Design volumes at stations and stops of public transports (VSS1998/187)

Fahrgastverkehr bei Haltestellen des öffentlichen Verkehrs

**Funding:** National (Switzerland)

**Duration:** Jun 2002 - Dec 2006

**Status:** Complete with results

**Background & policy context:**

Stops are interfaces between public transport and foot traffic. Whilst space requirements for means of public transport are clearly defined owing to vehicle measurements and manoeuvrability, space requirements for people using the stops are often only defined due to situational examinations or as the result of external compulsion. There are no general guidelines for the dimensioning of facilities on the pedestrian side of the stop.

It is now necessary to determine appropriate bases for dimensioning to ensure an efficient, attractive space-saving and, from the point of view of space, satisfactory arrangement of stops within public transport.

**Objectives:**

The aim of the research assignment is the elaboration of a standard containing a directive on the pedestrian side sizing of stops of public transport. This involves setting the decisive movement and the dimension of land capitalization (minimum standards and to aspire to standards) as a function of parameters (eg. amount of traffic, traffic safety, comfort, passenger exchange times, stops type).

These instructions should be given to the planning process, allowing the inclusion of situational peculiarities in the sizing process and in particular on the dependencies in design matters (stops furnishing, passenger information, safety fences, splash protection, etc.) to draw attention.

The proposals will be examined at least six different in disposition, location and local transport case studies on their functional ability towards.

**Methodology:**

To enable efficient processing of the research assignment or the draft standard, the system description is consolidated at the start of processing and formulated the structure / frame of the norm. These two documents are updated as work progresses. To determine the dimensions of sizes, a model is developed, which is calibrated to specific case studies.

The following served as the bases of suggestions for dimensioning:

- literature research of legal and technical norms, guidelines, research reports, specialized articles and other specialized literature on three subject areas: stops (geometry, disposition); foot traffic (characteristics, space requirements and methods of dimensioning); facilities for the disabled (bases of dimensioning, equipment, disposition).
- Survey among Swiss and European haulage companies and institutions (town planning authorities or civil engineering authorities of larger towns). On the whole, about 100 institutions were approached in the German and French speaking areas nationally and abroad about the following information: special guidelines for the planning of stops; provision of guidelines or literature; practical examples of well-functioning or ill-functioning stops at roads.
- Video recordings to verify common ideas about passenger behaviour at the stop and the guidelines for space requirements of pedestrians in Berne at the Station stop of line 10, Köniz-bound.
- Test drives with vehicles for the disabled.
- Simulation of curve driving with vehicles for the disabled with auto-turn.

**Parent Programmes:**
**ARAMIS - ARAMIS information system**

**Institute type:** Public institution  
**Institute name:** Swiss Government: State Secretariat for Education and Research  
**Funding type:** Public (national/regional/local)

**Partners:**  
Switzerland  
Swiss Federal Roads Office  
B + S Ingenieur AG

**Organisation:** B + S Ingenieur AG  
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**Key Results:**

With the Federal Law dated 13 December 2002 about the Elimination of Disadvantages for the Disabled (LHand; Systematic Collection of Federal Law 151.3) and the Decree dated 12 November 2003 about Arrangements within Public Transport to Facilitate Access for the Disabled (OThand; Systematic Collection of Federal Law 151.34), new regulations came into force as from 1 January 2004, which could substantially influence the geometry of the stops.

Focus of the research project is on heavily frequented stops within urban areas (towns and urban agglomerations) where the issues outlined in the initial position are the most obvious.

Data used for the dimensioning were in this context developed for individual stops; however, these can also be applied to other stops and circumstances, by taking into account variable conditions.

Following conclusions were made in the project:

**Structural and Geometric Dimensioning**

The structural and geometric dimensioning of the stop will generally provide the minimum measurements of the stop. These are derived for the basic types of stops at the road edge and stops with physical islands; they can also be applied to the other types of stops. The decisive factor is in most cases the space requirement of the disabled. This requirement then leads to stop widths which, depending on the vehicles for the disabled and the access aids to be taken into account, exceed by far the mass currently in use nowadays. The result of the assessment of proportionality shows to what extent these are to be taken into consideration.

**Dynamic and Capacity Dimensioning**

Through dynamic and capacity dimensioning, the dimension of the stop is to be orientated towards its load by passengers and by tourists. It will become decisive at a moment when measurements resulting from structural and geometric dimensioning are deemed insufficient. Dimensioning is based on a thought model with 2 principal situations – 'Waiting for the next means of public transport' and 'Change of passengers'.

It shows how space requirements for both situations can be established from waiting densities, walking densities and walking speeds, depending on foot traffic.

**Planning procedure**

A planning procedure deemed suitable is introduced here with planning steps: initial position, assessment and result.

**Documents:**  
[21153_1150_Inhalt.pdf (Final report)](attachment:21153_1150_Inhalt.pdf)  

**STRIA Roadmaps:** Network and traffic management systems, Smart mobility and services  
**Transport mode:** Road transport
Transport sectors: Passenger transport
Geo-spatial type: Infrastructure Node