

# Travel Related Urban Zones in Finland

*Theory of Urban Fabrics*  
**Seminar in Helsinki, SYKE, 24.10.2013**

Mika Ristimäki, Maija Tiitu, Ville Helminen,  
Panu Söderström, Kari Oinonen  
Finnish Environment Institute SYKE  
Built Environment Unit

Hanna Kalenoja  
Tampere University of Technology

# Built Environment Unit, Environmental Policy Centre, Finnish Environment Institute / SYKE



Suomen ympäristökeskus SYKE | Ympäristöpolitiikkakeskus |

**RAKENNETUN YMPÄRISTÖN YKSIKKÖ**

# 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

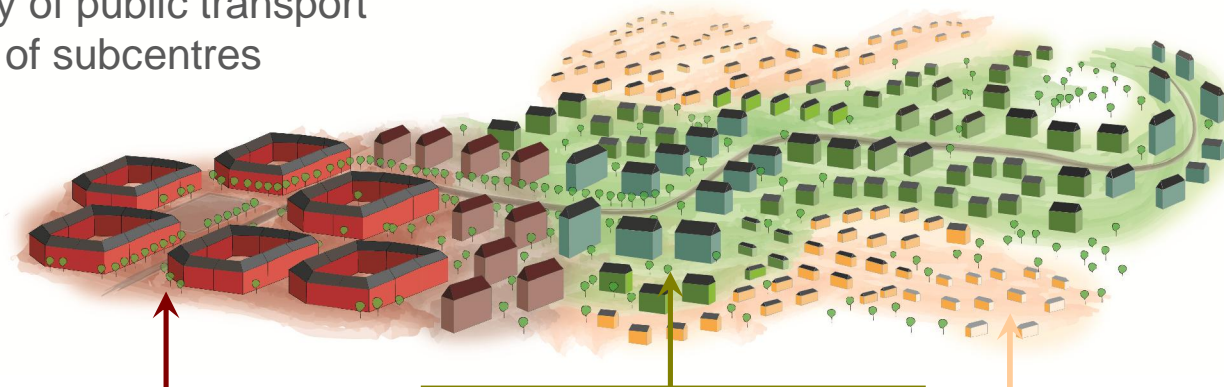
# Travel related Urban Zone development work

- 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.

# 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



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



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

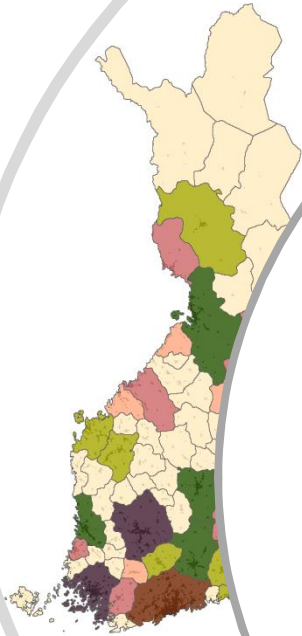


The area outside the pedestrian and public transport zones is car-oriented zone. In large urban areas there is also some public transport supply in car-oriented zones, but the public transport level of service is not as high as on other zones. In small urban areas, the public transport supply of car-oriented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



# Urban Zone area hierarchy

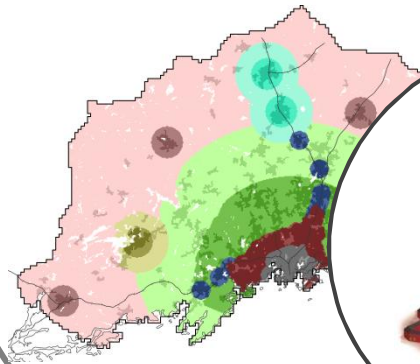
Groups of urban regions



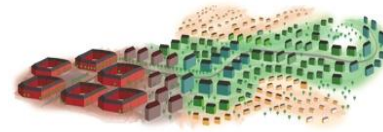
Urban regions



Distance-based areas



Urban zones



## Urban zones as a spatial dataset

- Zones are defined into a grid cells of 250 metres
- Time series 1985, 1990, 1995, 2000, 2005 and 2010
- 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

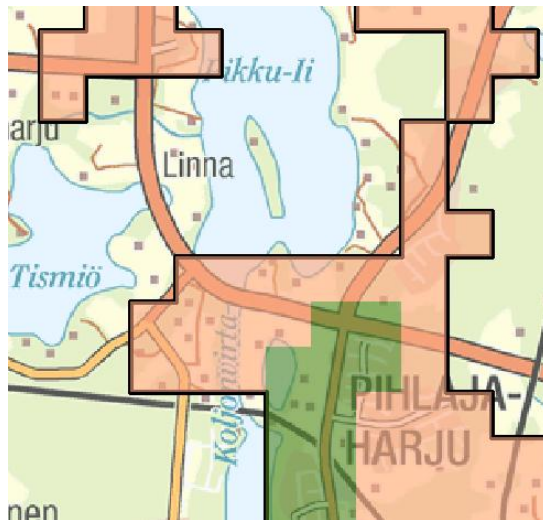


Photo: Maria Hyövähti



## 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 km<sup>2</sup> 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”*

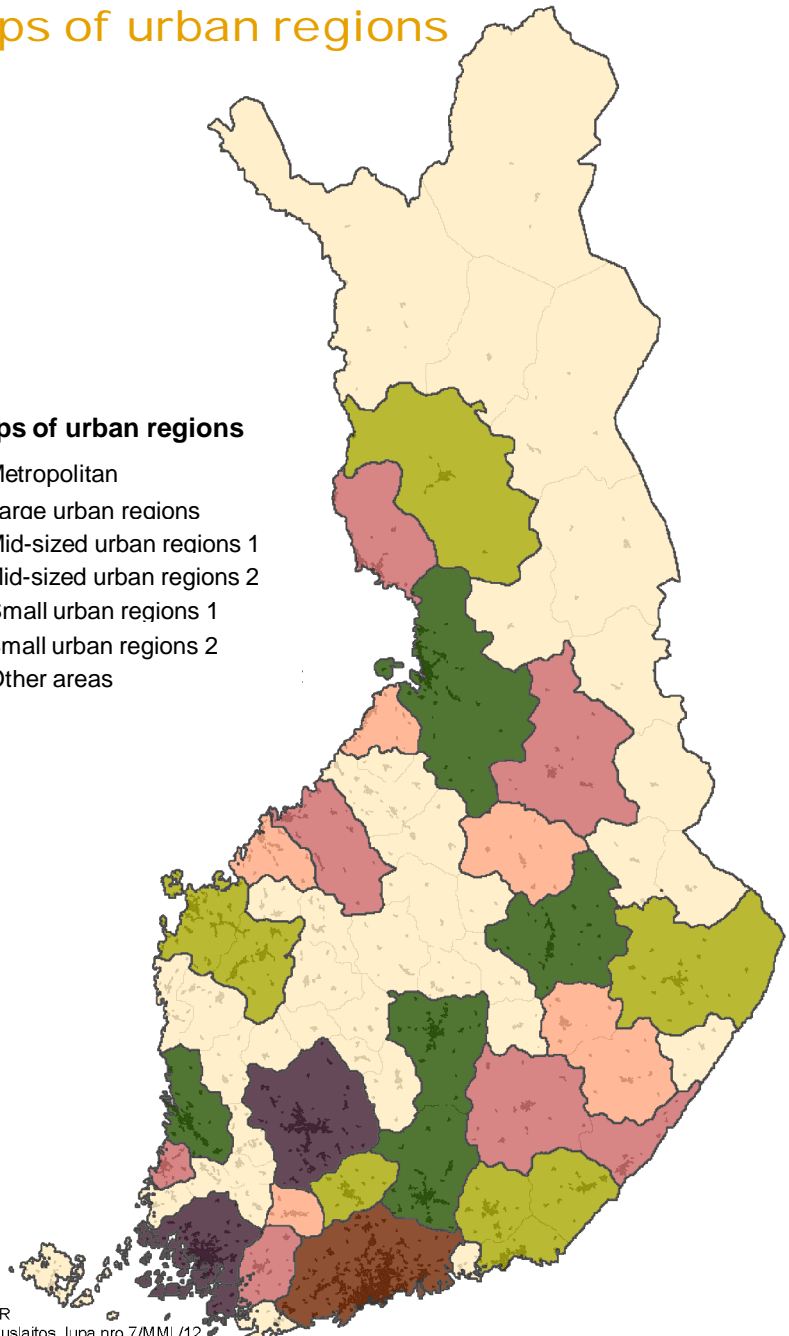
PLUREL project: Peri-urban Land Use Relationships – Strategies and Sustainability Assessment Tools for Urban-Rural Linkages

- 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
- [www.plurel.net](http://www.plurel.net) => **“Peri-Urbanisation in Europe – Synthesis Report”**

# Groups of urban regions

## Groups of urban regions

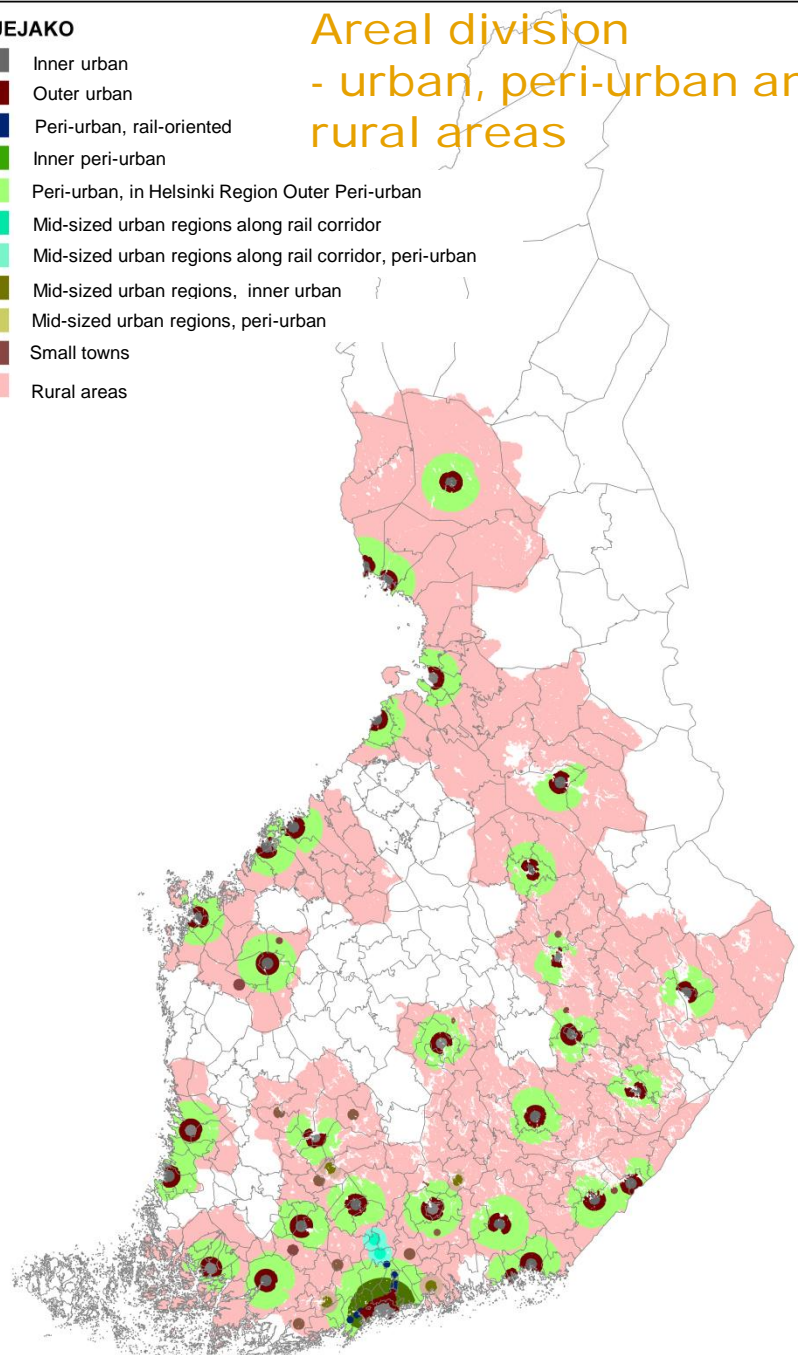
- Metropolitan
- Large urban regions
- Mid-sized urban regions 1
- Mid-sized urban regions 2
- Small urban regions 1
- Small urban regions 2
- Other areas



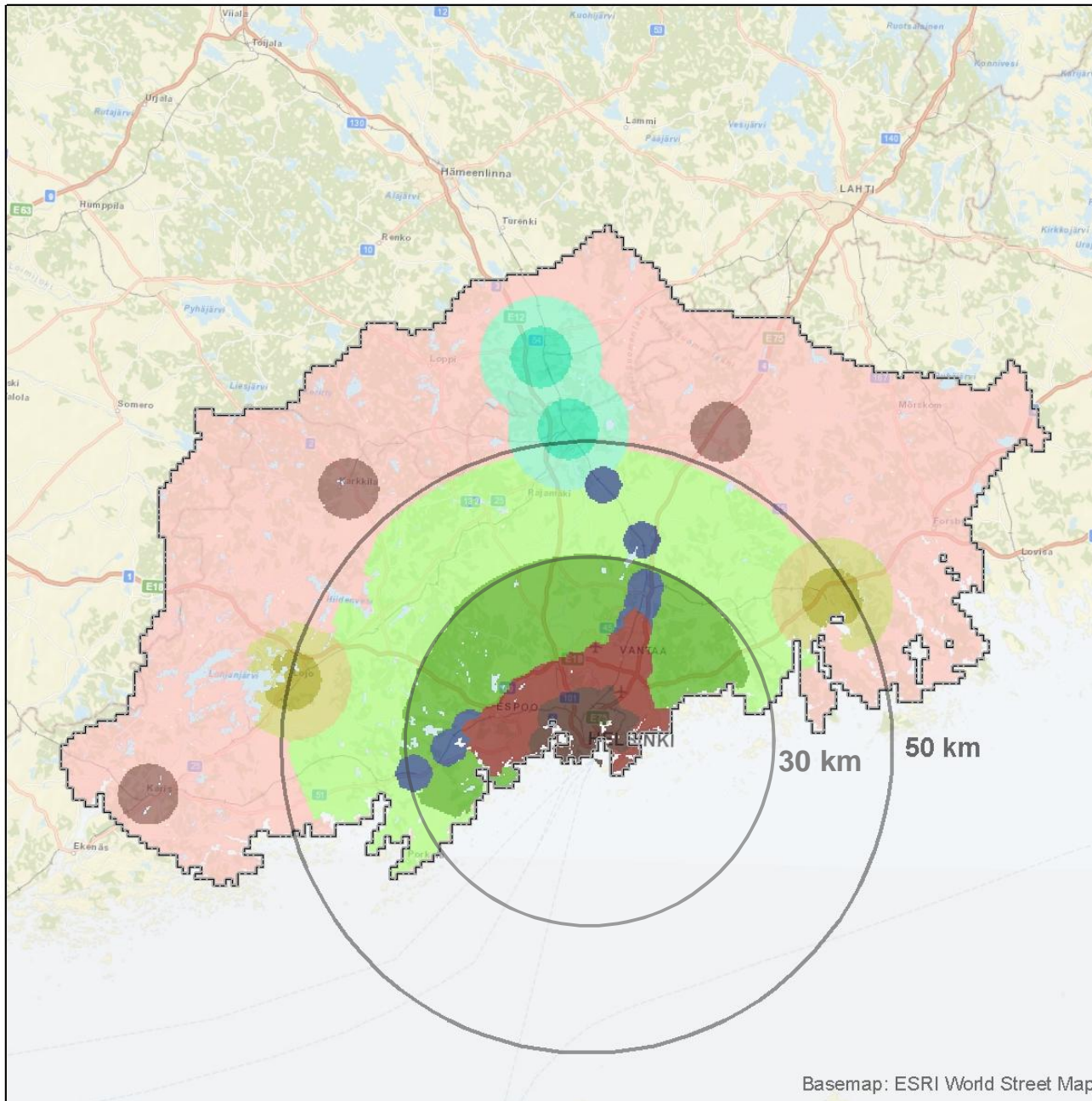
# Areal division - urban, peri-urban and rural areas

## ALUEJAKO

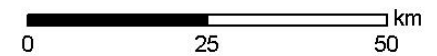
- Inner urban
- Outer urban
- Peri-urban, rail-oriented
- Inner peri-urban
- Peri-urban, in Helsinki Region Outer Peri-urban
- Mid-sized urban regions along rail corridor
- Mid-sized urban regions along rail corridor, peri-urban
- Mid-sized urban regions, inner urban
- Mid-sized urban regions, peri-urban
- 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
  - Rural areas
- Border of functional urban region



Basemap: ESRI World Street Map

# Helsinki functional urban region (FUR) in 1990

## Travel-related zones of urban form in 1990

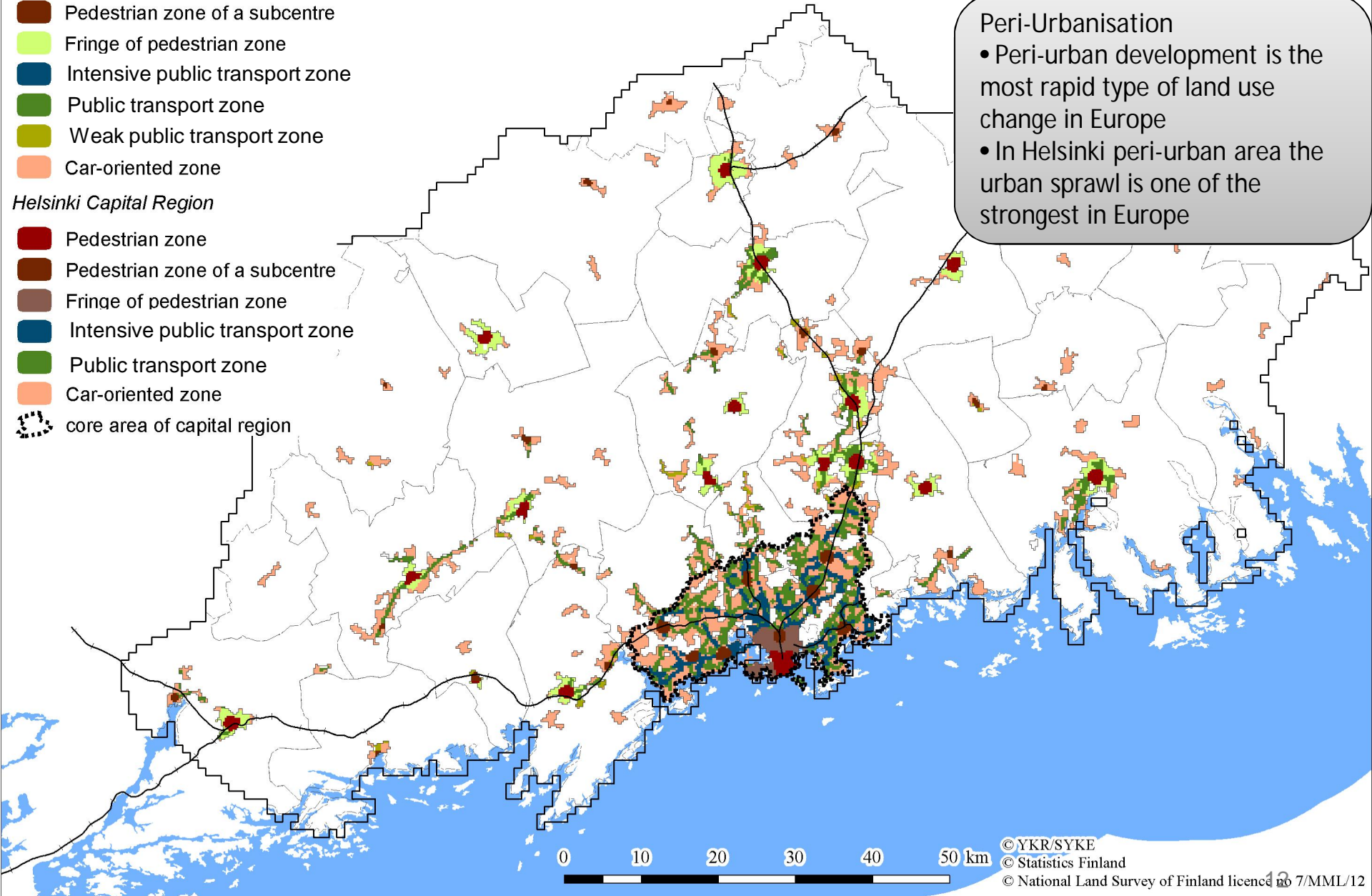
- Pedestrian zone
- Pedestrian zone of a subcentre
- Fringe of pedestrian zone
- Intensive public transport zone
- Public transport zone
- Weak public transport zone
- Car-oriented zone

## 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

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



# Helsinki functional urban region (FUR) in 2010

## Travel-related zones of urban form

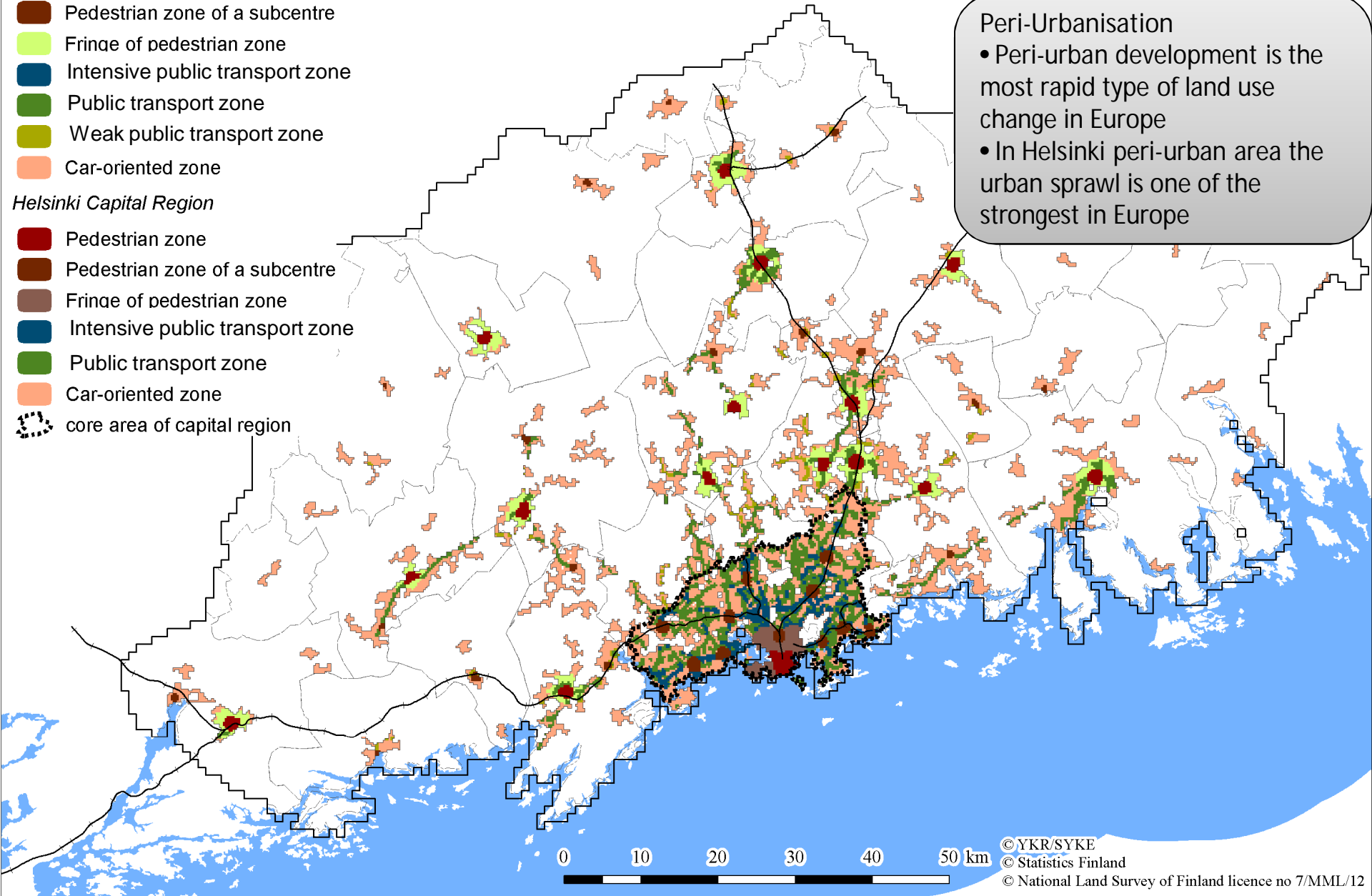
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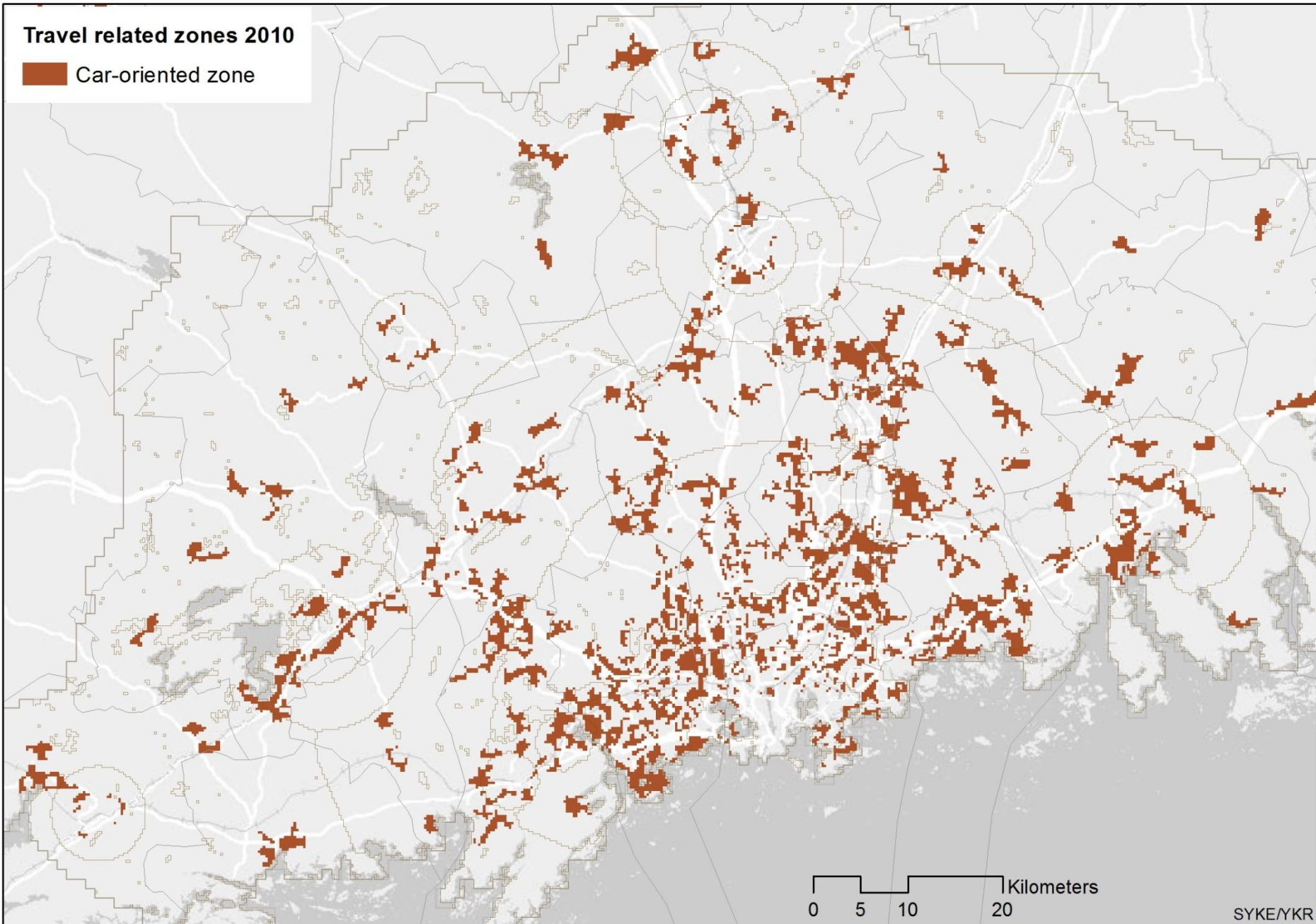
Peri-Urbanisation

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# Travel related zones 2010

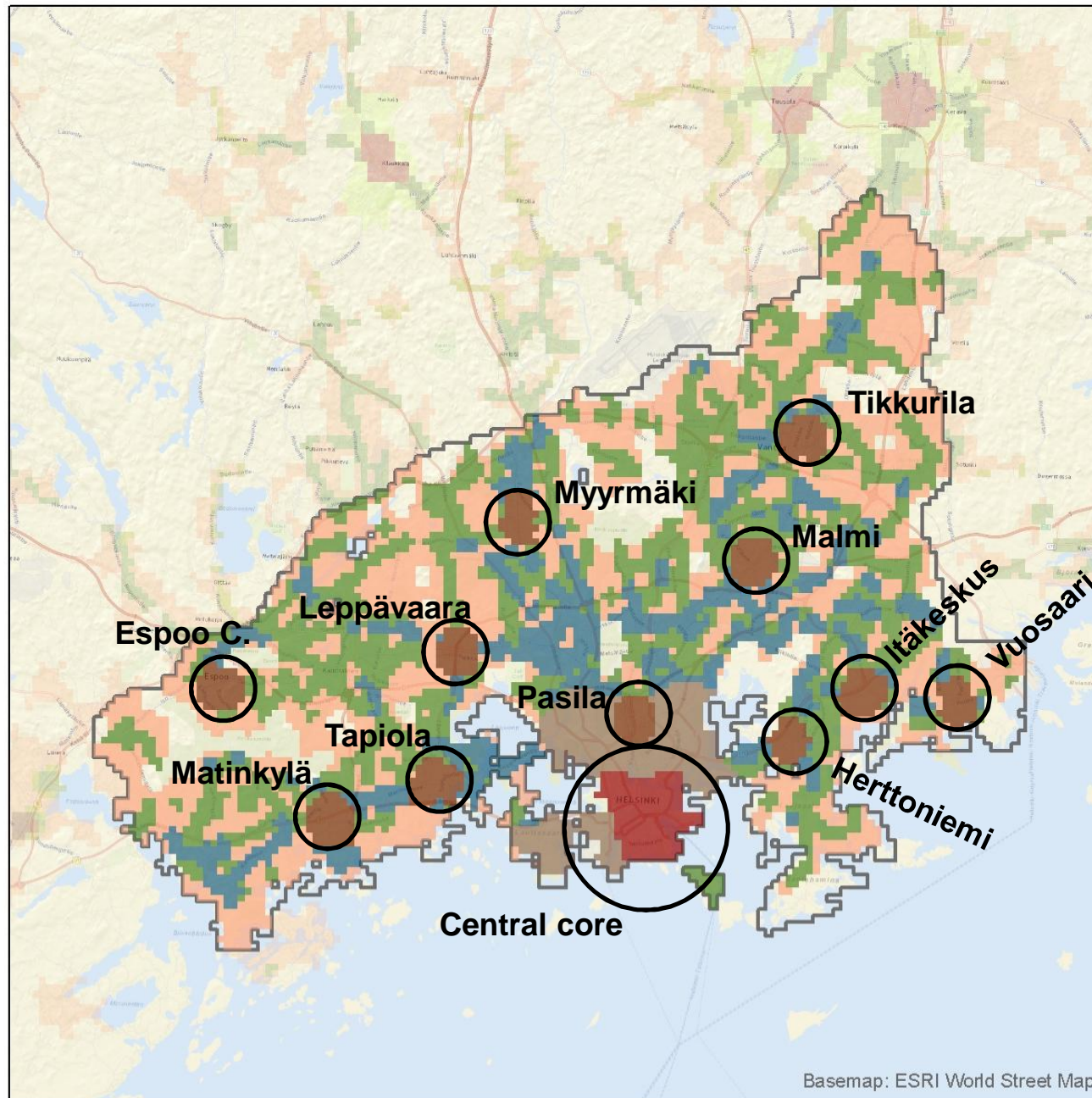
Car-oriented zone



0 5 10 20 Kilometers

SYKE/YKR

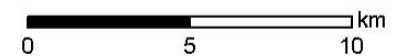
# Polycentrism in the Helsinki Urban Region



## Helsinki Region

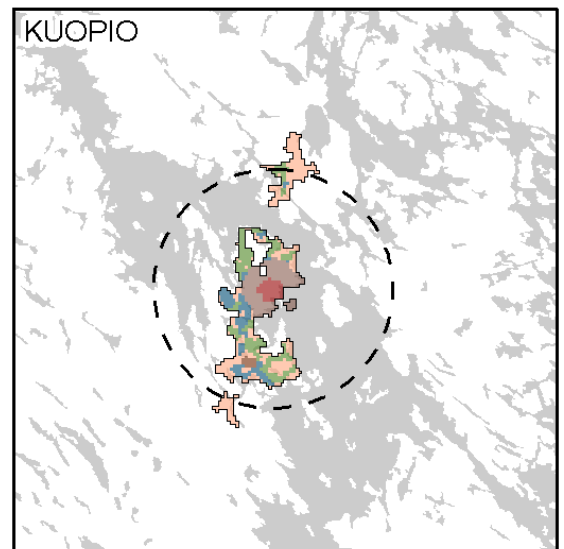
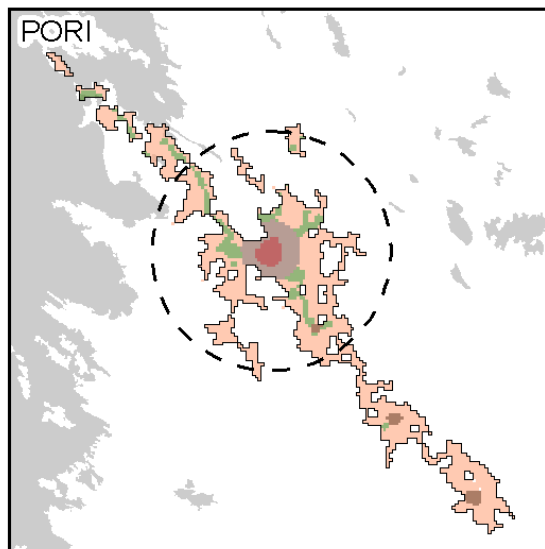
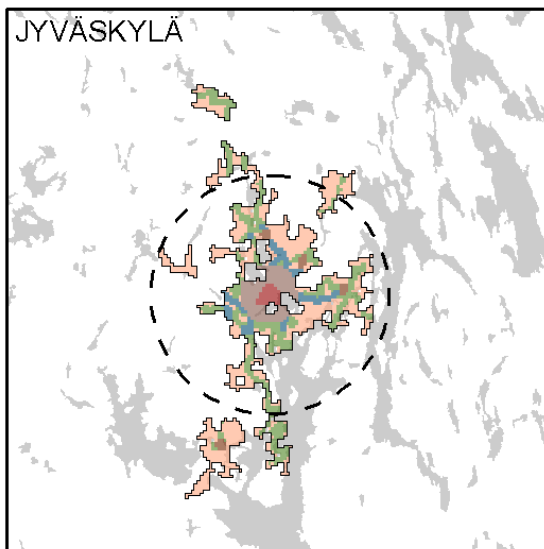
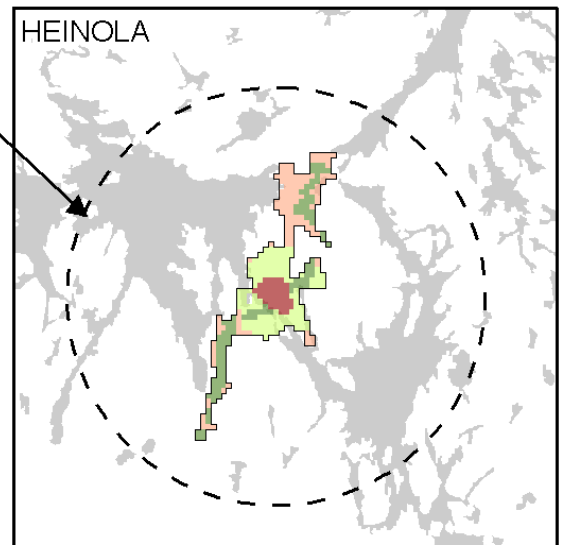
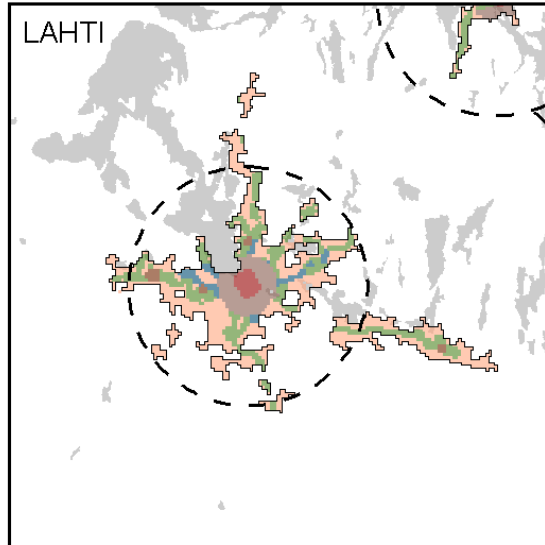
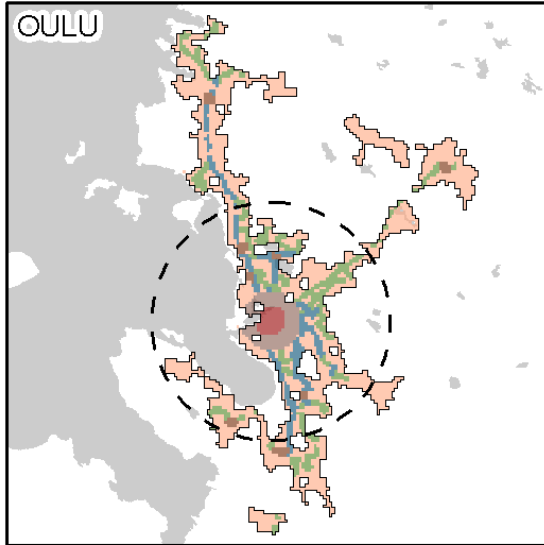
### Division into zones Core and urban areas

- Pedestrian zone
- Fringe of pedestrian zone
- Subcenter
- Intensive public transport zone
- Public transport zone
- Car-oriented zone



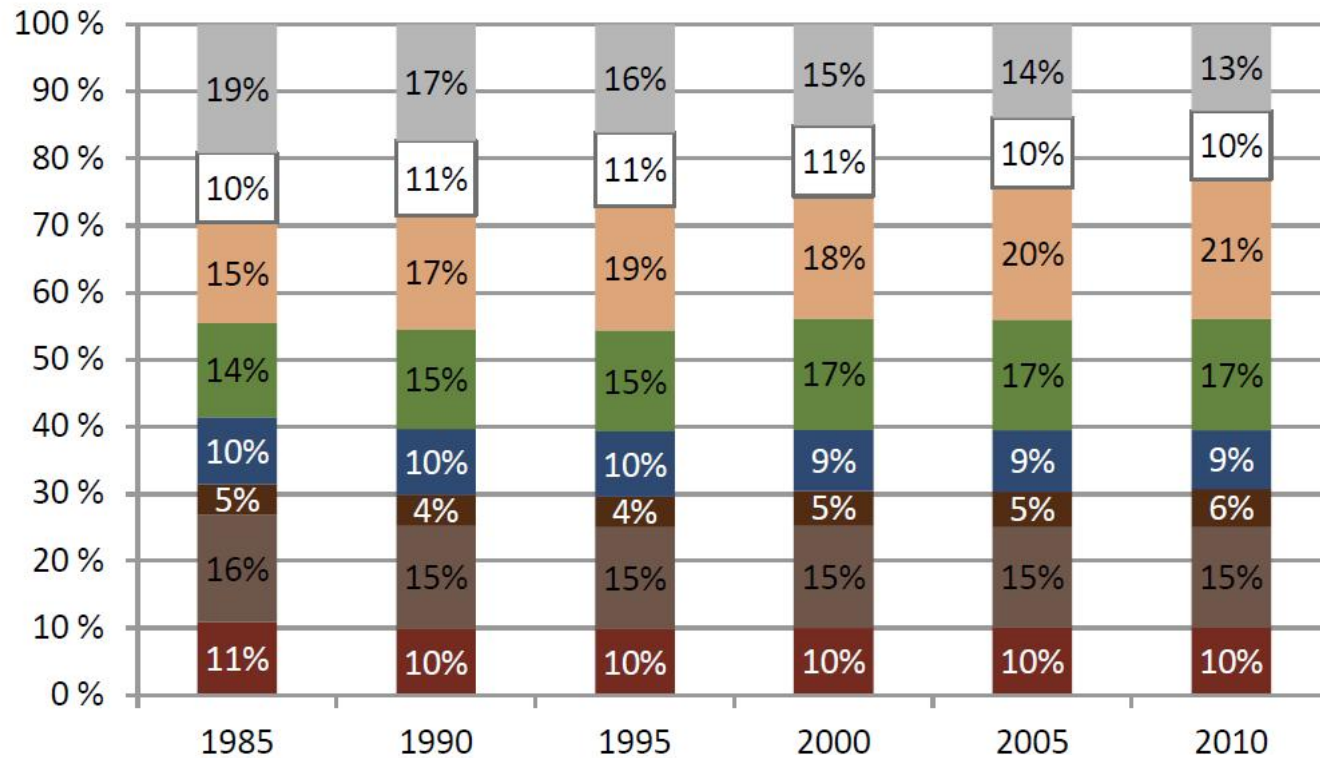
Basemap: ESRI World Street Map

# Larger mid-sized urban areas, 2010





# Development of the share of population on different zones



■ Pedestrian zone

■ Public transport zone

■ Pedestrian zone of a subcentre

■ Car-oriented zone

■ Fringe of pedestrian zone

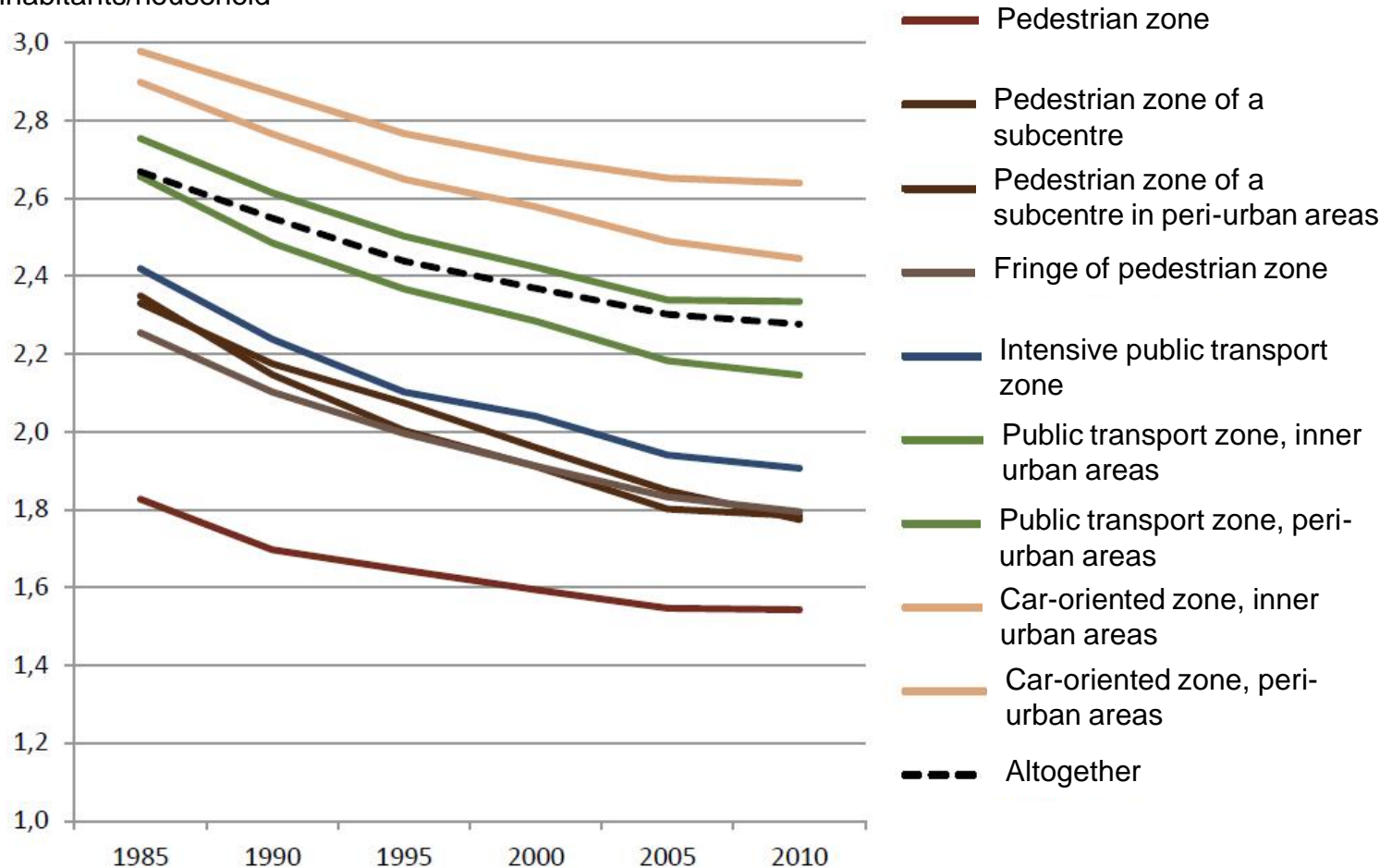
□ Other densely populated area

■ Intensive public transport zone

■ Areas outside densely populated area

# Development of average household size - all urban regions

Inhabitants/household



# Car ownership in 2010

## Households with no cars

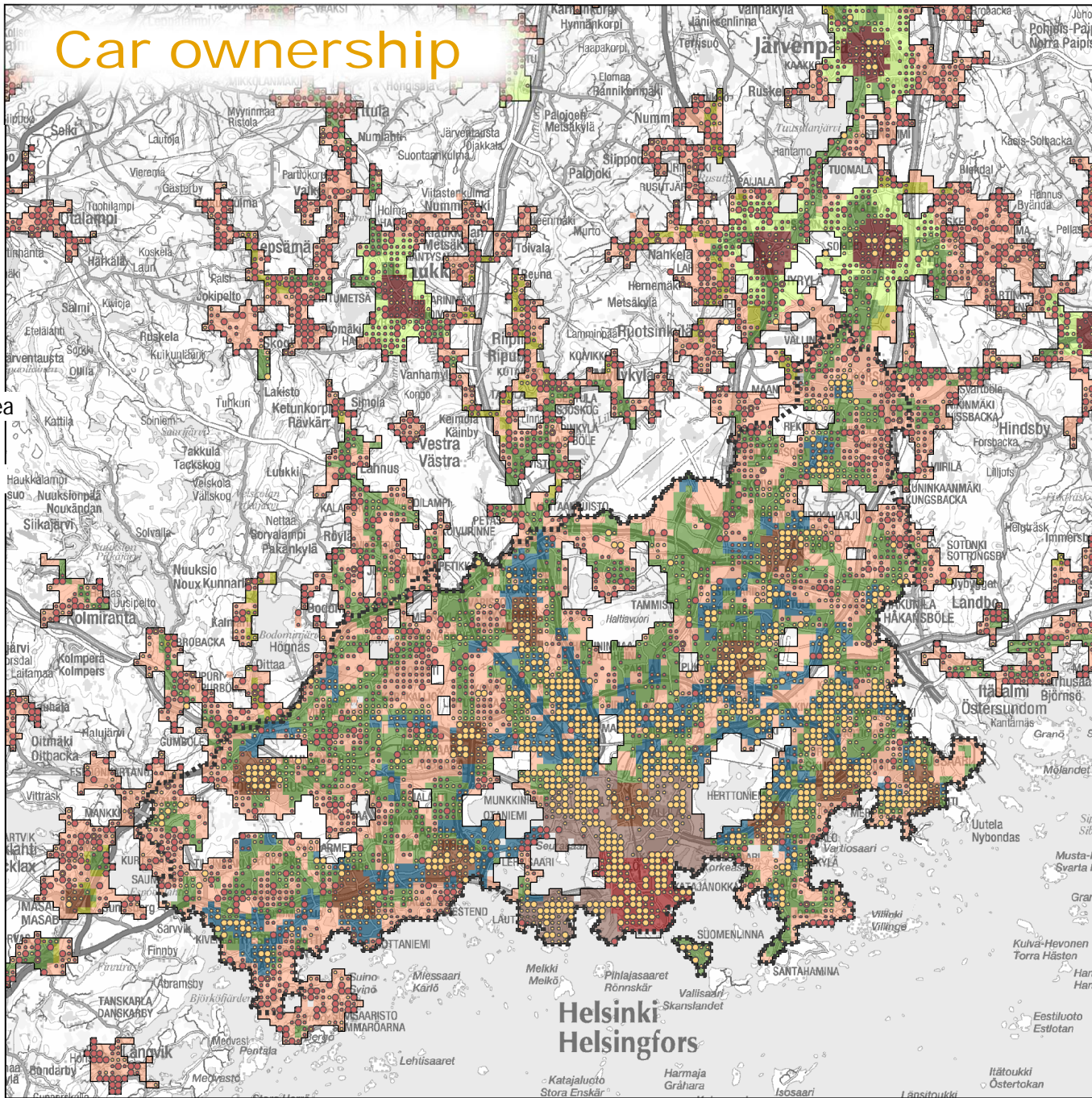
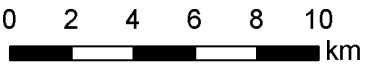
- 30 - 50 %
- > 50 %

## 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 pulic transport zone
- car-oriented zone
- the border of core area

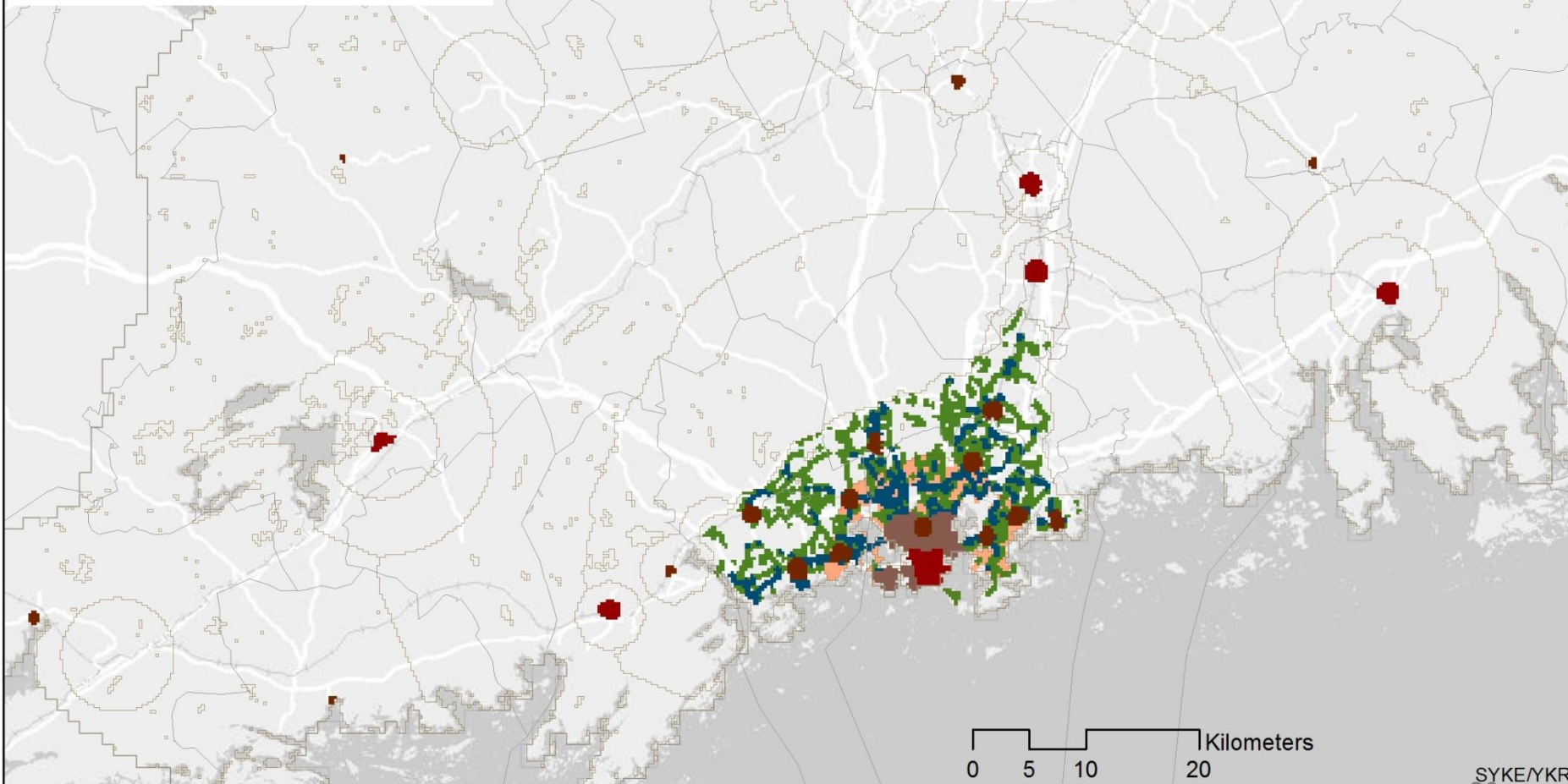
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### Travel related zones 2010

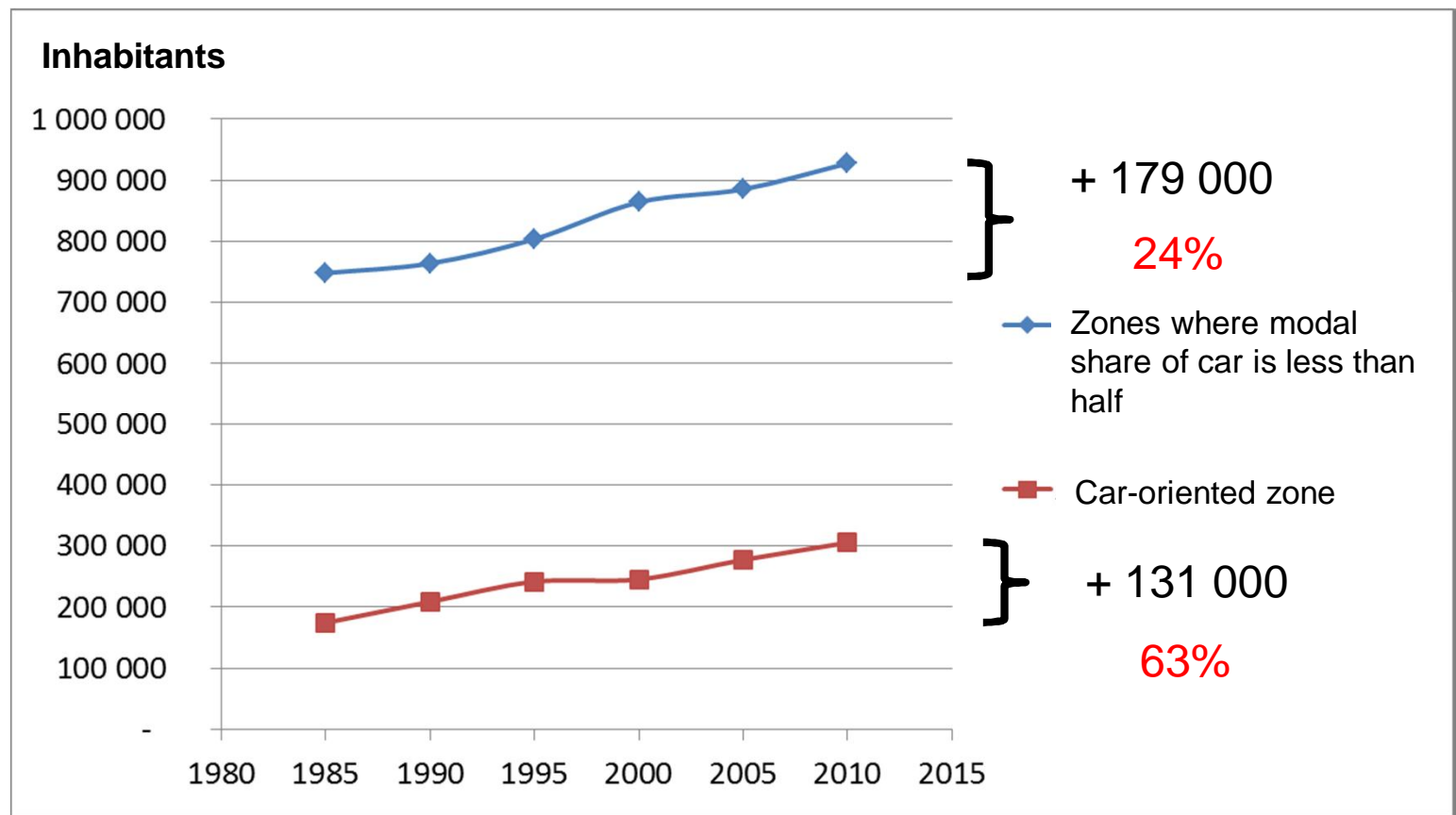
-  Pedestrian zone
-  Pedestrian zone of a sub-centre
-  Fringe of pedestrian zone
-  Intensive transit zone
-  Transit zone
-  Car-oriented zone

**Helsinki metropolitan region: Zones where modal share of car was less than half of all weekday trips shorter than 100 km**

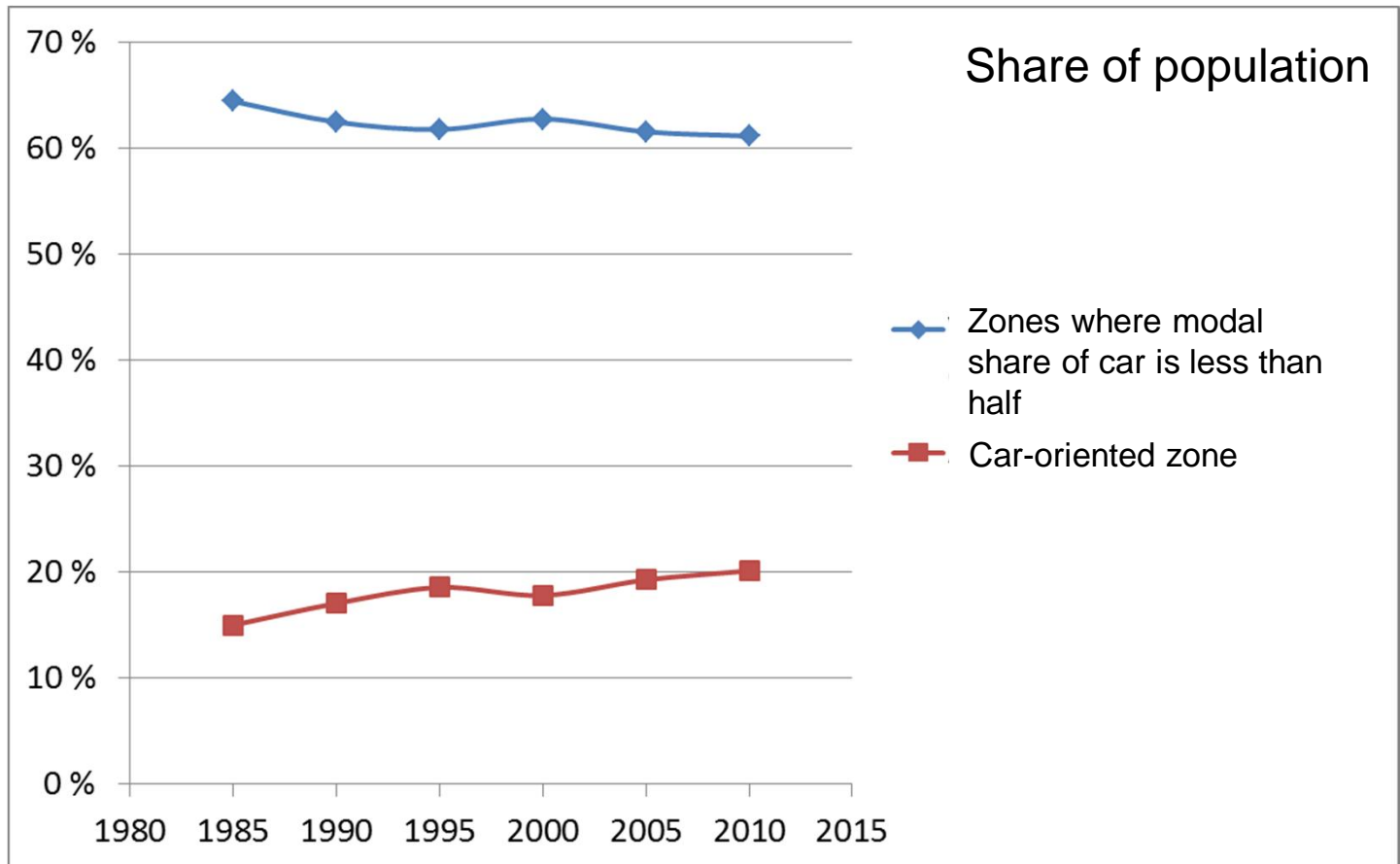


In absolute numbers population has increased more in zones where people are able to live without car

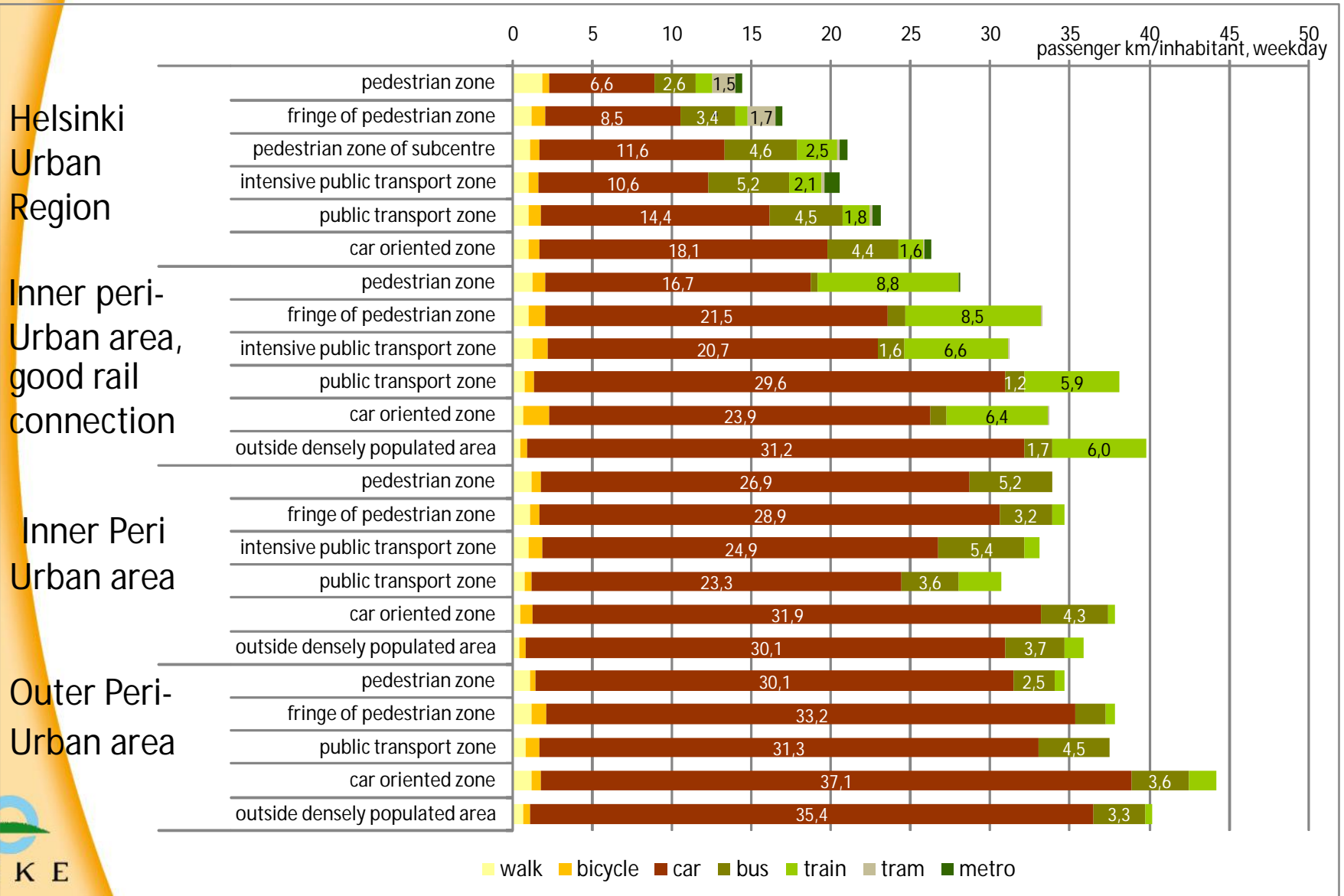
However, the relative change shows that car-oriented zone is growing faster



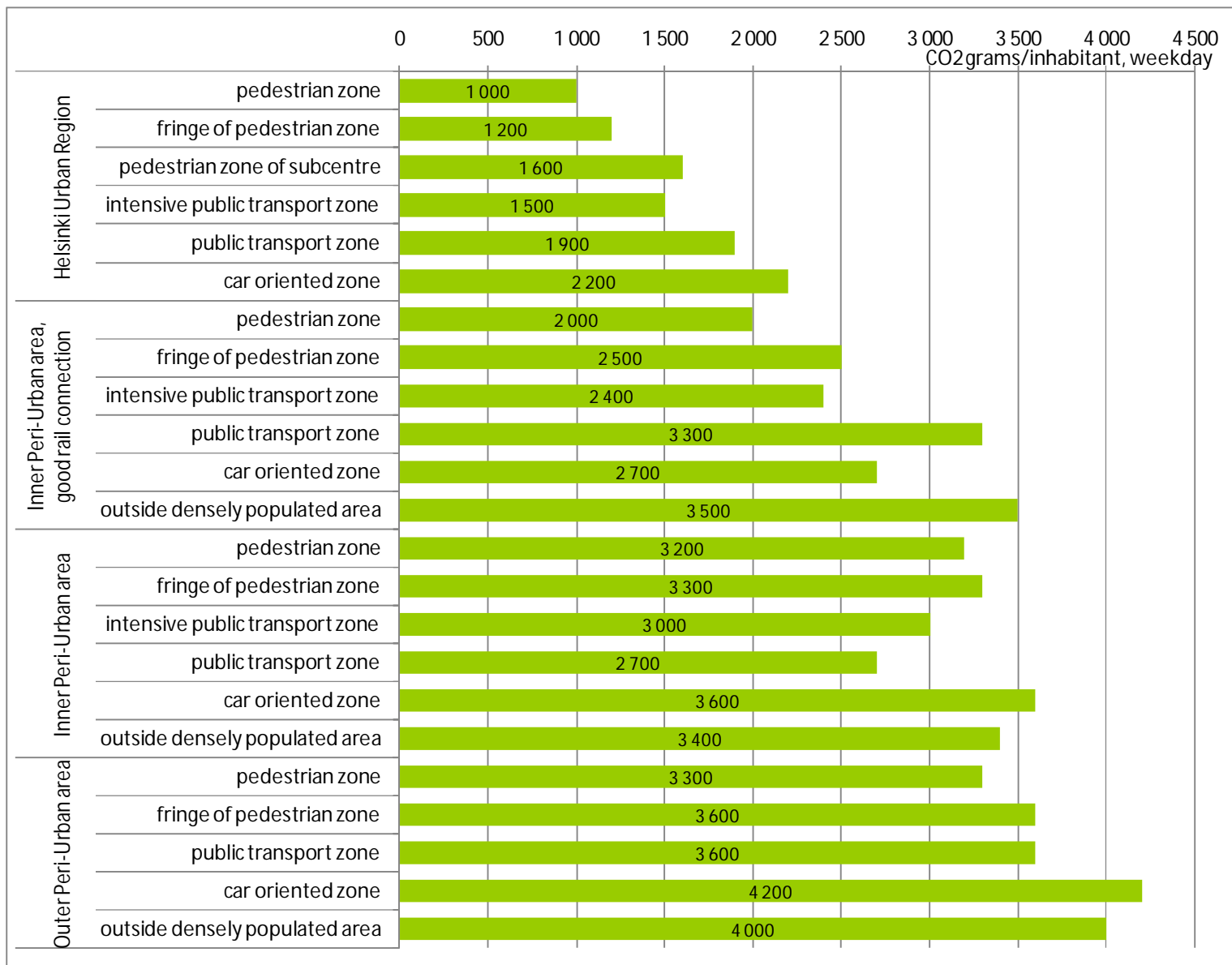
## 20% is living in car-oriented zone



# Impact of Peri-Urbanisation on daily mileage (passenger km) for inhabitants



# Carbon dioxide emissions of transport (g/inhabitants, weekday)





## Development of urban form in Finland



Photo: Tuula Palaste-Eerola

- 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!

[mika.ristimaki@ymparisto.fi](mailto:mika.ristimaki@ymparisto.fi)