New City Development in Vienna – Aspern

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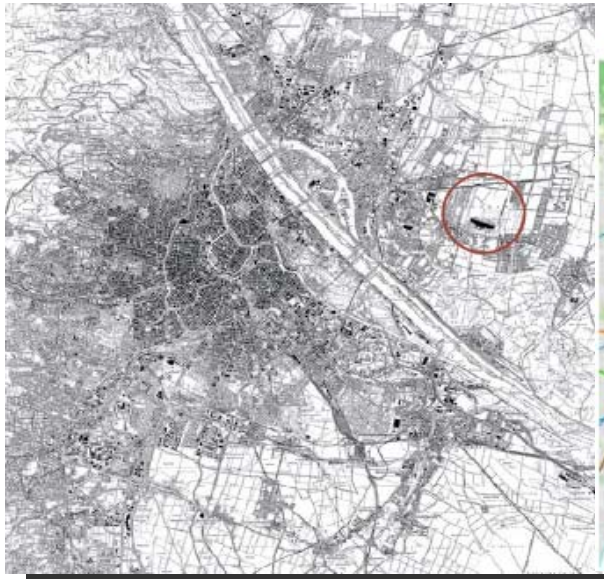
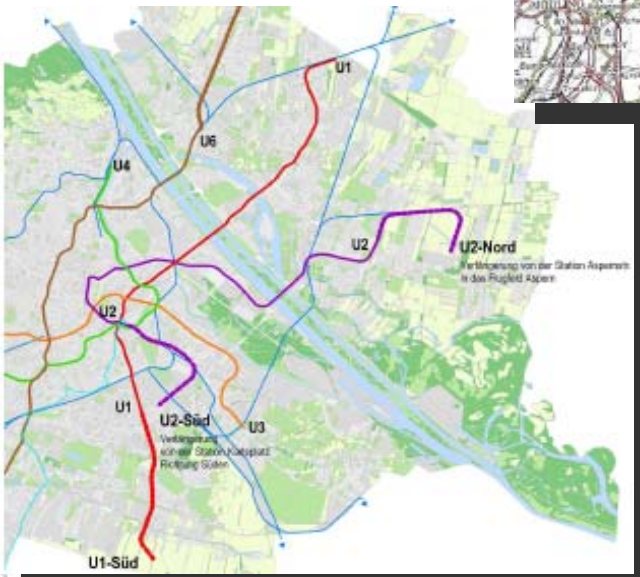
Sustainable City Development

Aspern - Vienna's Urban Lakeside





ca. 20.000 residents
ca. 20.000 workplaces

size as inner city Vienna
connection Vienna-Bratislava
U2, Tram, A23, S1

Sustainable City Development

Vienna - Aspern

Development in 3 Phases – 2009 until 2028 – by Wien 3420 aspern Development AG

Phase 1 (2009 bis 2015)

- development southern part
- opening of subway U2
- lake and recreation area,
- infrastructure
- Technology Centre
- residential buildings,
- R&D buildings

	2009-2015	after completion
Residential	240.000 m^2	850.000 m^2
Offices	250.000 m^2	950.000 m^2
Industry/Research	100.000 m^2	200.000 m^2
Social Infrastructur/ Culture/Education	60.000 m^2	200.000 m^2
Total	650.000 m^2	2,200.000 m^2

m^2 = gross floor area

Phase 2 (2015 bis 2020)

- development around train station (shopping,…)
- development of the northern area

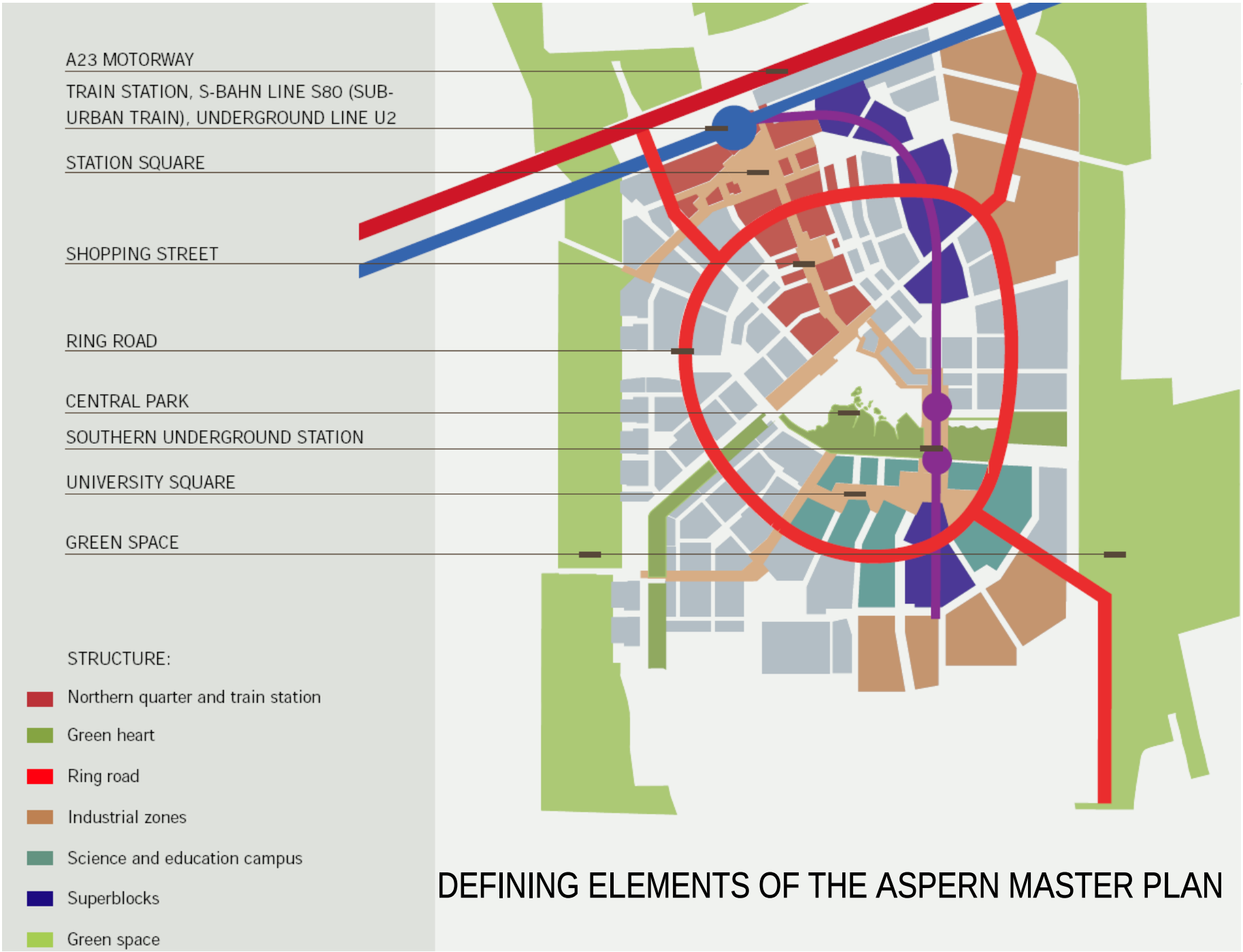
Phase 3 (ab 2020)

- optimsation of the density of the whole area

Aspern Masterplan

Masterplan 2005
Tovatt Architects &
Planners AB, Schweden

•Central:
lake, public green space
•North:
high density by train
station
•South:
R&D, Technology and
Business Parcs
•West:
Residential Area



DEFINING ELEMENTS OF THE ASPERN MASTER PLAN

Criteria for Sustainable Development

use of criteria for the sustainable development of Aspern

- announcement for calls

  → the catalogue of criteria is part of the call documents

- tendering process

  → the criteria will be examined by the jury

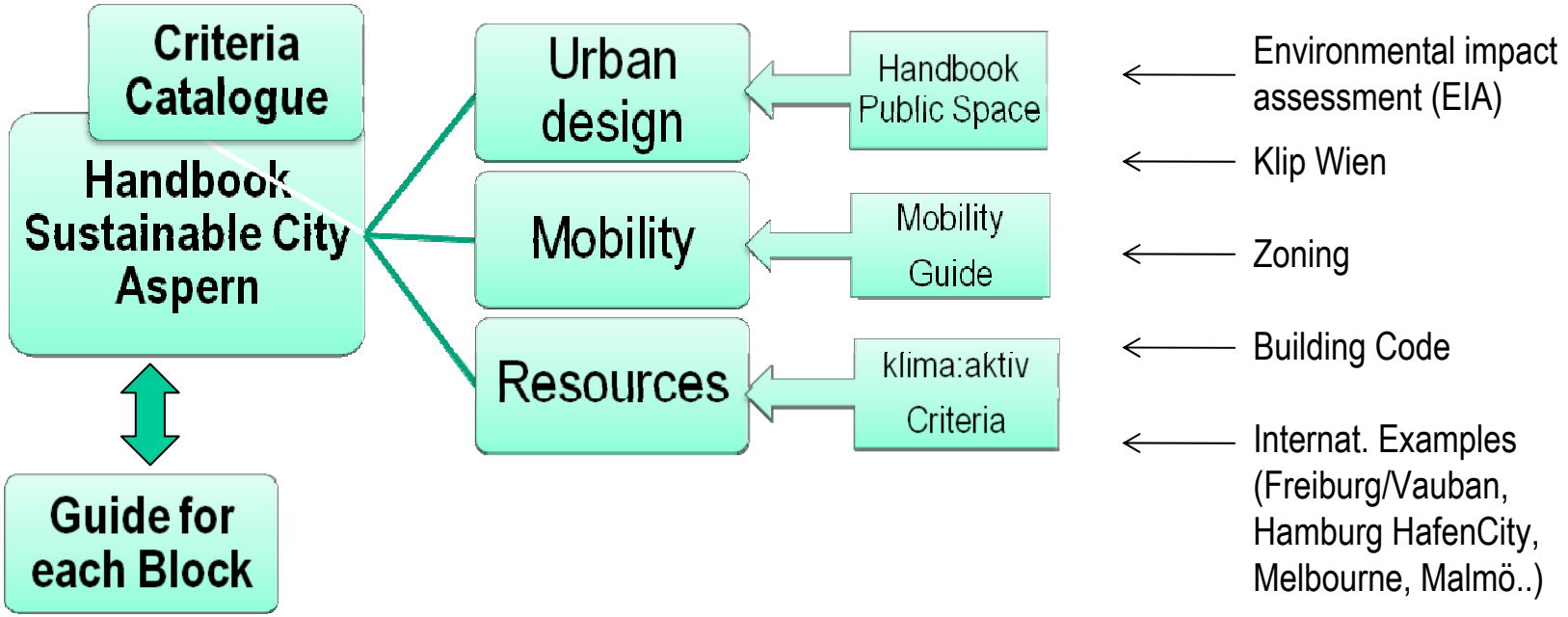
- contract phase

  → the implementation of the criteria can bring financial advantages in the developers contract (e.g. the amount of the “land lease fees” can depend on the performance of the building regarding the sustainability criteria..)

- monitoring

  → it is planned to have a centralized online monitoring about the energy consumption with benchmarking etc. for quality control and to draw conclusions about user behaviour etc.

Handbook Sustainable City & Catalogue of Criteria for Aspern



Criteria for Sustainable Development

3 Categories of Criteria

- Urban Design and Functionality

  → diversity of the built structure, usable open spaces, mixed use buildings and security of economic future of the area

- Mobility and Traffic Planning

  → connection to public transport system, priority to bicycle and pedestrian traffic, „city of short distances“, well planned infrastructure

- Energie und Resources

  → conservation of resources, efficient energy use, renewable energy

		measures	1. phase	2. phase	User phase
III	**resources and energy**				
III.1	**building quality**				
	III.1.1 Buildg enevelope klima:aktiv house		x	x	
III.2	**water**				
	III 2.1 waste water	- Internal use of the waste water			x
		- use of the waste water in neighbouring buildings			x
		- extra pipe system for „grey water“			x
		- extra pipe system for industrial „grey water“			x
		- installation of water saving vacuumtoilets for - „black water“			
	III 2.2 rain water	- cisterns for collecting rain water			
		- management of rainwater			
		- measures for reduction of water demand			
	III 2.3 surface for water infiltration	- rate of soil sealing of max. 25%			
III.3	**waste**				
	III 3.1 waste prevention	- concept for waste prevention			
	III 3.2 recycling	- optimised cycle of material			

III. 4	**energyproduction and grid integration**				
	III 4.1 photovoltaics	- building integrated photovoltaics	x	x	
		- possibility of installation afterwards	x	x	
	III 4.2 micro wind plants in urban areas	-use of synergies	x		
		- reduction of cooling demand through smart planning			
	III 4.3 use of waste heat and feeding-in to the grid	- interneal heat recovery		x	
		- optimisation of conditions for feeding-in waste heat into the district heat grid			
	III 4.4 micro grids for cooling energy, reduction of colling energy	- use of synergies		x	
		- reduction of cooling demand through smart planning		x	

Criteria for call and tender

- Urben design and Functionality

1. Masterplan

Building structure	Open space
•Building and public space •Permeability of the structure	•What kind of o.s. •Usability •Greening of the surface •Attractivity
Site plan, sections, cubic capacity with shading	Concept of the design of the open space

2. Pre-Design phase

Building structure	Open space	Noise
•Building and public space •Permeability of the structure •Flexibility of the building	•What kind of o.s. •Usability •Greening of the surface •Attractivity	•Reduction of emissions •Reduction of imissions
Site plan, sections, floor plans	open space design concept in detail (landscape designer)	Elevations, sections

Criteria for call and tender

- Mobility and traffic planning

1. Masterplan

bicycle	car	Innovations
•Integration into a greater cycle-route system	•Location of the parking lots	•Buildings with innovativ mobility systems (e.g. charging stations for electric cars and motorbikes..)
Site plan	Site plan	Concept

2. Pre-Design phase

bicycle	car	Innovations
•Integration into a greater cycle-route system •Bicycle parking •Usability of the cycle infrastructure	•Reduktion von Stellplätzen •Lage der PKW Stellplätze	•Gebäude mit innovativer Nutzermobilität (E-Tankstellen,..) •Mobilitätsfonds
Site plan, sections, Floor plans	Site plan, sections, Floor plans	Elevations, sections

Criteria for call and tender

- Resources and Energy

1. Masterplan

k:a quality of building envelope	Water	Energy-production
•Building envelope passivhouse •Plus Energy Building	•surface for water infiltration	•Photovoltaics •Micro wind plants •Energy from sewage •Cooling energy and micro grid
Description of the building envelope and the energy system, floor surface calcualtions	Open space concept, Site plan	PV: cubic capacity with shading, Wind: concept Waste : user oriented posibilities Cooling: heat reduction through shading

2. Pre-Design phase

k:a quality of building envelope	Water	Energy-production
•Building envelope passivhouse •Plus Energy Building	•Rainwater •surface for water infiltration	•Photovoltaics •Micro wind plants •Energy from sewage •Cooling energy and micro grid
Site plan, Sections, Floor plans, HAVC concept	Open space concept, Site plan	PV: cubic capacity with shading, design, calcualtion, HAVC Wind: concept Waste : user oriented posibilities Cooling: heat reduction through shading

klima:aktiv Standard

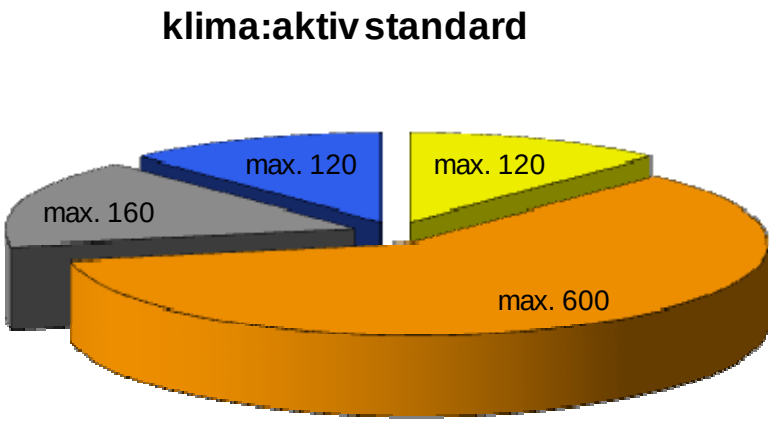
Design and Execution
max. 120 Points

Energy and Supply
max. 600 Points

Materials & Construction
max. 160 Points

Comfort, Indoor Air-quality
max. 120 Points

max. 1000 Points



klima:aktiv **Haus** ≥ 700 Points

klima:aktiv **Passivhaus** ≥ 900 Points

Criteria for Sustainable Development

Renewable Energy use in Aspern

- **Photovoltaics** → electric energy is needed
- **Solar thermal energy** → mainly for residential buildings
  → district cooling system
- **Wind energy** → building integrated but no big energy output
- **Geothermal energy** → big source but only thermal energy
- **Thermal energy from sewage** → financialy not reasonable at the beginning because all investment but only by 2028 full capacity
- **Biogas** → production with vacuum toilets, central or decentral – to find out

Sustainable City Development

Vienna - Aspern

First steps - concept

- Handbook Sustainable City
- Renewable Energy Concept
- Catalogue of criteria
- Building standard

Next steps - action

- Calls and contracts
- Demolition of old airstrip now
- Excavation of lake soon
- Technology center 2009
- Student Homes in 2010
- Business Parc 2010/11