Mediate – Methodology for Describing the Accessibility of Transport in Europe

Good practice guide
## Executive summary

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Good practice in the field of transport accessibility is an evolving concept. There is no easy or universal definition of what constitutes good practice. It will depend on the starting point of the city in question and on the economic and cultural traditions of that city, region or country.

In choosing examples to include in this guide, it is important to recognise that simple low cost schemes can be as valuable as expensive and sophisticated ones. The most important step towards accessibility is the first one which shows commitment and understanding on the part of the city authorities and/or transport operators.

However, there are some fundamental and non-negotiable principles that underpin the schemes and projects that have been included. They must:

- Include engagement with disabled and older people at every stage
- Start from a social or functional model of disability and not from a medical model (in other words addressing the barriers that poorly designed systems or infrastructure create)
- Respect the rights of disabled and older people to be treated with dignity
- Have as a goal, if not a current reality, fully independent mobility that enables disabled and older people to travel without the support or intervention of others

Taking these criteria as a starting point, examples have been selected that illustrate a range of initiatives, including specific schemes or projects targeted at improvements such as pedestrian infrastructure or training.
Others focus on the policy or strategy of the authority, enabling them to create a climate where accessibility becomes an integral part of transport planning and provision.

Some examples involve significant investment and a substantial continuing cost. In most cases these are improvements that benefit everyone and are supported as part of a city’s policy to provide accessible public transport. Other initiatives are much lower cost, sometimes one-off improvements that serve a particular clearly defined purpose. Both can provide value but, in general terms, the more that access improvements can be integrated into the design and operation of services, the more they benefit all public transport users, the less costly and the more effective they are likely to be.

The examples that have been included are not an exhaustive list but they are representative of a cross-section of cities of different sizes with different levels of development and investment, and different levels of evolution in their policies and practices on accessibility. The guide can be used as a source of ideas and of contacts to develop and explore. It is unlikely that any of the examples could simply be lifted and replicated in a different environment, but the processes that have been followed in the planning and implementation of schemes may contain useful tips and examples that can be followed or adapted.
1. Background to Mediate project

Mediate (METHodology for Describing the Accessibility of Transport in Europe) is a two-year project supported by the European Commission under the seventh Framework Programme.

The impetus for the project comes from the demographic trends common to those in Europe. The population is ageing, and already one in every ten European citizens is aged 60 or over. There is a close correlation between age and disability. More than half the population of older people live in urban areas, so it is becoming increasingly important for urban transport systems to be accessible.

The overall objective of Mediate (www.mediate-project.eu) is to contribute to the development of inclusive urban transport systems with better access for all citizens. The Mediate project objective is to develop a common methodology for measuring accessibility to transport including accessibility indicators for urban public transport, a self-assessment tool, a good practice guide, a web-portal on public transport accessibility (www.aptie.eu/) and a sustained European end-user platform.

The partners of the Mediate consortium are:

- SINTEF (project coordinator) – Norway
- Promotion of Operational Links with Integrated Services (POLIS) – Belgium
- The European Older People’s Platform (AGE) – Belgium
- Transport & Travel Research Ltd (TTR) – United Kingdom
- Transport for London (TfL) – United Kingdom
- IMOB Transportation Research Institute, Hasselt University – Belgium
- TIS.pt – Portugal
- TIMENCO – Belgium
2. Purpose of the good practice guide

This guide is intended as a tool to help authorities and transport operators plan and implement accessibility improvements.

It has been produced with input from cities all over Europe and covers a wide spectrum of examples of different types of initiatives. The common thread running through all of them is that they are making a real, practical difference to the daily lives of disabled and older people.

The guide includes examples of a range of different initiatives that can be used in isolation and also as part of a larger review of initiatives to create a barrier-free city.

The cities and areas quoted in the guide are from 15 different countries and from a number of different regions of Europe. They demonstrate a wide range of transport infrastructures, cultures and economic situations. They include both major capital cities and small regional towns.

The intention is to provide examples where many other European cities can find some common ground, and identify issues and approaches that may be of benefit.

3. Defining good practice

In recent years there have been a number of projects with a remit of identifying examples of good or best practice. This is not as easy as it sounds. What is ideal for one person or group of people with disabilities may be impossible for another person or group. Accessibility can be very subjective. It is also evident that many schemes or initiatives have some good features but also some shortcomings in how they have been set up or how they operate.

It is clear that good practice can also be a subjective concept. What is perceived as good practice in one country may be regarded in another as outdated or even discriminatory. Some countries
have been committed politically and economically to the improvement of accessibility for more than 25 years, while for others it is still hardly recognised as a relevant issue.

Another problem is that very few schemes or initiatives have been independently evaluated. There are many subjective assessments of schemes that are perceived to be successful but there are very few, clear analyses of costs and benefits.

Schemes that are for the benefit of disabled people are often justified on social grounds as much as on economic ones. Nonetheless, a sustainable scheme should have a firm economic foundation. Quite a number of schemes that have been deemed to be successful in terms of delivering benefits to disabled people have subsequently failed because funding was withdrawn after a pilot phase.

There are also, of course, many intangible benefits such as increasing the confidence of disabled people to travel independently. These benefits may, in turn, reduce dependence on family or other support networks and may enable people to return to the labour market or broaden their personal horizons in other ways.

This project aims to take a robust approach to identifying and verifying what good practice is. The methodology used is set out below. However, it is important to recognise that even using this approach there will be subjective elements in the self-assessment process that cities have used and that not all aspects of every scheme will be universally endorsed as good practice.

Nonetheless, the information contained in this guide will provide a useful and practical starting point for cities all over Europe which are working to improve the accessibility of their public transport and its infrastructure.

4. Methodology used to produce the guide

The cities that have contributed examples to this guide were asked to describe their scheme or project; who it was intended to help; how disabled
and older people had been involved both in developing the scheme and in monitoring it, and how secure the scheme was in terms of funding.

Cities were also asked to consider the approach they had taken to implementing the scheme using the Total Quality Management (TQM) cycle. This involves a continuous cycle of planning, actions and evaluation to enable policy to be reviewed and refined so that the best results can be achieved. This approach can be particularly helpful in this field where there is often little experience of what works best for people who may have had little opportunity to access public transport in the past. Using this approach will help to ensure that initiatives are reviewed and improved on a continuous basis.

As there are examples of good practice that are still evolving, projects and initiatives have been included under the following four stages of development:

- **Ad-hoc approach**: A project or development which has been introduced in response to a particular local need or initiative, but which is not yet fully evaluated (for example a one-off initiative in response to a specific complaint or problem)

- **Isolated approach**: A project or development specifically intended to meet the needs of disabled and older people, but which is not yet embedded as part of the transport system (for example an initiative that is self-contained and does not link with other parts of the public transport system or other policy areas)

- **Systematic approach**: A project or development which has been planned and is being evaluated on a regular basis to ensure feedback from all stakeholders (for example an initiative which has been developed as part of a wider policy and in which end users have been involved from an early stage)

- **Integrated approach**: A project or development which has been fully integrated into the public transport network and for which a routine and ongoing cycle of monitoring and evaluation is in place
In most cases, the cities themselves have identified the development stage that they believe best represents the scheme they are describing. Where they have not done so, an assessment has been made based on the description of the process. The assessment has been done on an informal and subjective basis for illustrative purposes only and has not been subject to scrutiny by stakeholders.

A more formalised Self Assessment tool has been developed by the Mediate project. The purpose of the tool is to enable local authorities to undertake a structured review of the progress they are making towards full accessibility and to identify gaps and weaknesses that need to be addressed. More details can be found on the Mediate website at http://www.mediate-project.eu/.

5. The scope

The schemes and projects described in this guide cover a wide range of different kinds of initiative. Cities were asked to identify initiatives under one of the nine headings which Mediate felt covered the spectrum of access improvements.

The categories are:

- Leadership and vision
- Organisational and policy initiatives
- Staff training
- Travel training for passengers
- Passenger feedback and monitoring systems
- Information and communication systems (including journey planning)
- Level access through the transport system
- Improvements to infrastructure and the pedestrian environment
- Ticketing systems

Although cities were asked to select one category that best covered the scheme they were describing, several identified more than one category and some indicated that their scheme included elements of all the categories. In these cases, the scheme has been allocated to the category which seemed to be the most important but other elements that are also present have been indicated.
1. Leadership and vision

This category looks at examples of strategic initiatives which have come from senior people within organisations and have created a climate within which accessibility improvements can flourish.

In order to deliver sustainable improvements in accessibility, it is vital to have the right culture within an organisation. This means that someone in a senior position within the organisation sees it as a clear priority and is willing to promote it in terms of policy and funding.

There are four examples under this heading. The first is from Berlin, which has been described by some disabled people as Europe’s most accessible city. The second example is from Merseyside, an area in the North West of England including the city of Liverpool. The third example comes from the region of Copenhagen and Frederiksberg in Denmark. The fourth example comes from Göteborg in Sweden.

The four examples are very different but each illustrates a commitment from senior levels in the city to achieve accessibility in a way that goes beyond basic legal requirements and shows real vision and commitment to delivering independent mobility.

A number of other examples in this guide also show clear evidence of leadership and vision. These include Stockholm (8.2) and Helsinki (2.1), Nürnberg (2.4) and Vienna (2.2).

1.1 Berlin, Germany

Population more than 3.5 million

Creating a Berlin without barriers

Since 1992 Berlin has been pursuing a goal to create a barrier-free city. The Public Transport Company of Berlin, Berliner Verkehrsbetriebe (BVG), the Suburban Rail Company (S-Bahn Berlin GmbH) and the Public Transport Association of Berlin, Verkehrsverbund Berlin/Brandenburg (VBB), as well as other organisations involved, are keen to provide barrier-free access to all public transport modes, including taxis for all disabled people. This is an ongoing commitment.
Guidelines for the further development of Berlin as a barrier-free city were published in September 1992. Those guidelines set out a requirement that all stations, vehicles and equipment should be designed and constructed to be useable by disabled people without external assistance.

The guidelines aimed to provide a guarantee that disabled people could use public transport modes throughout the area. Improvements have been introduced on an incremental basis with full user involvement at all stages. For example, there have been field trials with wheelchair users to assess the relative merits of powered and manual ramps for suburban trains.

At the start, the transport planning process was more oriented toward integration. But the focus now is on inclusion (e.g. independent mobility instead of door-to-door services). The aim of this strategy is to meet the needs of large numbers of people including older people and children, as well as disabled people through a design for all approach.

Berlin has nine underground lines, 15 suburban rail lines, 149 bus routes and 23 tram routes. Today, one hundred per cent of buses are wheelchair accessible and around 40 per cent of trams (with a target of 100 per cent accessibility by 2018). The new Flexity Berlin trams have good levels of accessibility. All suburban train stations are accessible. In addition 57 per cent of suburban stations and underground stations have guidance systems for visually impaired people.

Seventy-nine underground stations and 107 suburban rail stations are equipped with lifts or ramps.

BVG also runs a training programme for disabled people on how to use public transport, called Mobilitätstraining.

The Mobidat website gives online or telephone information on a wide range of access features and facilities in Berlin including public transport. The quality and accuracy of this website is assured by a staff of 100 employees who gather the data by visiting the sites and facilities in the city of Berlin. They also have discussions with the owners.
of the facilities about the need for access improvements.

Facilities offered on the website include real-time information on, for example, problems with lifts at underground stations to help wheelchair users and others plan their journeys with confidence. This information can also be sent direct to a user’s mobile phone by text message. The same system can provide information en route about service disruption or delay.

The aim of creating a Berlin without barriers is central to all policy making and quality management.

This initiative is assessed by the City as demonstrating an integrated approach to quality management.

**Evaluation and results**

No formal quantitative data is available but there is strong anecdotal evidence of a growing number of disabled people using the public transport system.

There are no specific measures of success. The philosophy is that access improvements are good for everyone and do not need to be justified specifically on the basis of increased numbers of disabled passengers.

**Funding**

The costs of accessibility are met by the BVG, supported by the Government of Berlin.

**Further information**

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**1.2 Merseyside, UK**

**Population 1.4 million**

**Commitment to pushing boundaries of accessibility**

The example of leadership and vision described here comes from Merseytravel, the passenger transport authority for the Merseyside area. It is about making the financial commitment to provide cutting edge facilities to demonstrate the benefits
of pushing the boundaries and raising access standards. This is seen as part of a commitment to be a world class organisation in the delivery of accessible transport. Merseytravel also has a universal accessibility philosophy, which is a key concept in building design.

The key objectives are to increase the number of disabled people able to use public transport and to enable people with complex toileting or changing needs (for example with incontinence) to be able to travel with confidence and to enjoy the city. Providing facilities of this kind enables more people to participate in the economic and social life of the area.

The specific scheme described is a disabled person’s adult changing facility at the New Pier Head Ferry Terminal in Liverpool. The changing place is a dedicated room within the public area of the ferry terminal building. The facilities include specialist equipment to support the complex needs of adults with incontinence and other conditions that necessitate changing clothes.

The terminal itself is an interchange hub, linking the waterfront to other transport networks in and out of the city. The building also includes restaurants and visitor attractions.

The scope and definition for the project came from a variety of sources including Merseytravel’s own code of practice on accessibility, national guidelines on accessible design and input from specialist access officers in Merseyside.

Disabled people were involved throughout the design and build process including site visits and meetings.

Responsibility for the project rests with Mersey Ferries – a publicly funded body.

The development has been in place for nine months and it is a permanent part of a new ferry terminal.

The project is described as creative and innovative but ad hoc in terms of quality management. The redevelopment of the ferry terminal and the funding package available provided a unique opportunity to go beyond what a
standard accessible toilet facility can provide.

**Evaluation and results**
Qualitative evidence of the value of the scheme is gathered through customer satisfaction surveys and complaint forms, available to customers using the ferry terminal services and facilities.

The main quantitative measure is growing visitor numbers to the ferry terminal and growing feedback on the use of, and satisfaction with, the changing place facility.

There is evidence of increasing numbers of disabled and older people seeking to be included in mainstream activities and opportunities. The demographic trends show a rise in the number of older people in the population is also a factor.

The success criterion is evidence that the facility is used and is meeting the needs of a particular group of people and their families.

**Funding**
The equipment costs for the specific changing room facility, over and above traditional accessible toilet provision were €15,000. The ongoing costs will be met through the revenue budget allocation.

The funding for the overall ferry terminal construction came from a range of sources including Merseytravel’s own funding, the European Regional Development Fund and the Mersey Waterfront Partnership.

**Further information**
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### 1.3 Copenhagen, Denmark

**Population 1.4 million**

**Industrial design process to deliver accessibility**
The example given is about the Copenhagen Metro. In particular it describes the process carried out before tendering for a new Metro system. It examines how the lessons
learned from the operation of Metro lines M1 and M2, which have been in service since 2002, have been built into the development of the specifications for the new system (Cityringen) lines M3 and M4 using the design for all philosophy.

The key objective is to create a fully inclusive, yet efficient Metro system. The inclusive design approach is regarded as beneficial to this outcome. The project came from a political initiative based on a legal requirement for accessibility and was linked to the development of a new city district – Ørestaden.

The Metro is designed to be used by everyone. The guiding philosophy is that disabled people should be able to travel with as little assistance as possible. The Cityringen will have a special dedicated team to ensure that accessibility is integral to the project.

An industrial design process was introduced alongside the technical specification requirements using special mock-ups and high-levels of engagement with user groups.

The scheme is the responsibility of the operator (a commercial company) supervised by the terms of the contract together with the employer (Metroselskabet), which represents the owners (the Danish state and the two cities of Copenhagen and Frederiksberg).

The M1 line started operation in 2002. The process of accessibility testing started back in 1994/95. The work to ensure maximum accessibility of the new Cityringen system started in 2008 and will continue throughout the procurement and design phases. The new system will come into service in 2018.

The specification for the new Cityringen contains (in addition to all the lessons learned from the existing Metro) detailed requirements for an early industrial design process carried through by the supplier and controlled by the employer during the acceptance process of the system. The process
includes preparation of scale 1:1 mock-ups for use in tests and workshops with all types of passenger groups. The feedback from these sessions will be included in the supplier’s documentation for the final construction of the system.

The process has been described (through informal self assessment) as both a systematic and integrated approach to quality management.

**Evaluation and results**

User satisfaction data is collected and published on a regular basis. There has been very positive feedback from disability groups on the existing Metro and on the commitment to include lessons learned from six years of service in the plans for the new system.

Particular points for improvement include the use of colour contrast to assist people with low vision, the availability of support etc for standing passengers and an improved information system.

Passenger characteristic analysis is carried out regularly. The number of older and disabled passengers has increased slowly, in part because the system is limited and still quite new, and in part because older people remain reluctant to use the system. These lessons have been built into the design of the Cityringen system.

There is also evidence that the Metro system has given many disabled people the freedom to use public transport rather than special services, although there can still be problems at peak times. These problems will be addressed by ensuring better flow conditions in the Cityringen system.

The key performance indicator is satisfaction levels from passenger feedback.

The success criteria will be the number of passengers using the system and positive feedback from passengers and staff.

**Funding**

Funding is an integral part of the Metro development in Copenhagen and separate figures for accessibility are not available.
Further information
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1.4 The KOLLA project, Göteborg, Sweden
Population 500,000

A comprehensive vision of accessibility
Project KOLLA – Public Transport for All is a comprehensive set of initiatives in Göteborg. Elements of the project include: modified public transport stops and accessible pedestrian routes to the stops, flexible transport services (Flex Lines) in all parts of the city, staff-training, free travel training for disabled people, personal assistance to make transfers, new IT-programmes, information and marketing.

The key objectives are to increase travel by regular public transport and Flex Lines, and to reduce travel by STS (door-to-door) buses and taxis by more than 50 per cent. The aim is for:

• Ninety-eight per cent of people in Göteborg to be able to travel by public transport
• More accessible public transport for everyone in Göteborg
• The boundary between STS, for example, demand-responsive transport and public transport to be eliminated

The KOLLA project started in the autumn of 2004 with a vision to remove the boundary between STS and ordinary public transport.

The project was planned by a group of people from different organisations including the public transport authority, the STS provider and researchers.

Disabled and older people were very closely involved in implementing the project. The authorities meet with the users’ committees between four to six times a year.

The project ends in 2010. From then on the intention is to form a
cooperative group of STS, the Traffic Office and Public Transport Authority in the city, Västtrafik (regional PTA) and the regional part of the Swedish Road Administration. This group will manage delivery of KOLLA and focus on ensuring that decisions taken in the city are compatible with the goal of accessibility for all citizens.

The most important continuing issues are likely to be adaptation of stops and pedestrian routes to stops, driver training, vehicles, payment systems, the development of Flex Lines and information and travel training.

The impetus for the project was partly the Swedish law that requires public transport and public buildings to be accessible to disabled people by 2010 and partly the need to cut the rising costs of STS.

All buses are low-floor and more than 60 per cent of the trams are low-floor.

The project is coordinated by Special Transport Service (STS), in cooperation with Trafikkontoret, the traffic and public transport authority in the city, and Västtrafik, the regional public transport authority.

The project managers say that they have followed a systematic approach to quality management.

**Evaluation and results**

Västtrafik constantly measures how satisfied travellers are with public transport. Currently satisfaction levels are at 60 per cent. When Västtrafik measures what travellers think about their latest journey the current satisfaction levels are at 83 per cent.

Researchers have also carried out a service user review on public transport. Ten people who have STS but also use public transport wrote a diary for 14 days covering every journey they made on public transport. This enabled the authority to identify where the problems are for this group and make plans on how to solve them.

STS provided 700,000 trips in 2005 and the goal was to reduce the number to 225,000 by the end of 2010. It soon became apparent that this was over optimistic because of
the time taken to introduce low-floor trams and to persuade STS users to change their travel habits. In 2009 there were 578,000 STS trips compared with the 355,000 trips forecast. The revised trip forecast for 2010 is now 532,000. Looking ahead, it is thought that by 2015, STS trips will be around 400,000.

Since 2008, people over 65 travel free off-peak on public transport. Västtrafik found that after a year older people were making twice as many trips as they had before.

Twenty-five per cent of people eligible for STS have increased their use of public transport as a result of the KOLLA initiative and all the work to make Göteborg more accessible.

In the period from 2004-2009, travel with STS has decreased by 19 per cent. Studies show that people are travelling instead by Flex Lines, public transport or with relatives.

Success is measured by the changing travel patterns of disabled people in the city. STS passengers now increasingly travel by bus and tram. During 2009, the number of STS trips decreased by 138,000 compared with 2004, a reduction of 19 per cent. The number of trips on the Flex Lines by STS passengers increased to 44,000 over the same period of time.

Funding
Funding comes from STS and the city of Göteborg.

Total costs of the KOLLA project are €46m; improvements to stops and pedestrian access are €31m.

Further information
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2. Organisational and policy initiatives
This section contains six examples of initiatives where organisations have
used policy to change direction or promote accessibility more effectively.

The examples include two capital cities: Helsinki and Vienna. There are also three smaller but important cities: Salzburg in Austria, Nürnberg in Germany and the Greater Stuttgart region in Germany.

Having the right level of commitment and focus, and the right policies in place is fundamental to delivering access improvements. Too often in a city or other administration, there are only a handful of people, or perhaps only one, trying to drive forward the accessibility agenda. The examples given here include some specific initiatives to raise the profile of accessibility (Helsinki) or to address a specific issue (Salzburg). The Vienna and Nürnberg examples describe a long-standing commitment to accessibility which is now embedded in all the planning and delivery processes. The Stuttgart example focuses on a specific project looking at the purchase of accessible rolling stock for the region’s suburban trains.

A number of the schemes described under other headings also have interesting aspects to the way that they have developed policy in this area. See Stockholm (8.2) and Helsingborg (8.4).

2.1 Helsinki, Finland

**Population 550,000**

“Helsinki for All” project

The Helsinki for All project is a cooperative venture established by the Helsinki City Board in 2002 and headed by the Public Works Department. Representatives of city offices, associations of disabled and older people, residents’ associations, government, property owners, commercial and other organisations are all participating in the project.

The key objectives are to enable more disabled and older people to move about independently and safely in public areas, public buildings and on public transport, and to make accessibility an integral part of daily planning and decision making in the city.
The project started in January 2002 and will run for 10 years to the end of December 2011. The goal is that after the end of the project, accessibility will continue as a fully integrated part of the public transport network and the city’s streets and pavements.

The project has already solved many of the problems that were identified at the start. These include development of:

- A new type of dropped kerb which works both for wheelchair users and for visually impaired people
- Guidance and warning surfaces for visually impaired people that are robust enough to withstand the Finnish winter climate
- New tactile maps for visually impaired people

A clear process has been established to identify and deliver access improvements. It starts with the city of Helsinki’s accessibility plan, which sets out the principles of accessibility and sets objectives for practical work. Regional accessibility plans then focus on the key issues and define what needs to be done to implement change. The city’s offices and institutions implement the plans.

The Helsinki for all project coordinates work both in terms of actions taken and of timetables.

There are regular meetings with disabled and older people. This includes testing new products and giving feedback on all ideas. The regional accessibility plans have been drawn up with full involvement of disabled and older people. Walking tours with different user groups have been organised to study the issues at first hand.

The city describes its approach to quality management as integrated with a routine and continuous cycle of monitoring and improvement in place.

**Evaluation and results**

Qualitative evidence comes from feedback from disabled and older people, from public transport drivers and other staff, and from the residents of Helsinki in general.
Customer surveys are held in different areas and complaints are collected and monitored.

There is an annual seminar with users to review progress as well as regular meetings with different user groups.

The key performance indicators for the success of the project are:
- Number of additional passengers
- Number of accessible bus stops
- Number of accessible bus terminals
- Number of accessible metro terminals
- Number of accessible low-floor trams and buses
- Number of raised tram stops.

The success of the project is judged to be in the elimination of barriers and the integration of accessibility into mainstream planning.

**Funding**
The project is funded by the city of Helsinki. Capital and start-up costs are €100,000 and annual running costs are at the same level.

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**2.2 Vienna, Austria**

**Population 1.9 million**

**Comprehensive commitment to accessibility**
The city of Vienna has a long standing commitment to accessibility.

The key objective for Vienna is to achieve a barrier-free city both for residents and visitors. Accessibility is an ongoing and integral part of the planning and delivery of public transport in Vienna.

The transport company Wiener Linien (owned by the city) operates five bus routes. Initiatives to improve the accessibility of Vienna’s transport system started 20 years ago in 1989 when Wiener Linien first started to engage with disabled people in the city.
and to measure their needs against what was currently available.

The first step was an assessment of what needed to be done. That was developed into an action plan which set short, medium and long-term targets. Simple low-cost, ‘quick fix’ measures included the use of larger lettering and information panels to improve the readability of the visual guiding system. The medium-term strategy looked at projects in which significant cost was involved, for example a programme of retrofitting lifts in stations. The long-term strategy focused on those accessibility problems for which no solution was yet available. At that time a key priority under this heading was the development of new, low-floor vehicles for all modes of transport.

To tackle the long-term issues, Wiener Linien project managers set up working groups with disabled people to find solutions. These led to research and development projects funded by the Austrian Ministry of Transport, Innovation and Technology. These included working with blind and partially sighted people to develop tactile orientation and guidance systems.

Vienna has developed a systematic model to identify, develop and implement improvements to accessibility and a philosophy of user-centred design. This runs through all transport modes and is applied to existing as well as new rolling stock, vehicles and infrastructure.

Its commitment to user-centred design has also led to the development of a navigation system Pre-On-Post-Trip-Information-System (POPTIS), which enables blind and visually impaired people to move about the system independently and with confidence, using mobile phones or MP3 players to get personalised journey information.

There is also a continuing programme of tours and visits to the underground system to help wheelchair users, blind people and others to become familiar with it and confident in using it.
All buses in the city have been accessible since 2006 incorporating a low-floor and automatic ramp.

The Ultra Low Floor (ULF) tramway vehicle was developed through a public private partnership between Wiener Linien and Siemens Austria. It is the lowest, low-floor tramway in the world. It was constructed with a vehicle floor 19.7 centimetres above the road level, which allows almost level boarding from the stops. The residual gap is covered by a mechanical ramp. Today there are 191 ultra low-floor trams in operation, which is equivalent to 30 per cent of the total number of tramway vehicles.

It is hoped to increase the level of accessibility to 60 per cent of trams by 2014 through a replacement programme. The long-term objective is a 100 per cent accessible tramway network but there are economic barriers to completing this project in the short-term.

On the rolling stock for underground line U6 an additional ramp profile has been fixed below the entrance doors to reduce the remaining gap.

On the other underground lines, with the development of the new v-vehicle the gap between the platform and the vehicle edge is bridged by a powered ramp at the first and the last door. In these areas of the train large open areas are available for wheelchair users to manoeuvre comfortably.

The earliest of the Underground lines in Vienna did not include access as a priority but by the 1980s when the second phase was being planned, there was stronger emphasis on user-centred design and a decision was taken to fit lifts at every station. Since 2008, all stations have been accessible by means of lifts or ramps.

A lift which is out of order is a significant obstacle. In all new stations there are at least two exits and entrances equipped with lifts. Tactile push button devices with Braille inscriptions installed on a pillar beside the lift doors are easily found by blind users. There are also audible announcements in the lift cars.

There has been a major programme of redesigning and retrofitting tramway and bus stops with the aim of reducing
the gap between vehicle and platform, and improving information and waiting facilities.

Real-time information is accessible to blind and visually impaired users. Countdown information, delivered by the computer aided operational control system, is part of the new Wiener Linien real-time passenger information system.

Information about service times and whether or not a particular service will have a low-floor vehicle is available on the Wiener Linien website at www.wienerlinien.at.

Information can also be passed direct to passengers’ mobile phones during the journey.

Qando – a web-based, route-planner – is available on the homepage of the Wiener Linien or at www.qando.at/site/de/home.htm. This service delivers real-time and timetable information within the eastern region of Austria. It enables users to find the quickest route by public transport and helps wheelchair users identify low-floor vehicles.

Wiener Linien assesses its approach to quality management as systematic.

**Evaluation and results**

There is strong feedback from disabled people which testifies to the success of the accessibility measures and helps to identify any remaining problems. Passengers without mobility impairment also benefit from step-free access and level boarding. The dwell time at stops is reduced which cuts journey times for everyone. The result of these initiatives is a win-win situation for operators, local people and tourists.

There is no quantitative data on the number of disabled travellers. At the last national conference on accessibility it was stated that good accessibility measures benefit at least 30 per cent of the population.

The success of the access measures are monitored by disability organisations under the terms of the city’s accessibility plan. There is an assessment every year and the plan is updated to take on board any
comments that have been made. The current plan (required under Austrian law) runs until 2016.

A self-assessment tool is also being developed to look at user needs and to help identify areas needing further improvement.

**Funding**

There is no separate budget for accessibility. Funding is integrated within Wiener Linien’s running costs budget.

**Further information**

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Website: www.wienerlinien.at

2.3 Salzburg, Austria

**Population 150,000**

**Promoting public transport use by older people**

This is an integrated project to enable and encourage older people to use public transport. It is run collaboratively by the local transport operator (StadtBus) and Zentrum für Generationen & Barrierefreiheit (ZGB), the Centre for Generations and Accessibility.

The key objectives are to reduce the number of accidents on public transport; to make public transport easier for older people to use; to keep older people as public transport users and to raise awareness of the needs of older people as public transport users.

The motivation for the project was both social – to keep older people independently mobile – and economic – to retain older passengers on public transport.

The scheme started in September 2004. It is ongoing and is growing year-on-year. Beyond 2011 there are further ideas being developed to enhance the use and safety of public transport for older people.

The project was devised and developed as a 50:50 partnership between StadtBus and ZGB, which specialises in older people’s issues.
A starting point was a telephone hotline for older people to complain about their daily living problems. This showed that half the problems reported were about public transport. In addition, links were established with the local gerontology clinic and with older people through coffee mornings etc.

The scheme covers the entire trolley bus network of the city of Salzburg and comprises a wide range of activities and initiatives aimed at encouraging older people to use public transport in the city. These include:

- Mobility days
- Travel training for older passengers
- Training for drivers, ticket inspectors and call centre agents
- A safe mobility on the bus brochure
- Larger maps of the network, larger print timetables
- Information about the fares for older people
- Coffee parties in senior clubs and old people’s homes
- Information stands
- Improvements to the vehicles
- PR and marketing activities

There is no written accessibility policy for Salzburg but there is one person in the public administration in charge of accessibility.

This project is described by the City as an integrated approach to quality management with continuous monitoring and feedback.

The project is a partner in AENEAS, an EU-funded project dedicated to attaining energy efficient mobility in an ageing society.

**Evaluation and results**

Qualitative evidence comes from feedback from participants in passenger and driver training schemes, and a shift of travel patterns among older people towards public transport.

Customer surveys, complaints collection and questionnaires are all used to gather feedback.

A user committee meets twice a year and an annual survey is carried out. There is also regular feedback from
discussions and coffee mornings in older people’s clubs.

Key performance indicators include a reduction in the number of accidents involving older passengers and the level of awareness about the project among older people.

The most recent survey indicated that 57 per cent of all older passengers have heard of the project, compared with only 46 per cent in the previous year, which was already high. From a questionnaire at the mobility day, 90 per cent of respondents indicated that they intend to use public transport more often. Almost everyone who attended a passenger training session found it very useful and felt safer after it.

The success criteria are simply meeting and exceeding the objectives set.

**Funding**

The cost of the project is met by the public transport company StadtBus and the Non Governmental Organisations (NGO). Over the past 18 months Salzburg has been a partner in the EU project AENEAS and it is receiving additional funding through that route.

The costs consist mainly of staff costs and expenses for printed information such as the posters and folders. The cost cannot be precisely quantified but is around €20,000 a year for the seniors’ project. This includes the training, the mobility day and several coffee parties and information stands.

**Further information**

Contact: Angelika Gasteiner, Salzburg AG

Email: angelika.gasteiner@salzburg-ag.at

Websites: www.salzburg-ag.at/verkehr/stadtbus/service-kontakt/obus-senioren/ www.aeneas-project.eu/?page=salzburg

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2.4 **Nürnberg, Germany**

**Population just under 500,000 in the city**

**Long term commitment to accessibility**

Nürnberg was the first city in Germany to commit to making its public transport
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accessible. Verkehrs-Aktiengesellschaft (VAG) operates the buses, trams and underground trains in the cities of Nürnberg, Fürth, Erlangen and vicinity. The company is wholly owned by the city of Nürnberg.

The key objective of this long running programme has been to create a barrier-free transport system for the city. The city’s philosophy is ‘mobility for all’ and engagement with organisations of disabled people has also been a key principle for many decades. Accessibility is no longer regarded as a separate or special initiative.

The extensive programme of work dates back to 1972 when the first approach was made to VAG by local organisations of disabled people complaining about lack of accessibility to the city’s transport system. That initial contact led to continuing dialogue and in 1978 the authority made a commitment to improve access to all underground stations by fitting lifts. This commitment from the city won political support in the elections that year.

Another milestone was the appointment, in 1980, of an Accessibility Commissioner who works within the Planning Department of VAG and whose job is to liaise with disability organisations on all improvements and developments. A study in 1986 (supported by the Federal Transport Ministry) compared the costs of a barrier-free public transport system with providing a separate door-to-door transport service for disabled people. The cost estimates for the two were quite close but a political decision was made to pursue the barrier-free route. The same study had also surveyed all the different disability groups within the city in order to have a clear understanding of their needs.

All existing metro stations have been upgraded with lifts to make them accessible and all new stations are built to be fully accessible. All buses are low-floor with kneeling function and equipped with ramps. Trams are now all low-floor and equipped with portable ramps. All tram-islands are raised up to 25cm.
All metro platforms and tram islands, as well as newer bus stops, have tactile guide strips. These strips have been introduced to provide safe passage for blind people from tram stops in the centre of the street to the pavement.

During the planning process of automating Metro lines 2 and 3 there were extensive discussions about how best to ensure the safety of disabled passengers on the driverless trains running on the new metro lines. Consultation has included use of mock-ups of the new rolling stock to enable disabled people to comment at first hand.

There is also an annual programme of training on disability issues for all drivers and regular sessions of familiarisation for wheelchair users and visually impaired or other disabled people. This helps them build confidence and understanding to use the system.

The initiatives in Nürnberg were started well in advance of the German federal law requiring accessibility to all public transport. That law now includes a requirement for disabled people to be involved in, and to agree on, new rolling stock and vehicle designs. Federal funding is dependent upon this agreement and disability organisations have the right to take authorities and operators to court if they fail to comply.

Future access improvements now under development include using Bluetooth technology to give individuals personalised route and journey planning information through mobile phones.

The city believes that it demonstrates an integrated approach to quality management.

**Evaluation and results**

There is close and regular contact between VAG and local disabled people so that feedback both on new improvements and on everyday accessibility of the system is regularly received.

Annual passenger surveys record a growing number of both disabled and older passengers. VAG estimates that
Section 2: Organisational and policy initiatives

about 25 per cent of all its passengers have some mobility impairment. There are about 50 wheelchair users who travel on the metro on a daily basis as well as a large number of blind and partially sighted people. The organisation's commitment to accessibility is seen as commercial as well as social.

The success of the commitment to accessibility is the continuing close relationship between VAG and disability organisations, and the large and growing number of disabled and older people using public transport in the city.

**Funding**
The costs of accessibility are integral to VAG's budgets and are not recorded separately.

**Further information**
Contact: Wolfgang Legath, Managing Director, BSN (Betriebsgesellschaft Schienenverkehr Nürnberg mbH)
Email: Wolfgang.legath@vag.de

### 2.5 Stuttgart, Germany

**Population of Greater Stuttgart region 2.6 million**

**Procurement process for accessible rolling stock**
The Verband Region Stuttgart (VRS), the transport authority for the region of Stuttgart has established a procurement procedure for transport supply in suburban rail for 2013 to 2028. As part of the procurement procedure the replacement of 83 vehicles with new rolling stock was agreed.

The new vehicle type (ET 430) will be the first suburban rail vehicle in Germany to comply fully with the European Commission Technical Standard for Interoperability on Passengers with Reduced Mobility (TSI PRM). The prototype is in the process of final design and approval.

Choosing between the alternatives of extending the use of the existing fleet (with some retrofitting) to save on costs
and a new vehicle type to improve the service, VRS decided to opt for renewal of the fleet with a new vehicle type. The requirements of users were included in the specifications for the new vehicles.

The key objective has been to integrate the needs of disabled and older users into the mainstream public transport service for the region.

Features with particular relevance to the needs of users with disabilities include:

- Retractable ramps to improve level access from platform to vehicle
- Priority seats with additional space
- Reserved wheelchair spaces
- Emergency call
- Audio and visual trip information to complement each other
- Audio and visual warning signals to complement each other with respect to user needs
- Real-time, on-trip information on connecting trips
- Layout, and design of devices and interior equipment according to needs of users with special requirements (e.g. specification of tactile properties of door opening buttons, visual contrast etc)

The project is run by the public transport provider Deutsche Bahn. The new vehicle type will run on approximately 70 per cent of the suburban rail network.

The procurement process in terms of the contract with the transport provider was closed in 2009. The new vehicle fleet will be running from 2013.

The legal basis for the project was national law: BGG (Behinderten-Gleichstellungsgesetz) – Equal Treatment for the Disabled Act; and European: TSI PRM 2008/164/EG.

In addition to the legal requirements (mostly applicable to new infrastructure and equipment) there is also a strong commitment from the regional parliament to remove existing access barriers in public transport.
The specification of the new vehicle was a condition set during the tendering process.

Several conferences were held at the start of the procurement procedure to understand user needs and to develop a catalogue of requirements.

The project is assessed by the city as representing an integrated approach to quality management.

Evaluation and results
The vehicle is still in the process of final development and the only feedback to date is from presentations to end user groups (such as organisations representing blind people).

User satisfaction is monitored on an ongoing basis.

The project will be measured by the successful delivery of accessible rolling stock and by user satisfaction feedback and passenger numbers.

Funding
The project costs are included in the total costs per vehicle km as concluded with the operator.

Further information
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Website: www.region-stuttgart.org

3. Staff training
Even with all the advances in laws, policies and technical solutions to make transport more accessible, staff availability and attitude remains the most critical factor in determining the ability and willingness of many disabled and older people to travel.

Staff working in the transport field need to be trained to know how to support disabled and older passengers, and understand why it is important that they do so correctly and consistently.

Training needs to be delivered – and renewed – for all front line staff who are the passenger’s link with the transport system. But training is also important throughout the management structure of an organisation so that there is a culture of understanding and awareness.
The nature of training and how it is delivered are also key factors. First it is very important that disabled people themselves are engaged in delivering training. It is also vital that the training is comprehensive and that it is practically focused as well as dealing with attitude and perception.

The first example in this guide comes from one of Europe's largest transport operators – Transdev – which has adopted a group wide policy on training in accessibility issues across all of its companies and subsidiaries. Although Transdev is a major enterprise, the approach it has taken is one that would work equally well in any type of operation, large or small. The key is a thorough, consistent and universal commitment to training.

The second example is from Luxembourg where organisations of disabled people have worked with the railway company to provide training to improve levels of service for disabled travellers. There are also good examples of staff training contained in projects described under other sections of this guide. See, for example, Göteborg (7.3), Helsingborg (8.4) and Nürnberg (2.4).

### 3.1 Transdev, France

**Disability awareness training for drivers and managers**

The scheme is to deliver training for drivers and managers across all Transdev companies, but initially those in France (more than 400 contracts), on understanding disability and disabled people's needs.

The management-level training has been in operation since 2008.

The driver-level training programme has been established in conjunction with the four key disability organisations in France representing mobility, vision, hearing and cognitive impairments. Representatives of these organisations are consulted by Transdev internal trainers.

The key objective is to ensure that disabled people are accommodated on Transdev bus services and are treated with sensitivity and dignity. The motivation for the project was to provide a better service to
customers and a more coherent understanding of accessibility issues across management.

The scheme is at an early stage of introduction but has been integrated on a permanent basis into Transdev’s training programme.

The organisation’s commitment to accessibility dates back more than 10 years but has been developed in light of national and European legislation on accessibility. Transdev developed an accessibility strategy in 2008.

The scheme was developed as part of Transdev’s accessibility strategy, which helps coordinate policy across all of its subsidiaries and propose a common strategy. Its starting point was the legal requirements in a number of Transdev’s key operating areas including France and the UK.

This has been assessed by Transdev as an integrated approach to quality management.

**Evaluation and results**
Both quantitative and qualitative measures are being developed but are not yet in place.

By January 2010, 20 managers had been trained.

Measures of success are improvements in behaviour of staff and increased satisfaction.

**Funding**
The capital/start-up cost of the training was €1,000. Ongoing costs are not separately identified as the programme is integrated into overall training provision.

**Further information**
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### 3.2 Luxembourg

**Training for railway staff**
This example features accessibility training for the staff of the Luxembourg Railway Company (CFL). The training comprises a one-day session including theoretical information and practical exercises to give staff experience of the real-life situations faced by people with reduced mobility and people with cognitive and sensory disabilities.
The key objective of the training is to increase the number of disabled people able to use public transport by improving the reception that they get from staff, the quality of the journey they make and their transfer between modes.

The training, which started in 2005, is now an ongoing scheme. The initiative came from the disability movement and was introduced to improve the level of service offered by the railway company to disabled people, both at the station and on-board the train. There had previously been a high-level of complaints from disabled travellers.

The initiative started with an awareness phase: working with the rail company on why the training was needed. Then the consolidation phase consisted of building up relations with a key contact in the rail company. The ongoing implementation phase is now officially integrated into routine staff training and takes place three or four times a year.

The training is run by five disability associations, all representing the rights of disabled people and focusing on different disabilities including mobility, cognitive, hearing and visual impairment. The trainers include people with disabilities.

The training currently covers the rail network but there is a project to establish the same training for bus drivers.

The training also benefits older people and foreign visitors as it includes exercises which teach staff to communicate without speaking, which can be helpful in many situations.

The project has been self assessed as representing a systematic approach to quality management

**Evaluation and results**
Since the training was put in place there have been fewer complaints and greater satisfaction levels among disabled travellers.

There are regular expert meetings (three or four a year) with all the associations promoting the rights of disabled people and the training sessions are regularly monitored.

The evaluation forms used during the training indicate very high levels of

![Luxembourg: A disability awareness training session for railway staff](image)
satisfaction from the staff receiving training. Trainees comment in particular that they feel that they have gained a much better understanding of disability issues. As a result of better trained staff, the image of the CFL has improved among disabled people.

The training has helped raise general awareness and led to coverage in newspapers and online.

Initially many disabled people were afraid to use public transport. Success will therefore be measured by the increase in the number of disabled people able to, and willing to, travel and when the transport operator is well known for excellence in this field.

**Funding**

The cost of each training session is about €750 and the total annual operating cost is between €3,000 and €3,750.

The rail company pays for the training, which involves three of their own instructors and between six and eight people representing the different user groups. Each course is one-day for the training session plus one to three days to prepare it.

**Further information**

Contact: Fabienne Feller. Accessibility coordinator, Info-handicap

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**4. Travel training for passengers**

Many disabled people lack the confidence to use public transport even when it has become accessible. Others may not even be aware that the opportunity is now open to them.

For those who have been disabled for a long period, public transport may never before have been an option. People may well have been dependent on specialist door-to-door services simply for lack of an alternative.

It takes considerable determination to overcome concerns about the reliability and accessibility of a newly accessible public transport service or to move away from the protected environment of a specialist door-to-door service. These concerns are as real for wheelchair users and blind people, for example, as they are for people with learning disabilities.
However good a door-to-door service is, it can never provide the flexibility and freedom of public transport, and its costs are generally significantly greater. For all these reasons, confidence is the key to enabling more disabled people to use public transport.

The four good practice examples in this section are very different from each other. The first one comes from London where the travel mentoring service has made a significant difference to the lives of thousands of disabled Londoners. The second example is from Paris. Here the long established Compagnons du Voyage service provides escorts to enable disabled people of any age (with a permanent or temporary disability) to help them use public transport either on a regular and continuing basis or until they have confidence to manage alone.

The third example comes from Stuttgart in Germany where drivers of the region’s public transport company (buses and trams) provide guidance and training to disabled people unfamiliar with public transport. They also learn from disabled passengers what changes they would like to see and the kind of service they would like to receive.

The final example comes from Enschede in the Netherlands. Here travel ambassadors have been introduced to work with older and disabled people and to help them learn, or re-learn, how to use public transport. Schemes like these not only make a major difference to the lives of many disabled people, they can also provide substantial cost savings by reducing dependence on door-to-door transport and on other support services. However, as the Enschede example illustrates, greater confidence to travel may also result in more journeys made overall.

Other good examples of travel or training are included in other sections of this guide. See Vienna (2.2) and Salzburg (2.3).

4.1 London, UK

Population 7.56 million

Mentoring service

This example highlights TfL’s travel mentoring service, which provides
support to disabled Londoners who want to use public transport but lack the experience or confidence to do so.

The key objective of the service is for more disabled people to become independent travellers. This enables them to broaden their travel and personal horizons and to reduce their dependence on door-to-door services.

This free service helps individuals to plan accessible routes and journeys, and provides a mentor to travel with them until they have the confidence to make the journey independently. There is a limit of 10 accompanied journeys, but most people need far fewer. The service is available to people with any kind of physical, sensory or cognitive impairment.

As well as providing the service direct with their own trained mentors, TfL also provides training for mentors from other organisations (for example clubs or groups working with disabled people).

The mentoring service was devised as a means to help people who were dependent on door-to-door transport – or not travelling at all – to make use of the growing availability of accessible public transport and step-free access in London.

The service also operates in special needs schools to help children and young disabled people understand how to use public transport in the city.

The service is established on a permanent basis and has been running since 2005. The expectation is that over the next five years it will gradually re-focus from providing mentoring direct to individuals to providing a ‘train the trainer’ service to local groups and organisations which will take on the role.

TfL's accessibility policy is set out in its Disability Equality Scheme (a requirement under UK law).

Mentors work in cooperation with the modal designers (bus, tram, Underground, Docklands Light Railway, London River Services) to evaluate new accessibility initiatives and provide feedback from mentee experience.

The service is assessed by TfL as an integrated approach to quality management.
Evaluation and results
There is very positive feedback from disabled people who have used the mentoring service. Comments from users have included:

‘Travel mentoring has given me the confidence to travel independently on the Underground and taught me not to be frightened to ask for help.’

‘Travel mentoring has given me freedom and options I didn’t know I had. It has greatly improved the quality of my life.’

An evaluation of the scheme, conducted by an independent research company for TfL, was published in 2007 and found that 68 per cent of respondents felt that the service had given them real independence.

The key performance indicator of the number of assisted trips has significantly exceeded its target. TfL’s own mentors are currently providing more than 2,000 assisted trips a year with approximately 5,000 assisted journeys per annum being provided by mentors from other organisations who have been trained as part of the service.

Criteria for evaluating the success of the ‘train the trainer’ approach are now being adopted.

Funding
The service is funded as an integral part of TfL’s budget for door-to-door transport services.

Further information
Contact: Paul Carter, Travel Advice and Membership Manager, London Dial-a-Ride
Email: paul.carter@tfl.gov.uk
Website: www.tfl.gov.uk/tfl/gettingaround then click on assisted travel, then travel mentoring scheme

4.2 Paris/Ile de France, France
Population 2 million (within the périphérique)
Supported travel service
Les Compagnons de Voyage is an association set up jointly by the RATP (the Paris/Ile-de-France transport authority) and the SNCF (French Railways) to provide assistance to anyone with a permanent or temporary disability.
difficulty in using public transport in the Paris region or anywhere in France. The service provides a trained escort to travel with the disabled person to help them find their way around the city or to gain confidence in using public transport, so that they can travel independently. A door-to-door service is also provided and the service is available for all kinds of trips including school journeys, medical appointments and leisure travel. The service is available 24-hours-a-day, seven days a week.

The key objective is to give everyone the right to mobility by whatever means is appropriate for their needs. The service aims to reduce social isolation among older people and to help them to retain their independence, as well as to enable younger disabled people to learn how to travel independently. They also aim to reduce the dependence of disabled people on special services.

The scheme was established in 1993 and since then it has accompanied more than one million journeys. It is a permanent service.

The service was set up in recognition of the problems that many people had using public transport. The fundamental concept was to reduce peoples’ dependence on costly, bespoke services and to provide them with the support necessary to use public transport. The support might be on a temporary basis, while the disabled person gains confidence to travel alone, or it may be on a continuing basis depending on need.

There are more than 100 trained escorts with experience and understanding of a wide range of disabilities. They are, for example, trained in sign language, guiding techniques for blind people and in working with people with dementia.

Clients of the service comprise people who have physical sensory or cognitive impairments, including “vulnerable “older people. Both adults and children use the service. There is an average of 150 accompanied journeys every day in the city of Paris and its suburbs.
The scheme has been self assessed as representing a systematic approach to quality management.

**Evaluation and results**
There is strong anecdotal feedback about the value of the service to its users. A typical comment from an 88-year-old user was: 'On my own I can’t go far. I am frightened. Here I know that I have a helping hand.'

A survey was carried out in 2009 of a cross section of people eligible to use the service both as individuals and through care homes. Fifty-one per cent of respondents had already used some kind of personal support services of which four per cent were for journeys. Fifty-seven per cent were not aware of the existence of the service; 48 per cent said that they were interested in the service either for themselves or for someone they cared for.

Success is measured by the number of people using the service, the feedback from those users and by the success in enabling people to travel independently after training.

**Funding**
The costs are covered by a charge levied on users of the service. Currently the charge is €27 per hour on weekdays and a 50 per cent supplement at weekends. There is a lower charge for older people, currently €15 between 10.00 and 15.00 with a supplement for journeys before 10.00 or at weekends. Fifty per cent of the costs of the trip are tax deductible for everyone.

**Further information**
Contact: Chantal Couprie, Les Compagnons du Voyage
Email: direction@compagnons.com
Website: www.compagnons.com

**4.3 Stuttgart, Germany**
**Population 700,000**

**Training and familiarisation sessions**
This example highlights passenger training for people with mobility or visual impairments. The training is provided by Stuttgarter Straßenbahn AG (SSB), the public transport provider in the region.
Half-day sessions are run on a regular basis four times a year.

The key objective is to help disabled people using public transport. The company also has a goal of ‘barrier-free SSB’.

The initiative was started as a result of requests from organisations representing people with disabilities.

The project was planned in-house by SSB. The training method chosen was as a result of the experiences of disabled passengers and feedback from disabled people’s unions. The scheme has run on a permanent basis since 2002. One person in the organisation is assigned to deal with specific needs and requests of disabled people.

Experienced drivers from SSB explain the details of layout and operation of both buses and light rail vehicles to help people build up confidence and experience using them as part of their daily lives.

The training is available to disabled people across the whole Stuttgart region. It helps disabled people who have not used public transport before to understand the constraints as well as the benefits of public transport.

There is a user committee which oversees and advises on the content of the training. SBB say that they have adopted a systematic approach to quality management.

**Evaluation and results**

Participants appreciate the training. They also advise SSB and its drivers how to help improve public transport use and gain a mutual understanding between the operators and disabled passengers.

The suggestions made to SSB are implemented in annual driver training courses.

There is no data available on increases in the number of disabled passengers using public transport as a result of the training but feedback is positive. More training seminars are planned in response to demand.

The main criterion of success is positive feedback from participants.
and organisations representing people with disabilities.

**Funding**
Annual operating costs for the training are around €3,000. The funding is an integral part of SBB’s running costs budget.

**Further information**
Contact: Thomas Dietz or Guntram Schäfer, SSB
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Email: guntram.schaefer@mail.ssb-ag.de
Website: www.ssb-ag.de/22-0-Barrierefreies-Fahren.html

4.4 Enschede, The Netherlands

**Population 155,000**

**Travel ambassadors**
This example examines an initiative to encourage disabled users of the local on-demand bespoke service to start using an accessible mainstream bus route.

At the end of 2005 the Dutch region of Twente, the local transport operator Connexxion and Enschede town council introduced route 7. Bus route 7 provides a direct connection between the residential homes of older people and several social services. The route was accessible (both buses and bus stops) but was hardly used. In parallel, the authority was providing a costly on-demand special transport service.

The initiative for the pilot came from a recognition that some specific action needed to be taken to change people’s travel patterns and to give disabled people the confidence to use public transport wherever possible.

The town council, the regional authority, the bus operator and a consumer group worked together to devise and deliver a pilot project to promote the use of the new bus route 7 in the town. People who qualified for the door-to-door service Regiotaxi were given free travel on the bus.

Public transport “ambassadors” were brought onto the buses to explain how they work and to help when necessary. These ambassadors also visited the target group in retirement homes, for
example. Both public transport and the door-to-door service were explained.

As a result, there has been a significant increase in the number of disabled people using the service. Disabled people have also made suggestions for improvements to the service, which have been taken up. These include moving one of the bus stops to a more suitable location and improving the display of information at stops.

After two years the employment of the ambassadors was taken over from the region by Connexxion the transport operator.

This scheme could be described as an ad hoc approach to quality management.

**Evaluation and results**

A survey of 300 users (eligible for the special transport service) gave very positive feedback about the bus service and in particular the comfort of the vehicle and the ease of getting on and off.

Until 2007, route 7 had an average of 400 to 500 passengers a month. In the summer of 2007 the figure rose to an average of 4,000 per month (2,000 of whom were also users of the special service). In particular there was a very significant increase in the number of wheelchair users. The number of passengers on Regiotaxi didn’t change.

Success of the scheme has been measured by the increased number of disabled people using mainstream public transport.

**Funding**

The Ambassadors project was funded by the Twente region initially. Their wages were paid as a work-experience project within the city of Enschede. The Region’s contribution to Enschede was about € 30,000 a year. After two years Connexxion (the public transport company) took over responsibility for their employment and they are still working.

**Further information**

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5. Passenger feedback and monitoring systems

Engagement with disabled and older people is a fundamental requirement for good design and planning. Too often consultation only takes place as an afterthought or when it is too late to influence the way that systems are designed or run. This means that either the legacy of inaccessible transport is perpetuated or that expensive and often inadequate retrofitting has to take place.

Disabled and older people have a continuing role to play in monitoring how well the system is running and to report on and discuss any problems or shortcomings.

The good practice example given is from Prague, in the Czech Republic.

Other examples given in this guide under different headings also include useful information of this topic.

See Stockholm (8.2), Helsingborg (8.4), Helsinki (2.1) and Vienna (2.2).

5.1 Prague, Czech Republic

Population 1.2 million

Working group on accessible and open Prague

The example given is of a working group on ‘Accessible and Open Prague’ set up by Prague City Hall. The remit of the working group covers the whole city of Prague and surrounding neighbourhoods and involves all public transport.

The key objective has been to coordinate activities to improve accessibility to public transport in the city.

The scheme started on 1 January 2009 and is ongoing. The hope is that there will be an ongoing commitment to fund accessibility improvements in the city and that operators will continue to upgrade vehicles and infrastructure with advice from the working group.

The working group was set up in response to a petition from over
10,000 people from public and not-for-profit organisations.

Membership of the working group comprises people with disabilities, older people, operators and other stakeholders. Members are chosen by the Leader of Prague city council and the chair of the working group can recommend new members to them.

The working group gives impetus to a range of initiatives such as the refurbishment of tram stops and the installation of lifts into Prague metro stations (by 2015 five new lifts will have been installed).

Its primary role is to coordinate the activities of all the parties involved in making improvements: local authorities, contractors, operators etc.

In addition to the working group there is a user group which sets the agenda for the working group and identifies priorities. This user group comprises people with physical and sensory disabilities, older people and parents of young children. The group meets four times a year. They are also involved in monitoring progress against the agenda that they have set.

This initiative was a one off response to a request from the people of Prague. It is described by the city as an isolated approach, in other words a project specifically intended to meet the needs of disabled and older people but not yet embedded as part of overall policy.

Evaluation and results
The scheme is regarded as very successful because end users can communicate through the working group with Prague City Hall and initiate improvements on particular points. The working group then brings all the relevant parties together to ensure that the improvement is delivered.

The key performance indicator is the increase in the number of public transport stops and stations accessible to people with disabilities.
The success is measured simply on the level of improvements to accessibility in the city of Prague.

**Funding**
The working group is funded by Prague City Hall. Costs include adapting an office for the use of the group and the Chair's salary. Figures are not available.

**Further information**
Contact: Michal Prager, Chairman of the Working Group for Accessible and Open Prague
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### 6. Accessible information and communication systems

Information to enable disabled and older people to access public transport and to use it with confidence is fundamentally important.

The iBus project, running on London's 8,000 accessible buses, has introduced audio and visual on-bus announcements as a by-product of investment in vehicle location and radio technology.

The approach taken by Sofia in Bulgaria shows that even in situations where much of a public transport network remains inaccessible, clear and accurate information can help passengers to make informed choices about their own mobility.

These two, very different, examples illustrate the same vital requirement for good quality information to enable disabled and older people to plan and make journeys with confidence.

Examples included in this guide under other headings also include details on good information and communication systems. The examples of Berlin (1.1) and Vienna (2.2) are of particular interest.

#### 6.1 London, UK

**Population 7.56 million**

**Real time on-bus audio and visual information**
iBus is an Automatic Vehicle Location (AVL), radio and an on-bus passenger information display and announcement system. It is fitted to all 8,000 London buses and to all bus stops across the
network. iBus provides ‘next stop’ and ‘destination’ visual displays and audio announcements on the bus to keep passengers informed. It benefits all passengers but is particularly useful for those who are unfamiliar with the network or people with a visual or hearing impairment, or a learning disability.

iBus is also the information source for real-time bus arrival predictions at bus stops provided by the Countdown system.

The key objective of iBus is to improve service delivery. This is done by providing enhanced control facilities to those who manage the network and by providing on-bus, real-time information to all passengers.

The first bus was equipped in 2007 and the roll out to all 8,000 buses was completed in early 2009. iBus is now a standard part of contract requirements for all London bus operators and vehicles, and there is an ongoing commitment to the system.

Future iBus developments are likely to include service enhancements which will provide the capability to give targeted disruption information for example.

Real-time information on buses is not currently a legal requirement at a national level in the UK but has been adopted as a London-wide requirement by TfL.

The initial motivation for the iBus project was the operational need to replace vehicle location and radio equipment. The introduction of new equipment and systems meant that real-time passenger information became an affordable add-on. Therefore, the business case formed part of a larger rationale for an improvement to London Buses technology infrastructure. It may not have been possible to make a business case for real-time information in isolation.

iBus is self-assessed as an example of an integrated approach to quality management.

Evaluation and results
Structured research was carried out before, during and after implementation.
This included surveys of the general population and targeted research with specific disability groups including those representing people with visual and hearing impairments. The response has been very positive, particularly from disabled people.

Driver attitude was also included in the surveys. Drivers appreciate the system for a number of reasons, one of which is that it relieves them of the obligation to remember to tell passengers where to get off the bus, which can be difficult on a busy route.

As a result of engagement with passengers and disability organisations during the testing phase, changes were made to the format of the information announcements. These changes included a reduction and simplification of the words used in announcing stops and destinations.

The iBus contract contains a number of key performance indicators relating to availability and performance. TfL measures passenger satisfaction separately and this has continued to rise following the installation of iBus.

There is no quantified data on increased passenger numbers attributable to iBus but there is anecdotal evidence from organisations representing blind people, for example, to suggest that numbers have risen.

In addition to the reliability and availability of the system, success is also measured in terms of rising passenger approval ratings.

**Funding**

The capital cost of the iBus project was €74m. The total costs over a ten-year period (including the capital) are €134m.

The capital costs came from TfL’s Business Plan Investment Programme. The running costs are integral to the running costs budget for London Buses.

**Further information**

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Website: www.tfl.gov.uk/corporate/ then click on projects and schemes, then iBus
6.2 Sofia, Bulgaria
Population 1.3 million

Audio announcements at public transport stops
This example is about the implementation of an audio announcement system at public transport stops.

The key objective of the project was to improve the public transport service for blind people. There was no quantitative data available on levels of usage before the scheme was introduced.

The scheme was not driven by legal or political impetus. It was an initiative from the Sofia Urban Mobility Centre (part of the public transport authority) and the Sofia Regional Department of the Union of Blind People in Bulgaria.

The planning methodology used to develop the project started with an examination of the problem and a discussion of the issues with representatives of the Union of Blind People in Bulgaria. The specification for the electronic boards was drawn up by the Union of Blind People, which also stated the places and transport stops likely to be most frequently used by blind people. The prototypes were tested by blind people before the scheme was fully implemented.

Electronic boards giving real-time visual information about vehicle movements had already been installed at city centre stops. This project has added audio announcement modules to make the real-time information available to blind and partially sighted people.

Although it has been running since 2008, this is still regarded as a pilot project because there are only a limited number of the electronic boards with audio information. It took between six and 12 months to get this far in the project but the plan is to extend the scope over the coming years.

This methodology has been assessed by the authority as a systematic approach to quality management.

Sofia Urban Mobility Centre is now undertaking another initiative of this kind.
– audio stop announcements in all vehicles on Sofia Public Transport. To date, stop announcements are only in Sofia metro vehicles and on some tram lines.

The project is planned in collaboration with the Department of the Union of Blind People in Bulgaria.

Sofia Mobility Centre has undertaken the necessary research for implementation, including cost analysis and has presented its findings to Sofia Municipality. The project will start after Sofia Municipality’s approval.

**Evaluation and results**

The project was developed and implemented in partnership between the Sofia Urban Mobility Centre and the Sofia Regional Department of the Union of Blind People in Bulgaria. There has been a great deal of feedback from representatives of the Union of Blind People. One modification that has been made as a result of feedback is to increase the volume level of the announcements.

The measure of success is simply the feedback from blind people in Sofia.

**Funding**

The scheme is funded directly through the authority’s own budget without any additional funding. The cost of adding the audio facility to existing electronic boards is €125 per stop. To date 17 boards have been equipped.

**Further information**

Contact: Desislava Hristova, Sofia Urban Mobility Centre

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7. **Level access through the transport system**

This category examines initiatives which remove the barriers that make it difficult or impossible for disabled and older people to travel around a city using public transport.

It also includes access to and from transport systems through the pedestrian environment. Problems are often created by the legacy of old
inaccessible transport infrastructure and vehicles or rolling stock in many European cities.

There are five very different examples in this section of how these problems have been tackled.

The region of Catalonia in Spain has a major ongoing initiative to improve access to public transport across the region. On a smaller scale so too has the city of Burgos, also in Spain. Göteborg in Sweden takes a different approach and uses a flexible door-to-door transport service to link with accessible parts of the mainstream transport network. In Rogaland, Norway, Kolumbus (a public transport company operating in Stavanger) has introduced accessible boats. Finally, in the Netherlands there is a national policy goal to achieve full bus accessibility.

7.1 Catalonia, Spain
Population 7.4 million
Design for all approach
This is an ongoing commitment by the Government of Catalonia, Transport Directorate to deliver access improvements to public transport in the region. The scheme includes the Barcelona underground network as well as the Catalonia suburban train network (FGC) and the Catalonia interurban bus network (DGT).

The key objective is to achieve a concept of ‘design for all’ in all new infrastructure and rolling stock, to adapt the existing public transport network and, through that approach, to increase the number of disabled and older people able to use public transport. It is important to have an integrated vision of the mobility chain and the interaction between all the elements: public space, stops, stations, modal interchange, rolling stock, information and signposting.

The scheme covers both new and existing rolling stock and stations, and includes improvements and upgrades to meet the needs of a wide range of people with disabilities, and other passengers.
This is a permanent, ongoing scheme which started in the late 1980s and will continue until the goal of 100 per cent accessibility has been achieved.

The accessibility policy of Catalonia’s Transport Directorate is to adapt the whole public transport network (underground, train and interurban bus) including vehicles, infrastructure, information, ticketing etc and the Transport Directorate is responsible for achieving this.

The planning methodology used is to incorporate all access features in the project and the scope of works carried out. For the rail and underground system this includes lifts, escalators, ramps, and tactile paths for blind people, the gap between train and platform, and information etc. For inter-urban buses, subsidies are given to operators to invest in new accessible vehicles and in parallel the Transport Directorate is designing a new accessible bus shelter.

This is described by the city as an integrated approach to quality management.

**Evaluation and results**

There are no surveys done specifically on accessibility but the annual public transport satisfaction survey includes some questions on accessibility.

In addition, feedback on accessibility issues comes direct from disabled people’s associations on a regular basis.

There are two accessibility working groups within the Transport Directorate. One relates to trains and underground, the other to buses. These working groups include all the accessibility stakeholders (administration, operators, disabled people’s associations etc). All accessibility subjects are discussed in these working groups including new projects, results and problems. This means that there is very good feedback at all times.

The performance indicators used are the percentage of trains, buses and stations etc that are adapted. Currently the position on accessibility is:
• Barcelona Metro, which has seven lines, is 76 per cent adapted Catalonia suburban train network (FGC), which has two lines is 95 per cent adapted
• Catalonia interurban buses (DGTT): there are 817 vehicles adapted out of a fleet of 1,082 (75 per cent)

No data is gathered specifically on the increased number of disabled people using the system or on reduced dependency on special transport systems, or other support networks.

The success of the scheme is measured by the satisfaction of disabled people using it and evidence that more disabled and older people are using public transport.

Funding
The Government of Catalonia has so far invested €516m to adapt the Metro and the Catalonia train network. It has also invested €38.8m to adapt the interurban bus network.

Funding comes from the regional Government’s annual budget and is part of an ongoing budget commitment.

Further information
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7.2 Burgos, Spain
Population 180,000

Universal accessibility
The project is to develop a public transport system that is 100 per cent accessible, particularly for older people and people with reduced mobility.

The key objectives of the scheme are to provide universal accessibility, comfort and safety for users, to inform passengers about the facilities and to make them aware that it is a more sustainable form of transport.

It is run by the City of Burgos with input from the Strategic City Plan (an association belonging to the city, which promotes public transport) and the Castilla and Leon Institute of
Technology, which is responsible for evaluation and technical aspects.

The project covers the whole city and includes all buses, which are now accessible (including ramp access, audio and visual information), and 80 per cent of the bus stops, which provide real-time information. New bus lines were developed, and timetables and frequencies were increased to make public transport a more attractive option.

There was no legal requirement to introduce this scheme. It was an initiative from the city council in response to requests from local associations of disabled people.

The scheme has been running for 18 months. The intention is to develop further bus lines and to improve the infrastructure for intermodal interchange.

The main improvements that have been implemented were proposed by the mobility group which advises the city council.

The council started by drawing up a plan of action which was then implemented over 18 months. Bus stop accessibility was the final step in implementation because it also involved the civil engineering and infrastructure departments.

Organisations of disabled and older people were engaged in the project from the very beginning of the process through meetings and consultation.

This methodology has been assessed by the authority as an ad hoc approach to quality management.

**Evaluation and results**

The Spanish organisation of Blind and Impaired People has named the public transport system in Burgos as one of the best in Spain in terms of accessibility. Ninety per cent of citizens report that they are happy with the improvements that have been introduced (ramps, audible and visual information, real-time information, driver training etc). Eight per cent of people had no opinion (mainly because they do not use public transport) and two per cent wanted further improvements.

The indicators have included the number of additional passengers and
the results of surveys and meetings with stakeholders. There has been an increase of between two and three per cent in the number of disabled people using public transport. The figure would have been higher if it had not coincided with an offer from ONCE (the Spanish Blind People’s Organisation) at the same time to buy cars for disabled people.

The special door-to-door service run by the Red Cross is now only carrying 20 people per day.

One change that has been made as a result of the indicators and feedback has been more training for bus drivers. The main complaints were about the lack of disability awareness among the drivers, not about the system itself.

The first criterion of success was the opinion of disabled and older people and the increase in bus use — so far more than eight per cent.

**Funding**
The capital and start-up costs amounted to €6m and the annual operating costs are €2m. The improvements to date have been co-financed by the City and the European Commission through the CIVITAS initiative. Some funding has also come from ONCE.

**Further information**
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### 7.3 Göteborg, Sweden

**Population 500,000**

**Flexible system linking into public transport**
The scheme described is Flexlinjen, a flexible, on-demand transport service which runs throughout Göteborg and links with accessible public transport.

The aim of the project is to increase the mobility of older and disabled people by making it easier and safer for them to use public transport.

Flexlinjen is public transport open for all passengers, but the trip has to be booked in advance. It has a fixed itinerary from a start to a destination, but only stops at points booked for arrival or departure and may skip part
of the itinerary if there are no bookings. Usually there is a fixed time schedule for the start of each trip, but the travel time may vary from time to time.

Each passenger receives a message (automatic telephone call) about ten minutes before arrival about the planned arrival time for their stop. Because it is flexible and stops only where passengers need it, it has a network of stops (close to the origin and destination of the traveller, maximum 150 meters), going close to but not exactly door to door. Because of the booking system, a seat and available space for mobility equipment (wheelchair, wheeled walker etc or heavy luggage) will always be available. Most buses take 9 -11 passengers and “always” have the same driver.

The scheme was started as a result of national laws and a local political initiative. It is a sub-project of KOLLA, which is described more fully at 1.3. Flexlinjen started in 1996 and is ongoing. The last Flexlinjen started in November 2009. The future development will focus on making the system more efficient.

The planning process started with a traffic supply plan developed jointly by Trafikkontoret, the Special Transport Service and Västtrafik, the public transport authority. This established the requirement for accessible public transport and also contained a cost benefit analysis.

This plan laid the foundation for the political decision to allocate funds for planning Flexlinjen.

Five organisations of disabled people are involved in the scheme and it is continuously evaluated by independent researchers.

This is assessed by the authority as demonstrating a systematic approach to quality management.

**Evaluation and results**

Now that the scheme runs throughout the city, there are passenger satisfaction surveys carried out which score very highly. Ninety-nine per cent
of passengers are very satisfied with the drivers on the service.

Detailed statistics are kept on travel patterns. There is a clear indication of a fall in the number of people dependent on special transport services. This is in part because people wanting to book the special transport service are offered a trip with Flexlinjen instead.

The shift from special service to Flexlinjen has resulted in a significant cost reduction for the city and greater feelings of independence for users.

The scheme was evaluated through a customer satisfaction survey in spring 2009, which produced very positive results.

As a result of feedback, changes have been made to the way the operator communicates with passengers.

The measure of success is that more people travel with Flexlinjen.

Funding
The capital and start-up costs were €38,000 and annual operating costs (for one bus) are €80,000. The funding comes from the city of Göteborg and is part of the KOLLA project, which started in 2004. It follows an analysis carried out to study how people with mobility difficulties can use public transport in an easier and less costly way.

Further information
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7.4 Rogaland, Norway
Population 389,000

Accessible modern boat service
This example is about the design and implementation of modern, accessible boat service, which includes the provision of accessible travel information. The boats have been in service since April 2007 and are running on an eight-year contract.
The key objectives are to make boat transport accessible to a wide range of passengers in an area where there are few alternatives to sea transport.

The scheme is part of an action plan for universal design dating from 2004 that covers the whole region. This project focuses on the design of three new passenger speed boats, which are wheelchair accessible (both gangway and boat), with tactile signs, colours to communicate design and information, and induction loops for audible information.

The local transport authority Kolumbus sets the tender conditions and Stavangerske AS is the operator. Kolumbus is owned by the regional authorities Rogaland fylkeskommune. Kolumbus is responsible for public transport in the region including bus and boat transport, school transport contracts, public transport information, publicity and advertising.

The accessibility policy of Kolumbus is based on the action programme for universal design (universal design of the boats was one of the tender requirements). Kolumbus employs one person dedicated to accessibility issues. The Rogaland regional authority also has a plan for universal design.

Detailed vessel specifications were agreed with disabled people’s organisations and disabled people were also involved in inspecting the boats before completion.

Good practice has taken about three years to achieve with this project and in the future plans are for further boats with similar requirements, not only in this region but more generally in Norway.

The approach taken to quality management in this case has been assessed by the authority as systematic.

**Evaluation and results**

As a result of positive feedback from users of the service the same concept was later chosen for the commuter boat service between Oslo (City Hall) and Nesodden.

The success criteria are the satisfaction levels based on evaluation by organisations of disabled people.
Funding
Detailed figures are not available but the extra costs of the three boats to meet universal design requirements are estimated at less than 0.1 per cent of the overall investment in new boats.

Further information
Contact: Tomas Nesheim, Kolumbus
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7.5 The Netherlands
Population 16.5 million
National policy on bus accessibility
This good practice example is the national Dutch approach to improving the accessibility of public transport by bus. The approach is to make approximately 50 per cent of all bus stops in the Netherlands accessible. Accessibility is defined as: platform height 18cm; platform width 150cm at door entrance and the inclusion of a guide line/natural sightline. All buses will be low-floor by the end of 2010.

The project, which started in 2006 and will run until 2015, is being funded through grants from national Government to the 19 passenger transport authorities in the Netherlands, which are responsible for delivering the improvements.

The overall goal is to improve the quality of public transport for all users. Easy access, good information etc is helpful for everyone.

An additional objective has been to enable more disabled people to use mainstream public transport and so reduce pressure on special transport services which are then better able to meet the needs of those who still require a door-to-door service.

The motivation for the project was forthcoming legislation on accessibility, combined with financial pressure on costs of special services and lobbying by disability organisations.

Representatives from different user groups were consulted in the development of the project.
The public transport authorities in the Netherlands have signed agreements with the Ministry of Transport stating that they will improve the accessibility of bus stops.

The Ministry of Transport has set up a working group with the passenger transport authorities to discuss the policy. They must then consult with local user groups about public transport.

The guidelines for accessibility were developed by the National Information and Technology Centre for Transport and Infrastructure (CROW), a non-profit organisation in which the Government and businesses work together in pursuit of their common interests. They set up a working group in which different stakeholders were represented.

The University of Delft has carried out testing with disabled people to see what gaps they could manage.

The project started as an isolated approach to quality management, but, according to the authorities, has developed into a systematic approach because of the scale and the number of stakeholders involved.

**Evaluation and results**

There is evidence of increased passenger numbers on those lines that have been made accessible. Users report that they are now able to use public transport instead of relying on the special transport services. However, a number of local studies have shown that although use of public transport has increased, this has not resulted in a significant decrease in use of special transport. It seems that people are travelling more because their travel horizons have been extended.

Within the greater Utrecht region and other large cities, customer surveys are carried out on the vehicles. There is also a routine collection of complaints as well as national surveys.

Passenger transport authorities provide annual data to the Ministry of Transport on bus stop accessibility. The authorities also collect data themselves. Some only collect the data required by the Ministry; others collect more information, for example on the accessibility of the routes to the bus stops. In the greater Utrecht region
they look at the number of disabled passengers who use public transport and also at the complaints from travellers in general.

There is some information from national and local surveys, but there is no standard format for collecting information.

Success is judged on the number of accessible bus stops and on an increase in the number of disabled people travelling.

**Funding**
The national Government has provided €87m. The overall cost of the project has been estimated to be more than €200m.

Average cost per stop according to bus stops per different region (2006 prices) were:
- stops in greater urban areas: €18.500
- stops in urban areas/cities: €13.500
- stops in remaining rural areas: €8.500.

**Further information**
Contact: Guy Hermans, KpVV or Pascal van der Velden, BRU (Greater Utrecht Region)
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Website: www.kenniscentrumto-do.nl

8. Improvements to infrastructure and the pedestrian environment

Every journey made begins and ends in the pedestrian environment. Often the greatest barriers to mobility are found on the streets and pavements, and in old inaccessible transport buildings and infrastructure such as rail or bus stations or stops.

This section includes four very different examples of good practice in improving pedestrian access and access to public transport in the city. Two examples come from capital cities: Lisbon in Portugal and Stockholm in Sweden. Two other cities, Krakow in Poland and Helsingborg in Sweden also have interesting initiatives.
The common factor in all four examples is that they are old cities, which have evolved over many years. History plays an important part and has a significant impact on their accessibility options and solutions.

In the case of Lisbon, the scheme is still at a very early stage with few results. However, it has been included as an excellent example of the process by which schemes of this kind can be developed and implemented, even in a city with the topographical and historic challenges of Lisbon.

8.1 Lisbon, Portugal

Population 550,000 in the city and 2.8 million in greater Lisbon

Pedestrian accessibility plan

The city of Lisbon is developing a pedestrian accessibility plan for the city. The main goal of the plan is to make Lisbon an accessible city, preventing the creation of new barriers to access, promoting the elimination of existing barriers and mobilising the community towards the creation of a city for all.

The scope comprises all areas in which the city has a legal duty to promote accessibility, including outdoor public space (pavements, urban parks, etc) and the area between the pedestrian environment and public transport.

The impetus for the plan was provided by two new national laws: an anti-discrimination law and an accessibility law. Both make accessibility mandatory, specifically in the context of access to buildings and to transport.

The plan assigns a central role to promoting the movement, independence, comfort and safety of all pedestrians, particularly of those who are most vulnerable, including disabled and older people and children.

The plan is in its first phase. The methodology was approved by the city council in July 2009 and work is now under way.

The city of Lisbon signed the Barcelona Declaration of 1996 on Cities and Accessibility and is planning several ways of promoting accessibility. At present, and in order to help spread commitment, capacity and responsibility
for access across all its structures, an Accessibility Office provides technical support to all city departments.

With the planning process underway, political approval by the city council and a clear commitment by the Mayor, work on the plan began with a public consultation session. This brought together the views of the community, namely members of organisations representing disabled people or working for child safety or pedestrian rights. The session produced a diagnosis of the accessibility of Lisbon’s outdoor public spaces and several shared proposals for action. A comprehensive and quantitative diagnosis will follow, together with cost estimates for the work.

The problems identified and the proposed solutions will be agreed on by both the city council and the city assembly, and necessary funding will be written into the city’s year-on-year investment plan. Once full approval is obtained, the proposals will be broken down into priority order and an ongoing work programme will be agreed.

Some actions will be progressed sooner. A series of pilot actions will be implemented in the course of this period to tackle urgent issues, test solutions for later city-wide implementation, and take advantage of ongoing urban interventions as opportunities to implement good practice.

Stakeholders have been involved throughout the planning process and will continue to be involved during the implementation phases. Mixed stakeholder forums are bringing together city officials and the community in order to collect information on the problems that need to be addressed and also to generate innovative ideas for dealing with them. The process is also becoming a learning opportunity for all, and will provide a solid shared basis of understanding and commitment that is vital for the future sustainability of this effort.

This has been assessed by the city as a systematic approach. This initiative is seen as a continuous process rather than a one off scheme or project.
Evaluation and results
Although it is too early to present much evidence, it is important to note that the scheme has been warmly supported by political parties and disability organisations alike, and also by those campaigning for pedestrian rights.
Quantitative measures have not yet been established but the plan is to develop a set of indicators that will include pedestrian traffic levels at some strategic points; usage of public transport by disabled and older people; the number of pedestrian accidents; user feedback (through surveys) and revenue for local shops.
The success criteria will be the positive outcomes against the measures described above.

Funding
There are no figures given for funding at this early stage of the project. The funding will come solely from the city, although other funding sources to help implement the actions are also being sought.

Further information
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8.2 Stockholm, Sweden
Population 800,000
Easy access to Stockholm
The ‘Easy access in Stockholm project’, run by the city of Stockholm, aims to deliver improved accessibility to the built outdoor environment (streets, pavements and public areas) and to public buildings by removing barriers.
The project was developed in response to both national and local laws on accessibility. The key goal is to make Stockholm Europe’s most accessible city by 2010.
The project started from the premise that accessibility is not only a matter of quality of life; it is also a matter of democracy.
The scheme started in 1999 and is due to finish in 2010. At the end of the
Section 2: Improvements to infrastructure and the pedestrian environment

The starting point for the planning process was the Disability Policy Programme for the City of Stockholm adopted in 2004. This is a steering document for the committees and boards of the City Council and is also intended to be used by the business community, the disability movement and the citizens of Stockholm at large.

The detailed strategy is based on accessibility plans for each part of the city. These start with an inventory of barriers which need to be removed and are then developed into annual programmes of specific measures and investment. Disabled people and other stakeholders are closely involved in the process through municipal disability advisory boards.

Among the improvements already made are:

• Audio signals at pedestrian crossings
• Seats and benches around the pedestrian environment to provide resting points
• Removal of old gutters across the pavement, which were a hazard for wheelchair users
• Raising the level of bus stops to make it easier to get on and off buses and introducing colour contrast to mark bus stops
• Fitting flights of stairs with new handrails
• Adapting public toilets

The city has also launched an initiative to speed up the process of improving accessibility to public buildings by awarding a prize to companies which have made their premises more accessible. A checklist of necessary access improvements has been drawn up and distributed to thousands of companies in the city.

The city has also produced a handbook aimed at planners, designers and architects which provides information about legal requirements and best practice. This has been assessed by the city as a systematic approach to quality management.
**Evaluation and results**

The key qualitative measure is simply feedback from disabled people. Surveys are sent to a sample of residents. So far there has not been any detailed evaluation of the project apart from counting completed measures. However, all measures and strategies within the project are based on established good practice, meeting both national requirements and legal frameworks. The city has a board of users who monitor progress on a continuous basis.

The process of counting measures taken includes, for example, the percentage of accessible pedestrian crossings, bus stops etc.

The key performance indicator is the percentage of the population who perceive Stockholm as a city with a high-level of accessibility. This is measured through an ongoing survey.

Further, more detailed, analysis will be done retrospectively when the project is complete.

Success is based on satisfaction levels expressed by disabled people. Annual surveys are carried out to measure ‘perceived’ accessibility. This is in addition to regular feedback from disability organisations.

**Funding**

The scheme has been supported through specially allocated resources in the annual city budget of €10m a year since 2000.

**Further information**

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**8.3 Krakow, Poland**

**Population 760,000**

**Modifying public transport stops**

This is a scheme to change or rebuild public transport stops in the city of Krakow to make them safer and more accessible for disabled and older people. The scheme is co-ordinated by
Section 2: Improvements to infrastructure and the pedestrian environment

the city of Krakow, the Road Transport Management Board and the local public transport operator.

The key objectives are to improve public transport safety and security; to improve public transport infrastructure in the city centre, particularly for disabled and older people and to reduce the boarding and alighting times on public transport, particularly for disabled and older people.

The starting point of the scheme was an EU-funded project to reconstruct the Lubicz-Pawia streets intersection with the introduction of a safe bus and tram stop (there were particular problems with unsafe exiting from trams directly onto the street at Lubicz Street). Reconstructed bus and tram stops are being rolled out across the city as a result of the ‘Integrated Public Transport in the Krakow Agglomeration’ project.

It is a pilot project which has been introduced first in Krakow over a period of between one and two years. It may be extended to other cities at a later date.

The city does not have a formal accessibility policy but it does have a person responsible for disability policy at the level of deputy mayor, described as a ‘plenipotentiary’ on disability matters. He is a wheelchair user who takes a comprehensive approach to access issues across the city. The plan developed from the earlier project described above.

This example has not been assessed but from the evidence provided it would seem to be an ad hoc approach to quality management.

Evaluation and results
There is evidence supporting a reduction in the number of accidents between pedestrians and public transport passengers mainly in relation to entering/exiting public transport vehicles. The speed of private cars has also reduced in the area of bus/tram stops.

These two improvements have increased the confidence of people to use public transport and to move about the pedestrian environment.
The project is linked with measures implemented in the EU Caravel/Civitas II Project – Security Action Plan for Public Transport in Krakow. As part of the survey carried out for this project, respondents indicated a number of factors that reduce journey comfort and the sense of security in using public transport in Krakow. The main problems identified were:

- The difference in floor levels – high-floor vehicles were a particular problem for disabled and older people
- The speed of cars passing the bus/tram stops
- The number of cars passing the bus stops which made it difficult to get on and off

The main objectives of the survey were to compare the feelings of passengers about changed bus/tram stops and existing ones (where they are exiting directly onto the street). After the survey a document called the Security Action Plan was developed. The agreement now is that before any bus or tram stop is reconstructed, the ideas and requirements of the plan must be taken into consideration.

**Funding**
No figures are available for the costs of this project which was co-funded by the EU and the city.

**Further information**
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### 8.4 Helsingborg, Sweden

**Population 127,000**

**Low cost improvements to pedestrian access**
This is described as a holistic and systematic approach to achieving a low-cost, accessible built environment. The scheme is financed and run by the city council with funding contributions from the region and the national road administration for accessible bus stops.

The key objectives of the scheme are enhanced mobility and quality of life; meeting legal requirements on the removal of barriers to access, and
finding better mobility solutions at a lower cost (for example by helping more people to use mainstream public transport and reduce dependency on costly special services).

The scheme started in 2002 as a pilot project. The budget for it has increased every year since then. It will probably end in its current form in 2011 at which point the physical infrastructure improvements should be complete. The focus will then shift to projects and supportive solutions to help people navigate the system: In other words, looking at using information and technology to assist people with different kinds of disability to travel independently.

The original motivation for the scheme came from local officials and politicians responsible for coordinating special transport services, mainstream public transport and town planning. Planning for the scheme started when special transport services, local public transport and the design of the pedestrian environment were brought under the same unit in the city. This provided a better service more effectively without major bureaucratic problems.

As the project developed, the national legal framework on accessibility became an additional driving force.

The achievements to date include rebuilding around 60 per cent of the bus stops in the city (those most heavily used by older and disabled people). Improvements include raised kerbs, tactile guidance, seats with armrests, shelters and new pavements. In parallel, Skånetrafiken, the responsible regional public transport authority, has 100 per cent low-floor city buses.

There has also been a programme to remove barriers to access in the pedestrian environment. This includes removing uneven paving, introducing dropped kerbs at crossing points and better lighting, and removal of overhanging trees etc. Stop design features that are easier for people with cognitive disabilities to understand and use are also being incorporated.

A staff and passenger training initiative has also been included. Staff provide
a ‘try our services’ day where disabled people can try out city buses without stress. This helps people to become familiar with getting on and off, using the ramps, operating the push buttons etc.

The Department of City Planning and Technical Services in the city of Helsingborg has a key official responsible for accessibility issues, including updating and training of city staff. It is also responsible for the handbook of accessible outdoor environments and all new projects in the city have to meet the design criteria set out in the handbook.

The scheme is described by the city as part of a systematic approach to quality management covering a wide range of initiatives including training, drawing up best practice for technical solutions, and coordinating access improvements in transport and the built environment.

**Evaluation and results**

The main source of qualitative evidence is coming from feedback from user organisations and from bus operators. More people with wheelchairs, walking frames and prams are using public transport. Data has been gathered showing an increase in the number of disabled and older people travelling and reduced dependence on special transport schemes and other forms of support. Success is being measured by a reduction in the number of trips taken on bespoke transport services (in spite of an increase in the older population) and by feedback from disabled people’s organisations on remaining problems. There is now a comprehensive inventory of all public spaces and about 60 per cent of the issues identified have been dealt with.

**Funding**

The city has reserved a total of €3m for accessibility improvements in outdoor environments (removing kerbs, new pavements, etc). So far the costs have amounted to about €1,7m. The city receives €50,000 in grants from the Swedish National Road Administration, Region Skåne, each year. The city pays €250,000 to improve accessibility at the bus stops and the
Swedish National Road administration, Region Skåne, pays €250,000 each year.

Further information
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9. Ticketing systems

One of the greatest challenges for all public transport users unfamiliar with a city, its transport system or its language is how to buy a ticket from a ticket machine. Every system appears to be different and many offer multiple choices of ticket types and fare cards. For blind people and disabled people, including those with learning disabilities, ticket machines can be physically out of reach or unusable because of their complexity and lack of audible information.

The good practice example here comes from Barcelona, Spain’s second city. The universal design approach adopted by the city means that the ticket machines are not only accessible to disabled people who can now purchase tickets independently, they are also more intuitive and easier to use for everyone.

9.1 Barcelona, Spain
Population 1.5 million

Design of ticket machines
The good practice example is the development of ticket vending machines that are usable by visually impaired people and other disabled passengers by Transports Metropolitans de Barcelona (TMB), the operator of public transport in Barcelona.

The key objective of the development was to make the ticketing system easier for visually impaired and other disabled people to use and so to promote the use of public transport by disabled people. The initiative to develop accessible ticket machines was in part political and in part the result of demands from ONCE (the Spanish National Organisation of Blind People).

The ticket machines were designed and built under strict accessibility criteria. They are fitted with an ergonomic device to allow people in wheelchairs or people of reduced height to purchase...
the travelcards by themselves using banknotes, coins or credit cards.

The development was based on the concept of universal design and the involvement of users from the earliest design stages means that it is easier, faster and less stressful for all users. The machine components are organised in the order of users’ actions rather than in an engineering order. Disabled people were involved from initial interviews to determine needs, validation of the technical and functional requirements during the design process and then approval of the final product.

The machines are fitted with a navigation system for blind people which, through audio and Braille, guides the person through the purchasing process. A system for the duplication of travelcards allows the people who usually purchase the same ticket to buy another one immediately. This is also useful for people with learning disabilities.

The accessible ticket machines are now available throughout the Barcelona Metro network.

This project is believed by the operator to demonstrate an integrated approach to quality management.

**Evaluation and results**

The machines are well accepted by passengers.

TMB has received an official letter of satisfaction from ONCE.

Customer satisfaction surveys are carried out and customer complaints are monitored. It is difficult to estimate the number of people who have benefited. However, the machines are accessible to a wide range of disabled people who can now buy their tickets independently.

Success criteria were the formal acceptance of the machines by ONCE and meeting the quality and maintenance standards set for TMB’s technological systems.
Funding
TMB’s budget comes from public funding. The project and maintenance costs are covered by a framework agreement that is signed periodically with public institutions.

Further information
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Section 3: Conclusions and further resources

1. Conclusions

The examples given in this Guide are by no means the only good practice in Europe – there may be better examples, there are certainly many others. The Guide has set out to give a cross section of illustrations of how accessibility is being tackled in Europe’s cities across a wide range of geographical, cultural and economic circumstances. Those responsible for these issues in cities should be able to find useful ideas and approaches from among those in the Guide which they can adapt to the conditions of their own city.

Some of the examples have involved long term commitment over many years and major expenditure. Others are simple low cost measures that benefit only a limited number of people (perhaps addressing only one disability need) but they are nonetheless an illustration of how a start can be made on accessibility whatever the circumstances and finances of the city.

It is important to note, that from the point of view of the disabled traveller, no single feature or scheme will make a journey accessible. It is only when every link in the chain that makes up a journey from door-to-door is complete that it is possible to travel with confidence. As the saying goes, a chain is only as strong as its weakest link and that is particularly true in this context.

In many cities, the links between the chains are the responsibility of different authorities or private companies (for example the highways authority responsible for maintenance of streets and pavements may have no formal connection to the transport provider). This makes it more difficult – but nonetheless important – to ensure that those links are joined.

Failure to take a holistic approach can mean that the value of investment in accessible buses or trains is not fully realised because the pedestrian access to the stops and stations is not accessible; the staff have not been
trained to offer the necessary customer support or the information or signing is not in formats that people can read.

Public transport accessibility is developing and changing fast with more and more parts of Europe now recognising need and investing in solutions. This means that new vehicle designs and new technology will bring further improvements in the near future. Real time and journey planning information systems that can help disabled people to work out an accessible journey even when the whole network is not complete are also increasingly important links in the chain.

One general observation from the examples given here, which may help those working on future priorities, is the general lack of monitoring and evaluation after improvements have been put in place. Most feedback is anecdotal, which is helpful up to a point but will not help authorities and operators to understand what fundamental difference the scheme has made to the lives of disabled people and how many people are still unable to travel and why.

A number of other outputs from the Mediate project detailed below may help to address some of these gaps.

2. Further resources

2.1 Accessibility indicators

A set of common indicators has been developed describing accessibility of urban public transport.

The accessibility indicators are intended for use by public authorities to assess local public transport systems, but may also be used by individual operators and end user organisations.

The indicators serve to highlight different aspects of accessibility within a city, pointing out strengths and weaknesses of the public transport system, rather than a comparison between cities. This is intended to contribute to a harmonised
understanding of accessibility issues, and the need for improvements, throughout Europe.

2.2 Self-assessment tool
A self-assessment tool has also been developed to give an indication of the actual quality of accessibility of public transport in a city or a region.

The tool is designed to help authorities (cities, regions) and public transport operators determine what actions they could take to improve accessibility. Both the quality scoring and the formulation of improvements make this tool a useful system for assessing accessibility of public transport.

2.3 APTIE website
The Mediate project has also set up a ‘one stop shop’ website (www.aptie.eu) providing information on, or reference to, a wide range of items related to accessibility in public transport (case studies, policy, research, etc.).

2.4 End user platform
Finally, Mediate has also created an end user platform representing a broad range of passenger groups, which will continue beyond the life-span of the project to provide feedback and guidance on accessibility initiatives.

2.5 Information
Further information on all these outputs can be found on the Mediate website at http://www.mediate-project.eu/.