

# Keeping ZVV's passengers informed

**CONNECTIONS** Commuters and other travellers in Zürich are now given real-time information about their rail, tram and bus services, including transfers to other routes.

This year Zürich Transport Authority (ZVV) completes a project launched in 2004 to renew its vehicle location and operational control system, enabling it to provide passengers travelling throughout the area with real-time information. Developed in co-operation with Trapeze ITS from Neuhausen, the ZVV control system covers the principal operator VBZ and five other local operators.

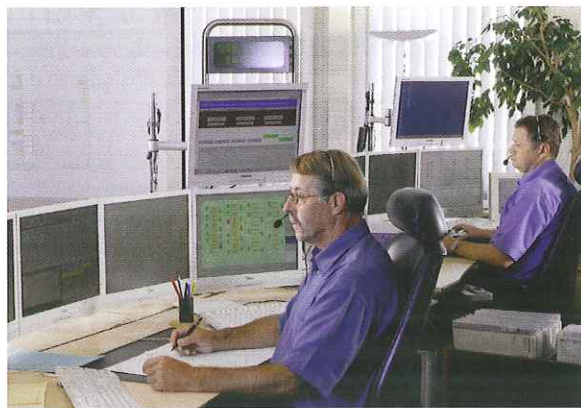
ZVV carries around 1.6 million passengers a day on 379 routes with a combined length of over 4 000 km with 2 700 stops and stations. Renewal of the operational control and passenger information system required Trapeze ITS to fit more than 1 000 vehicles with an average of two multifunction displays each, to install WLAN systems in more than 40 depots, to supply 300 station and stop displays and to set up 12 workstations in five control centres.

Planning and data provision takes place on a multi-agency basis, using a single database, with each operator having its own control centre. The control system can adopt data about trip and transfer information together with vehicle locations from adjoining operators. Thanks to use of real-time standard interfaces such as VDV 453 and VDV 454, together with SIRI protocols, this can then be displayed with the operator's own data in its vehicles and at stops.

## Central data management

The essential requirement for passenger information is to have consistent central management of planned and actual data based on a holistic information system linked to the operational control and vehicle location system. It should also be designed to anticipate the passenger's needs, including the ability to check travel times on the internet before setting out. En route to the station or stop, for example in shopping malls or hotels, so-called approach area displays can be used to inform potential passengers about imminent departures.

Together with the ZVV contact centre that provides telephone assistance, ZVV offers Hafas timetable



Trapeze ITS has supplied 12 workstations for five control centres in and around Zürich.

information. Using data from partner operators, this shows the planned journey details and recommended connections. The service can be accessed from the internet and mobile phones, as well as via iPhone and Android applications.

ZVV also seeks to woo new customers using co-branded applications. For example, the iPhone application by Netcetera with the Location Based Services feature shows the next stop including planned departure times.

Once the passenger has reached the stop, he can consult printed timetable displays, but in times of disruption operators also need to provide real-time data. Trapeze ITS is supplying more than 300 SmartInfo G4 stop DPI signs for the final stage of the ZVV area; more than 250 have already been commissioned.

The control system uses common analogue and digital radio to supply data to the signs and displays. In addition to real-time departures, the signs display special texts detailing one-off events and operational disruption; they also facilitate audible announcements.

To ensure that the information on the DPI signs is easily viewed, the SmartInfo G4 is equipped with LEDs with a radiation angle of 120°. This means that the text can be read from practically any angle under any lighting conditions, with the intensity adapted automatically to the ambient brightness.

Trapeze ITS offers a modular configuration with signs showing eight, four or just two lines, depending on the number of routes. A 40 in TFT display is ideal for applications at major interchanges. Together with the window for

departure information, this offers an additional graphics and video window.

This year VBZ is installing a number of 40 in outdoor TFT SmartInfo flat screens with a web display feed. These combine real-time passenger information with up-to-date information from the internet. The operator can compose the internet content (panels) and modify it at any time. Among possible display panels is one showing current traffic predictions; others can show a rotating display of special texts, a map giving the location of the station and a media panel allowing playback of images and videos. The content can also be retrieved from an external source such as an RSS feed.

Communication between the central server and the DPI signs is IP-based via GPRS/UMTS or ethernet. The WDF supplies all the data to be shown in the browser; data supply in the DPI sign is therefore not necessary. The system is fully integrated in the vehicle location system so that consistent information across all media is guaranteed.

## Information on board

While dynamic information at stops is now very common, real-time information on trams, trains or buses is less widespread. Trapeze ITS supplied more than 2 000 multifunctional displays controlled by on-board computers to ZVV. The data is prepared by the control system and transmitted to the vehicle via radio. In addition to the travel time to the next stop and connection information, it is possible to announce delays and provide details of alternative journeys. If a tram is waiting for a connection, passengers can be kept informed about what is happening.

The control system breaks the journey between two stops into various time sections. The various displays, such as trip pattern, transfer screen and possibly advertising and tourism information, then rotate on the basis of these trigger points.

Trapeze ITS has also developed a multi-screen concept which allows the operator to show two screens in parallel, one showing the route sequence and the other showing additional information. ☞