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Higher School of Economics SPB

Urban space and urban mobility – 20/11/2015

Visions of a new paradigm

Christian Horn, architect-urban planner
www.rethink.fr / blog: www.urbanplanet.info

rethink – office of the built environment

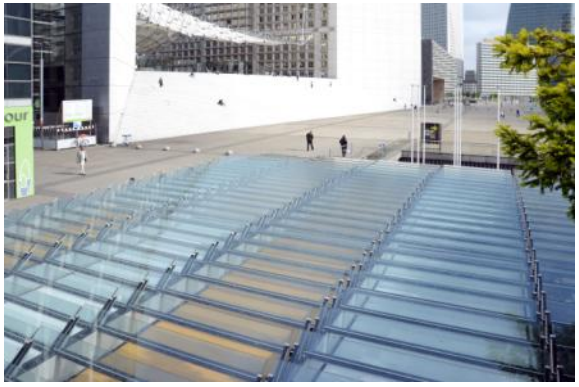
Office of architecture and urban planning in Paris, France

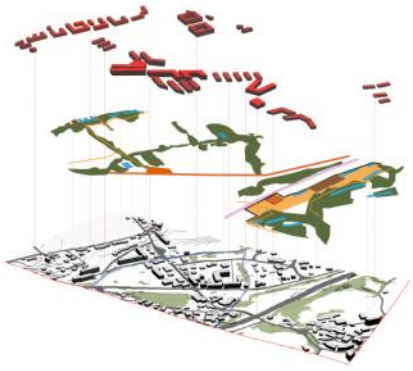
Operational activities:
Urban studies
Territorial planning
Restructuring of buildings
Counsel to planning authorities

Theoretical activities:
Teaching (ENSA Strasbourg)
Conferences, seminars
Participation in competition juries
Publication of texts and articles

Web www.rethink.fr

Blog www.urbanplanet.info





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Strasbourg, école d'architecture
ÉCOLE NATIONALE SUPÉRIEURE D'ARCHITECTURE DE STRASBOURG

Karlsruhe Institute of Technology

ITMO UNIVERSITY
Saint Petersburg, Russia

ill.: rethink

Baltiskijy Train Station Area - St. Petersburg
Transforming Industrial Heritage
From industry to neighbourhoods, designing the future

Collaborative Urban Design Studio 2015-16
ENSAS Strasbourg / ITMO St. Petersburg / KIT Karlsruhe
with a common workshop in St. Petersburg, November 14th to 24th 2015

Collaborative Urban Design Studio SPB

Strasbourg National Superior School of Architecture (ENSAS)
22 Students
Master domain "Architecture, Cities & Territories" (AVT)
Prof. Volker ZIEGLER, Assist. Prof. Christian HORN

Faculty of architecture of the Karlsruhe Institute of Technology (KIT)
18 Students
Department for International Urban Planning and Design
Prof. Barbara ENGEL, Assist. Nikolas ROGGE

ITMO University of St. Petersburg, Russia
12 Students
Institute of Design & Urbanism
Prof. Arina SENDER

Transforming Industrial Heritage

From industry to neighbourhoods, designing the future

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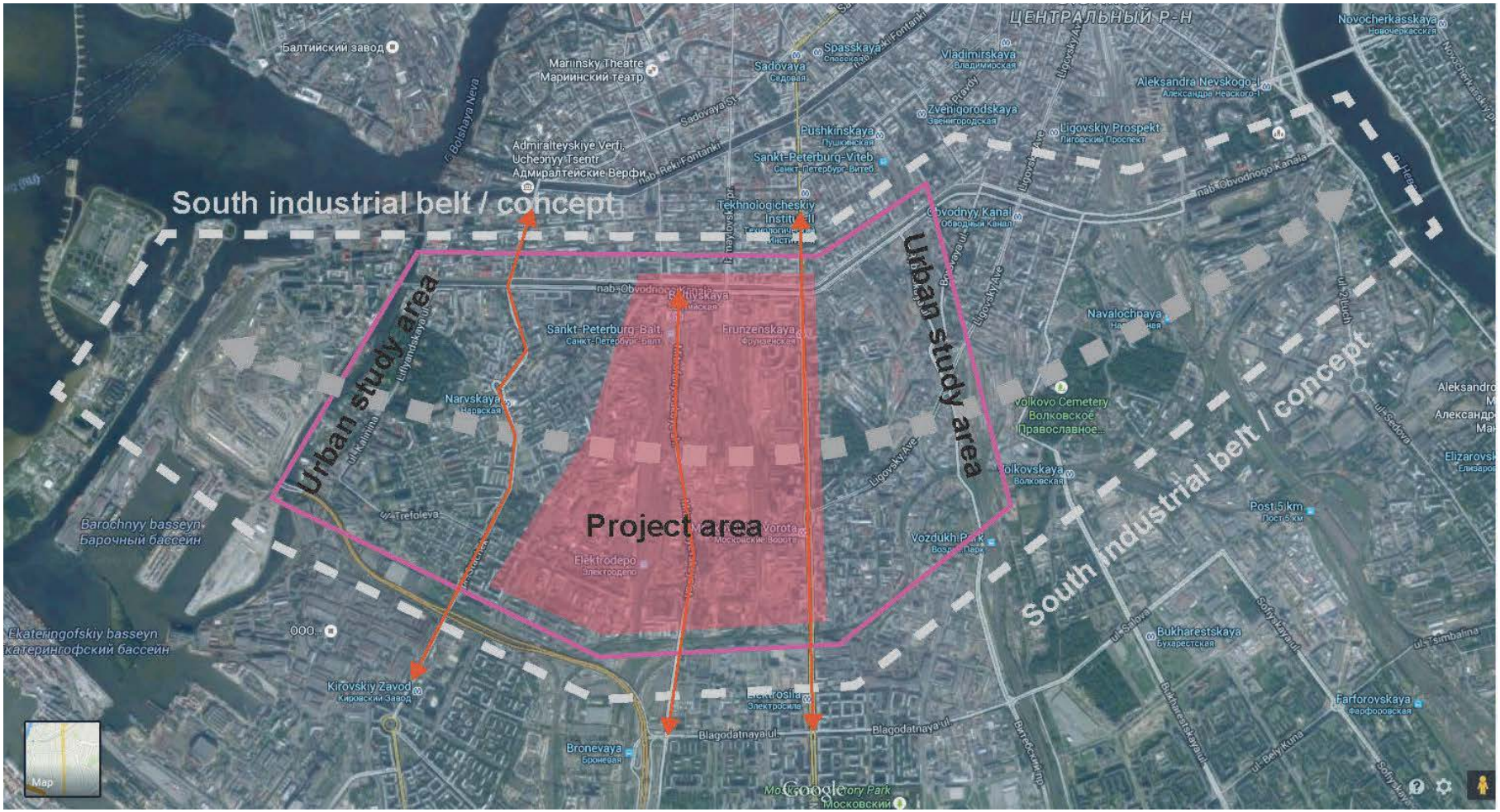


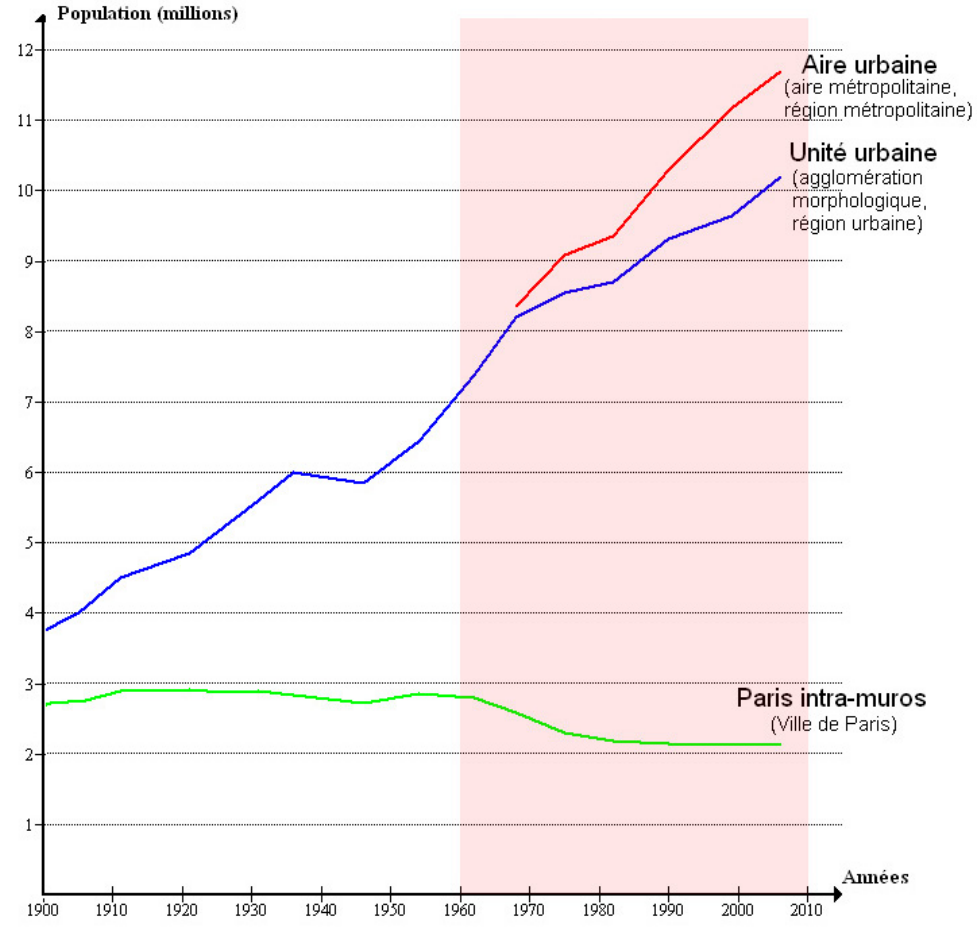
Cities and needs of people are constantly changing

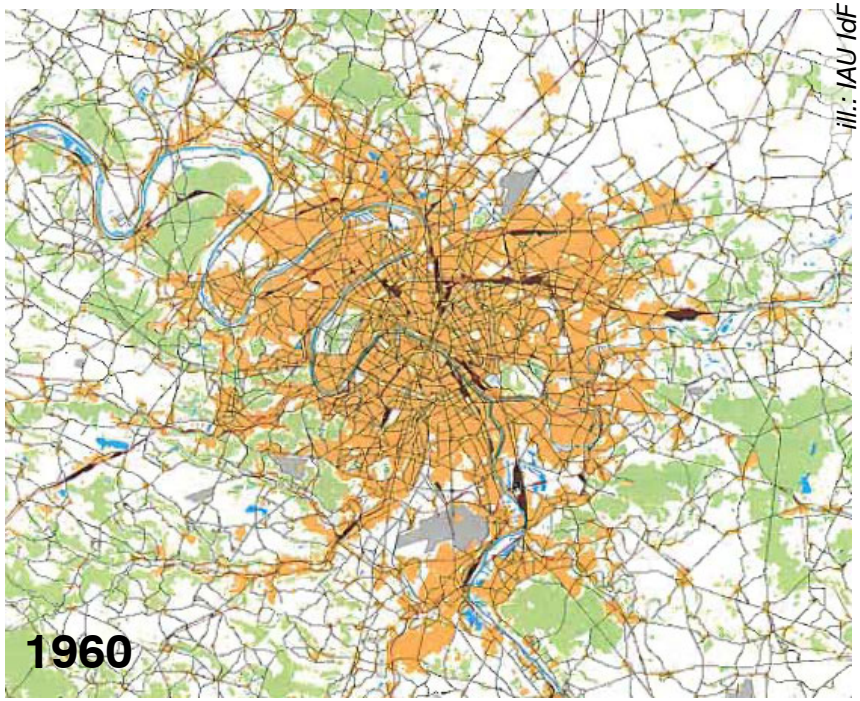
ill.: IAU idf, P. Lecroart

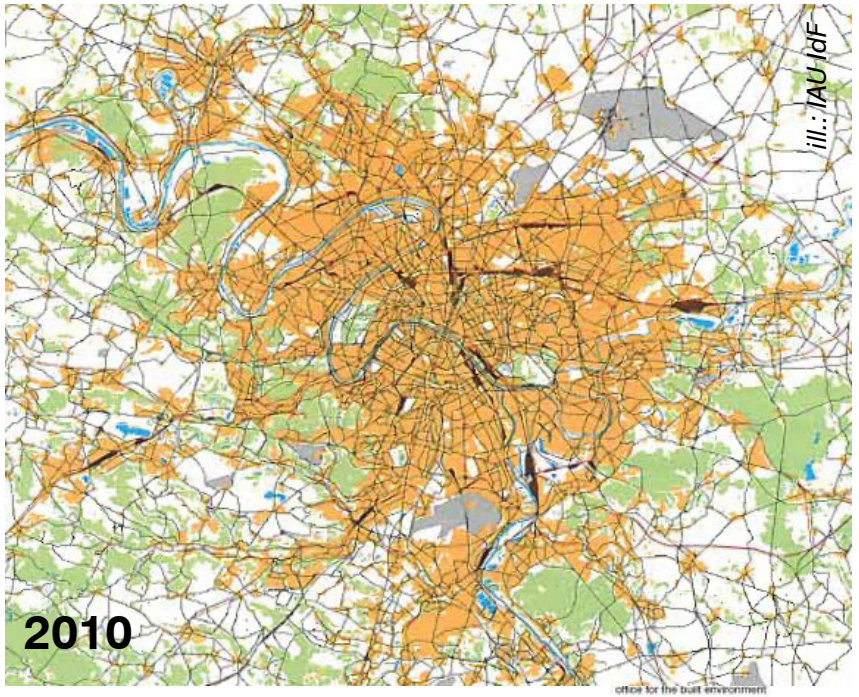
Metropolis of Paris

Development between 1960 and 2010

- Population growth from 8,3 to 11,7 mil.
- New towns, urban sprawl
- Deindustrialisation, urban renovation







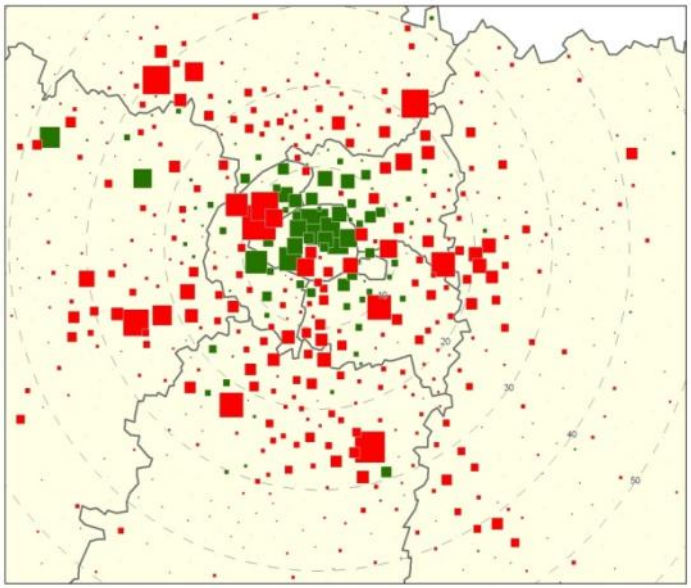
Changing dynamics in the development

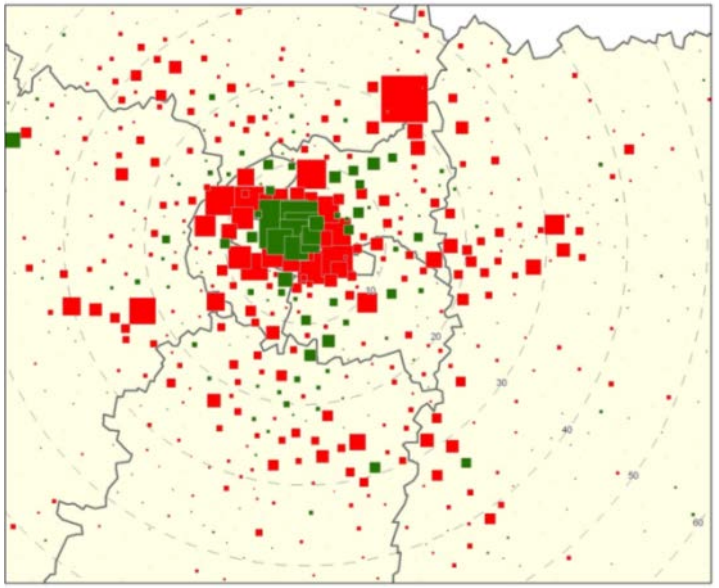
ill.: IAU IdF

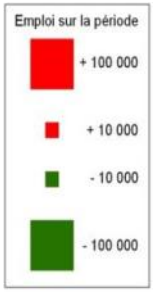
1975 - 1990

1990 - 2007

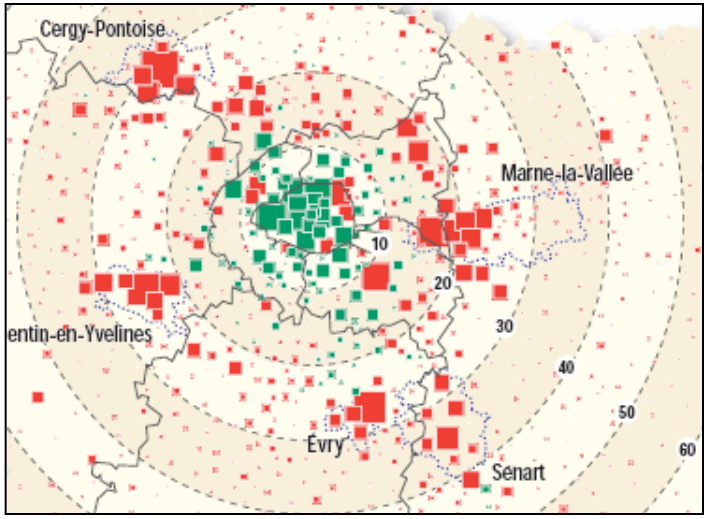
Jobs

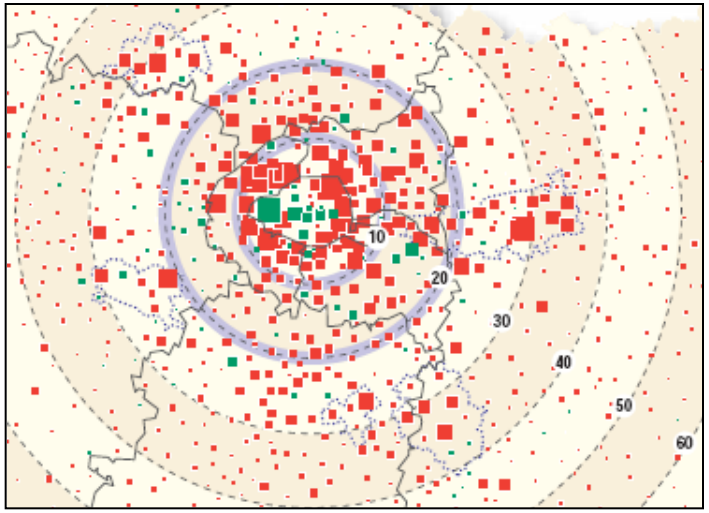


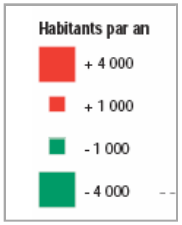




Population







Urban evolution in Ile-de-France

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	1890	1930	1970	2010	2050
INNOVATIONS / INVENTIONS	La charte d'Athènes		Le Rapport Brundtland; TGV		?
POPULATION ILE DE FRANCE	4.2 M d'habitants	6.6 M d'habitants	9.4 M d'habitants	11.7 M d'habitants	?
URBANISME / ARCHITECTURE	transformation marquante	grande vision	construction à grande échelle	urbanisme durable	?
RÉSEAU MÉTRO ET RER					?

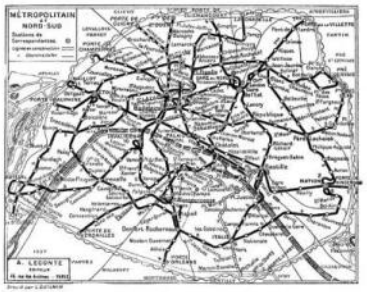
Haussmann et la nouvelle structure urbaine

Le Corbusier et sa grande vision de Paris:
La ville fonctionnelle
Source: http://architectural-world.blogspot.com

Le quartier d'affaires de La Défense
Source: Les Ateliers

La Promenade plantée dans le 12e
Source: http://urbangreens.tumblr.com

Plan Métro 1900
Source: http://www.amtuir.org



Plan du réseau métropolitain en juillet 1929
Source: http://www.amtuir.org

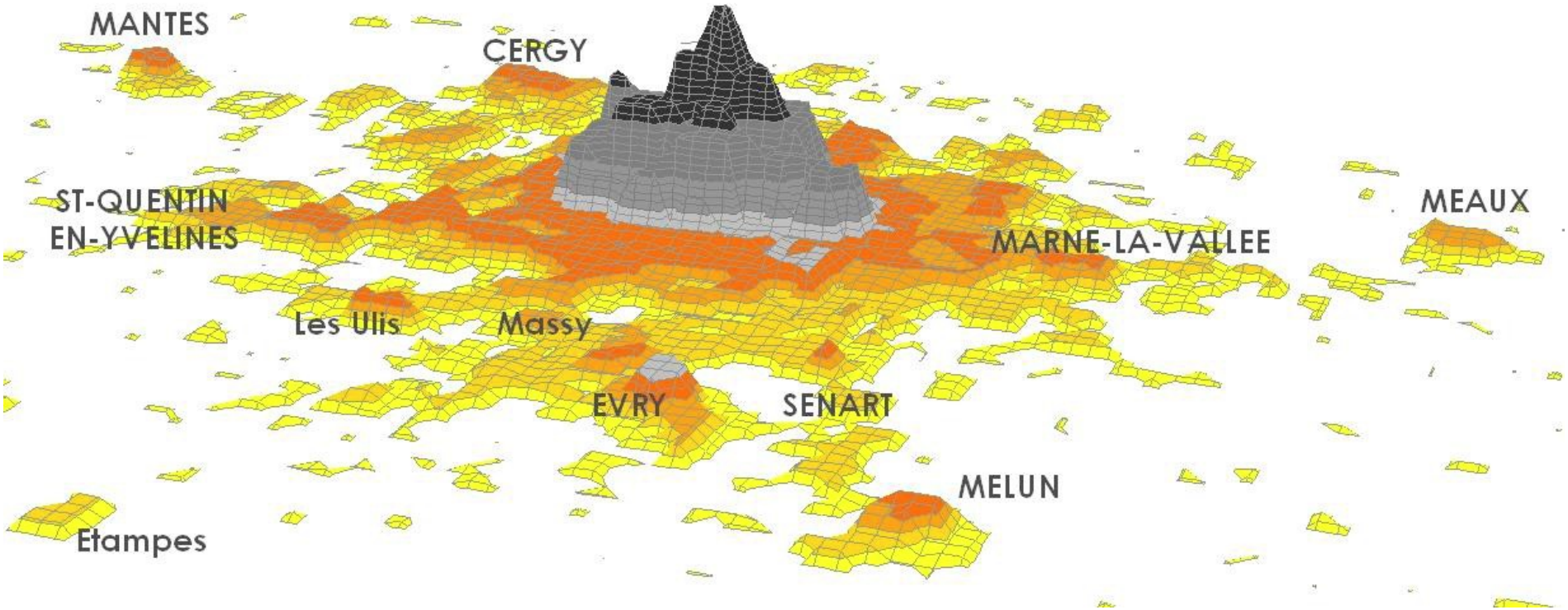
Plan officiel du réseau pour l'année 1973.
Source: http://www.amtuir.org/

Plan officiel du réseau aujourd'hui
Source: http://www.cartoville.com/

Today's strategy: From a monocentric metropolis

ill.: IAU idf

Density model shows a monocentric metropolis



To a polycentric future ?

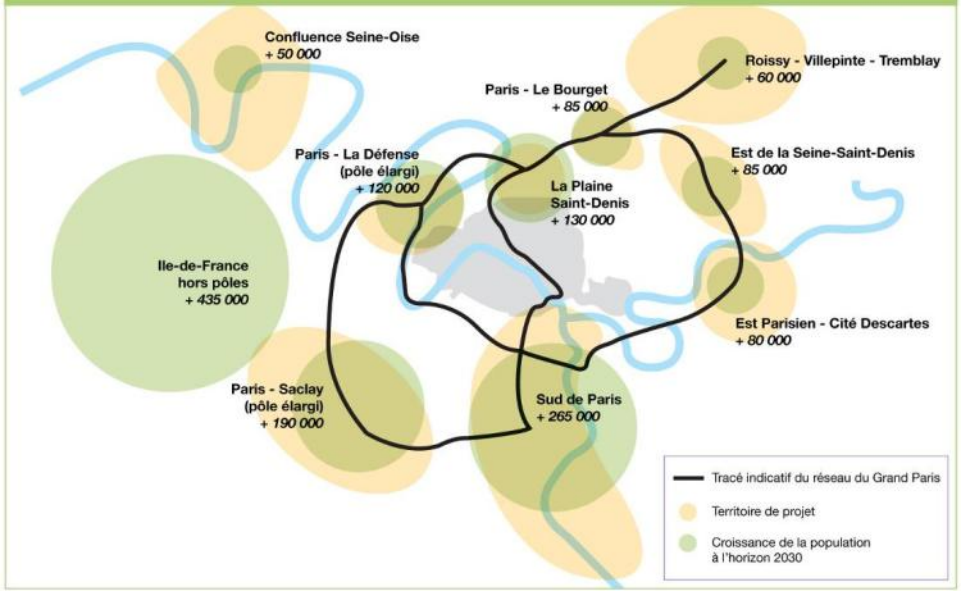
Connection of clusters with a high speed metro line.

Objective is growth in:

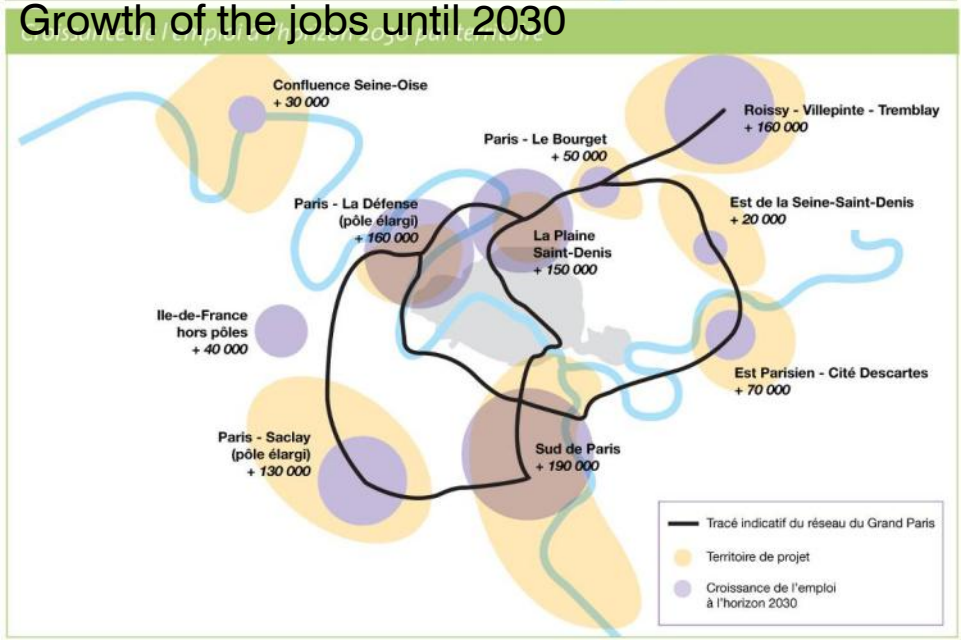
- Jobs
- Population
- Economy
- Quality of live
- …

The theory of clusters as a geographical based, innovative network of different economic and scientific actors is based on the work of researchers like **Michael Porter, Harvard (On competition, 1999)**

Growth of the population until 2030



Growth of the jobs until 2030



ill.: internet

Metro Grand Paris / Grand Paris express

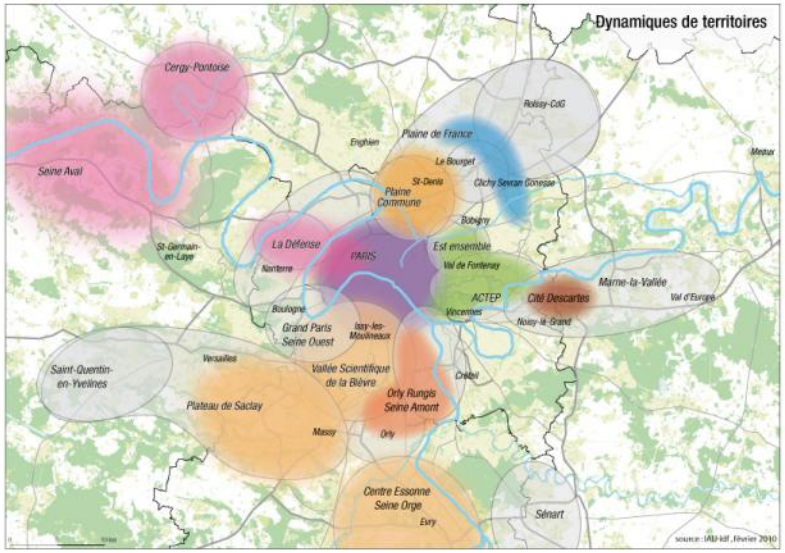
ill.: internet

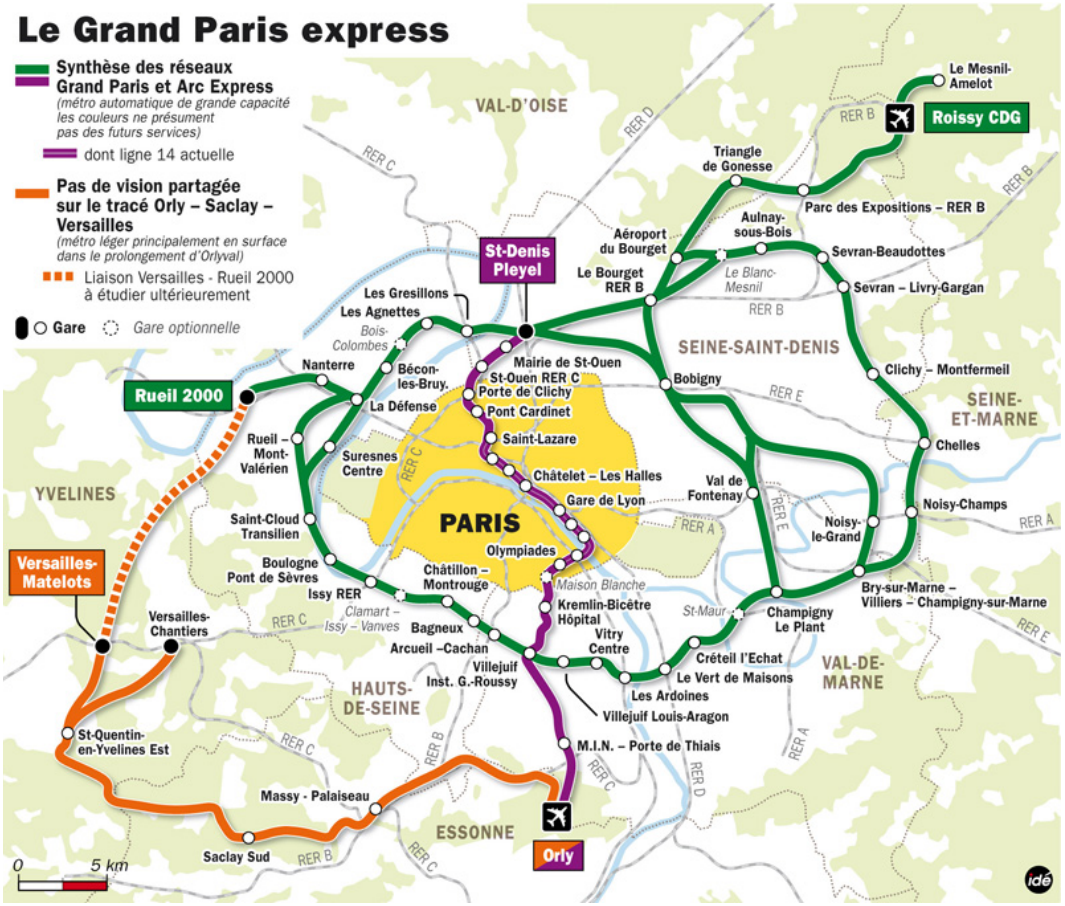
April 2009: Presentation of the transport project of the Grand Paris.

An automatic metro system with about 200 km of new lines and 68 stations

An average speed of 65 km/h and 1000 passengers per train

A frequency of up to 85 seconds between two trains at the rush hour





- Connecting the suburbs
- Connection the clusters
- Building urban nods
- Reducing the car traffic
- Economic growth…

Re-conquering the first belt of SPB

In the next 20 years the former industrial belt can become home for thousands of inhabitant et a new part of the city.

With new urban centres offering access to urban services in addition to the city centre.

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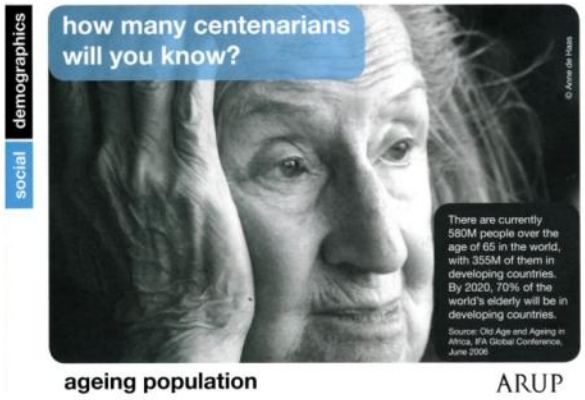
Identifying the long term trends, Drivers of Change !

ill.: ARUP

The major change factors are based partly on long, relatively predictable trends: climate change, demography, population aging, crisis housing, food, raw materials, inequality...

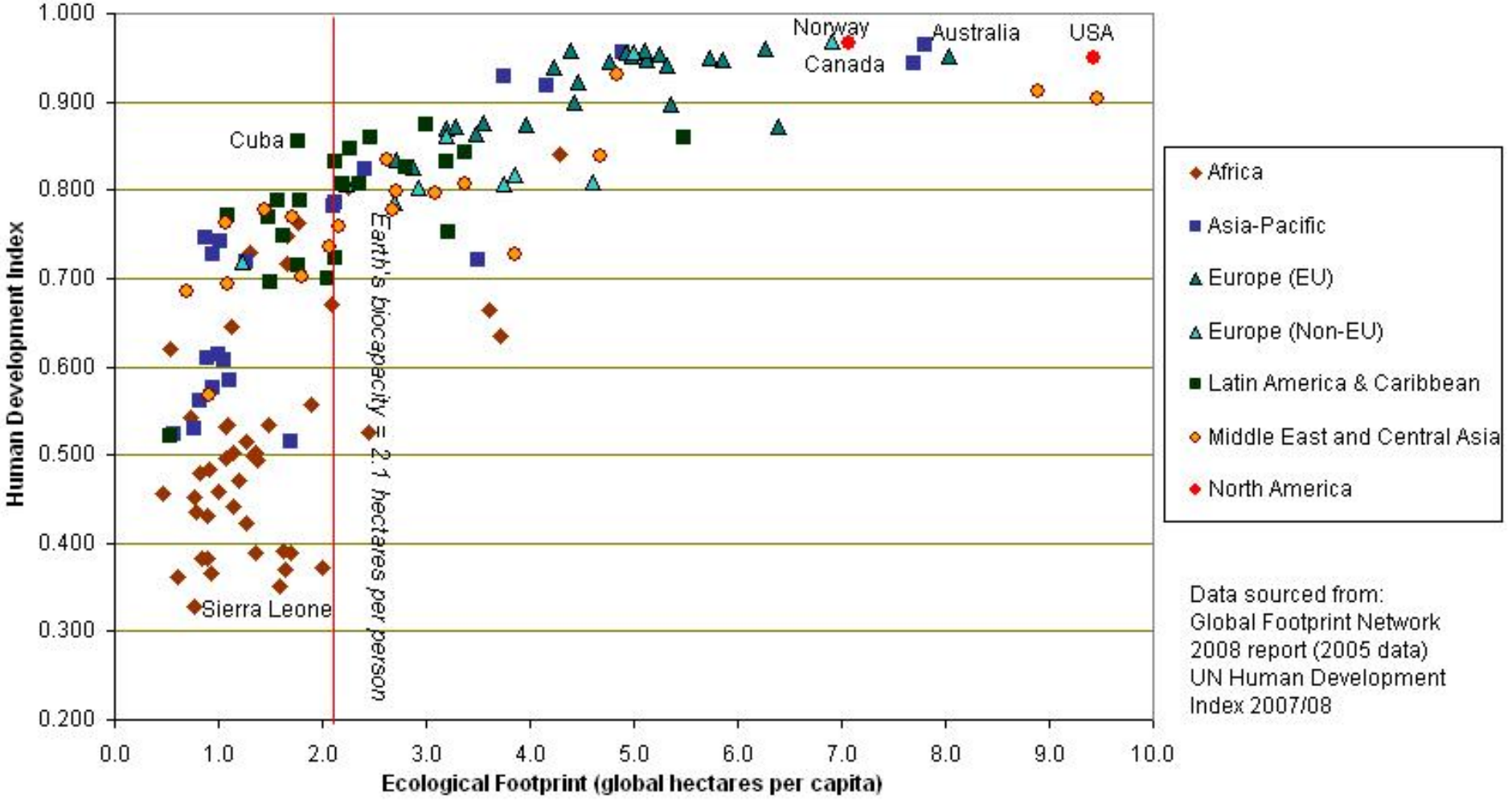


DOC: Sustainability (exp: ecological footprint)

ill.: internet

Human welfare and ecological footprints compared:

- How to reduce the footprint of highly developed cities ?
- How to develop cities without rising the ecological footprint ?



Trend: Back again to active mobility

ill.: internet

Biking - from leisure to means of transport

ill.: internet

Biking - ‘free’ bike rental service in cities

Lyon first French free bike rental
Inaugurated 19 May 2005
Today 300 stations 4000 bikes

Paris started in July 2007
Today 1000 stations, 16000 bikes

Success through simplicity for the user
And low costs: between 20-40 € per year

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Biking - ‘free’ bike rental service in cities

Financial model:

User pay between 20-40 € per year
(5 % to 10 % of the total costs)

Main costs, organization, maintenance by private company
They get the right to exploit billboards in the city and gets the benefits.

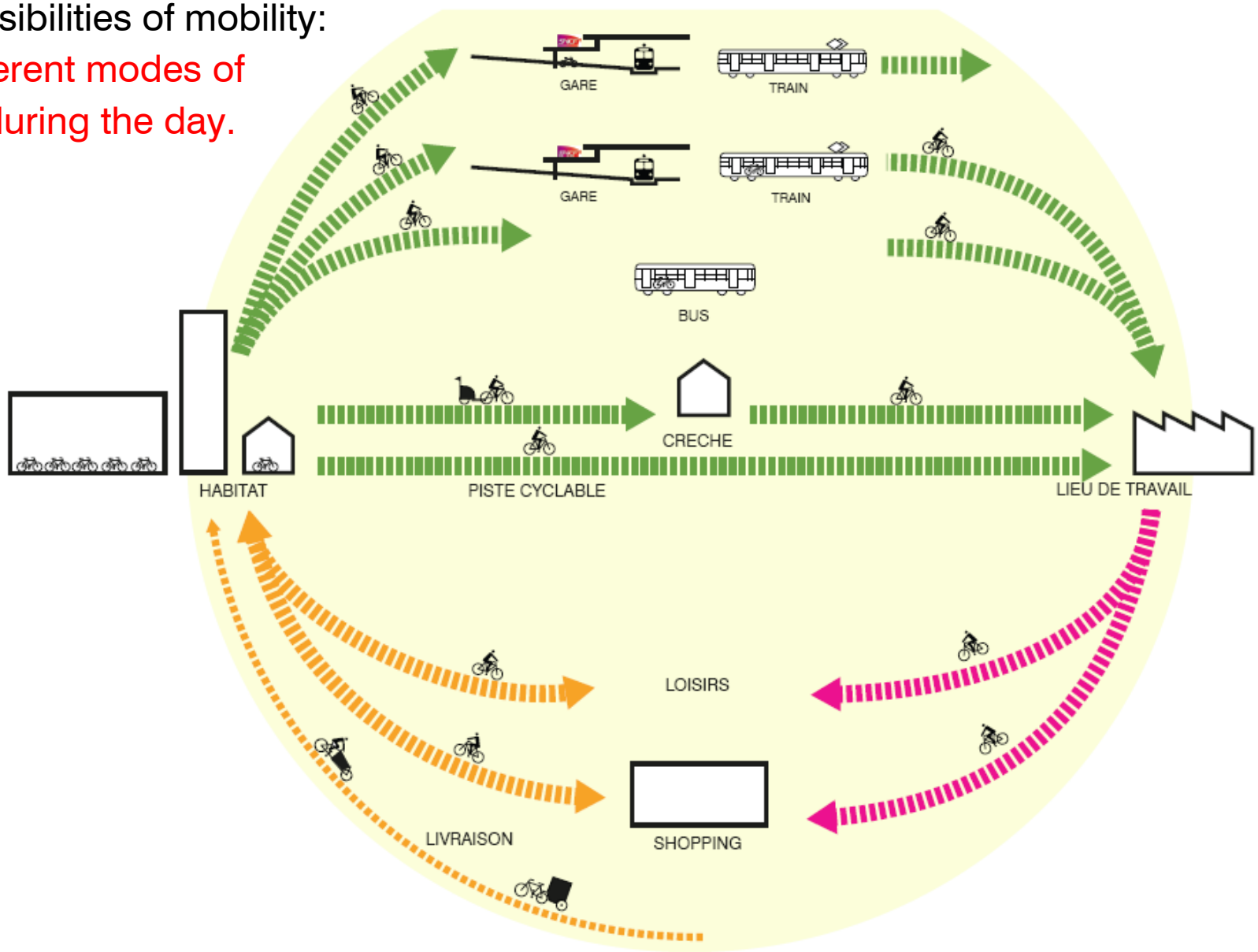
But it stays a very costly service per bike per year:
Examples: about 2000 € at Lyon, 2 200 € at Orléans, 2 400 € at Rennes
In Lyon the initial contract with the company foresaw a cost of 1000 € per bike
The difference of 1000 € per bike has to be paid by the city.
At Paris they speak about costs of 4000 € per bike per year;

Some cities chose to stop the service, like Aix-en-Provence, Plaine Commune
Other like Strasbourg or Grenoble choose the model of long term rental.
The cost in Strasbourg are about 400 € per bike per year.

Mobility - Multiplying the modal options

Divers possibilities of mobility:

Use of different modes of transport during the day.



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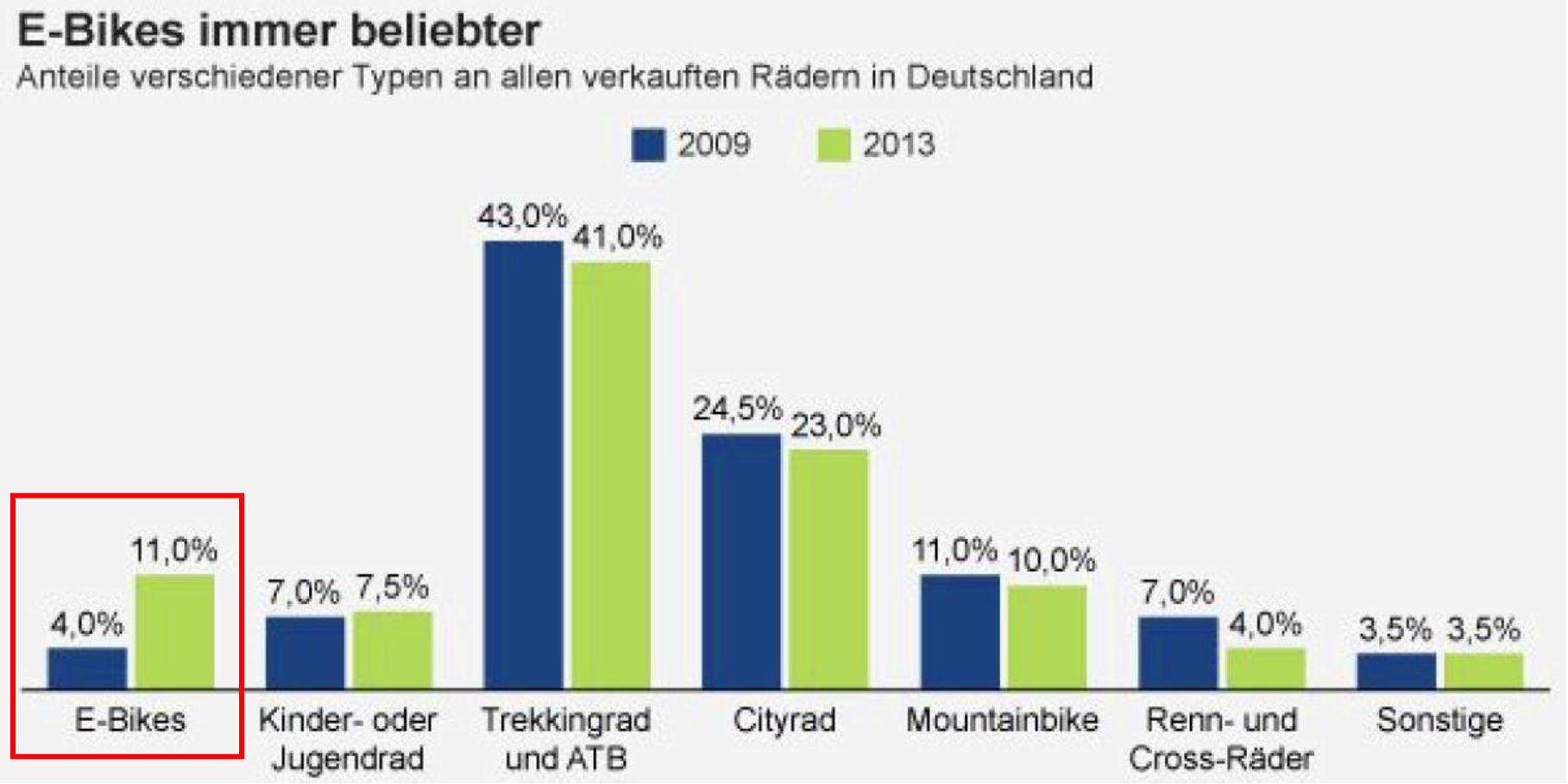
Biking – e-bikes become more popular

ill.: internet

Percentage of different types of sold bicycles in Germany

Estimation 2015: e-bikes 15%



Source: Zweirad-Industrie Verband

Biking - new urban mobility infrastructure

ill.: internet

Example parking space for bicycles

⇨ Tokyo, Japan

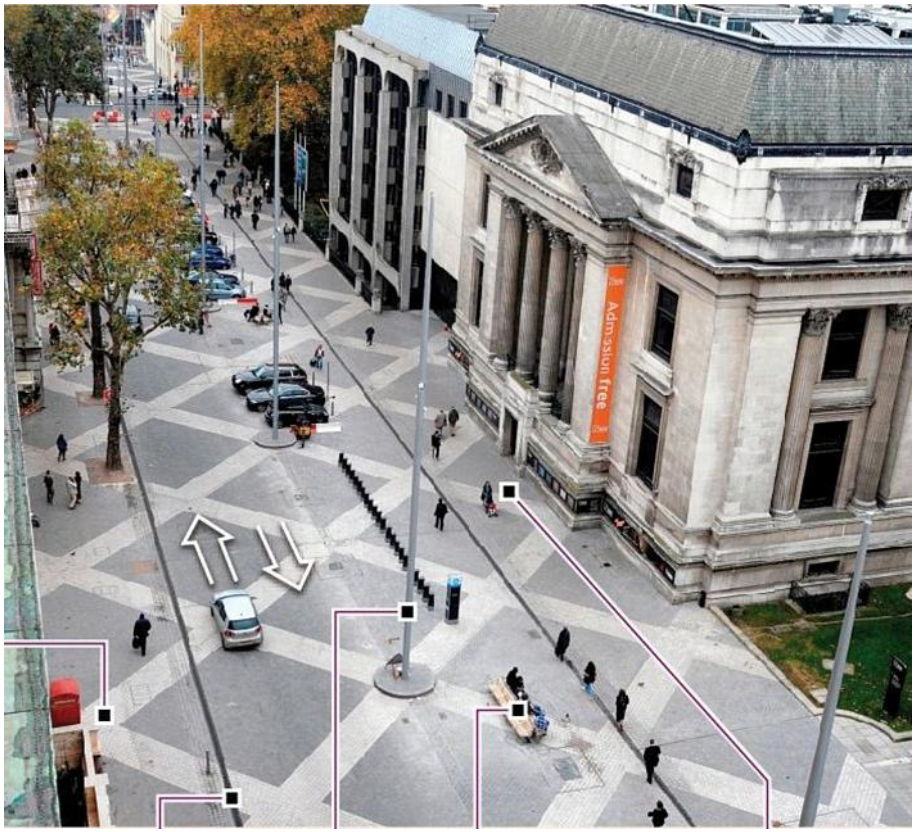
⇩ Rotterdam, Netherlands

Redesign public space to integrate urban mobility

How to use and design the public space for transport ?

Separate transport corridors ⇩ Paris

or shared space ⇩ London

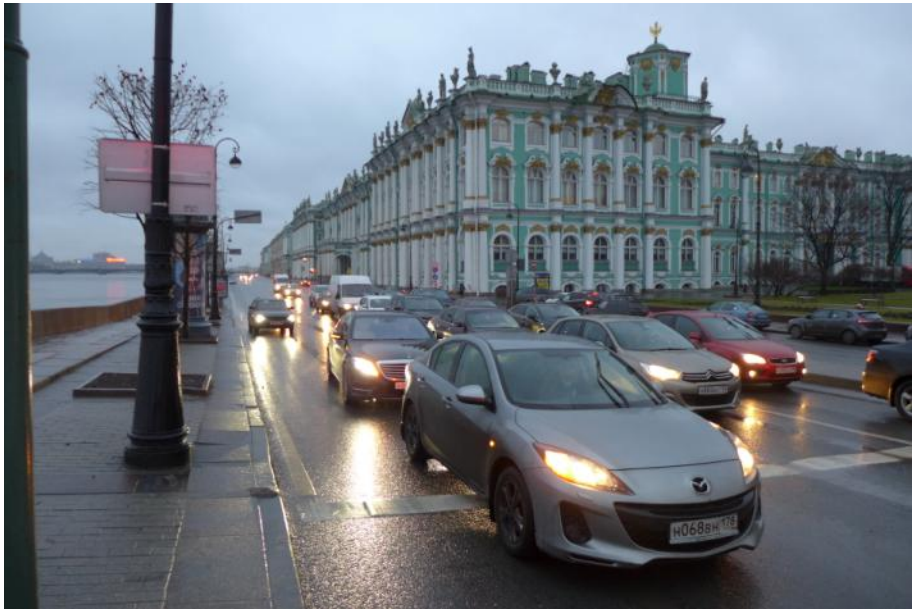


ill.: rethink / internet

Redesign public space to integrate urban mobility

ill.: rethink

⇩ Palace Embankment



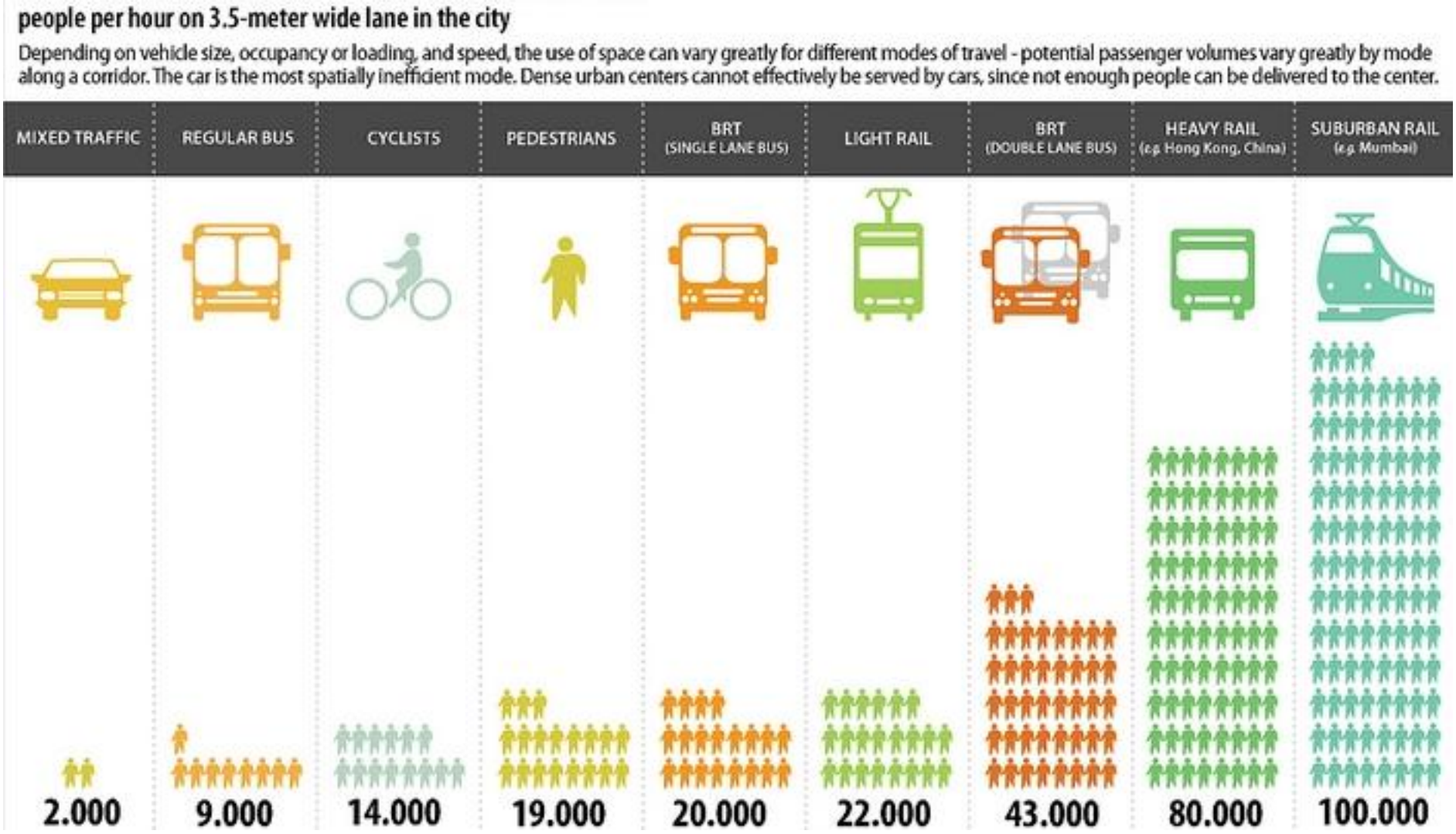
⇩ Izmaylovskiy pr.

Making the most out of scarce road space

Dense urban centers cannot effectively be served by cars.

Source: Asian Development Bank, Changing Course in Urban Transport

ill.: internet



An efficient use of public space ?

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Is this situation sustainable ? Does it offer healthy living conditions ?
Should the city enlarge the roads to offer more space for cars ?
Or reduce car traffic and give more space for public transport, active mobility ?

Birzhevaya pl.
Pictures taken on November 20th 2015 in the centre of St. Petersburg.

Biking - new urban mobility infrastructure

⇩ Hovenring, between Eindhoven, Veldhoven and Meerhoven, Netherlands

ill.: internet

Biking – Future projects ?

The concept to built bicycle highways on top of railway lines by Foster & Partners.

⇩ Proposal for bicycle highways, Foster & Partners, London

ill.: internet

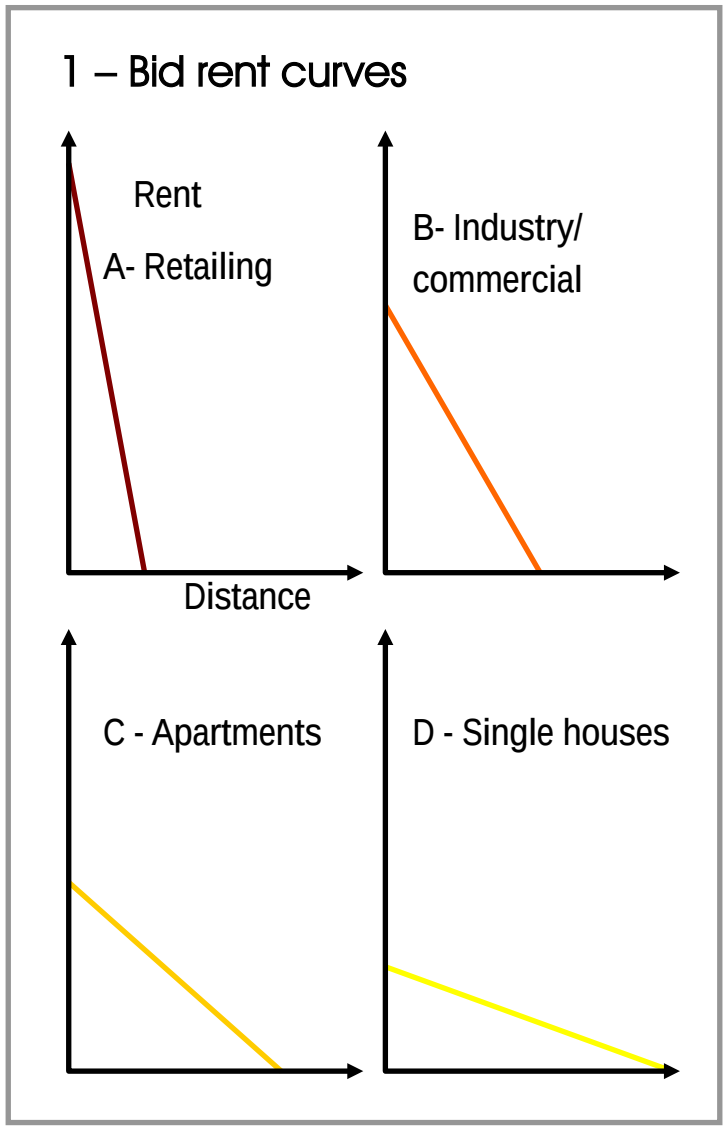
The development of Urban sprawl

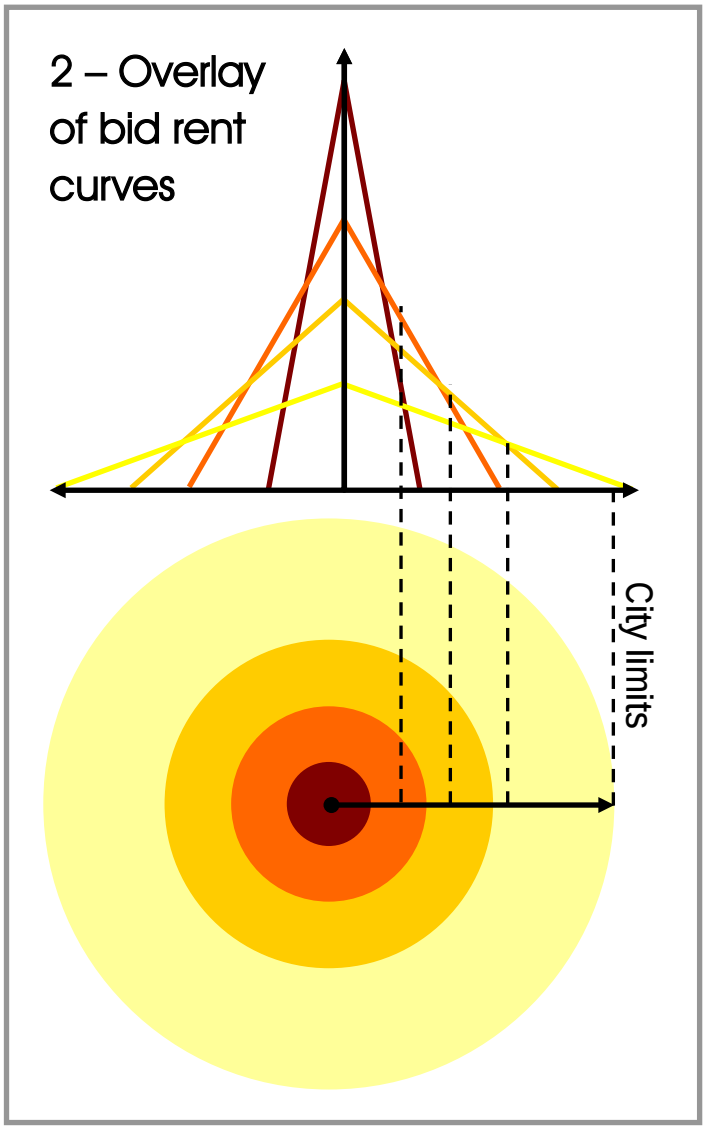
St . Petersburg, Russia

ill.: rethink

Burgess' Urban Land Use Model (1923)

ill.: internet

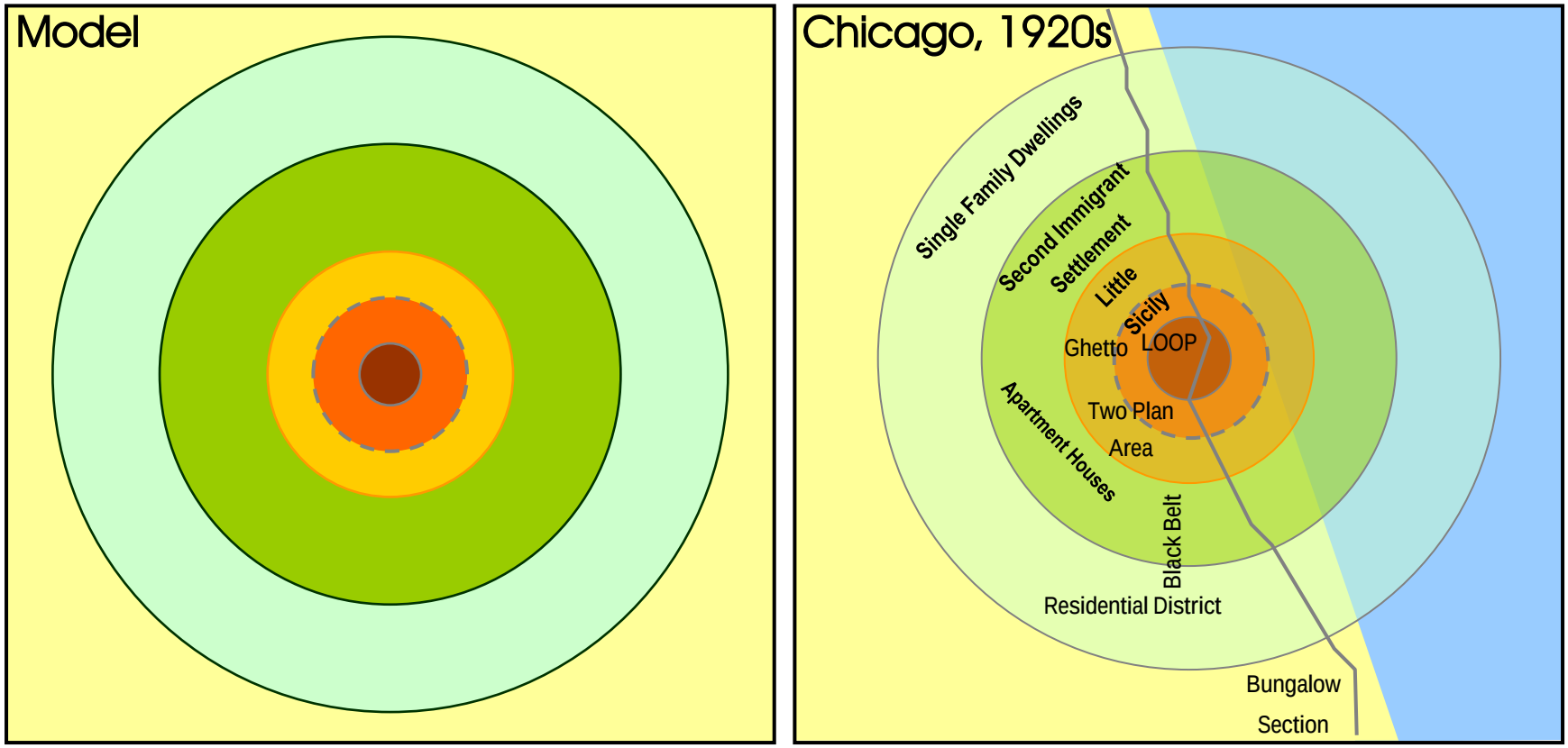




Land Rent and Land Use

ill.: internet

One of the earliest theoretical models to explain urban social structures

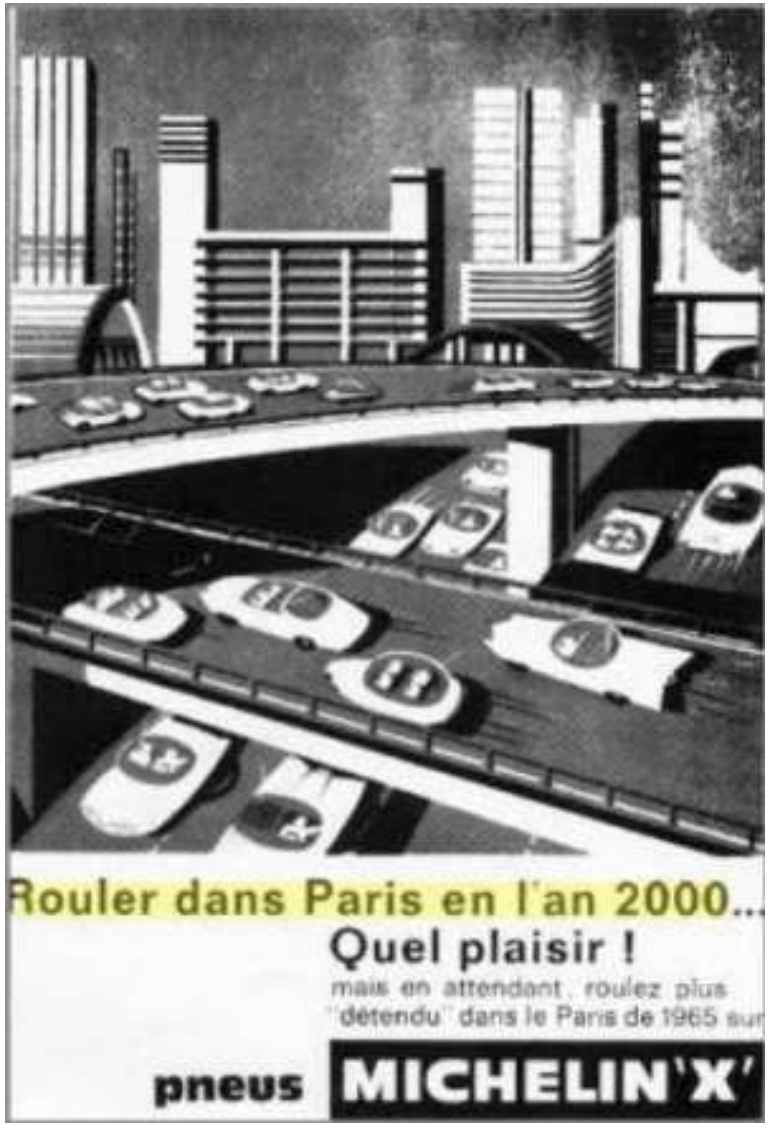


The individual car promised an unlimited mobility

ill.: internet

Castello Odescalchi, Italy

Publicity Michelin 1965



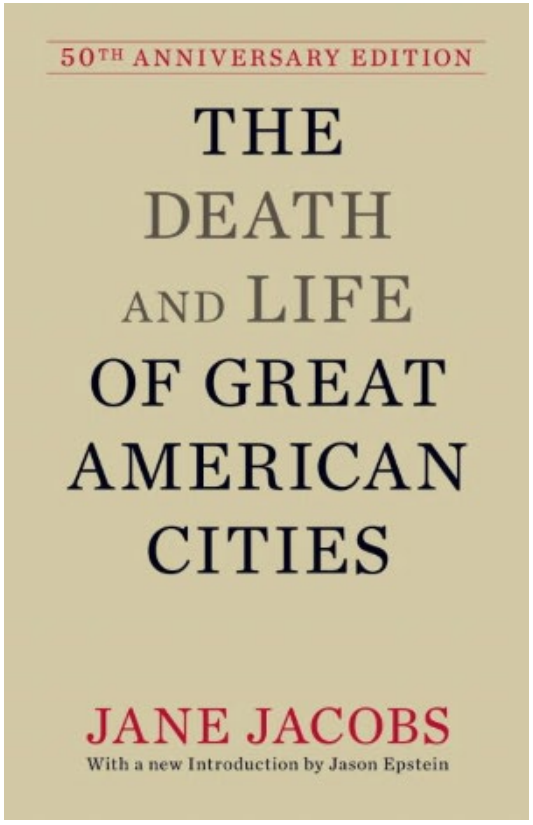
Mixity of functions and lively neighbourhoods

ill.: internet

Influential research in sustainable urban form:

Jane Jacobs: Book "The Death and Life of Great American Cities" (1961)

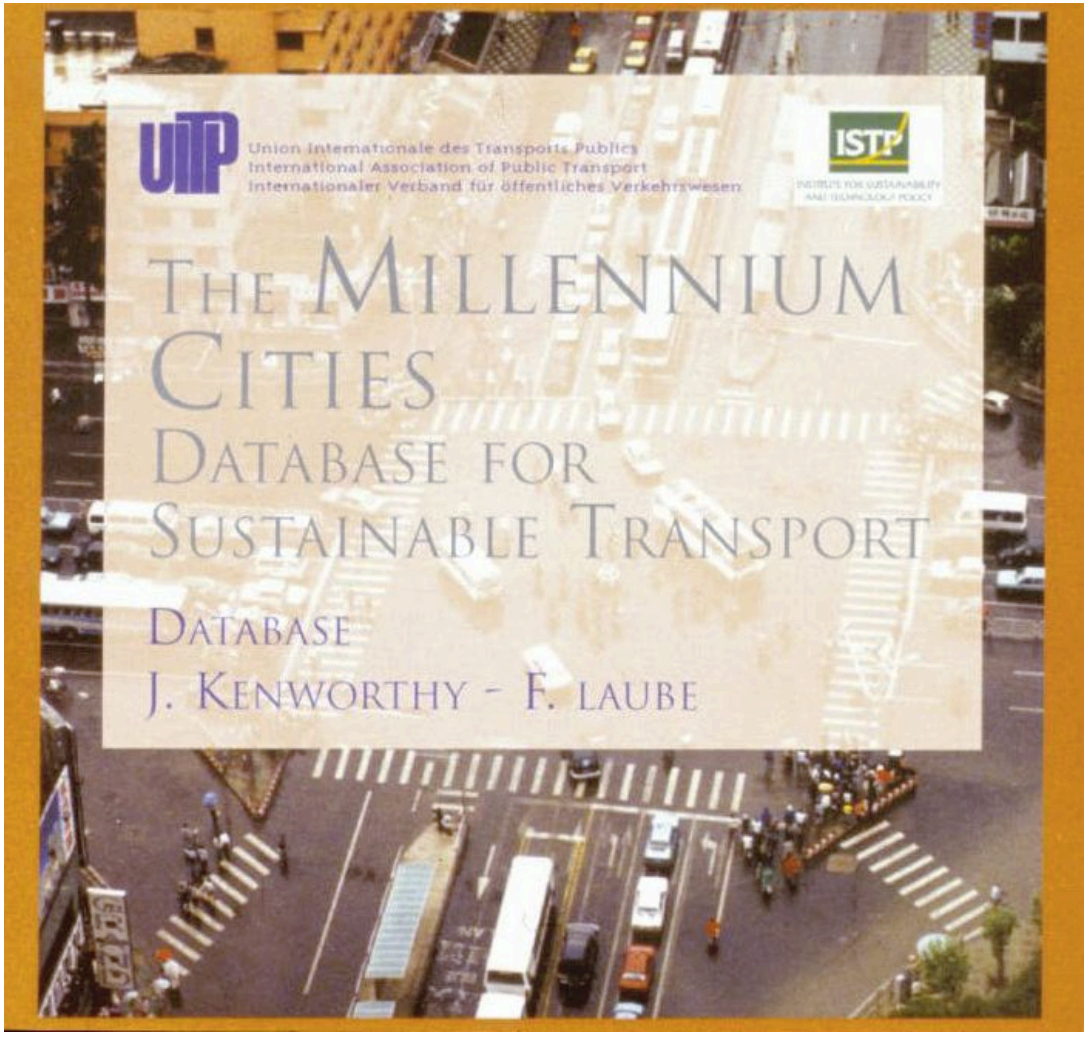
- Powerful critique of modernist planning. In favour of **small scale pedestrian mixed use neighbourhoods**. Vitality, community and safety in cities.



Patterns of automobile dependence in cities

Jeffrey R. Kenworthy: Researcher, Murdoch University, Perth - Australia
Creating a database on transport and cities, comparing patterns (1980th?)

« Transport infrastructure is also critical in determining car use, energy use and greenhouse gases from transport. »

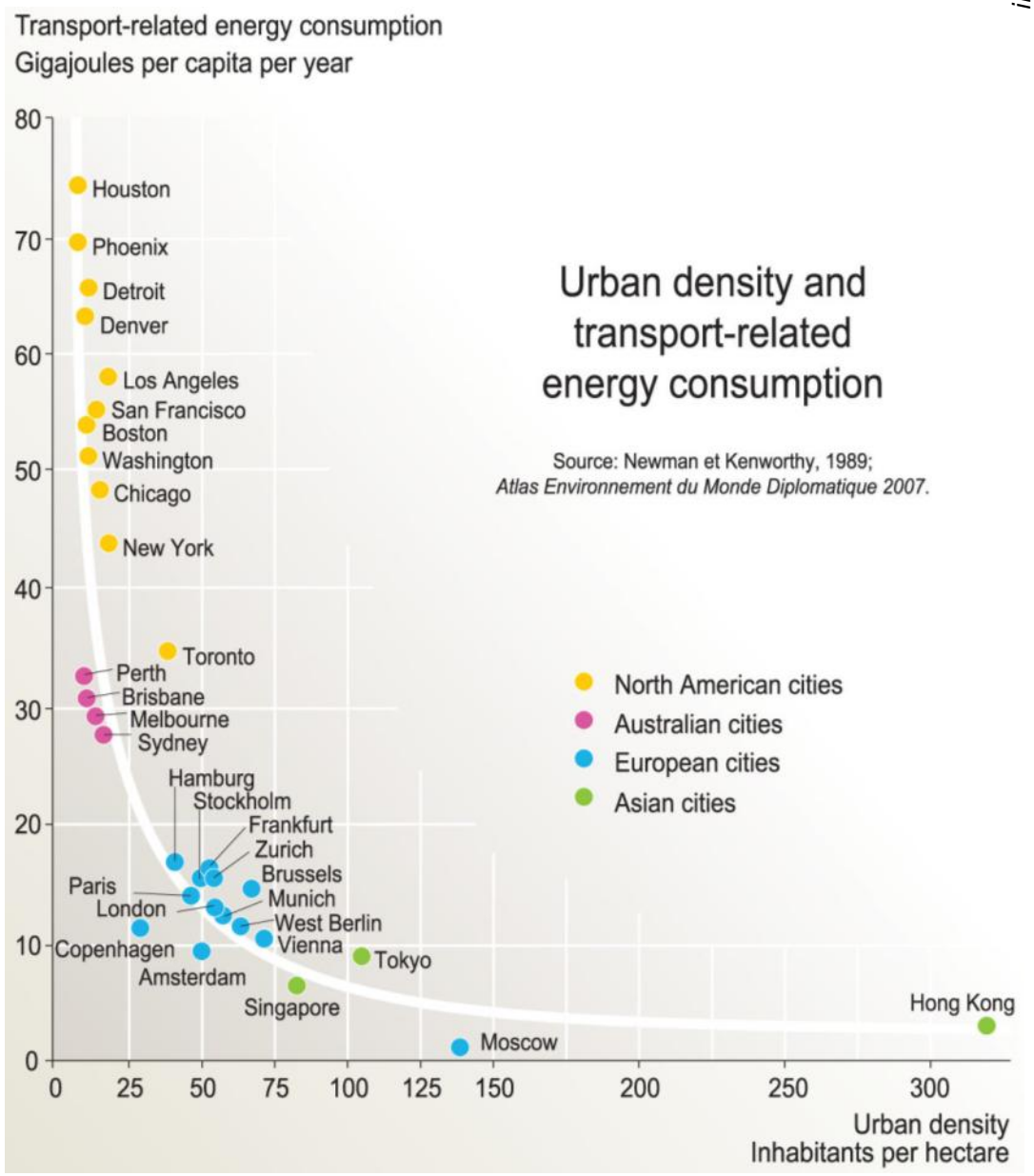


ill.: internet

Patterns of automobile dependence in cities

Newman and Kenworthy: research on Automobile dependency (1989)

- Correlation between urban density and gasoline use in cities across world.



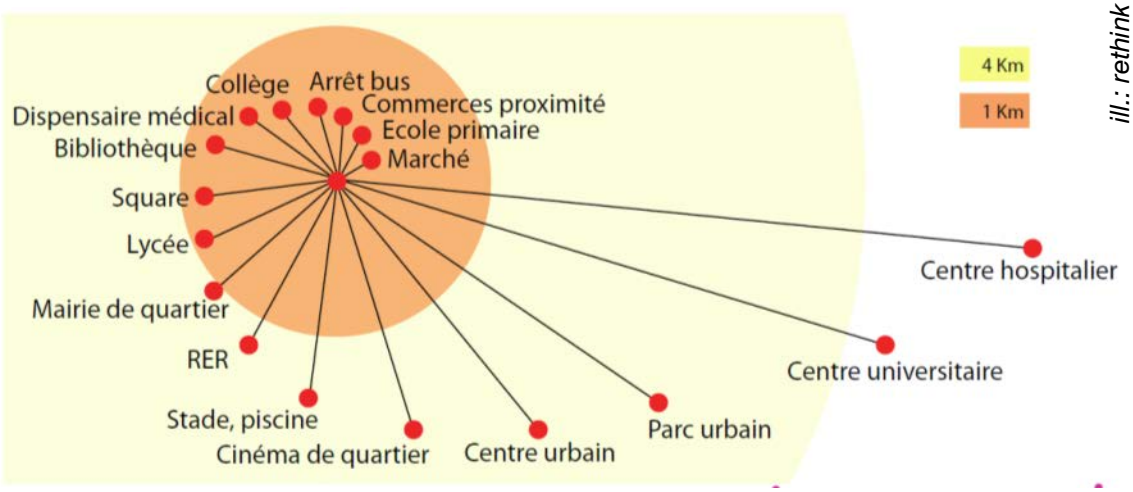
ill.: internet

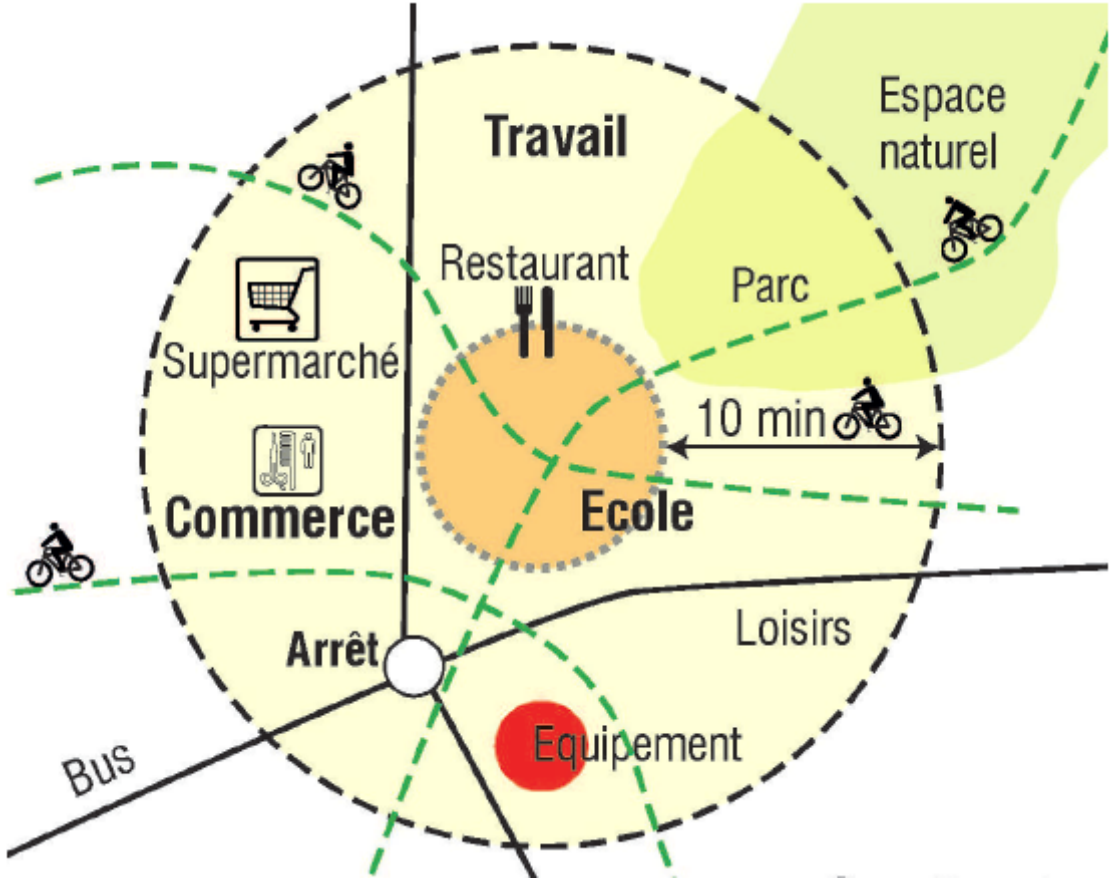
Neighbourhoods

Walking distance 1 km
Biking distance 4 km

Main objectives:

- Lively neighbourhoods
- Reducing the use of cars for short distances



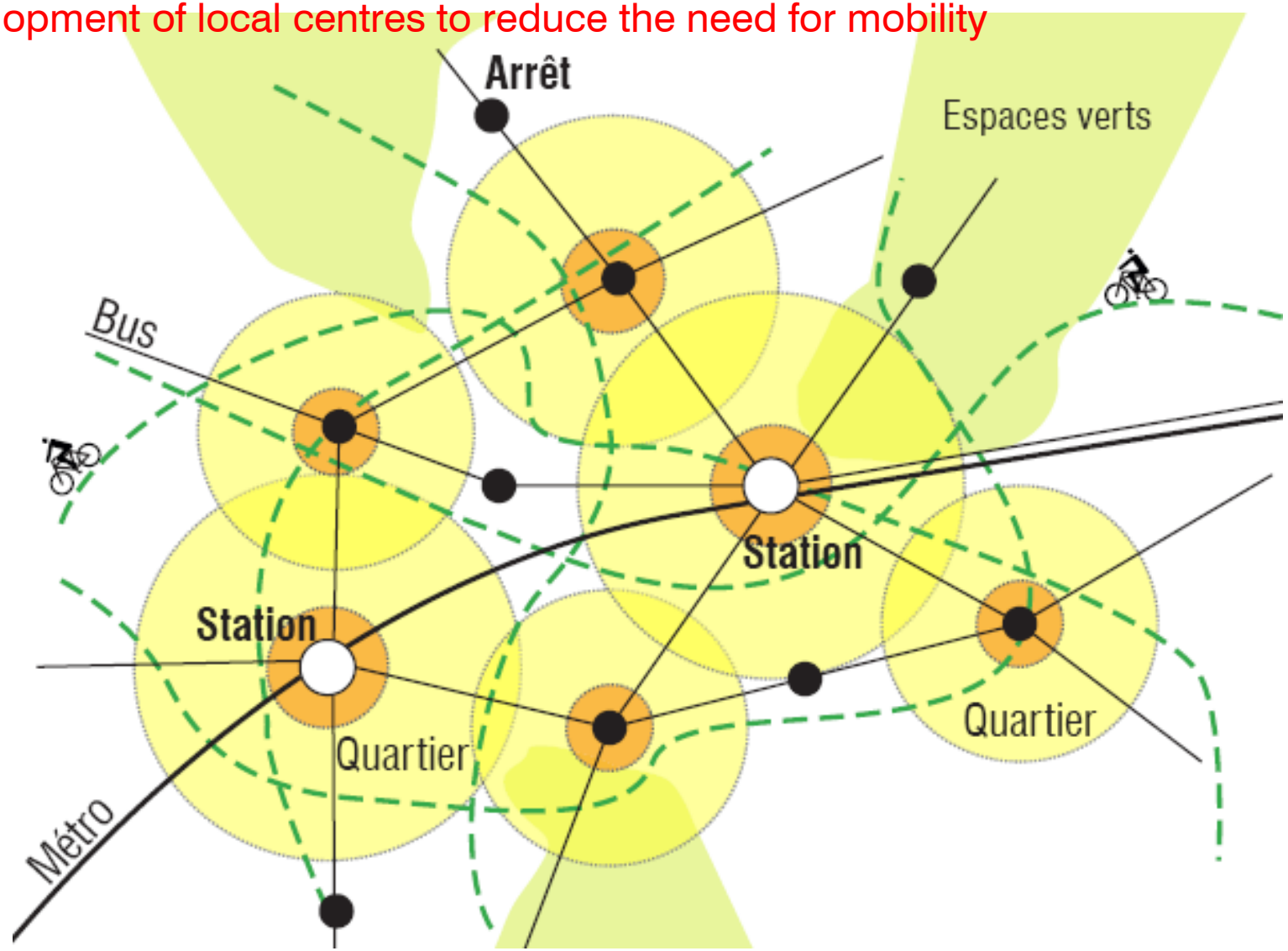


ill.: rethink

Centralities and mobility, polycentric city

Fighting the Burgess' Urban Land Use Model (1923)

Development of local centres to reduce the need for mobility



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Life quality, urban quality

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Enhancing the urban quality of the city centre is important.
But the main challenge is the creation of a sustainable urban quality in the outskirts, suburbs, periphery.

With easy access to services
- Education
- Work
- Leisure, sport...

.

Life quality, urban quality

ill.: Google Map

Offer of urban services through micro-centralities

ill.: internet

Distribution / Commerce

Café + / Pari Mutuel Urbain, France

Programme: Bar, jeux de hasard, vente de timbres, de presse et de tabac.

Local / Production

Point-relais / AMAP, France

Programme: Circuit court de produits maraîchers entre le producteur et le consommateur.

Interaction / Information

Espaces de Coworking / Smart Work Center, Belgique

Programme: Espaces de bureaux et salles de réunions partagés

Distribution / Commerce

Logistique Légère / Distripolis, Paris, France

Programme: Réseau de véhicules de livraison opérant sur une échelle réduite

Local / Production

Fab Lab, France

Programme: Ateliers proposant des outils en libre service afin de réparer et créer des objets.

Micro-Mobilité

Micro-Hub Transmodal / Parking de Vélos, NL-Utrecht

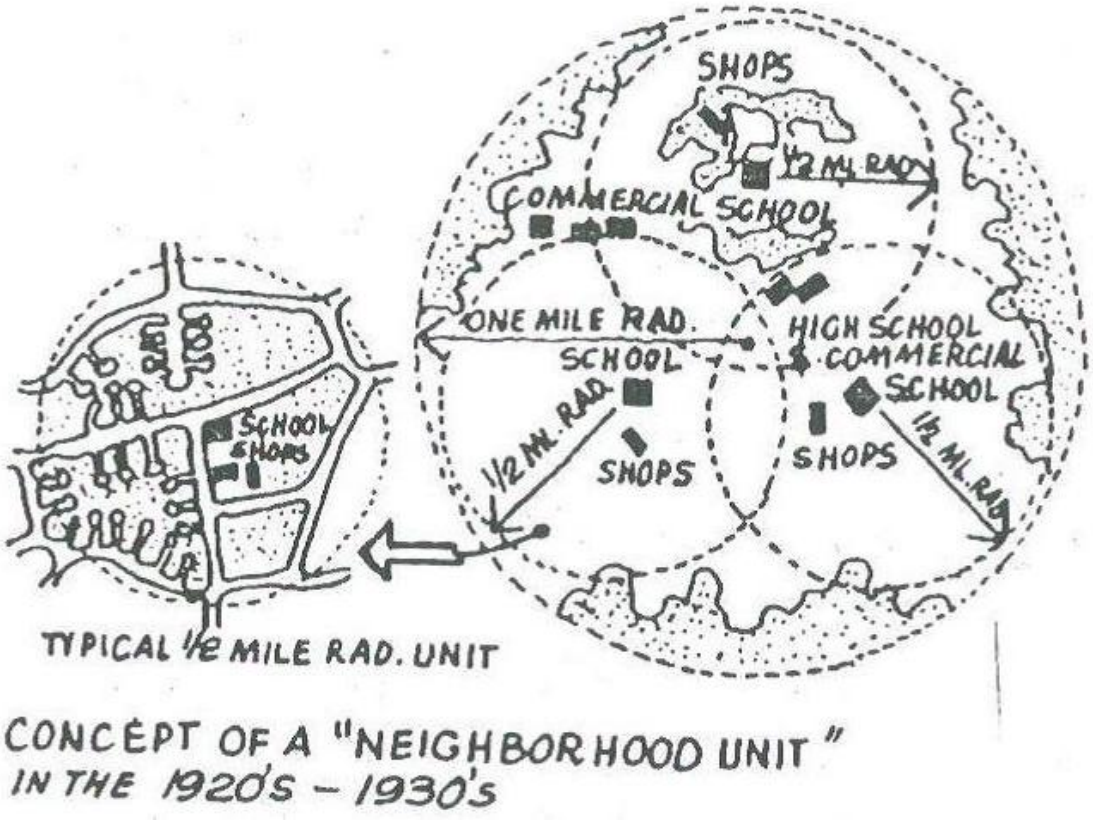
Programme: Consignes individuelles pour garer son vélo à proximité des hubs de transports

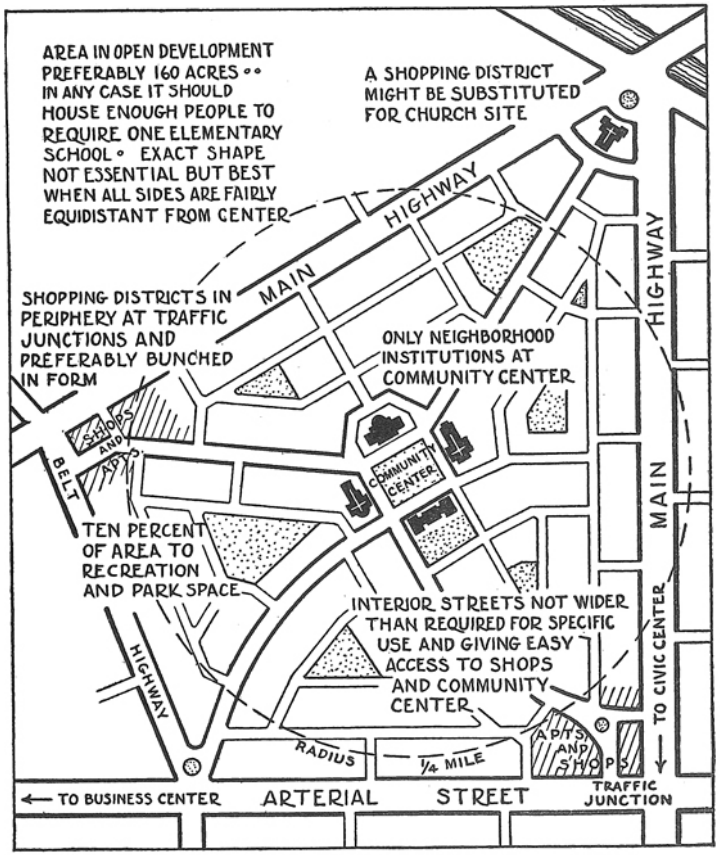
Neighborhood Planning (1920 onwards)

ill.: internet

Clarence Perry (1872–1944)

He developed the idea of the neighbourhood unit by analyzing the things he found good - including gardening and community participation - about living in a Long Island suburb named Forest Hills Gardens.





Neighborhood Planning (cont'd)

ill.: internet

Crucial to Perry's concept was the idea of day-to-day facilities (shops, schools, playgrounds…) should be within walking distance of every house.

This in itself the overall size of a neighborhood, while heavy traffic was kept out, confined to arterial roads which skirted around the neighborhood.

Perry estimated the optimum size for a neighbourhood to be around 5000 people; large enough to provide for most people's day-to-day needs, yet small enough for a sense of community to develop.

⇨ Radburn, New Jersey, USA

Modern movement in urban planning

⇩ Plan Voisin de Paris (1922-1925)
Architect : Le Corbusier

ill.: Fondation Le Corbusier

Large housing estates in France (1960-1980)

No urban quality
Little access to services (education)
Inhabitant are excluded from city live
Inhabitants 2nd class ?

⇨ Grand Ensemble P. Collinet, Meaux
⇩ La Grande Borne, Grigny

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The stations of the Grand Paris

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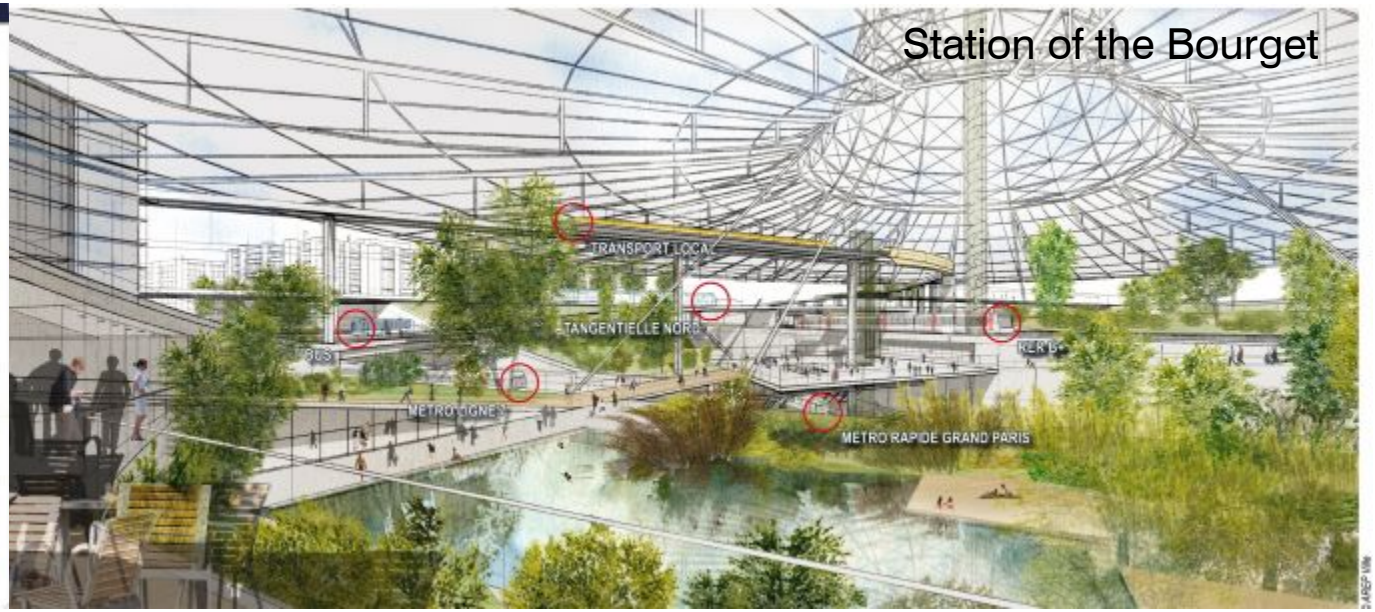
Metro Paris: Simple entrances and stations

Metro Grand Paris express:

The stations are urban intersections (Model Tokyo) with:

- A divers offer of urban mobility (Buses, bicycles, car sharing, trains…)
- Different functions: service, consumption, work, entertainment…
- Densification of existing urban areas
- Development of new, sustainable urban areas
- Visible landmarks in the urban structure



Station of the Bourget

Diversity of housing, Nantes - France

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Urban transformation

Ex-Cheonggyecheon Expressway in Seoul

ill.: IAU idf, P. Lecroart

Cheonggyecheon Expressway in Seoul, Corea

There used to be an expressway crossing the city centre and it carried almost as much traffic as the Boulevard Périphérique in Paris.

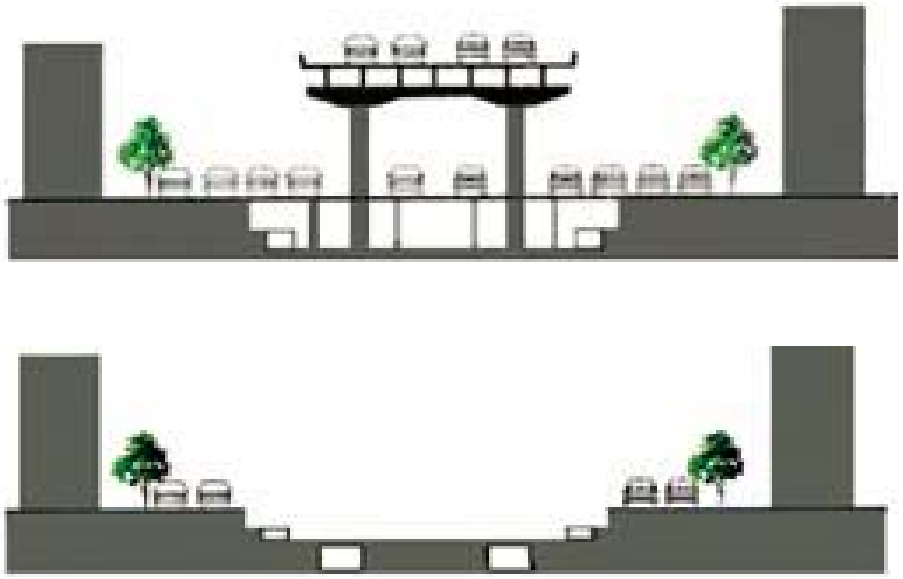
After a lot of discussions they decided to revive the river, which was hidden under the expressway, and to deconstruct it.

ill.: IAU idf, P. Lecroart

Changing priorities in urban planning

There used to be four lanes for the higher speed traffic and ten lanes for the lower speed traffic.

These ten lanes were reduced to four lanes and the traffic is still smooth today.



ill.: IAU idf, P. Lecroart

Being ambitous and openminded

⇩ Cheonggyecheon river today

⇩ Obvodny Canal today

ill.: IAU idf, P. Lecroart / rethink

Careful choice of investments

ill.: internet

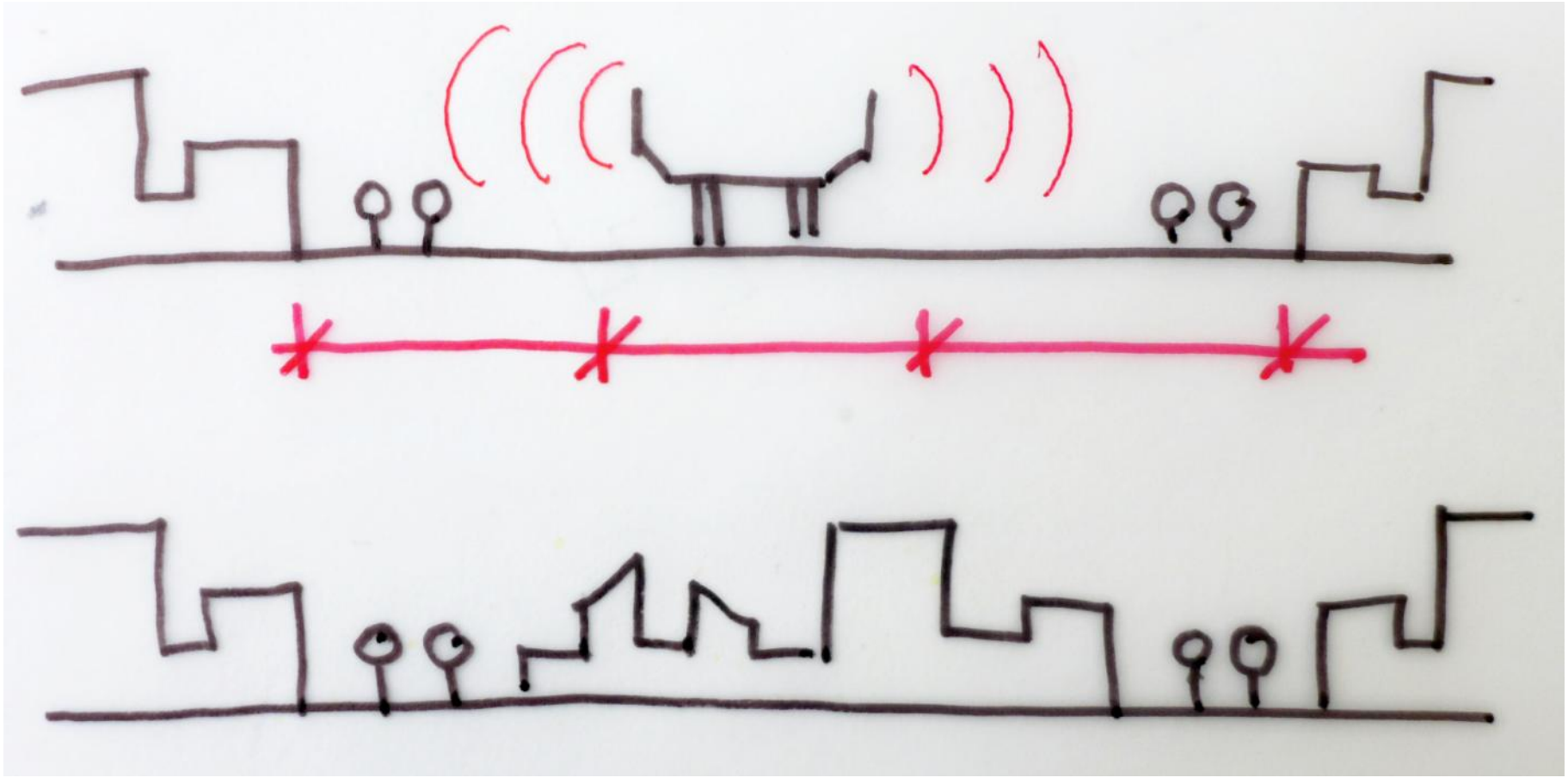
Western Rapid Diameter extension through the southern industrial belt:

- What is the cost benefit balance on the long term ?
- What will be it's impact on the urban development of the industrial belt ?
- And the live and urban quality for the future inhabitants ?
- Are the environmental cost includes (noise, health, pollution…) ?

⇧ Western Rapid Diameter

Urban expressways have a strong impact

Urban expressways have a strong impact on their urban environment.



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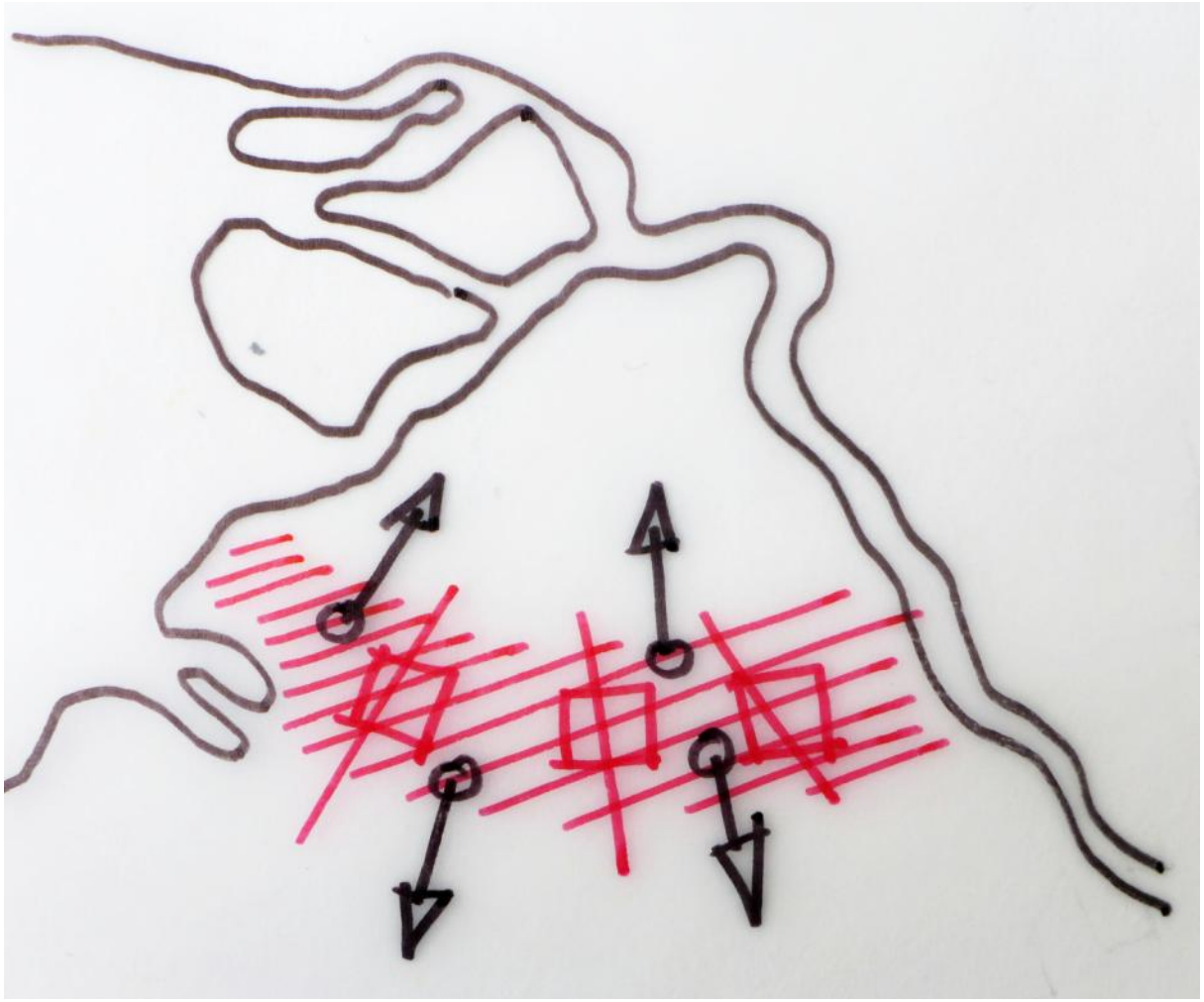
The former industrial belt, a new kind of city

The industrial zones have the potential to be developed as a new kind of city.

Giving good living conditions and urban environments to all inhabitants.



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Objective: The attractive city, for all !

Basel - Switzerland

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