

Preferred citation style

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Zurich, 15 September 2011.

Transport and Spatial Planning @ IVT

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Study Tour on Rail Transport in Switzerland
Zurich, September 2011

 Institut für Verkehrsplanung und Transportsysteme
Institute for Transport Planning and Systems

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Ongoing research projects (selection)

Surveys / behavior

Alexander Erath: Reliability of road networks

Claude Weis: Induced demand

Boris Jäggi: Modeling investment in energy efficiency

Social networks

Matthias Kowald: Snowball sampling social networks

Agent-based microsimulation

David Charypar: Continuous travel simulation

Francesco Ciari: Optimization of car sharing supply

Christoph Dobler: Evacuation modeling

Nadine Schüssler: GPS survey methods and route choice modeling

Andreas Horni: Disaggregated location choice modeling

Fabiabian Märki: Continuous activity planning

Konrad Meister: Equilibria in agent-based simulations

Rashid Waraich: Plug-in hybrid and electric vehicle-to-grid

Urban planning

Balz Bodenmann: (Re-)location choice of firms

Kirill Müller: Shortest paths in agent-based simulations

Patrick Schirmer: UrbanSim und grammars of urban planning

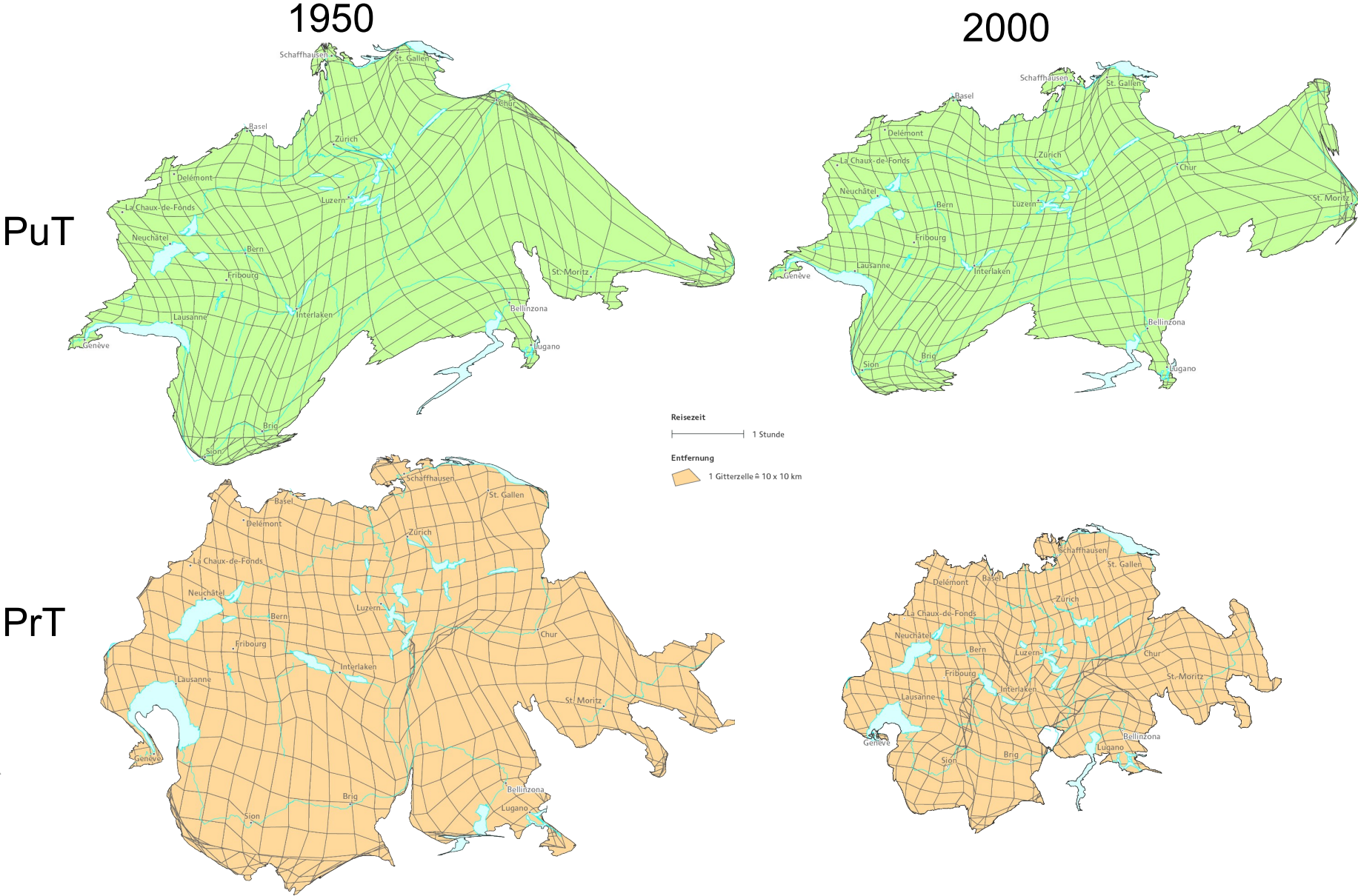
Christof Zöllig: The role of real estate developers in spatial development

Network development

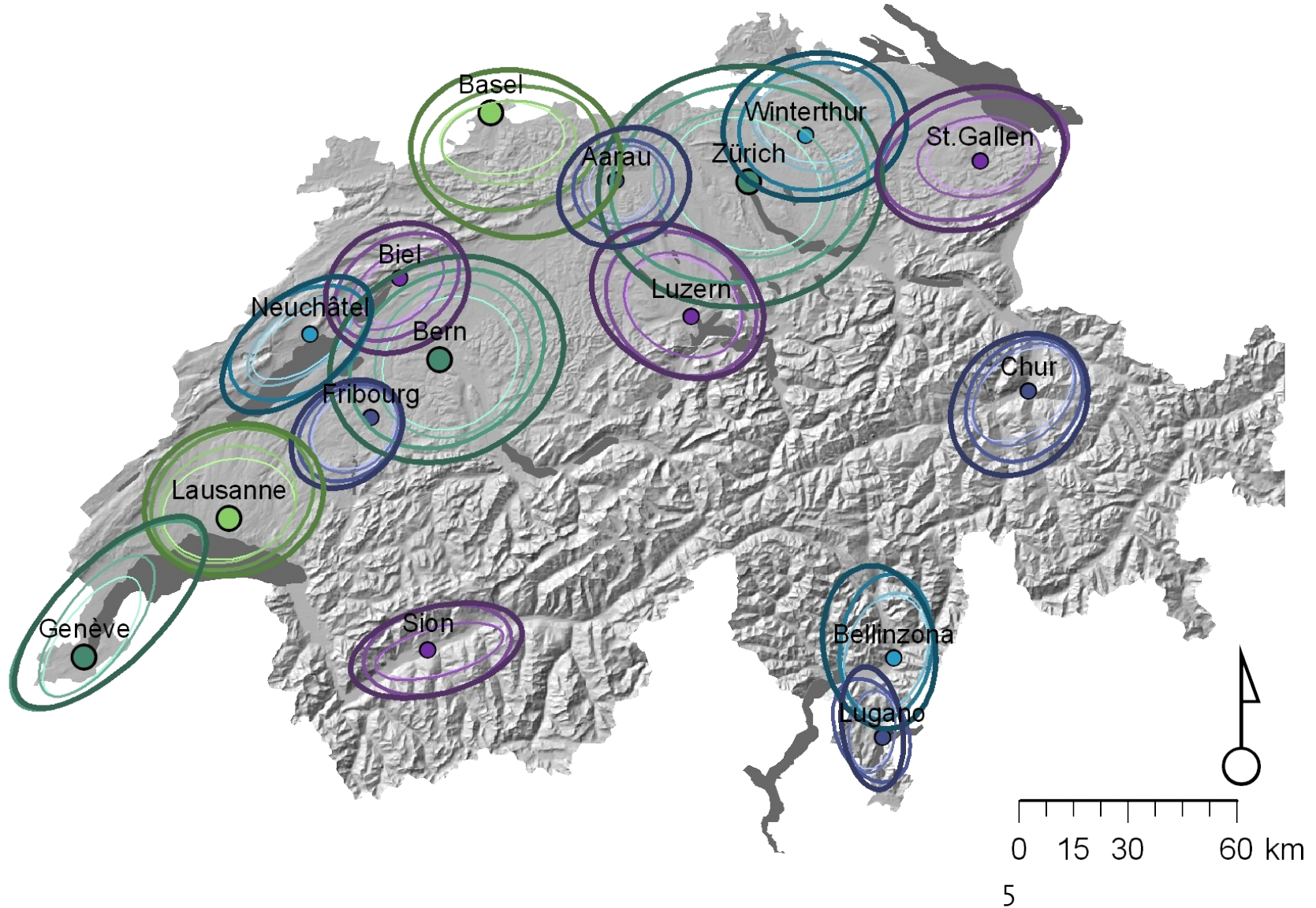
Basil Vitins: Network optimization

Veronika Killer: Functional commuting regions since 1970

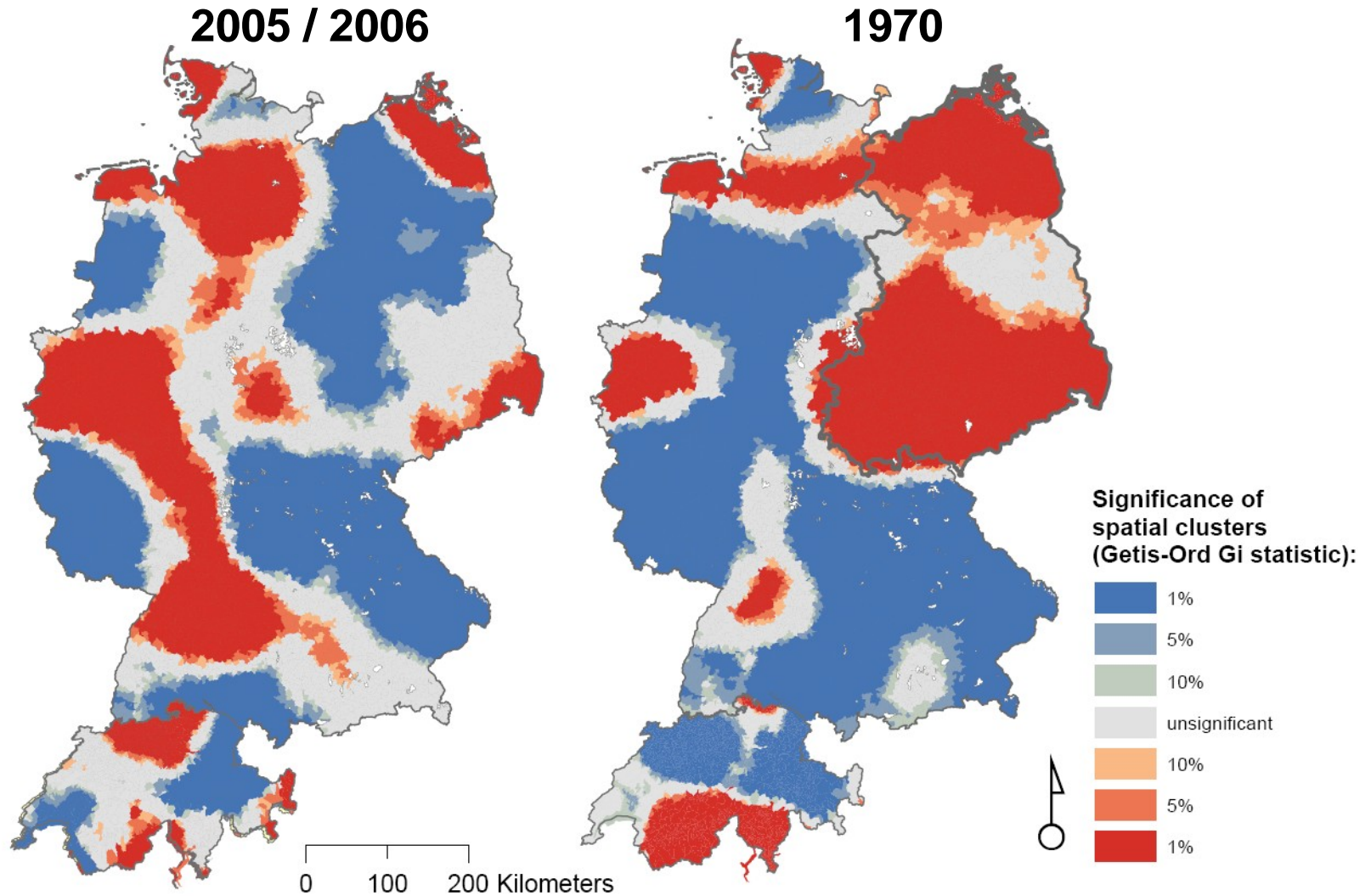
Shrinking Switzerland: travel time improvements



Network development: commuting regions 1970 - 2000



Network development: Travel time differences



Cost-benefit analysis: MiniStadt

	ΔRTD	ΔRT	ΔR
ΔV_{routes}	68.79	111.50	102.74
ΔV_{time}	73.76	53.02	-15.31
$\Delta V_{\text{destination}}$	133.34	0.00	0.00
$\Delta R_{\text{Realised utility}}$	275.88	164.52	87.43

Computer-aided GPS-based travel survey

Abmelden

Startseite

Hilfe

Dateneingabe

Personendaten

**Einstellungsfragen:
zur Risikobereitschaft
zur Umwelt
zur Veränderungen**

GPS-Tagebuch

Lokalitätenübersicht

Kontakt

GPS-Tagebuch

Bitte korrigieren und ergänzen Sie das Verkehrstagebuch. Hilfestellungen finden Sie auf der **Startseite**.

Bitte wählen Sie einen Zeitraum: 05.04.2011 ▾ Speichern Sie Änderungen bevor Sie den Zeitraum ändern.

	Abfahrt	Verkehrsmittel	Kosten in CHF	Ankunft	Tätigkeit	Lokalität	
	---			00:00:00	Aufenthalt zuhause ▾	Wohnort ▾	+
●	08 : 23 : 00	zu Fuss ▾	0.0	08 : 26 : 24			✗ +
●	08 : 31 : 41	Bus ▾	0.0	08 : 49 : 16			✗ +
●	08 : 51 : 49	Bus ▾	0.0	08 : 59 : 23			✗ +
●	08 : 59 : 24	zu Fuss ▾	0.0	09 : 01 : 00			✗ +
●	18 : 14 : 28	Fahrrad ▾	0.0	18 : 15 : 42			✗ +
●	18 : 57 : 21	Fahrrad ▾	0.0	18 : 59 : 28			✗ +
●	18 : 59 : 29	Bus ▾	0.0	19 : 25 : 17			✗ +
●	19 : 26 : 43	Tram ▾	0.0	19 : 32 : 04	Aufenthalt zuhause ▾	Wohnort ▾	✗ +

Kommentar

neue Lokalität hinzufügen

Priority Evaluator

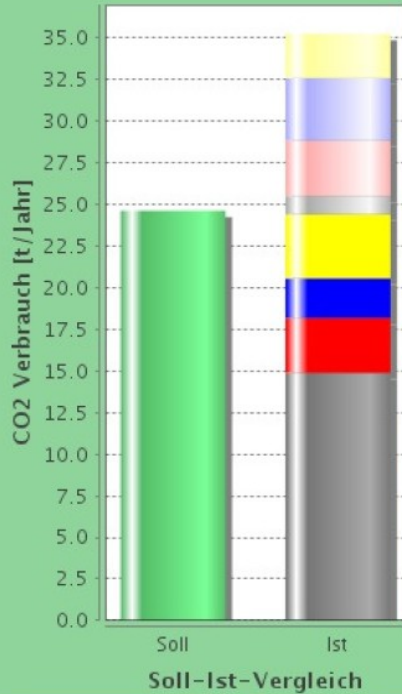
End Survey and send Data

Save current state

Show commentary box

Logg out

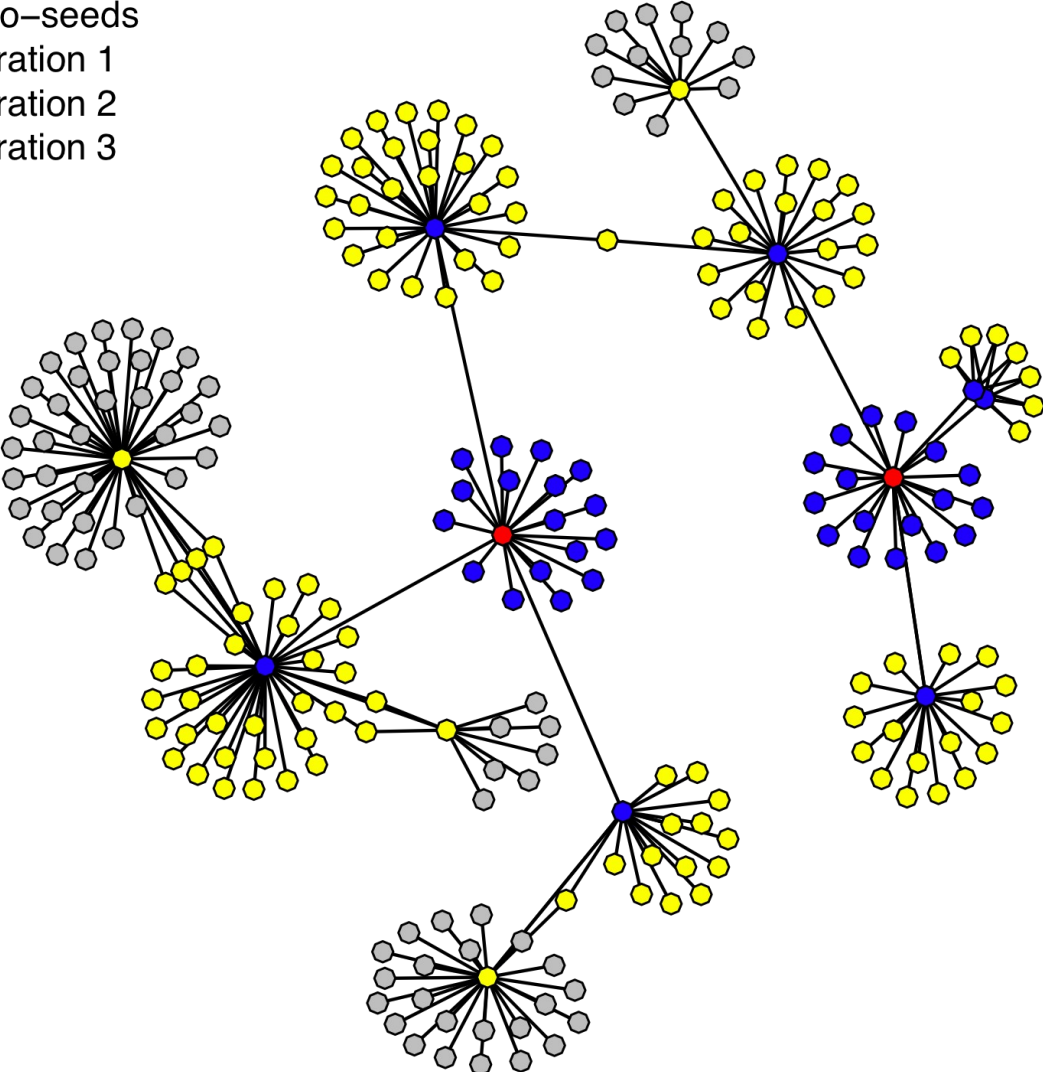
Congratulation, you have reached the Target!



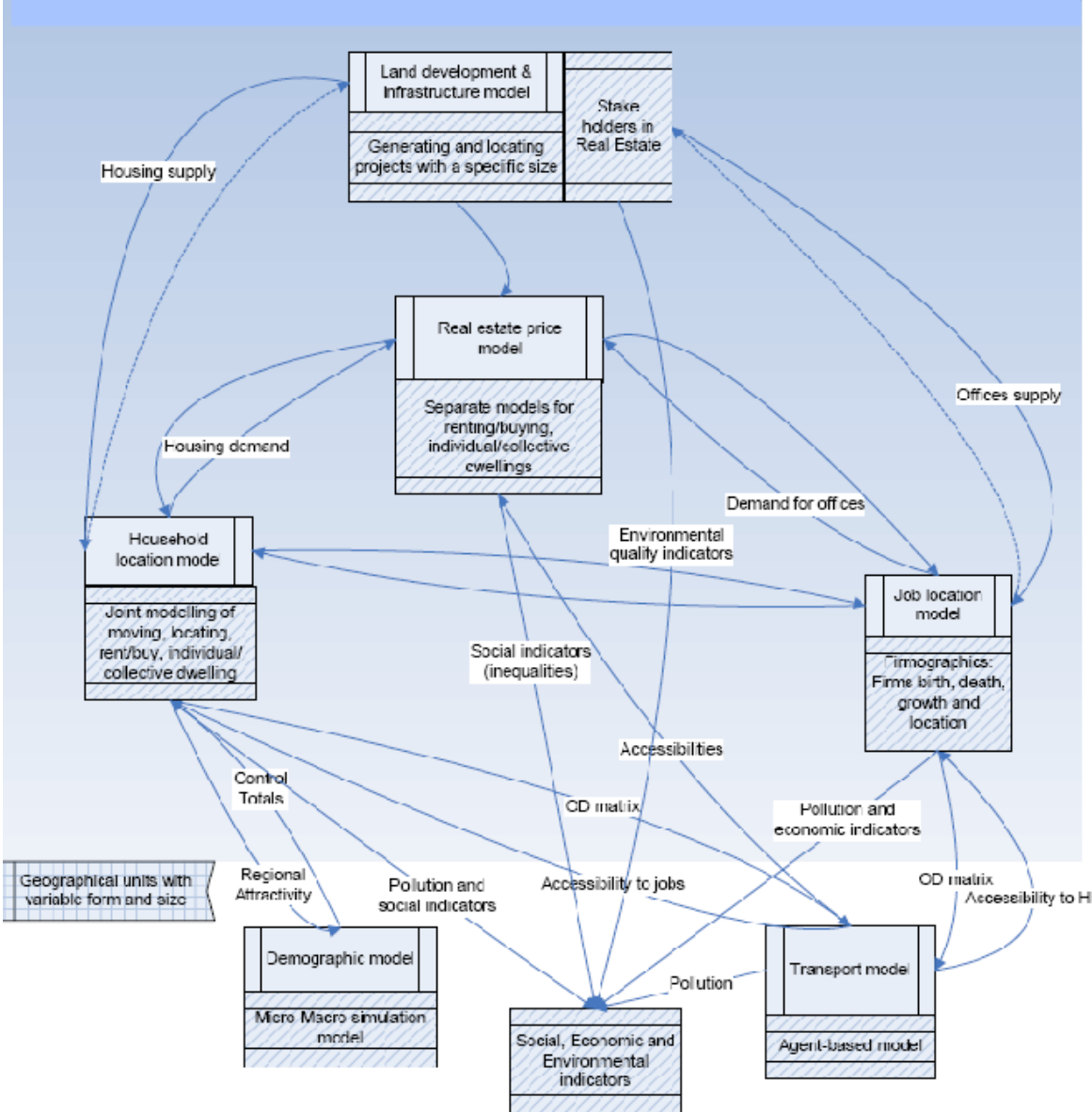
chosen?	Measure	Scale	Lump Sum [CHF]	Annual costs [CHF/Jahr]
<input type="checkbox"/>	Replace windows		0	0
<input type="checkbox"/>	Insulate roof		0	0
<input checked="" type="checkbox"/>	Install solar panels		8,000	-200
<input checked="" type="checkbox"/>	Insulate facade		50,200	-600
<input type="checkbox"/>	Install ventilation system		0	0
<input type="checkbox"/>	Buy heat pump		0	0
<input checked="" type="checkbox"/>	Temperature reduction of	2°C	0	-100
<input checked="" type="checkbox"/>	Reduction of annual kilometers driven to (Mercedes)	70%	0	-1,200
<input checked="" type="checkbox"/>	Replace with more efficient car (Mercedes)		5,000	-900
<input type="checkbox"/>	Sell car (Mercedes)		0	0
<input type="checkbox"/>	Reduction of annual kilometers driven to (VW Golf)	0%	0	0
<input checked="" type="checkbox"/>	Replace with more efficient car (VW Golf)		18,000	-700
<input type="checkbox"/>	Sell car (VW Golf)		0	0
<input type="checkbox"/>	Buy GA	0	0	0
<input checked="" type="checkbox"/>	Buy Half-fare card	2	0	300
<input checked="" type="checkbox"/>	Omit short-distance flights	1	0	-200
<input type="checkbox"/>	Omit middle-distance flights	0	0	0
<input checked="" type="checkbox"/>	Omit lomng-distance flights	1	0	-1,200
<input checked="" type="checkbox"/>	Reduce meat consumption by	25%	0	0
<input checked="" type="checkbox"/>	By CO2 certificat	1	0	1,000
	Sum		81,200	-3,800

Social networks: Snowball sampling

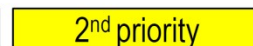
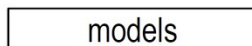
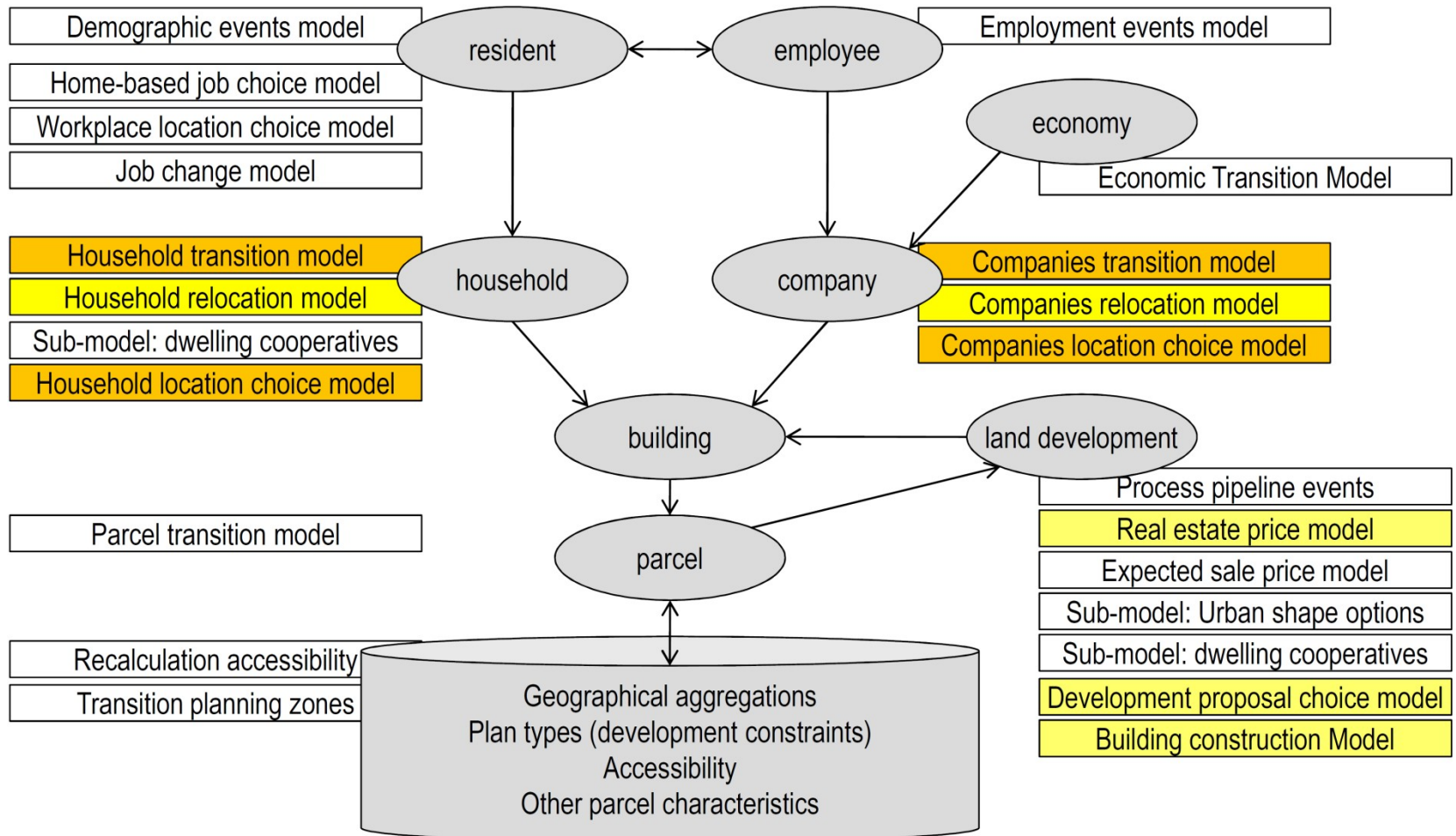
- Ego-seeds
- Iteration 1
- Iteration 2
- Iteration 3



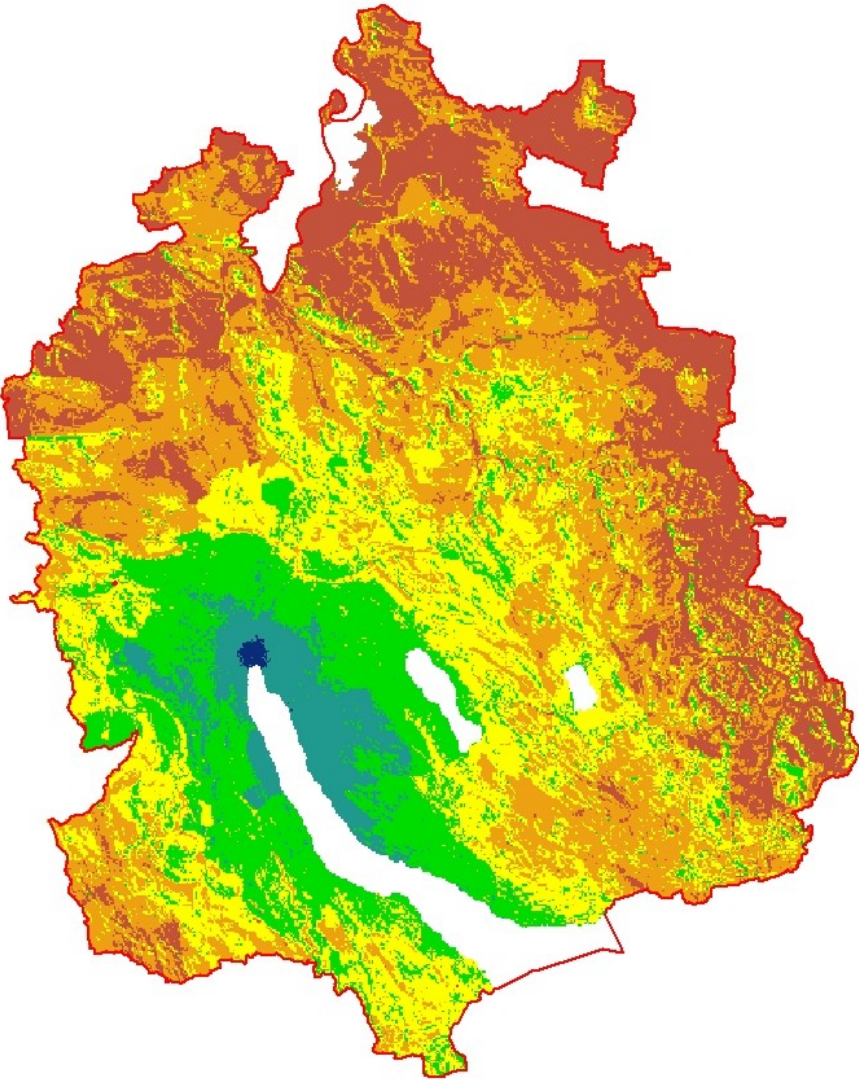
SustainCity: UrbanSim overview



SustainCity: Model structure of Zurich case study



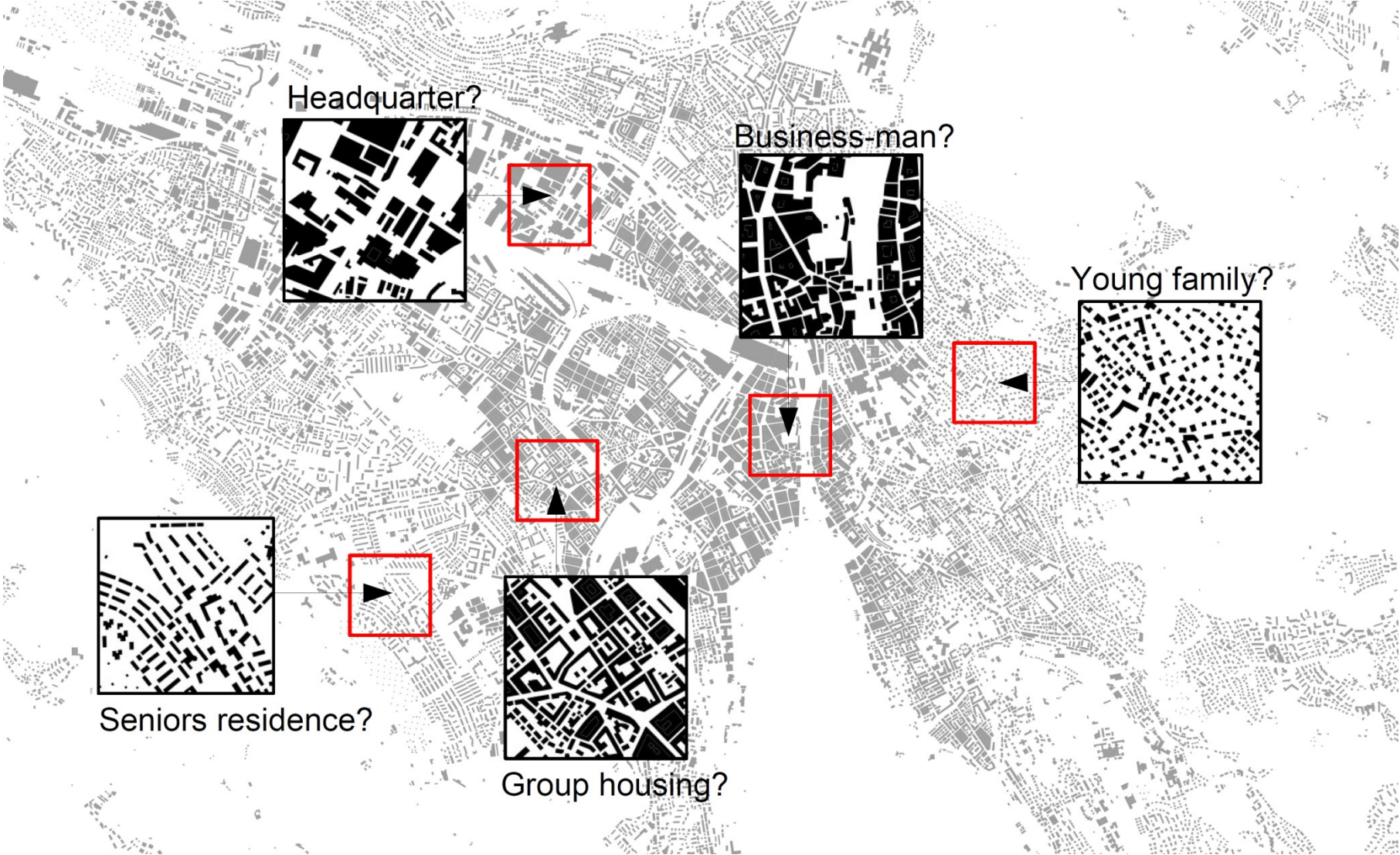
SustainCity: rent model



**Monthly gross rent
in CHF per sqm**

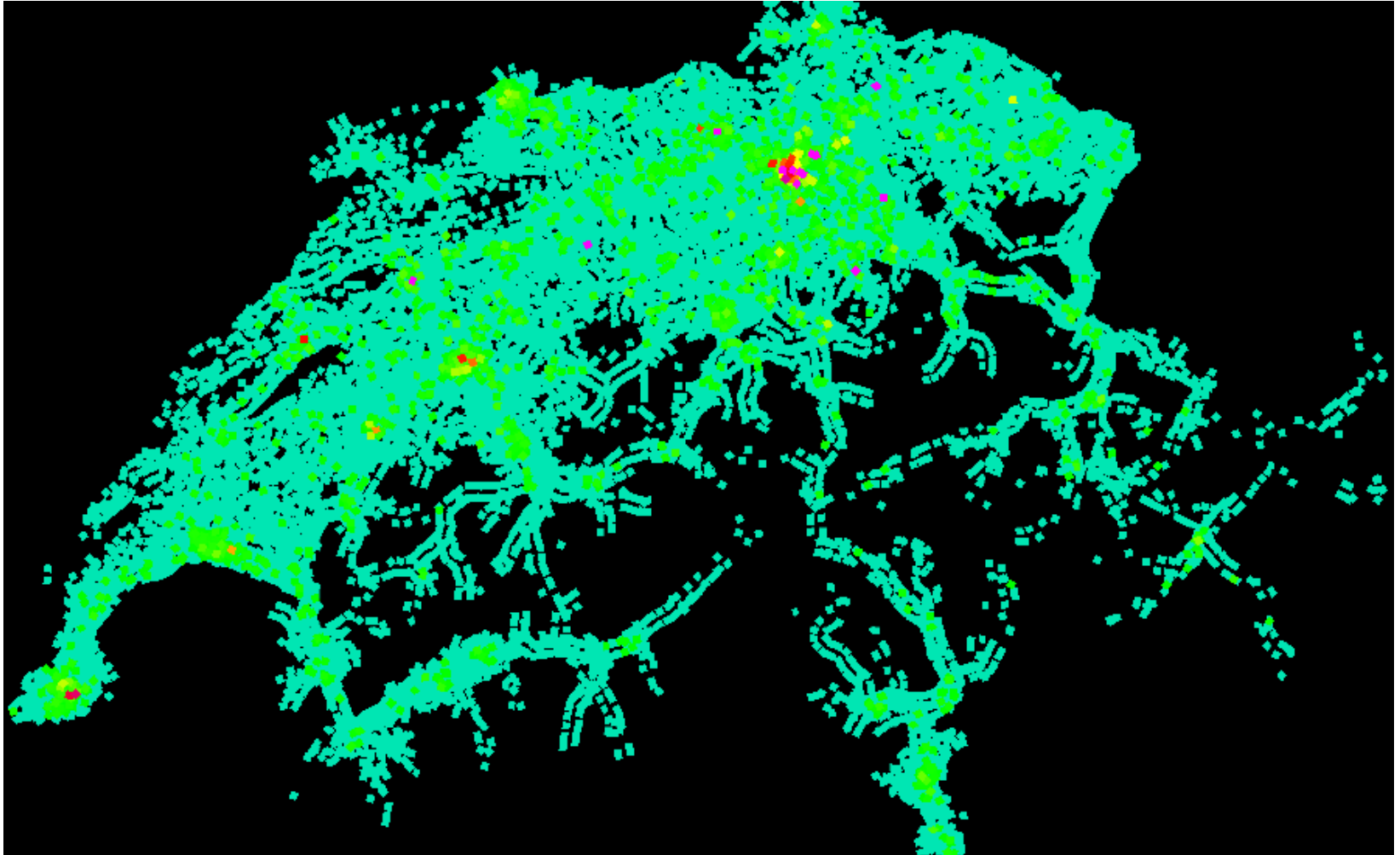
Dark Red	12.01 - 16.00
Orange	16.01 - 18.00
Yellow	18.01 - 20.00
Light Green	20.01 - 25.00
Teal	25.01 - 35.00
Dark Blue	35.01 - 45.00

SustainCity: Urban Typology



(Schirmer et al., 2011)

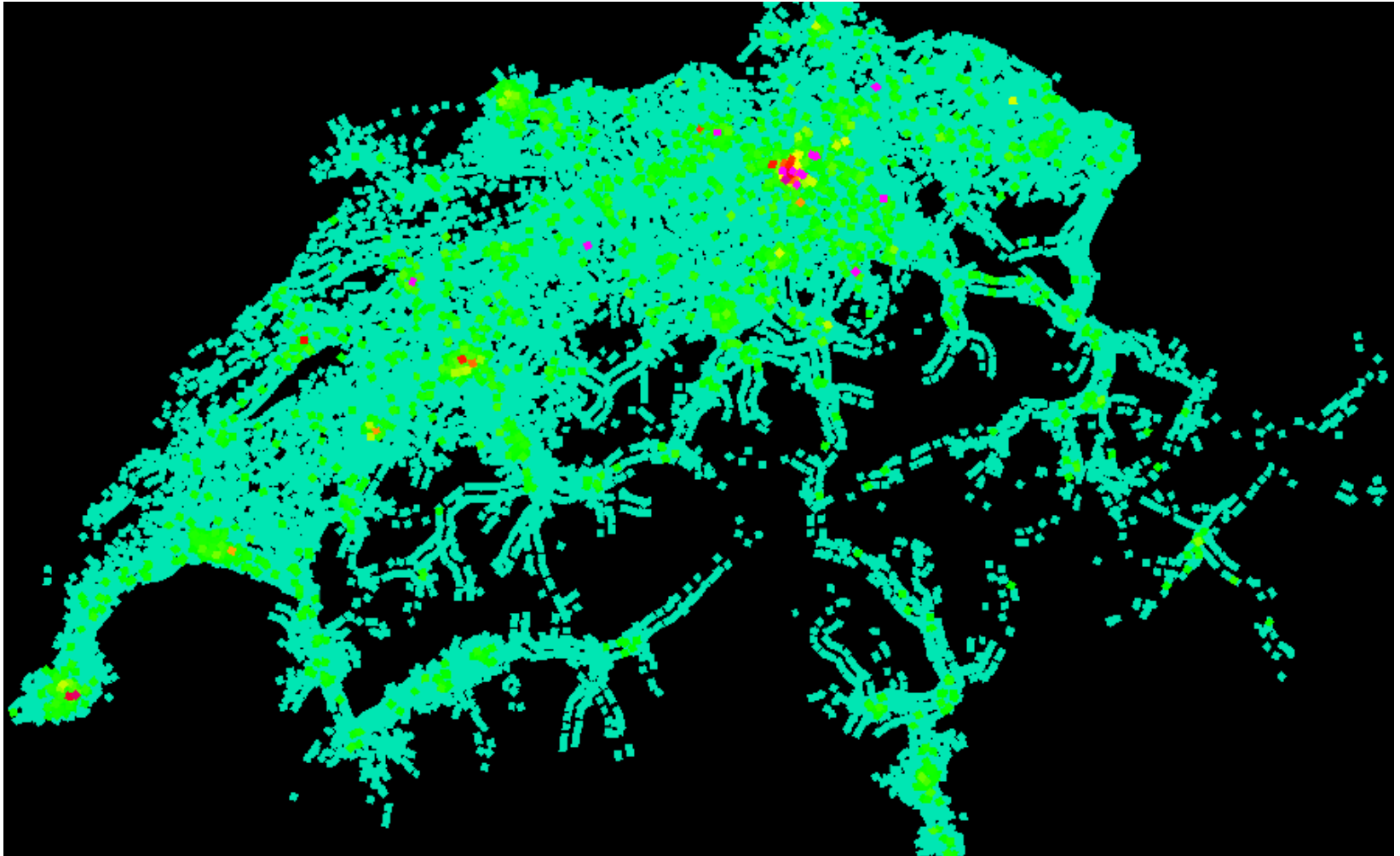
Integrated agent-based demand model: MATSim



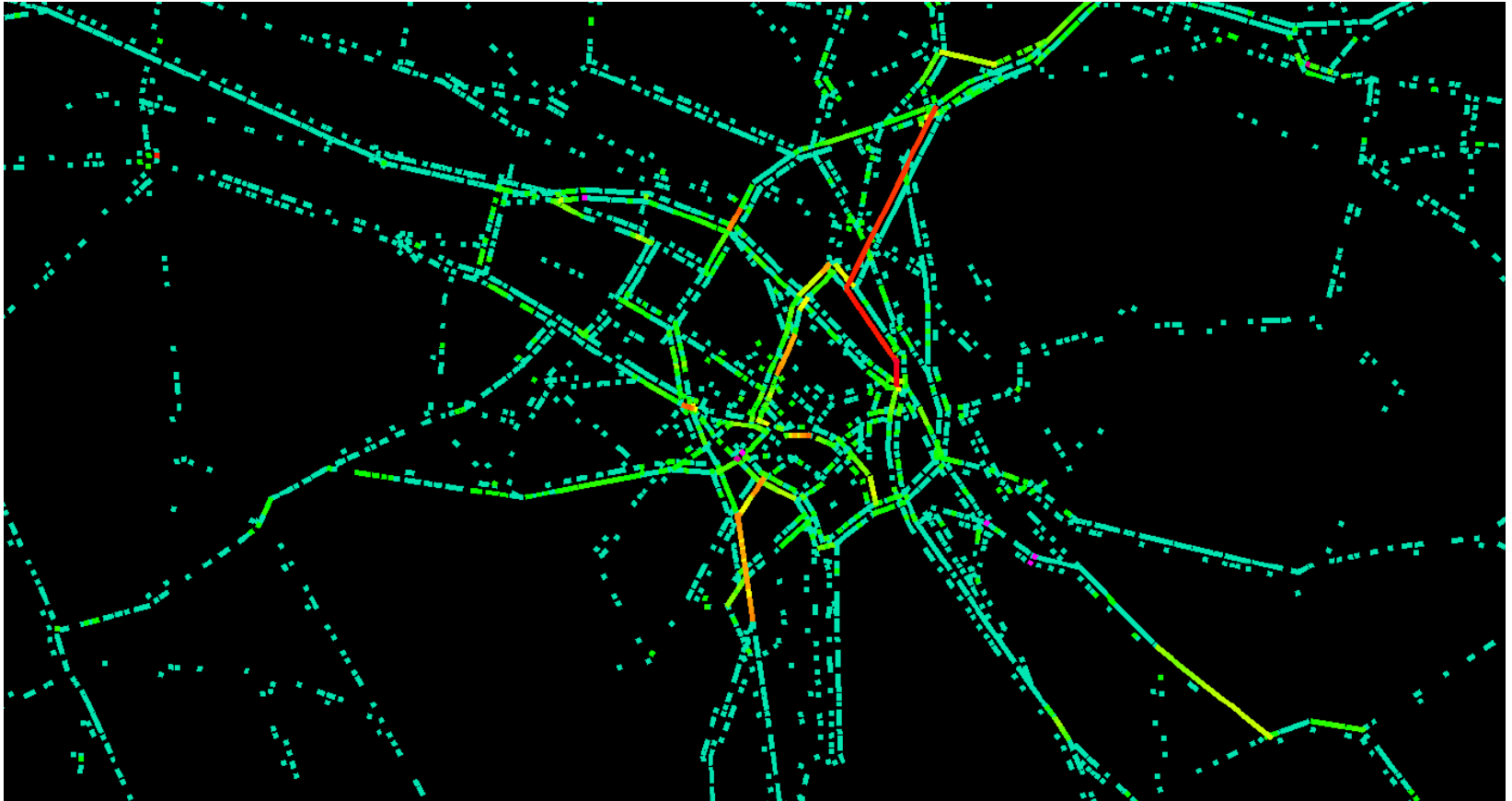
Integrated agent-based demand model: MATSim



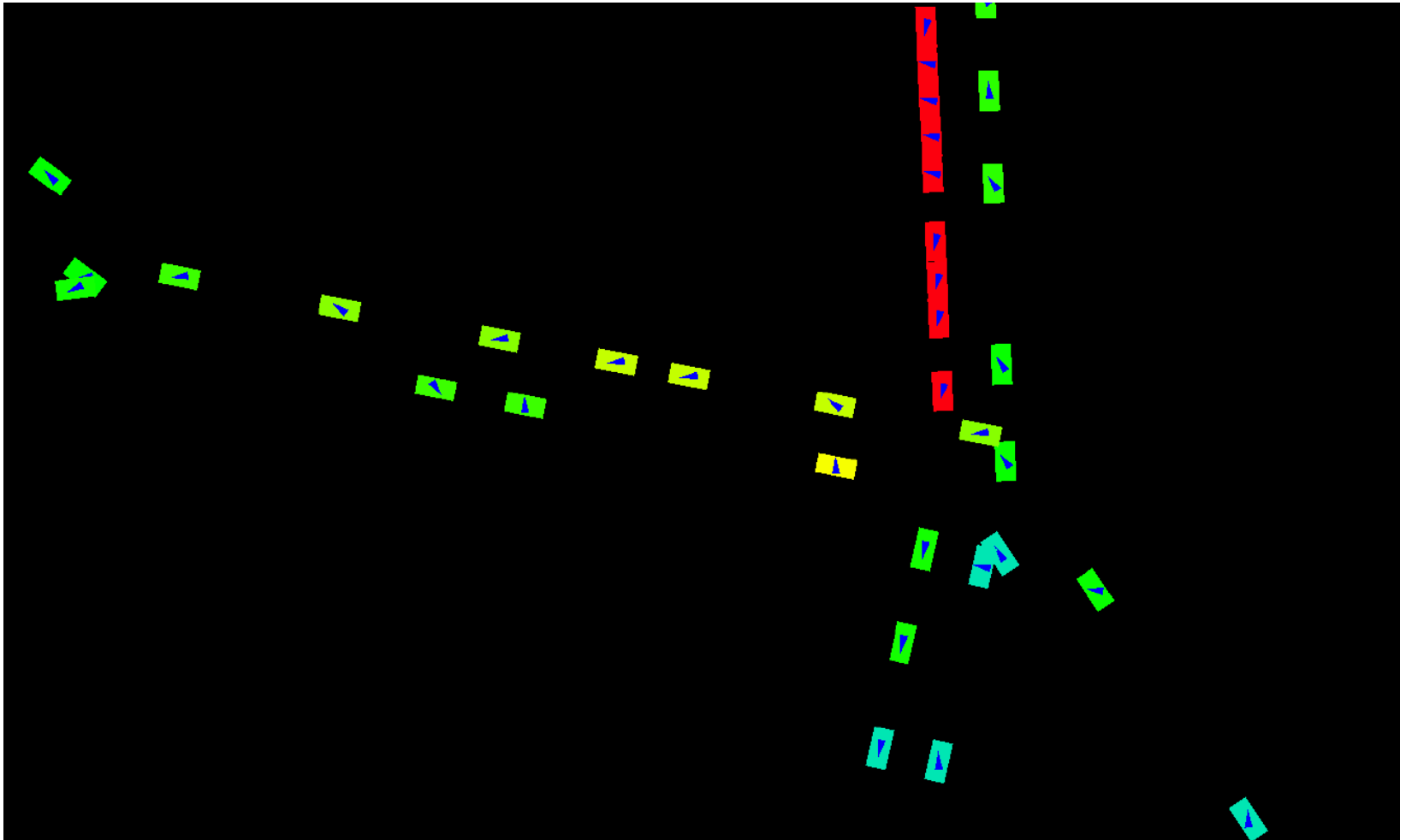
Integrated agent-based demand model: MATSim



Integrated agent-based demand model: MATSim



Integrated agent-based demand model: MATSim



Integrated agent-based demand model: MATSim

