Walkability study in Essen:
Testing measurements and assessment methods at macro and micro level

Minh-Chau Tran

Institute of City Planning and Urban Design, University of Duisburg-Essen, www.uni-due.de/staedtebau/
Promotion of active mobility through health-oriented urban design in Essen?

2001: 1/3 trips in Essen on foot
2011: 1/4 trips in Essen on foot

39 % of short trips in Essen (1-3 km) are covered by private cars

(The City of Essen 2012: Household survey on mobility)
Study: GIS-based measurements at macro level and Walk Audits at micro level

Macro Level
Objective measurements
ArcGIS based analyses (e.g. Walkability Index)

Micro Level
Objective assessment
Walk Audits (Physical features, urban design qualities)

Micro Level
Subjective assessment
Surveys, interviews and observation (Individual perception)

Macroscale:
Calculation of Walkability Index (WAI)
(density, street connectivity, mixed-use)

Microscale:
Walk Audits on streets
(case study: 7 mixed-used areas)

On-site test surveys

Question: Do results on macro level match with results on micro level?
Study: GIS-based measures on macroscale – selection of seven areas for microscale study

Walkability Index for Essen (WAI)
Study: GIS-based Walk Audits on microscale

**Integrated Walkability Audit on Microscale (IWAM)**

1.0 For mixed-used areas

On site data collection (physical features and urban design qualities)
from segment to segment
Synchronization
Location (georeferenced)
Photo documentation
Scoring

**ArcGIS interface**
Study: GIS-based Walk Audits on microscale

High IWI: Röttenscheider Str.

Low IWI: Altendorfer Str.
Study: GIS-based Walk Audits on microscale

Currently: Development of the IWAM GIS-Toolbox

ArcGIS Toolbox for **automatization** of data preparation for a Walk Audit and for calculation of its results

All variables, scores, weighting, criteria are editable

Repetition of audits in other areas needs only a short time preparation
Conclusions and Outlook

Raising awareness and informing

Community Street Audits, Pedestrian-Checklists

Target group specific views, needs, limitations, perceptions of the route

Research: Gaining scientific knowledge on methods

Practice: Using analysis results for decision making and as basis for prioritization of measures

Participation tool
Conclusions and Outlook

- WAI as a benchmark
- IWI > small-scale research necessary
- Surveys/observations provide with further information, e.g. about safety
- Small-scale data: a) characteristics of the built environment, b) residents, their health and where they live, c) behavior patterns in everyday life

A human-oriented street is a health-promoting street.
References:

The City of Essen 2012: Household Survey on Mobility in Essen 2011