NETWORK MANAGEMENT NOTES

PUBLIC TRANSPORT PASSENGER INFORMATION

Cotgrave Connection bus in service. Photo: *Trent–Barton Buses/Nottingham County Council.*

Why is passenger information important?

The need for high quality, comprehensive and up–to–date passenger information has grown in recent years for a variety of reasons, which include:

- increasingly dispersed origins and destinations, giving rise to more complex travel patterns;
- wider range of providers and travel alternatives (modes and destinations), and thus higher demand for information: whether, when and how a particular trip can be made by public transport;
- more frequently changing service patterns, about which users and potential users must be informed and kept informed, and
- higher availability of and expectations from information provision in all walks of life.

What is required?

Public transport's role will become more important as traffic restraint becomes increasingly commonplace, for example using powers granted under the Road Traffic Reduction Act, 1997. Public transport users', especially new users', and operators' expectations and demands from public transport information will grow, to include:

- telling customers more about existing and new/proposed services and products;
- confidence building: improving and maintaining public transport's image, and
- providing comprehensive inter–operator and multi–modal information. This is especially important now there is diversity in public transport provision.

Links between urban traffic management and public transport

In most urban areas, traffic signals are controlled by SCOOT (Split Cycle Offset Optimisation Technique). Links can be created to assist buses and to improve information for passengers:

- in connection with SCOOT software, operating either in dynamic mode, (signal cycles change automatically to optimise traffic flows), or in fixed time, which requires periodic updating, to give buses priority over other traffic;
- between buses and SCOOT to facilitate re–scheduling (if necessary including inserting extra vehicles) and to avoid long gaps in services. (*Transport in the Urban Environment*, Chapter 18, Technology for network management. IHT, 1997), and
- with operational control systems to assist in the provision of real time passenger information.

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Type of Information	When required	Where required	How obtained
Routes, Scheduled times, Prices	In advance	At home, at work, or carried with you	)Printed material,)Computer: screen or printout,)Phone/mobile phone
	At time of travel	At stop, station, or terminal	)Information display)Enquiry office
	During journey	On vehicle	)Display screen,)Public address,)In person
Service confirmation, including connections and arrival times	Before setting out	Customer's present location	)Printed material)Computer screen: in real time,)Phone/mobile phone
	At time of travel	Stop/station/terminal	)Public address,)Personal enquiry,)Display screen
	During journey	In vehicle	

What information is needed, when and where?

The traveller's need for information may be stratified into the following elements:

❍ prior to departure, for trip planning: routes, service times, prices;

❍ at the time of travel: to confirm that the service is actually going to operate at the advertised time. Real time information is important, although less so where services are very frequent and where reliability (adherence to published schedules) is high.

Options for where, how and when to provide information in each category are shown above.

What is the role of Information Technology (IT)?

IT helps increase the quantity and quality of information that can be provided, (eg, computer–based maps, timetables and brochures) and makes it easier to keep information up–to–date, but does not remove the need for traditional forms of delivery:

❍ information on teletext or the internet is not a complete substitute for widely available printed maps and timetables, publicly displayed and carried in the pocket;

❍ real time information is certainly not a substitute for frequent services running reliably according to published schedules, and

❍ a well briefed and friendly official at a bus or rail station, or on vehicle, may do more to allay the concerns of a nervous traveller than an on–screen display or public address announcement.

LCD map style display fits into an infopole layout and was first used on the "Cotgrave Connection" service, a Quality Partnership initiative with Barton and Nottinghamshire CC. Photo: *Trent–Barton Buses/Nottingham County Council.*

UITP, the International Association of Public Transport, has reported the findings of its ongoing research into IT, including papers on computer–aided marketing and contactless smartcards, to its 1995 and 1997 Congresses (Public Transport International, 1996/6. UITP, Brussels, November 1996).

Timetables

Computers and IT offer the following advantages:

❍ quick up–dating, when services are changed;

❍ information for individual stops and stations can easily be extracted and printed;

❍ cheap and relatively simple–to–use desk top publishing and spreadsheet packages: even quite small organisations can produce professional–looking timetable and other information displays, and

❍ cheap colour printing: the visual impact of printed material can be enhanced and made clearer to read: eg, am and pm, or weekday and weekend services in different colours. Alternative formats, such as individual departure information for each bus stop, a matrix of a complete service, and route diagrams, are easy to produce.

The Achilles heel of public transport publicity is often not inability to produce good quality material, but failure of application:

❍ material must be correctly used and kept up–to–date, clean and free from graffiti;

❍ consistency is essential between printed, on–screen, public address and personally delivered information and announcements, and

❍ constant management effort, meticulous attention to detail and the regular deployment of human resources are needed to ensure that investment in advanced technology is not wasted.

Inter–active technology systems

These are:

❍ disc, CD–ROM, teletext and Internet. The PTI "UK Public Transport Information" web site (http://www.pti.org.uk), provided by FWT, supplies "one–stop" information for 300 linked sites and attracts 16,000 visits per month, (source: John Austin 1999). The revamped web site, currently under further development, was launched by Glenda Jackson in October 1998;

❍ data on teletext or the Internet can be continuously updated; that on disc (eg, the national rail timetable) or CD–ROM has a fixed configuration, but is accessed by computer.

At the present time the business community is the main user. A mass, home–based demand is expected to develop.

A longer term objective is inter–active real time information (eg, service alterations, punctuality and delays) available directly to customers, at low cost, where they need it.

The first "Nextbus" real time project on the Rushcliffe Line service between Nottingham, Radcliffe on Trent and Bingham. Photo: *Trent–Barton Buses/Nottingham County Council.*

Telephone hot lines

Advances in telecommunications technology are extending the range of information and making it easier to access: eg, pre–recorded "next departures" information. One–touch progression to specific information ("if you need x, press 1, if y, press 2", etc.) enables the caller to select the category of information he or she needs, eg, destination, time of travel, carrier, interchange requirements and fare options. However, one touch automatic systems can be complicated and frustrating to use. Some companies prefer customer information calls always to be answered by a human voice.

Funding and provision options for telephone information services include:

- local authority public transport information "hotlines";
- operators (eg, Xephas: National Integrated Public Transport Enquiry System, a national, premium rate telephone service from Southern Vectis, producers of the Great Britain Bus Timetable), and
- independent, commercially provided systems (the national rail passenger information line, a local rate "0345" service provided by Rail Direct). The Office of the Rail Regulator's Guidance on Licensing of Passenger Operators (1994) requires train operators to participate in arrangements relating to the operation of a travel enquiry bureau.

See also Advisory Note *On–line travel information systems/VMS signing* by Susan Harvey, published in the March 1998 issue of *H&T*.

Passenger information and "help" points:

These should be provided wherever the public is likely to find them useful, including:

- bus and railway stops and stations;
- in buildings to which the public has access: supermarkets and department stores, libraries, hospitals, public buildings, museums, large offices, etc, and
- at key points on–street.

Example: TRIPlanner in Southampton, part of the EU ROMANSE strategic transport information project, which also includes the STOPWATCH real time passenger information system.

Automatic vehicle location (AVL)

AVL requires continuously available communication between vehicles, control centres and information offices. It is used for routine and "out of course" reporting and is essential for real time information provision.

Methods of tracking include global positioning system (GPS), beacons and on–bus transponders in combination with induction loops under the road (*Transport in the Urban Environment*. Chapter 15. Information for transport users. Para.15.13 Bus passenger information).

On–vehicle telephone or radio provides a less sophisticated, low–tech alternative to fully automated vehicle location.

Real time passenger information

This is expensive to provide, but popular with public transport users.

To be effective, requires automatic vehicle location for **every** bus operating in the area covered and the provision of hard– and software to bring the information to the public at stops and stations.

The proportion of vehicles in the fleet to be fitted with computer and radio equipment exceeds the proportion of stops to be equipped in the early stages of an RTI project; eg, in

Night time exposure of illuminated shelters. Photo: *Trent–Barton Buses/Nottingham County Council.*

The LCD style display at the launch of the Calverton Connection Quality Partnership initiative with the Managing Director of Barton, Brian King and Chairman of Nottingham CC's Environment Committee, Cllr Terry Butler. Photo: *Trent–Barton Buses/Nottingham County Council.*

Southampton, 50% of the buses, compared to nine percent of the stops on the initial corridor (Fowles M and MP Higginson, ITS prospects for public transport. *Highways and Transportation*, Vol. 44, No 04, April 1997).

The same technology can also provide "next stop" and other information on–bus (Department of Transport. Better information for bus passengers: a guide to good practice. 1996).

Costs of real time passenger information

In a review of eleven schemes, Lobo (Lobo, AX, Automatic vehicle location technology: applications for buses. Unpublished PhD thesis, University College London, 1997) suggests the following representative costs:

- per bus stop equipped: £11,000. The range of alternative costs is wide, from below £8,000 to around £33,000 for a scheme involving the provision of hardware for a much larger scheme, but equipment initially of only a few stops. Some schemes, eg, London (Countdown) and Hampshire (Stopwatch) are able to cope with buses of more than one operator;
- average total for each of the trial schemes reviewed: around £300,000, within a range from £70,000 to £600,000 (excluding the large London Countdown scheme).

Financial justification for real time passenger information is based on the desire to retain and please customers in the longer term, although precise rates of return on initial investments have been less easy to ascertain. An RTI application whose commercial viability cannot be proven, may nevertheless be supported by a local authority as part of a wider and longer term programme of enhancing the attractiveness of public transport (Perrett, KE, and A Stevens. *Review of the potential benefits of road transport telematics*. TRL report 220. 1996, para.6.4).

The future

A gradual but eventually substantial increase in the use of intelligent systems to provide public transport passenger information is expected, including partnerships between bus operators and local authorities to provide hard– and software and equip vehicles.

The Department of Transport envisages that "as technology advances it is possible that services providing information will be linked to transport operators' own databases of fares and timetables thus ensuring information is always up to date" (Consultation document. *A policy for using new telematic technologies for road transport*. 1996).

The Office of Science and Technology at the Department of Trade is involved through its Transport Foresight Panel. The panel's "Informed Traveller" project "provides integrated travel information, ticketing, booking and payment facilities seamlessly across all passenger transport modes, updated in real time to reflect the actual state of services" (Technology Foresight. Transport – the future. DTI).

Previous *Network Management Notes* have appeared in *H&T*.

Real Time Traffic Information Systems by Susan Harvey was published with the March '98 issue of *H&T*.

Urban Safety Management by Chris Lines was published with the April '98 issue of *H&T*. *Camera Enforcement of Traffic Regulations* by Ken Huddart was published in the December '98 issue of *H&T*.

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