Land Use Planning and Mobility Management
Kaunas, Lithuania | 23 November 2017

Karl-Heinz Posch | Austrian Mobility Research (FGM-AMOR)
Your personal mobility

- Your name
- Job
- How do you commute to work?
- How many bicycles at home?
- How many cars at home?
- How far is it to the closest public transport stop?
- How often does the bus/tram/metro go?
Fuel consumption per capita and year in litres

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Trips</th>
<th>Activities</th>
<th>Travel Time</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wim, Groningen</td>
<td></td>
<td>3-4</td>
<td>1-2</td>
<td>1-1.5 hours</td>
<td>340</td>
</tr>
<tr>
<td>Lukas, Zürich</td>
<td></td>
<td>3-4</td>
<td>1-2</td>
<td>1-1.5 hours</td>
<td>440</td>
</tr>
<tr>
<td>Barbara, Bochum</td>
<td></td>
<td>3-4</td>
<td>1-2</td>
<td>1-1.5 hours</td>
<td>1010</td>
</tr>
<tr>
<td>Petros, Nicosia</td>
<td></td>
<td>3-4</td>
<td>1-2</td>
<td>1-1.5 hours</td>
<td>1480</td>
</tr>
</tbody>
</table>
Mobility can be managed
And Modal Split shows how it is managed

Modeshare in various cities:

- Groningen: Walking 39%, Biycle 4%, Car 33%, Public transport 6%
- Zürich: Walking 25%, Biycle 5%, Car 42%, Public transport 10%
- Bochum: Walking 15%, Biycle 3%, Car 58%, Public transport 7%
- Perth: Walking 22%, Biycle 4%, Car 75%, Public transport 3%
Mobility time and nr. of trips are the same everywhere

Gross Domestic Product (GDP) per capita (US$ 1985)
### Mobility surveys in Germany

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Anteil mobiler Personen</td>
<td>%</td>
<td>82</td>
<td>91</td>
<td>91</td>
<td>92</td>
<td>85</td>
</tr>
<tr>
<td>Trips per person per day</td>
<td></td>
<td>3.0</td>
<td>3.6</td>
<td>3.5</td>
<td>3.4</td>
<td>3.3</td>
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<tr>
<td>Wege pro mobiler Person und Tag</td>
<td>Anzahl</td>
<td>3.7</td>
<td>3.9</td>
<td>3.8</td>
<td>3.7</td>
<td>3.9</td>
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<tr>
<td>Tagesstrecke pro Person und Tag</td>
<td>km</td>
<td>31</td>
<td>40</td>
<td>39</td>
<td>40</td>
<td>39</td>
</tr>
<tr>
<td>Tagesstrecke pro mobiler Person und Tag</td>
<td>km</td>
<td>37</td>
<td>43</td>
<td>42</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>Mobile hours per person per day</td>
<td>h:min</td>
<td>1:12</td>
<td>1:21</td>
<td>1:19</td>
<td>1:20</td>
<td>1:20</td>
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<tr>
<td>Unterwegszeit pro mobiler Pers. (ohne rbW)</td>
<td>h:min</td>
<td>1:27</td>
<td>1:28</td>
<td>1:26</td>
<td>1:27</td>
<td>1:27</td>
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<tr>
<td>durchschnittliche Weglänge</td>
<td>km</td>
<td>10,0</td>
<td>11,1</td>
<td>11,0</td>
<td>11,8</td>
<td>11,7</td>
</tr>
<tr>
<td>Modal Split – Basis Wege</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zu Fuß</td>
<td></td>
<td>29</td>
<td>22</td>
<td>24</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Fahrrad</td>
<td></td>
<td>11</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>MIV-Fahrer</td>
<td></td>
<td>37</td>
<td>45</td>
<td>43</td>
<td>42</td>
<td>48</td>
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<tr>
<td>MIV-Mitfahrer</td>
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<td>13</td>
<td>14</td>
<td>14</td>
<td>13</td>
<td>13</td>
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<tr>
<td>ÖV</td>
<td></td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>11</td>
<td>9</td>
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<tr>
<td>Modal Split – Basis Pkm</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Some Elements of Mobility Management

• Marketing sustainable mobility at the right spot: at home, in schools, at the place where you work, for events
• Marketing sustainable mobility at the right time: when you change house, job, get children, go to a new school, get a car
• More effective use of the car: carsharing, carpooling
• The Stick: parking management and congestion charging
• The Carrot: financial incentives, healthy and comfortable lifestyle, supportive infrastructure measures: bicycle paths, bicycle parking, pedestrian zones, shared space zones
• Integration of land use planning with sustainable mobility

It is all about mobility behaviour
Why combining MM and Land Use planning is effective

- You already are on the right spot
- You come at the right time
- You can influence framework conditions
- You can secure funding
- You can even enforce Mobility Management
- You can ensure a good cooperation between stakeholders
Why MM and Land Use planning is good

- It lets you look deeper at the integration of sustainable transport planning
- It leads to a cooperation of different stakeholders
- It helps to set and achieve modal split targets
- More economical
- More ecological
- Socially juster
- Better quality of life
- Better use of the land
Vienna, Aspern Seestadt (Vienna’s Urban Lakeside)

- Vienna (1.8 Million inhabitants)
- Growing 1.5%/Year
- Metro network (U-Bahn)
- New U2 leading to Seestadt
Aspern Seestadt Layout/Master Plan 2007
Aspern Seestadt Metro (U2) 2013
Final development (2025)
Aspern Seestadt First Phase (2016)
Aspern Seestadt Mobility Guidelines 2008

- 2008 within MAX – project mobility guidelines
- Series of 5 workshops
- Modal Split target
- Maximum parking allowance per dwelling lower than 1
- Mobility fund for MM measures
- Information packages for new inhabitants, new companies, developers, schools
- Mobility Centre
- Concentration of car-parking in collective garages, on street paid parking zones
- E-bike supply, carsharing spaces, city-bike
- Good infrastructure for cycling: obligatory parking, cycle routes, cycle repair
- Good pedestrian infrastructure: shared-space type development, easy street crossing, pedestrian zones, excellent sidewalks
Aspern Seestadt today
Aspern Seestadt Mobility 2017

- Modal Split targets remain
- Maximum parking allowance per dwelling 0,7
- Mobility fund for MM measures (winner of klima:aktiv-award 2014)
- Information packages for new inhabitants, new companies, developers, schools
- Concentration of car-parking in collective garages, on street paid parking zones
- E-bike supply, carsharing spaces
- High cycle parking standards, cycle routes
- Aspern ReCycle: free repair every thursday
- Good pedestrian infrastructure: easy street crossing, pedestrian zones, excellent sidewalks
- Reduced-car housing with „Baugruppen“ (co-housing-groups)
Aspern Seestadt links

- Downloads in german and english: https://issuu.com/asperndieseestadtwiens/docs
- Aspern Seestadt website mobility part (in german): https://www.aspern-seestadt.at/lebenswelt/mobilitaet
- Cohousing groups (in german): http://aspern-baugruppen.at/
- City construction time lapse video: https://vimeo.com/233278709
A good example of integration
Sihlcity, Zürich, Switzerland

- Multifunctional development
- Located at the edge of the city – but also close to city centre (1.5 km)
- Highly accessible by all modes
- Opened 2007
- 2300 employees
- 21000 visitors/day
- 850 car parking spaces
Sihlcity – Requirement to obtain planning permission and calculation of generated car trips
Calculation of car trip contingent

N° of parking spaces

Minimum trips per day

N° of additional parking spaces

Maximum trips per day

STG trip rates (space and day):  
- Employees: 2.5-3.5  
- Residents: 2,5  
- Offices (clients): 4-10-15  
- Restaurant (clients): 8-10-18  
- Hotel (clients): 4-5  
- Stores (clients): 8-10-18-25

Minimum trips per year

Maximum trips per year

Number of operational days per year and use

Parking regulation of the city of Zurich

Specific trip generation per space & day (STG)
Required measures

- Financial contribution to public transport improvements
- 600 bike parking spaces
- Assure “recreation quality” within the area
- Finance construction of access ramp to main road
- Max. 850 car parking spaces
- Car parking management (with charges) and limit on total car trips per year (lever for MM measures)
- Home delivery service by bike

- Regulated in a contract and part of the building permission
• 850 parking spaces (50 P+R spaces included)
  – consequence: employees do not have parking permission!
• Two CarSharing locations (today 3)
• Max. car trip contingent
  – 8‘800 trips / day (to achieve within 5 years, starting from 10‘000 trips / day)
  – 1‘300 trips / night
  – 800 trips / peak hour
• Obligation to have paid parking
• Tariff today 3 Euro for 1 hour, +1-3 Euro for every next hour, up to 33 Euro/day
• Obligation to set additional measures if trips exceed trip contingent
Measure: Improve links to existing transport networks

- Motorised transport
  - access via ramp to main access road
- Bike
  - extension of bike-paths
- Pedestrians & PT
  - expansion of train station, bus and tram stops
Measure: Improved public transport services

• Bus line nr. 89
  – financed first two years by Sihlcity
  – afterwards by public transport company
Measure: Improved public transport services

- Tram line nr. 5
  - financed first two years by Sihlcity
  - afterwards by public transport company
Measure: Bike home delivery service

Züriwerk bringt's

Lieferservice für Lebensmittel und Kleinwaren per E-Bike-Trailer

- Nach Hause
- Ins Büro

Gebiet Stadt Zürich zum Einheitstarif von nur CHF 5.–

sihlcity
### Fahrplanmässige Abfahrtszeiten rund um Sihlcity

<table>
<thead>
<tr>
<th>Linie</th>
<th>Ziel / Richtung</th>
<th>geplante Abfahrt</th>
<th>Fährt in Min</th>
<th>Haltestelle</th>
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</thead>
<tbody>
<tr>
<td>33</td>
<td>Morgental</td>
<td>15:48</td>
<td>2'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
<tr>
<td>13</td>
<td>Frankental</td>
<td>15:48</td>
<td>2'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
<tr>
<td>33</td>
<td>Bhf Tiefenbrunnen</td>
<td>15:48</td>
<td>2'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
<tr>
<td>89</td>
<td>Heizenholz</td>
<td>15:50</td>
<td>4'</td>
<td>Sihlcity</td>
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<tr>
<td>13</td>
<td>Albsigütli</td>
<td>15:51</td>
<td>5'</td>
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<tr>
<td>33</td>
<td>Morgental</td>
<td>15:52</td>
<td>6'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
<tr>
<td>5</td>
<td>Kirche Fluntern</td>
<td>15:52</td>
<td>6'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
<tr>
<td>5</td>
<td>Laubegg</td>
<td>15:52</td>
<td>6'</td>
<td>Zürich, Sihlcity Nord</td>
</tr>
</tbody>
</table>

www.sihlcity.ch
Measure: Marketing by PT company

Die Linie 5 bricht aus der Enge aus – und fährt ab 22. März neu via Sihlcity bis Laubegg.

Shopping, Restaurants, Kinos und Kultur fast wie in London: Wir bringen Sie bequem nach Sihlcity.
Measure: High recreational quality and function of the neighbourhood
Results

• Frequencies
  – 21’000 visitors per day
• Bike home delivery service
  – 50 deliveries per day
• Use of transport modes (clients, visitors)
  – 70% by bicycle, by public transport, on foot
  – 30% by car
• Public transport clients: e.g. counts at tram stop (line nr. 13)
  – 2006: 1350 per day
  – since opening in 2007: over 3000 per day
• Car parking and car trips
  – not fully occupied during the week
  – on Saturdays fully occupied
  – ca. 4000 car trips per day (8800 allowed)
Freiburg - Vauban

- Most successful car-free living through land use planning experiment
- Freiburg – 230,000 inhabitants, growth over 1% per year
- Modal split 2016: 21% car, 34% bicycle, 29% foot, 16% public transport
Car free living zone in Freiburg - Vauban
THE VISION OF A SUSTAINED DISTRICT BECOMING REALITY

城市可持续发展的设想已成为现实
Characteristics of Freiburg-Vauban

- High degree of citizens‘ participation
- Excellent opportunities for building communities (30 in Vauban)
- Mobility contracts – they enable being car free without parking by obliging tenants to finance parking „just in case it doesn‘t work“
- Control via a „car free living association“
- Excellent mobility alternatives: Carsharing, cycle network, „shared space“ almost everywhere, tramline
- Small lots, very diverse architecture
- Many small shops on the main street
- The city-district with the highest share of children in Germany
- Motorisation in the car-reduced-part is about 150 vehicles per 1000 inhabitants

Freiburg – Vauban – new city district with limited car access – 5000 inhabitants
How to achieve the integration of Land Use Planning and Mobility Management
What is the influence of Land Use Planning on Mobility

• Density – non-density
  The denser your development, the better collective transport provisions work:
  e.g. public transport, carsharing, bikesharing

• Walking provisions
  If the land use plan contains provisions for walking – walkpaths, dense walking network – it will be built and people can walk

• Ground floor zone
  If you want people to enjoy walking you need to provide for interesting ground floor zones: shops, restaurants, open offices, services like libraries, art galleries

• Monotony versus diversity
  The same goes for the architecture: monotonous architecture that looks more or less the same everywhere is boring and people avoid walking
  The solution can be to have small plots and many architects and diverse architecture for one area

• Children Space, Green Space
  Provide space and structures for children, provide useful green space (not just for dogs)

• Mixed usage, mono-usage
  Areas exclusively for living or for working will not deliver urban life
What is the influence of Land Use Planning on Mobility

- Distances
  Services should be provided in walking distances – 300-500m (doctor, shops, playgrounds, cafés, pt-stops, carsharing, bikesharing)

- Cycling provisions
  If the land use plan contains provisions for cycling – cycle path network, cycle parking – it will be built and people can cycle

- Public Transport oriented development
  Living and working is concentrated around well serviced public transport stops

- Parking provisions
  You can put lower and upper limits on parking for many types of land use

- Street and road design
  You can limit the space provided for streets and roads, and set design recommendations

- Car free living provisions
  In cities, people can live without possessing cars, provided they easy access to good alternatives
Kaunas new district: too low density
• Vienna new district Nordbahnhof:
  Nice park but nothing in the Ground Floor Zone
• Maybe also too monotonous, too large lots
Workshop with stakeholders

- Joint Workshop / Meeting / Process with stakeholders as early as possible
- Use the MAX planning simulation workshop as guideline and template
- Invite relevant stakeholders
- If possible, hold several workshops
- Assess transport impacts (e.g. Zurich „Fahrtenmodell“)
Sustainable transport options as precondition

- Public transport, bicycle paths, good pedestrian infrastructure quality
- High density helps
- You can improve infrastructure conditions by
  - *Reducing street widths*
  - Increasing public transport offer
  - Getting public transport active before the first inhabitants/employees come
  - Having more space for bicycles
  - Improving pedestrian quality
  - Provide for adequate bicycle parking
  - Provide for well managed car parking
- If you do not have good sustainable transport options and no restrictions for car use, MM won’t really work!
Smart Mobility

This one runs on fat and saves you money.

This one runs on money and makes you fat.
Smart living in Vienna

- Wohnprojekt Wien – 65 adults, 40 children, 7 floors
- 8 Parking spaces for cars
- Luxurious tool-workshop, roof gardens and Sauna, Guest apartments, Childrens play rooms, garden installations, event rooms, communal kitchen
- 120 bicycle parking spaces
The Poll

How many households in East Harlem (On Manhattan, New York City, USA) do NOT have a car?

Is it:
- 54%
- 64%
- 74%
- 84%

(in East Harlem, NY, 12% of the trips are made by car)
On average cars stand idle (park) 23 hours per day and occupy over 90% of public spaces.
Manage parking!

- Maximum parking allowances instead of minimum parking requirements
- Or: Parking pay-off possibility if minimum parking requirements cannot be achieved
- Manage on street parking:
  - Duration restrictions
  - Payments
  - Enforcement
  - Limit parking space in favour of pedestrians, greenery, sitting spaces, good visibility
- A few collective garages instead of parking in every basement
  - Like in Freiburg Vauban or in Seestadt Aspern
Important steps for MM in the planning process

- Environmental legislation
- Overall planning process
- Setting of planning conditions and obligations
- Setting of parking regulation
- Detailed Site Development Plan (Bebauungsplan)
- Building permission process
- Monitoring and evaluation, enforcement, adaptation
Assure funding and implementation of Mobility Management:

• As Environmental Impact Assessment consequence
• Through advice during the planning or building permission process
• By including it in the planning conditions and obligations
• By including it as condition into the parking regulation
• By making it an option or an obligation in
  – the Detailed Site Development Plan
  – the building permission process
Mobility Management possibilities in Land Use Planning

- Information, information, information
  - Package for developers and other investors
  - Package for employees
  - Package for new residents
  - Package for schools
  - Mobility centre (integrated with development information centre)
  - Special Online Webspace

- Carsharing

- Bikesharing, bike rental, bike repair, bicycle info

- Special integrated offers, such as:
  - Jobticket
  - Parking cash-out
  - Mobility budget
  - Integrated yearly ticket
So: let's integrate...
Land Use Planning and SUMP

• Land Use Planning is statutory (obligatory by law), SUMP is not
• Land Use Planning can run on different levels:
  – General land use plan on regional level
  – City land use plan
  – Sometimes a Detailed Site Development Plan needs to be made
• The optimum would be that SUMP and land use planning runs in parallel in a very coordinated way
• However, this is most often impossible

• That’s why it is important to strive for communication between departments and for joint workshops well in advance of the development of specific sites
MM and Land Use Planning - Introduction

The MAX project has been working on the integration of Mobility Management and land use planning both in the plan-making process and in the site-related building permission process. In these processes, it has developed a set of guidelines, as well as a whole range of other useful recommendations, summaries, tools, training materials and research reports. In this part of the website you can find practical advice on how to better integrate sustainable transport with land use planning and how to make Mobility Management a core part of the building permission process for new developments.

The following material is available:

- **MaxLupo:** Guidelines for the integration of Mobility Management with Land Use Planning: MaxLupo cover all aspects of this theme, including two extensive Annexes with case studies.
- **Site based measures:** this part contains a compendium that provides a handy overview of all MM measures that are applicable at sites.
- **Recommendations and summaries:** here you have information compressed into short 1- or 2-page fact sheets.
- **Training/Presentation:** Part of the tools and instruments are a user guide for a training course along with several powerpoint presentations - to be used in trainings but also in workshops
- **Planning workshop:** MAX developed a new tool that has been successfully applied in 5 countries - the so-called “Planning Simulation Workshop”.
- **Planning comparison per country:** A practical overview of planning legislation and practice in 10 countries - including separate country reports
- **Case Studies:** an overview and quick access to all case studies of this websection
MaxLupo - Case Studies

Case studies

Examples for the Integration of land use with transport planning:
- B1 Planning Policy Guidance 13 (PPG13) (England/UK)
- B2 Greater Dublin Regional Planning Guidelines (Greater Dublin/Ireland)
- B3 Regional structure plan for the localisation of Heavily Frequented Sites (HFS) of the Agglomeration of Biel Agglomeration (Biel/Switzerland)
- B4 Determination of the localisation of Heavily Frequented Sites (HFS) in the Cantonal Structure Plans of Swiss Cantons (Switzerland)
- B5 Edinburgh and Lothians Structure Plan (ELSP) (Lothian region/Scotland; UK)
- B6 South Dublin Development Plan (Dublin/Ireland)
- B7 Regional Land Use Plan (German regions/ Germany)
- B8 Land Use Development Plan (Ireland)
- B9 Cantonal Structure Plan (Swiss Cantons/ Switzerland)
- B10 Cooperation between spatial planning and transport planning offices within the administration of the Canton of Aargovia (Canton of Aargovia/Switzerland)
- B11 Cooperation between regional transport and regional planning in Southeast Scotland (Southeast Scotland/Edinburgh region/UK)

Examples for the Integration of MM at new developments:
- C1 Integration of Mobility Management recommendations in the building permission process (Canton of Aargovia/ Switzerland)
- C2 Lloyd District Partnership Plan (Portland/ United States)
- C3 MAXIMA (free bus service to shopping centre) (Vilnius/ Lithuania)
- C4 Business Park Goudse Port (Gouda/ Netherlands)
- C5 Technology Park “Phönix West” (Dortmund/ Germany)
- C6 Urban Development of Aspern Seestadt (Vienna/ Austria)
- C7 Parking regulation of the municipality of Cham (Cham/ Switzerland)
- C8 Planning Policy Guidance 13 (PPG13), S106 planning obligations and planning conditions (England/UK)
- C9 Addenbrookes Hospital (Cambridge/ UK)
- C10 Car Free Housing (Hamburg/ Germany)
- C11 Gartenstadt Siedlung Weissenburg (Car-free housing project) (Münster/ Germany)
- C12 Access Contingent Model (Zürich/ Switzerland)
- C13 Sihlcity, multifunctional development (Zürich/ Switzerland)
- C14 Environmental Management Act (Netherlands)
- C15 De Telegraaf newspapers (Amsterdam/ Netherlands)
- C16 Environmental Impact Assessment Procedure (Switzerland)
- C17 Traffic Impact Assessment Study (Spain)
- C18 Environmental Quality Standards in the Environmental Code (Sweden)
- C19 The “City entrance” project (Malmö/ Sweden)
- C20 Maximum parking standards (England/UK)
- C21 Cork City Development Plan Section 49 Policy T12 (Cork City/ Ireland)
- C22 Swiss Normative on Parking Standards (Switzerland)
- C23 Bicycle parking standards as a part of the Municipal Spatial Plan (Maribor/ Slovenia)
- C24 Parking regulation of the City of Krakow (Krakow/ Poland)
MaxLupo and other useful links

- EPOMM: [epomm.eu/](http://epomm.eu/)
- MaxLupo: [epomm.eu/maxlupo](http://epomm.eu/maxlupo)
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