

BLOCK 2: PLANNING FRAMEWORK

Lesson 2: Contemporary urban planning: theory and practise

The evolution of twentieth-century urban space can be traced predominately by studying the Garden City movement and the paradigm of Modernism – Functionalism, Post Modernism and Sustainable Development.

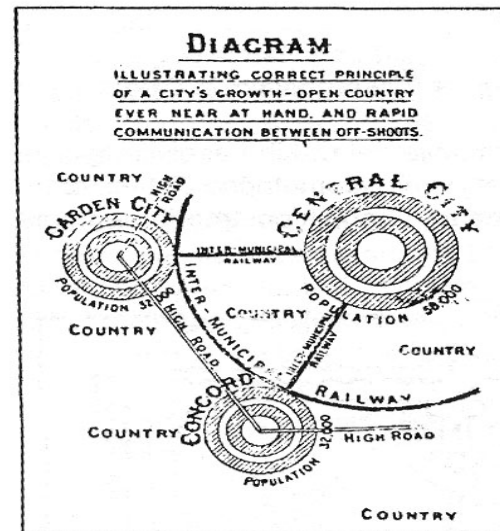
2.1 Garden City Movement

The industrial cities of the 19th century suffered extremes of overcrowding, poverty and ill-health. Life expectancy in many of the industrial cities of Victorian England was less than 25 years. These hazards and basic inequities led planners like Ebenezer Howard in 1898, and later, following his examples Patrick Abercrombie in 1944 to propose less dense and greener surroundings: Garden Cities and the New Towns.

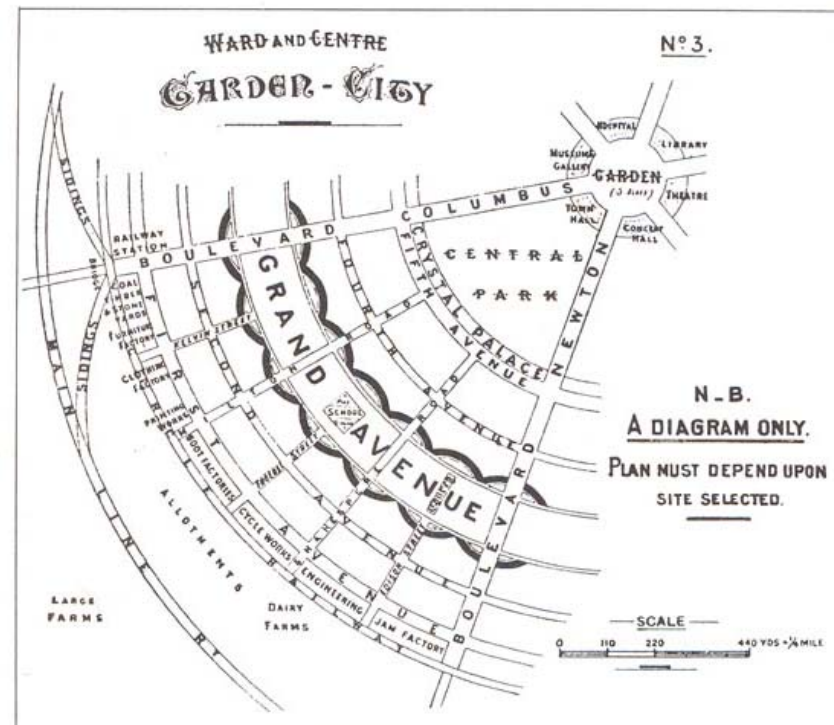


Garden City

Howards's garden-city idea was based on integration of town and country attributes. His formula garden city for 32.000 people consisted of 1.000 acres of urban land, surrounded by 5.000 acres of agricultural land. The radial concentric plan focused on a central core (public buidings: town hall, theater, library, hospital,..) soranded by central park. The city was organised around a series of landscaped boulevards and avenues. Factories were located on the perimeter of the town with good access to an infrastructure corridor (railway, motorway). Allotments were located as a bafer zone between factories and country side – large farms.



Principles of Garden City's growth (left) and Garden City Layout



Source: Trancik, 1986; Pogačnik, 1999



COBRAMAN

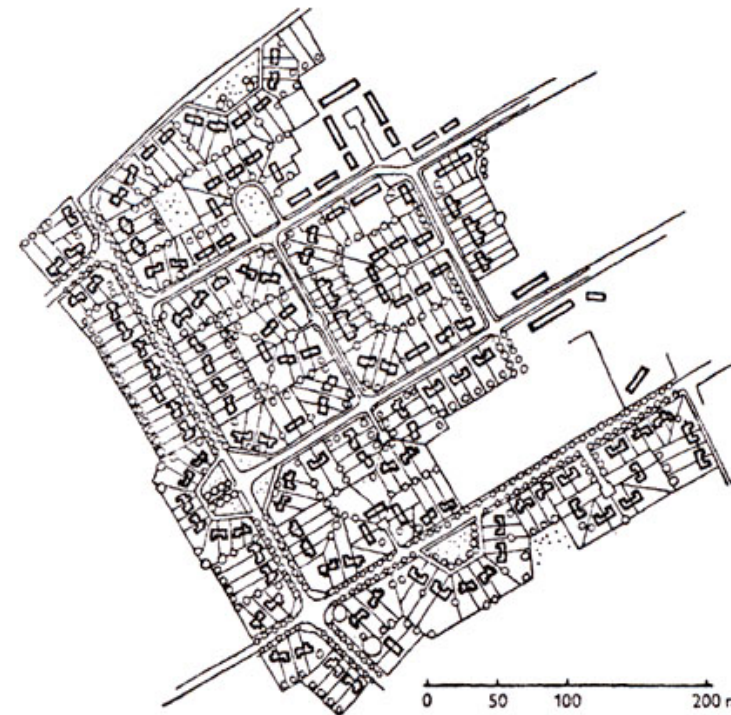


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Garden City

Howard's concept of parklike, soft space in cities was soon adopted by many planners of the early twentieth century and became a guideline of modern town planning movement in Europe and America.

One of the best examples is the new town of Letchworth, England. Master plan was prepared by Barry Parmer & Reymond Unwin. The 1903 layout plan was based on the principles of land use defined areas for commercial and industrial development, varied residential districts and an agricultural belt.



Severozahodni del mesta Letchworth iz leta 1903 kot realizacija ideje vrtnih mest.

Letchworth, 1903

Source: Trancik, 1986; Pogačnik, 1999

REMEMBER

The industrial cities of the 19th century suffered extremes of overcrowding, poverty and ill-health. These hazards and basic inequities led planners like Ebenezer Howard in 1898, and later his follower, to propose less dense and greener surroundings. Howard's garden-city idea was based on integration of town and country attributes. His radial concentric plan focused on a central core (public buildings: town hall, theater, library, hospital,..) surrounded by central park. The city was organized around a series of landscaped boulevards and avenues. Factories were located on the perimeter of the town with good access to an infrastructure corridor (railway, motorway). Allotments were located as a buffer zone between factories and country side – large farms. Howard's concept of parklike, soft space in cities was soon adopted by many planners of the early twentieth century and became a guideline of Garden Cities' and the New Towns' movement in Europe and America.

BLOCK 2: PLANNING FRAMEWORK

Lesson 2: Contemporary urban planning: theory and practise

2.2 Modernism – Functionalism

Modernism or rather the paradigm of Functionalism is based on ideals of pure forms and unbounded, flowing space. The 'tower in the park' was intended to break the urban block of the traditional city and give a newfound freedom to the urban residents. Functionalism was the architectural expression of the intellectual and aesthetic revolution in the early twentieth century that originated in the Bauhaus school in Germany followed by De Stijl in Netherlands and French urban-design movement led by the famous architect Le Corbusier (see Trancik, 1986, 21-30 p.). The pioneers of the modern movement, the same as their predecessors Vitruvius, Leonardo de Vinci, Ebenezer Howard and others, proposed ideal cities that they imagined would create ideal societies. They turned to new technologies, industrial techniques and new build forms because they 'offered creative freedom and the prospect of social improvements' (Rogers, 1997:68).



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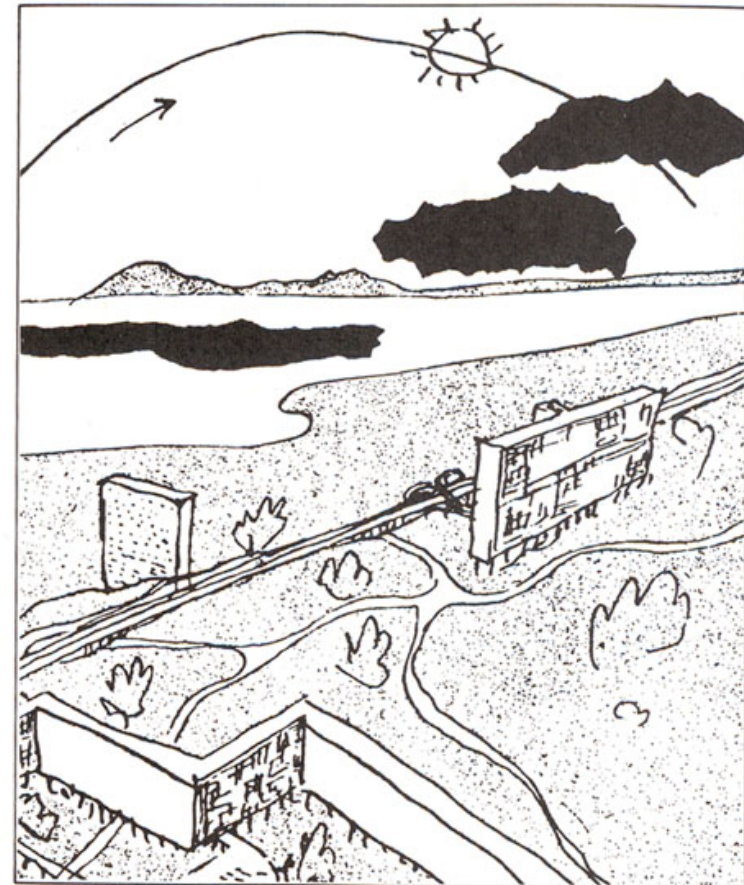
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Functionalism

Le Corbusier dominated modern architecture in the period from 1920 to 1960. His three urban design principles that influenced modern urban space design are following:

- (1) The open urban block that allows free flowing landscape, sun and light,
- (2) The vertical separation of movement systems,
- (3) The linear building as a large-scale urban element which define districts or social units.

Le Corbusier's aphorism for house was a 'machine for living' in which all elements without a direct function were eliminated.

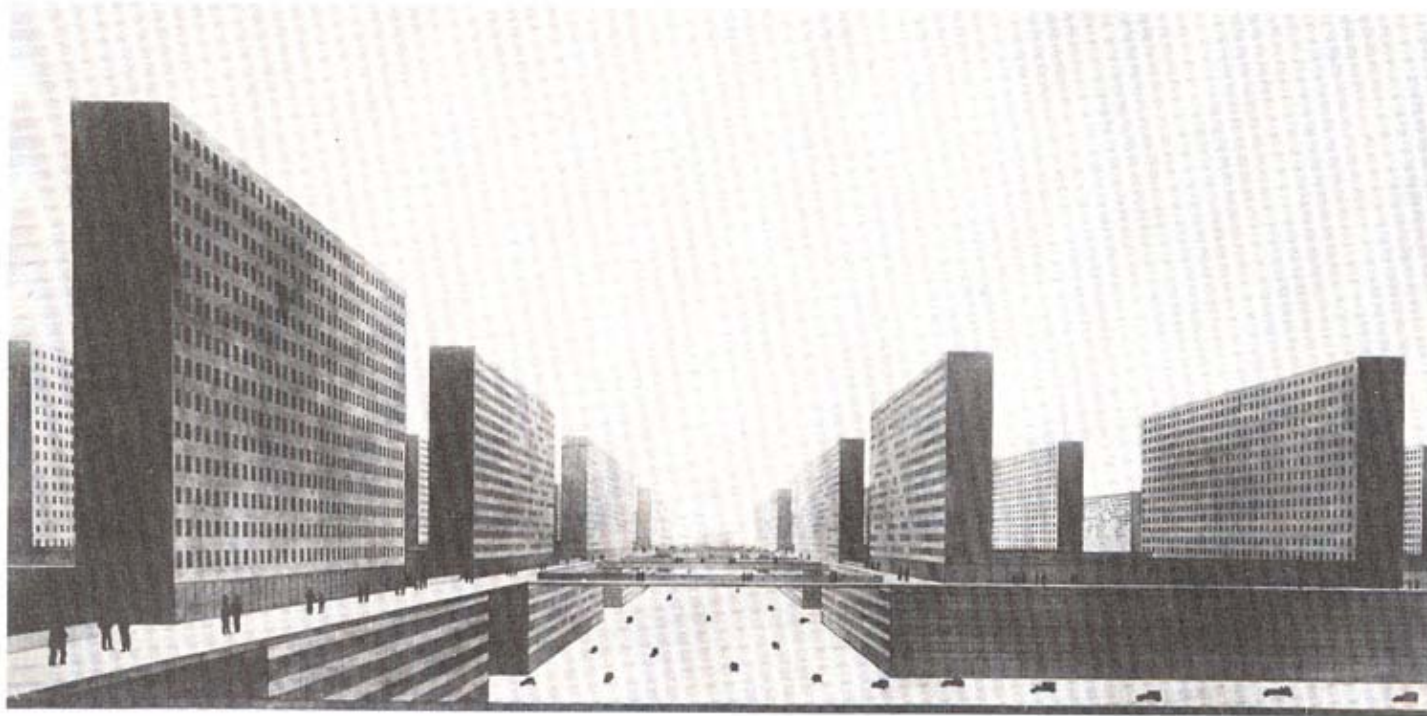


Le Corbusier's City Governed by the Course of the Sun

Source: Trancik 1986

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Functionalism

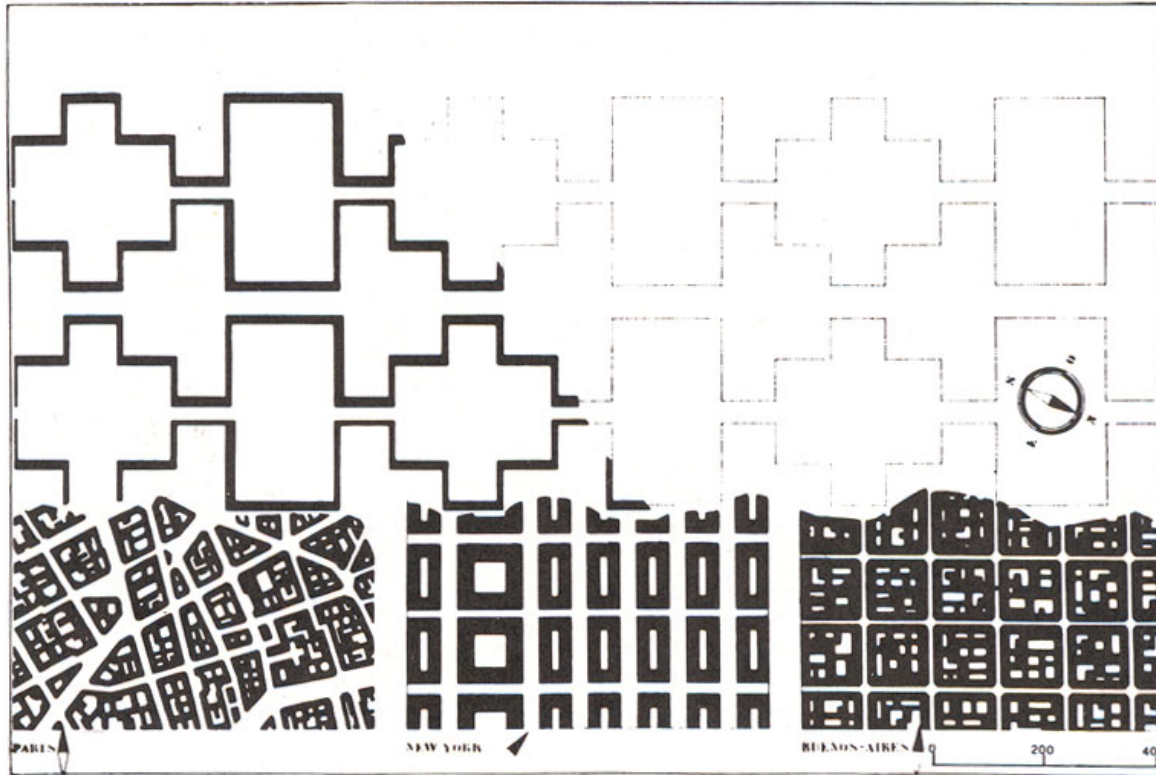


*Ludwig Hilberseimer. The Ideal City. 1920.
Hilberseimer's drawing represents the Modernist utopia of high-rise buildings in straight, parallel rows. Traffic systems are rigidly separated, and functions are carefully zoned.*

source: Trancik 1986

Freestanding buildings in straight, parallel rows, set on a wide, open plaza or green space, rigidly separated traffic systems and carefully zoned function (living, work, leisure) has been a main concept in shaping modern urban space.

Functionalism



Le Corbusier. Figure-ground diagram on the Ville Radieuse

Source: Trancik 1986

Le Corbusier's figure-ground diagram on the Ville Radieuse compared to traditional urban block of Paris, New York and Buenos Aires dramatically illustrates the contrast between the traditional urban patterns of evolved city and the free flowing spatial structure proposed by Functionalist theorists.

Functionalism

Corbusier's large-scale projects such as Plan Voisin in Paris (1925), La Ville Radieuse (1934) and the master plan for Algiers in the thirties, had significant impact on urban planning throughout the world.

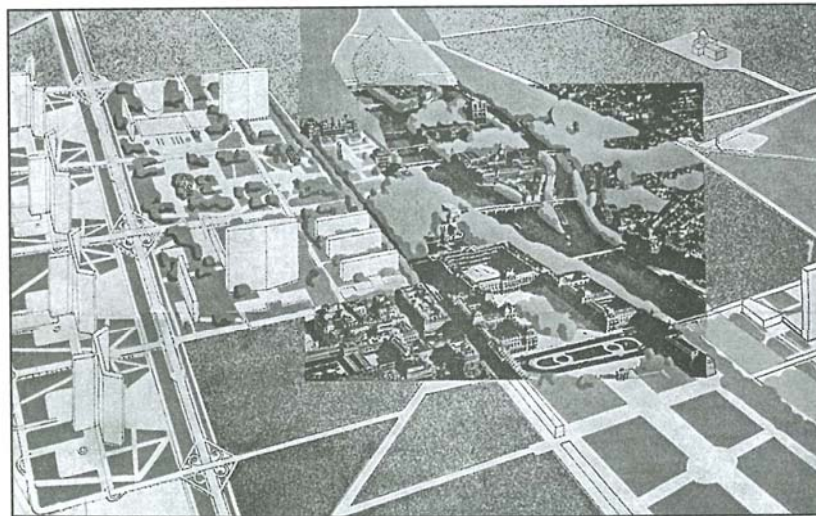
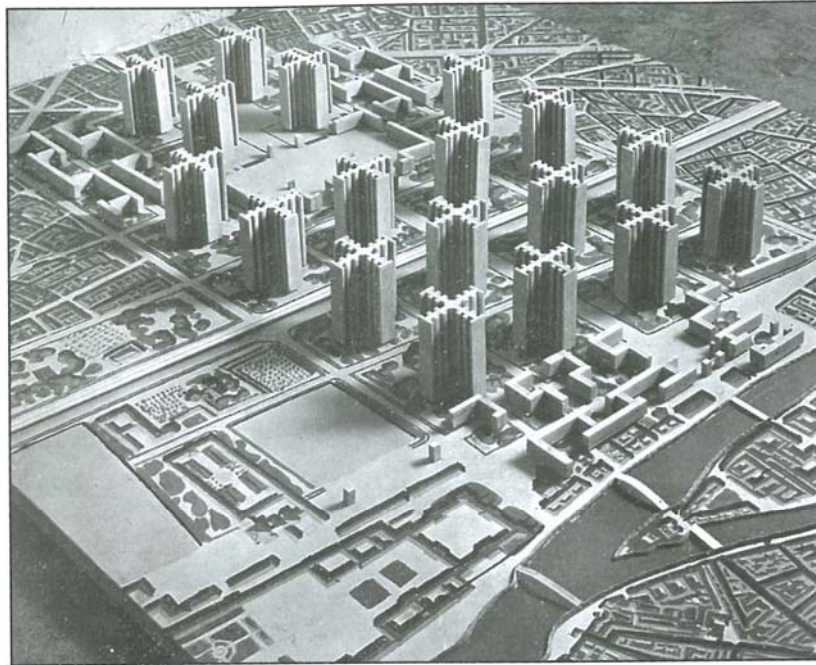
CIAM, Team 10 and other architects all around the world adopted Corbusier's principles of urban space (Trancik, 1986:27).

Corbusier's Plan Voisin for Paris (1920) illustrates the contrast between traditional urban patterns and the urban design of Modernism. Linear and nodal buildings define districts or social units over an open ground plan.

*Le Corbusier. Plan Voisin.
Paris, France. 1925.*



Source: Trancik 1986



Predlog za predelavo centra Pariza: Plan Voisin (1925 in 1937).

Proposal for renewal of Paris centre: Plan Voisin, 1925 -1937
source: Košir et al 2007

Functionalism

The purified façade, the geometry of squares and cubes and a regularised ground plan usually as a grid system where the design principles of Functionalism that had a major influence on urban design well into to 1970s. The grid, which has functioned as an easily applied mechanical method for organising urban forms from ancient Greek (e.g. Hippodamus' plans for Millet and Priena) and Roman towns, has the advantage of flexibility and expandability. According to Trancik (1986:31) the effectiveness of the grid as an organizing system really depends on whether it is used to connect or separate different elements. The Functionalist approach was to use it to differentiate places and activities.

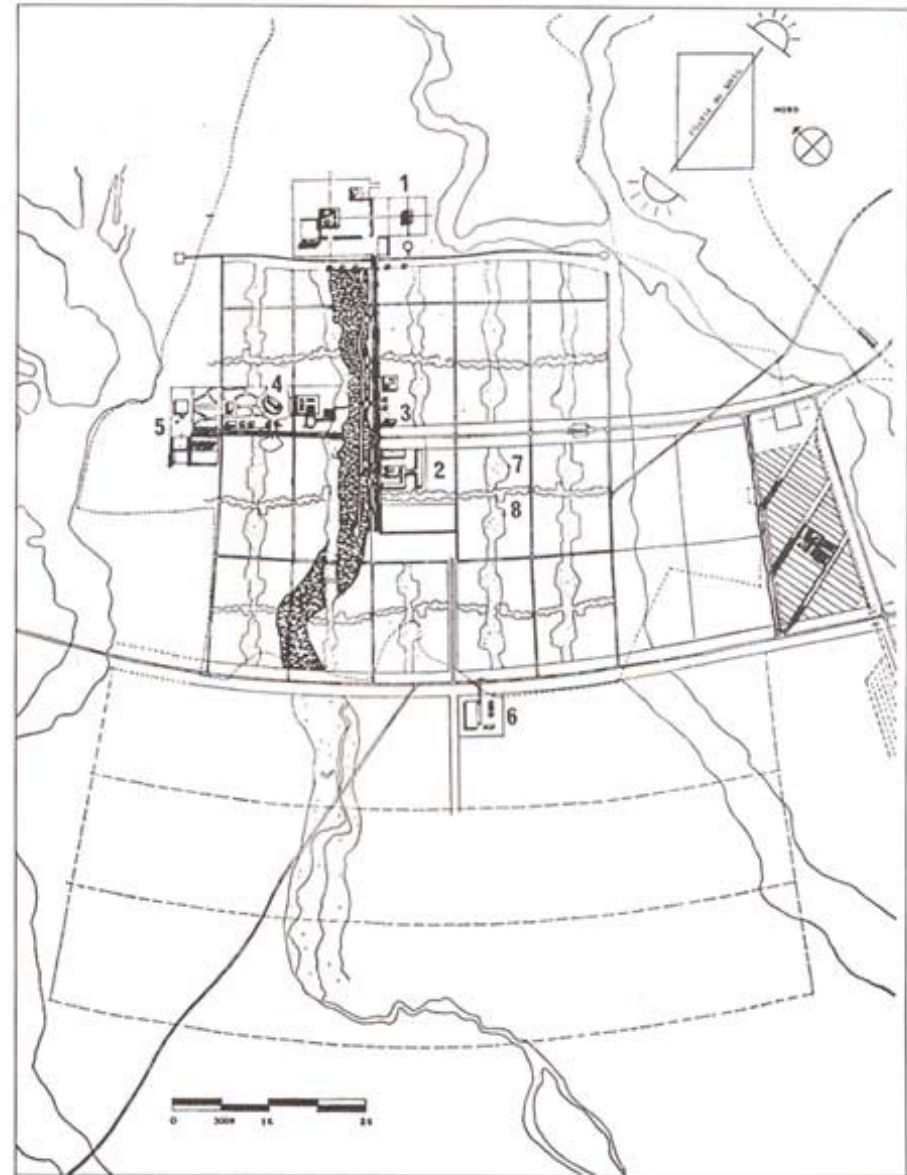
Most of the land use plans upon each 'large parts' of our cities were built (e.g. large housing estates) were prepared in 1960s on the bases of Functionalist concept.

Good examples of implementation of the Functionalist theory in planning practice are the new towns: Chandigarh (1950s), Brasilia (1960s), Milton Keynes (1970s).

New towns: Chandigarh

Le Corbusier concept for urban development is based on a grid system, with a commercial centre located in the crossroad of the two main axes, one to the Capitol (government centre and other to the University. The capitol, the university the market and the industrial zone are set apart to form the city's grid.

- Key:*
- 1. The Capitol
 - 2. Commercial Center
 - 3. Hotels and Restaurants
 - 4. Museum, Stadium
 - 5. University
 - 6. Market
 - 7. Open Spaces with Schools, Clubs, Sports Facilities
 - 8. Shopping Street

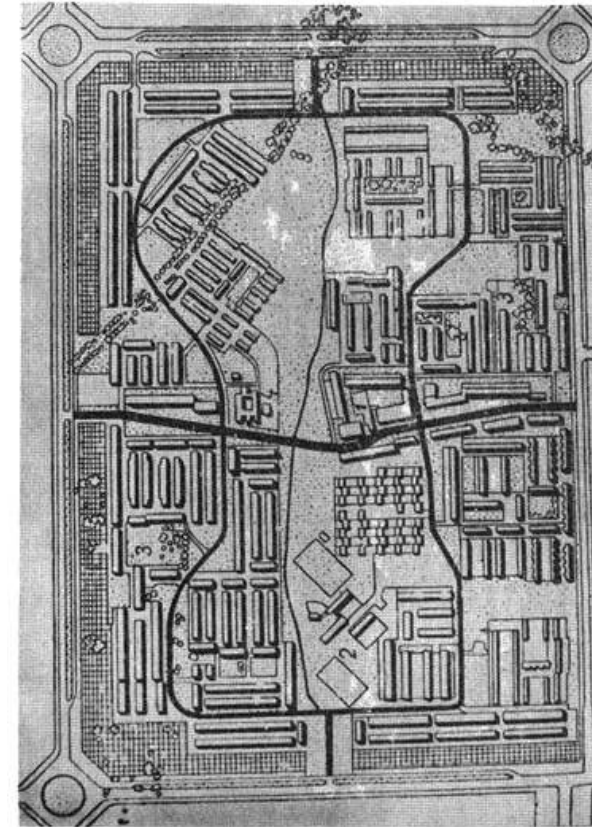


Le Corbusier, Plan of Chandigarh, India
source: Trancik 1986

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New towns: Chandigarh

Within the urban grid, in the middle of the urban blocks is located the green areas grid. In these green open spaces are located the socio-cultural amenities buildings such as schools, kindergardens, health centres, community centres...



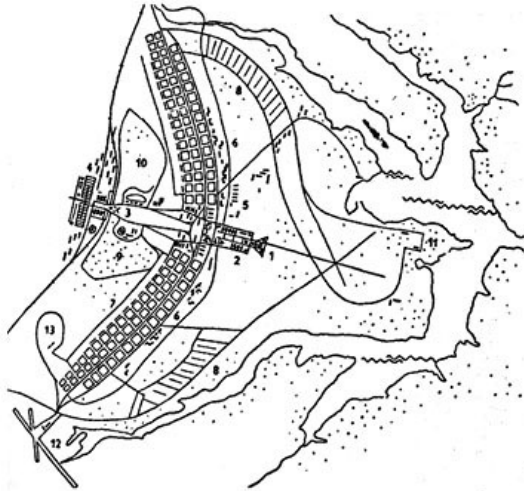
Čandigarh. Struktura stambenog sektora: 1-zgrade društvenog centra, 2-plivački basen, 3-medecinski centar, 4-srednja škola

Chandigarh: Housing unit
source: Maksimović, 1980

New towns: Chandigarh



New towns: Brasilia

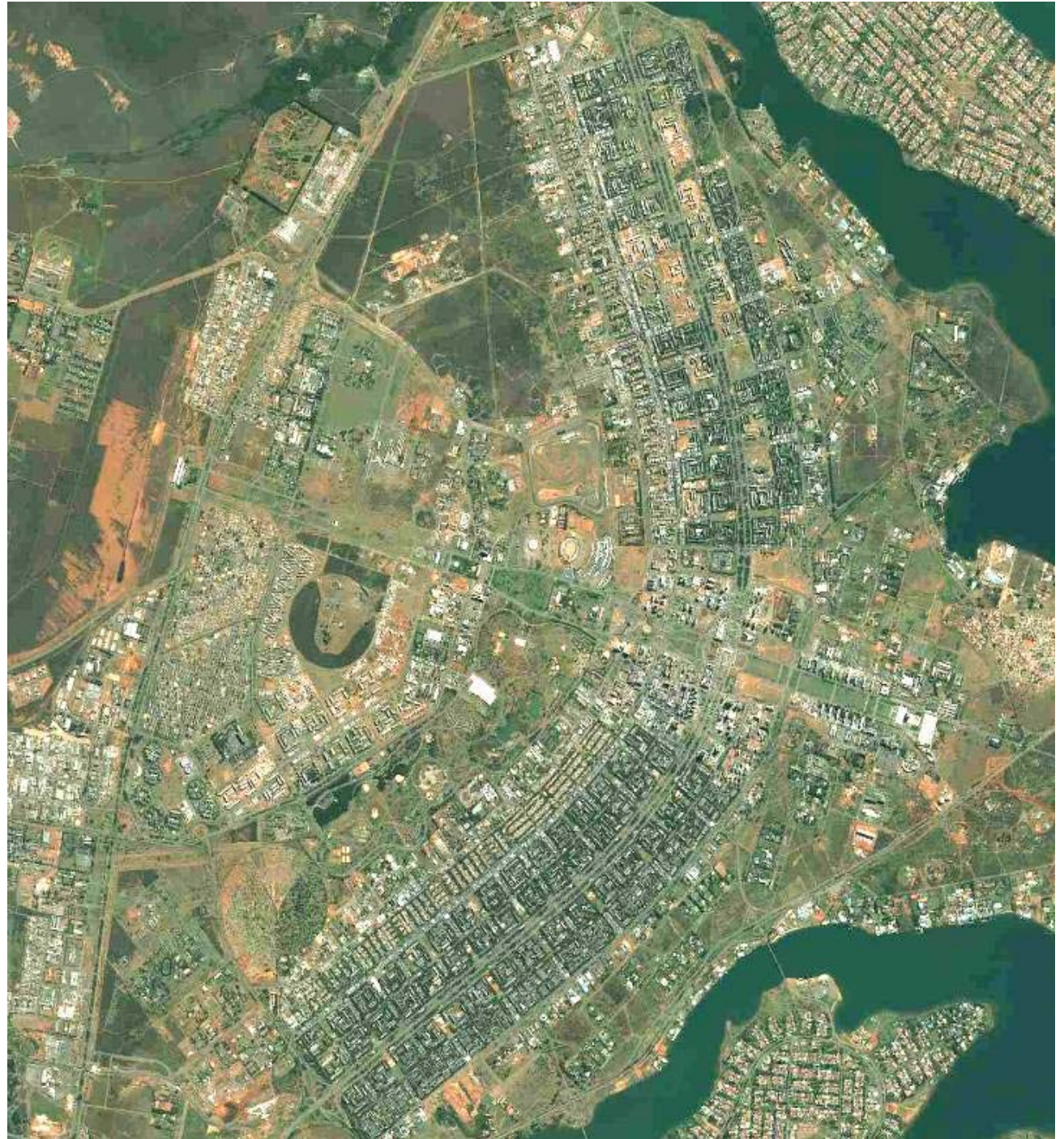


Costa: mesto **Brasilia** (1956), zmagoviti natečajni osnutek in kasnejša realizacija: 1 - vladna četrt; 2 - ministrstva; 3 - osrednji trg oz. ploščad; 4 - obrt; drobna proizvodnja; 5 - univerzitetno mesto; 6 - ve-leposlaništva; 7 - stanovanja v blokih; 8 - enodružinske hiše; 9 in 10 - živalski in botanični vrt; 11 - rezidenca predsednika; 12 - letališče.

Costa: Brasilia, 1956
source: Pogačnik, 1999

Goals for a new capital city in central Brazil:

- Security – a safe city
- Development hub – to bring economy into central Brazil, more homogeneous distribution of the population
- Centralization – the federal



New towns: Brasilia

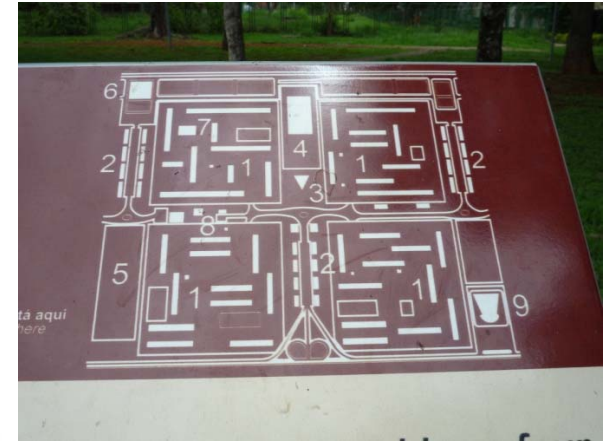


The makers of Brasilia's master plan - pilot plan, the Modernism trio: Lucio Costa, planner, Oscar Niemeyer, architect, Burle Marx, landscape architect



New towns: Brasilia

Neighborhood unit 'super-block' comprise (photo top-right): 1 residential superblocs, 2 local shops, 3 church, 4 school, 5 neighborhood club, 6 healthcare unit, 7 kindergarden, 8 library, 9 movie / theater. The pilot plan has in total 120 super-blocks, each 250mx250m for 2.500-3.000 people, density of 50p/ha.



New towns: Milton Keynes

Milton Keynes (population 250.000) developed in 1970's, as a contemporary application of Functionalism, is designed around a uniform grid of roads spaced at one-kilometer intervals. Within each cell of grid there is room for approximately 500 dwelling units.

The Master Plan shows the organisation of activities: hierarchy of centres (e.g. new city centre, centres, local activity centres), secondary schools, higher education campus, health campus, residential and industrial areas, parks..



- | | | | |
|--|-----------------------------|--|-------------------------|
| | Existing Towns and Villages | | Secondary School Group |
| | Residential Area | | Reserve Sites |
| | Industry | | Higher Education Campus |
| | Parks | | Health Campus |
| | Woods | | Primary Road |
| | New City Center | | Expressway/Motorway |
| | Centers | | Railway |
| | Local Activity Centers | | |

Milton Keynes Master Plan

source: Trancik 1986

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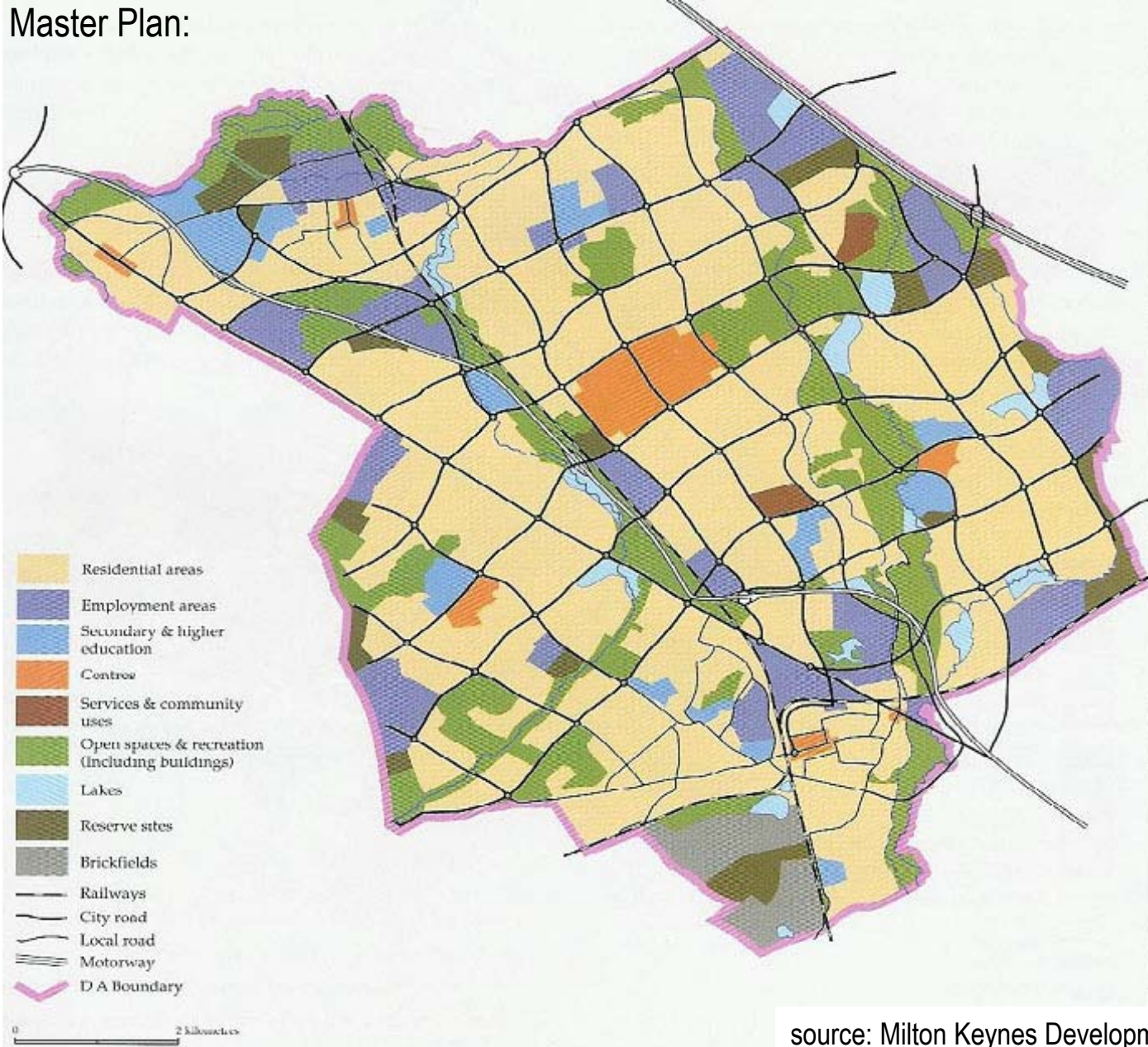
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New towns: Milton Keynes

Milton Keynes Master Plan:

Land use



source: Milton Keynes Development Corporation

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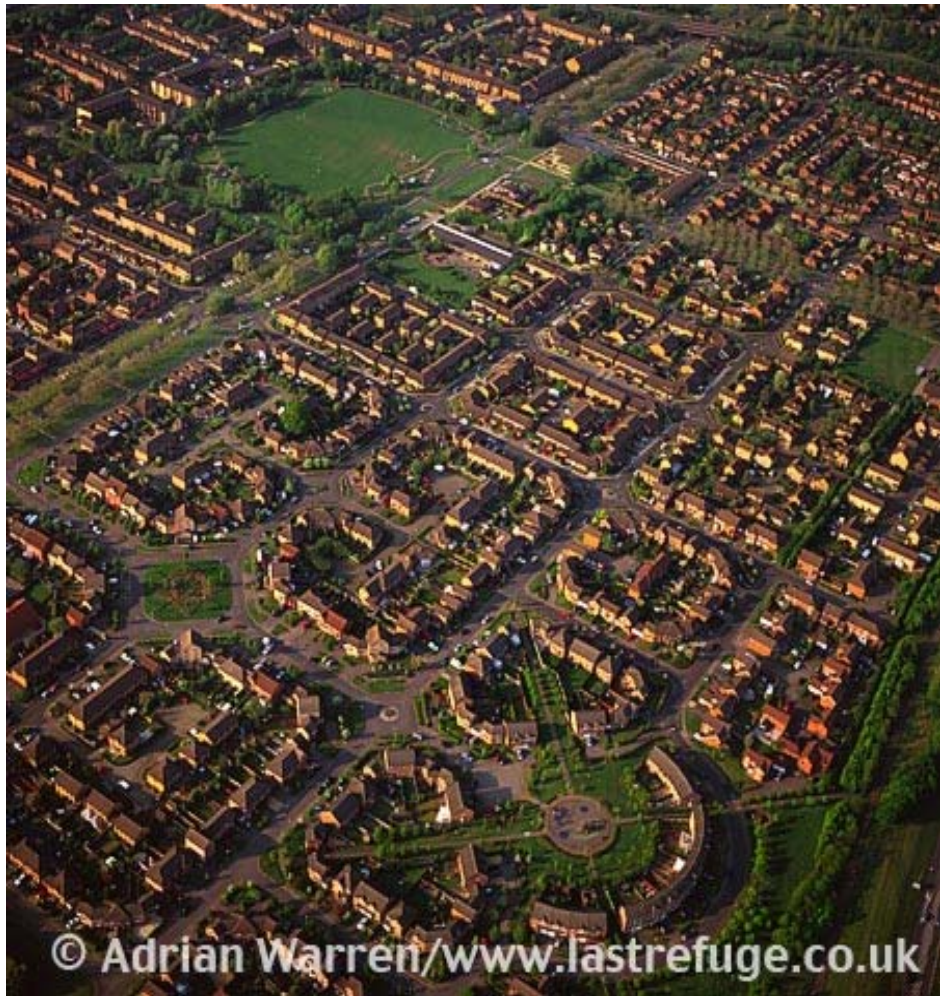


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New towns: Milton Keynes



Milton Keynes's low density and strong motocar orientation create a suburban quality that is more American in character than British.

FUNCTIONALISM: Large housing estates

Often abused and misunderstood the Functionalist concept 'has resulted in buildings as isolated objects floating freely on useless plazas and unattractive parking lots' (Trancik, 1994:27). This can relate also to the large housing estates built in the 1950s, 1960s and 1970s. Today, most of these areas are in need of comprehensive regeneration.



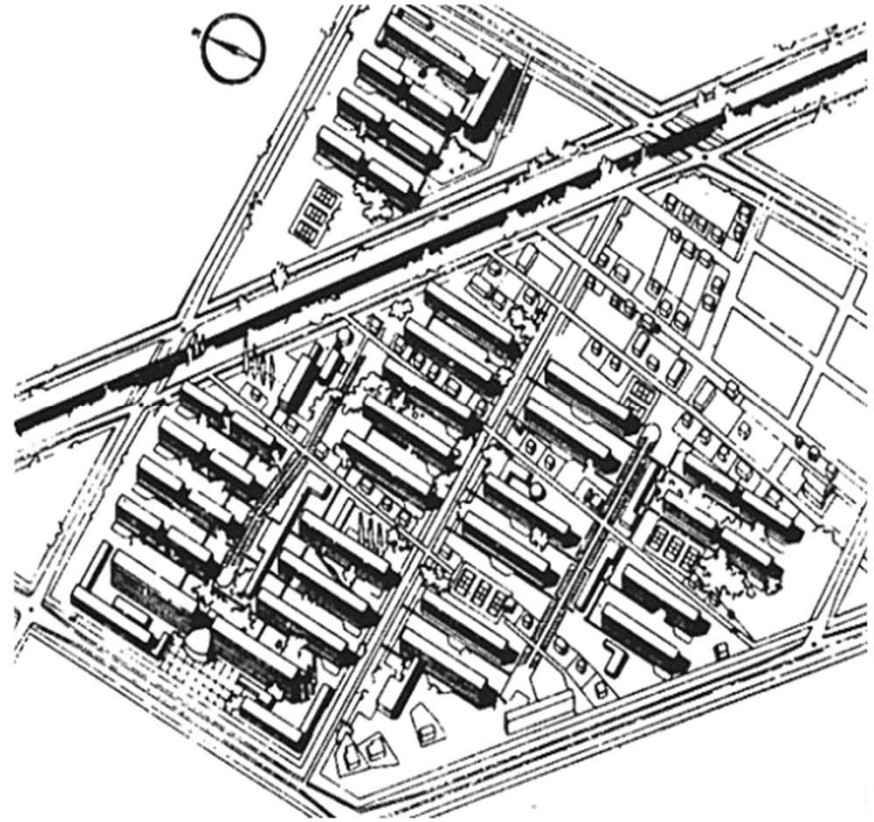
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LJUBLJANA
LITOSTROJ

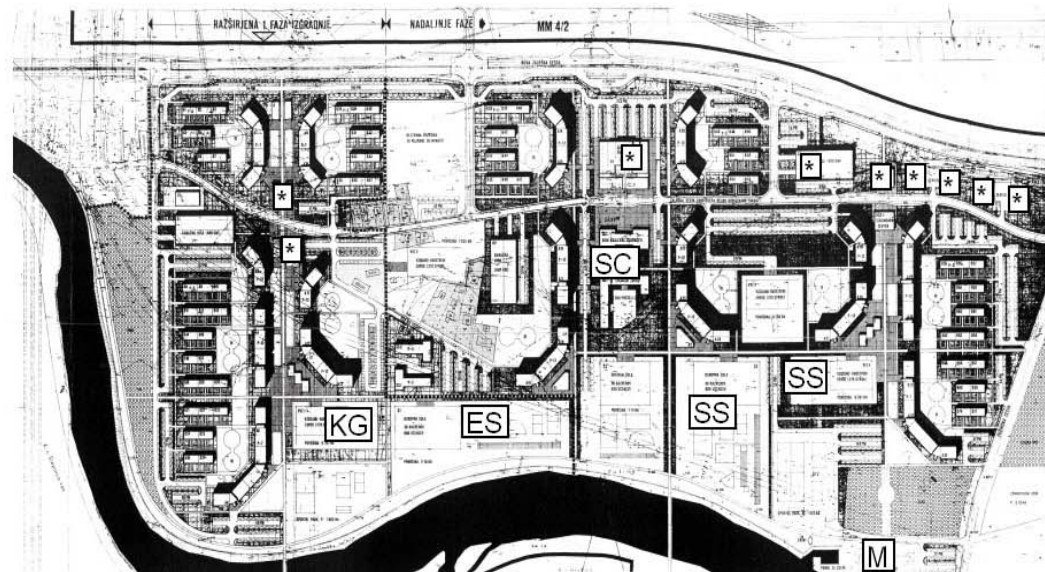


Litostroj, Ljubljana: housing estate built in the 1950s in the Functionalist design theory.



**LJUBLJANA
FUŽINE**

*	SHOPS, SERVICES	SS	SECONDARY SCHOOL
KG	KINDERGARTEN	SC	SOCIAL CENTER
ES	ELEMENTARY SCHOOL	M	MUSEUM



Fuzine, Ljubljana: large housing estate built in the 1970s in need of comprehensive regeneration.

REMEMBER

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Le Corbusier's three urban design principles that influenced modern urban space design are following: the open urban block, the vertical separation of movement systems, the linear building as a large-scale urban element which define districts or social units.

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BLOCK 2: PLANNING FRAMEWORK

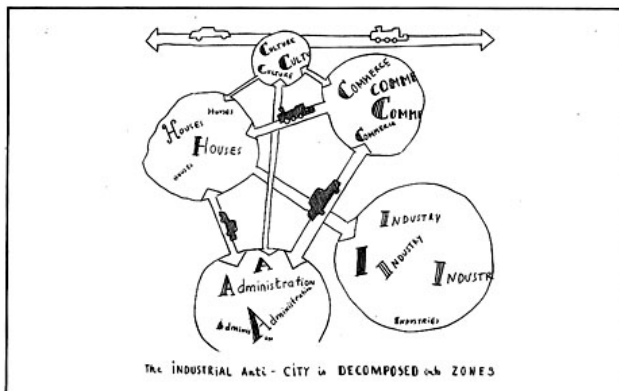
Lesson 2: Contemporary urban planning: theory and practise

2.3 Postmodernism

In the mid-1960s and early 1970s there have been several groups of architects who have critically examined the Functionalist paradigm: Robert Venturi, USA, Aldo Rossi, Italy, Ricardo Bofill, Spain, brothers Leon and Robert Krier, Luxembourg.

A new Rationalism or Postmodern movement looks at historic models of towns for inspiration, promotes a concept for public open space and considers context and regionalism in the design of building forms or build environment. Venturi reinterpreted the popular Mies van der Rohe phrase 'less is more' to read 'less is bore', 'emphasizing that everyday, ordinary space should not be stripped of its cultural meaning' (Trancik, 1994:37).

Critical examination of the Functionalist paradigm: land use zoning



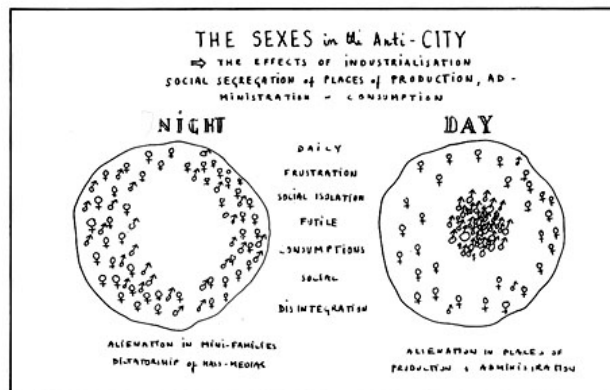
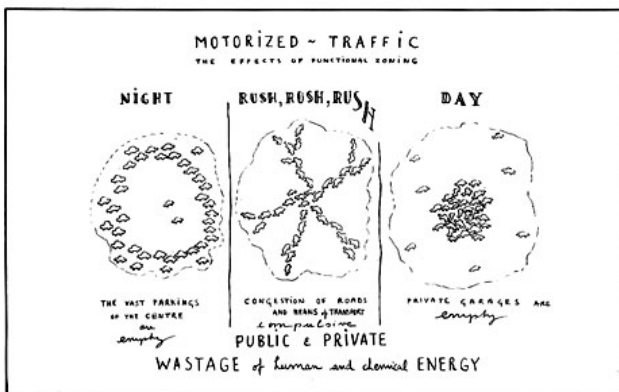
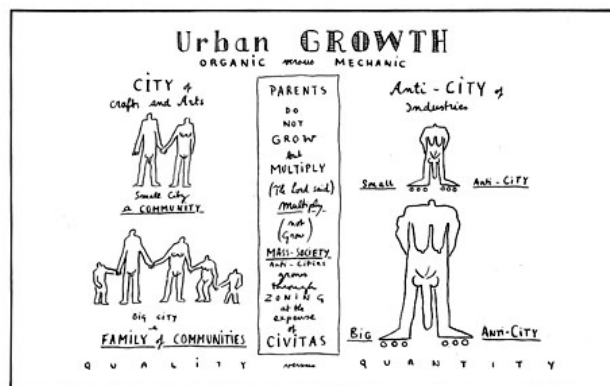
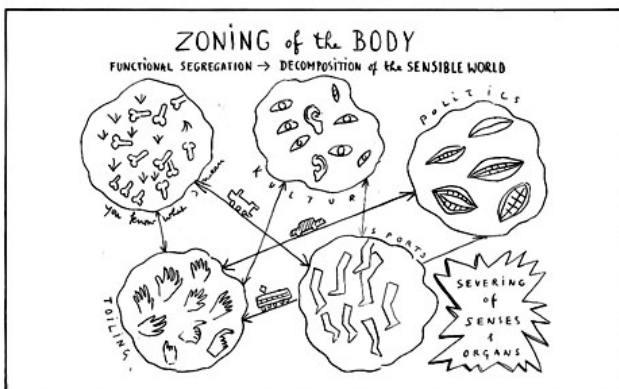
The Idea of "ZONING"

as applied to the weekly gastronomical intake of an individual of the human species

WORLD CENTRAL COMMITTEE DIRECTIVE N°1

Monday	~ 32 Pints of Liquids
Tuesday	~ 3 Kg of Meat
Wednesday	~ 2,5 Kg of Fats
Thursday	~ 3 Kg of Pasta
Friday	~ 2 Kg of Fish
Saturday	~ 6 Pints of alcoholic Drinks
Sunday	~ 6 lb of Bakery

mond..... Note Individual deceased... Experiment discontinued



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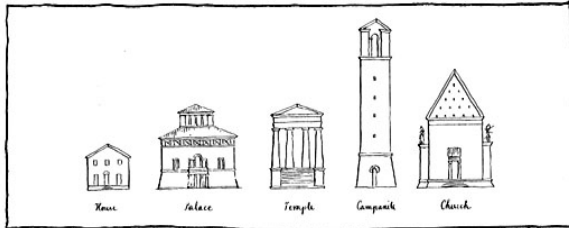


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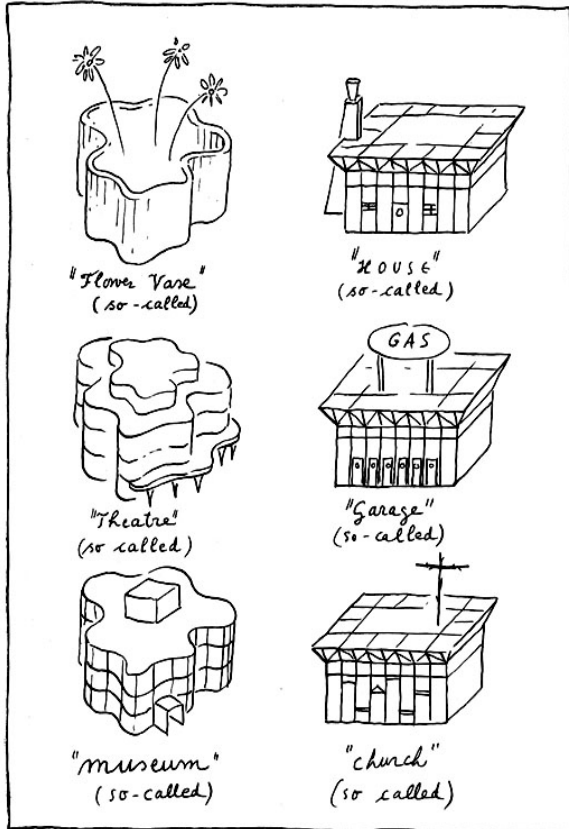
This Source: Krier, 1984 through the CENTRAL EUROPE Programme co-financed by the ERDF

Urban space design

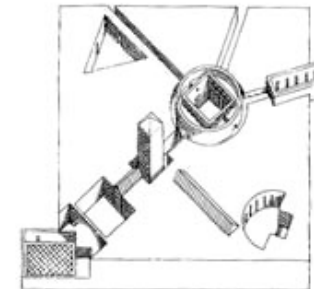
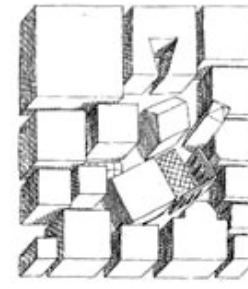
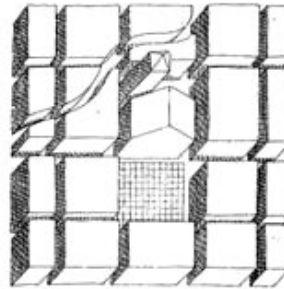
NAMEABLE OBJECTS



FORM versus UNIFORM



SO-CALLED "OBJECTS"



THE URBAN BLOCKS ARE THE RESULT OF A PATTERN OF STREETS AND SQUARES. THE PATTERN IS TYPOLOGICALLY CLASSIFIABLE.

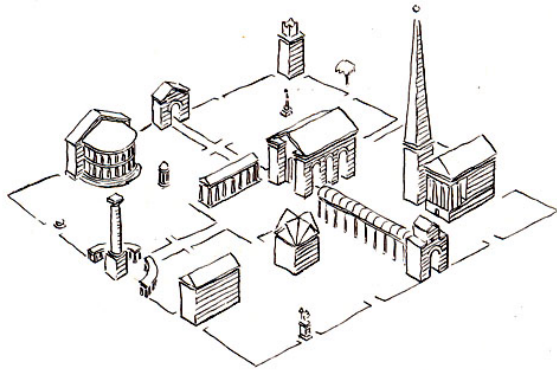
THE PATTERN OF STREETS AND SQUARES IS THE RESULT OF THE POSITION OF THE BLOCKS. THE BLOCKS ARE TYPOLOGICALLY CLASSIFIABLE.

THE STREETS AND SQUARES ARE PRECISE FORMAL TYPES. THESE PUBLIC ROOMS ARE TYPOLOGICALLY CLASSIFIABLE.

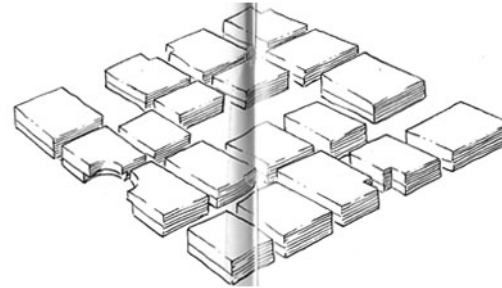


THE ZONING OF MODERN CITIES HAS RESULTED IN THE RANDOM DISTRIBUTION OF BOTH PUBLIC AND PRIVATE BUILDINGS. THE ARTIFICIALITY AND WASTEFULNESS OF ZONING HAS DESTROYED OUR CITIES.

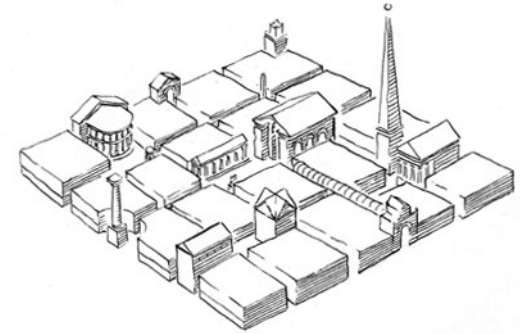
Postmodernism



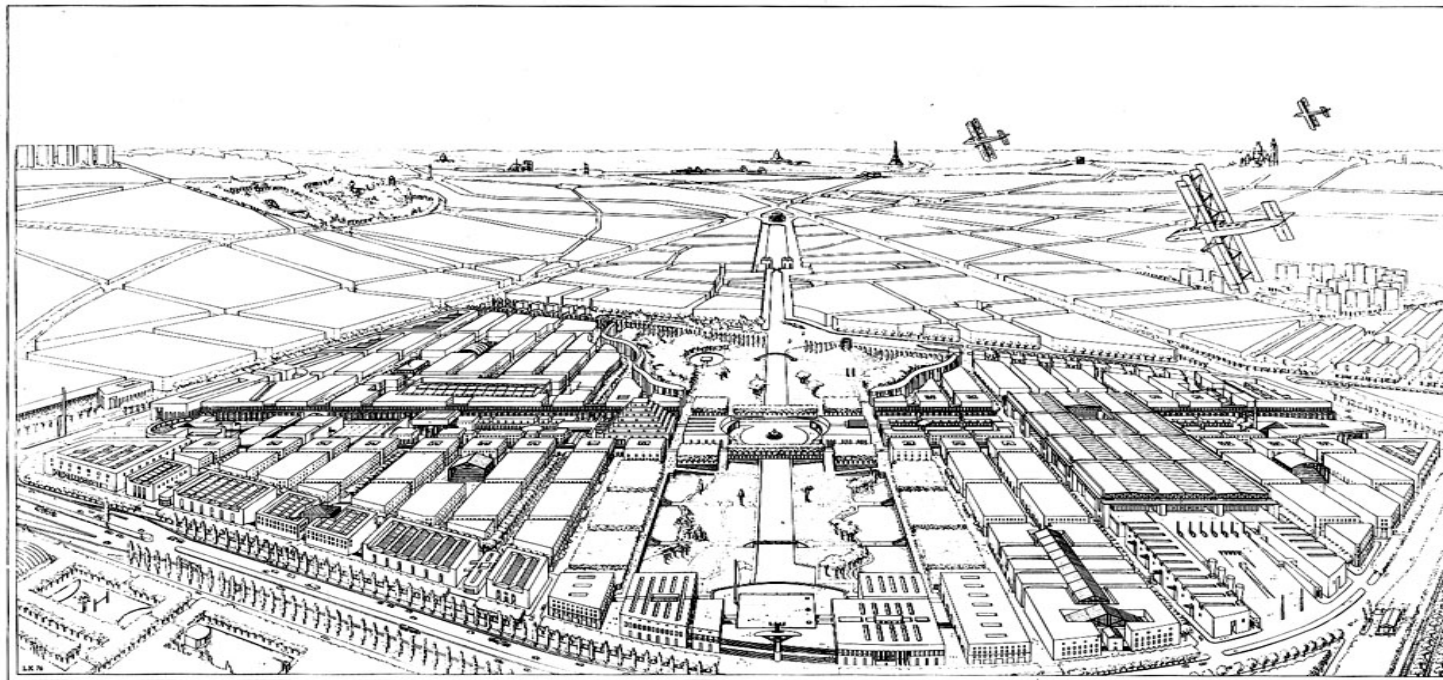
RES PUBLICA



RES (ECONOMICA) PRIVATA

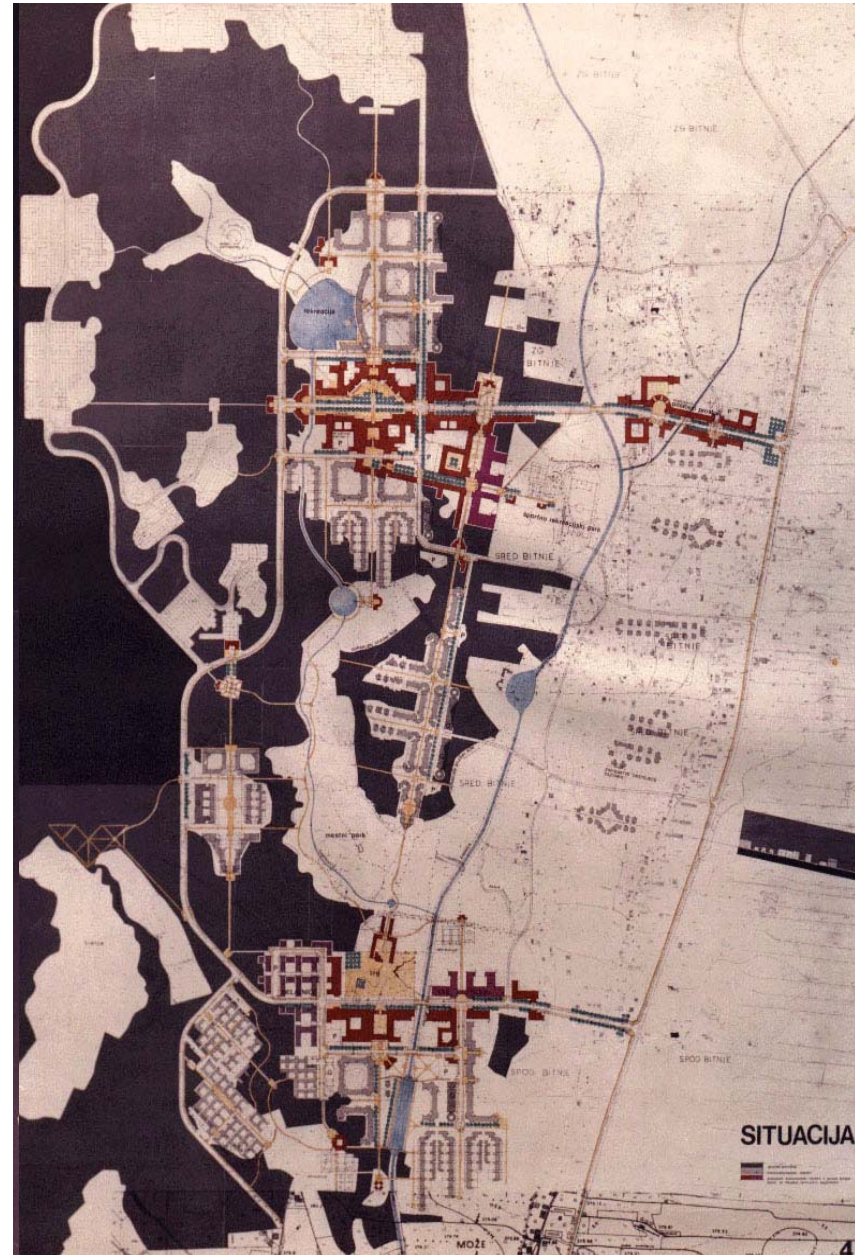
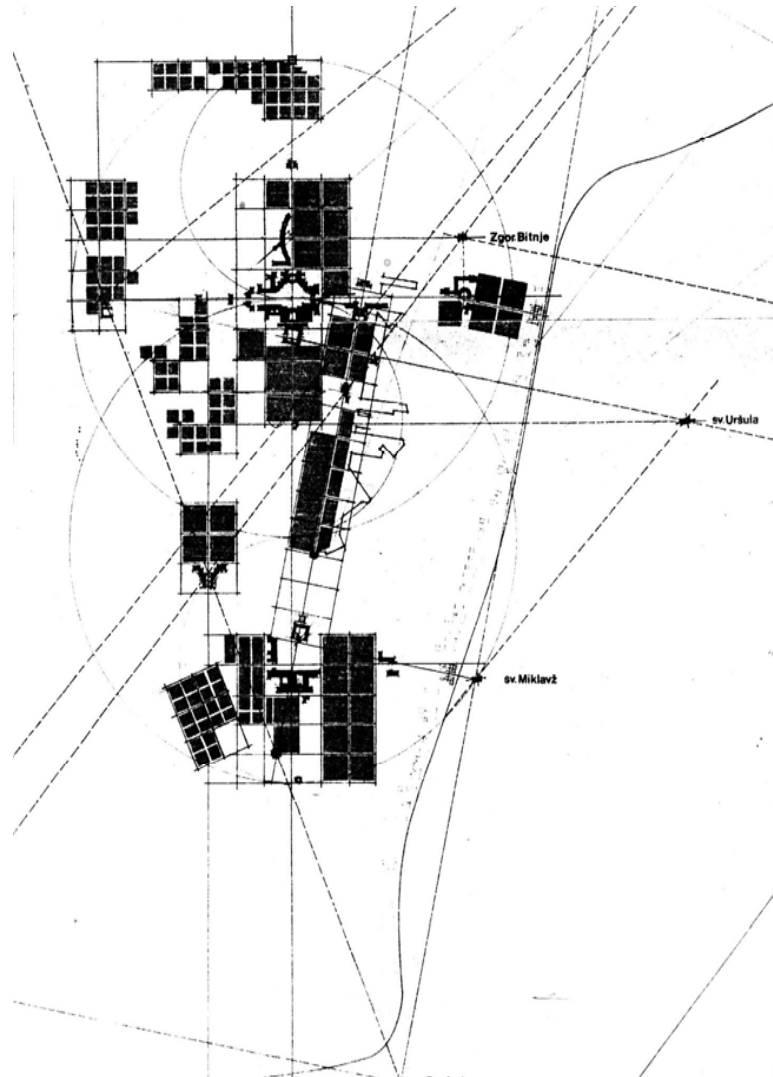


CIVITAS



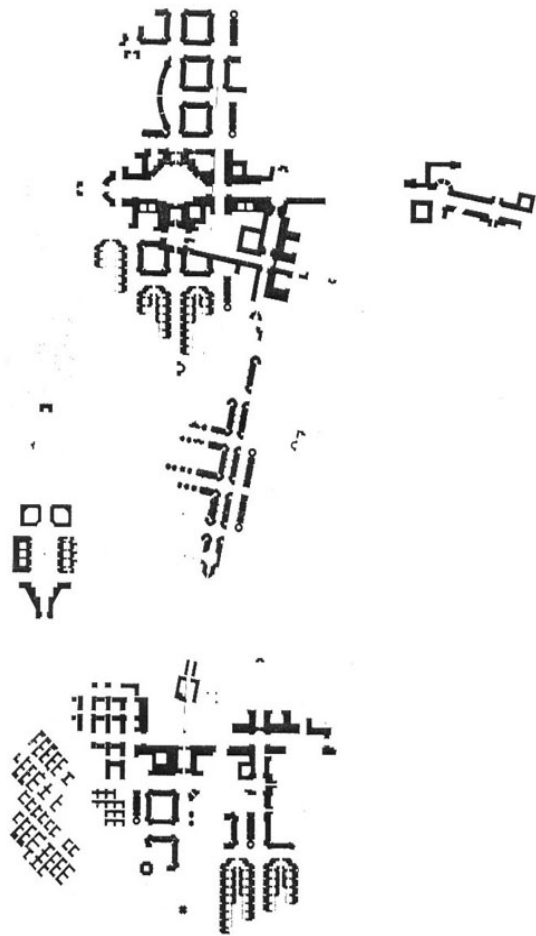
THE AREA BETWEEN THE BUTTES DE CHAUMONT AND MONTMARTRE

**Bitnje, Kranj, Slovenia: postmodern
concept of the new housing development.
Housing estate built as a town.**

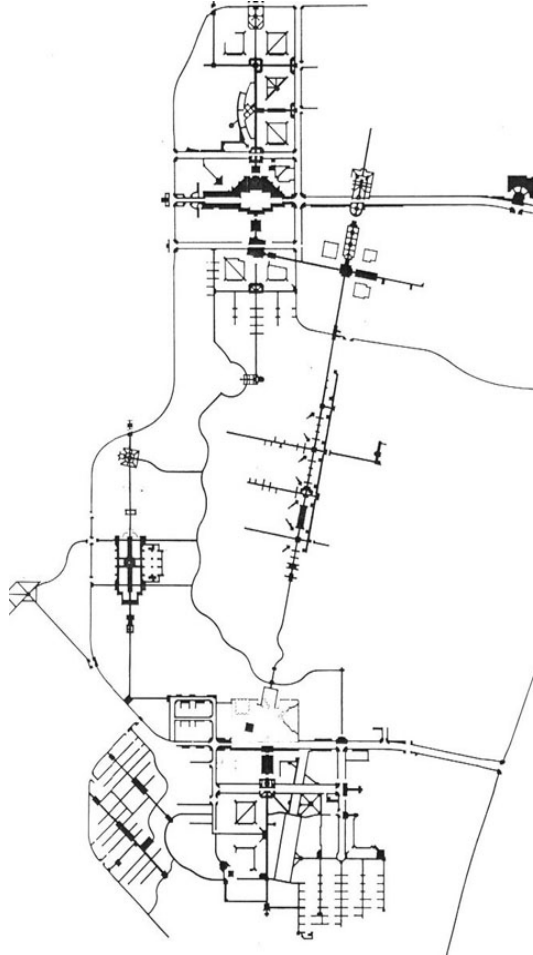


Source: Kaliopa Dimitrovska Andrews, Saša Dalla Valle, 1984

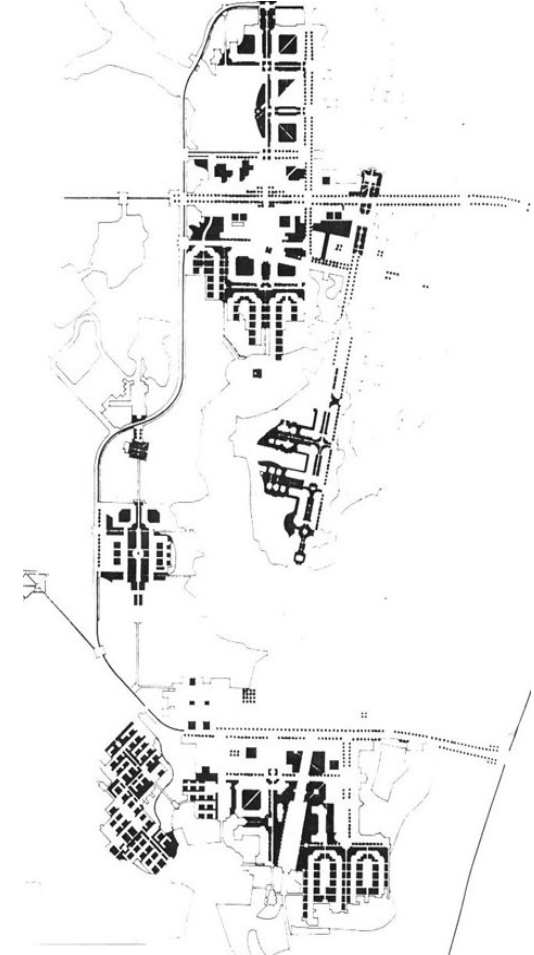
Bitnje: urban concept structures, Slovenian national urban design competition, 1984 , 1st prize



build structure









traffic structure

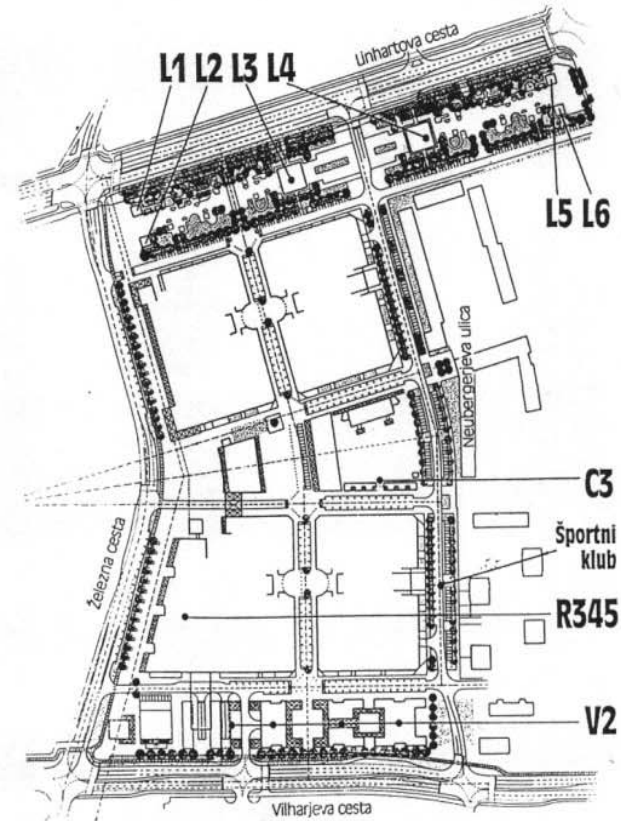


green space structure



LJUBLJANA ZUPANČIČEVA JAMA

-  existing buildings
-  new buildings
-  green area
-  playground and sports
-  main pedestrian ways
-  boarder of area



Zupančičeva jama, Ljubljana: postmodern urban design layout

REMEMBER

Critical examination of the Functionalist paradigm revolve to development of new planning theory: a new Rationalism or Postmodern. Postmodern movement looks at historic models of towns for inspiration, promotes a concept for public open space and considers context and regionalism in the design of building forms or build environment. Venturi reinterpreted the popular Miss van der Rohe phrase 'less is more' to read 'less is bore'.

In continuation the main features of Modernisme and Postmodernism planning theory are given.

REMEMBER

Main features

MODERNISM

Concept

“tower in a park”

“house is a machine for living”

“*Less is more*” | Mies van der Rohe

Land use zoning – separation of activities

Open urban block layout

Vertical separation of movement systems

Building typology: linear building in rows, standardisation, universal ‘modern’ style

POSTMODERNISM

Concept

“back to historic models of city”

“promotion of public open space”

“*Less is bore*” | Venturi

Mixed uses -reintegration of activities

Perimeter (closed) urban block layout

Mixes movement system

Variety in building forms design, consideration of context and regionalism in the design of build environment



movements / groups / author

MODERNISM

Bauhaus (1918) Gropius, Brener, Van der Rohe,...

De Stijl (1920) Mondrian, Van Doesburg, Rietveld,..

Le Corbusier (1920-1960)

Team 10 (1950) Alison and Peter Smithson, Bakema,..

Ruski konstruktivizm (1918-1930) Miljutin, Vesnin

CIAM (Congrès International D'Architecture Moderne 1928), Aten's charter 1934

POSTMODERNISM

Venturi, Leon and Robert Krier, Rowe, Bofil, Jencks,..



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2.4 Sustainable Development

The United Nations report 'Our Common Future' proposed the concept of 'sustainable development' as the backbone of global economic policy: 'we should aim to meet our present needs without compromising future generations ...' (Rogers, 1999:5) The ultimate aim of sustainable development is to leave to future generations a stock of natural capital that equals or even exceeds our own inheritance (e.g. an effective ozone layer, clean air, fresh water, a clean sea, fertile land, diversity of species,..)

Environmental sustainability becomes the guiding principles of modern urban design, as a half of the world's population (aprox. 3 billions) live in cities and in forty years' time it may rise even to three-quarters (aprox. 7,5 billions).



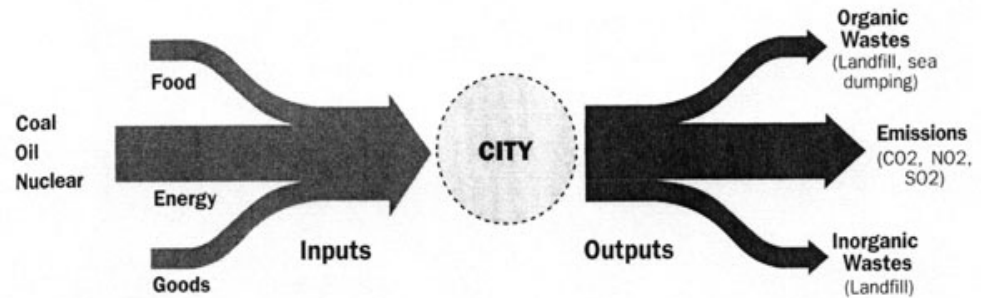
SUSTAINABLE DEVELOPMENT

Cities must be viewed as ecological systems. Their design and management should be a circular 'metabolism' process, where consumption is reduced by implementing efficiencies and where re-use of resources is maximised. To achieve this a new form of comprehensive holistic urban planning approach is needed.

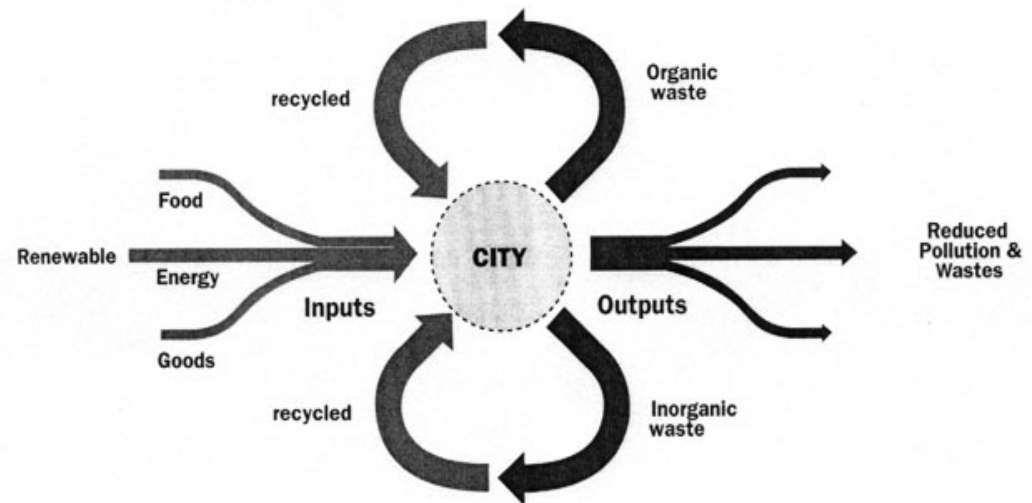
The concept of a 'Compact City' model, a dense and socially diverse city where economic and social activities overlap can bring major ecological benefits.

The creation of the modern Compact City demands the rejection of single-function development with the domination of the car.

Linear metabolism cities consume and pollute at a high rate



Circular metabolism cities minimise new inputs and maximise recycling



Source: Rogers, 1999

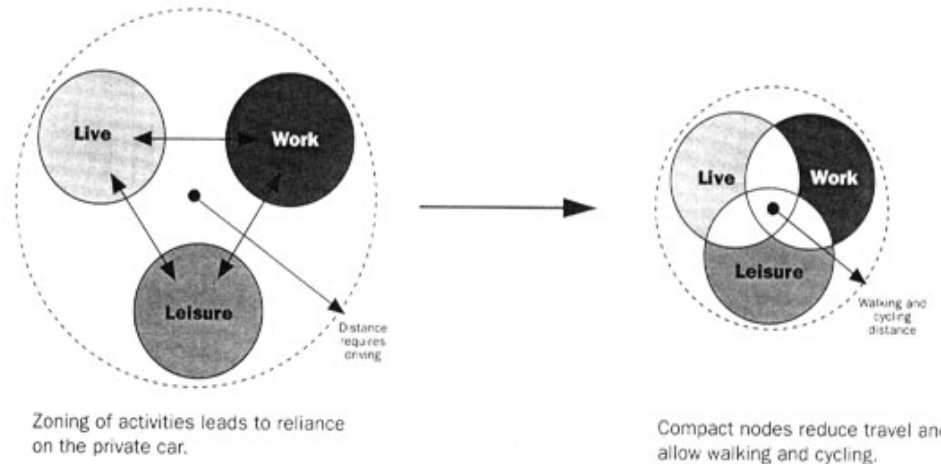


SUSTAINABLE DEVELOPMENT

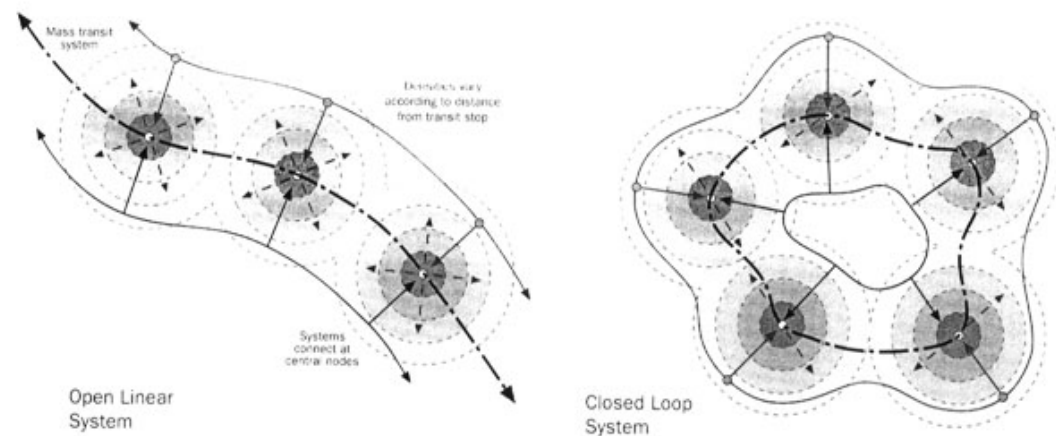
The Compact City addresses the following issues:

1. city grows around centres of social and commercial activity located at public transport nodes,
2. these nodes of mixed uses provide the focal points around which neighbourhoods develop, the residential densities decreasing with the distance from transit stop,
3. each neighbourhood has its own parks and public spaces accommodating a diversity of overlapping private and public activities.

Compact mixed-use nodes reduce journey requirements and create lively sustainable neighbourhoods



Compact nodes linked by mass-transit systems can be arranged in response to local constraints



source: Rogers, 1999



The sustainable city is:

A Just City

fairly distribution of justice, food, shelter, education, health; participation in government

A Beautiful City

art, architecture and landscape spark the imagination..

A Creative City

open-mindedness and experimentation..; fast response to change

An Ecological City

balanced landscape and build development, resource-efficient infrastructures

A City of Easy Contact

A public realm to encourage community; face-to-face and electronic information

A Compact and Polycentric City

dense urban structure, maximises proximity, protects countryside

A Diverse City

overlapping activities create animation, inspiration and foster vital public life

source: Rogers, 1999:169



COBRAMAN



This project is implemented through the CENTRAL EUROPE Programme co-financed by the ERDF

KRONSBURG, HANNOVER: A model of sustainable urban community

New city district of Hanover, Germany, for 15.000 people (6.000 dwellings), next to the World Exposition grounds, is built on the principles of sustainable development based on the Rio de Janeiro conference Agenda 21. It was EXPO 2000 that enabled the local authority to implement the planning. The land use plan based on the international planning competition (1992) was approved by the City Council in 1994.



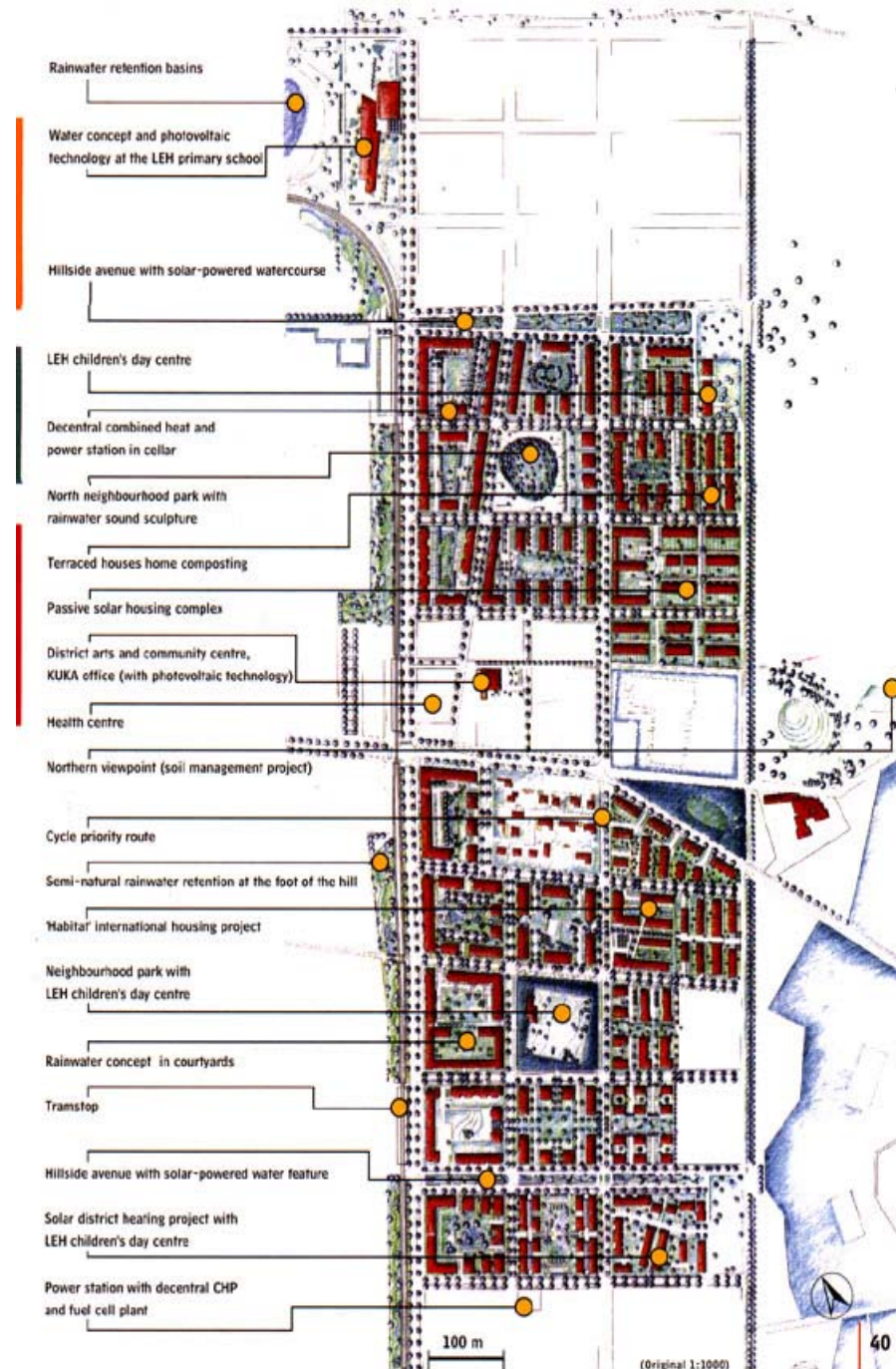
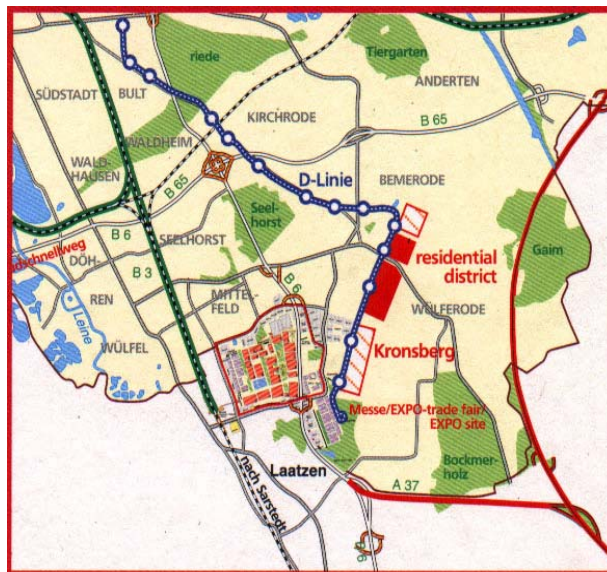
source: Hannover Kronsberg Handbook, Planning and realisation, Landeshauptstadt Hannover, 2004

KRONSBURG, HANNOVER: A model of sustainable urban community

The design of this EXPO settlement, along the new tram line to the Expo grounds, considers ecological, urban design and socio-economic and cultural issues:

ECOLOGICAL OPTIMISATION CITY AS A GARDEN CITY AS A SOCIAL HABITAT

Applying planning for sustainability placed considerable obligations on all stakeholders to secure the highest possible quality of life and to use natural resources sparingly.



KRONSBURG: URBAN DEVELOPMENT CONCEPT

URBAN DESIGN CONCEPT

COMPACT LAYOUT

MIXED USE: RESIDENTIAL AND COMMERCIAL

RESOURCE-EFFICIENT CONSTRUCTION

CONSULTATIVE PLANNING PROCEDURES

TRAFFIC MINIMALISATION CONCEPT
 tram route D
 all amenities within easy walking distance
 cycle priority route
 parking space restrictions

OPEN SPACE QUALITY
 courtyards
 avenues
 neighbourhood parks
 green corridors
 district park

SOCIO-CULTURAL AMENITIES

BALANCED SOCIAL MIX OF FUTURE RESIDENTS

CENTRAL FACILITIES
 - arts, community and advice centre
 - church and neighbourhood centre
 - health centre, shops

SOCIAL INFRASTRUCTURE
 - 'kinderhouse' with community bakery
 - kindergardens
 - primary school & middle/secondary school
 - 'FOKUS' housing project
 - 'Habitat' international housing project
 - decentralised support for senior citizens
 - space allocation for community use

NUTRITION
 - market, Kronsberg Farm

ENVIRONMENT

ECOLOGICAL STANDARDS

ENERGY
 energy use optimisation
 district heating systems
 low energy buildings
 electricity saving measures
 use of renewal energy & innovative technologies

WATER
 rainwater management concept
 drinking water economy measures

WASTE
 ecologically compatible building materials
 building waste concept
 domestic and commercial waste concept

SOIL
 soil management
 inherited pollution - removal or containment

ENVIRONMENTAL COMMUNICATIONS
 KUKA - Kronsberg Environmental Liaison Agency

KRONSBURG, HANNOVER: A model of sustainable urban community

Geometrical form of the urban design layout is mainly derived from its alignment with the new tram line and parallel development along the contour of Kronsberg hill.

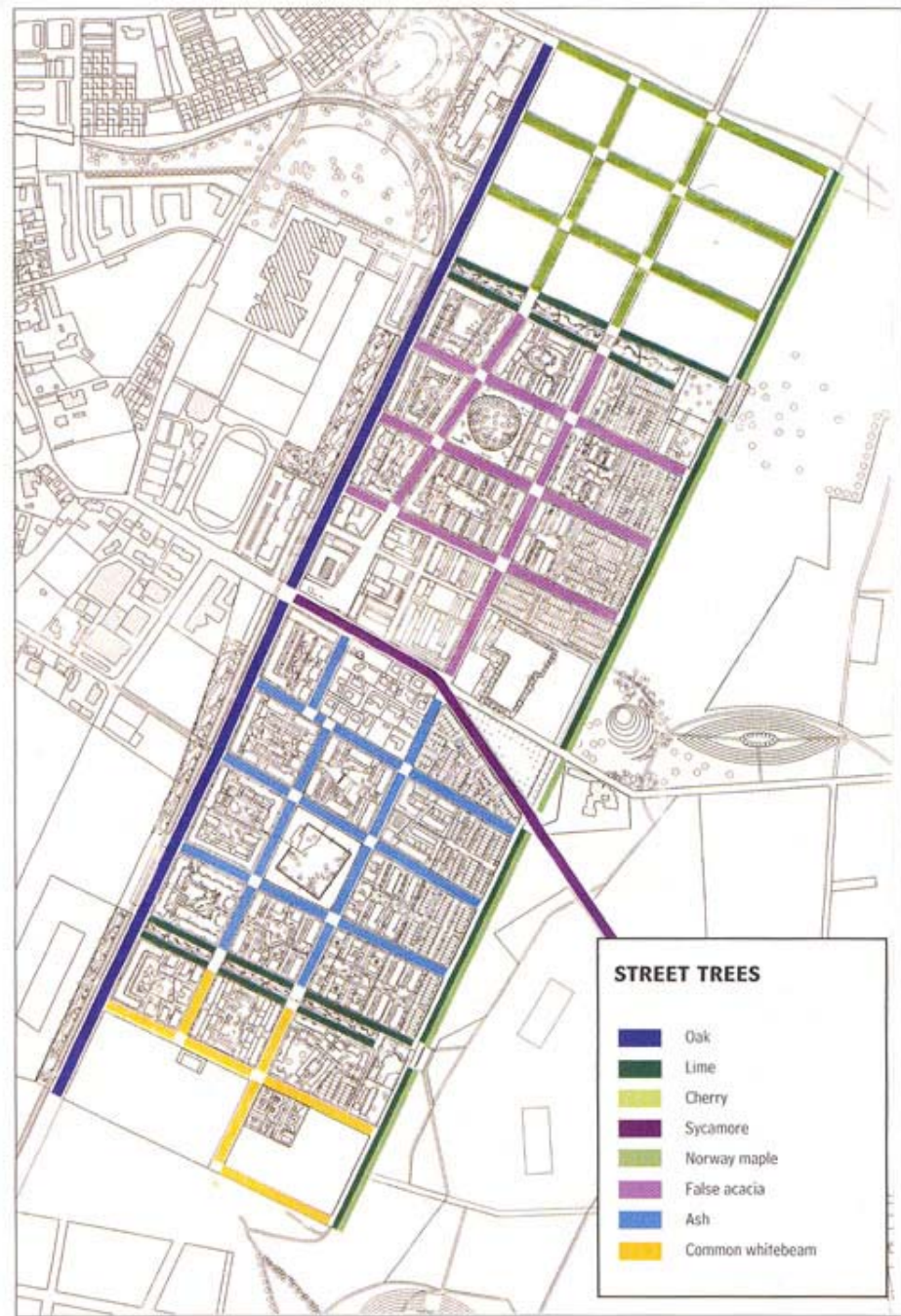
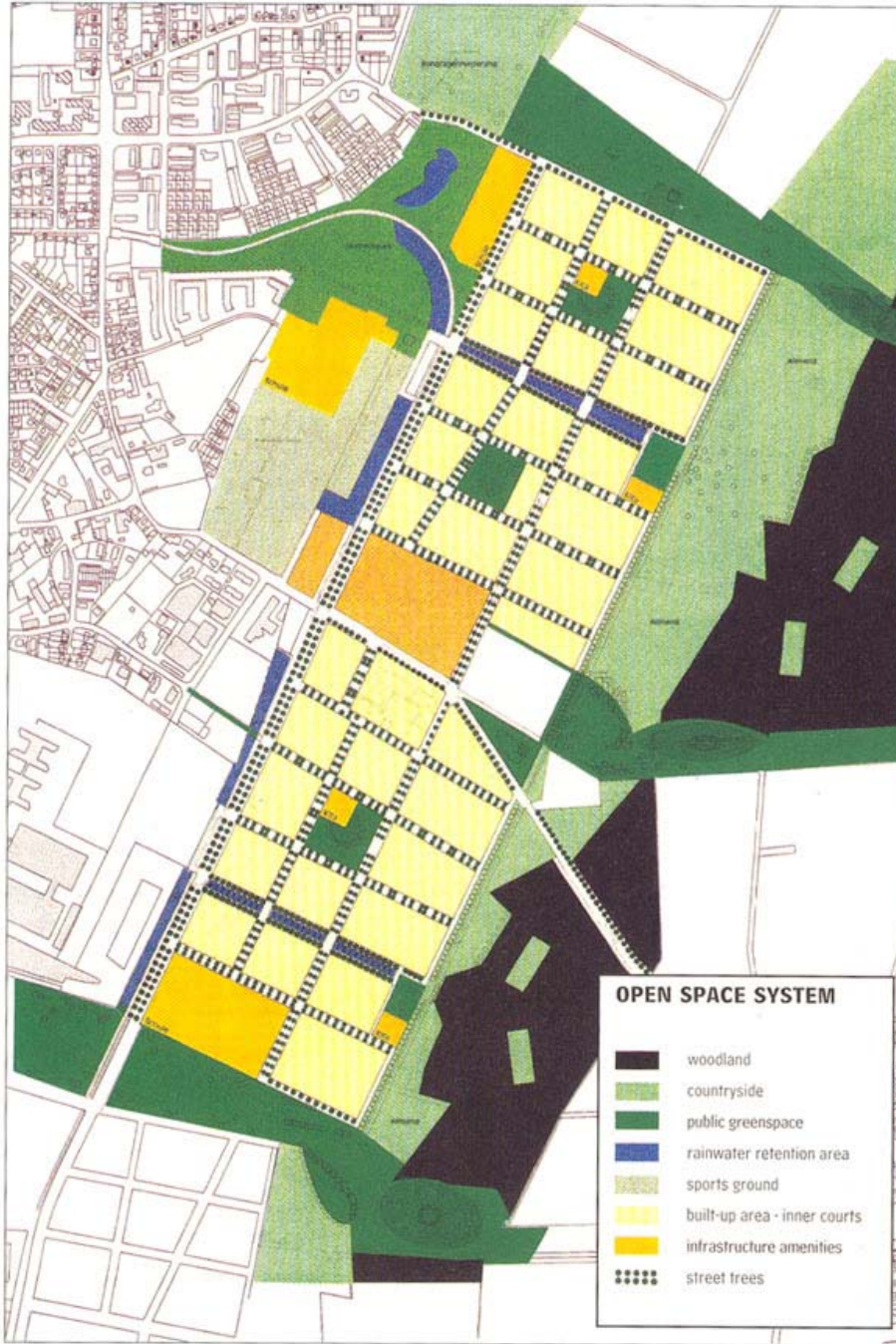
The first phase of the settlement is organised in two housing clusters north and south (total 6.000 dwellings), each one with a green area – the park in the centre and a local centre in between. In the spirit of planning for sustainability, close links between living and working in the vicinity are proposed.

The grid layout of the blocks, the avenue-like streets and the open space planning unite many different construction forms and architectural styles in a harmonious townscape.

The development structure follows the principle of decreasing density, the highest FSI 1.2 (4-5 storey blocks) along the main access road, which decrease approaching the countryside.

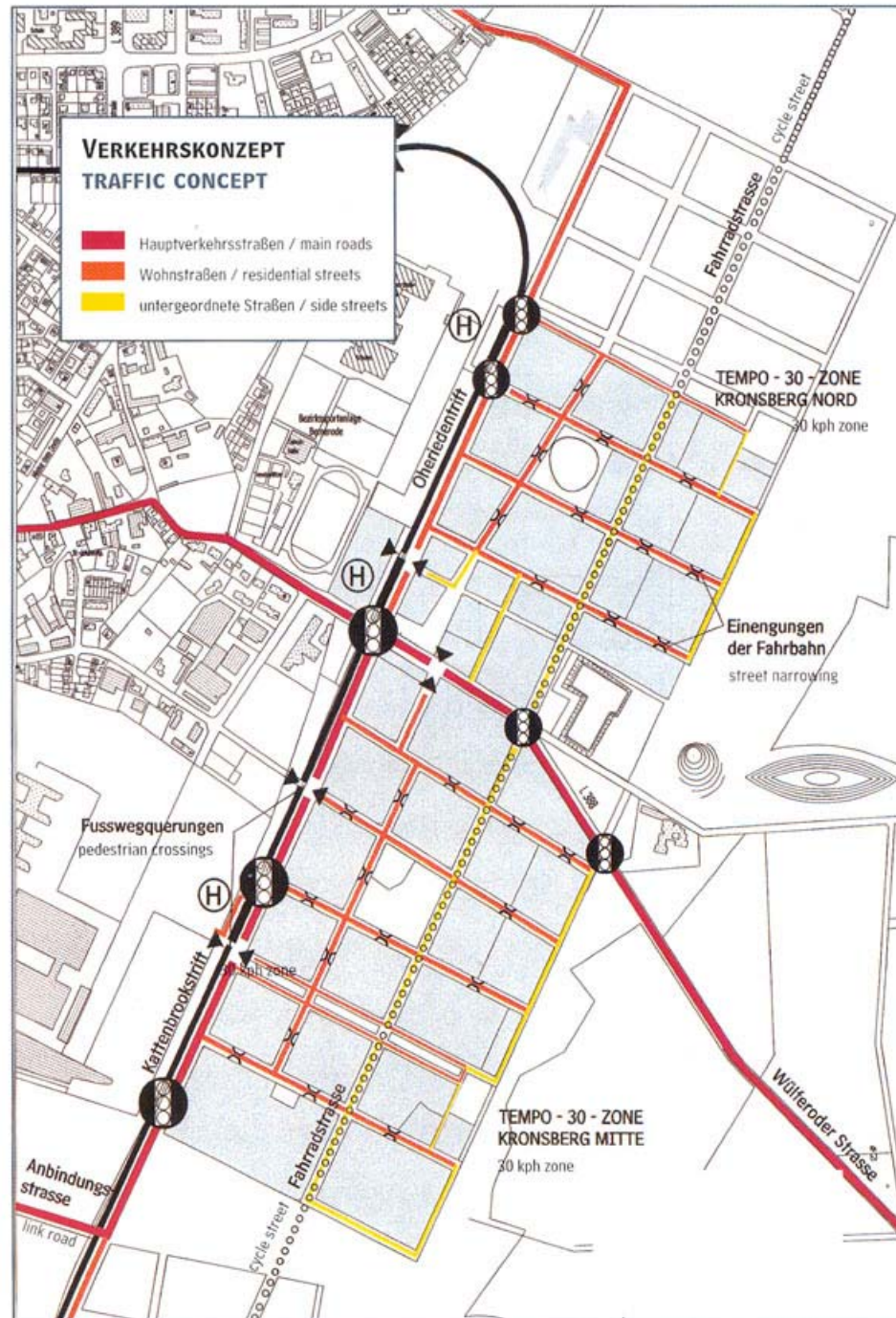


KRONENBERG, HANNOVER: A model of sustainable urban community



KRONSBURG, HANNOVER: A model of sustainable urban community

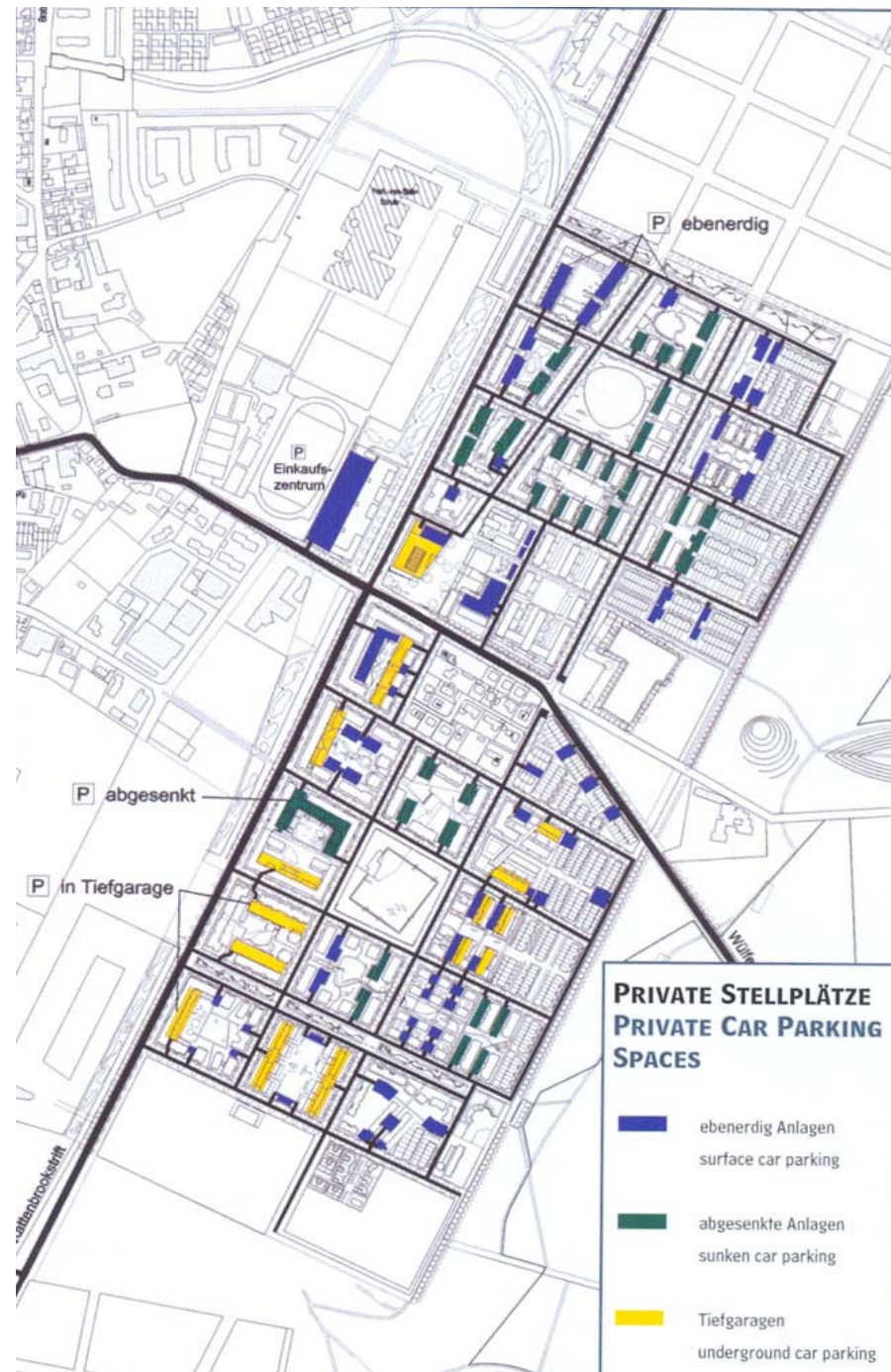
Environmental compatibility and the compact community were the paramount aims of transport planning. A new district tram service (distance to tramstop max. 600m) links the settlement with the city centre. A bus route provides other cross-connections. The main motorised traffic flow is channelled in the avenue along the tramline in the age of development. The street layout with a designated cycle street permits no through traffic (30kph zones). The street layout with a designated cycle street permits no through traffic (30kph zones).



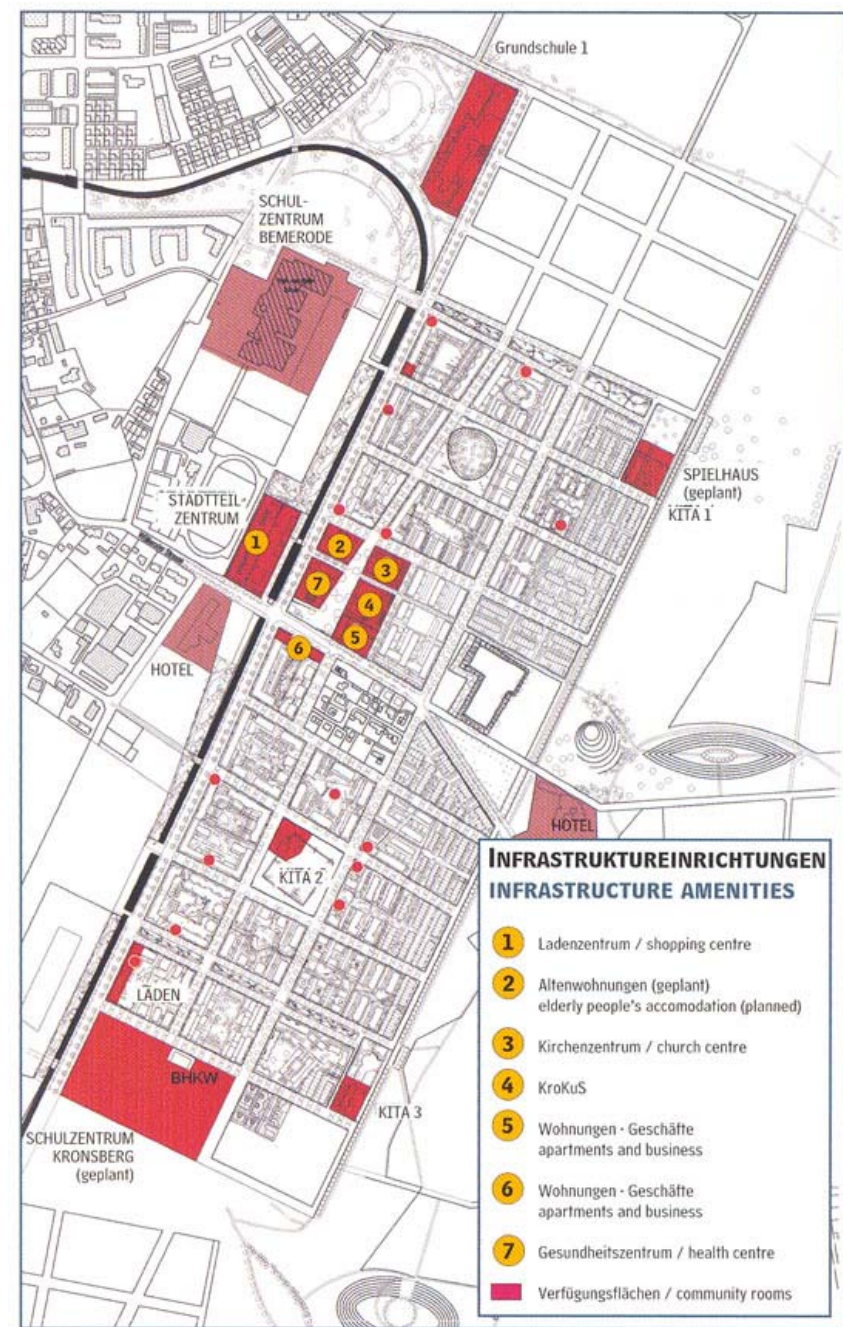
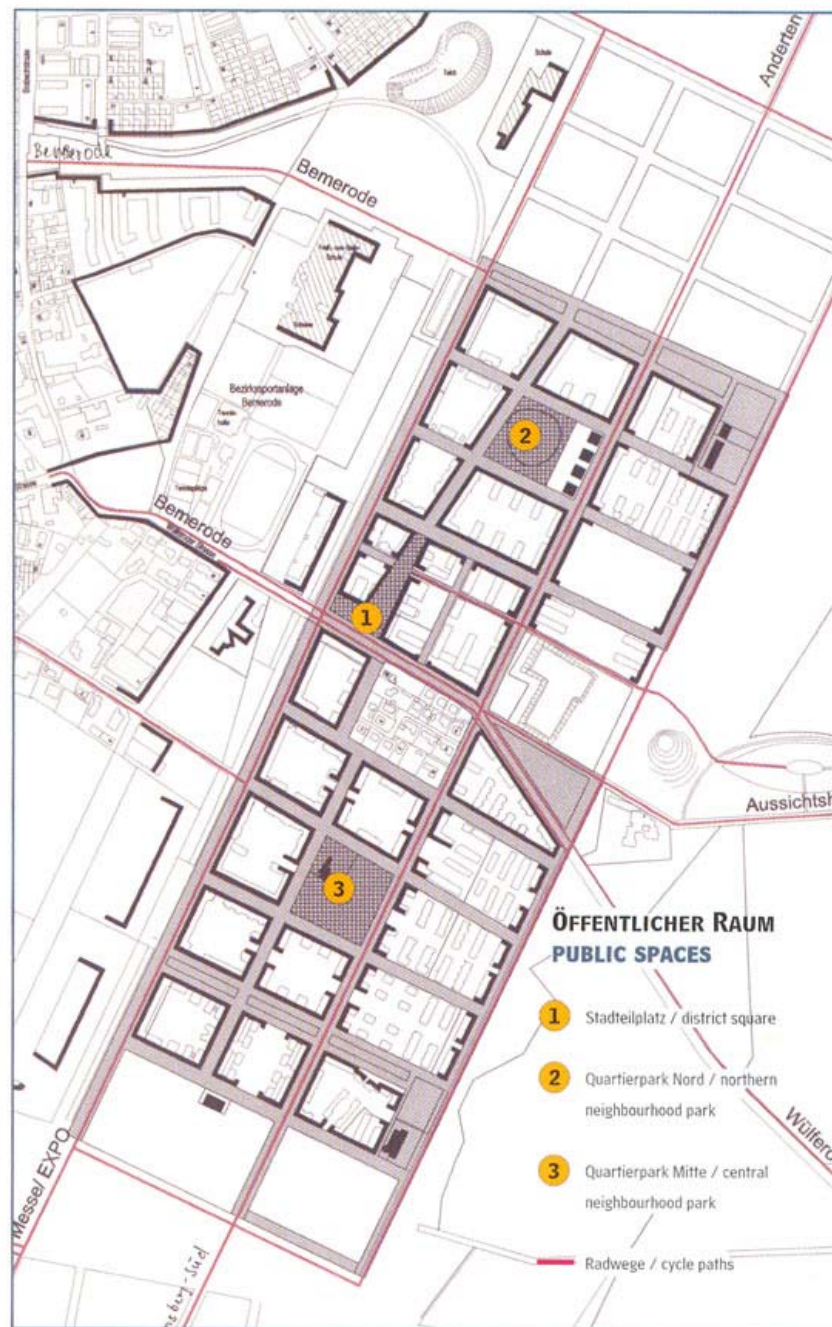
KRONSBURG, HANNOVER: A model of sustainable urban community

Car parking spaces are mainly arranged in small areas, either set into the hill-side or at ground level. Around a third of car parking is underground. Parking space ratio is very low 0,8 per apartment plus 0,2 for parking spaces on the public streets.

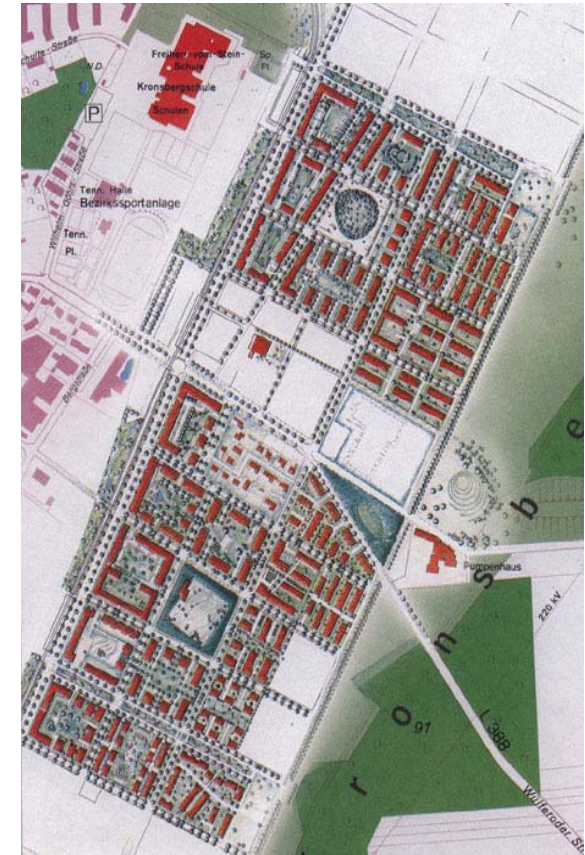
Along the tramline and the main access road shops and offices have been planned. At the mid-point of the first phase development these uses are concentrated in a small local centre: a shopping centre, the 'KroKus' arts and community centre, a health centre and a church.



KRONSBURG, HANNOVER: A model of sustainable urban community



KRONSBURG, HANNOVER: A model of sustainable urban community



KRONSBURG, HANNOVER: A model of sustainable urban community



Sports and games park

The 'Spiel- und Sportpark' and the 'Parc Agricole' are the two green corridor parks so far laid out, of which five will later cross the settlement. The 'Spiel- und Sportpark' will, long-term, provide sports grounds for the new settlement. It offers a green foot- and cycle route from the district of Mittelfeld to Kronsberg and will later extend as far as Wülferode. The 'Parc Agricole' in the southwest of Kronsberg reaches to the eastern part of the World Exposition grounds. It includes a walled garden with layered limestone, broad meadows for sheep grazing and an orchard meadow.



Parc Agricole



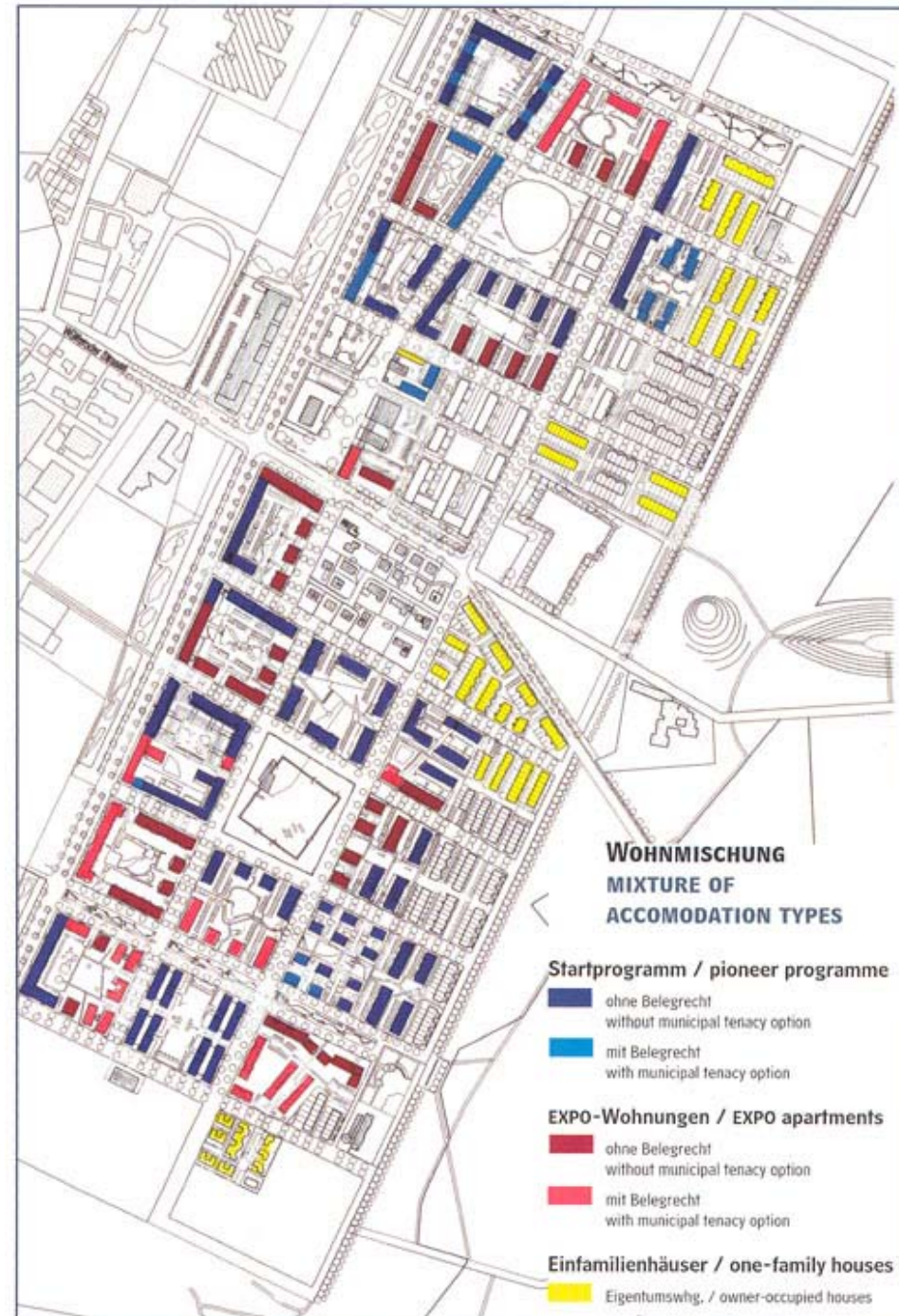
Kronsberg farm

KRONSBURG, HANNOVER: A model of sustainable urban community

Planning for social balance implies a multiplicity of housing, dwellings typology and financial forms.

The concept provides both privately financed owner-occupied apartments or apartments to rent and publicly subsidised apartment. 200 owner-occupied terraced houses were also planned.

The conditions for publicly subsidised accommodation eligibility had to be relaxed in order to ensure the social planning goals of a balanced population mix. The income limit, particularly, was significantly raised (for first tenants only).



KRONSBURG, HANNOVER: A model of sustainable urban community



flächendeckend / across the entire district:

- NEH-Bauweise mit Qualitätssicherung und Qualifizierung
LEH construction principles with quality assurance monitoring
and skilling & qualification programme
- Nahwärmeversorgung / district heating provision
- Stromsparen / electricity saving

1 Photovoltaik / photovoltaic installation

2 BHKW / decentral CHP

3 Passivhäuser / passive houses

4 Mikroklimazone / microclimate zone

5 Solare Nahwärme / solar district heating

Windkraftanlagen im Landschaftsraum
wind turbine generators in the countryside

source: Hannover Kronsberg Handbook, Planning and realisation, Landeshauptstadt Hannover, 2004

The main goal of energy efficiency optimisation concept is to reduce CO2 emissions by at least 60% compared to current standards for conventional residential buildings. Reduction of energy consumption is achieved through low energy house building methods, optimised energy provision by a differentiated district heating system fed by two central cogeneration plants, the integration of wind and solar power, and by specific measures on the consumer side.

KRONSBURG, HANNOVER: A model of sustainable urban community

Solarcity is an exemplary project, clearly demonstrating the sustainability of extensive solar energy provision for a housing development. Has been made possible with grant support from the federal and state government and the EU. To arrange all houses facing south due to optimisation of the solar efficiency would create a monotonous schematic layout.



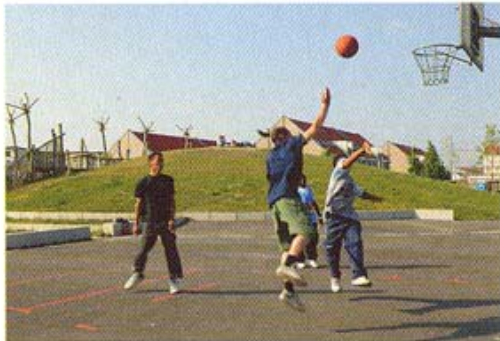
KRONSBURG, HANNOVER: A model of sustainable urban community



Thermal storage tank under construction



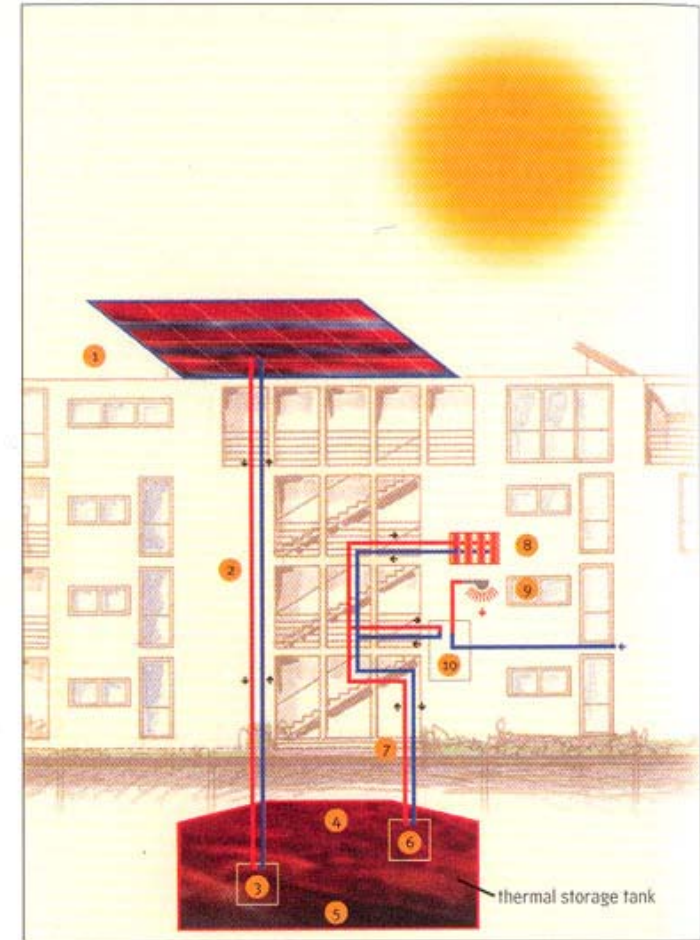
Climbing wall



Playground



Solarcity



How it works ...

source: Hannover Kronsberg Handbook, Planning and realisation, Landeshauptstadt Hannover, 2004

40% of the Solarcity apartments' entire energy needs for space heating and hot water is met by the sun. Heat collected in summer is fed into a thermal storage tank (2.750m³, 11m high). When the heat in the storage tank is no longer sufficient, the system taps into the district heating network. The tank rises 4,5m above ground level, and its surface area of 530m² has been landscaped as a play and climbing hill.

The microclimate zones have large areas of glass between heat storage walls completing the external structure. Serves as a buffer (20% less heat loss through transmission). Staircases and kitchens look out on the microclimate zone, while all living rooms face outwards onto spacious balconies with sliding sunscreens. The microclimate roof is made up of three layers of ETFE sheeting; the middle and upper layers are printed with a reflective pattern. In summer these two layers form a reflective roof. In winter they are apart, so the sun can pass.

KRONSBURG, HANNOVER: A model of sustainable urban community



KRONSBURG, HANNOVER: A model of sustainable urban community



'Lummerland' passive house development



Principle of a 'Lummerland' passive house

source: Hannover Kronsberg Handbook, Planning and realisation, Landeshauptstadt Hannover, 2004

The 'Lummerlund' passive houses are heated and cooled all year round without a separate heating distribution system using passive technologies. In winter, if necessary, each house can tap into the district heating system, when warm air is distributed by the ventilation system. Supplementary heating needs are around 15kWh per m²; a passive house consumes one-seventh of the heating energy of a conventional new house.



**KRONSBERG,
HANNOVER:
A model of
sustainable
urban
community**

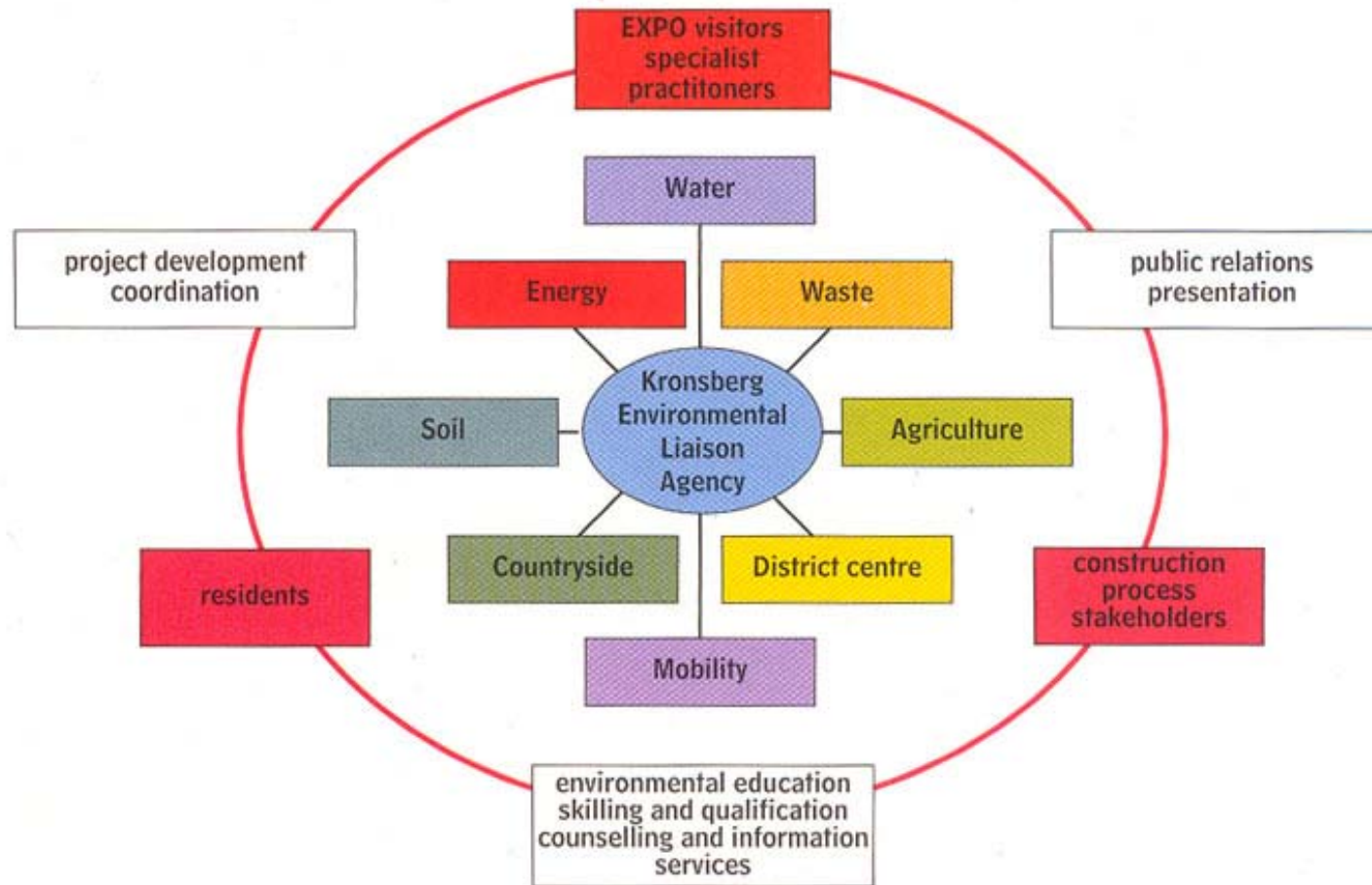


KRONSBURG, HANNOVER: A model of sustainable urban community

District heating regulation was based on criteria of cost and environmental impact. Central heating provision via a wide district heating network fed by gas-powered central heat and power cogeneration plants was the best combination in view of low running costs, low CO2 emissions and resource conservation.



KRONSBURG, HANNOVER: A model of sustainable urban community

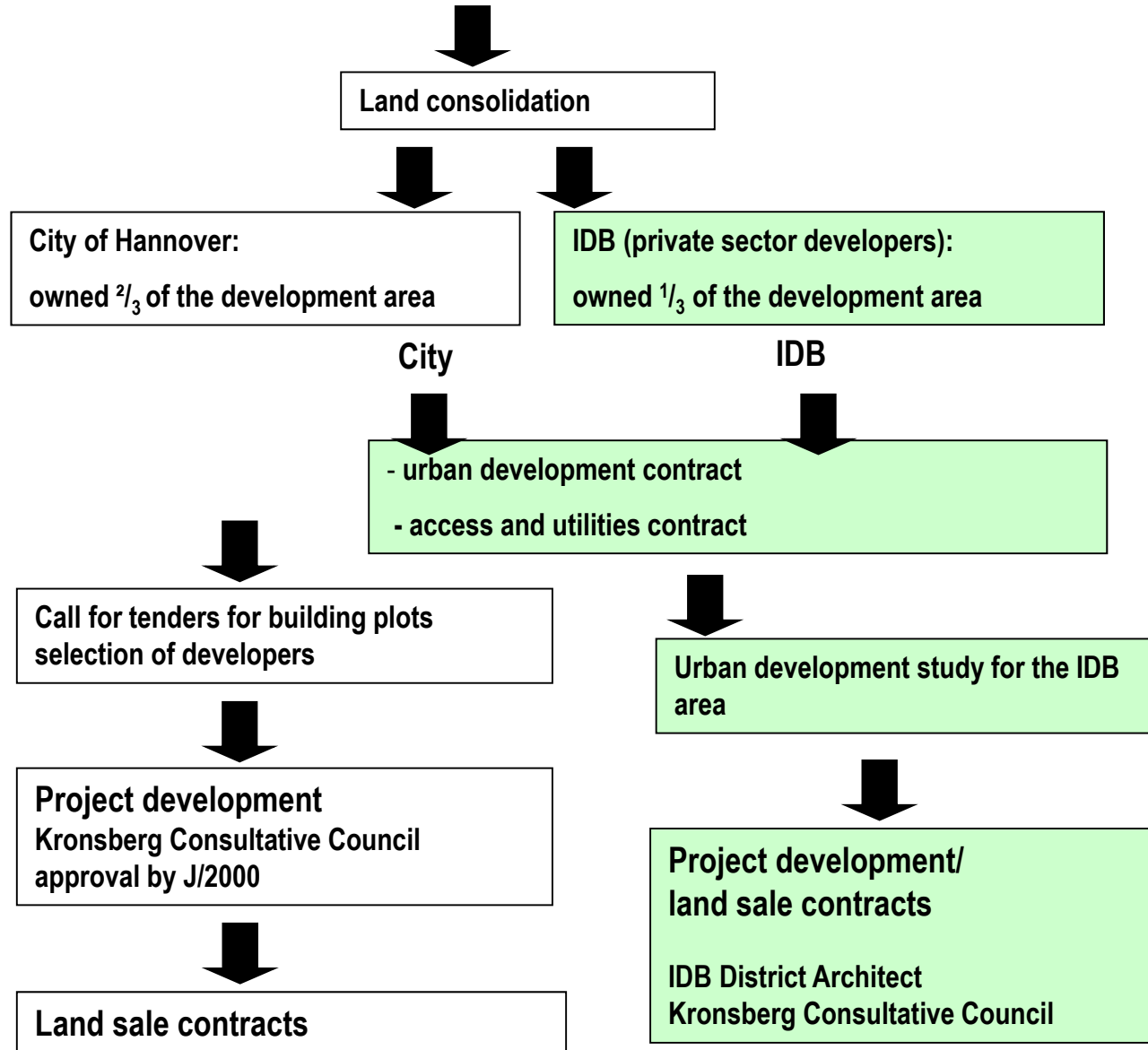


source: Hannover Kronsberg Handbook, Planning and realisation, Landeshauptstadt Hannover, 2004

KUKA, environmental liaison agency, monitors and promotes the ecological development of the Kronsberg sustainable city district in the areas of energy, waste, soil, water, landscape, farming and mobility. Working with its partners, KUKA provides a comprehensive skilling and qualification programme used in ecological advisory and training measures for planners, craft workers, and residents of Kronsberg.

KRONSBURG, HANOVER: URBAN PLANNING INSTRUMENTS

Development Planning, Master Plan,
Overall Coordination City of Hannover Planning Group for the World Exposition (J/2000)



REMEMBER

The ultimate aim of sustainable development concept is to leave to future generations a stock of natural capital that equals or even exceeds our own inheritance (e.g. an effective ozone layer, clean air, fresh water, a clean sea, fertile land, diversity of species,..) Environmental sustainability becomes in 1990s the guiding principles of modern urban design introducing the Compact city concept. The concept of a 'Compact City' model, a dense and socially diverse city where economic and social activities overlap can bring major ecological benefits.

The Compact City addresses the following issues:

- city grows around centres of social and commercial activity located at public transport nodes,
- these nodes of mixed uses provide the focal points around which neighbourhoods develop, the residential densities decreasing with the distance from transit stop,
- each neighbourhood has its own parks and public spaces accommodating a diversity of overlapping private and public activities.

Kronsberg, the city district of Hanover, Germany is a model of sustainable urban community, built on the principles of sustainable development. The design of this EXPO settlement, along the new tram line to the Expo grounds, considers ecological, urban design, socio-economic and cultural issues.

Questions:

Q 1 What was the movement of Urban Planning that evolved in the early part of the twentieth century?

- a. Short life expectancy of the 19th Century, overcrowding, and poverty**
- b. The Garden City Movement**

Q 2 Who was the early conceiver of solutions to the 19th Century overcrowding of cities?

- a. Ebenezer Howard**
- b. Le Corbusier**

Q 3 What were the main ideals of Modernism?

- a. Pure forms and flowing space,**
- b. The Tower in the Park**
- c. Access mode separation**

Q 4 What was Le Corbusier's 'aphorism' for the house

- a. A comfortable home**
- b. A machine for living in**
- c. A good environment**

Q 5 What were the three design principles of Le Corbusier?

- a. The open urban block , The separation of movement systems, Linear buildings as large scale Urban Elements**
- b. Open space, High density blocks, Separation of pedestrians and vehicular traffic**

Questions:

Q 6 What were Le Corbusier's three principle schemes ?

- a. Plan Voisin, La Ville Radiuese, and the master plan for Algiers**
- b. The grid system as in Chandigrah, Brasilia and Milton Keynes**
- c. The neighbourhood concept as developed in Brasilia**

Q 7 What were the main features of Postmodernism concept?

- a. 'town in a park', land use zoning, building typology standardisation**
- b. 'back to historic model of city', mixed uses, variety in building forms design**
- c. 'back to traditional model of the city', land use zoning, high density blocks**

Q 8 What is the ultimate aim of sustainable development?

- a. to leave to future generations a stock of natural capital that equals or even exceeds our own inheritance**
- b. to leave to future generations a stock of urban/built capital that exceeds our own inheritance**
- c. to leave to future generation a prosperous urban cultural heritage**

Q 9 What are the three main issues of the 'Compact city ' model?

- a. city grows around activity centres located at the public transport nodes, each neighbourhood has its own parks and public spaces, the residential densities decreases with the distance from the public transport node**
- b. city has high residential densities, each neighbourhood has its own parks and public spaces, good car accessibility**