Background report

June 06

Mere counting is not enough

How to handle large amounts of count data? Traffic planners and engineers often come up against limiting factors, such as the collection of useless data. Therefore, it is important to conduct traffic surveys. IT-based analysis and archive options help the planners to efficiently handle these huge amounts of data.

Without even an audible click cars or lorries drive over the induction loops buried under the asphalt of Tyrol's roads. These traffic sensors constantly collect data on the type of vehicles passing over the loop and their speeds. And how do you handle this large amount of count data? In Austria, the Federal State of Tyrol relies on professional software which allows them to easily manage and analyse count data. This solution provides a better basis for decision-making in the field of traffic and transportation planning.

Count data are a vital component in traffic and transportation planning. They are an input for the design of road infrastructure and pavement management systems in order to resurface lanes and ramps in time. Additionally, count data help to analyse the impacts of changes on the road network and support decision-making in the field of urban construction. Automatic traffic counters collect data on traffic volumes, speeds as well as the vehicles' weight and number of axles.

Professional count data analysis and management

There are different methods for traffic flow data collection. Your data might be supplied by permanent traffic counters or collected manually. During the summer, drivers sometimes see students manually counting vehicles at junctions or on motorway bridges. Traffic data collected manually only provide temporary results, which means that they can only be extrapolated over a longer period of time under certain statistical conditions. Manual traffic counts provide information about the number and type of vehicles, such as passenger cars, lorries, buses, etc. Many archives also store statistics based on historic key values that cannot be easily used for current issues.

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Permanent traffic counters constantly collect traffic data at specific junctions any time on any day. Induction loops embedded in the road's surface are very reliable. An induction-loop trigger is a length of electrical wire buried just under the asphalt and hooked up to an electrical power source and a meter for data transfer.

Radar units

It is also possible to use radar units using microwave frequencies. The data are transmitted to a central computer via GPRS. The traffic counters are solar-powered. Permanent traffic counters provide detailed raw data about the number of vehicles and speeds, including a sophisticated vehicle classification scheme with up to nine different vehicle classes.

The results from permanent traffic counters do not have to be extrapolated. Plausibility checks can be performed immediately.

With the cross-section count methods one counts the number of vehicles passing a specific point over a defined period of time. Junction counts are more complex than cross-section counts. The traffic sensors calculate the traffic flows at the junctions, which means the number of vehicles and lane directions. This large amount of data has to be collected centrally.

Utilizing count data from different sources

Regardless of whether your data are supplied by permanent traffic counters, based on historic key values, or collected manually, traffic data management focuses on collecting, processing and storing count data from all kinds of sources. Thus, traffic engineers and transportation officials can quickly access important high-quality key data. Moreover, data and analyses have to be intelligently stored in order to provide useful information about long-term road traffic developments.

Do you plan to expand the motorway network or to adjust signal programming at a junction? To make the right decision you will need a detailed analysis of all data and information available. And advanced traffic and transportation planning systems need correct input data.

Coping with traffic

Austria's Federal State of Tyrol has to cope with heavy transit traffic over the Alps. The Brenner and Inntal motorways are the most important routes for freight and passenger transportation.

Tyrol has more than 136 count cross-sections and 13 traffic counters distributed across its motorway and expressway network covering about 2,200km.

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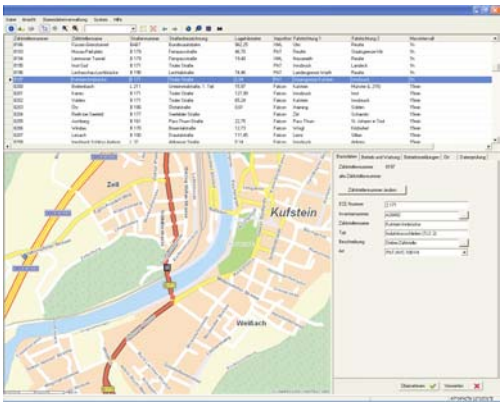
Traffic database

Tyrol's traffic data are transmitted to a central traffic database every day. Here they are validated, managed and analysed. This complex task is accomplished by PTV's TrafficCountManagement software. Every day the system automatically transmits the data to a central computer. A central database processes, analyses and stores the raw data and key values for each traffic counter, such as ADT (average daily traffic). These common statistics can be instantly used for evaluation purposes. The integrated software also includes an automated plausibility check. It is possible to visualise database information and to correct unplausible count data.



Key data management for traffic planning in Tyrol

Since 2005 Austria's Federal State of Tyrol has been using the PTV TrafficCountManagement solution. A monthly update of the traffic count analyses is available on Tyrol's website at www.tirol.gv.at/vde. You can access the major key values per month for Tyrol's most important traffic counters as well as annual traffic reports.

Traffic data management system to save time and costs

"Thanks to automatic traffic counters it was no longer necessary to perform manual traffic counts over a period of five years," explains Othmar Knoflach, the Tyrol project manager. It was even possible to observe the impact of Germany's new motorway toll on Tyrol's traffic volume by using permanent traffic counters. These results are also available on Tyrol's website. Othmar Knoflach is convinced that the Federal State of Tyrol cannot cope with future road traffic unless it permanently analyses all traffic data, including transit traffic, residents and environmental factors.

The project manager concludes: "Mere counting is not enough. Professional software allows us to use meaningful traffic data required for informative decision-making in traffic and transportation planning."

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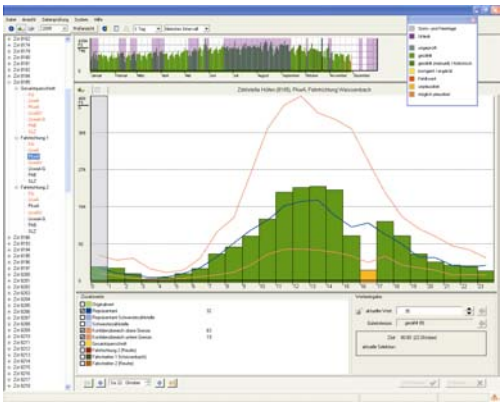
PTV TrafficCountManagement at a glance

PTV provides the basis for tomorrow's intelligent traffic and transportation management.
The main features are:

- Easy management of traffic counters
- Instant access to count data
- Automatic data import and validation
- Calculation of substitution and suggestion values for implausible or missing data
- Central data processing - any import format
- Transparency about modified count data
- Easy export to MS Excel
- Easy generation of reports in MS Word
- Flexible and detailed data evaluation
- Direct access to all data via SQL export

Data Validation: Visualising and editing traffic data



Further information:

- Press release: New traffic count data management system by PTV
  http://www.ptv.de/cgi-bin/news/presse.pl?init=show&art=0406TrafficCountManagement_e
- Homepage of Austria's Federal State of Tyrol:
  www.tirol.gv.at/vde
- Homepage of PTV´s business field Traffic:
  http://www.ptv.de/cgi-bin/traffic/traffic.pl