HISTORICAL SPEED INFORMATION
A NEW QUALITY IN TRANSPORTATION MODELLING
AGENDA

1. The Role of Data in Transportation Modelling
2. Historical Traffic Information
3. Usage of Historical Speed Data in Modelling
1 THE ROLE OF DATA IN TRANSPORTATION MODELLING

- Transportation planning is an important decision-making instrument for future investments

- Traffic models are one of the preferred tools of planners

- Good data is the basis for a good model
  - Digital map data
  - Structural and socio-economic data and travel behavior data for traffic demand modelling
  - Count data and historical speed data for calibrating the model
2 HISTORICAL TRAFFIC INFORMATION

TRADITIONAL METHODS versus FLOATING CAR DATA
2 HISTORICAL TRAFFIC INFORMATION

TRADITIONAL METHODS versus FLOATING CAR DATA

Methods:
- Induction loops
- Traffic cameras
- Infrared sensors
- ANPR-Systems

Disadvantages:
- Initial cost of installing hardware alongside road
- Maintenance costs (risks of damages)
- Limited potential to collect speeds or travel times
- Data only available at point locations
2 HISTORICAL TRAFFIC INFORMATION

TRADITIONAL METHODS versus FLOATING CAR DATA

Method:
- Vehicles with GPS-devices
- Devices stores data (position, time, date) offline or online (via GSM)

Characteristics:
- No installation or maintenance of roadside equipment required
- Information available on entire road network (but with small sample sizes on minor roads)
2 HISTORICAL TRAFFIC INFORMATION

Sources - Floating Car Data from TomTom Navigation Devices

COLLECTING

INPUT

Live PND
In-dash navigation
iPhone navigation
Business solutions
TomTom HOME

PROCESSING

STORE

PRODUCTS

Speed Profiles
Custom Area Analysis
Custom Travel Times
Custom Probe Counts

www.ptvag.com
3 USAGE OF HISTORICAL SPEED DATA IN MODELLING

- Defining Free Flow Speeds
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- Defining Free Flow Speeds
- Estimation of Capacity
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- Speed calibration / validation of model results
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- Defining Free Flow Speeds
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- Determining traffic flow quality for emission calculation

HBEFA
Handbook of Emission Factors for Road Transport
3 USAGE OF HISTORICAL SPEED DATA IN MODELLING

- Defining Free Flow Speeds
- Estimation of Capacity
- Speed calibration / validation of model results
- Determining traffic flow quality for emission calculation
- Accessibility studies without a traffic model

Accessibility at different times of the day
3 USAGE OF HISTORICAL SPEED DATA IN MODELLING

- Data has already been used in recent transportation modelling projects, for example in:
  - Sacramento/California,
  - Brussels/Belgium,
  - Zürich/Switzerland
  - and for the Olympic Games in London
CONCLUSIONS

- Transportation models are important decision-making tools
- Quality data is the basis for good models
- Usually the availability of area-wide data with high quality is difficult
- Now Floating Car Data collected from millions of navigation devices is available on the market, providing historical speed information
- Data opens the door to new possibilities of traffic modelling and analysis
- First practical experiences have proven the benefits of floating car data in modelling