call centre costs. At the moment this is prohibitive, with each trip costing Wiltshire CC £1 to book. As a result Wiltshire CC are looking at piloting an Internet booking service, which could replace at least one call centre staff member. An alternative move would be to have larger call centres that look after multiple DRT schemes.

5.3 Communications problems

5.3.1 Two types of communications problems have been noted. The first is due to initial software problems, of which the majority have been fixed by the providers. The second type is due to the geography of the area served.

5.3.2 Lincolnshire has experienced problems with broadcasting frequent trip updates to DRT vehicles because of network coverage problems and thus has had to put a 2 hour cap on bookings. This enables drivers to receive their full schedules before they leave the depot and for journeys to be plotted. In some cases updates are possible, but this entirely depends on network coverage.

5.3.3 A number of schemes were subject to various communications teething problems, such as getting the vehicles to communicate to the control centre, but the majority of these were quickly resolved.

5.4 System limitations

5.4.1 The representative from Call Connect noted that they had experienced limitations with their DRTS. The static algorithms of the route planning module meant that the scheduling software was not aware of local conditions such as busy junctions, roadworks etc.

5.4.2 In addition, Call Connect drivers have complained that planned routes do not take into consideration real-world road speeds. As a result they are given schedules that plan pick-ups with narrow windows. Therefore the driver must use his local knowledge and effectively override the route planned by the software. The system provider was questioned on this issue and according to them, the dispatcher can alter the speeds of roads according to time of day through the software.

5.4.3 A number of systems allow drivers with good local knowledge to plot their own journeys and do not rely on those sent to them by the control centre. Again, the system provider was concerned at

this as the journeys are calculated by the scheduling software. In normal circumstances the journey presented on the driver display should be adhered to, in order for the most time efficient route to be taken.

5.5 Denied trips

5.5.1 Strathclyde Partnership for Transport has been experiencing problems with clients being denied trips because they live outside of a scheme's catchment area. SPT strive to provide transport for the majority of the area that they serve, so careful analysis of denied trips is carried out on a regular basis and the serviced area will be extended, where possible, to provide access to all. This will require a certain amount of DRTS flexibility so catchment areas can be extended.

6 Conclusions and recommendations

6.1 Introduction

6.1.1 In order for DRT schemes to provide an accessible, on-demand service there needs to be a certain level of booking and communications infrastructure to be in place. At the most basic level this includes a control centre with a telephone and a bus driver with a mobile phone.

6.1.2 The level of communications sophistication required by a scheme will largely depend on the number of services provided, the level of patronage and the number of vehicles. Simply put, if a scheme has one or two buses serving one route, a less sophisticated booking and communications infrastructure will be required.

6.2 Scale and type of scheme

6.2.1 It is clear that a number of DRT schemes in the UK are embracing RTI technology in order to streamline and accelerate the booking system, provide rural and urban areas with a reliable bus service and an attractive alternative form of travel, as well as saving call centre running costs. These systems will tend to have five or more buses that serve a number of DRT routes or areas.

6.2.2 Uptake of RTI technology by a number of schemes profiled has been bold and encouraging, with the majority of schemes who have a DRTS system investing in control centre equipment, scheduling and dispatch software, AVL and remote communications. Evidence suggests that systems have been scaled to fit the size and needs of the DRT scheme.

6.2.3 For example, MyBus has only one vehicle and does not require the need scheduling software or AVL – however a system of sorts is in place as 'on-demand' bookings can be placed by the control centre contacting the driver via mobile phone. Wigglybus, on the other hand, has multiple buses which would be difficult to schedule by hand and update drivers by phone. This approach would also require a large call centre with high staffing levels. Thus, this scheme has invested in scheduling software, AVL and GPRS communications to streamline the booking process. The 'on-demand' functionality remains the same as MyBus', however Wigglybus' size and scale require more sophisticated methods. The message here is that without DRTS, it would be impossible to run a larger scale DRT scheme.

6.2.4 It may be necessary for a smaller system that intends to grow to consider a DRTS, such is their importance to the running of an efficient and attractive scheme.

6.2.5 Scheme typology does not seem to affect the use of DRTS technology. System technology is flexible enough to cope with all types discussed in this document.

6.3 RTI dissemination

6.3.1 The roaming nature of DRT means that displaying RTI on traditional LED displays is not viable, unless existing bus RTI can be used for more 'fixed' DRT routes. Instead, the use of mobile and networked devices appears to be the only way of communicating RTI to passengers, if at all.

6.3.2 At the present time, only one DRT scheme, Strathclyde provides RTI to their passengers. Passengers can phone the control centre and ask for estimated arrival information. However, the scheme is planning on providing an SMS and automated call-back service as a replacement. Lincolnshire will soon be providing DRT RTI on existing at-stop signs located across the county.

6.3.3 Some schemes will inform passengers if their pick-up time is expected to be substantially delayed, but this will only be in extreme cases.

6.4 Internet-based booking

6.4.1 Internet booking is being used by two schemes, Lincolnshire and Hampshire, and will be used by a further four by the end of 2007. Lincolnshire currently uses an internet-based chat function, which allows passengers to 'talk' live with the control centre. A benefit of this approach is that it provides a direct interface with the controller so that the passenger can be sure that his booking is going through.

6.5 Revenue and Capital Costs

6.5.1 Funding both revenue and capital may also be an issue in the future and local authorities are already looking at ways to fund their systems. The majority of systems had capital funding from the Urban/Rural Bus Award, but this has now finished or will finish within the next financial year.

6.5.2 Call centre revenue costs can be prohibitive with one scheme (Wigglybus) looking to a situation where there is a larger call centre that looks after the majority of the UK's DRT schemes. SPT, who didn't express any concerns with call centre costs, are interested in sharing data with other call centres to improve scheduling.

6.5.3 Internet booking may become popular as it could reduce the call volume and the need for staff. However, it must be remembered that the majority of DRT's patronage may not have access to the Internet or not have the appropriate skills to use it, so a manned call centre will still be required.

6.5.4 Systems will also have to be upgraded and/or replaced in the future and local authorities will have to take these capital costs into consideration. Experience from larger bus RTI schemes has shown that systems managers need to bear in mind future capital expenditure and budget accordingly.

6.5.5 If these DRT schemes prove to be successful in the long run, it may be worth approaching bus companies for investment.

A A2B Dial-a-bus (Aberdeenshire County Council)

A.1 Introduction

A.1.1 Centaur wishes to thank Stephen Mundie of Aberdeenshire County Council for participating in a telephone interview on Monday 21st August 2006.

A.2 Context

A.2.1 Aberdeenshire is a county covering 2,437 square miles on the coast of northeast Scotland. The county borders Angus and Perth & Kinross to the South and Highlands and Moray to the west, and has the administrative city of Aberdeen, situated on the east coast.

A.2.2 The population of Aberdeenshire (excluding Aberdeen) is 232,850 people, with approx. 12 people per square mile.

A.3 Key service details and history

A.3.1 Aberdeenshire has five DRT schemes in operation, three of which are network-enhancement DRT services, including one Section 19 disability service. Two schemes are set up as substitute services: running on a semi-fixed route replacing an original fixed route, and an interchange DRT service operates in central Buchan.

A.3.2 The main DRT schemes cater for all of the general public in the rural communities and operate under the brand "A2B Dial-a-bus". The main users of the services are schoolchildren, the elderly and children attending after-school clubs. The services run from 8:00am to 6:30pm, Monday to Friday.

A.3.3 The first scheme was set up on 28th July 2004 in Alford, with others added after three months. Each of the DRT services cover low-populated areas (<10,000 people) of under 200 square miles. There are 8 vehicles in total covering all the schemes, with an additional 2 vehicles being purchased at the end of 2006.

A.3.4 The scheme attracts up to 2,800 passenger journeys per month.

Area covered

A.3.5 The DRT services used by Aberdeenshire cover five distinct areas:

- Fraserburgh;
- Peterhead;
- Alford;
- Buchan;
- Strathdon.

A A2B Dial-a-bus (Aberdeenshire County Council)

A.3.6 The maps below show these areas:

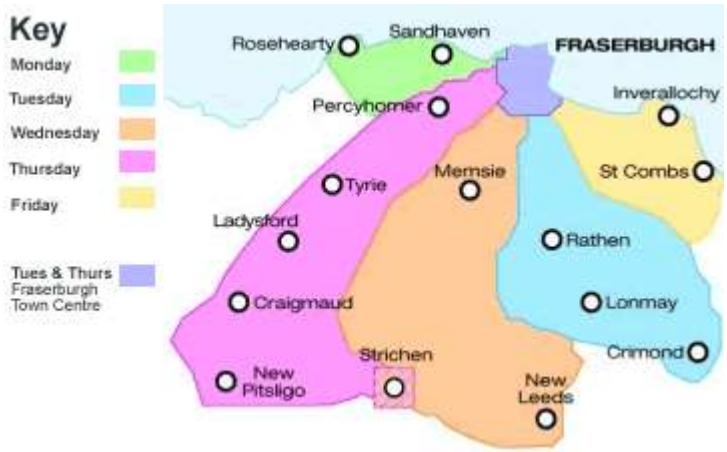

Figure 1: A to B: The Fraserburgh area

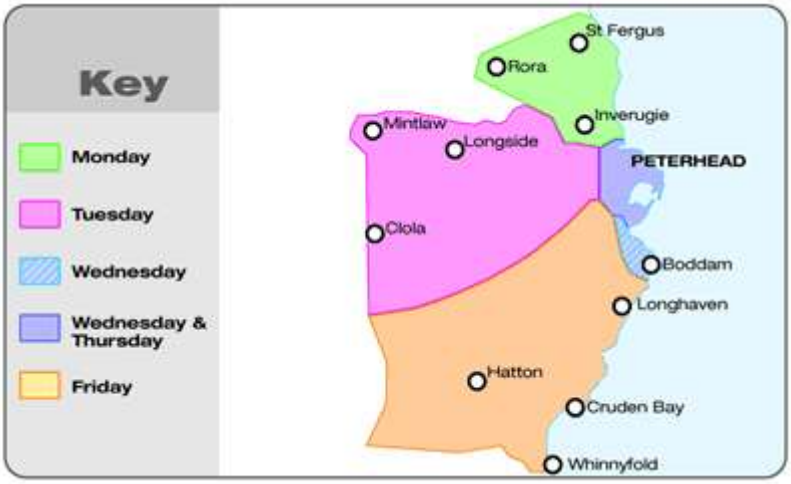

Figure 2: A to B: The Peterhead area

A A2B Dial-a-bus (Aberdeenshire County Council)

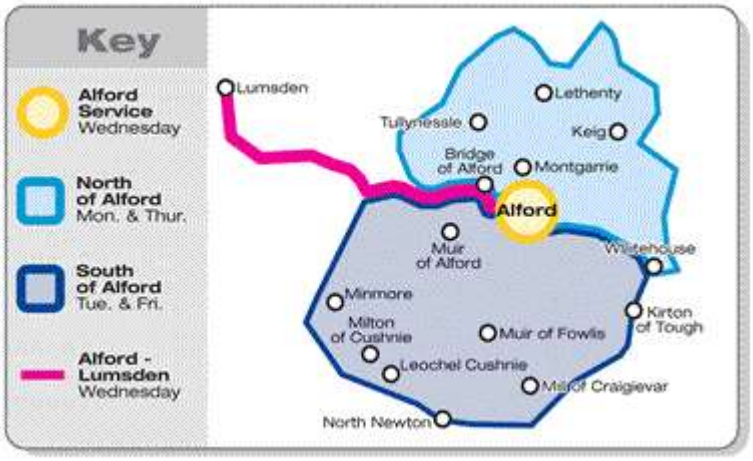

Figure 3: A to B: The Alford area

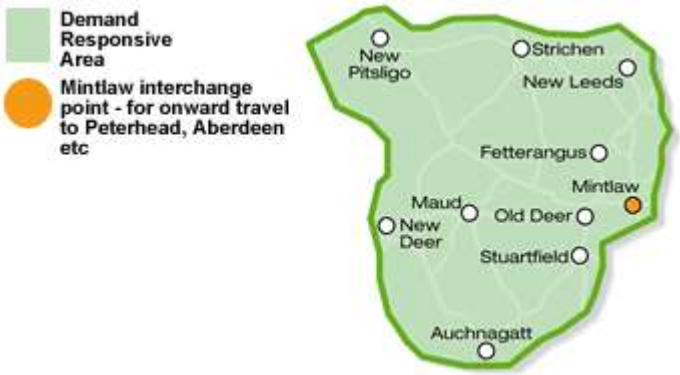

Figure 4: A to B: The Buchan area

Figure 4: A to B: The Strathdon area

Funding

A.3.7 The schemes received awards from the Scottish Executive for assistance with software and NESTRANS for assistance with vehicles. The latter invested £60,000, with £50,000 per year given by the Scottish Executive to Aberdeenshire for implementing new services.

A.3.8 Ongoing revenue funding is via Aberdeenshire County Council's Rural Transport Fund.

Booking

A.3.9 The scheme allows passengers to book their journey via telephone. The Trapeze DRTS package uses GPRS technology which allows for on-the-fly bookings.

A.3.10 Passengers are able to book journeys up to 7 working days in advance. There is no minimum time stipulated: the Trapeze software will calculate whether a trip can be made, and, as long as the driver is not on a lunchbreak or refuelling, this can be instantaneous.

A.3.11 Passengers can also hail a DRT bus from conventional bus stops or from the roadside when buses are on a fixed route stage of the journey.

A.3.12 Passengers can send emails to the contact centre, but this is not seen as a formal method of booking trips and is not encouraged.

Web presence

A.3.13 The scheme has a website where passengers can obtain key information about the service. At the moment internet booking is not possible. The A2B website can be found at http://www.aberdeenshire.gov.uk/publictransport/a2bdialabus.

A.4 Operational and RTI details

Current practice

A.4.1 The telephone booking line is set up in a Dispatch Travel Centre operated and staffed by Aberdeenshire County Council. Multiple bookings can be made in one contact session, and journeys can be booked up to seven working days in advance.

A.4.2 The contact centre has two full-time dedicated schedulers, with an additional assistant on-hand if required, who work with the scheduling software. Controllers do not have access to an AVL terminal.

A.4.3 Once a booking is entered into the DRTS it is sent to the driver's on-board console (which can hold 12 trips) and he/she confirms that he has received it. Buses are then tracked via GPS technology. Passengers then pay for their trip on board the bus.

A.4.4 The DRT scheme uses GPS to track the buses in real time; however, the real-time information is not made available to the customers. When internet booking is made available, there will be the opportunity for customers to see when their bus will arrive. For the time being, customers are told to expect the bus to arrive within a fifteen-minute window on each side of the scheduled pick-up time.

A.4.5 The real-time information is not broadcast to the public, but used solely for the purpose of scheduling buses and to ensure the provision of a quick and reliable service.

Currently equipped technology and process

A.4.6 Vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- The buses' systems use mobile telephone technology (GPRS) to automatically send/receive data from the contact centre every 45 seconds;
- Dedicated in-cab mobile data terminals link to Trapeze Workstation v4, displaying the next 12 trips required.

A.4.7 The computerised scheduling software used is Trapeze Version 4 Workstation. It is an off-the-shelf DRTS package, with modules included that allow extra functionality (for instance, accepting internet bookings). Aberdeenshire County Council selected this software package for its superior scheduling capabilities, as well as covering all the scheme's requirements.

A.4.8 Drivers pick up schedule updates from their on-board system, which can also relay updated information to the driver while the journey is in progress. An icon appears on-screen to let the driver know that an update has been received, which the driver presses to acknowledge.

A.4.9 No route advice is given by the in-cab screen. Drivers are employed with local knowledge, and they make the decisions on their route planning.

Future functionality

A.4.10 Aberdeenshire County Council plan to enhance their DRTS to allow the public to book journeys via the Web.

A.5 Key operational factors

A.5.1 The following factors are deemed essential to the successful running of a DRT scheme:

- a joint approach from both the community and the councillors, in order to find out what the public wanted from a DRT service, what the council could be doing and who could be helped;
- initial marketing, such as local newspapers, radio advertisements and press releases;
- staff training and the set-up of the software.

A.5.2 Passengers have less walking to get picked up by a bus service now, and more passengers can use it than by using a conventional bus service (i.e. those who can walk to their street corner, but cannot make it to their nearest bus stop).

A.6 Benefits of DRTS

A.6.1 DRTS technology is vital to the running of the DRT scheme, as it allows the awareness of passengers being picked up and better flexibility over a manual system. To be demand responsive, the service could not be managed with a manual system, because of the numbers handled by the service (2,600-2,800 per 4-week period).

A.6.2 DRTS also creates time efficiency: if journey information changes during a day, the software updates the drivers immediately. Additional information can also be sent to drivers, such as calculated fares for the trips. The drivers like the technology, as it allows them to carry on with their driving and not have to pull over to answer telephone calls.

A.6.3 Less dead mileage is carried out thanks to the technology.

A A2B Dial-a-bus (Aberdeenshire County Council)

A.7 Issues

A.7.1 The DRT schemes have been positively received, in the main. When a standard bus service had been replaced, the locals were initially sceptical as to how the new system would work. The elderly were the least keen in a replacement service, even setting up a petition, as they thought that they were losing the services of public transport.

A.7.2 However, everybody on the petition was personally written to or telephoned, and a local meeting was held to alleviate locals' concerns. There are now 350-400 passengers who use the services each week.

B CanGo (Hampshire County Council)

B.1 Introduction

B.1.1 Centaur wishes to thank June Armstrong of Hampshire County Council for participating in a telephone interview on Monday 21st August 2006.

B.2 Context

B.2.1 Hampshire is a county covering 1,455 square miles on the coast of southern England. The county borders Dorset, Wiltshire, Berkshire, Surrey and West Sussex, and has the administrative city of Winchester, situated in the south of the county.

B.2.2 The population of Hampshire is 1.24 million people.

B.3 Key service details and history

B.3.1 The original CanGo scheme was launched in 2002, and buses are operated by Stagecoach. The scheme is managed by a local authority-run Dispatch Travel Centre based in Winchester. This contact centre also caters for other authority requirements, such as social services bookings.

B.3.2 The scheme has increased the level of public transport service in Hampshire, replacing previously limited fixed-bus routes and providing a bus service where there were previously no others in the area. The scheme is seen as a way of serving a larger geographical area than previously served.

B.3.3 The target market for the use of the CanGo services was everyone in the community: it has been found that the majority of users are commuters and schoolchildren travelling to and from railway stations/school, and older people travelling to retail sites and hospitals. Schoolchildren are also using the services during the day when they are on their holidays.

B.3.4 In addition, there are two schemes which were set up as Section 19 voluntary services: there is a 'dial-a-ride' scheme, specialising in transporting the mobile-impaired, and the 'call and ride' scheme, similar to dial-a-ride but including able-bodied passengers. This latter scheme was introduced to add 'social inclusion', although it does not allow pick-ups to occur at locations closer than 400m from a bus stop.

B.3.5 Hampshire CC could not provide any patronage figures as they weren't readily available.

Area covered

B.3.6 The DRT services used by Hampshire cover two distinct areas:

- CanGo: Covers the two districts of Hart and Havant, utilising 8 vehicles;
- Call And Go: covers approximately half of the county, utilising 3 vehicles.

Funding

B.3.7 CanGo's first scheme in the Andover region was funded by the Government's Rural Bus Challenge Fund: it shared an award of nearly £1million, given to Hampshire County Council to fund DRT and other services. This funding allowed the call centre to be set up, provide the buses for the scheme and set up other items for young people of the area.

B.3.8 Funding has now run out, and the DRT schemes are now paid for from the local authority's bus budget, with councillors regularly reviewing each district for continued funding. Each journey made costs approximately £5.00.

B.3.9 Due to the different nature of Call and Go and Dial-a-ride services, these are funded from a different pot.

Booking

B.3.10 The scheme allows booking via an 0845 telephone number or by internet. The Mobisoft Mobirouter DRTS package uses GPRS technology which has the functionality to allow on-the-fly bookings.

B.3.11 Passengers are able to book trips a minimum of 30 minutes before departure, and can block-book journeys up to 3 months in advance.

B.3.12 Bus journeys must be booked before travelling. Regulations do not permit passengers to hail a DRT bus from conventional bus stops or from the roadside. However, they can join services at timed stops on the journeys.

Web booking

B.3.13 Bookings can be made by the council's website at http://cango.hants.gov.uk. To book via the internet, passengers need to first register with Hampshire County Council in order to use it. Once registered, passengers can log on and request a journey. They receive confirmation of their request by email.

B.3.14 Passengers can also book directly via email.

B.4 Operational and RTI details

Current practice

B.4.1 The main CanGo telephone booking line is set up in a Winchester contact centre. This is managed by Hampshire County Council. The contact centre also handles calls for other council requirements, such as social services. Multiple bookings can be made in one contact session, and journeys can be booked up to three months in advance.

B.4.2 The contact centre has six dedicated schedulers and one supervisor working for the DRT service. All staff members are trained in the use of the Mobisoft "Mobirouter" software which generates the daily schedules and allows for on-the-fly bookings. The CanGo service is provided Monday-Friday, 0800-1800 and Saturdays 0800-1630. Buses do not run later in the evenings or on Sundays.

B.4.3 The minimum booking times that the scheduling software allows for each service is within 30 minutes, depending on the schedule.

B.4.4 Drivers pick up schedule updates from their on-board Mobisoft system, which can also relay updated information to the driver while the journey is in progress. Drivers are employed with local knowledge, and they are allowed to make the decisions on their route planning.

B.4.5 There are some bookable bus stops on some routes: these stops act as permanent reminders to the local community that there is a bus service in their district. Although travellers cannot hail a bus at the stops, they can telephone ahead to arrange for the service to pick them up there.

B.4.6 The real-time information is not broadcast to the public, but used solely for the purpose of scheduling buses and to ensure the provision of a quick and reliable service. If a service is found to be seriously delayed, then the contact centre will telephone the passenger to let them know, or in extreme circumstances, arrange for a taxi to replace the customer's journey.

B.4.7 Passengers pay for their trip on board the bus.

Currently equipped technology

B.4.8 CanGo Vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- GPRS system, to send/receive data from the contact centre;
- A dedicated in-cab screen linking to Mobirouter, displaying pick-up times and locations for the driver's route.

B.4.9 The Mobirouter DRTS was selected after the Council put a bid out to tender. The Council felt that Mobirouter was the best package in the market at the time. Also, as the Mobisoft team is small, the Council have a good, ongoing relationship with the company. Mobisoft have developed the DRTS system with the Council and tailored modules for their requirements. The Mobirouter system caters for the scheme's needs.

B.4.10 The vehicles can be tracked using the Mobirouter technology. The software needs to poll the buses to find out their location, which is done by using GPRS.

Future functionality

B.4.11 Hampshire County Council has no immediate plans to broadcast RTI to the public via the Web, although it is a possibility for the future.

B.5 Key operational factors

B.5.1 The following factors are deemed essential to the successful running of a DRT scheme:

- a good operator relationship;
- good working relations between the DRT dispatch centre and the drivers;
- publicity: the CanGo schemes have had a very strong branding campaign;
- personal liaising with the general public who complain.

B.5.2 At the start of the scheme there were many people who complained that the scheme would give them less service than their previous bus service. Each complaint was dealt with individually, and explanations of the scheme's benefits were given. Sometimes, this was done verbally, over the telephone or to local parish user group meetings: it was found that it was easier to explain the scheme's operation and benefits in person rather than describing on paper.

B.5.3 By Stagecoach employing local drivers for the routes, the passengers have built up a positive relationship with them. All drivers have been trained to assist passengers with mobility problems (e.g. ensuring wheelchairs are secured properly; aiding people to their door).

B CanGo (Hampshire County Council)

B.6 Benefits of DRTS technology

B.6.1 DRTS technology allows both high volumes of journeys and complex calls (e.g. multiple bookings) to be managed. This could not be done with a manual system. Routes can be updated instantaneously and the software can find the available journeys and routes for drivers to make. As a result of relatively immediate responses to passenger requests, mileage is saved in crossing rural areas. In addition, if a bus were to be late, get stuck or break down, its driver can contact the dispatch centre, who can in turn convey this message to customers waiting to be collected and, in extreme circumstances, arrange for a taxi to collect the passenger.

B.6.2 There are additional benefits of the DRT scheme, such as safety and security of young people: teenagers can be dropped off closer to their homes, meaning less walking from distant bus stops.

B.7 Issues

Technology

B.7.1 The Olero vehicles used by Hampshire County Council are ideally sized for the scheme. Their layout and functionality is also good (low floors and wheelchair accessibility). However, their mechanical reliability has let them down: they regularly break down.

Other issues

B.7.2 When the CanGo DRT scheme was introduced, there were fewer restrictions on the services it could provide. This changed when Government brought in regulation legislation 18 months after it started, which brought in more limitations to the services.

B.7.3 Hampshire County Council did try to introduce an urban-based DRT scheme, but this failed due to rival commercial services already in place and a greater difficulty in getting the message across on how to use it. Passengers preferred to use standard methods of waiting for buses at bus stops.

B.7.4 Another key obstacle is continuing to get funding for the schemes. It is easier to get funding to start up a scheme, but ongoing costs are more difficult to fund. The running costs are high, and require subsidising.

C Call Connect (Lincolnshire County Council)

C.1 Introduction

C.1.1 Centaur wishes to thank Andrew Addo-Smith of Lincolnshire County Council for participating in a telephone interview on Wednesday 23rd August 2006.

C.2 Context

C.2.1 Lincolnshire is a predominantly rural county covering 2,687 square miles in the east midlands of Great Britain. The county borders Norfolk, Cambridgeshire, Rutland, Leicestershire, Nottinghamshire, South Yorkshire, East Riding of Yorkshire and Northamptonshire, and has the administrative city of Lincoln, situated in the west of the county.

C.2.2 The population of Lincolnshire is 987,700, with a population density of 55 people per square mile.

C.3 Key service details and history

C.3.1 Lincolnshire's 'Call Connect' scheme was set up in March 2001, aiming to serve anybody living in the rural community. Today, ten services are available as part of the Call Connect scheme, ranging from interchange DRT services to network-enhancement services and substitute services. There are twenty vehicles in total used for all the services.

C.3.2 Interchange services occur for towns across over half the county: the service is offered for a 7 mile radius from each town. Where journey bookings are popular, additional transport is laid on (for instance, to cater for multiple pick-ups 7 miles north of the town at the same time as other multiple pick-ups 7 miles to the south of the town).

C.3.3 Free-floating buses cover districts with no previous bus coverage, typically areas of 30 miles across.

C.3.4 The third type of DRT services are a semi-flexible route, where buses can divert up to a mile off a fixed route.

C.3.5 Some of the services have replaced a previously little-used service, such as a 1-2 day a week fixed route market day service, where there would be one bus in the morning and one return service. The most regular users of the DRT services are the over-60s, who use the buses to shop, for leisure and for health requirements. A smaller percentage of users are commuters and schoolchildren.

Area covered

C.3.6 The DRT services used by Lincolnshire cover the whole county. The maps below show these areas:

C Call Connect (Lincolnshire County Council)

Figure 1: The area covered by Lincolnshire's Call Connect scheme.

Funding

C.3.7 Call Connect was funded by the Government's Rural Bus Challenge Fund, with over £5 million received to set up the services, update infrastructure, links and providing training. Funding has been maintained over the years by successful rural bus grant applications to introduce additional buses, and funding from Lincolnshire County Council. DRT is seen by the Council as a top priority service: if funding were to be cut, then fixed bus services would be the first routes cut.

Booking

C.3.8 The scheme uses a telephone booking system, alongside a DRTS package. Passengers are able to book trips a minimum of two hours before departure. This timeframe is due to a number of communications blackspots in the Lincolnshire area, and updates cannot be broadcast to the DRT vehicles on a frequent basis.

C.3.9 No web-based or email booking functionality is available.

Web presence

C.3.10 Alongside general scheme information, there is an on-line booking service in the form of a Web Chat window on the Council's public transport website, which the public can use to book journeys. The site can be found at http://www.lincsinterconnect.com.

C Call Connect (Lincolnshire County Council)

C.4 Operational and RTI details

Current practice

C.4.1 The main Call Connect telephone booking line is set up in a Dispatch Travel Centre at Lincolnshire County Council's offices in Lincoln. Multiple bookings can be made in one session, with journey bookings received up to one week in advance. Due to network coverage problems, the minimum booking times that the scheduling software allows for each service is two hours.

C.4.2 The Centre has eleven full-time and part-time staff who handle all the telephone bookings for the DRT services. All staff members are trained in the use of the Mobisoft "Mobirouter" software which generates the daily schedules and allows for on-the-fly bookings. Bus pick-ups can be arranged by telephone Monday-Sunday, 0900-1630.

C.4.3 Drivers pick up schedules 1-2 hours before a journey begins, and can also be notified of updates from their on-board Mobisoft system during the journey (dependent on network coverage).

C.4.4 In addition to passengers arranging a journey pick-up, buses can also be hailed from conventional bus stops on fixed parts of the routes. Buses on the semi-flexible services can also be hailed from the roadside along their route. Passengers pay for their trip on board the bus.

C.4.5 Lincolnshire County Council does not broadcast RTI for DRT services to the public via their website.

Currently equipped technology

C.4.6 Vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- GPRS system, to send/receive data from the dispatch control centre;
- An in-cab screen linking to Mobirouter, displaying pick-up times and the driver's route.

C.4.7 Mobirouter DRTS was selected after a tendering process by Lincolnshire County Council. The system could provide what the Council wanted and when it was required. This system has been modified to provide a more user-friendly interface for the operators.

Future Functionality

C.4.8 There are plans to broadcast DRT real-time information to the public on RTI signs at interchanges.

C.5 Key operational factors

C.5.1 The following factors are deemed essential to the successful running of a DRT scheme:

- staff knowing how the scheme and its systems operate;
- good working relations between the DRT dispatch centre and the bus operators;
- staff having a good local knowledge;
- good publicity and thinking of the scheme's requirements prior to the scheme's commencement.

C Call Connect (Lincolnshire County Council)

C.6 Benefits of DRTS technology

C.6.1 By using DRTS technology, both high volumes of journeys and complex calls (e.g. multiple bookings) can be managed. Routes can be updated instantaneously and the software can find the available journeys and routes for drivers to make. The system allows the management time of devising a journey plan to be a lot shorter than if the scheme still used a pen and paper approach.

C.6.2 Multiple users can book people on the same bus at the same time: the system is more flexible, easier to use and paperwork has been removed.

C.6.3 In addition, bus drivers no longer have to decipher unintelligible handwriting by operators.

C.7 Issues

Technology

C.7.1 Issues have been raised with the limitations of the management system. The static algorithms of the route planning mean that the software is not aware of local conditions, for example busy junctions, traffic lights or roadworks.

C.7.2 In addition, drivers have complained that planned routes do not take into consideration real-time road speeds: they receive schedules that plan pick-ups with tighter schedules than possible. For instance, backroads that have their road speed unclassified (i.e. 60 mph) may not allow fast speeds due to tight corners, humpback bridges, etc. Therefore, the operator has to be aware that the planned on-screen route may not necessarily be an ideal route for the driver to take, and use their judgement in addition to the results.

C.7.3 This inflexibility has been acknowledged by the DRTS provider, and plans are underway to resolve this issue.

C.7.4 Due to the nature of the hilly countryside, there are many communications blackspots in Lincolnshire and this impacts on the minimum booking time.

Other issues

C.7.5 There were no other issues raised with the system; even the replacement of fixed weekly services was received well by the local community. This was attributed to good publicity and thinking prior to the scheme starting.

D Corlink (Cornwall County Council)

D.1 Introduction

D.1.1 Centaur wishes to thank Robert Waters of Cornwall County Council for participating in a telephone interview on Friday 18th August 2006.

D.2 Context

D.2.1 Cornwall is a predominantly rural county covering 1,376 square miles at the most south-westerly tip of mainland Great Britain. The county borders Devon, and has the administrative city of Truro, situated on the southern coast of the county.

D.2.2 The population of Cornwall is 514,000, with a population density of 373 per square mile.

D.3 Key service details and history

D.3.1 Cornwall's 'Corlink' concept is based around four central elements:

- semi-flexible vehicles operating within a specific area, which is reviewed regularly;
- key 'interchange' stops, where the 'Corlink' vehicles connect with conventional scheduled services;
- specifically-timed interconnections with branded buses operating an enhanced scheduled service provision;
- a dedicated Travel Dispatch Centre (TDC), which co-ordinates the 'Corlink' vehicle bookings and the links to conventional services.

D.3.2 The original Corlink scheme consisted of three districts and was initiated in July 2002, with a fourth area included in November 2002. These were managed by a local bus operator based in Truro. Unfortunately, due to lack of patronage, the Gunnislake and St Germans schemes had to be withdrawn, leaving two successful projects running to date.

D.3.3 The schemes still in operation comprise a replacement for an unreliable bus service in the Bodmin/Camelford/Wadebridge area: its operator was regularly failing to meet timetable targets and the service was often the first to be cancelled when there was a requirement for buses in other areas. The second area, Carnon Vale, was introduced as interchange provision to a local bus service to Truro.

D.3.4 More recently, as a result of tendering by Cornwall County Council, there has been a change in scheme management and the two projects are now run from a Dispatch Travel Centre based in Exeter.

D.3.5 The target market for the use of the services was everyone in the community: it has been found that the majority, approximately 75 per cent of users, are the retired, women and schoolchildren. There is no specific journey purpose for these trips, however the timetables have been adjusted slightly to accommodate school trips in some areas.

D.3.6 Corlink attracts approximately 2,500 passenger journeys per month.

D Corlink (Cornwall County Council)

Area covered

D.3.7 The DRT services used by Cornwall cover two distinct areas:

- Bodmin/Camelford/Wadebridge: approx. 69.5 square miles, utilising 3 vehicles (plus 1 spare);
- Carnon Vale: approx. 21.6 square miles, utilising 2 vehicles.

D.3.8 The maps below show these areas:

Figure 1: Corlink: The Bodmin/Wadebridge/Camelford area and Carnon Vale area

Funding

D.3.9 Corlink was funded by the Government's Rural Bus Challenge Fund, although this funding will run out in 2007. It is anticipated that the funding of the DRT schemes will continue from Cornwall County Council.

Booking

D.3.10 The scheme uses a telephone booking system, alongside a DRTS which has the functionality to allows for 'on the fly' bookings. Passengers are able to book trips a minimum of one hour before departure. No email booking service is available, nor are there plans to introduce one in the near future.

Web presence

D.3.11 There are no plans in place to provide an on-line booking service in the near future, however the Corlink scheme has a public-facing website which offers key information. This website can be found at http://www.plymouth.gov.uk/corlink.

D.4 Operational and RTI details

Current practice

D.4.1 The main Corlink telephone booking line is set up in an Exeter contact centre which also handles calls for several other DRT services in the South West of England, as well as collating Traveline information. Multiple bookings can be made in one contact session, and journeys can be booked up to seven days in advance. The minimum booking times that the scheduling software allows for each service is one hour.

D.4.2 The Centre has one dedicated staff member, and additional part-time staff when required, who handle all the telephone bookings for the DRT services. All staff members are trained in the use of the Mobisoft "Mobirouter" software which generates the daily schedules and allows for on the fly bookings. The telephone booking service is available Monday-Saturday, 0800-1700 and Sundays 1000-1700.

D.4.3 Passengers can only book a service via the telephone line. Buses cannot be hailed from conventional bus stops. Passengers pay for their trip on board the bus.

D.4.4 RTI is not broadcast to the public, but is used solely for the purpose of scheduling buses and to provide a quick and reliable service. Cornwall County Council does not plan to broadcast RTI to the public via the Web in the long-term future.

Currently equipped technology

D.4.5 Vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- GPRS system, to send/receive data from the contact centre;
- An in-cab screen and handset linking to Mobirouter, displaying pick-up times and locations for the driver's route.

D.4.6 Drivers pick up schedule updates from their on-board Mobisoft system, which can also relay updated information to the driver.

D.4.7 The Mobirouter software was selected after the Council's Policy Department and senior officials had compared and evaluated it against other market brands. This system is an off-the-shelf package.

D.4.8 The vehicles can be tracked by controllers using the Mobirouter DRTS technology.

Future functionality

D.4.9 There are no plans in place for allowing journeys to be booked by using the internet.

D.4.10 In the future, if technology permits, Cornwall County Council would like to see smaller, more portable and reliable equipment that can easily be transferred between vehicles.

D.5 Key operational factors

D.5.1 The following factors are deemed essential to the successful running of a DRT scheme:

- researching and pre-planning of the service to be provided;
- competent, motivated staff who are polite and helpful;
- good working relations between the DRT dispatch centre, the operator and the drivers;
- ongoing publicity;
- reliable communications between the dispatch centre and vehicles.

D.6 Benefits of DRTS

D.6.1 By using DRTS technology, both high volumes of journeys and complex calls (e.g. multiple bookings) can be managed. Routes can be updated instantaneously and the software can find the available journeys and routes for drivers to make.

D.6.2 The system allows the management time of the buses to be a lot shorter than if the scheme still used a pen and paper approach (compare 1 hour's notice time with upwards of 12 hours notice required for a non-computerised system).

D.6.3 As a result of relatively immediate responses to passenger requests, mileage is saved in crossing rural areas. In addition, if a bus were to be late, get stuck or break down, its driver can contact the dispatch centre, who can in turn convey this message to customers waiting to be collected.

D.7 Issues

Technology

D.7.1 When the scheme was launched, there were technical problems with communications between the DRT dispatch centre and the vehicles. This was resolved by Mobisoft, and no longer occurs.

Other issues

D.7.2 Cornwall County Council believes that the change in scheme management from a local-based operator to one outside the area meant a loss in the local district knowledge. This was overcome by experience over time; also, call centre staff were taken around the area and met the drivers with whom they liaise, thus cementing trust and friendship between the scheme's workers.

D.7.3 Another key obstacle is continuing to get funding for the schemes. It is easier to get funding to start up a scheme, but ongoing costs are more difficult to fund.

D.7.4 Prior to the service commencing, the Council did not do enough pre-planning on what type of service they wished to provide to the community. This was an issue that got resolved after the service commenced.

D.7.5 With the introduction of the DRT schemes, some of the DRT drivers' attitudes towards customers impacted on passenger numbers. This issue was resolved with drivers either being retrained or removed from the DRT service.

E MyBus (Nottingham Community Transport Ltd.)

E.1 Introduction

E.1.1 Centaur wishes to thank David Tye of Nottingham Community Transport Ltd. for participating in a telephone interview on Monday 21st August 2006.

E.2 Context

E.2.1 Nottinghamshire borders South Yorkshire, Lincolnshire and Derbyshire. As of 2006 the county is estimated to have a population of just over one million. Over half of the population live in the conurbation of Great Nottingham which also spreads into Derbyshire. The conurbation has a population of about 650,000, though less than half live within the city boundaries.

E.3 Key service details and history

E.3.1 MyBus, which has been running since April 2003, connects two districts of Nottingham: Mapperley and Sherwood. The scheme was originally set up by Nottingham City Council (a unitary authority) with funding from the Urban Bus Challenge, but is now run by Nottingham Community Transport Ltd.

E.3.2 A fixed, timetabled route (marked with a purple line in figure 1) runs between the two districts and anyone living off of the route (marked in red in figure 1) can call the control centre and the bus will deviate and pick them up or drop them off. Alternatively, passengers can hail the bus from a regular bus-stop positioned along the fixed route.

E.3.3 The service effectively enhances the existing public transport network, but also provides an interchange service for passengers wishing to meet other services leaving from Sherwood and Mapperley, including a bus service to the City Hospital.

E.3.4 The original concept for the scheme was to provide accessible demand responsive transport for elderly and disabled members of the public, but the service now caters for all and is actively used by the community.

E.3.5 The service, which is free to all members of the public, serves approximately 80 passengers a day, a figure which has doubled since its introduction over three years ago. The service utilises one 16 seater vehicle which satisfactorily copes with current demand, however there are plans to open up further DRT schemes in other areas in the near future.

E.3.6 There are two routes, clockwise and anti-clockwise, with each serving the following timed stops:

- Mapperley;
- Sherwood;
- Sherwood Vale;
- Woodthorpe Court;
- Woodthorpe Drive.

E.3.7 Figure 1 below shows these areas:

E MyBus (Nottingham Community Transport Ltd.)

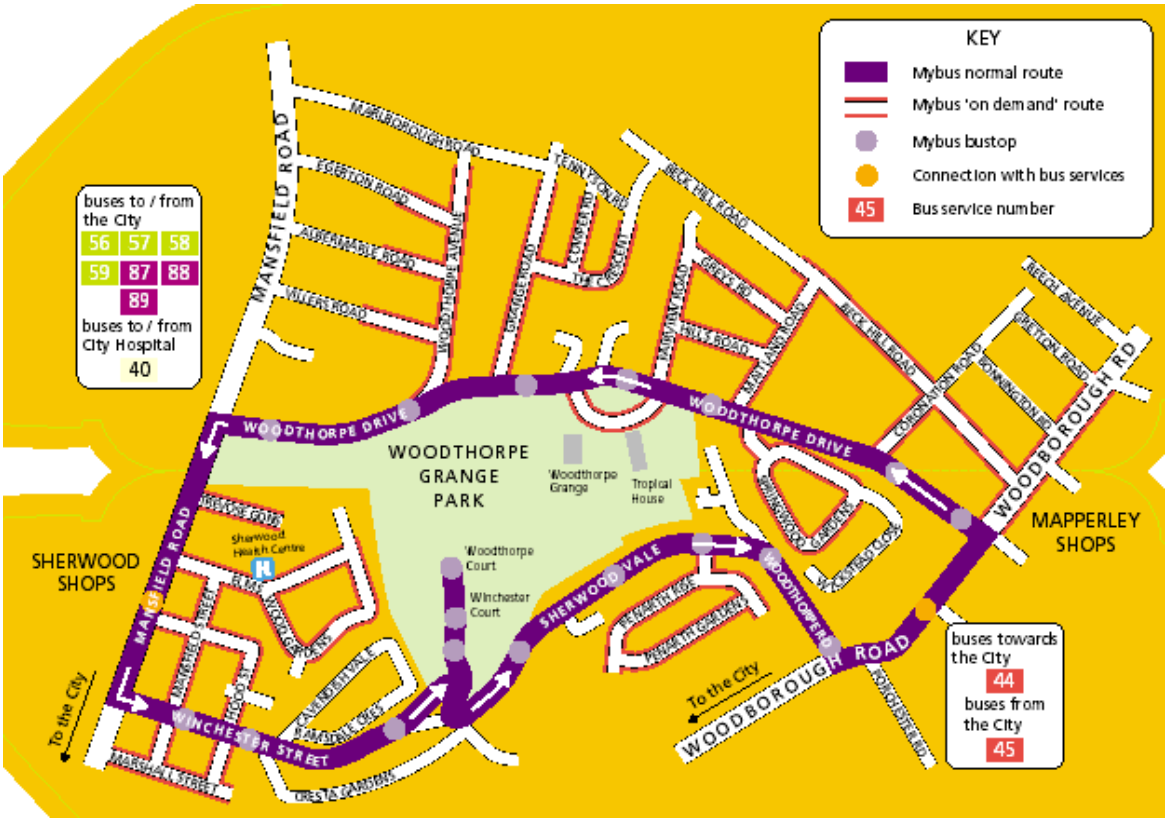

Figure 1: MyBus route

Funding

E.3.8 MyBus was funded by the Government's Urban Bus Challenge Fund. The scheme is now run by Nottingham Community Transport Ltd.

Booking

E.3.9 The scheme uses a telephone booking system and traditional pen and paper scheduling. No DRTS technology is used by MyBus. The call centre is operational between 9.30am and 15.30pm Monday to Friday. Bookings can be made up to seven days in advance, and up to an hour before passengers intend to travel.

E.3.10 However, there is a certain amount of flexibility built into the system and if the driver is in the right place at right time, he/she can pick up passengers at relatively short notice.

Web presence

E.3.11 The MyBus scheme has a website offering general information at http://itsnottingham.info/DRbus.htm.

E MyBus (Nottingham Community Transport Ltd.)

E.4 Operational and RTI details

Current practice

E.4.1 A passenger will book a journey by phone by calling a freephone number. This call centre is manned by three members of staff who will take bookings and inform drivers of schedule changes. As there is only one vehicle, MyBus can afford to carry out scheduling by hand and currently have no need for any DRTS technology. The driver receives schedule updates via a mobile phone.

E.4.2 Passengers can only book a service via the freephone telephone line. Buses cannot be hailed from conventional bus stops.

E.4.3 As the route is timetabled, and allows time for deviations, the driver can drop people off at areas such as the local health centre if time allows. MyBus are keen to promote the community-based nature of the scheme and will always strive to provide accessibility to people who would not normally be able to travel.

Future functionality

E.4.4 MyBus may well be extended in the near future. If this happens, DRTS equipment will be investigated.

E.5 Key operational factors

E.5.1 The following factors are deemed essential to the successful running of a DRT scheme:

- competent, motivated staff who are polite and helpful;
- buy-in from locals (including educating them on how the scheme runs);
- flexibility in the timetabled service;
- accessible and reliable vehicle;
- good community spirit.

E.6 Benefits

E.6.1 The main benefit of MyBus is that it provides accessibility to many people who would normally have trouble getting to and from key services such as the health centre and shopping centres. The scheme underlines the importance of use by the general public – without this the service would not operate.

E.6.2 The scheme's simplicity is also a benefit – the call centre can be run without the need for complicated technology and training. It is recognised, however, that if the scheme is to grow, appropriate steps may need to be taken to buy scheduling software and on-bus equipment.

E.6.3 The compact nature of the bus means that it can reach streets that a normal bus would have trouble navigating.

E.7 Issues

E.7.1 The MyBus vehicle (Olero) originally had mechanical problems, but these have been resolved.

F Wigglybus (Wiltshire CC)

F.1 Introduction

F.1.1 Centaur wishes to thank Tim Reynolds of Wiltshire County Council (WCC) for participating in a telephone interview on Monday 14th August 2006.

F.2 Context

F.2.1 Wiltshire is a predominantly rural county situated in the south west of England. The county borders Berkshire, Dorset, Gloucestershire, Hampshire and Somerset. The county town is Trowbridge, situated in the west of the county.

F.2.2 The population of Wiltshire county, excluding Swindon (which is a unitary authority), is 445,000 of which nearly 60 per cent live in urban areas with a population in excess of 5,000 [Wiltshire County Council, "Wiltshire Local Transport Plan 2006/7 – 2010/11"].

F.2.3 As Wiltshire is predominately rural, in some parts a car is essential to maintain access to shops, employment, schools and services.

F.3 Key service details and history

F.3.1 Wiltshire has one of the most established DRT schemes in Great Britain, with the original Wigglybus scheme set up in 1999 to replace a very infrequent and unreliable bus service in the Vale of Pewsey, which provided three buses each running an hourly service. The scheme has now been expanded to other areas of Wiltshire and covers Calne, Kennet and Mere. It is operated by Hatts Coaches and APL Travel and provides door to door transport for anyone living, working and visiting these areas.

F.3.2 The target market for the use of the services were all possible user groups: from pupils going to school, commuters travelling to work to teenagers going to youth clubs and the elderly, requiring transport to collect their pension, go shopping or to visit their doctor.

F.3.3 Over 10,000 passenger journeys are made on Wigglybus every month.

Area covered

F.3.4 The DRT services used by Wiltshire cover nine distinct areas, totalling approximately 230 square miles and utilising 7 vehicles. The maps below show these areas:

F Wigglybus (Wiltshire CC)

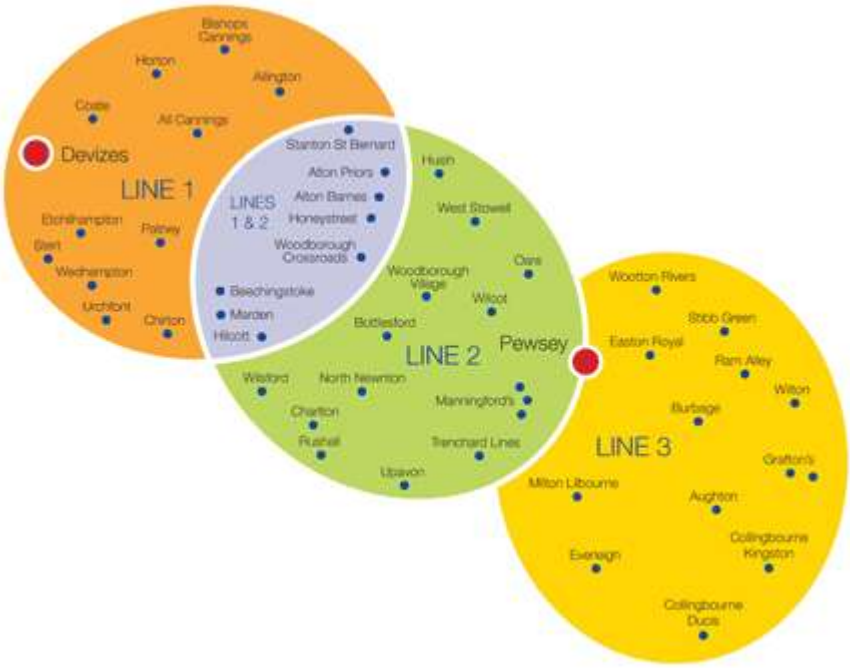

Figure 1: The Vale of Pewsey area

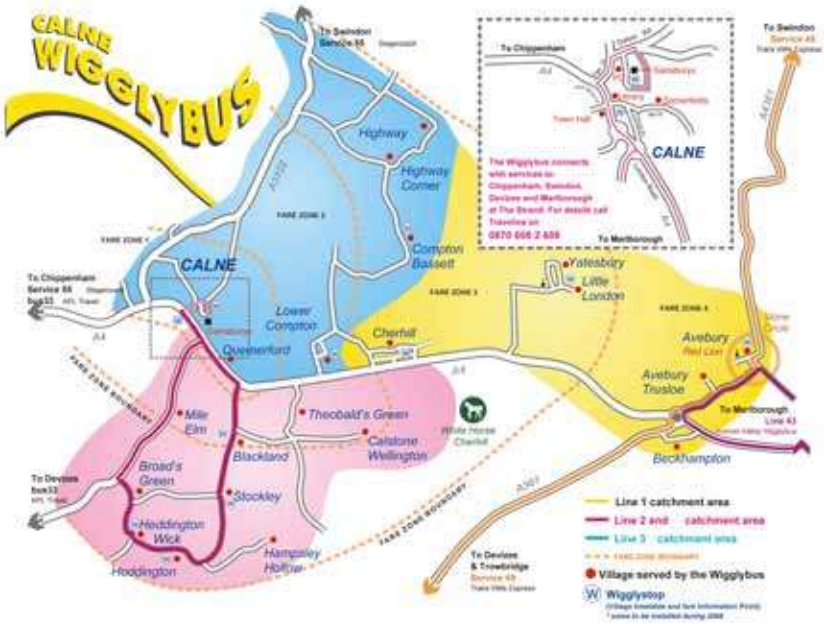

Figure 2: Calne area

F Wigglybus (Wiltshire CC)

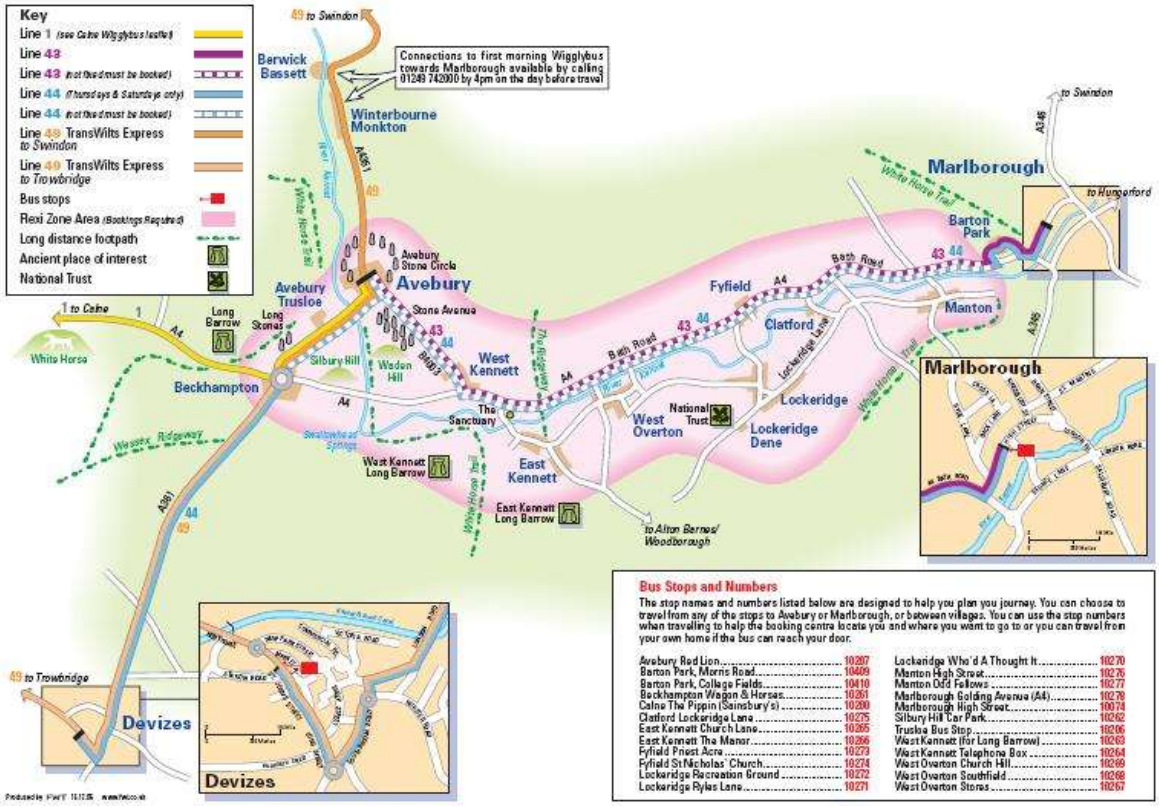

Figure 3: Kennet area

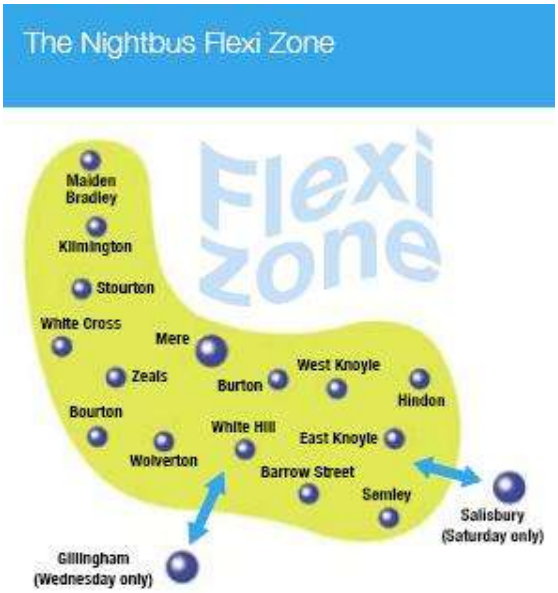

Figure 4: Mere nightbus area

Funding

F.3.5 Wigglybus was funded by the Government's Rural Bus Challenge Fund, and were awarded £978,450 in their original bid. Although this funding will run out by the end of 2007, it is anticipated that the deregulation of on-street parking fines and parish precepts will help to fund the DRT schemes.

Booking

F.3.6 The scheme uses a telephone booking system, alongside DRTS technology which allows for 'on the fly' bookings. In some cases, passengers are able to book trips up to twenty minutes before departure.

F.3.7 No email booking service is available, nor are there plans to introduce one in the near future.

Web presence

F.3.8 WCC also provides a branded Wigglybus website (www.bookaride.net) where the public can find out more about the services available, download timetables and find out how they can book a journey. Essentially, this site is for information and promotional purposes, but there are plans to provide an on-line booking service in the near future.

Other services

F.3.9 WCC also run two other DRT schemes: RUH Bath DRT and the 'Boomerang' DRT. Both of these services use a more traditional approach to booking trips (non-computer based) and thus need trips to be booked with 24-48 hours notice.

F.4 Operational and RTI details

Current practice

F.4.1 The main Wigglybus telephone booking line is set up in an Exeter contact centre which also handles calls for several other DRT services in the South West of England, as well as collating Traveline information. Multiple bookings can be made in one contact session, and journeys can be booked up to six months in advance.

F.4.2 The Centre has four dedicated staff who handle the telephone bookings for the Pewsey, Calne and Kennet Wigglybus services. These staff members are also all trained in the use of the Mobisoft DRTS which generates the daily schedules and allows for 'on the fly' bookings.

F.4.3 The Mere Wigglybus service uses its own call centre and local software package for trip generation. This is mainly due to the smaller number of passengers the service carries.

F.4.4 The minimum booking times that the scheduling software allows for each service are:

- The Vale of Pewsey – at least 20 minutes.
- Calne – at least 20 minutes.
- Kennet – at least 20 minutes.
- Mere – at least 30 minutes before the service is scheduled to start.

F.4.5 Passengers can also hail buses from conventional bus stops, as long as they want to travel between timetabled stops of the bus journey. No deviations are allowed. All passengers pay on board the bus for their trip.

F.4.6 Drivers pick up schedule updates from their on-board Mobisoft system, which can relay updated information to the driver. The software will not allow journeys to be included which it will calculate as being less than 20 minutes from the driver's current position.

F.4.7 RTI is not broadcast to the public, but is used solely for the purpose of scheduling buses and to provide a quick and reliable service. Also, due to the complicated nature of the routes, it would prove to be expensive and logistically difficult to provide physical RTI to passengers using the Wigglybus services. Wiltshire CC does not plan to broadcast RTI to the public in the long-term future.

Currently equipped technology

F.4.8 Vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- GPRS system, to send/receive data from the contact centre;
- An in-cab units running a Microsoft Windows 2000 link to Mobisoft MobiRouter, displaying journey maps and lists for the driver's route.

Technology pilots

F.4.9 SMS texts were offered as a method of booking buses during a 6-month trial at the beginning of the scheme. However, this service proved to be unpopular with users, so it was not taken any further.

Future functionality

F.4.10 Booking a journey by using the internet will be set up in some of the areas and go live later in 2006. However, passengers will not be able to track buses online, to see how far away the bus is from their prearranged pick-up point.

F.4.11 Passengers will also be able to block-book and manage their bookings on-line themselves.

F.5 Key operational factors

F.5.1 WCC believes that an ongoing marketing campaign is key to a successful DRT scheme: passengers need to be reminded of the service, especially if it has replaced an old, regular service. WCC find that public perception falls if they see that a regular service no longer stops at their village green: they take the attitude that there is no longer a service in place. This means that WCC regularly publicise Wigglybus services, sending out constant reminders to the public of the DRT services available, and how to use them.

F.5.2 Fully functioning technology is essential to the successful running of a DRT scheme. Off-the-shelf technology that manages and balances DRT vehicles from A to B is another key feature, especially when there are too many users of the scheme to warrant using traditional methods, such as using a ledger.

F Wigglybus (Wiltshire CC)

F.6 Benefits of DRTS technology

F.6.1 By using DRTS technology, both high volumes of journeys and complex calls (e.g. multiple bookings) can be managed. Routes can be updated instantaneously and the software can find the available journeys and routes for drivers to make.

F.6.2 Wigglybus receives over 4,000 calls per month and has 10,000 journeys made per month. The system allows the management time of the buses to be a lot shorter than if the scheme still used a pen and paper approach (compare 20 minutes notice time with upwards of 12 hours notice required for a non-computerised system).

F.6.3 Once the Internet booking service is made available on the Wigglybus website, WCC will be able to keep track of the numbers of users of the internet booking system, as well as reduce costs of managing the call centre (which is the biggest cost of the scheme after the bus costs). By incentivising the use of internet booking, fares can be priced lower for these passengers.

F.7 Issues

Technology

F.7.1 When the scheme was launched, a local software company provided a bespoke software system, but as the scheme grew, its reliability fell. Tendering led to the acquirement of an off-the-shelf DRTS package by Mobisoft, with extra bespoke modules added. Wiltshire felt that the Mobisoft package was the only reliable package on the market and has continually won tendering bids. Although the system suffices, it could be enhanced to include more functionality.

F.7.2 WCC believe that software needs to move away from being too high-tech and bespoke. A simple system that can be rolled out to all DRT implementers in the UK would mean that Dispatch Travel Centre resources can be pooled, also saving costs, and would allow schemes to be run more properly.

Other issues

F.7.3 Another key obstacle is continuing to get funding for the schemes. It is easier to get funding to start-up a scheme, but ongoing costs are more difficult to fund. After revenue and educational income is subtracted, the scheme costs £42,000 per month to run which includes bus and contact centre running costs and any other additional costs.

G Ring N' Ride and Dial-a-Bus (Strathclyde Partnership for Transport)

G.1 Introduction

G.1.1 Thanks to John Knox of Strathclyde Passenger Transport who completed the survey and answered a number of follow-up questions.

G.2 Context

G.2.1 Strathclyde Partnership for Transport (SPT) is the regional transport partnership (RTP) for the West of Scotland. It is one of seven RTPs established under the Transport (Scotland) Act 2005 covering the country.

G.2.2 The SPT takes over the roles and functions of the Strathclyde Passenger Transport Authority and the Strathclyde Passenger Transport Executive.

G.2.3 An estimated 42% of Scotland's population live within the SPT area, which covers 6969 sq kms.

G.3 Key service details and history

G.3.1 The Dial-a-Bus service has been in existence since 1989 and continues to provide transport to the elderly and the disabled. The Ring N' Ride scheme was launched in 2000 in order to provide a DRT service for people travelling in rural areas where no alternative form of commercial transport exists.

G.3.2 Ring N' Ride was introduced to replace low frequency bus routes and Dial-a-Bus was designed to enhance the existing network in the SPT area. The service provides direct links between rural areas, and also from rural areas to town centres, leisure facilities, train stations and hospitals. It does not make trips where there are alternative direct bus services, but will connect rural areas to these services. Ring N' Ride will also carry Dial-a-Bus passengers if needed.

G.3.3 Ring N' Ride has 9 vehicles operating over 9 services and operates 7 days a week. It serves the following areas:

- North Lanarkshire;
- Irvine Valley;
- East Dunbartonshire;
- Carrick;
- Lanark;
- Three Valleys;
- Lomond;
- Gryffe Valley.

G.3.4 Dial-a-Bus has 30 buses operating over 23 services across the SPT area and also operates 7 days a week.

G.3.5 Ring N' Ride carries approximately 5,000 passengers a month and Dial-a-Bus 26,000.

Area covered

G.3.6 Both schemes cover the majority of the Strathclyde Partnership for Transport (SPT) area, shown below:

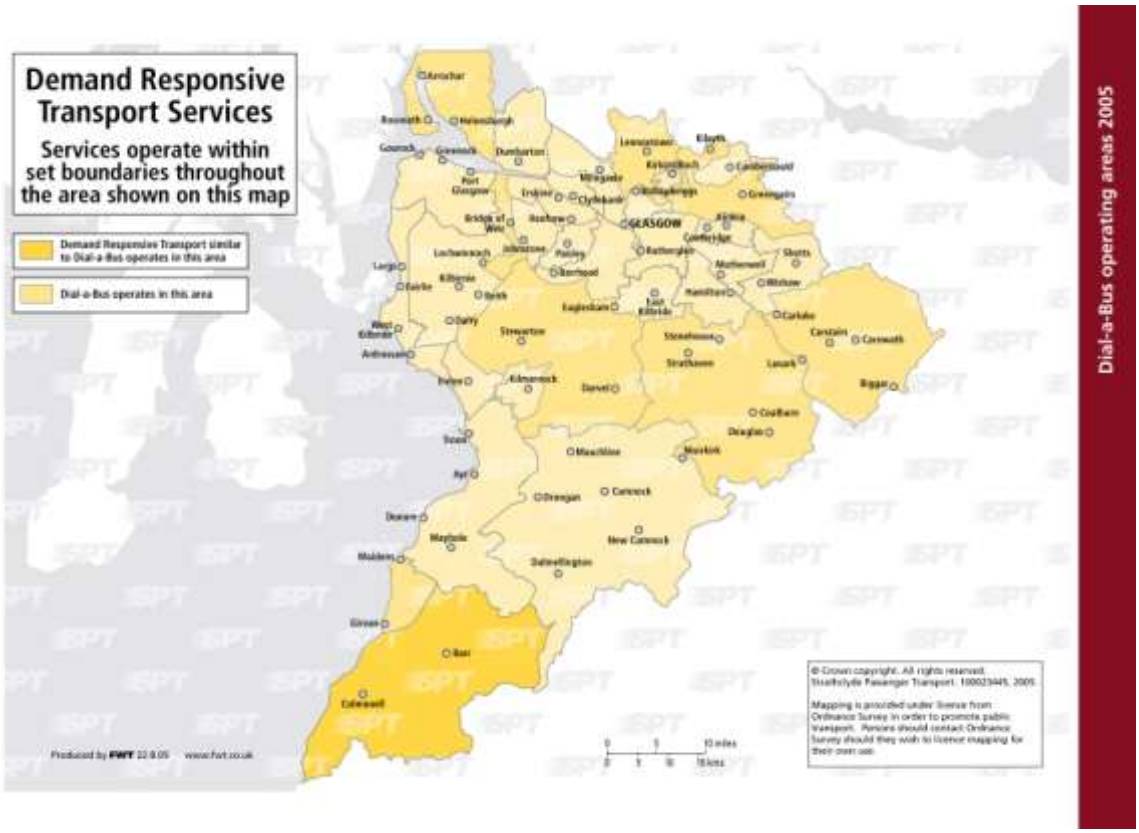

Figure 1: Map of SPT area and DRT schemes

Funding

G.3.7 The schemes have been funded by Strathclyde's mainstream transport budget and the Rural Transport Grant.

Booking

G.3.8 Bookings can be made by telephone and SMS. The call centre is open between 0900-1600hrs Monday to Friday, with opening times for service areas staggered. The last serviced area opens at 11.15am.

G.3.9 Bookings are predominately made by passengers for next day travel, however it is possible to book a journey up to 2 hours before travelling. This lead time is to ensure that vehicles can reach the more remote locations in good time. However, if the bus is in the vicinity of a quick pick-up, the system will allow for shorter timescale bookings.

G.3.10 On Thursday passengers can call for Friday and Sunday, on Friday passengers can call for both Saturday and Monday.

Web presence and booking

G.3.11 Strathclyde hope to introduce internet booking by 2007, however they have a website that outlines both schemes' features and information on how to book. Dedicated web pages can be found at http://www.spt.co.uk/bus/ringnride and http://www.spt.co.uk/bus/dialabus.

G.4 Operational and RTI details

Current practice

G.4.1 SPT has invested in the Trapeze PASS DRTS to automate booking, scheduling, dispatch and client management for its on-demand services. PASS allows SPT to create an extensive database of service users, taking into account regular trips, pick-up and set-down points and special needs.

G.4.2 Normally passengers will phone the dedicated call centre the day before travel, however same day booking is possible as long as it is made 2 hours in advance of travelling. Passengers can have 4 advance trips per calendar month; which enables them to book up to 30 days in advance.

G.4.3 Passengers are normally allowed 2 trips per day, although more can be booked if resources allow. There is no limit on how many trips a passenger can book contact sessions provided they meet the 'rules' of the service.

G.4.4 RTI is available to passengers via the telephone. Passengers can find out where their vehicle is and receive estimated arrival information.

Currently equipped technology

G.4.5 Ring N' Ride and Dial-a-Bus vehicles are equipped with the following DRTS technology:

- Global positioning systems, for pinpointing the bus's location;
- Mobile Data Terminals (MDT) displaying key route information;
- GPRS system, to send/receive data from the contact centre.

G.4.6 Vehicles are fitted with MBTs and with a GPS tracking device. The Trapeze PASS booking system sends travel requests directly to the bus via GPRS and in turn the MDT units send information back from the bus to the PASS system. This enables RTI to be given to passengers and allows the office to monitor service levels and ensure that passengers are given a premium bus service.

Future functionality

G.4.7 Within the next 6 months it is envisaged that clients will be able to send an SMS text to the SPT control centre to obtain pick-up point information and estimated vehicle arrival time. It is hoped that this will free-up staff to take more bookings, rather than be an information service.

G.4.8 SPT are also looking at the possibility of introducing a call back service. Passengers will receive a telephone call 10 minutes before the arrival of the vehicle advising them of their estimated arrival time. The benefits of this will be twofold – the passenger will be able to wait inside until

the bus arrives and they will be more likely to be ready once it arrives, thus improving scheduling.

G.4.9 SPT feel that the use of home computers and mobile devices will allow passengers unprecedented access to booking journeys and checking arrival times themselves. IVR will also allow passengers to check pick-up times and make bookings. This will benefit the passenger as they will be able to book 24/7 and 365 days a year and will also save revenue costs in the long term.

G.4.10 SPT are fully aware of the 'digital divide' and will seek a balance so that all passengers have the same opportunity to access the DRT and dial-a-ride services.

G.4.11 The use of DRTS technology will also allow SPT to share resources with other DRT providers so that better use is made of vehicles and further improving on the current services.

G.5 Key operational factors

G.5.1 SPT cite the following as key operational factors:

- Standardised vehicle type (same livery and same model)
- Flexibility of agreed operating areas;
- Local rate booking line (ensures all passengers pay the same rate);
- Computer assisted booking and vehicle tracking;
- Monitoring of usage and redistribution of resources as appropriate;
- Skilled staff;
- Costs sharing between accessible transport, local service and school service.

G.6 Benefits of DRTS technology

G.6.1 The overall feeling towards the technology is that SPT can do things which would normally be impossible, a provide a better service at the same time. SPT also believe that the use of DRTS technology has a direct influence on patronage figures, which have risen since its introduction in 2000.

G.6.2 With PASS, staff are spending more time responding to customers' calls than planning and preparing driver schedules. This allows journeys to be booked quickly and efficiently and allows vehicles to be moved around depending on client demand. It also means that there are no empty vehicles wasting mileage.

G.6.3 SPT also appreciate the flexibility and adaptability of the software – if road works are in place or there has been a road incident, the controller can alter the 'road speed' which in turn adjusts scheduled arrival times.

G.7 Issues

Technology

G.7.1 Teething issues were experienced with bus to control centre communications, but these have been resolved.

G Ring N' Ride and Dial-a-Bus (Strathclyde Partnership for Transport)

Other issues

G.7.2 One of the major obstacles to both services is ensuring that as many passengers living in the SPT area as possible have access to the schemes. SPT constantly monitor usage and carry out regular checks to ensure clients are not being denied trips on a regular basis (due to where they live). All denied trips are also immediately assessed and a solution is investigated. This ensures that denied trips are kept to a minimum.