

This factsheet is part of a series on the following topics:

- demand-responsive transport,
- transport statistics,
- parking,
- shuttle buses,
- transport fares.

## Quality of public transport in medium-sized towns: **responding to user demand**



*Medium-sized towns of 20,000 to 100,000 inhabitants and their surrounding urban areas provide the living environment for around a quarter of the French population. With population densities that are generally lower than those found in large cities, medium-sized towns need to mobilise considerable resources to provide a real alternative to private car use. Many towns choose to channel their energies into developing their public transport networks. Consequently, they consider the service level offered by their transport networks as a domain where they can take action to meet demand and satisfy the needs and expectations of local inhabitants.*

### Developing a high-quality transport service

The service provided by a transport system can be expressed in terms of two broad notions: service quality and service level.

**Service quality** is defined as **the impression that users have** when they use the public transport network.

Depending on the context, quality can be perceived in different ways: users may have certain expectations regarding punctuality for journeys between home and work, but may tolerate longer waiting times for leisure-related journeys. Similarly, on a road with little traffic, providing a bus lane is superfluous and will bring little or no benefit in terms of overall average speed.

**Service level** corresponds to **the means and resources implemented** by the transport network operator: bus lanes, priority at junctions and regular-interval timetables are all measures intended to improve public transport services.

Medium-sized towns must therefore try to reconcile a number of points – service span, comfort, frequency, reliability, good connections between lines, accessibility, etc. – as the context concerned is quite different from that of large cities:

- bus frequencies are based essentially on journeys to and from work and school in the mornings and evenings, with frequencies of sometimes just one bus an hour between the two rush hours. It is often difficult to guarantee higher frequencies than this. Furthermore, less dense habitation patterns do not make for a well-connected public transport network;
- traffic often flows more freely than in large cities, which means private vehicles are competitive in terms of speed, and even in terms of costs for the user, especially as road congestion is concentrated in a few, relatively short time spans.

In view of these circumstances, medium-sized towns often choose to give priority to improving the reliability and commercial speed of their buses.

# Meeting customers' needs through transport network management

In medium-sized towns, transport systems are characterised by different types of journeys: journeys made by "captive" customers, often comprising school pupils and persons with reduced mobility (PRMs); home–work journeys; and journeys related to leisure and shopping. These characteristics bring with them certain expectations in terms of reliability, availability, practicality, comfort and safety. These expectations are all the more important when the number of routes and/or vehicles is lower.

## ► Well-connected urban areas

For an efficient public transport network, it is important that the network's various lines offer a decent coverage of the territory concerned, bearing in mind that the maximum acceptable time



necessary to reach a bus stop is around 15 minutes.

Serving the entire territory is important, but care must also be taken to ensure that all key amenities that generate journeys (supermarkets, railway stations, bus stations, etc.) are well served.

Many local authorities make provision for – or, in some cases, even demand that operators implement – automatic vehicle location (AVL) systems. These help ensure the smooth running of the network, in particular by highlighting "black spots" that systematically affect bus journeys.



## ► Adapted frequencies and timetables

For users, reliable timetables and journey times on a day-to-day basis is a key factor in determining modal choice, as journey time is the one element that public transport users have no control over.

Improving reliability at each bus stop – either by respecting the published timetables or, for lines with higher frequencies, by ensuring there is a constant, regular interval between buses – enables users to manage their journey time and transport connections more effectively.

## ► Rapid journeys

With public transport, one of the key aims is always to reduce journey time – considered unproductive – as far as possible. For both the operator and the user, speed is therefore of the essence: for operators, the goal is to ensure good commercial speeds; for users, in particular, the aim is to have a public transport service that compares well with car travel. This is a complex challenge for public transport, as vehicles are obliged to stop every 300 to 400 metres to set down and/or pick up passengers.

Furthermore, in order to serve the greatest possible population and area, public transport must provide useful connections, without penalising users by inflicting long waiting times.



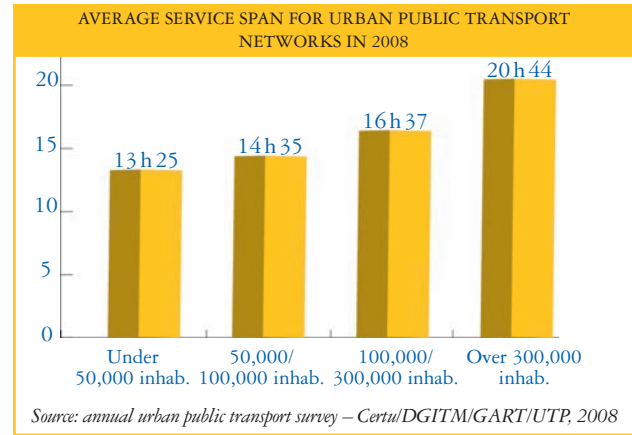
► **Maintaining an acceptable transport offer even with lower demand**

For many people, car use is a reflex: "Whatever the time of day, week or year, it is always possible to make the same journey in more or less the same conditions." A high-quality public transport service must strive to meet this same expectation wherever possible.

In medium-sized towns, public transport should try to take account of the rhythms of daily life; however, major differences in frequency between peak and off-peak times, daytime and the evening, weekdays and weekends, or term-time and school holidays are to be avoided. Additionally, it may sometimes be appropriate to provide demand-responsive transport services, using vehicles with fewer than 9 seats, in order to respond to more specific needs.

► **Service spans that are compatible with lifestyles**

Public transport must meet users' needs as closely as possible; however, not all users' needs fall between 7.30 a.m. and 7.30 p.m. The service span of urban public transport networks tends to increase with the size of the urban area served.



## From objectives to actions

There are a great many actions that can have an impact on public transport service quality. These actions may be introduced at the planning stage, or alternatively when contracts are negotiated with transport operators. Traffic flow plans are one of the tools that enable public transport to develop, as they can include a raft of technical or regulatory measures that aim to improve bus flow conditions.

► **Sharing road space to favour public transport**



Contraflow bus lanes can be used by taxis

The way in which road space is structured can reveal a lot about local political will. Depending on budgetary restraints and the characteristics of the transport network in question, local authorities in medium-sized urban areas have a number of options to choose from:

- dedicated lanes, for the exclusive use of specific public transport vehicles;
- shared lanes, which are open to public transport vehicles and one or more additional user categories, such as taxis, cyclists or delivery vehicles;
- non-reserved lanes, which are open to all types of vehicle. If these lanes are to be effective, they must be designed in conjunction with a traffic flow plan and strategies for managing deliveries and parking.

The presence of reserved lanes offers at least three advantages for public transport:

- increased reliability in terms of journey times (fewer uncertainties due to traffic jams, illegal parking, etc.);
- higher speeds for vehicles, therefore enabling a greater number of runs per day;
- greater comfort and safety.

Furthermore, reserved lanes reinforce the place of public transport in towns, and limit the amount of road space available to cars by removing a lane of traffic or parking spaces.

## ► Priority at junctions

Road junctions are spaces characterised by exchanges, encounters and occasionally even conflicts; they are also key structural elements of the road network. They play a vital role in terms of traffic flow and the smooth functioning of the road system overall. Priority at traffic lights allows buses to negotiate junctions ahead of car traffic; this is essential for dedicated lanes. In unreserved lanes – combined where necessary with approach lanes – priority at traffic lights can allow buses to move to the

## ► Optimising bus stops

A range of essential facilities have to be accessible to public transport users throughout their journey, such as bus shelters, waiting areas, access ramps, ticket machines and timetable information.

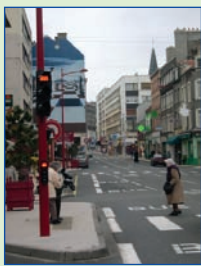
Attention may also be paid to certain aspects of bus stop design: ideally, they should be flush with the road, and not in lay-bys; this helps reinforce the priority accorded to public transport and makes docking easier.

head of a line of traffic on a given route, and thus get a headstart.

Priority at traffic lights can be implemented in a number of ways: it can be triggered by GPS, by a detection loop in the road, or by a remote control operated by the driver. The outcomes sought through priority at junctions are important both from an operational viewpoint and in terms of attractiveness, by ensuring regularity, user comfort and improved commercial speeds.

The choice of ticketing system also plays a key role, and should be carefully considered. Being able to purchase tickets at bus stops before boarding means that buses can depart from stops more rapidly. This reduction in dwell time will in turn lead to improvements in commercial speed and reliability levels. Of course, off-board ticket machines are expensive; however, it is perfectly possible to install them at only the busiest stops, where on-board fare collection represents a significant source of wasted time.

### BOULOGNE-SUR-MER



Bus lanes have been created at the exit of the Place de France bus station; furthermore, buses have priority at traffic lights.



Here, buses can travel along a pedestrianised street that is protected by automatic bollards that lower to allow buses through.

### LORIENT: this bus stop is flush with road



The central reservation makes crossing the road safer for pedestrians, and enables buses to stay ahead of other traffic by preventing overtaking when stationary at stops.

## ► High-performance rolling stock and facilities

Generally, local authorities choose their fleet of urban public transport vehicles according to their service requirements: standard buses, articulated buses, midi-buses, minibuses and even trolleybuses are all options to be considered, each with its own advantages and disadvantages regarding energy efficiency and resistance to ageing.

The use of recent rolling stock enables transport networks to benefit from the latest advances in terms of comfort (e.g. air conditioning, soundproofing, double glazing), safety and PRM accessibility; from an environmental viewpoint, recent rolling stock also means reduced particle and CO<sub>2</sub> emissions.

All these technical improvements can be combined with smoother, more flexible driving, by minimising sudden braking and tight bends.

The quality of a public transport service is also judged on the how accessible vehicles are; in France, minimum standards in this regard, laid down by the law on equal rights and opportunities, participation and citizenship of

disabled people, of 11 February 2005, will apply from 2015. A number of tools for greater accessibility are available:

- low floors;
- retractable ramps;
- "kneeling" systems;
- dedicated spaces for WCUs (wheelchair users);
- audible and visual announcements;
- adapted platform shapes and kerbstones.

*Recent rolling stock: technology can be used to facilitate access for persons with reduced mobility*



However, the law makes one thing clear: the presence of accessible vehicles alone is not enough to make a public transport network accessible. Indeed, the law talks about the "accessible transport chain", which covers all spaces encountered during travel, access to public transport, and the layout of stops and stations.

## ► Timetables easily to remember

In medium-sized towns, public transport networks are very often structured around school hours, as school pupils make up the greatest proportion of their clientele. However, action can be taken to make timetables clearer and easier to remember for users. To this end, timetables based on regular intervals may be proposed.

This involves creating timetables where the interval between vehicles is always the same – generally a period that divides nearly into an hour (e.g. 5, 10, 12, 15, 30 or 60 minutes).

This means that, from one hour to the next, the public transport vehicle will always stop at the same minutes past the hour. Service levels can be reinforced at peak times, while still respecting the same principle (e.g. with intervals reduced from 20 minutes to 10 minutes). Regular-interval timetables have a significant number of advantages for users: they are easy to remember; they reinforce users' impressions of high service frequency; and they make for transport lines that are clear and simple to

understand. For the operator, however, a great deal of hard work and discipline is required in order to respect these timetables.

Finally, it should be noted that where very high frequencies (intervals of 10 minutes and less) are in place, regular-interval timetabling is slightly less beneficial, as users will tend to turn up at the bus stop without checking the timetable first, as they know that they will not have to wait long.



In medium-sized towns, the highest frequency observed on a single bus line (ignoring cases where multiple lines share a common trunk section) is generally one bus every 15 minutes at peak times.



### LOUVIERS: MAKING TIMETABLES EASIER TO REMEMBER

The four main lines of the transport network in the Seine–Eure urban area (covering the towns of Louviers and Val-de-Reuil; approximately 65,000 inhabitants) follow a regular-interval timetable throughout the day from 6.30 a.m. to 8.00 p.m., meaning buses always serve stops at the same minutes past the hour. Different colours have been assigned to different lines: blue for buses serving the town centre, red for buses serving the railway station, yellow for school services, and green for buses serving outlying or low-density areas.

## Service quality: a contractual commitment

The quality requirements sought by public transport authorities become a reality when contracts with operators are negotiated.

Some transport authorities even introduce "bonus/malus" schemes, whereby part of the operator's remuneration is dependent on quality-related results. In general, the amount of this bonus (or "malus" in the case of a penalty) is limited annually. Increasingly, service quality is becoming a key factor in differentiating between tenders.

Contractual commitments may take different forms, depending on whether the local authority wants the operator to adopt a progress-based approach, also known as a quality approach, or an approach that involves the certification of transport lines.

Certification is a quality procedure that involves a certifying body evaluating whether the transport service offered complies with a particular reference standard. These reference standards may be adapted for different modes of transport: for example, reference standard NF 286 is for buses, while reference standard NF 371 is for demand-responsive transport.

### QUALITY AND CERTIFICATION: WIN-WIN APPROACHES

#### For the transport authority

- Certification covers all the different elements that make up service quality (with specific measures for everything from ticket offices to network management).
- It is a guarantee of the professionalism of the transport operator, which must achieve – and, above all, maintain – a certain quality level, and which must therefore be reactive when faced with any sort of dysfunction.

#### For the transport operator

- It can constitute an internal management tool for mobilising all personnel in a company-wide project.

#### For users

- Users benefit from performance-related commitments.
- Through tripartite committees, certification allows users to make themselves heard, and therefore participate in the service quality policy established by the transport operator.

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In all cases, the aims are the same:

- to get as close as possible to achieving the "customer's vision" of the transport service;
- to evaluate the different elements that make up service quality (information, reliability, the welcome received, services on offer, accessibility, customer care, comfort/capacity, safety/security/fraud).

Standard EN 13816, concerning service quality, can also be applied in conjunction with other standards, such as ISO 9001, which includes requirements for process management, or ISO 14000, which deals with environmental management systems, i.e. what companies do to reduce the harmful effects of their activities on the environment.



## Using all available tools to enhance service quality

The quality of public transport on offer is a concern for both transport operators and elected representatives, who must respond to users' requirements; however, it is also a key element of debates on energy management and sustainable development. Energy management involves using the best technologies available to encourage the development of public transport and reduce private car use, which consumes a great deal of non-renewable energy (oil) and emits many different forms of pollution (greenhouse gases, particles, noise).

The quality of transport on offer is at the very heart of transversal thinking that brings together:

- highly innovative technological prospects, with vehicle fleets that are sometimes quite old;
- analyses of the substitution potential of different transport modes, and considerations regarding changing lifestyles and user mobility;
- an economic rationale that seeks to ensure that every euro invested results in as much CO<sub>2</sub> avoidance as possible.

In order to generate a modal shift to public transport, an attractive network is, of course, essential; however, there also need to be constraints on car use, in terms of both traffic flow and parking. Similarly, it is also important to develop other modes as alternatives to single-occupancy car use (such as cycling, walking or carpooling), and encourage intermodality by integrating these modes into an overarching vision for urban transport.

### SUSTAINABLE ENVIRONMENT OBJECTIVES FOR 2020 IN EUROPEAN UNION

- a 20% reduction in greenhouse-gas emissions;
- a 20% drop in energy consumption;
- renewable energies that represent 20% of energy consumption.

Website: [www.legrenelle-environnement.fr](http://www.legrenelle-environnement.fr)

### For more information:

- *Voiriel/Urbanisme : le profil en travers outil du partage* ("Variable cross-sections: a tool for sharing urban roads") – Certu – First half of 2009
- *Agir contre l'effet de serre, la pollution de l'air et le bruit dans les plans de déplacements urbains* and *Approches et méthodes* – Certu – November 2008 (available for download from [www.certu.fr](http://www.certu.fr))
- *Chaussées bus : choix des matériaux et dimensionnement structurel* ("Bus lanes: choice of materials and structural dimensioning") – Certu – January 2007.
- *Les déplacements en villes moyennes : quelle place pour les transports publics* ("Transport in medium-sized towns: what is the role of public transport?") – Certu/CNEPT/FMVM – 2007
- *Bus à Haut Niveau de Service: concept et recommandations* ("Buses with a high level of service: concept and recommendations") – Certu – October 2005
- *Mieux se déplacer dans les villes moyennes* ("Better mobility in medium sized towns") – Certu – September 2003
- *Les modes de transports collectifs urbains : éléments de choix par une approche globale des systèmes* ("Modes of urban public transport: choice elements for a global approach to systems") – Certu – May 2004
- *Les systèmes d'aide à l'exploitation et à l'information des transports publics urbains de surface : évolutions et perspectives* ("Vehicle location and passenger information systems used by urban surface public transport") – Certu – April 2003
- *Transport public de voyageurs – qualité de service : la norme NF EN 13816* – AFNOR – 2002
- *Guide d'aménagement de voirie pour les transports collectifs* ("Guide to road layouts for public transport") – Certu – 2000