



# Standards and Guidance Documents

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# TRAFFIC ADVISORY LEAFLET ITS 9/03

## Community Transport

This leaflet is one of a series of documents from the ITS Assist Project. ITS Assist is a Department for Transport (DfT) initiative that aims to encourage and promote across the UK the use of Intelligent Transport Systems (ITS) as tools to implement local transport policy objectives.

The leaflet provides an introduction to community transport and discusses the role of ITS in this field. Community Transport is the provision of non-commercial passenger transport services and covers both statutory provision of services by local authorities and provision of voluntary services.

This leaflet considers how technology can aid the provision of services by local authorities and the integration of local authority and voluntary services. The technology is known as Demand Responsive Transport Systems.





## BACKGROUND

Local authorities, health authorities, voluntary and community groups and schools/colleges may all provide Community Transport services.

Community transport provides door-to-door or point-to-point transport services for people who are unable to use conventional public transport facilities. This may be because:

- Conventional public transport is unavailable in their area; or
- The individual has specific needs, which are not met by the conventional public transport service provided.

These services provide local authorities and voluntary groups with a way to reduce exclusion and provide greater opportunities for travel. This is particularly relevant to those in rural communities and for those who find it difficult or impossible to use conventional public transport.

It is estimated that some 14% of the UK population are protected under the provisions of the Disability Discrimination Act<sup>(1)</sup>, and while this figure covers all forms of disability, it gives an indication of the potential market size for community transport services.

Several local authority community transport schemes make use of Demand Responsive Transport Systems (DRTS). These are computer systems that assist operators in managing unconventional (demand responsive) public transport services tailored to users' needs.

The fundamental features of these services are:

- They provide services to the general public or identifiable groups
- A personalised response is provided to an individual's transport needs
- A door-to-door or point-to-point transport service is provided at the user's demand.

The above features usually require the operation of a dispatching service centre.

In the UK, the Community Transport Association (CTA) represents voluntary transport operators. The CTA has an advice service centre, which offers information and support on all aspects of non-profit transport operations. The DfT, Scottish Executive, Department for Regional Development, and the National Assembly for Wales all fund CTA advice services.

## BENEFITS

By using demand responsive transport, users will benefit from services that:

- Meet the needs of users - this is especially important in rural areas where normal public transport services can be infrequent or unavailable
- Are accessible to all
- Allow the user to negotiate departure times;
- Provide an improved quality of service
- Offer a more user-friendly door-to-door service, which may be especially important for elderly people or those with special needs.

DRTS may provide the opportunity to re-route vehicles and update itineraries in real time, which allows the service provider to:

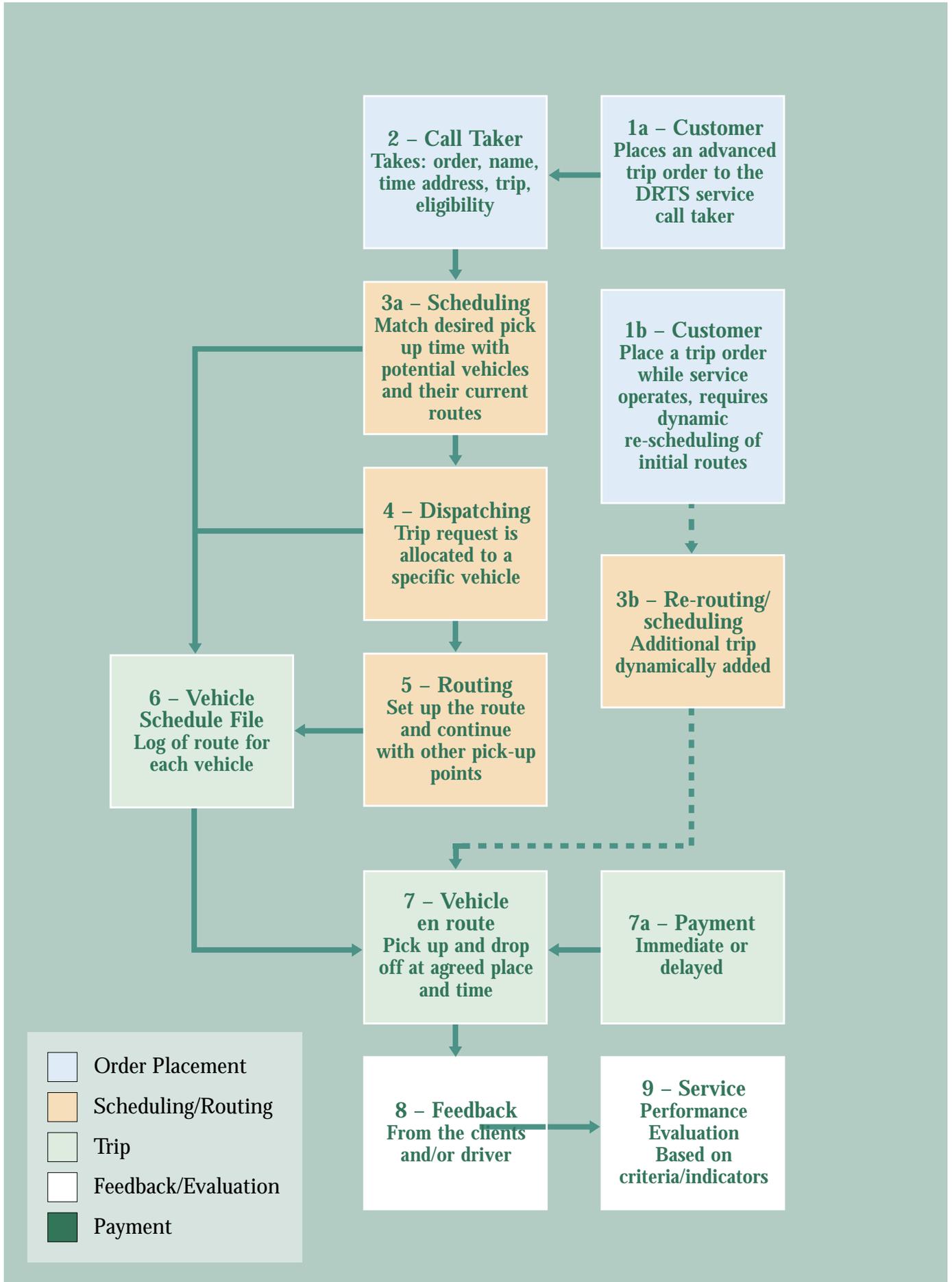
- Offer a higher quality of service
- Enhance the image of the service
- Reduce costs by effectively managing the service.

Some results of providing enhanced more flexible services are:

- Significant patronage increases on services
- Positive passenger feedback
- An increase in the proportion of rural households living within a 10 minute walk of an hourly bus service.



FIGURE 1: OVERVIEW OF DRTS FUNCTIONS ORGANISED BY A "TRAVEL DISPATCH CENTRE"



## SYSTEM DESIGN

DRTS must be flexible enough to meet the needs of all potential customers. This means that the service must be able to accept short notice bookings as well as to take advanced bookings.

In order to accept short notice bookings, the system must continuously monitor the routing and scheduling of vehicles. This problem becomes technically more complex as the number of vehicles and passengers increases. Computerised solutions have been introduced to solve these problems. DRTS for community transport become more cost effective as the size of the vehicle fleet increases.

In recent years, the functions offered by DRTS and the number of suppliers has increased. The systems offer an array of basic functions (routing, scheduling and dispatching) as well as more advanced features (automatic vehicle location using Global Positioning Satellite (GPS) technology, mapping systems, and mobile communications).

## DEMAND RESPONSIVE TRANSPORT SYSTEMS

DRTS usually employ a telephone booking system for planned and/or immediate journeys (they may include facilities for on-line booking of trips). Figure 1 highlights the basic operation and stages within a DRTS, based on the operation of a dispatch centre.

The level of operator involvement at each stage varies depending on the software used. Scheduling can be manually undertaken for small fleets, however when a significant number of vehicles are involved, computerisation is normally required.

DRTS provides “on-demand” services for the passenger. Journeys are organised via a “Travel Dispatch Centre” where booking and reservation systems dynamically assign passengers to vehicles whilst optimising routes. The vehicles use automatic vehicle location systems to provide real-time information on their status and location.

## AVAILABLE TECHNOLOGIES

DRTS providers supply all the component technologies required to develop an integrated transport solution for Community Transport.

Different DRTS providers have different solutions and offer different functions, such as:

- Remote communications
- Automatic vehicle location systems
- Digital maps on a graphical user interface
- Shared call centre facilities
- Internet site (on-line bookings)



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- Comprehensive user databases
- Automated scheduling of vehicles
- Automated routing of vehicles
- Dynamic re-scheduling (en route)
- Integrated payment mechanisms
- Multi-modal journey planning capabilities
- Instant tracking of incidents, cancellations and no-shows
- Comprehensive monitoring and reporting facilities.

A mixture of these features can be implemented to meet the needs of the community transport service.

## IMPORTANCE OF INTEGRATED SYSTEMS

It is important to consider integration on a number of levels when developing community transport services. This is where ITS can really assist in managing large numbers of vehicles and trips.

Transport operations may be integrated, with connecting bus or rail services. This is demonstrated in Lincolnshire where there are a series of ‘core’ fixed bus routes integrated with flexibly routed and on demand feeder services (see Traffic Advisory Case Study 12/03: Lincolnshire ‘Interconnect’ for further details). Similarly local authority

services may be integrated with voluntary community transport services, to create a seamless network by using, for example,

- rural bus services
- shared vehicle services
- dial-a-ride services
- taxi dispatching systems.

Integrating these services can be key to ensuring viability of a service, improving efficiency and service levels to users.

A key requirement for efficient integration between services is to have accurate public transport information. When using a combination of



PHOTO COURTESY OF LINCOLNSHIRE COUNTY COUNCIL

*Interconnect Bus*

unconventional (e.g. flexibly routed) and conventional (fixed route) transport from origin to destination, the timing of arrival of both vehicles at the transfer point is crucial. It is vital to the integrity of the service that connections are made.

Real Time Information (RTI) systems provide accurate information about arrival times at stops. Data from these systems can enhance the efficiency of DRTS by providing both drivers and the dispatch centre with the actual locations of connecting vehicles. If one vehicle is late, the other vehicle can wait until the arrival of the second, ensuring connections are not missed.

### REPORTED BENEFITS

Lincolnshire's Interconnect service, which provides feeder services from rural areas to conventional services running along fixed routes between towns has doubled ridership on the conventional services, equivalent to 180,000 passengers per year <sup>(2)</sup>.

The Wiltshire Wigglybus service carries over 3000 trips per month in areas that had very 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 <sup>(2)</sup>.

### EVALUATION

To evaluate a DRT system's efficiency, service providers, operators and users can adopt performance indicators. Please refer to the following document for examples of performance indicators:

TCRP Report 18 "A Handbook for Acquiring Demand-Responsive Transit Software" Transportation Research Board

## CONTACTS

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For further information about CT please contact the Community Transport Association, at:

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<http://www.communitytransport.com>

To find out more about the wide range of ITS-related initiatives and projects supported by the DfT, and the development of ITS policies to encourage and promote greater deployment of ITS, please contact: the Department for Transport's Transport Technology and Telematics Division at:  
[its@dft.gsi.gov.uk](mailto:its@dft.gsi.gov.uk)

## REFERENCES

(1) From Exclusion to Inclusion - Final Report of the Disability Rights Task Force 1999

(2) Government Office for the South West, London to the South West and South Wales Multi-Modal Study, Rural Access to the Main Transport Corridors, Final Report May2002 – [www.swarms.org.uk](http://www.swarms.org.uk)

Public Transport Information: "How to Get It Right - A Best Practice Guide" [http://trg1.civil.soton.ac.uk/pti/Community\\_Transport.pdf](http://trg1.civil.soton.ac.uk/pti/Community_Transport.pdf)

"The changing role of voluntary and community transport" <http://www.atco.org.uk/news/news101/tdavies.htm>

"The Bus is a Plus" Department for Transport <http://www.local-transport.dft.gov.uk/ruralbuses/>

Systems for the Advanced Management of Public Transport Operations

"Samplus – TR 4023 – A Basic System Architecture and technical Solutions for DRT" [ftp://ftp.cordis.lu/pub/telematics/docs/tap\\_transport/samplus\\_d4.1.pdf](ftp://ftp.cordis.lu/pub/telematics/docs/tap_transport/samplus_d4.1.pdf)

"Samplus - TR 4023 - Evaluation and Verification Plan"

[ftp://ftp.cordis.lu/pub/telematics/docs/tap\\_transport/samplus\\_d7.1.pdf](ftp://ftp.cordis.lu/pub/telematics/docs/tap_transport/samplus_d7.1.pdf)

DfT WEBSITE [www.dft.gov.uk](http://www.dft.gov.uk)

Details of Traffic Advisory Leaflets available on the DfT website can be accessed as follows:

From the DfT homepage, click on the Local Transport icon and then on Traffic Advisory Leaflets. Lastly, click on one of the themes to view material.

The Department for Transport sponsors a wide range of research into traffic management issues. The results published in Traffic Advisory Leaflets are applicable to England, Wales and Scotland. Attention is drawn to variations in statutory provisions or administrative practices between the countries.

The Traffic Advisory Unit (TAU) is a multi-disciplinary group working within the Department for Transport. The TAU seeks to promote the most effective traffic management and parking techniques for the benefit, safety and convenience of all road users.

Department for Transport

Scottish Executive

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e-mail: [cone@wales.gsi.gov.uk](mailto:cone@wales.gsi.gov.uk)



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