LEIPZIG, GERMANY

Design of stops and stations for level-access of busses and tramways

Background/context

At the time of German reunification there were no stops or stations with same-level boarding in Leipzig.

Until then, tramway boarding was in most cases from the track in the roadway, even on lines with the tram running in separated tracks with stop islands in between. Some of these stops provide a higher bottom step level of 8-10 cm. The tram boarding level for Tatra vehicles was approx. 30 cm with two more steps to reach the floor some 90 cm above the top of the rail. This was a difficult undertaking, especially for older passengers. People with restricted mobility were rarely able to use these trams without special assistance.

Some years after the reunification, private automobiles lured many passengers away from public transport.

The transport company's objective was to offer more attractive services in order to stem the dramatically increasing volume of private-vehicle traffic. There was also a statutory demand to enable disabled people to use local public transport independently, making it necessary to think about the design of the stops in a completely new way.

Case description

In order to create same-level access, it became necessary to raise the platform edge. As a consequence, it was necessary to specify the vertical and horizontal distances of the platform edge from the track in a way that would allow for future developments. In addition to that it was necessary to find a consistent solution for the equipment and the design of the stops.

The work on this problem pointed up a number of issues that had to be considered. After a few years it was necessary to find a design solution for space-critical areas. The reason was the great amount of space needed for the former platform islands.

LVB, the public transport company of Leipzig, took the initiative, with key partners being the association of handicapped people, the LVB passenger alliance and various departments of the municipality of Leipzig (primarily those concerned with transport and town planning, building codes and subsidies).

PUBLIC TRANSPORT CASE STUDY

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Legislation and policy issues

The German Local Authority Traffic Financing Act (GFVG) makes it possible to obtain subsidies for improvements to public infrastructure. However, certain conditions must be met in these cases, including the creation of same-level access for passengers with impaired mobility.

Cost and financing

The costs strongly depend on the local situation and for this reason, the following figures are only indicative:

The average expenditure for construction of a same-level tram stop in Leipzig was about € 200,000 (equipment such as dynamic passenger information and ticket machine excluded). The costs for the necessary reconstruction of existing platforms amounts to approx. €15,000 each.

Results

With the creation of approx. 280 platforms, same-level tram stops now make up 50% of all stops (by the end of 2007). This increase was possible only through the use of new alternative stop designs, as there had been no space left for construction of traditional stop islands.

Along with improvements to aesthetics and accessibility, there has been a significant reduction in waiting times at stops.

Unfortunately the 10 cm gap between the vehicle door and the platform edge at a number of these stops was greater than allowed by the more demanding requirements of the association of handicapped people. This gap should be narrowed to 5 cm by increasing the gap at all stops and equipping older vehicles with a doorsill.

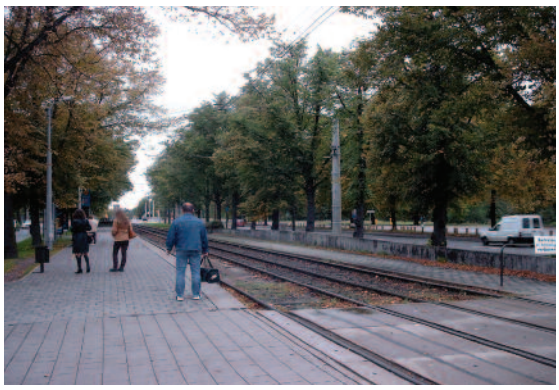
The platform developed for Leipzig means that they can be adapted in a cost-efficient manner to future vehicles of different widths. By contrast, the platforms designated for combined tram and bus use must be reconstructed. A final solution for "enlarging the width of the door area in trams" has not been found.

Problems

The redesigned stops had to be suitable for the use of both existing stock and vehicles to be procured in the future. The given vehicle width of 2.20 m at Leipzig and the decision of the future expansion up to 2.40 m require an adaptation of the built platforms to the future vehicle width.

The design of the platform edge was mainly determined by the decision of making buses stop at this platform edge at relevant junctions. The commonest platform edge was not realizable at stops like these.

To win the approval of authorities such as the public order office and the police of the newly designed stops (traditional and mountable bus boarders) took considerable time.



A Leipzig train stop before reconstruction. The photo on the front shows the same stop after reconconstruction.

Transferability and success factors

As a solution for space-critical areas, the stop designs may also be transferred to other transport service providers. The relevant platform heights and distances to the vehicles now conform to European standards.

Lessons learnt

After the installation of the platforms, the vehicle width in the door area should not be modified. In the case of applying two-way-technology, the tram width of 2.20 m often used in Eastern Europe cannot comply with the requirement for gap widths of less than 5cm.

In the case of enlarged vehicles, it is advisable to adapt the platforms to the future vehicle width dimension. It may be initially levelled by means of sills mounted on older vehicles. Another version is the narrowing of the new vehicles in the lower door area.

Before selecting technical equipment, it is essential to gain much information and to implement the coordination of the stop designs in all network areas. The stops that are impossible to be refashioned for same-level boarding have to be taken into particular consideration.

Good involvement of the general public and users is absolutely essential in sensitive matters such as the concerns of disabled people.

References and contacts

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SPUTNIC (Strategies for Public Transport in Cities) is a project funded by the European Commission under the 6th Framework Programme. SPUTNIC is dedicated to challenges faced by local and regional public transport systems in transition. These challenges include the emergence of a competitive environment, changing institutional frameworks and increasingly scarce financial resources. SPUTNIC seeks to help make public transport systems more attractive and efficient by providing: support to stakeholders to anticipate and prepare for emerging challenges; an overview of state-of-the-art knowledge and research; and specific guidelines and practical tools.

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