Chair for Information Architecture | FS2010

Elective Course Information Architecture

Visualising Complexity.
About the Conditions of Design
and the Design of Conditions.

Prof Dr Gerhard Schmitt

March 15, 2010

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Elective Course Information Architecture

3 more examples from Assignment 1

Student assignment 1 | FS2010

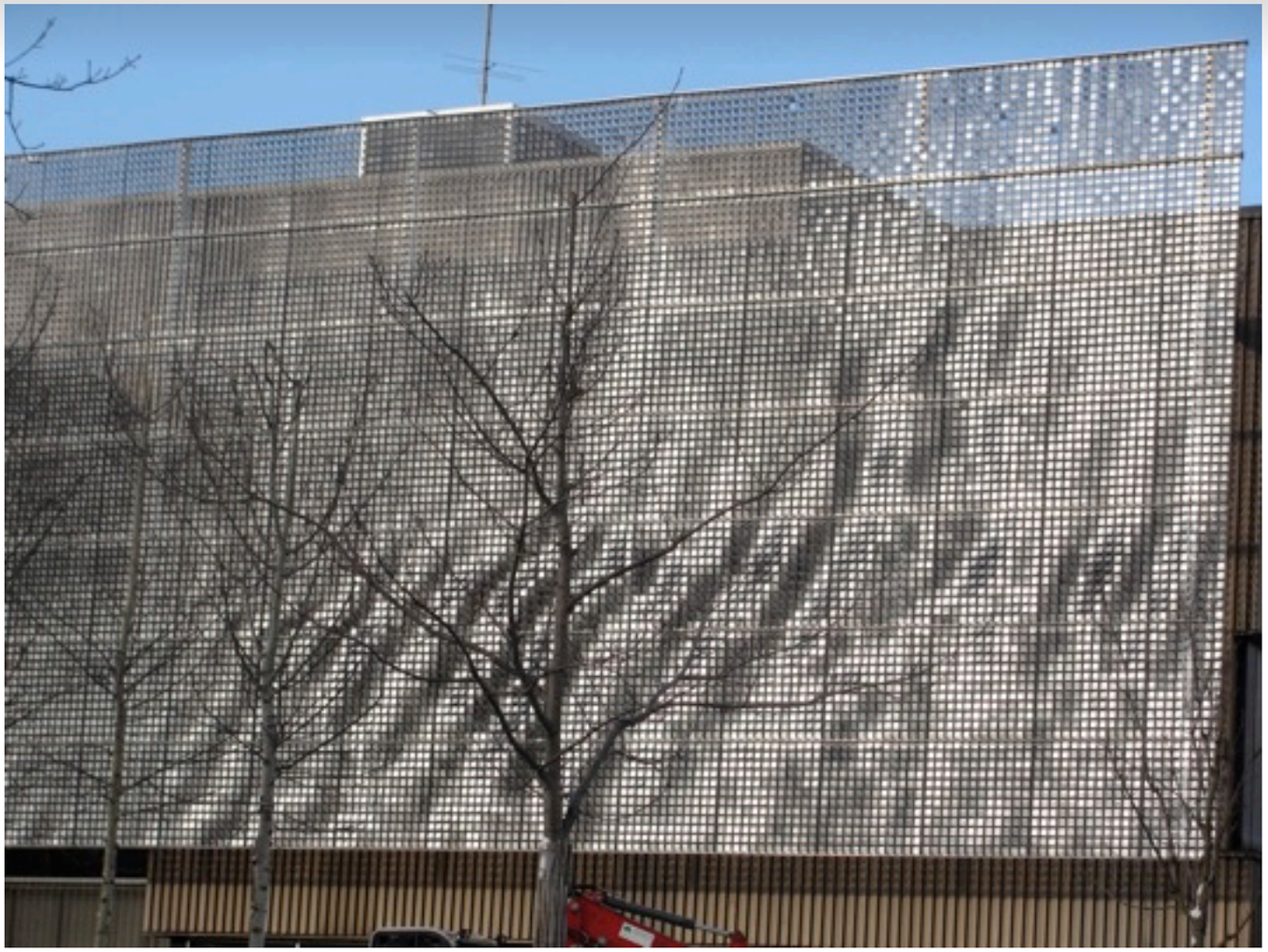
Manmayee Sharma





Student assignment 1 | FS2010

Swathi Purushothaman



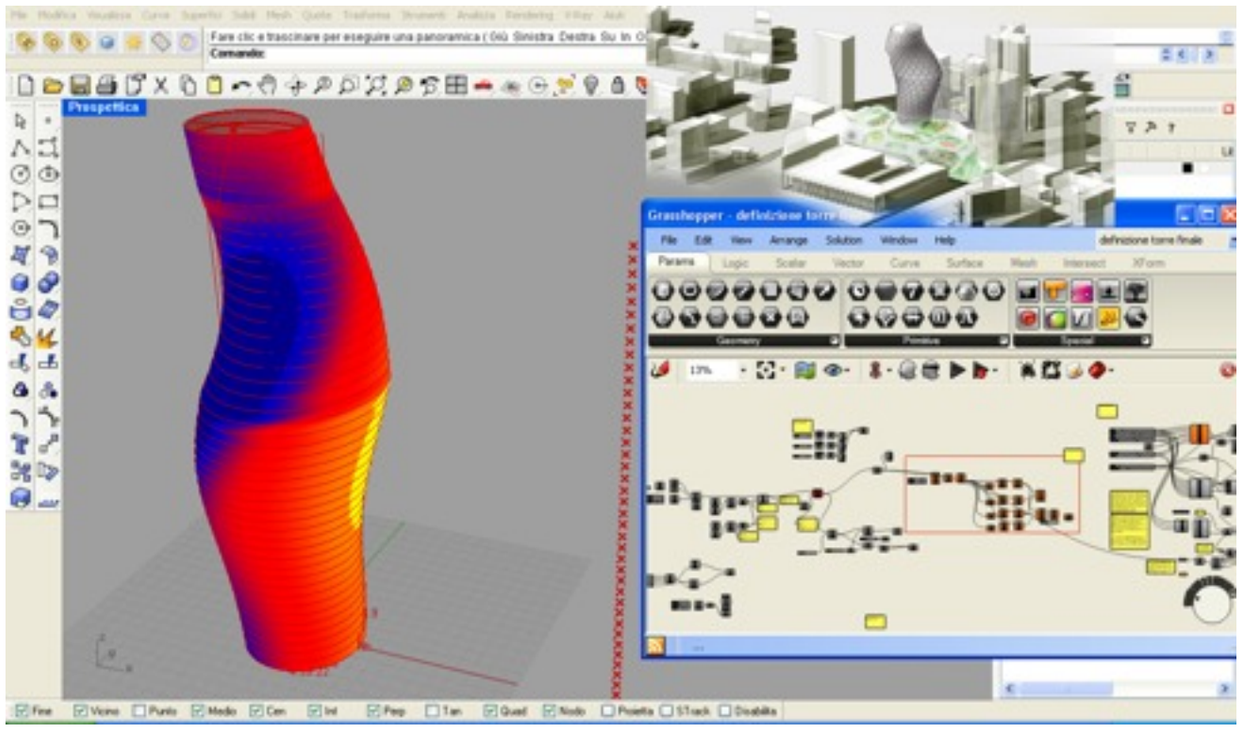
I was at the science city in Winterthur yesterday and i thought the facade could be an example of Information Architecture

Student assignment 1 | FS2010

Elvan Dajko



INFORMATION Architecture



Information ARCHITECTURE

Overview

- Information as Raw Material
- Architecture - The Information Organism
- Case Study: YOUCITY

Overview

- Information as Raw Material
- Architecture - The Information Organism
- Case Study: YOUCITY

Data - Information - Knowledge - Wisdom

Data

Represents a fact or a statement of an event without relation to other things

Example: 42
Example: It rains

Data - Information - Knowledge - Wisdom

Information

Embodies the understanding of a relationship of some sort, possibly cause and effect

Example: The temperature dropped 15 degrees and then it started raining.

Visualising Complexity. About the Conditions of Design and the Design of Conditions.

Information as Raw Material



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From Information to Knowledge

Example



Information display

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Data - Information - Knowledge - Wisdom

Knowledge

Represents a pattern that connects information and generally provides a high level of predictability as to what is described or what will happen next

Ex: If the humidity is very high and the temperature drops substantially the atmosphere is often unlikely to be able to hold the moisture so it rains.

Information as Raw Material

Data is unprocessed facts and figures without any added interpretation or analysis.

Information is data that has been interpreted so that it has meaning for the user.

Knowledge is a combination of information, experience and insight that may be of benefit.

Data - Information - Knowledge - Wisdom

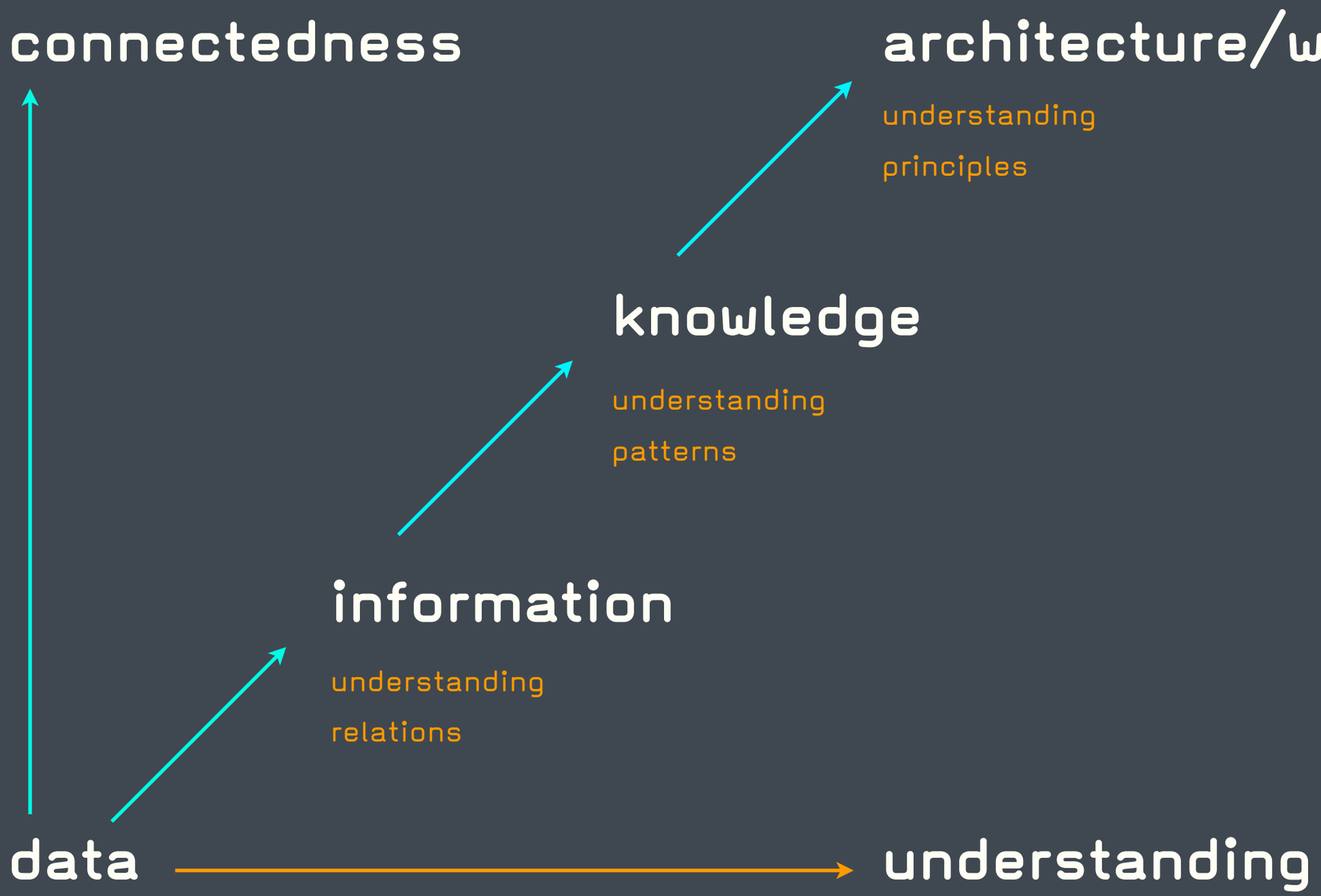
Wisdom

“Wisdom is a deep understanding of people, things, events or situations, empowering the ability to choose or act to consistently produce the optimum results with a minimum of time and energy. Wisdom is the ability to optimally (effectively and efficiently) apply perceptions and knowledge and so produce the desired results. Wisdom is comprehension of what is true or right coupled with optimum judgment as to action. Synonyms include: sagacity, discernment, or insight.”

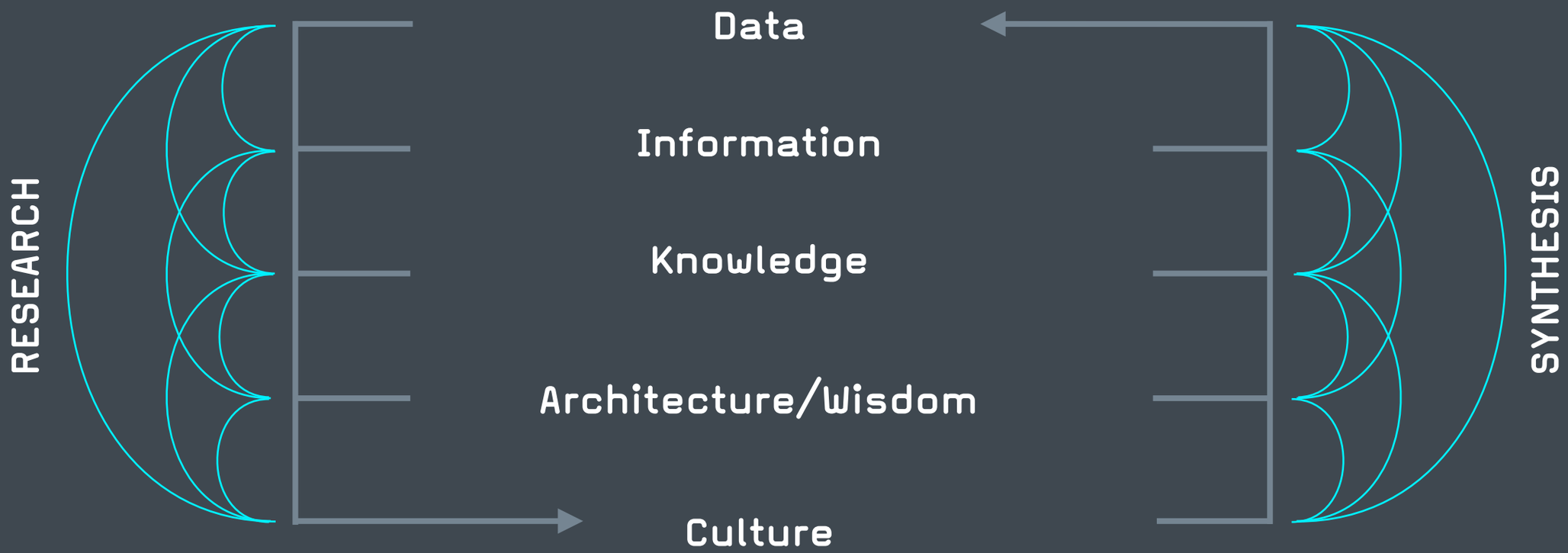
(http://en.wikipedia.org/wiki/Wisdom)

Example: It rains because it rains. And this encompasses an understanding of all the interactions that happen between raining, evaporation, air currents, temperature gradients, changes, and raining.

Information as Raw Material



Information as Raw Material



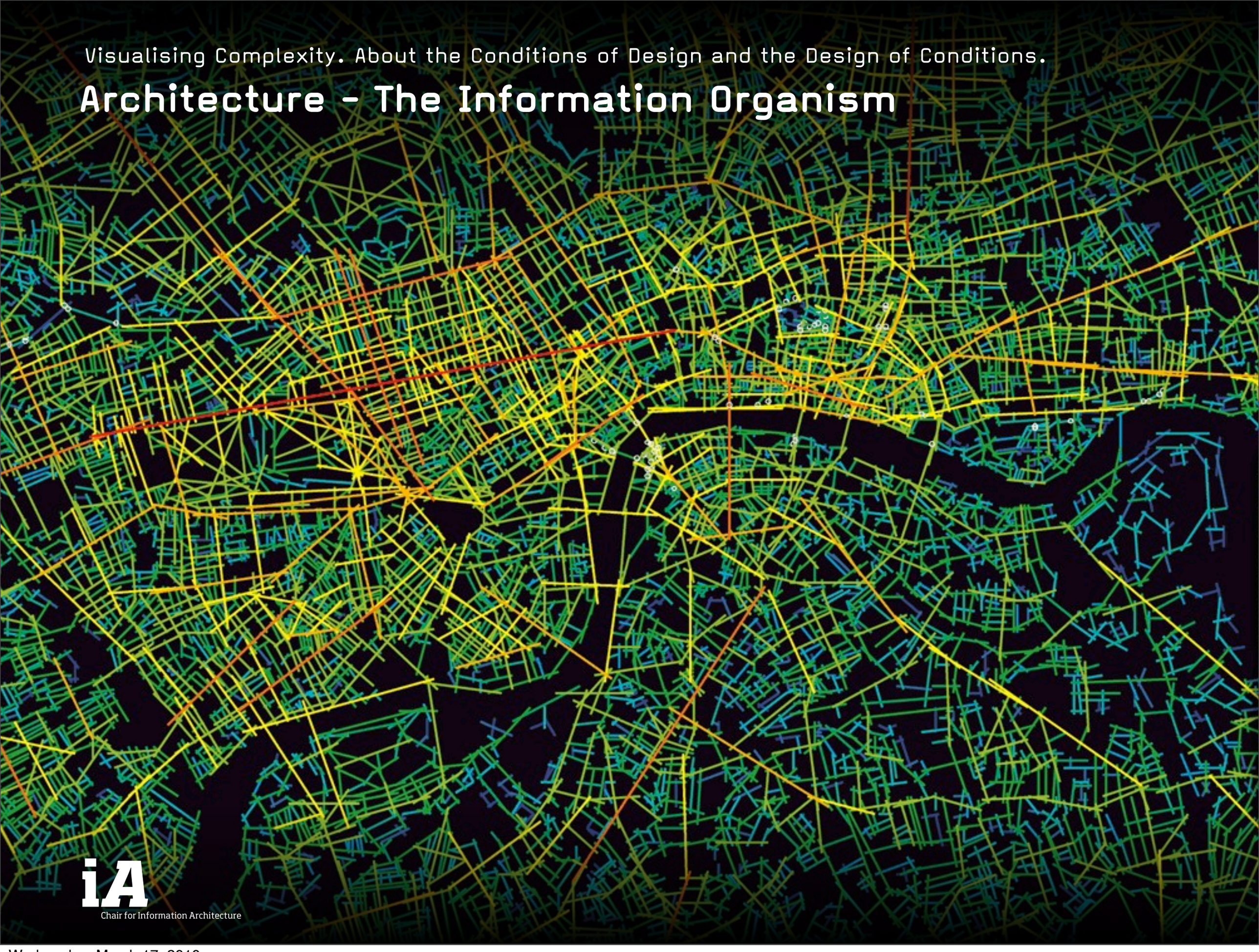
Overview

- Information as Raw Material
- Architecture - The Information Organism
- Case Study: YOUCITY

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Visualising Complexity. About the Conditions of Design and the Design of Conditions.

Architecture - The Information Organism



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Visualising Complexity. About the Conditions of Design and the Design of Conditions.

Architecture - The Information Organism

Prof Bill Hillier, Space Syntax, London

Space Syntax provides a unique, evidence-based approach to the planning and design of buildings and urban areas.

www.spacesyntax.com

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Architecture - The Information Organism

Challenge

- Amazing range of new data

- Need for methods to integrate fine scale data, and aggregate at multiple scales respecting urban form

- New geographical approaches emerging

Relevance of Built Environment Analysis

Relevance of urban physical structure measures to research and planning

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Relevance of Built Environment Analysis

Relevance of urban physical structure measures to research and planning

- **Economic activity**
  structural economic change, urban development

Relevance of Built Environment Analysis

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- **Urban sustainability**
  energy use in buildings, transportation patterns linked to land use

Relevance of Built Environment Analysis

Relevance of urban physical structure measures to research and planning

- **Economic activity**
  structural economic change, urban development
- **Residental patterns**
  gentrification, access to services, housing markets
- **Urban sustainability**
  energy use in buildings, transportation patterns linked to land use
- **Urban policy and planning**
  enhance evidence base on land use and built environment

Architecture - The Information Organism

Integrating Geography and Geometry

Methods in mapping urban form and function at multiple scales

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Integrating Geography and Geometry

Methods in mapping urban form and function at multiple scales

- **Urban Geography Uses Aggregate Methods**
  Many advantages in summarising large amounts of data for large areas.
  Quickly identify large scale patterns.

Integrating Geography and Geometry

Methods in mapping urban form and function at multiple scales

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- **Approaches to Measuring Urban Form**
  Geometrical methods in architecture, planning and real estate.

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Integrating Geography and Geometry

Methods in mapping urban form and function at multiple scales

- Urban Geography Uses Aggregate Methods

Many advantages in summarising large amounts of data for large areas.
Quickly identify large scale patterns.

- Approaches to Measuring Urban Form

Geometrical methods in architecture, planning and real estate.

- New Possibilities

Increasingly data and computing power available for geometrical analysis of whole city. Challenges in integrating with socio-economic data and enabling analysis at multiple scales.

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Architecture - The Information Organism

Functional Analysis

Visualising the structure of urban form
Datasets for Fine Scale Urban Analysis

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Functional Analysis

Visualising the structure of urban form
Datasets for Fine Scale Urban Analysis

- **Detailed topographic data**
  Building footprints and features at fine scale

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Functional Analysis

Visualising the structure of urban form
Datasets for Fine Scale Urban Analysis

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- **Remotely sensed data**
  Building heights, terrain

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Functional Analysis

Visualising the structure of urban form
Datasets for Fine Scale Urban Analysis

- **Detailed topographic data**
  Building footprints and features at fine scale

- **Remotely sensed data**
  Building heights, terrain

- **Real estate data**
  Floorspace, commercial function, housing type and size
  Property sales and rent data

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Integrating Urban Form with Socio-Economic Data

Cities can be viewed as information architecture systems.

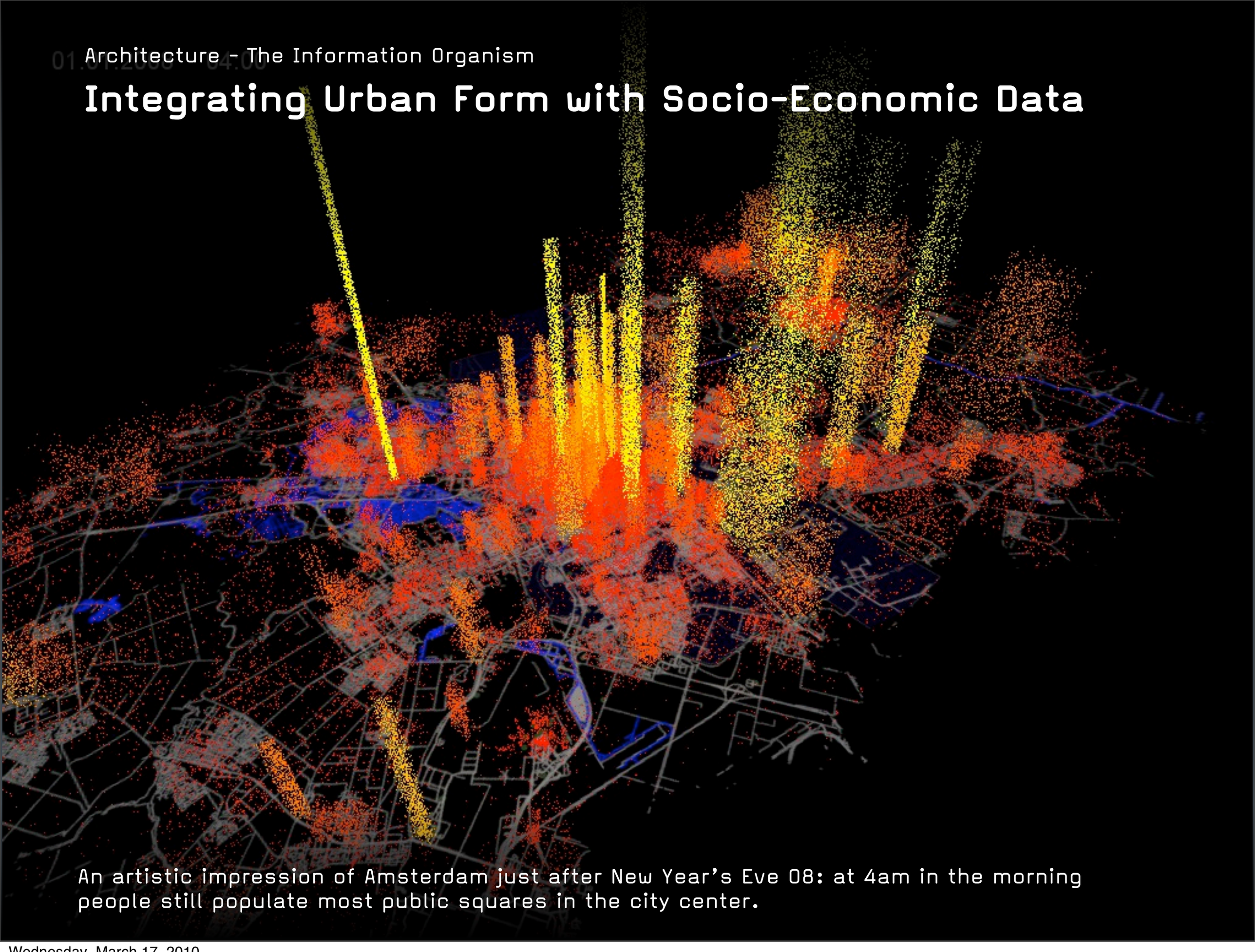
‚Architecture‘ refers not only to the design of buildings, but to how the components of a complex system interact.

e.g. movement of people and goods, personal contact and interactions, telecommunications.

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Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



An artistic impression of Amsterdam just after New Year's Eve 08: at 4am in the morning people still populate most public squares in the city center.

Integrating Urban Form with Socio-Economic Data

Example 1

Pulse - What are the patterns of use?

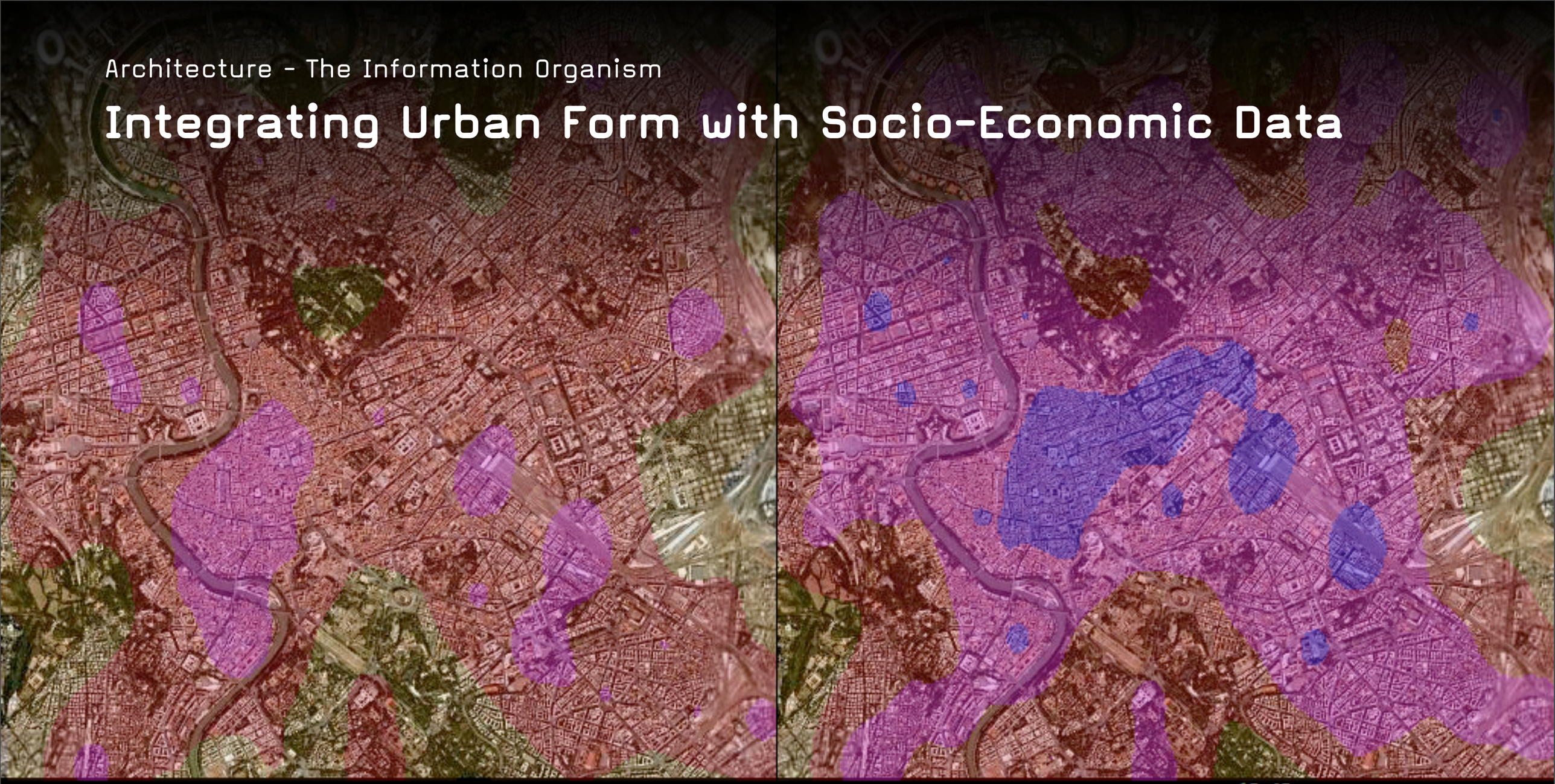
Where are people converging over the course of a day?

Visualising the intensity of mobile phone calls at the present moment and comparing it to yesterday's data.

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Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 2

Connectivity - Is public transportation where the people are?

How do the movement patterns of buses and pedestrians overlap? Showing the changing positions of buses, indicated by yellow points, and the relative densities of mobile phone users, represented by the red areas.

If a tail on a yellow point is long, a bus is moving fast. Areas colored by a deeper red, have a higher density of pedestrians.

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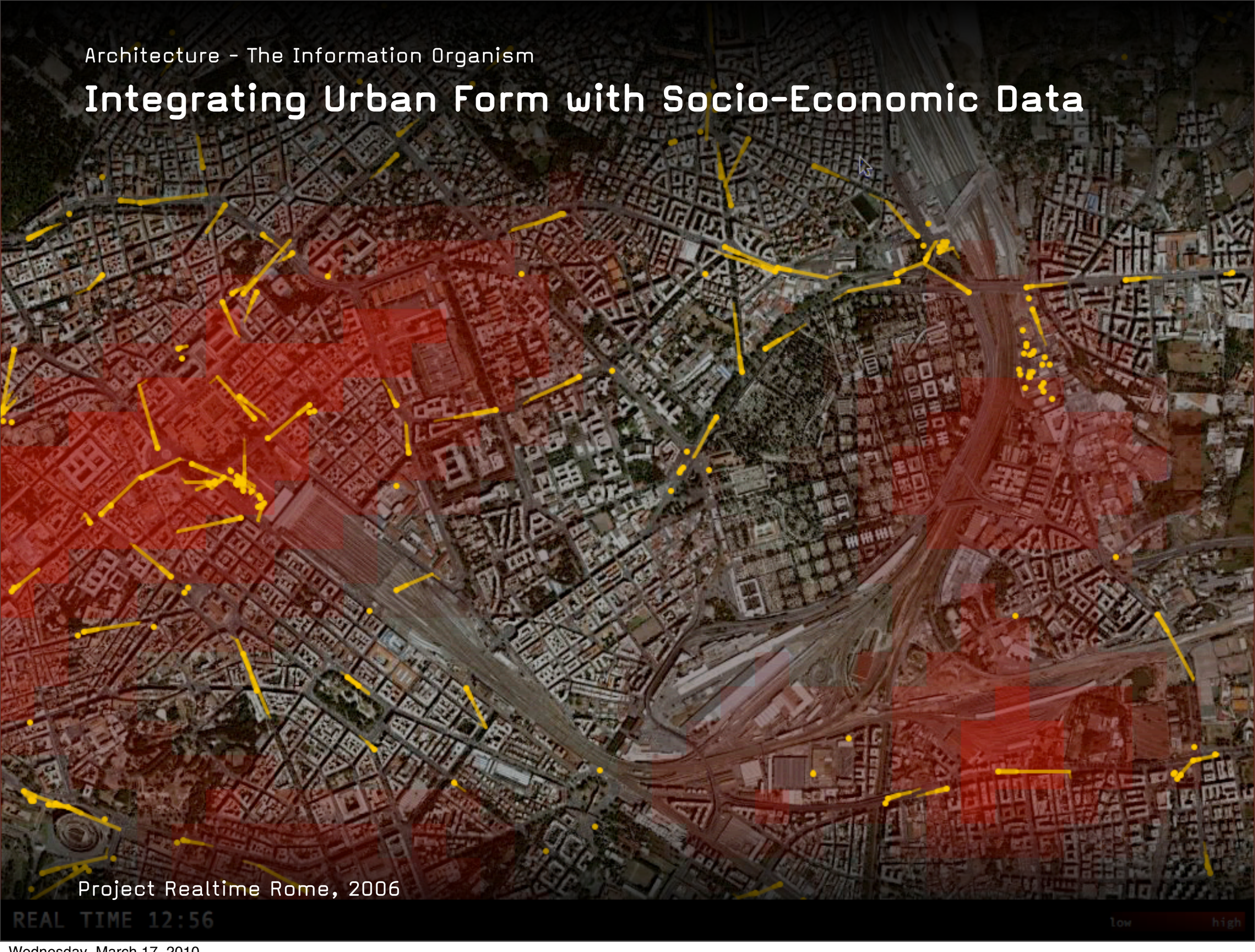
Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data

Project Realtime Rome, 2006

Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 3

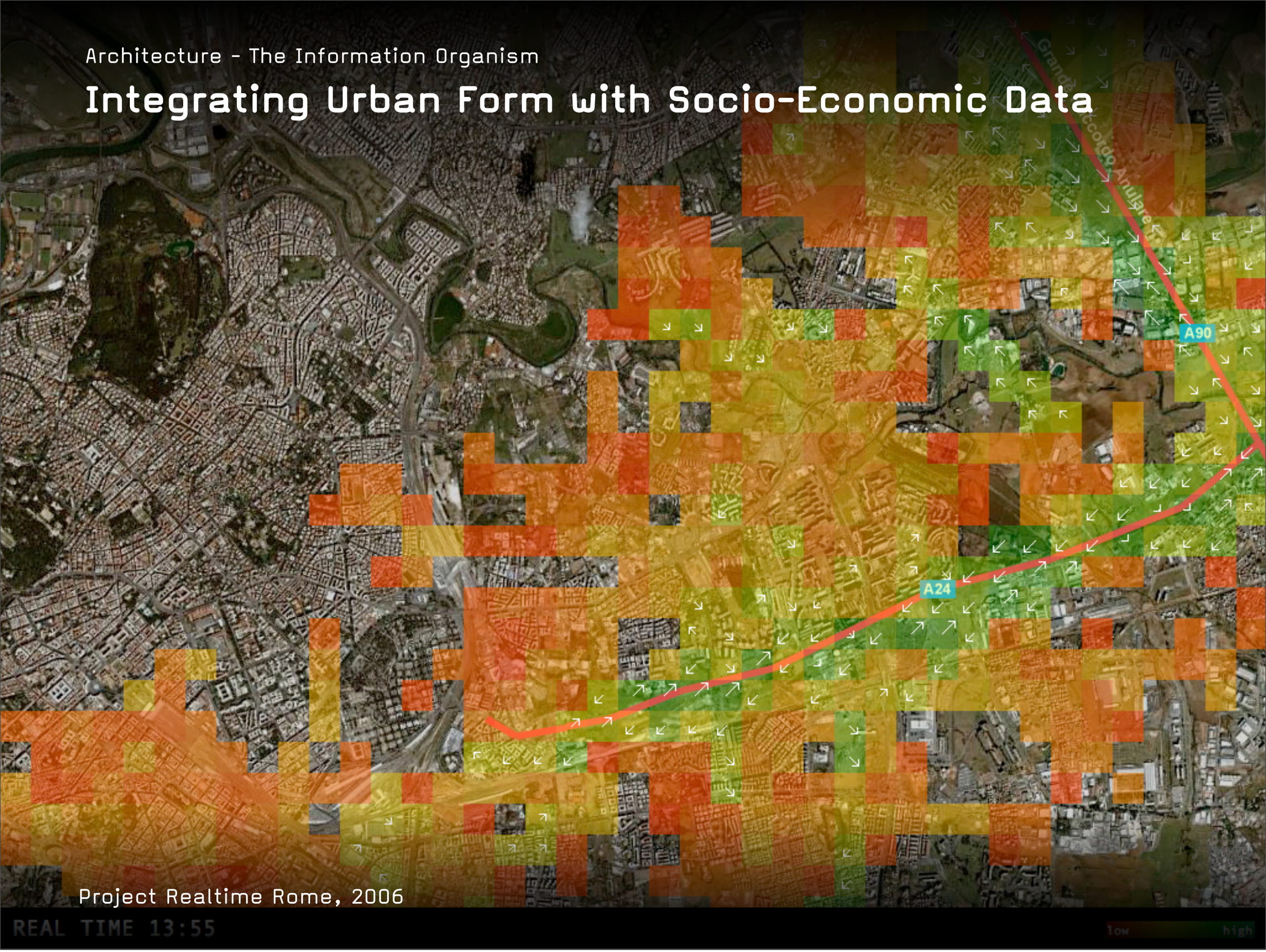
Flow - Where is traffic moving?

Visualising the movement of mobile phone callers traveling in vehicles.

Red indicates areas where traffic is moving slowly, green shows areas where vehicles are moving quickly, and the arrows represent the dominant direction of travel.

Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 4

Visitors: Where are tourists congregating?

Where are the concentrations of foreigners?
Highlighting the locations where tourists are speaking on mobile phones.

Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Integrating Urban Form with Socio-Economic Data

Example 5

Gatherings - What does a city look like during special events?

How do people occupy and move through certain areas of the city during special events? Showing the pre-recorded movements of mobile phone users during important events.

+ World Cup final match between Italy and France on July 9, 2006 and celebrations at the arrival in Rome of the winning Italy national team on July 10.

+ Madonna's concert in Rome on August 6, 2006

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Integrating Urban Form with Socio-Economic Data



Madonna appeared against a mirrored cross

The scene drew fire from Muslim and Catholic leaders

Project Realtime Rome, 2006

Architecture - The Information Organism

Integrating Urban Form with Socio-Economic Data



Project Realtime Rome, 2006

Conclusion

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Cities can be viewed as information architecture systems

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Understanding the city as a system

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Understanding the city as a system

Different types of complexity

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Understanding the city as a system

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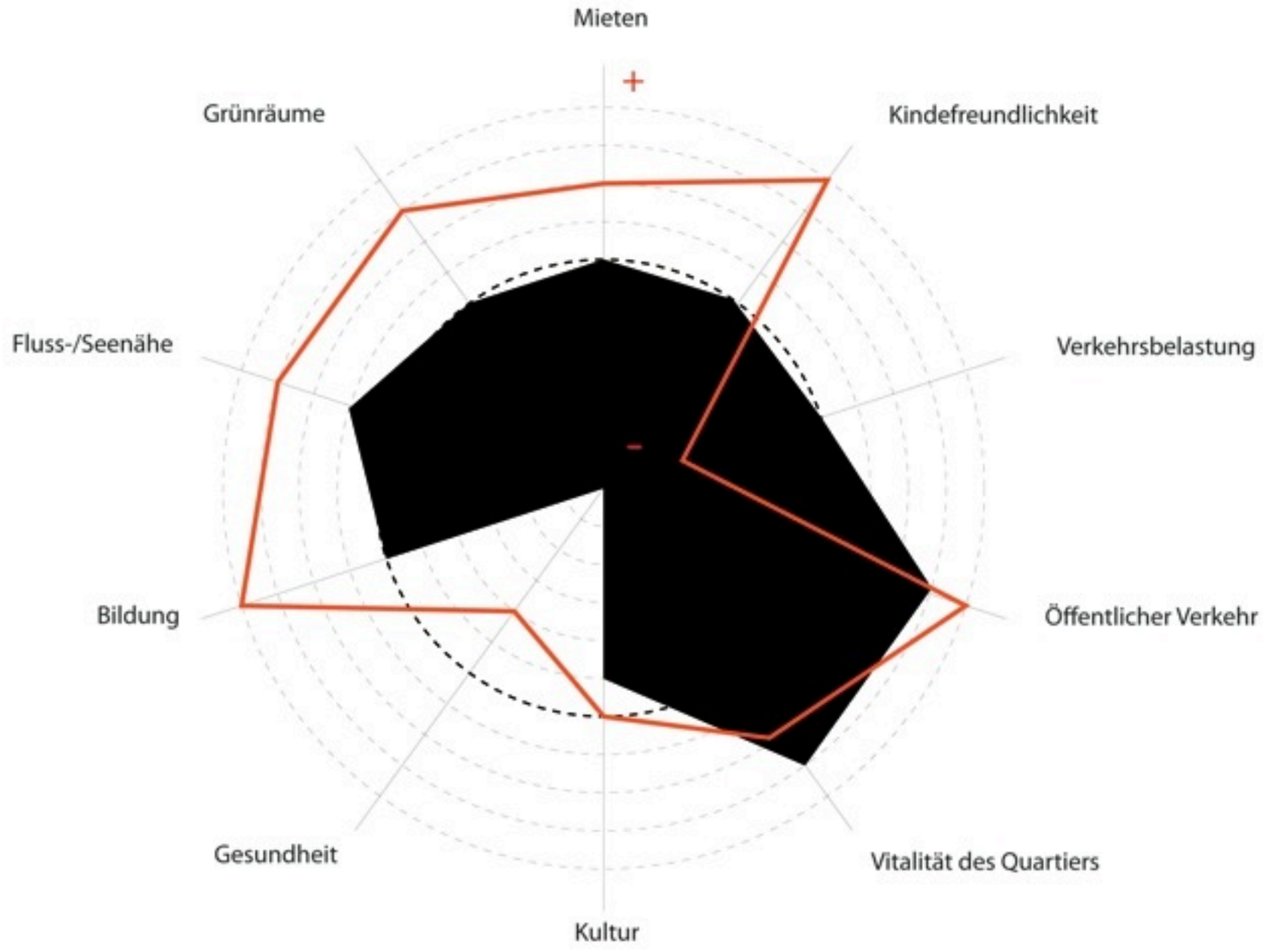
A city works like a brain, not a computer

Overview

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- **Case Study: YOUCITY**

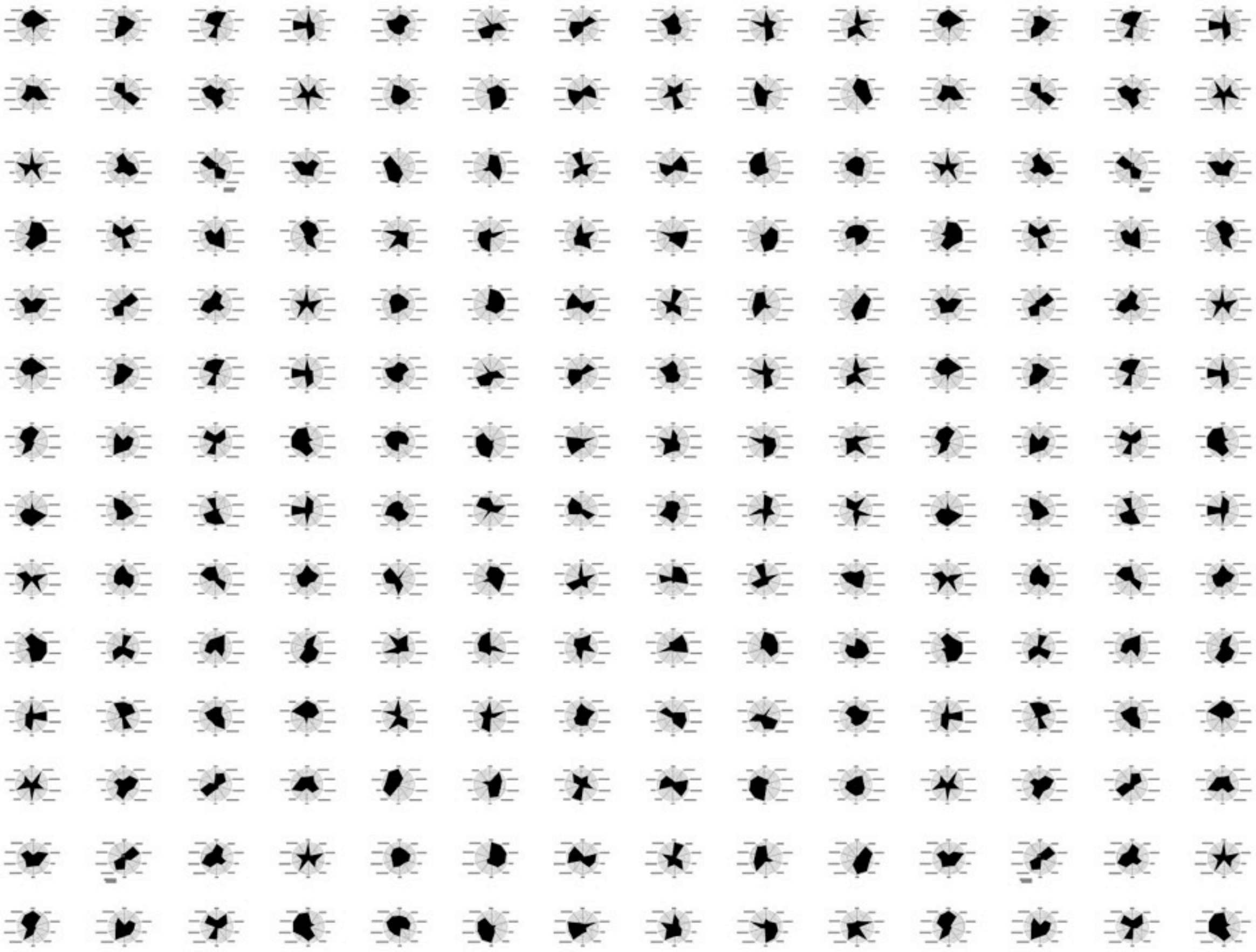
YOUCITY

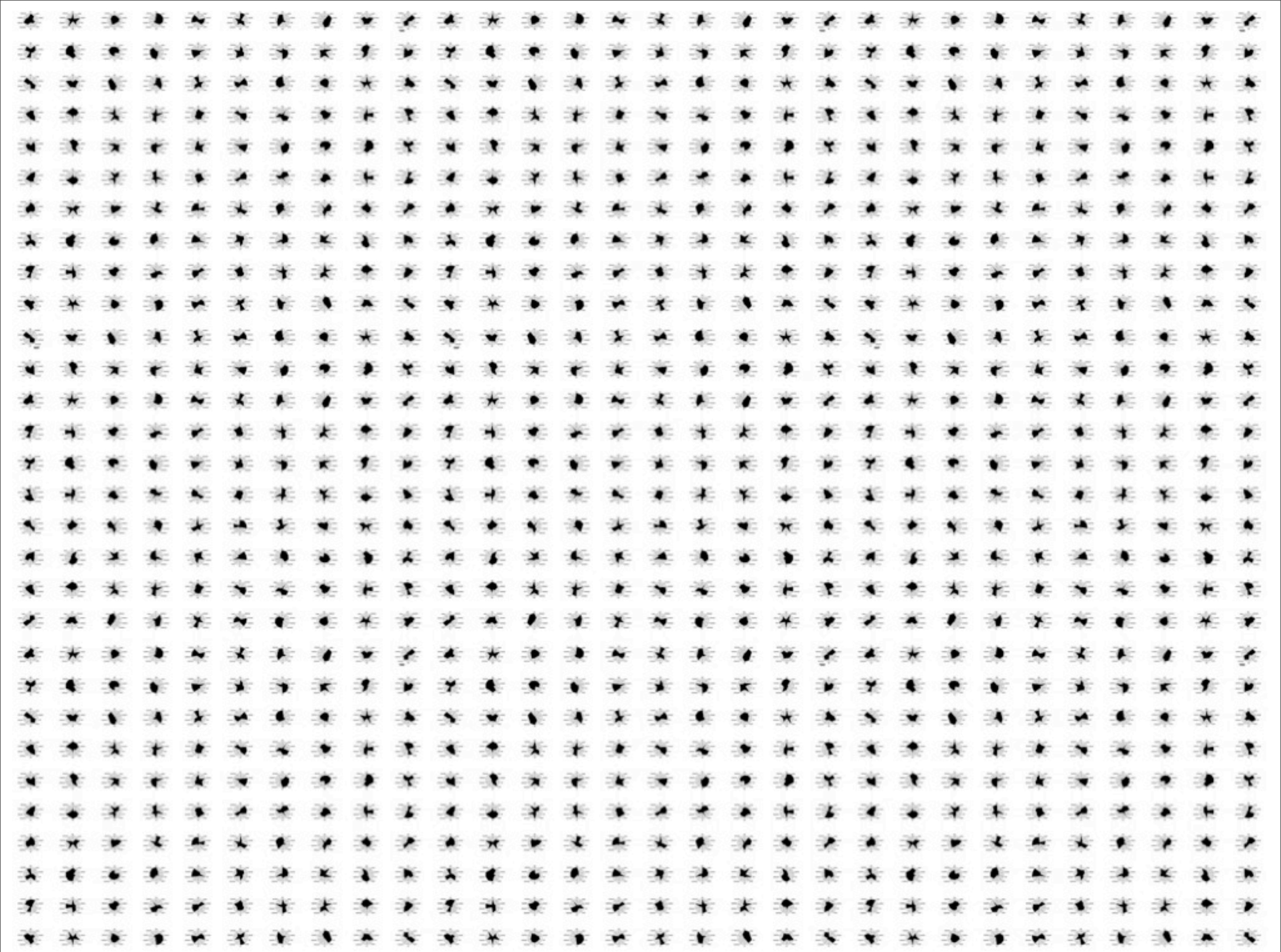
Anne Mikoleit I Moritz Pürckhauer I Niels Lehmann



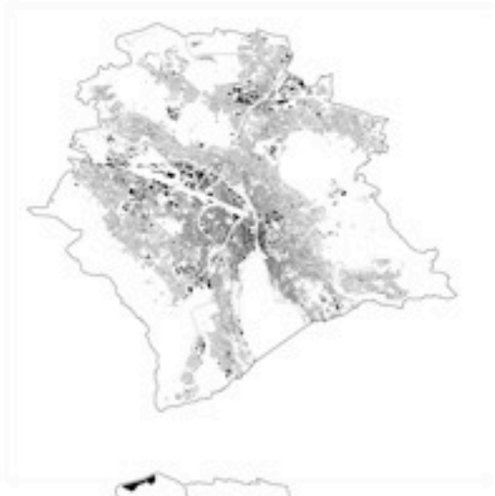
PRIORITÄT

BEWERTUNG





Wednesday, March 17, 2010

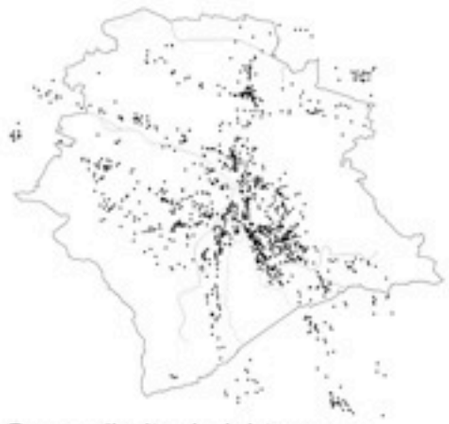




See und Flüsse



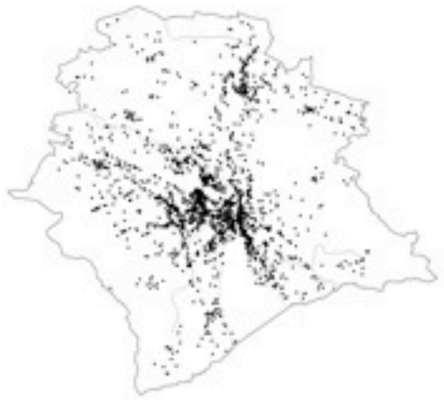
Bildungseinrichtungen



Gesundheitseinrichtungen



Kultureinrichtungen



Vitalität



Öffentlicher Nahverkehr



Kinderfreundlichkeit



Wald und Grünräume

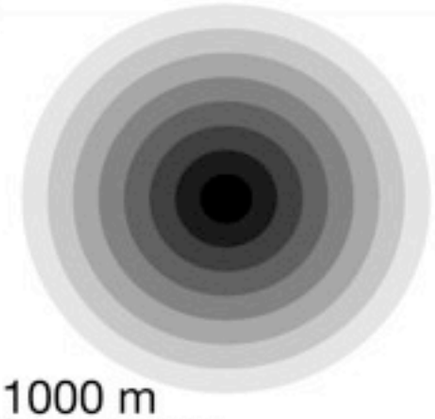


Miethöhe



Verkehrsbelastung





1000 m
See und Flüsse



300 m
Bildungseinrichtungen



200 m
Gesundheitseinrichtungen



300 m
Kultureinrichtungen



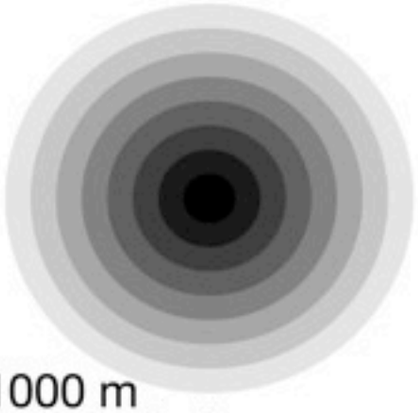
50 m
Vitalität



200 m
Öffentlicher Nahverkehr



150 m
Kinderfreundlichkeit

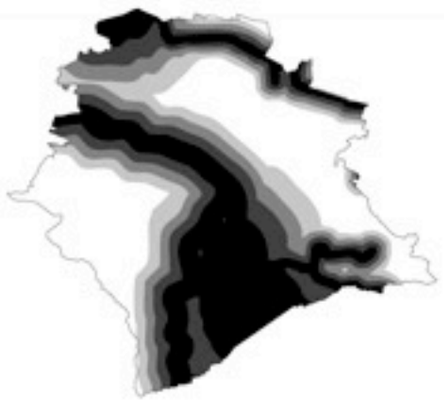


1000 m
Wald und Grünräume

600 - 4000 CHF
Miethöhe

0 - 44 µg/m³ NO2
Verkehrsbelastung

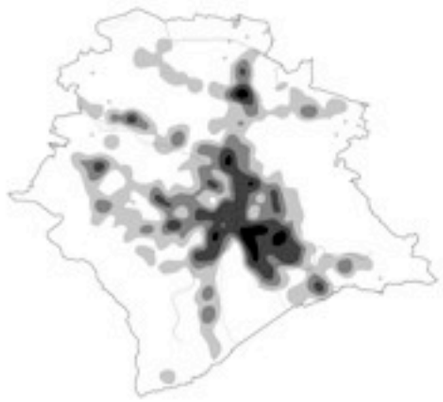




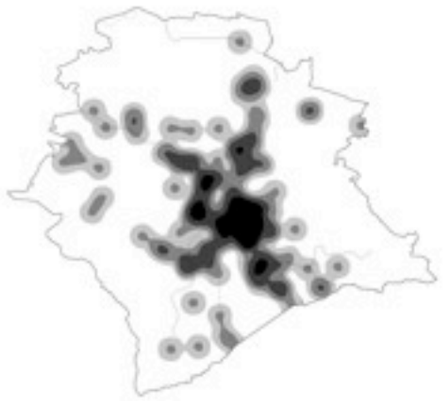
See und Flüsse



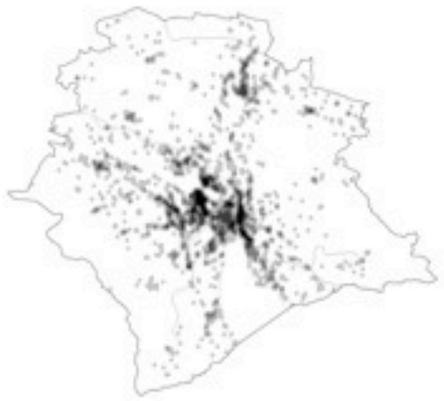
Bildungseinrichtungen



Gesundheitseinrichtungen



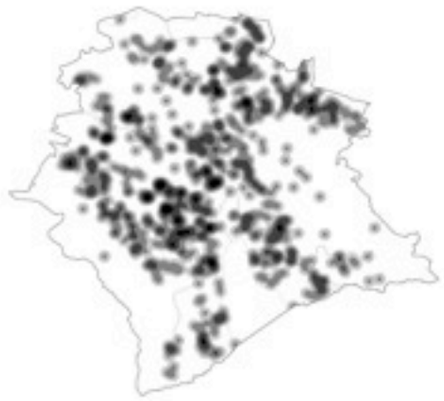
Kultureinrichtungen



Vitalität



Öffentlicher Nahverkehr



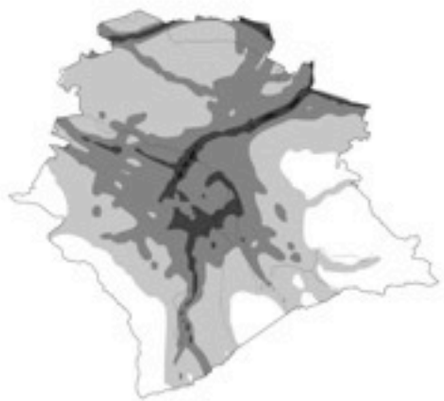
Kinderfreundlichkeit



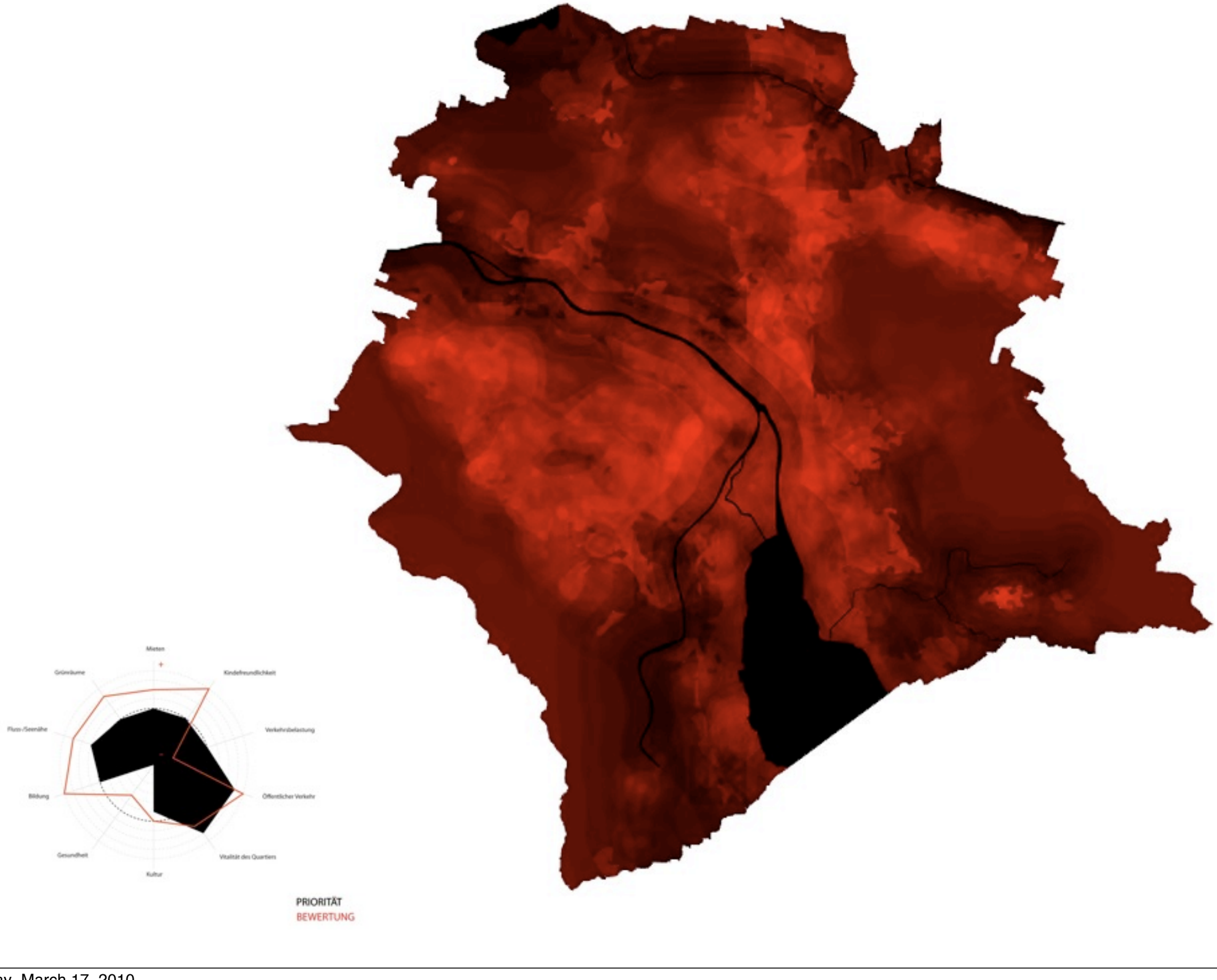
Wald und Grünräume

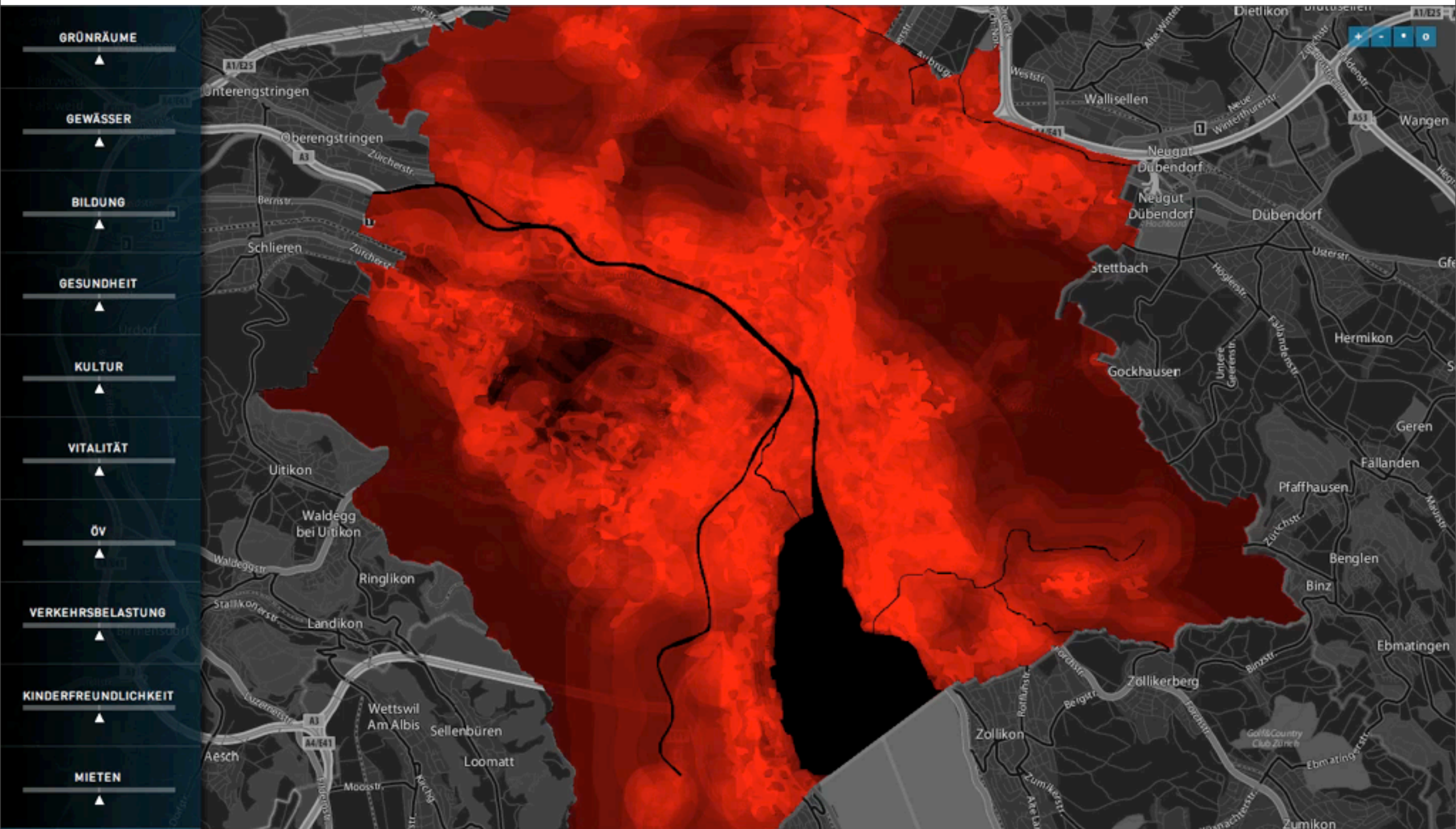


Miethöhe



Verkehrsbelastung

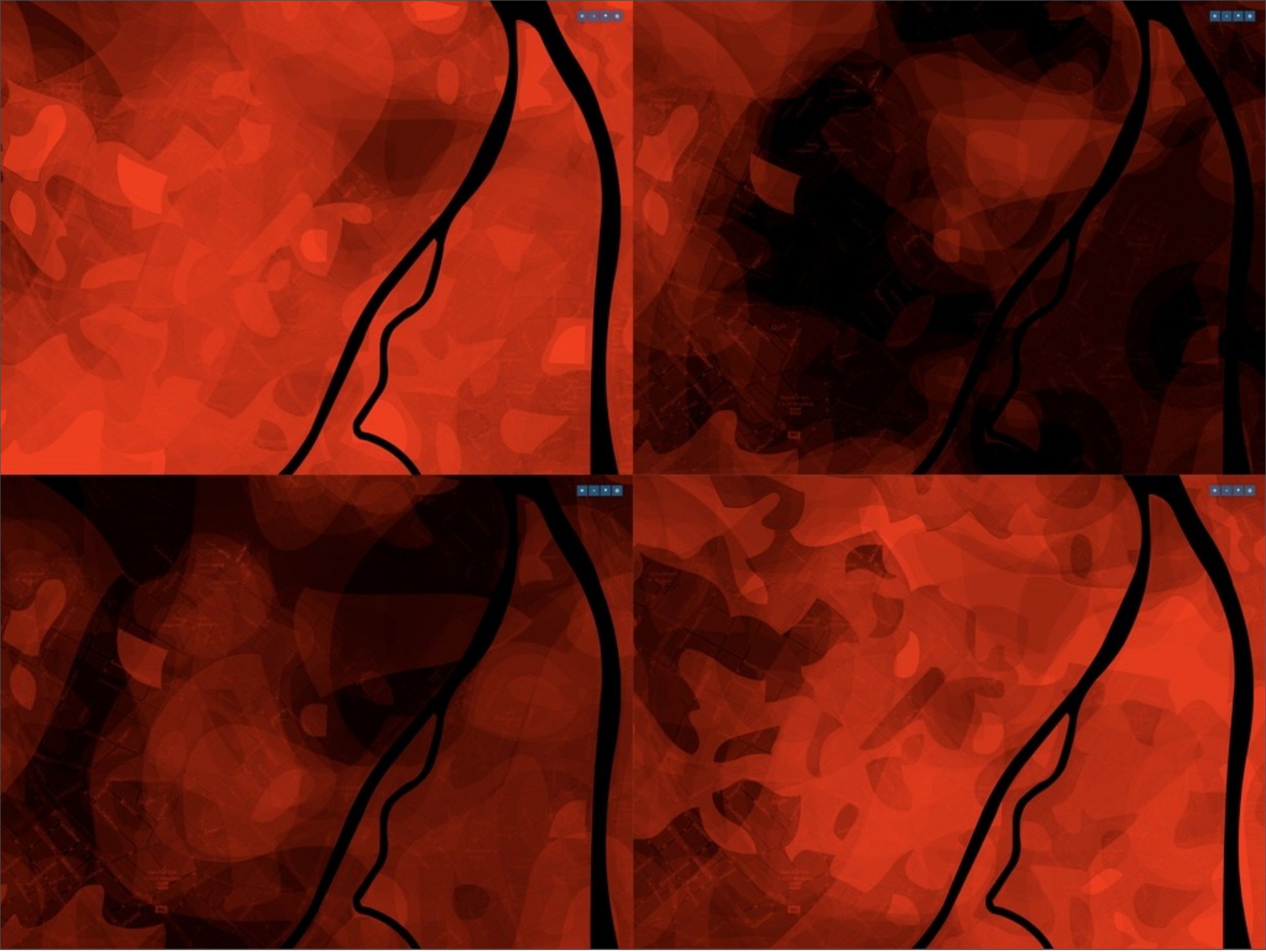

Mieten
Kindefreundlichkeit
Verkehrsbelastung
Öffentlicher Verkehr
Vitalität des Quartiers
Kultur
Gesundheit
Bildung
Fluss-/Seenähe
Grünräume
PRIORITÄT
BEWERTUNG

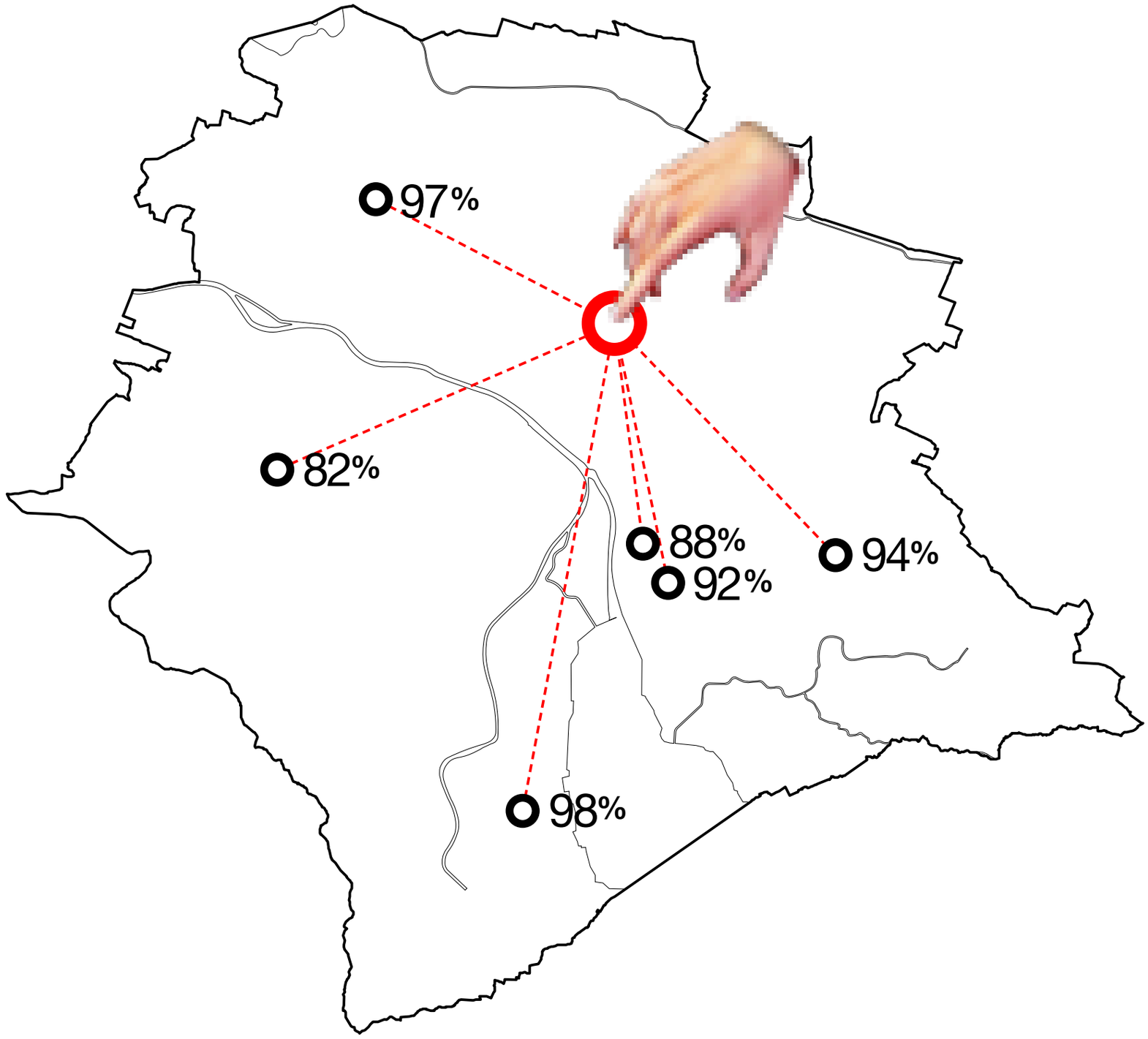


Wednesday, March 17, 2010



Wednesday, March 17, 2010







98% Adresse
Grünraum:
Fluss und Seeraum:
Bildung:
Gesundheit:
Kultur:
Öffentlicher Verkehr:
Vitalität:
Lärm:
Kinderfreundlichkeit:

97% Adresse
Grünraum:
Fluss und Seeraum:
Bildung:
Gesundheit:
Kultur:
Öffentlicher Verkehr:
Vitalität:
Lärm:
Kinderfreundlichkeit:

94% Adresse
Grünraum:
Fluss und Seeraum:
Bildung:
Gesundheit:
Kultur:
Öffentlicher Verkehr:
Vitalität:
Lärm:
Kinderfreundlichkeit:

YOUCITY
ZÜRISPOTS

Gesundheitseinrichtungen

See und Flussraum

Vitalität des Quartiers

Natur- und Grünräume

Mieten

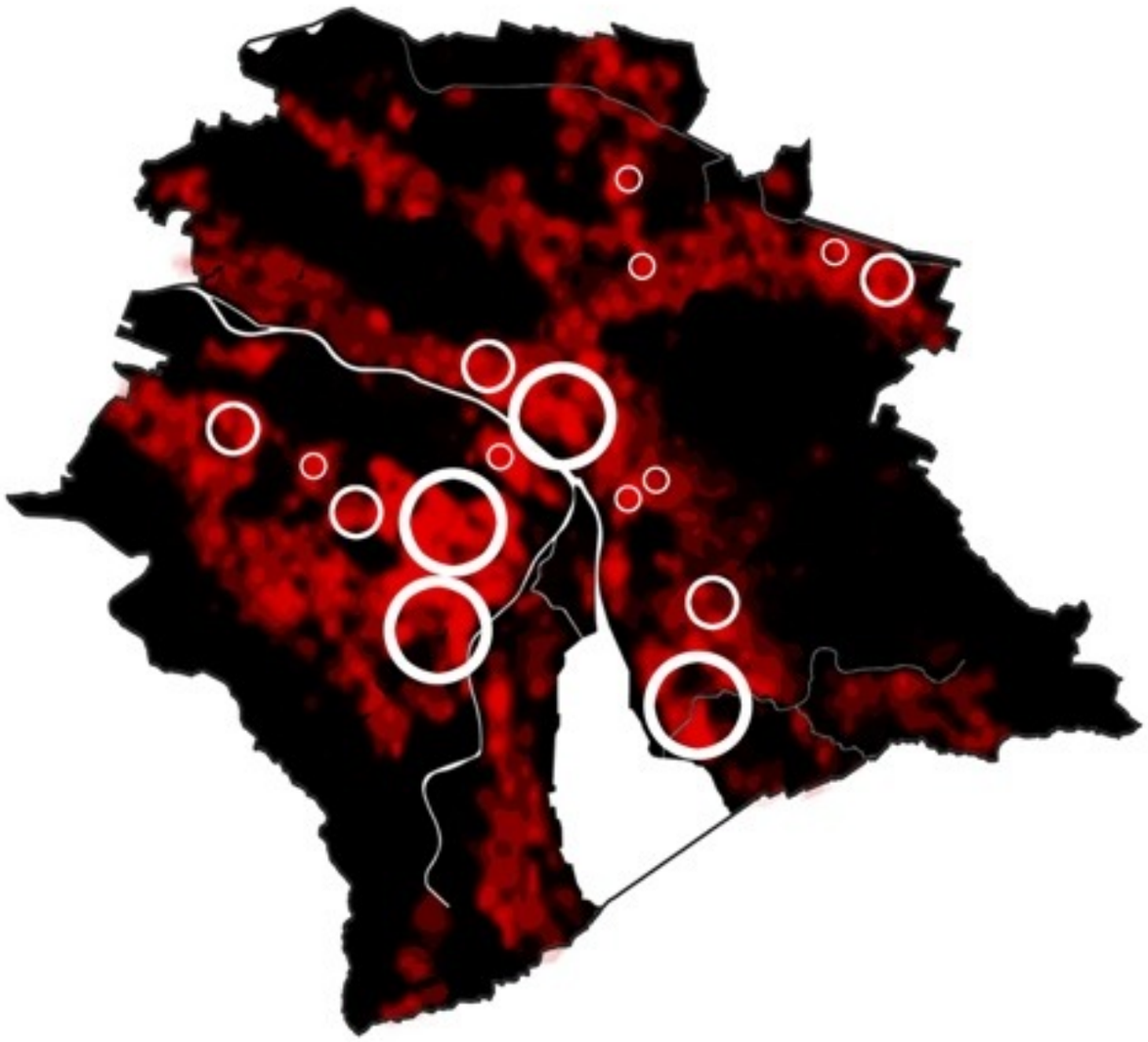
Verkehrsbelastung

Kultureinrichtungen

Bildungseinrichtungen

Öffentlicher Nahverkehr

Kinderfreundlichkeit





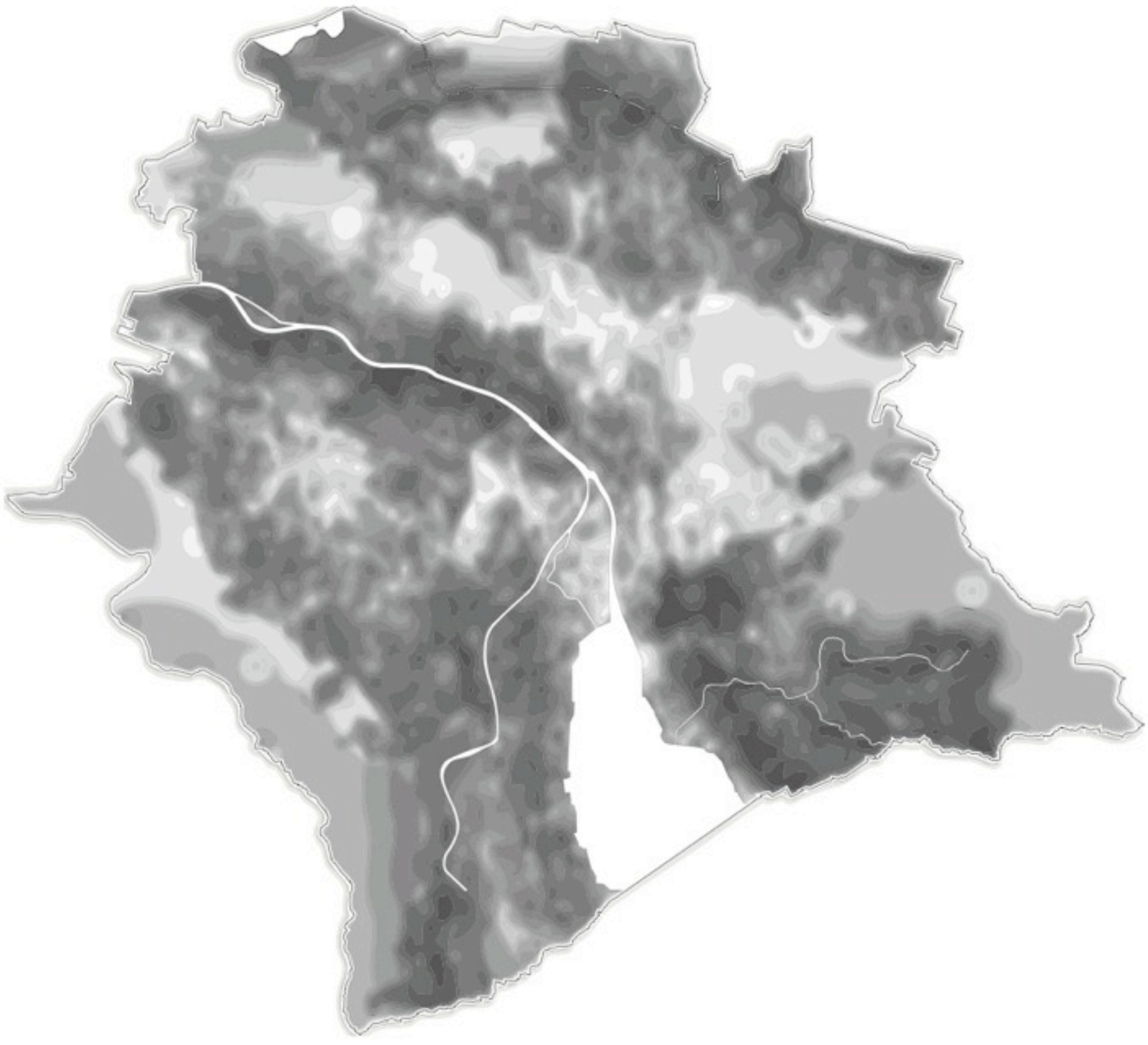
98,7% Escher Wyss

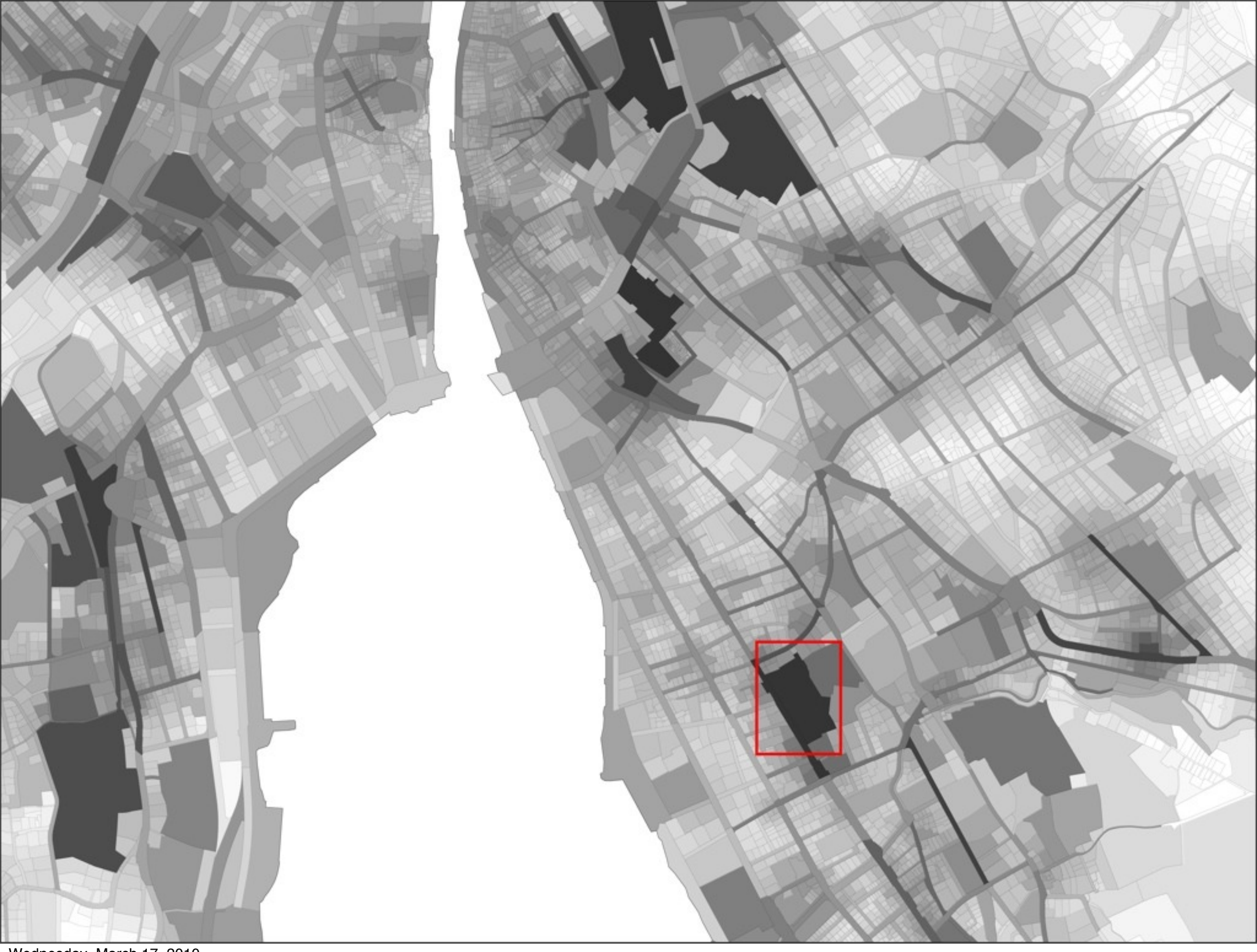


96,3% Hottingen

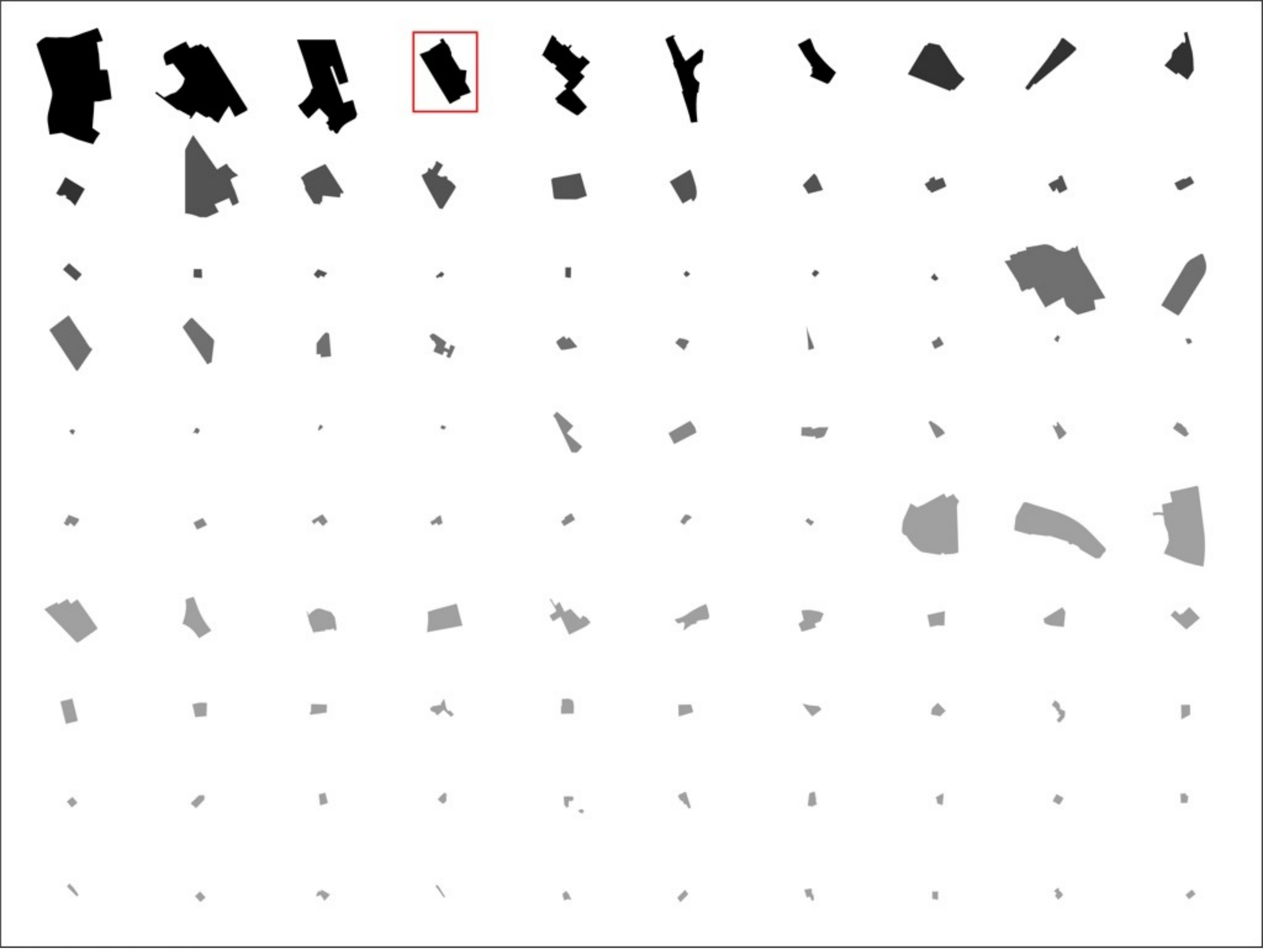


91,6% Tonhalle Areal



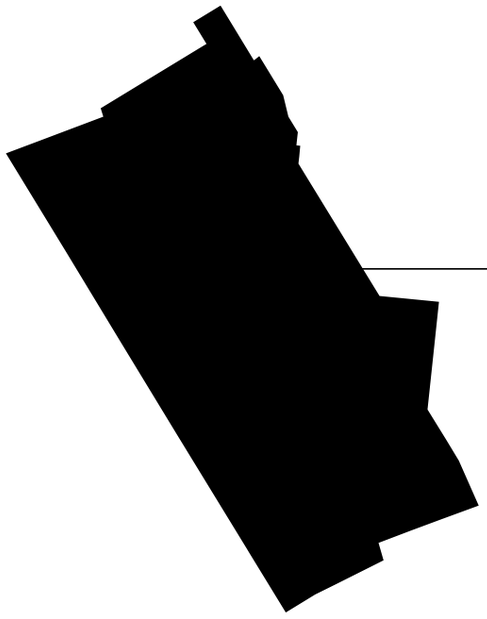


Wednesday, March 17, 2010



Seefeldstrasse 91

RI 10186



Gesundheit

Fluss und Seeraum

Vitalität

Grünraum

Mleten

Lärm

Kultur

Bildung

Öffentlicher Verkehr

Kinderfreundlichkeit

YOUCITY DOSSIER

ZÜRICH

AUFTRAG

Auftraggeber	UBS Real Estate Switzerland AG
Suchprofil	Entwicklung hochwertiger Wohnimmobilien

EINGABE

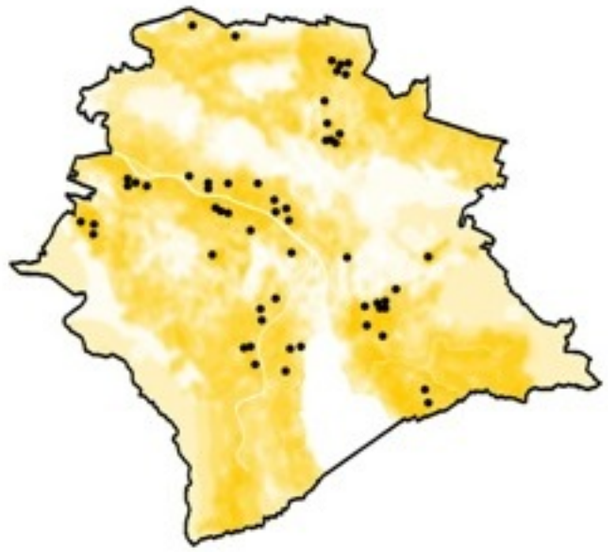
Bauzone	Q1/Q5d	17%
Steuerlast	6,2 %	13%
Einkommensdurchschnitt	> 8000,- CHF	7%
Altersdurchschnitt	45 - 60 Jahre	28%
Grünräume	0 - 300 Meter	9%
Kultureinrichtungen	hohe Dichte	11%
Vitalität	mittel	6%

RESULTAT

Identifizierte Objekte **74**

Trefferquote **87%**

274 weitere Treffer im Bereich 70 - 80%





97,2%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel



95,2%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel



94,6%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel



92,0%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel



89,9%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel

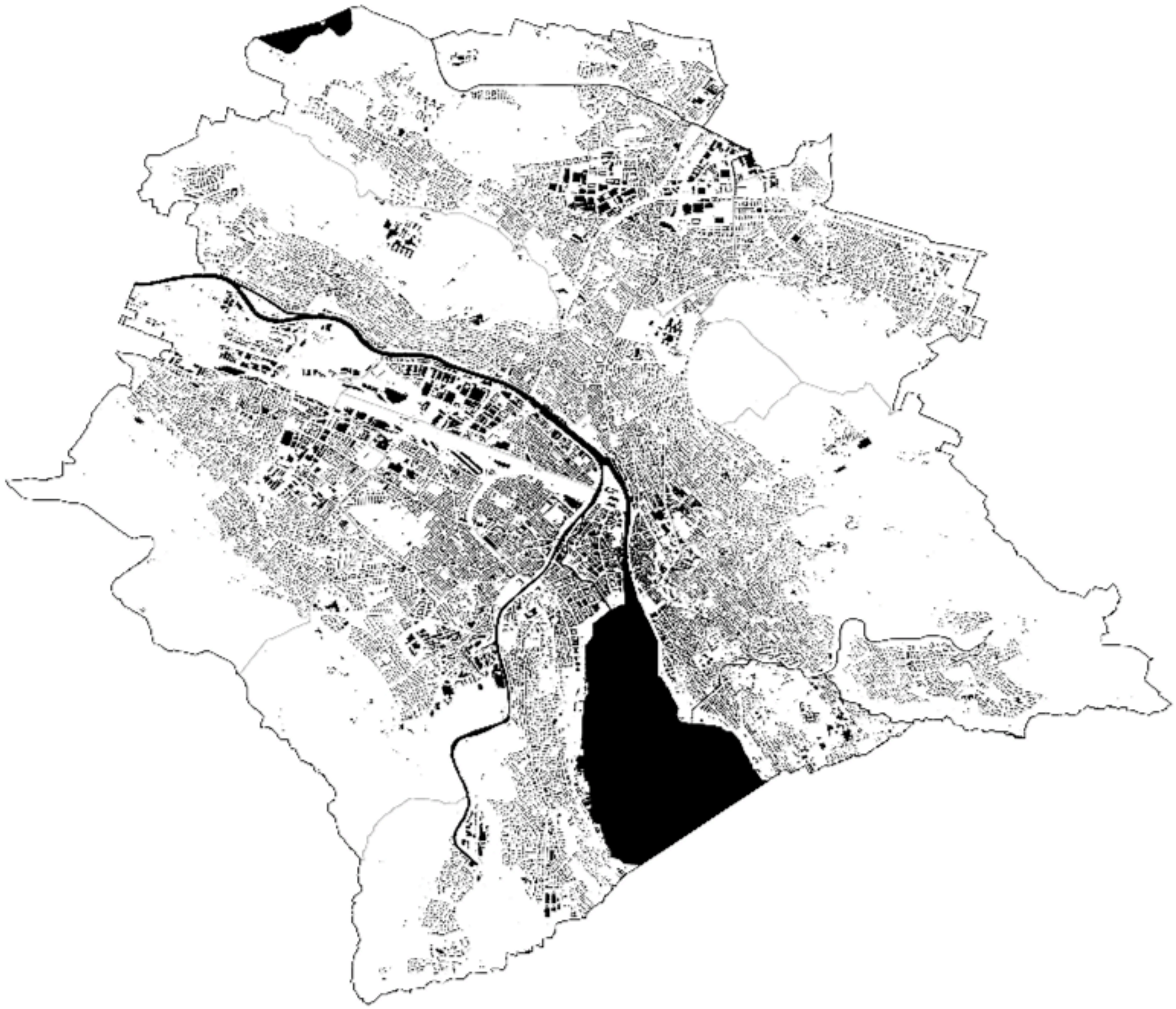


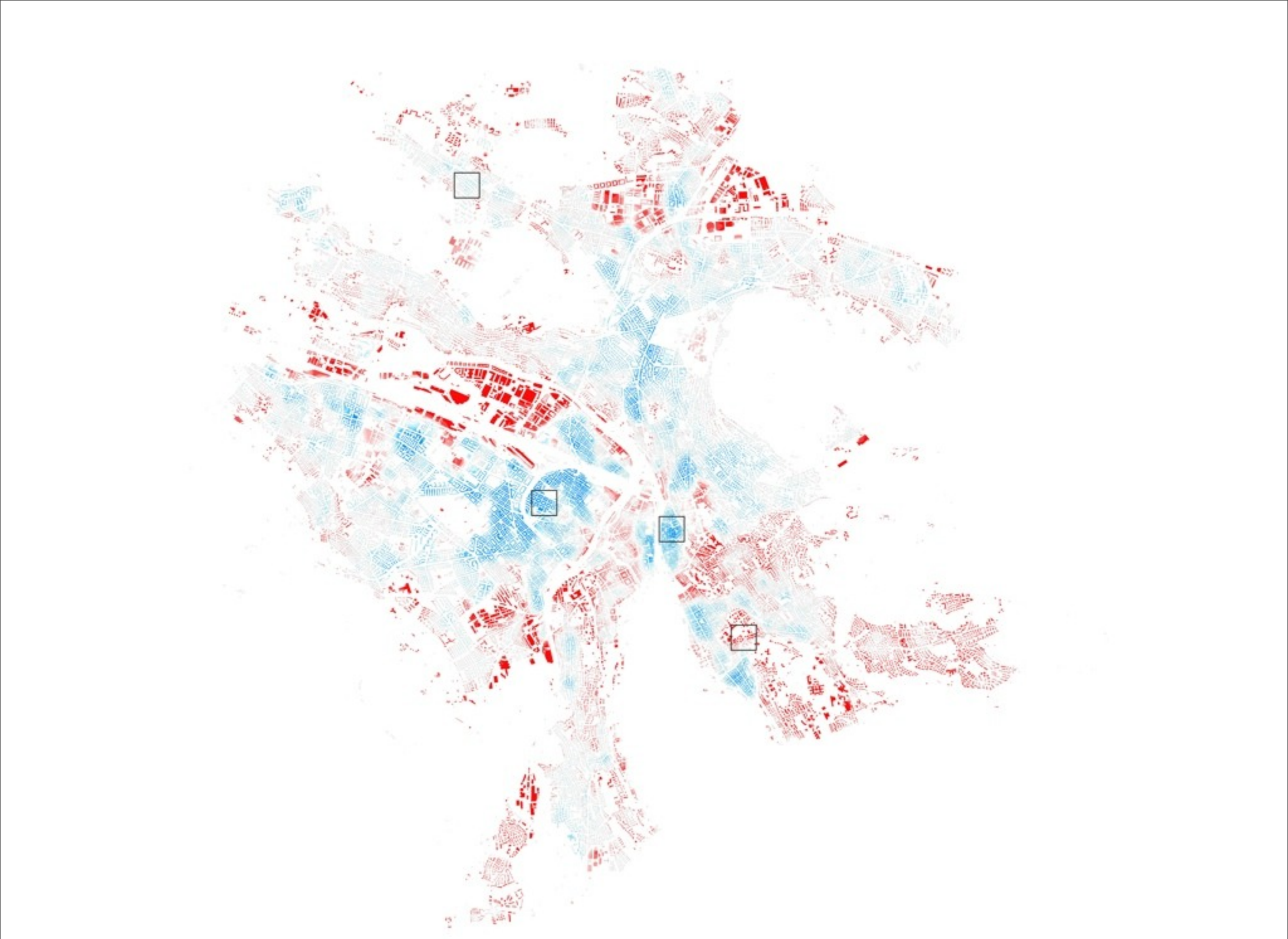
89,7%

Mainaustrasse 34
Seefeld

Bauzone	Q1/Q5d
Steuerlast	6,3 %
Einkommensdurchschnitt	7500,- CHF
Altersdurchschnitt	55 Jahre
Grünräume	290 Meter
Kultureinrichtungen	hohe Dichte
Vitalität	mittel

bitte umblättern: Seite 01/ 52





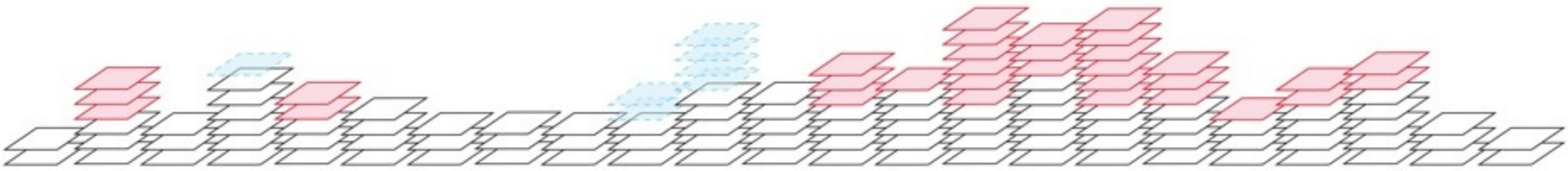
Altstetten
Letzigraben
Hardstrasse
Aussersihl
Schanzengraben
Bellevueplatz
Kreuzplatz
Hirslanden
Witikon



Differenz Wohndichte - Wohnnachfrage



Wohndichte



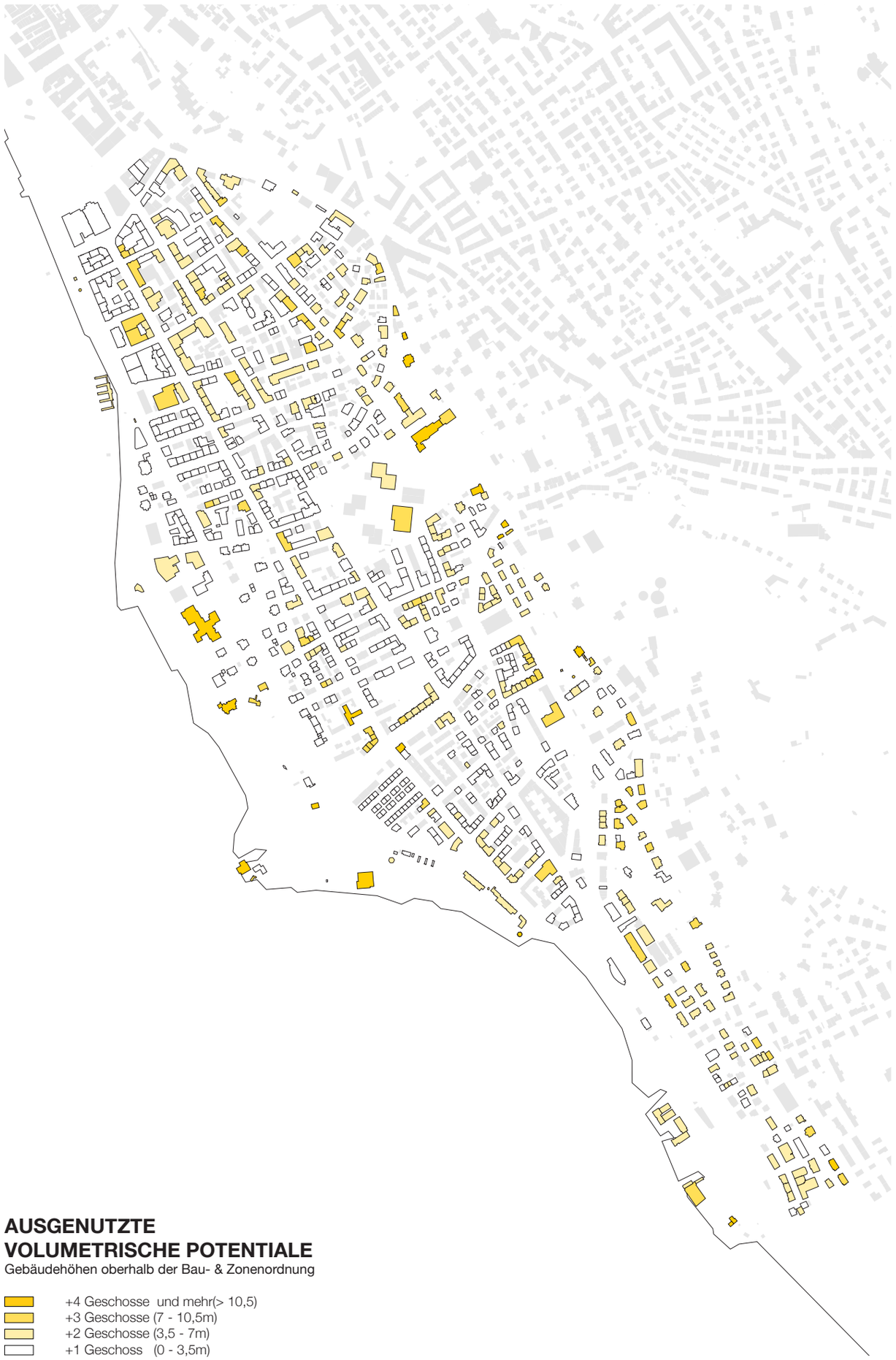
Flächenoptimierung



Qualitätsoptimierung



Wednesday, March 17, 2010



AUSGENUTZTE
VOLUMETRISCHE POTENTIALE
Gebäudehöhen oberhalb der Bau- & Zonenordnung

- +4 Geschosse und mehr(> 10,5)
- +3 Geschosse (7 - 10,5m)
- +2 Geschosse (3,5 - 7m)
- +1 Geschoss (0 - 3,5m)



NICHT AUSGENUTZTE
VOLUMETRISCHE POTENTIALE
Gebäudehöhen unterhalb der Bau- & Zonenordnung

- -4 Geschosse (> 10,5)
- -3 Geschosse (7 - 10,5m)
- -2 Geschosse (3,5 - 7m)
- -1 Geschoss (0 - 3,5m)



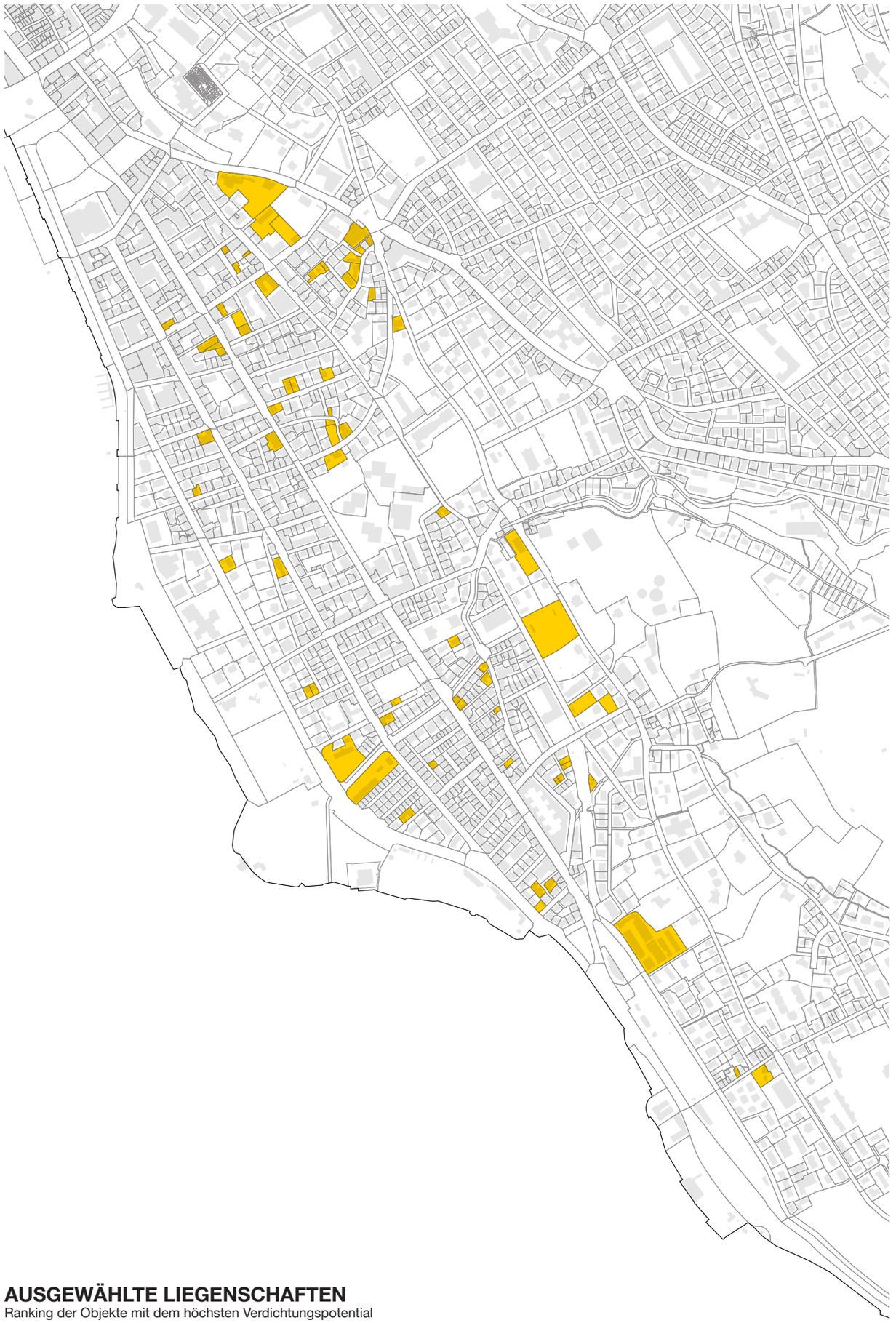
NICHT AUSGENUTZTE VOLUMETRISCHE POTENTIALE

Gebäudevolumen unterhalb der Bau- & Zonenordnung

Volumetrisches Verdichtungspotential



| | | |

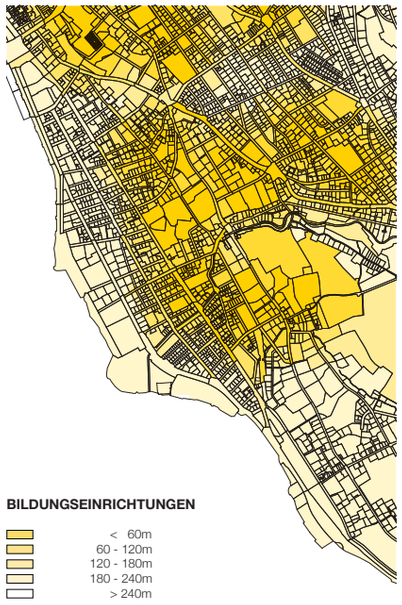


AUSGEWÄHLTE LIEGENSCHAFTEN

Ranking der Objekte mit dem höchsten Verdichtungspotential

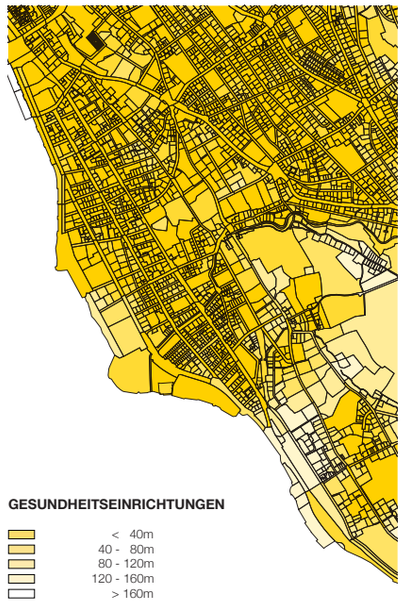
Liegenschaften des Objektkatalogs

01 Grundstücksgrösse
02 Zone
03 Nutzungsbeschränkung
04 Bestand
05 Typologie
06 Überbaute Fläche
07 Bauperiode
08 Denkmalschutz
09 Aktuelle Ausnutzungsziffer
10 Maximale Ausnutzungsziffer
11 Aktuelle Gebäudehöhe
12 Maximale Gebäudehöhe
13 Ausgeschöpftes Potential
14 Gemittelter Bodenpreis
15 Seesicht
16 Ausblick
17 Sonnenausrichtung
18 Parkmöglichkeiten
19 Verkehrsbelastung
20 Typologie des Quartiers
21 Bevölkerungsdichte
22 Mitespiegel
23 Steuerbelastung
24 Altersstruktur
25 Einkommensstruktur
26 Zentralität
27 Öffentlicher Verkehr
28 Grünflächen
29 Fluss-/ Seeraum
30 Gesundheit
31 Kinderfreundlichkeit
32 Vitalität
33 Bildung
34 Kultur
35 Einkaufen



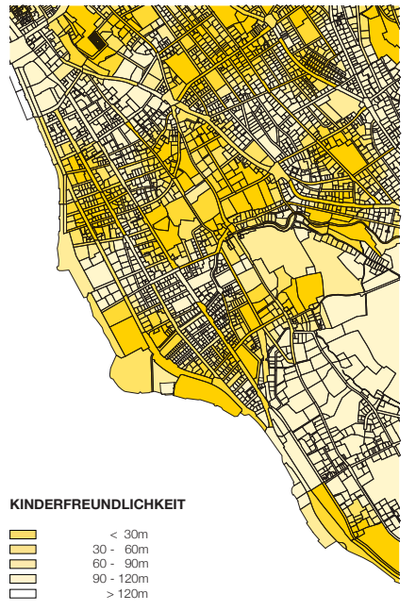
BILDUNGSEINRICHTUNGEN

< 60m
60 - 120m
120 - 180m
180 - 240m
> 240m



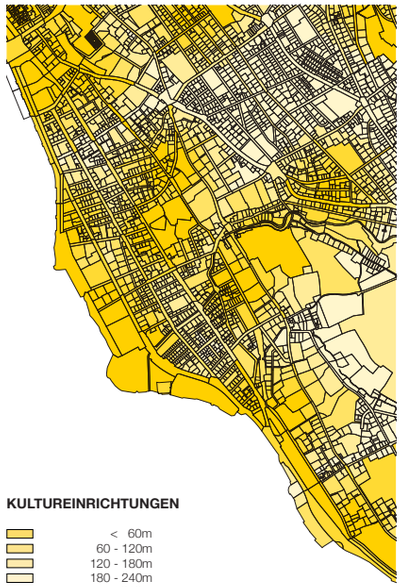
GESUNDHEITSEINRICHTUNGEN

< 40m
40 - 80m
80 - 120m
120 - 160m
> 160m



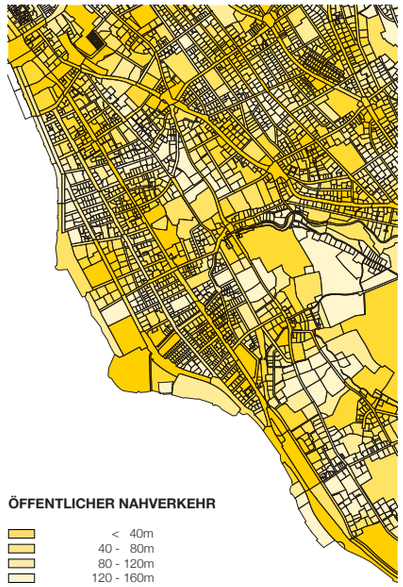
KINDERFREUNDLICHKEIT

< 30m
30 - 60m
60 - 90m
90 - 120m
> 120m



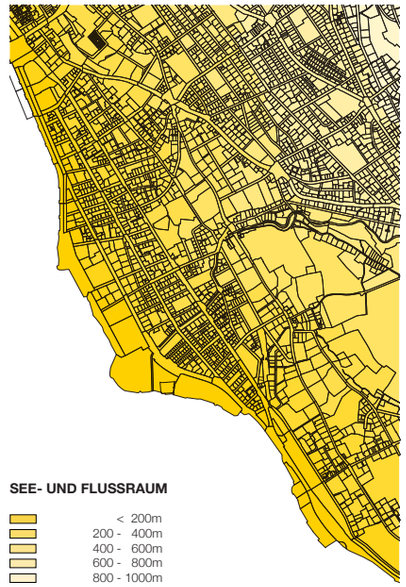
KULTUREINRICHTUNGEN

< 60m
60 - 120m
120 - 180m
180 - 240m
> 240m



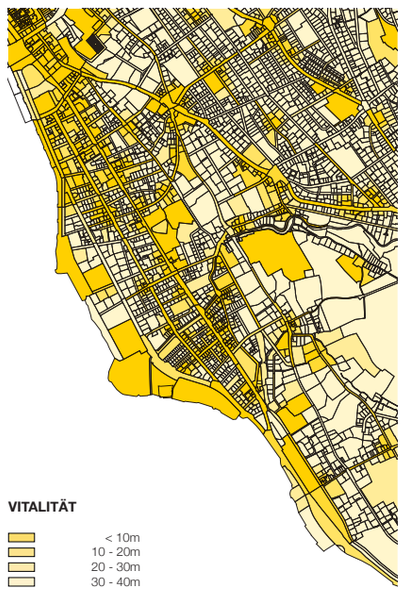
ÖFFENTLICHER NAHVERKEHR

< 40m
40 - 80m
80 - 120m
120 - 160m
> 160m



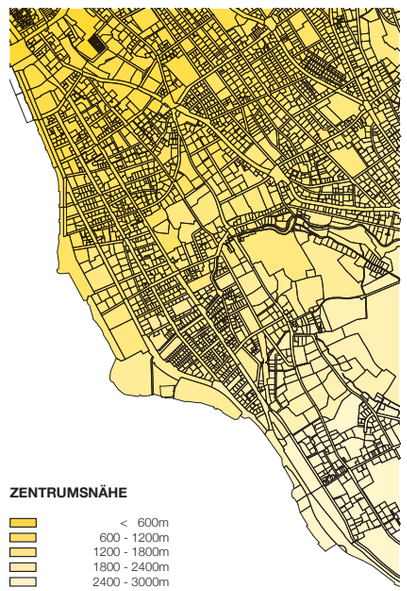
SEE- UND FLUSSRAUM

< 200m
200 - 400m
400 - 600m
600 - 800m
800 - 1000m
> 1000m



VITALITÄT

< 10m
10 - 20m
20 - 30m
30 - 40m
> 40m



ZENTRUMSNÄHE

< 600m
600 - 1200m
1200 - 1800m
1800 - 2400m
2400 - 3000m
> 3000m

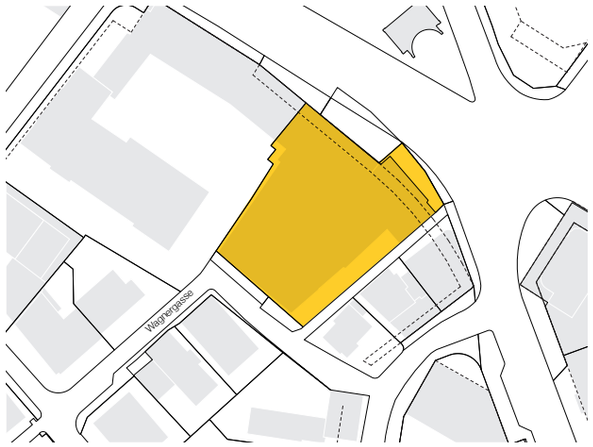
KREUZPLATZ 20

MÜHLEBACH
RI4383

YOUCITY REAL ESTATE | **57.6%**

Grundstücksgrösse	1558 m²
Zone	W5
Nutzungsbeschränkung	keine Beschränkung
Bestand	1 Gebäude
Typologie	Gewerbehalle
Überbaute Fläche	1316 m²
Bauperiode	-
Denkmalschutz	nein
Aktuelle Ausnützungsziffer	96%
Maximale Ausnützungsziffer	170%
Aktuelle Gebäudehöhe	8 m
Maximale Gebäudehöhe	18 m
Ausgeschöpftes Potential	**57.6%**





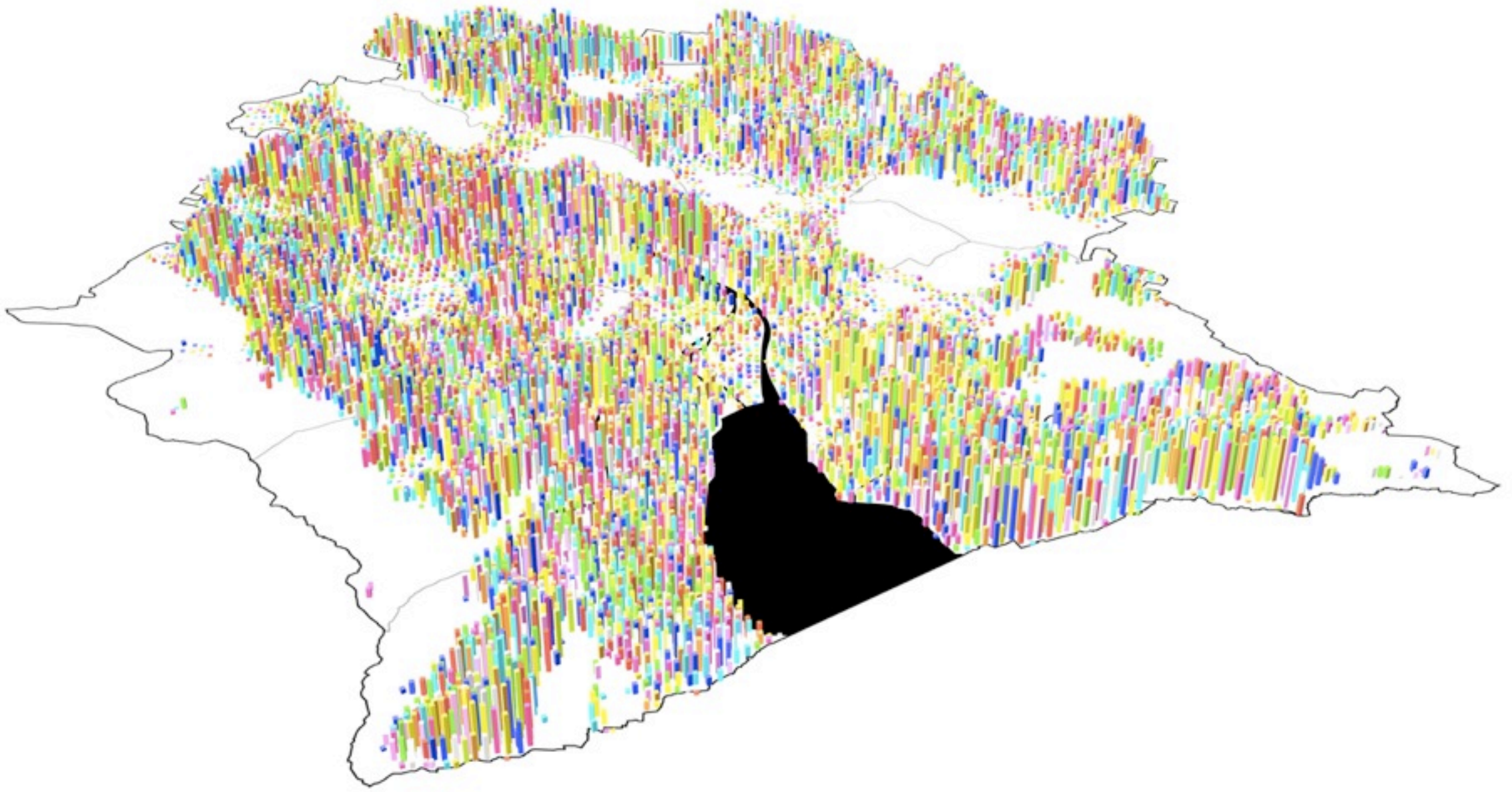
MIKROLAGE

Gemittelter Bodenpreis	-
Seesicht	-
Ausblick	-
Sonnenausrichtung	-
Parkmöglichkeiten	-
Verkehrsbelastung	★★★★☆

MAKROLAGE

Typologie des Quartiers	offener Blockrand
Bevölkerungsdichte	160 Personen / ha
Mietspiegel	33 CHF/m²
Steuerbelastung	119%
Altersstruktur (Durchschnitt)	42 Jahre
Einkommensstruktur	★★★★☆
Zentralität	★★☆☆☆
Öffentlicher Verkehr	★★★★★
Grünräume	★★★☆☆
Fluss- / Seeraum	★☆☆☆☆
Gesundheit	★★★☆☆
Kinderfreundlichkeit	☆☆☆☆☆
Vitalität	★★★★★
Bildung	★★☆☆☆
Kultur	★★☆☆☆
Einkaufen	★★★★★






YOUCITY
ZÜRICH

YOUCITY

Kontakt: Anne Mikoleit
Niels Lehmann
Moritz Pürckhauer

+41 77 4330674
nielsl@gmx.de

Sources

04: Carrara, http://www.flickr.com/photos/edmi/160781583/
09: http://www.spacesyntax.com/en/downloads/gallery/desktop-backgrounds.aspx
10: http://www.met-7.com/index.php?act=projects_info&pid=138cc66&pos=6