Mobility planning and good solutions in the field of barrier-free access for people with disabilities in Dresden – barrier-free city for all

Wolfgang Steinert
City Planing Office Dresden

City of
Dresden

City Planning Office
group Transport Planning

1. Implementation of current laws, the “Guidelines for work with disabled people in Dresden” and the “Guidelines for disabled-access design in Dresden” to improve barrier-free access based on the Dresden mobility strategy

The topic of barrier-free access is of great importance in Dresden. Dresden has a population of over 508,000 inhabitants, more than 60,000 of whom have a disability. Demographic changes and an increase in the number of older people mean the number of people with disabilities continues to increase.

According to Section 3 of the Basic Law of the Federal Republic of Germany, no-one may be discriminated against because of a disability.

Another aspect of particular importance is fulfilling the requirements of the UN Convention on the Rights of Persons with Disabilities, which came into force in the Federal Republic of Germany on 26 March 2009.

The aim is for people with disabilities to participate independently in society, using the public transport environment, public buildings and facilities in the usual way, without outside help or any particular difficulty.

With this in mind, Dresden city council passed its “Guidelines for work with disabled people in Dresden” and “Guidelines for disabled-access design in Dresden”.

They are being implemented successfully, step by step, on the basis of the **four pillars of the Dresden mobility strategy (points 1.1–1.4)**. The key points of these four pillars, the aims of the Dresden mobility strategy and the measures being taken to improve the barrier-free design of public spaces are listed below:

1.1 The topic of city development and transport

Aims:

- To create a street environment for everyone – this means creating "barrier-free access for everyone"; barrier-free access which benefits all residents,
- To develop brownfield sites before greenfield sites; this also benefits disabled people as they do not have to travel far to participate in public life.

Measures:

- Putting barrier-free issues into practice while achieving a necessary consensus between conservationists and developers, e.g. the redesign of Dresden's Altmarkt, including the allocation of above-ground and underground disabled parking bays.
- Restoring urban quality of life by means of smooth paths and paved areas, including building enough seating along main footways, e.g.: Postplatz, Schlesischer Platz,
- Putting places within easy reach for pedestrians, disabled people, people with restricted mobility, mothers with children and the elderly, by means of smooth, even, barrier-free routes, e.g.: continuing development, step by step, of the barrier-free route system in Dresden city centre ("No. 26" ring).

*(see **http://stadtplan.dresden.de/**)*

1.2. The topic of transport infrastructure

Aims:

- To develop a well-functioning, sustainable transport system focussing on restoring the existing infrastructural networks while taking into account and gradually retrofitting barrier-free access elements,
- To improve the safety of children travelling to school by building zebra crossings and traffic refuges, also aimed at the elderly, children and disabled people in particular.

Measures:

- Reconstruction and rebuilding of transport facilities by the City Planning Office and Office for Road Construction and Civil Engineering, always taking barrier-free construction into account.

Examples:

- Extensive measures to create barrier-free routes, squares and street environments; dropped kerbs with warning surfaces, smooth, non-slip wheelchair routes and footways as part of current transport engineering projects,

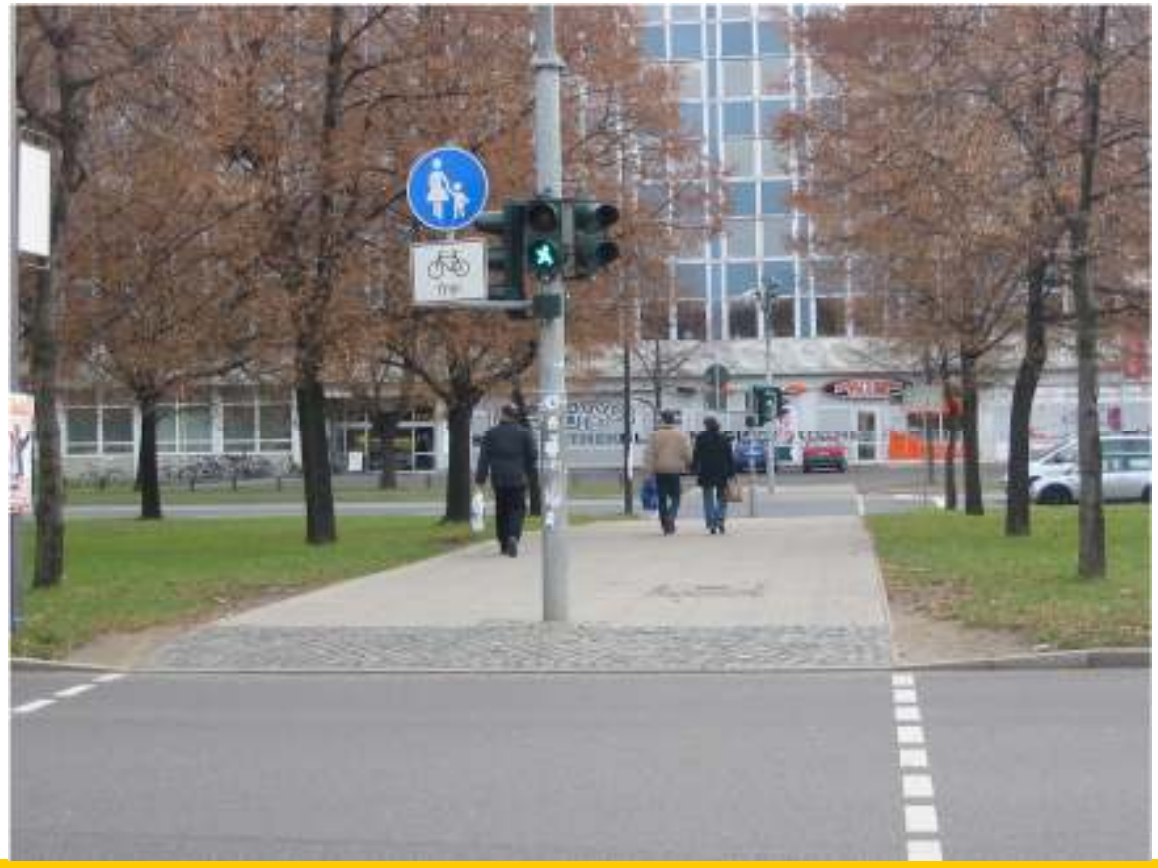
- Continued development of barrier-free stopping places as part of ongoing street environment reconstruction planning (in Dresden city centre almost all stops are barrier-free, in the city of Dresden as a whole, 38% of stops are barrier-free),

- Allocating an appropriate, sufficient number of disabled parking bays (hard work and positive results in the city centre in particular, involvement and consultation of private parking facility operators and associations for disabled people),

- disabled parking bays

- Extending the number of barrier-free vehicles in Dresdner Verkehrsbetriebe AG's pool of trams and buses (low-floor vehicles with ramps, including audio-visual information systems).
  2 DVB AG flyers: low-floor trams and buses, see http://www.dvbag.de/

- Improving the safety of children travelling to school by forming a working group led by the Office for Road Construction and Civil Engineering (street transport department), aimed at reducing problems, e.g.: gradually working through the “school route safety” priority list.



1.3. The topic of transport management

Aims:

- Effective use of existing transport infrastructure,
- Preferential treatment given to local public transport; current transport information for private motor vehicles and local public transport

Measures:

Examples:

- Smart transport management for moving and stationary vehicles by means of visual display panels for private motor vehicles,
- Constructing barrier-free local public transport stops,
- Building traffic lights involving audio signals,

- Operative transport information via an audio information system for blind people (BLIS),
- Multi-modal (real-time) information at stops using text displays, audio announcements, information terminals, in future GPS/Galileo satellite-aided information systems for disabled people, VVO GmbH multi-media mobility portal,
- Extensive marketing work by the City Planning Office (transport development planning department) continuing the database update project as the basis for a “City guide for people with disabilities”

(see online inclusion in themed city map at *www.stadtplan.dresden.de* with links to the interactive “City map for people with restricted mobility”)

- The latest edition of the brochure/ring booklet “City guide for people with disabilities” and “City map for people with restricted mobility” is currently in production, along with the map sections “New Trade Fair” and “Pillnitz”; printing run of 5,000 copies, for 2011/2012).

1.4. The topic of mobility management

Aims:

- To shape mobility,
- To get transport users (i.e. including disabled people) involved in problem-solving (by disabled people autonomously moving about and participating in public life without discrimination).

Measures:

Examples:

- Ensuring that the public transport environment is barrier-free, as is access to public buildings and institutions; encouraging disabled people to select local public transport by extending barrier-free access to public transport and local transport stopping places, creating the prerequisites for people with disabilities.

(see interactive “City map for people with restricted mobility” and “City guide for people with disabilities”).

2. Fulfilling statutory requirements of the UN Convention on the Rights of Persons with Disabilities

Another important legal basis is the UN Convention on the Rights of Persons with Disabilities. The convention entered into force in Germany on 26 March 2009.

The requirements and steps set out in the following articles of the UN Convention on the Rights of Persons with Disabilities, in particular, affect issues related to the barrier-free design of public spaces:

Section 9 (1 and 2): Accessibility,

Section 20, a–d: Personal mobility,

Section 29, a and b: Participation in political and public life,

Section 30, b and c: Participation in cultural life, recreation, leisure and sport,

Section 32: International cooperation.

3. Barrier-free public transport environment

3.1 Barrier-free dropped kerbs, footways and wheelchair routes

Dresden Office for Road Construction and Civil Engineering is preparing for, or has included, dropped kerbs when planning and carrying out transport construction at all road junctions affected.

- barrier-free dropped kerb with warning surface

- barrier-free footways

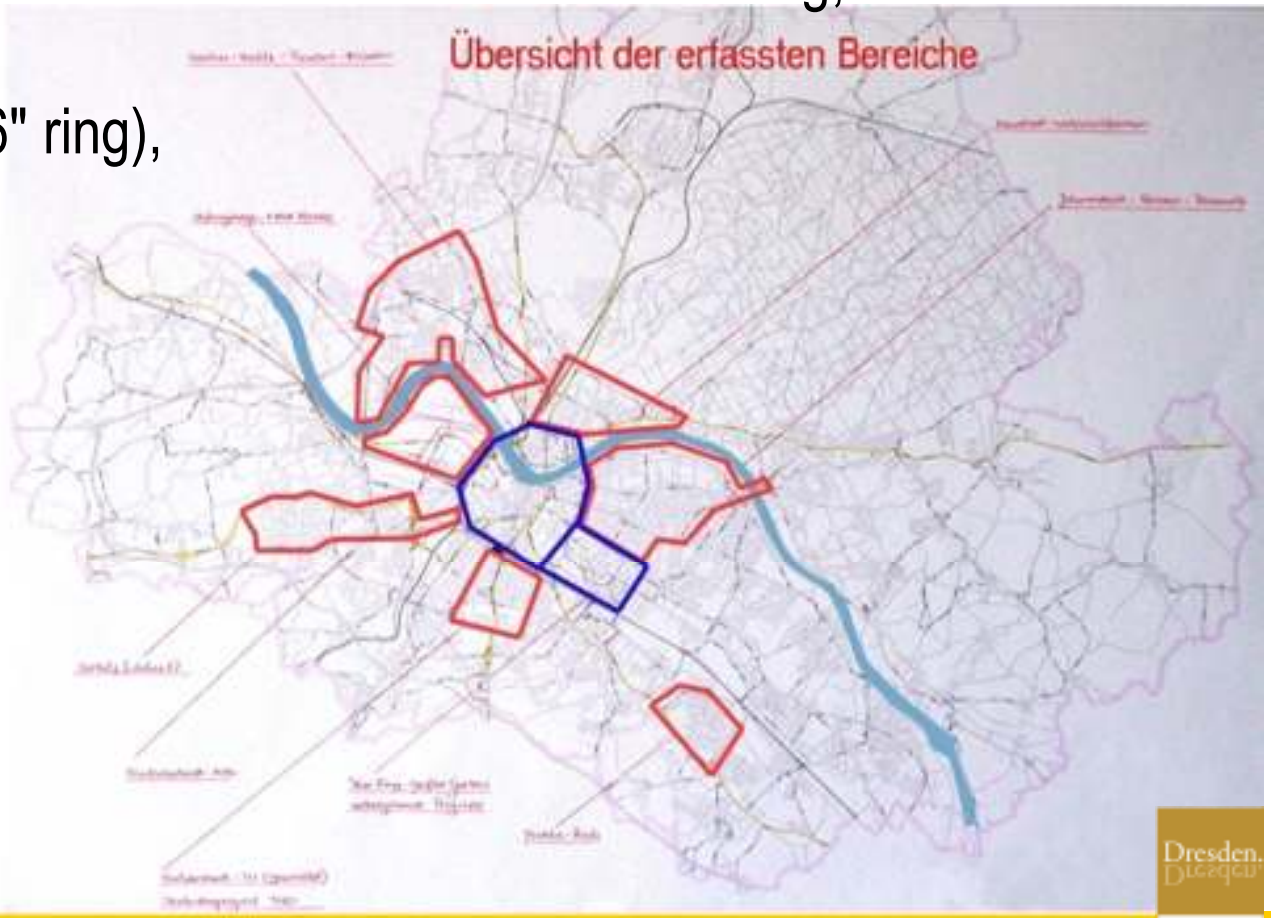
When recording the current situation regarding barrier-free footways and wheelchair routes, the City Planning Office (transport development planning department) also listed dropped kerbs. This record of dropped kerbs and barrier-free footways and wheelchair routes was made for the following, extensive list of Dresden districts:

Dresden city centre ("No. 26" ring),

Outer Neustadt,

Parts of:

- Pieschen ,
- Trachau,
- Mickten,
- Cotta
- Südvorstadt,
- Gorbitz,
- Johannstadt,
- Blasewitz and
- Prohlis.



The results of this status report have been published in the themed city map; they show that a good outcome has been achieved in Dresden city centre regarding the creation of a barrier-free footway and wheelchair route network.

In the outer parts of the city, especially in the secondary networks, as the distance from the centre increases there are still considerable deficits to be dealt with by improving surface quality and fitting dropped kerbs. This requires extensive work to be carried out on continuing to record the current state of wheelchair routes and considerable further spending on the construction of barrier-free footways.

(see www.stadtplan.dresden.de , interactive "City map for people with restricted mobility")

3.5 Adapting the vehicle pool to low-floor vehicles with ramps

The local transport company "Dresdner Verkehrsbetriebe AG" (DVB AG) is responsible for local public transport (tram and bus) in the city of Dresden and puts into effect barrier-free construction requirements.

The city of Dresden also has a very efficient local transport system, with trams, buses and a municipal railway taking into account requirements for barrier-free access.

DVB AG runs the municipal tram and bus network. The switch to low-floor vehicles in the municipal fleet has been completed; DVB AG uses 100% modern low-floor trams and buses with audio-visual information systems. The modern municipal railway carriages are also barrier-free.

You can find further information on DVB AG online at www.dvbag.de .

The DVB AG vehicles have been gradually equipped with fold-out (mobile) ramps, with assistance for wheelchair users, for passengers boarding and alighting at those stops which have not yet been developed according to the strict criteria for barrier-free access.

The height for trams is +28 cm above the track surface. The ramps are 1.40 m long, forming a maximum longitudinal gradient of 18%.

Deploying the ramp takes up 1 minute of driving time on average, as the driver has to operate it and provide assistance. Trams can transport all wheelchairs which do not exceed a total weight of 250 kg and the size limit (130 cm long / 90 cm wide).

3.6. Stops

3.6.1 System solutions for barrier-free stopping places

Dresden's existing local public tram and bus stops are gradually being adapted to provide barrier-free access.

In Dresden, approx. 38% of all 1539 local public transport stopping places are currently barrier-free. Almost all the tram and bus stops in Dresden city centre are already barrier-free. At these barrier-free stops (which also have a guidance system for the blind and barrier-free entrances with dropped kerbs) wheelchair users, for example, can board and alight from low-floor trams and buses independently, without any outside help.

To achieve this, the upper edge of the barrier-free stopping places are designed to fit the floor of the vehicle interior, and are raised accordingly (step height of low-floor trams: the height difference between the track surface and the edge of the tram platform is +23 cm, leaving a gap of 5 cm between the vehicle and the edge of the platform).

The DVB AG's requirements for barrier-free access are summarised in an internal rulebook (on standard tram stops) for all planners and construction companies working for DVB AG.

When stopping places are being built or rebuilt in Dresden, three basic barrier-free systems are used:

- **Stopping place with raised island platform (accessible via flat crossing-places with dropped kerb),**
- **"Boarders" or "bulbs" (having the tracks curve towards the footway or widening and lifting the footway, which is extended to reach the track area),**
- **Stopping place accessed via raised carriageway for private motor vehicles and separate raised cycle path.**

These three system solutions are explained below.

Stopping places with island platforms

The island platforms are between 3.15 m and 3.80 m wide depending on frequency of use and on fittings. The main feature of island platforms is that passengers wait on the platform in the centre of the road, while private motor vehicles pass by in their lanes, and that the platform is connected to the public footway network by means of barrier-free flat pedestrian crossings. These crossings are always designed to be completely accessible to the disabled (marked out with tactile and audio navigation aids). Setting up an island stopping place means the road has to be widened, which is often not an option in the city centre.

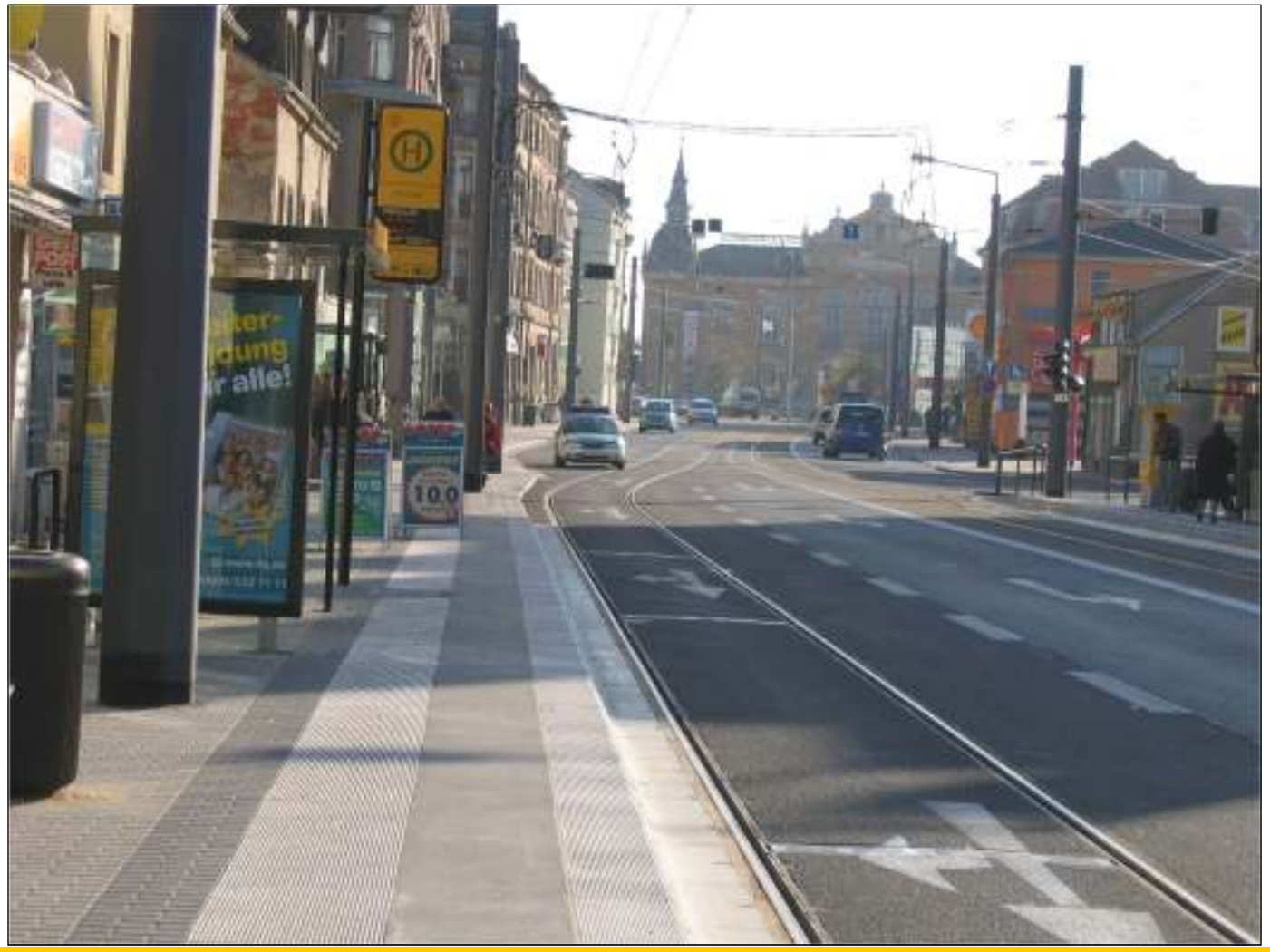
Boarder stopping places

The main feature of boarder stopping places is that the footway is combined with a waiting area for passengers. They can be created by having the tracks curve closer to the raised edge of the footway (i.e. the edge of the platform) or by widening the footway and extending it as far as the track area.

The second option (extending the footway) is the neatest, as it does not impair tram passengers' comfort (the tracks do not swing round to meet and leave the sidewalk) and the length of the stopping place is limited to that required, thus only restricting parking where absolutely necessary.

The disadvantage of this type of stopping place is that the length of the stop is kept to a minimum due to entrances to neighbouring properties, and it is harder to supply commercial properties.

With this solution, cycle transport routing requires more complicated traffic organisation measures and can pose a safety risk.



Stopping places involving raised carriageway for private motor vehicles

The lane for private vehicles is raised above the level of the tracks by the above-mentioned 23 cm. The waiting area for passengers is on the footway. A strip 80cm or 90cm in width along the edge of the platform helps passengers board and alight and is delimited with bollards.

The ramps of the raised carriageway are 10 m in length when designed for a speed of 50 kph; at lower speeds the ramp is shorter (in accordance with the specifications laid out in the regulations of the City of Dresden's lower-level tram authorities). Traffic is brought to a halt when a tram enters the stopping place using a stop light system (red/off). The German road traffic regulations lay down other clear-cut specifications.

The footway is set off from the roadway using a kerb raised by 8 cm; for about the first third of the stopping place, the edge of the kerb is dropped for wheelchair users. Road drainage is ensured using a drainage channel on the kerb; there have been no known maintenance problems.

With this type of stopping place, traffic lights are used. There is a low accident risk for private transport and pedestrians/passengers. There have been no known accidents or noteworthy collisions with bollards in connection with this type of stopping place over the past few years.

In our experience, it is important not to make the boarding area too wide, otherwise it is seen by passengers as a waiting area. It should absolutely not be used as a waiting area (potential accident risk).

If there is enough space, the separate cycle lane is routed around, i.e. behind the stopping place. If space is confined, e.g. due to existing structures, the separate cycle lane is routed in front of the stopping place, i.e. through the stopping area, parallel to the roadway, as a raised cycle lane; this solution is currently being tested.

3.6.2 Non-barrier-free stopping places (use of ramps)

Work is constantly underway on the gradual adaption of stopping places which are not barrier-free, in connection with the city of Dresden's ongoing tram construction programme.

At these tram stops which have not yet been made barrier-free, the driver unfolds a ramp at the request of wheelchair users, enabling them to board or alight.

The DVB AG has published a network map and an atlas of stopping places for wheelchair users identifying each barrier-free or non-barrier-free (ramp-only) stopping place.

3.7 System solution for the "Dresden Combibord" tram stop kerb

Over the last few years, combined bus and tram stops at hubs in Dresden have become established. For this reason, DVB AG has developed a special kerb (Dresden Combibord) making them barrier-free for both types of vehicle at once.

Ladies and gentlemen, thank you for your attention!