



Walkability and health parameters in Switzerland

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Walkability and Mortality, SNC meeting 17.05.2013

Institut für Sozial- und
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Background

- An environment which is pedestrian friendly (“walkable”) is associated with
 - higher rates of active transportation and
 - lower prevalence of obesity
- “the constitutions and the habits of a people follow the nature of the land where they live” (Hippocrates)

Research Questions

- Which indicators of walkability can be identified in Switzerland?
- Is it possible to generate a walkability-index out of the key indicators?
- How is such an index associated with cause specific mortality?
- Is it possible to define a walk friendly environment?
- Do intermediate factors e.g., obesity, follow the same patterns as mortality

Exposure (Indicators)

- Traffic indicators
 - road network, land use (Arealstatistik)
 - number of intersections
 - accessibility (walkability) of destinations
 - public services / transport
 - shops, green zones
 - Traffic density, commuting times
- Building?
 - floor, slope, age/type of building

Outcome: Mortality

- All-cause
- Cardiovascular disease (CVD)
 - Myocardial infarction
 - Stroke
- Cancer
- Non-cancer-non-CVD

Potential confounders

- Education
- Marital status
- Occupation
- House ownership
- Household
- Language region
- Nationality

Other data for comparison or record linkage



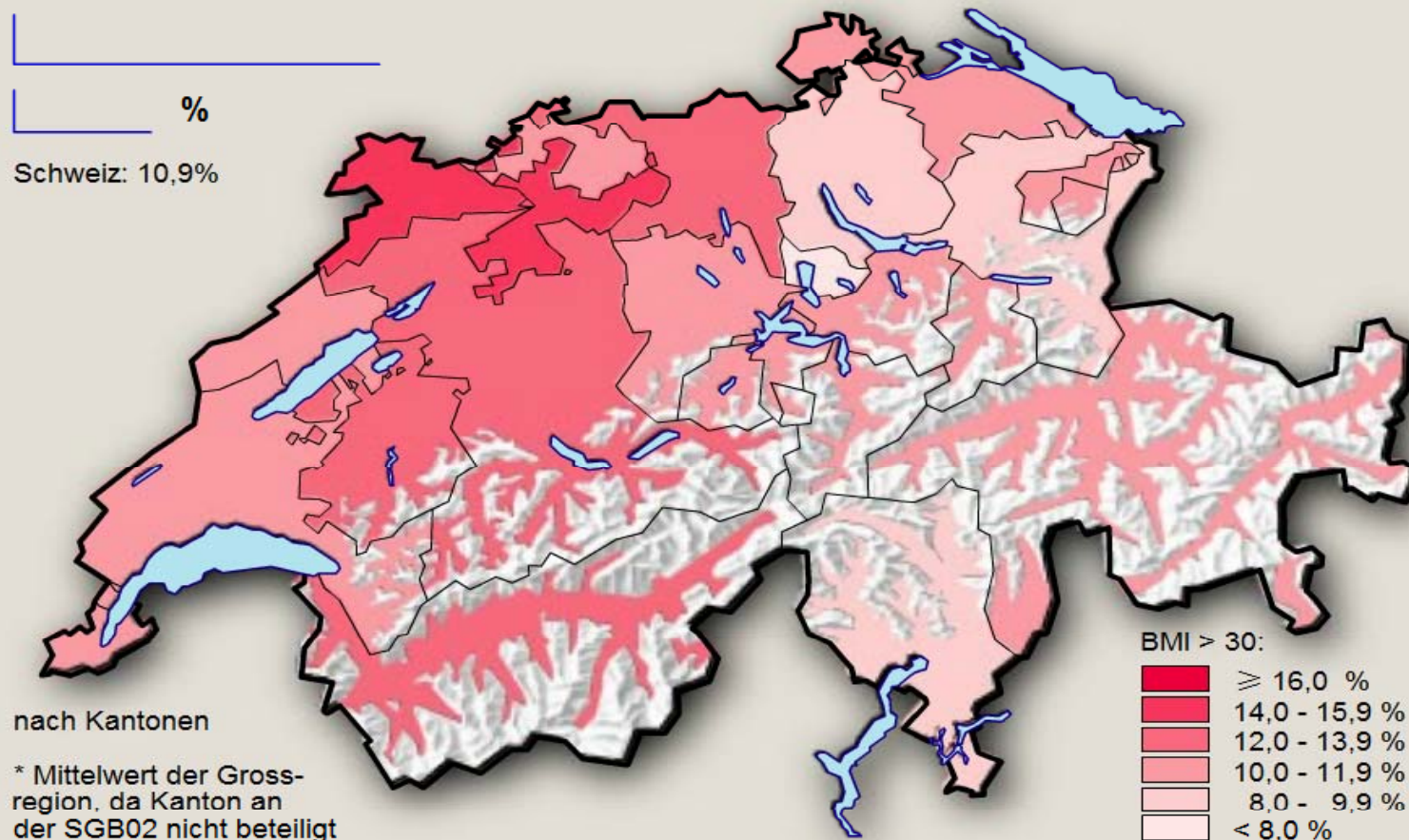
- Microcensus (>62'000 individuals)
 - Trips, commuting
 - frequency
 - duration
 - origin
 - destination
 - Motorized traffic
 - Biking / walking activity

Other data for comparison

- Swiss Health Surveys (1992-2012)
 - Overweight / obesity prevalence by region
 - Physical activity indicators
 - Occupational
 - Commuting
 - Leisure time
 - Sport

Atlas über das Leben nach 50

50-Jährige und Ältere mit starkem Übergewicht (BMI >30), 2002



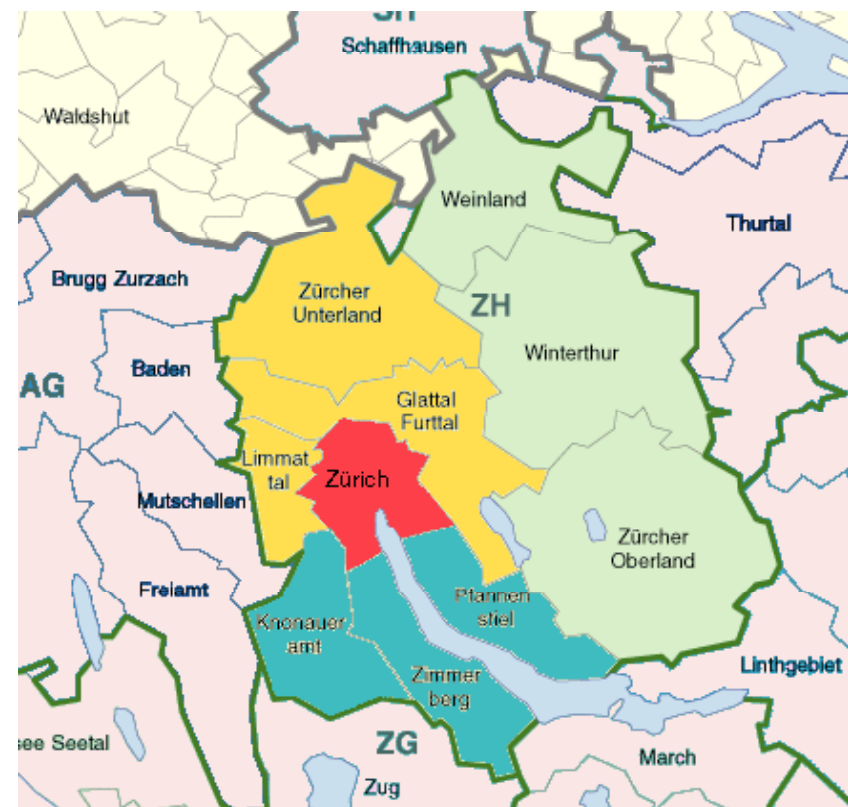
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Quelle: Schweizerische Gesundheitsbefragung

Zwei der von der Schweizerischen Gesundheitsbefragung erhobenen gesundheitsrelevanten Verläufe (körperliche Betätigung und Ernährung) unterliegen kantonalen Unterschieden: Die Deutschschweizer

Variable	Adjustment	Men				Women			
		Canton of ZH		Rest GS		Canton of ZH		Rest GS	
		OR	<i>p</i>	OR	<i>p</i>	OR	<i>p</i>	OR	<i>p</i>
Region	Age (years)								
ZH region 1		1				1			
ZH region 2		1.20	0.054			1.15	0.172		
ZH region 3		1.09	0.382			0.88	0.257		
ZH region 4		1.07	0.469			1.23	0.039		

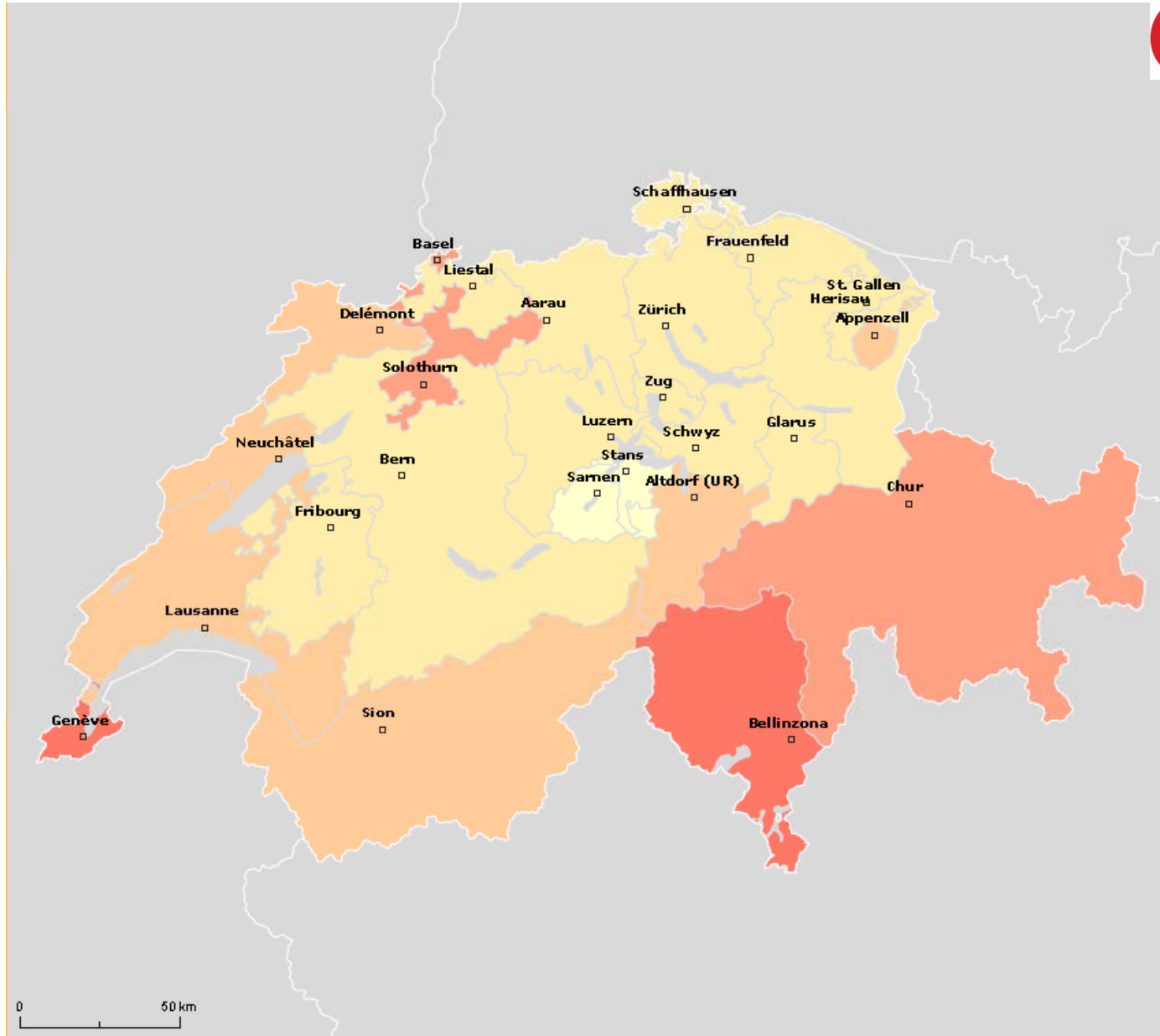
1. **Stadt Zürich**
2. **Glattal, Furttal, Unterland**
3. **Knouneramt, Pfannenstiel, Zimmerberg**
4. **Oberland, Weinland, Winterthur**



Other data for comparison or record linkage

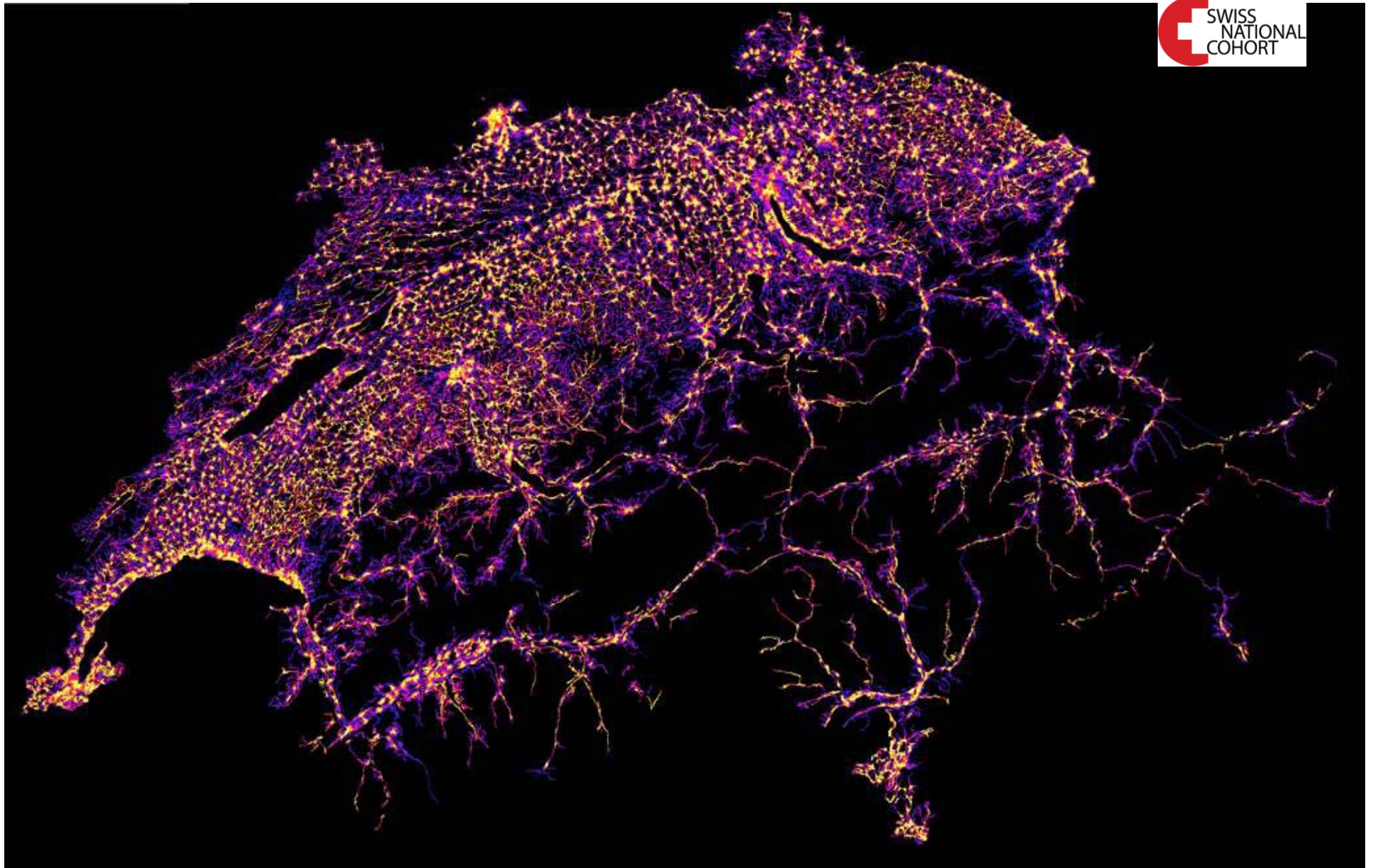


- Business data (shop density)
 - Swiss Business Census 2001
 - NOGA (Economic Activities)
- Hospital admission data (MedStat)
- Conscripts data (Swiss Army)
 - Overweight / Obesity prevalence
 - Fitness
- MISTRA (Fachapplikation Langsamverkehr)



Analyses

- Create walkability index based on
 - space syntax
- Cox / spline models to analyse association of index with outcome

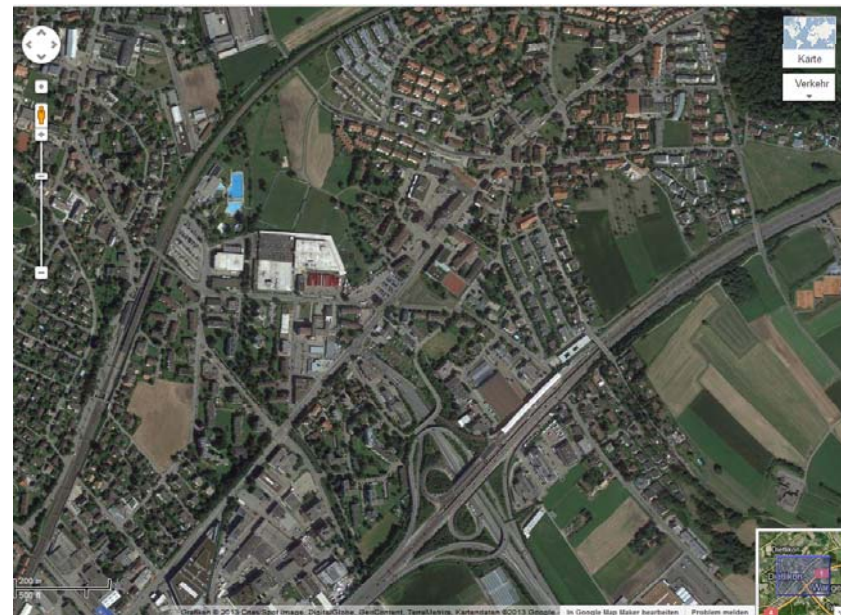


Can we identify characteristics of the natural and built neighborhood environments which determine active lifestyles, in particular levels of walking and cycling in Switzerland?

Urban

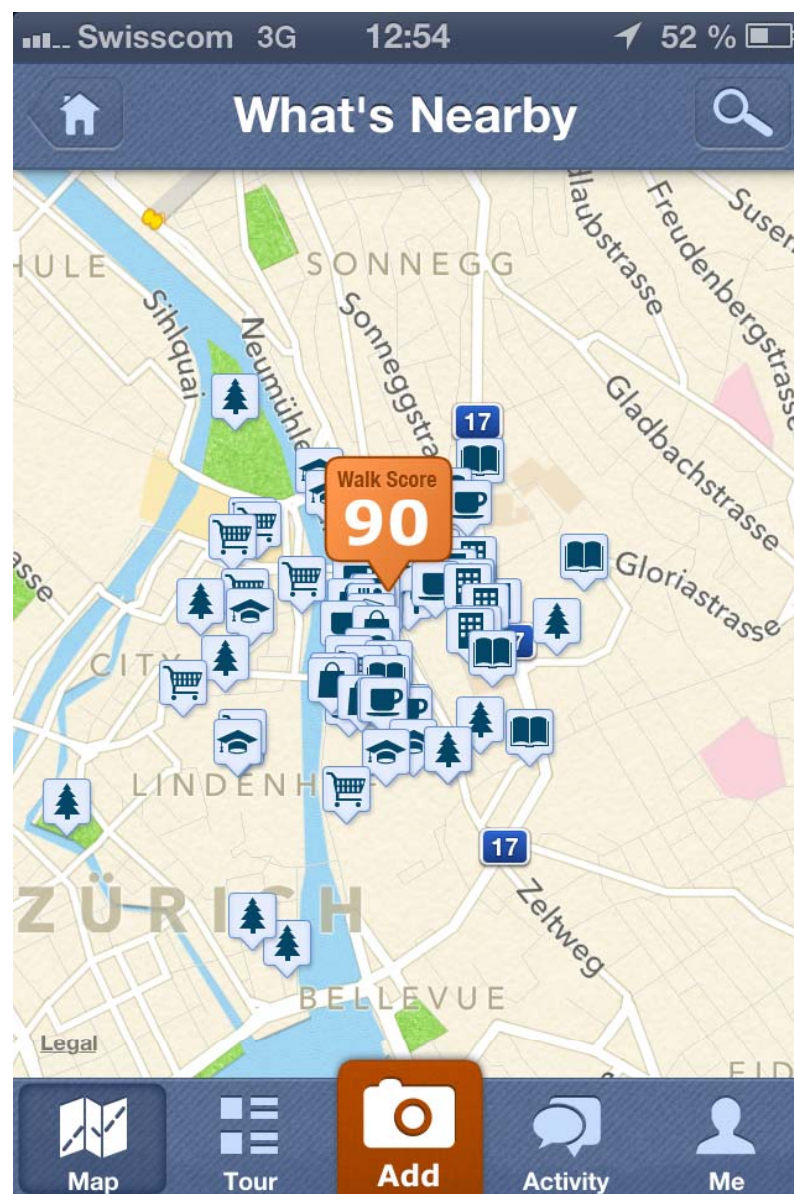


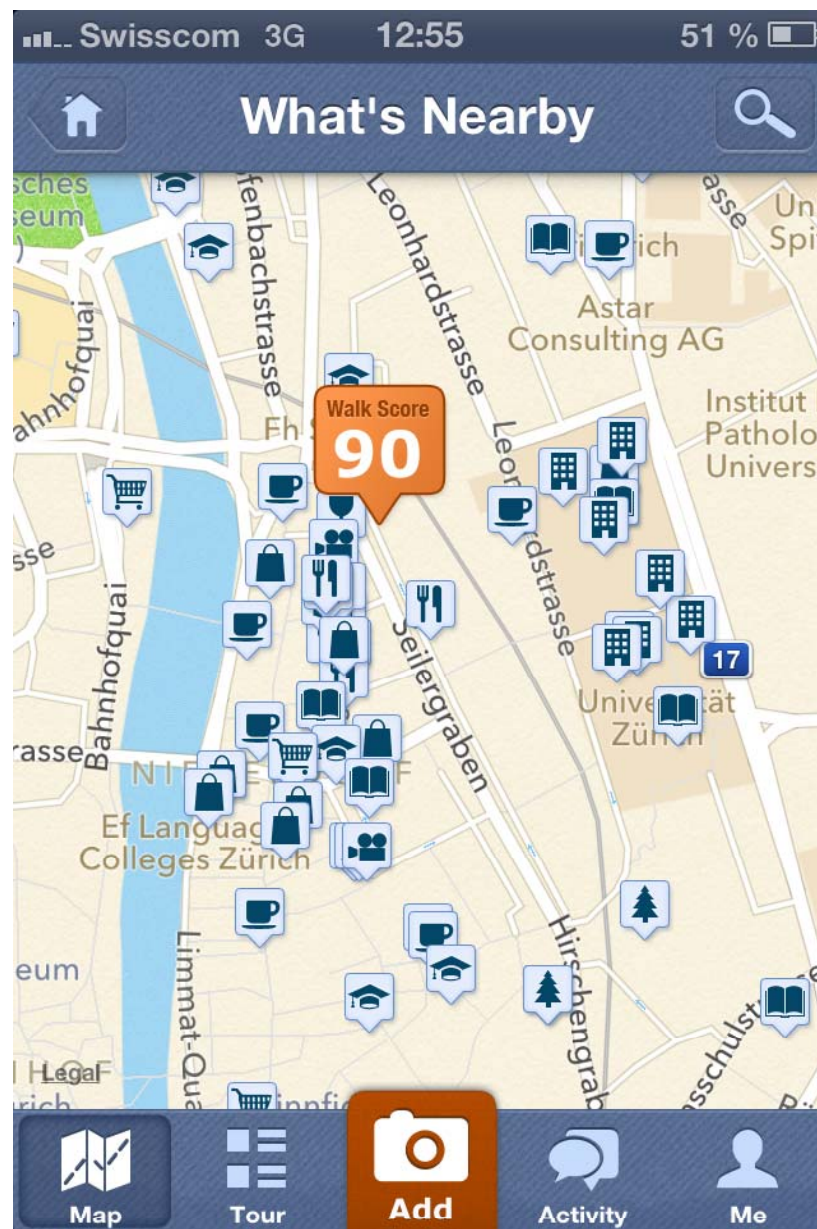
Suburban

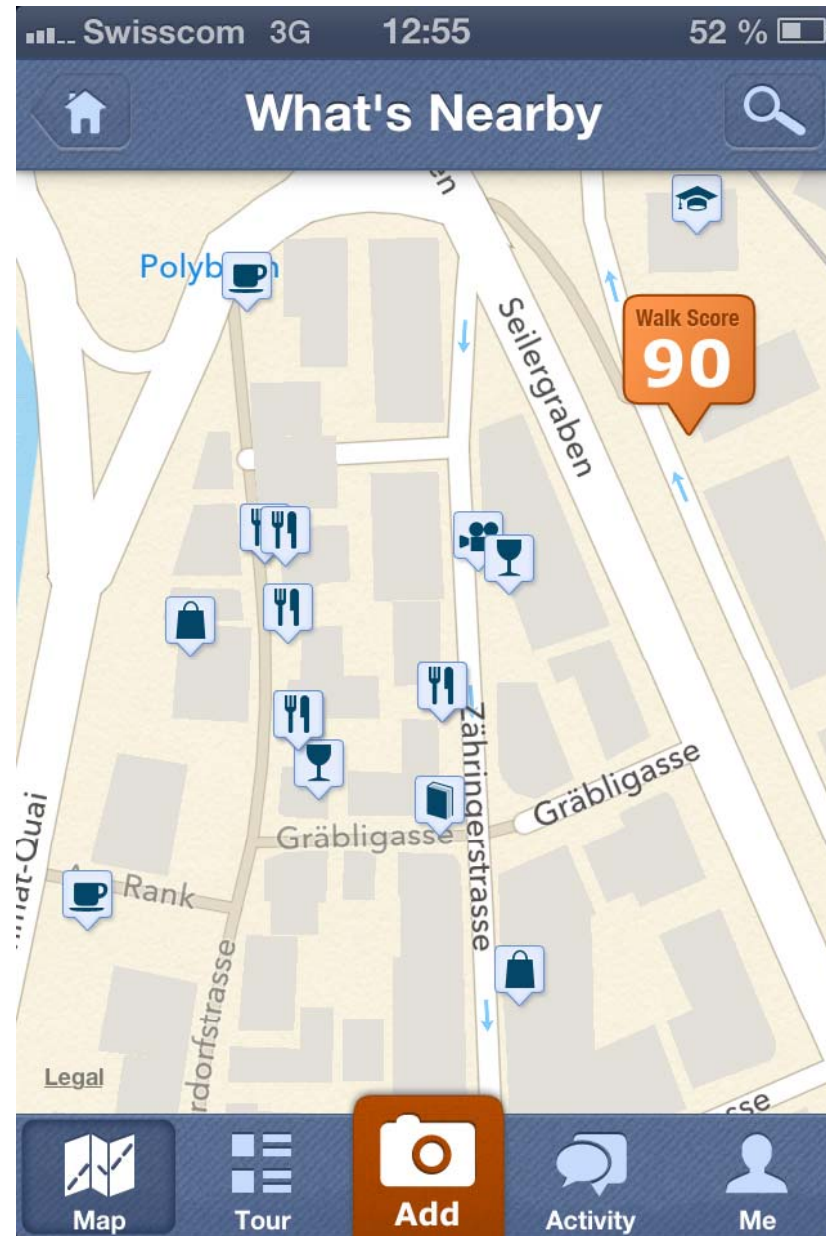


Significance

- Show regional variations in walkability
- Determine the single and joint impact of walkability indicators on health
- Determine good and bad examples of walkability
- Tool for authorities / city planners to better exploit walkability potential in Switzerland
- Tool for everybody









Groceries		
	 Migros M 11 Mühlegasse 0.2 km	
	 Biomarkthalle Vitus Ankengasse 7 0.5 km	
	 Reformhaus Müller 15 Rennweg 0.5 km	
	 Jelmoli Seidengasse 1 0.6 km	
	 St. Annahof Coop City Bahnhofstrasse 57 0.7 km	
	 Coop Pronto Shop 7 Löwenstrasse 0.9 km	
	 Coop City Theaterstrasse 18 1 km	
	 Denner Werdstrasse 36 1.2 km	

Collaborators

- Bern (University)
 - Adrian Spörri, Radoslav Panczak, André Moser
- Zurich (University / ETH)
 - David Faeh, Thomas Goetschi, Brian Martin, Matthias Bopp, Kaspar Staub
 - Gideon Aschwanden

Open for discussion

- What about bikability?
 - Larger contrast between bike friendly and unfriendly areas than for walkability?
 - Larger potential for improvement?
- Longitudinal approach: changes in walkability vs. changes in mortality?



In the US context the contrast between „walkable“ and not may be seem obvious



Thanks!

Reserve

Why walking and cycling?

Walking

- Levels are high
- Large samples available
- Large contribution to overall physical activity

Cycling

- Levels fairly low
- Contrasts between cities, areas fairly large (outcome and exposure)
- Potential measures more obvious
- Potential to increase is larger
- Influence of built environment stronger (effect size) (?)

MISTRA FA LV

- **Fachapplikation Langsamverkehr**

- - ab September 2013 werden 5 Pilotkantone (FR VD UR SZ OW) beginnen mit der FA LV produktiv zu arbeiten.
 - voraussichtlich ab Sommer 2014 werden weitere Kantone eingeführt; welche ist noch offen.
 - die weitere Einführung wird im 2015/2016 stattfinden.
 - Daten, welche bei SchweizMobil gehalten werden (z.B. Veloland, Wanderland) werden im 1. Quartal 2014 in die FA LV überführt. Diese Daten stehen dann flächendeckend über die ganze Schweiz ab Frühling 2014 in der FA LV zur Verfügung. Sie werden in einem ersten Schritt nachbearbeitet, da durch den Systemwechsel der Grundlagedaten (VECTOR25 auf TLM) und die damit Genauigkeitssteigerung Anpassungen/Korrekturen notwendig sein werden.
- Pedestrian infrastructure?
- Bicycle infrastructure?

Research questions

- Can established walkability and bikability indices predict contrasts in walking and biking in Switzerland?
- Can they (help to) predict health outcomes and mortality?
- Do Swiss data enable us to develop improved walkability/bikability indices?