Travel Related Urban Zones in Finland

Theory of Urban Fabrics
Seminar in Helsinki, SYKE, 24.10.2013

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How do we support sustainability?

- Strengthening sustainable urban and rural forms
  - urban regions, spatial structure on city level and national level

- Supporting strategic planning and integration of different land use needs
  - supporting regional planning, local master and detailed planning, assessment of land use policy and its planning instruments
Travel related urban zones in Finland
Travel related Urban Zone development work

- National application of the Urban Fabrics theory

- National reports (3)
  - 1 / 3: "Travel related urban zones in Finland". Including web based atlas of 34 city regions in Finland: What has happened during the last 25 years? **Publishing on tomorrow** (in Finnish)
  - 2 / 3: "A review of urban zone analyses in Finland". Why has happened and what will happen? Forthcoming
  - 3 / 3: Guide for planners. How to use travel related urban zones in land use and transport planning, Forthcoming

- Case study reports: Publishing 3 / 2013
  - Vibrant Centres - Diversity and Quality of the urban Environment in the Regional City’s centres. Panu Söderström, SY 32/2012
  - Helsinki Metropolitan region, Case study, Forthcoming

- Results has already been used in national land use policy, regional plans, urban regions, Helsinki –Stockholm analysis etc.
Public transport zones are on more than 2 km distance of the CBD area and there is high level of service of public transport.

1. Intensive public transport zone
2. Public transport zone

The area outside the pedestrian and public transport zones is car-oriented zone. In large urban areas there is also some public transport supply in car-oriented zones, but the public transport level of service is not as high as on other zones. In small urban areas, the public transport supply of car-oriented zones is modest.

1. Pedestrian zone is limited in 1,0–2,0 km radius of CBD area
2. Pedestrian zone is surrounded by a fringe zone of the radius of 2-5 km of the pedestrian zone
3. In the large urban areas the subcentres form an independent pedestrian zone

Criteria for the travel related urban zones

Criteria is based on

• distance to CBD area
• distance to public transport stop
• headway of public transport
• location of subcentres
Urban Zone area hierarchy

Groups of urban regions

Urban regions

Distance-based areas

Urban zones
Urban zones as a spatial dataset

- Zones are defined into a grid cells of 250 metres
- The grid is compatible with the national database of urban form and spatial structure (MUFFS data, Finnish Monitoring System of Urban Form and Spatial Structure)
- Public transport supply data and travel survey data can also be joined into the grid
Peri-Urbanisation

“The peri-urban – the space around urban areas which merges into the rural landscape – is growing rapidly across Europe. There is about 48,000 km2 of built development in peri-urban areas, almost equal to that in urban areas. But while most urban areas are now slow growing (at 0.5-0.6% per year), built development in peri-urban areas is growing at four times this rate”

PLUREL project: Peri-urban Land Use Relationships – Strategies and Sustainability Assessment Tools for Urban-Rural Linkages

- PLUREL is an Integrated Project funded within the 6th Research Framework Programme of the European Union in 2007-2011.
- 36 partners from 14 European countries and China
Groups of urban regions

- Metropolitan
- Large urban regions
- Mid-sized urban regions 1
- Mid-sized urban regions 2
- Small urban regions 1
- Small urban regions 2
- Other areas

Areal division
- urban, peri-urban and rural areas

inner urban
outer urban
peri-urban, rail-oriented
inner peri-urban
peri-urban, in Helsinki Region
outer peri-urban
mid-sized urban regions along rail corridor
mid-sized urban regions along rail corridor, peri-urban
mid-sized urban regions, inner urban
mid-sized urban regions, peri-urban
small towns
rural areas
Helsinki functional urban region

- Inner urban
- Outer urban
- Peri-urban, rail corridor
- Inner peri-urban
- Outer peri-urban
- Mid-sized urban regions, rail corridor
- Mid-sized urban regions, rail corridor, peri-urban
- Mid-sized urban regions
- Mid-sized urban regions, peri-urban
- Small towns
- Small towns, peri-urban
- Rural areas

Border of functional urban region
Peri-Urbanisation

- Peri-urban development is the most rapid type of land use change in Europe
- In Helsinki peri-urban area the urban sprawl is one of the strongest in Europe
Peri-Urbanisation

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- In Helsinki peri-urban area the urban sprawl is one of the strongest in Europe

Helsinki functional urban region (FUR) in 2010

Travel-related zones of urban form
- Pedestrian zone
- Pedestrian zone of a subcentre
- Fringe of pedestrian zone
- Intensive public transport zone
- Public transport zone
- Weak public transport zone
- Car-oriented zone

Helsinki Capital Region
- Pedestrian zone
- Pedestrian zone of a subcentre
- Fringe of pedestrian zone
- Intensive public transport zone
- Public transport zone
- Car-oriented zone
- Core area of capital region
Polycentrism in the Helsinki Urban Region

Helsinki Region

Division into zones
Core and urban areas
- Pedestrian zone
- Fringe of pedestrian zone
- Subcenter
- Intensive public transport zone
- Public transport zone
- Car-oriented zone

Basemap: ESRI World Street Map
Larger mid-sized urban areas, 2010
Development of the share of population on different zones

- Pedestrian zone
- Pedestrian zone of a subcentre
- Fringe of pedestrian zone
- Car-oriented zone
- Intensive public transport zone
- Public transport zone
- Other densely populated area
- Areas outside densely populated area
Development of average household size - all urban regions

Inhabitants/household

- Pedestrian zone
- Pedestrian zone of a subcentre
- Pedestrian zone of a subcentre in peri-urban areas
- Fringe of pedestrian zone
- Intensive public transport zone
- Public transport zone, inner urban areas
- Public transport zone, peri-urban areas
- Car-oriented zone, inner urban areas
- Car-oriented zone, peri-urban areas
- Altogether
Car ownership in 2010

Households with no cars
- 30 - 50 %
- > 50 %

Households with 2 or more cars
- 30 - 50 %
- > 50 %

- pedestrian zone
- fringe of pedestrian zone
- fringe of pedestrian zone, core area
- fringe of pedestrian zone, peri-urban area
- intensive public transport zone
- public transport zone
- weak public transport zone
- car-oriented zone
- the border of core area

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Helsinki metropolitan region: Zones where modal share of car was less than half of all weekday trips shorter than 100 km
In absolute numbers, population has increased more in zones where people are able to live without car.

However, the relative change shows that car-oriented zone is growing faster.

![Graph showing population growth in different zones.](image-url)
20% is living in car-oriented zone

Share of population

- Zones where modal share of car is less than half
- Car-oriented zone
Impact of Peri-Urbanisation on daily mileage (passenger km) for inhabitants

Helsinki Urban Region

Inner peri-Urban area, good rail connection

Inner Peri Urban area

Outer Peri-Urban area
Carbon dioxide emissions of transport (g/inhabitants, weekday)

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<th>Helsinki Urban Region</th>
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<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
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| Inner Peri-Urban area, good rail connection | 0  | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |
| Pedestrian zone              | 2000 |     |      |      |      |      |      |      |      |      |
| Fringe of pedestrian zone   | 2500 |     |      |      |      |      |      |      |      |      |
| Intensive public transport zone | 2400 |     |      |      |      |      |      |      |      |      |
| Public transport zone        | 3300 |     |      |      |      |      |      |      |      |      |
| Car oriented zone            | 2700 |     |      |      |      |      |      |      |      |      |
| Outside densely populated area | 3500 |     |      |      |      |      |      |      |      |      |

| Inner Peri-Urban area        | 0  | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |
| Pedestrian zone              | 3200 |     |      |      |      |      |      |      |      |      |
| Fringe of pedestrian zone   | 3300 |     |      |      |      |      |      |      |      |      |
| Intensive public transport zone | 3000 |     |      |      |      |      |      |      |      |      |
| Public transport zone        | 2700 |     |      |      |      |      |      |      |      |      |
| Car oriented zone            | 3600 |     |      |      |      |      |      |      |      |      |
| Outside densely populated area | 3400 |     |      |      |      |      |      |      |      |      |

| Outer Peri-Urban area        | 0  | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 |
| Pedestrian zone              | 3300 |     |      |      |      |      |      |      |      |      |
| Fringe of pedestrian zone   | 3600 |     |      |      |      |      |      |      |      |      |
| Public transport zone        | 3600 |     |      |      |      |      |      |      |      |      |
| Car oriented zone            | 4200 |     |      |      |      |      |      |      |      |      |
| Outside densely populated area | 4000 |     |      |      |      |      |      |      |      |      |
Development of urban form in Finland

- Urban form has at the same time fragmented and densified
  - The share of population of car oriented zones and public transport zones has increased
  - The area of car-oriented zone has increased by more than 50% and the population in car-oriented zone by 36% in 1990-2010
  - The density of car-oriented zone has increased only in the metropolitan region
- The population in public transport zones have increased in large urban regions, but in small urban regions the public transport zone is almost non-existent
- The population density in the pedestrian zones have mainly increased, especially in large and mid-sized urban regions
Urban zones into the information systems
How to Make Complicated Simple: Service Packets

Regional planning & development
Moving decisions
Land use planning
Transport planning

Quality of environment
Built cultural environment
Flood risk information
Eco-efficiency, energy
Thank you!
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