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## IN SEARCH OF A HEALTHY BALANCE ON THE EXAMPLE OF THE NEW DISTRICT OF SEESTADT ASPERN IN VIENNA

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### W POSZUKIWANIU ZDROWEJ RÓWNOWAGI NA PRZYKŁADZIE NOWEJ DZIELNICY SEESTADT ASPERN W WIEDNIU

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#### Abstract

The aim of the article is to present one of the largest city expansion projects in Europe; it is currently being carried out on the north-eastern edge of Vienna and is known by the name Seestadt Aspern. Its design by the Swedish design office Tovatt Architects and Planners AB, which was selected through a competition in 2005, is characterized by an extraordinary wealth and variation of paved and green public spaces, as well as water bodies of varying accessibility which have been designed in such a manner as to create a system of safe and traffic-free walkable pathways and urban squares. The article will present a classification of the varied typology of the aforementioned spaces both in reference to urban plans, as well as to already built fragments of the city.

Keywords: Mixed-use development, sustainable mobility, walkability

#### Streszczenie

Celem artykułu jest przedstawienie jednego z największych projektów rozbudowy miasta w Europie, jaki jest obecnie realizowany na północno-wschodnich obrzeżach Wiednia, znanego pod nazwą Seestadt Aspern. Ten wyłoniony w 2005 roku w konkursie projekt, autorstwa szwedzkiego biura Tovatt Architects and Planners AB, charakteryzuje niezwykle bogactwo i różnorodność przestrzeni publicznych utwardzonych, zielonych oraz akwenów wodnych o zróżnicowanej dostępności, które ukształtowano w taki sposób, by tworzyły system bezpiecznych, wolnych od ruchu kołowego ciągów spacerowych i placów miejskich. W artykule uszeregowano zróżnicowaną typologię wyżej wymienionych przestrzeni zarówno w odniesieniu do planów urbanistycznych, jak i do już zrealizowanych fragmentów miasta.

**Słowa kluczowe:** zabudowa o funkcjach mieszanych, zrównoważona mobilność, dostępność piesza

## 1. Introduction

The Seestadt district is located in the north-eastern part of Vienna. A number of important historical events are associated with this area. At the start of the nineteenth century it was a battlefield that saw the Austrian and Napoleonic armies clash twice<sup>1</sup>. The early years of the twentieth century, in turn, saw the construction of an airport located precisely within the borders of the area under discussion<sup>2</sup>.

Seestadt's surroundings are extraordinarily attractive areas in terms of their natural environment. The area is located a small distance away to the south of the Donau Auen National Park, which is a sort of green belt connecting the conurbations of Vienna and Bratislava [18]. The area also borders the expansive farmland of the Marchfeld plain and a forest named after the politician and local government representative Norbert Scheed, which is located to the north<sup>3</sup>.

The Seestadt district is one of Vienna's 13 strategic projects. Due to the expansion of the European Union's borders in 2004 to include new Central and Eastern European countries, Austria's geopolitical placement changed from that of a peripheral area to a central one. This provided a strong development impulse directed at building resilient socio-economic ties within the region, primarily with Slovakia, and especially with Bratislava, which is located only a one-hour drive away.

## 2. The competition

The district is being built on the basis of a two-stage tender procedure that took place in 2005. From among the submitted applications, a group of 10 companies was selected and invited to present their conceptual designs. The tender procedure was preceded by broad public consultations which saw the appointment of three persons to represent the voices of the residents of the surrounding districts. These were persons who were familiar with the area and had ties with it. The representatives, called "local experts", participated in further preparatory work at almost every stage of the design's evaluation. Their points of view were also taken into consideration during the preparation of tender specifications. They additionally played the

<sup>1</sup> At the Battle of Aspern, also known as the Battle of Essling, which occurred on 21–22 of May 1809, Napoleon's army was defeated. The second battle took place on 5–6 July 1809. It went down in history as the battle of Wagram and ended in a victory for Napoleon's forces. See KAMPFMITTEL BERICHT in materials available for download for bidders [17].

<sup>2</sup> In 1912 it was the largest and most advanced civilian airport in Europe and was also famous for its regular air shows that attracted almost 50 000 spectators. Over the years, however, its character changed from a civilian facility to a military one several times. During the Second World War it was a target of Allied bombing. The remains of the bombings from that period were still being found and neutralized as late as 2009–2013 [17].

<sup>3</sup> Due to a lack of green areas in the north-eastern part of Vienna, the area of the Norbert Scheed Wald forest has been assigned for development into a natural park. In the future it will constitute the city's green lungs - mixed-use areas of recreation and education about the natural environment, which will combine ecology, landscape protection, agricultural land, rest and recreation, as well as mobility and climate protection. Due to the proximity of the metropolitan railway line it has the chance to become a popular place of rest for Vienna's residents [19].

role of members of the competition jury, which made the decision concerning the selection of the most attractive vision of the site's development [20].

The tender procedure was finalized in 2005. The winning conceptual design was developed by the Swedish design studio Tovatt Architects and Planners, which participated as a consortium with the German construction company N + Objekt management GmbH. Tovatt Architects and Planners is a company that was founded by Ralph Erskine's long-time co-worker and later business partner, Johannes Tovatt<sup>4</sup>.

The winning design proposal was praised for its flexibility, understood as the capacity for adaptation to changing socio-economic needs, which had to be taken into account due to the project's completion time being spread over several decades. However, flexibility should not mean evolution in an unknown direction. The winning design proposal provided a guarantee of the preservation of key assumptions that ensured the unique character of the project. It also made it possible to maintain high quality public spaces and ensured access to them regardless of the current completion phase [20].

### **3. Fundamental design assumptions**

The conceptual design of the Aspern district in many aspects mirrors the model assumptions of walkable cities [25]. The structure of the buildings is characterized by small distances between blocks, making it possible to easily move between them. Building density was also a particular focus here, although the adopted indicators raise the most doubt. The mixed-use character of the complex means most of the basic services will be located a short walking distance away. The goal was to design a compact urban organism with short internal connections that is well connected to the city centre by public transport<sup>5</sup>. It is designed to contribute to changes in transport-related behaviour in such a way that walking, cycling and public transport will account for 80% of all trips.

#### **3.1. Compositional and functional layout**

We can identify three strong urban elements within the compositional layout. Open green areas were designed along the eastern and western border of the estate – an element of Vienna's so-called green belt – constituting not only a buffer zone for the surrounding low-density buildings, but primarily a spatial element that integrates the designed layout with the existing, environmentally and recreationally attractive areas<sup>6</sup>. In the future, these areas will be linked

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<sup>4</sup> Johannes Tovatt started working for Ralph Erskine before he started studying at the Faculty of Architecture of the Royal Technical Institute in Stockholm. In 2000, Ralph offered him partnership at the company. The company was then renamed so as to honour the names of both partners. After Erskine's death, according to his wish, only Johannes' name has remained in the company name [21].

<sup>5</sup> In a broader context with the remaining part of the country and Europe, but primarily with Bratislava

<sup>6</sup> These areas are described in the introduction to this article.



into a continuous, linear system of greenery. One element that foreshadows this is the safe intersection of green areas with the planned A23 motorway in the northern part of Seestadt.

Remaining within the discipline of landscape architecture, the second defining element is the Park, which is placed in the central part of the layout and has an expansive water reservoir and accompanying greenery. Central Park<sup>7</sup> fulfils the role of the main recreational space, but it is also a hub for the remaining public spaces – both green and paved (Fig. 1). The construction of a lake in this area was possible thanks to the high level of groundwater<sup>8</sup> that was released by the large-scale excavation work.

The third compositional element that provides a unique character is the car transportation layout, which features an internal ring road. It fulfils the role of a local road, constituting the core of the vehicular transport infrastructure. The ring road has the shape of a bent ellipse. Local roads from every direction will lead inside it, binding the entire layout with the surrounding built environment, which mainly features residential forms of use. The district being designed will thus successfully provide commercial services to the residents of these areas<sup>9</sup>.

Seestadt is being designed as a mixed-use residential development which implements the idea of the coexistence of places of residence and employment. Over 2 million square metres of floor area that will be assigned for various functions will be built on the 240 ha site. Half of the floor area will be dedicated to office, commercial and retail functions, as well as culture. Around 38% of the floor area has been reserved for residential forms of use. The remaining 11%, in a proportion of 60/40, has been assigned to industry and broadly understood social infrastructure. This specific mix of functions is meant to make Aspern a truly living urban organism. The goal is to limit needs in terms of travel and to create streets that teem with life.

### 3.2. Building density

Building densities have been correlated with the designed functional layout and with the strategy of compositionally accentuating important places through height. The highest net density indicators (exceeding  $5.1 \text{ m}^2/\text{m}^2\text{s}$ ) appear in the vicinity of the main squares that are located near public transport nodes. Higher indicators have additionally been planned near the urban blocks along the main streets, as well as along the eastern belt, as an element of a visual barrier around industrial areas.

As one gets closer to the external borders of the layout, the buildings become less dense. The urban blocks gain intimacy and greater contact with greenery. The lowest building density values ( $0.1$  to  $1.0 \text{ m}^2/\text{m}^2\text{s}$ ) have been reserved for areas assigned for education and for the aforementioned industrial areas<sup>10</sup>. For areas outlined in accordance with demarcation lines,

<sup>7</sup> The park's proper name, as used in the summarizing text of the Site Development Plan

<sup>8</sup> The groundwater level is located at a depth of around 2 metres below ground level.

<sup>9</sup> We then better understand the needs in terms of public consultations already performed at the pre-design stage.

<sup>10</sup> The design does not delimit the size of the individual industrial buildings. They will be dependent on the needs of individual tenants. However, it is known that these will be large structures of low height, which is why their placement has been assigned at the greatest possible distance from places of residence and recreation.



the mean value of the net building density indicator is around  $2.2 \text{ m}^2/\text{m}^2\text{s}$ , with the gross value for the entire area being around  $0.92 \text{ m}^2/\text{m}^2\text{s}$ . This indicator takes into consideration all of the planned functions. Keeping in mind the fact that only 38% of the floor area has been assigned for apartments, the population density indicator – one of the key elements in determining the capacity to create living urban organisms – will be at a relatively low level of around 84 persons per ha<sup>11</sup>.

### 3.3. Building height structure

The height of buildings was treated by the designers as a significant urban planning tool. Apart from the role of building densification described above, building height is treated as an essential element in shaping the composition of the complex. It is used to create accents, highlighting places that are functionally important within the city's skyline, such as public squares or circulation nodes. Providing an urban rhythm, they clearly improve orientation within the city [16]. The tall buildings in the north will play the role of a gateway into the city.

### 3.4. Paved public spaces

Paved public spaces constitute around 4.3% of the surface of the site. They are composed of squares, a commercial street, boulevards and sports and recreation areas. The rich palette of spaces dedicated to pedestrians also includes the streets within the internal urban blocks that were ignored by the authors when calculating the site surface balance. The wealth of planning tools such as one-way traffic, a specific configuration of buildings creating cameral squares and the placement of entrances to underground parking facilities right after the exit from the local road make these places friendly to pedestrians as well<sup>12</sup>. They broaden the already rich typology of public spaces. One argument for this is also the fact that they were designed with immense attention to detail and street furniture. Numerous benches, trees, parking spaces for bicycles, surfaces that are attractive and diverse in terms of colour and texture, as well as the lack of architectural barriers cause us to feel that the needs of pedestrians have been prioritized over motorized traffic without hindering it.

### 3.5. Green areas and water bodies

Green areas constitute around 26% of the surface of the site. When we exclude the eastern and western green corridor, this value falls to 9.3%.

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Industrial areas will constitute a sort of an isolation barrier from the railway line, which leads directly to the Opel car factory, which is located to the south.

<sup>11</sup> Far below the 250 apartments per hectare which were recommended by, for instance, J. Jacobs (ca. 750 persons/ha) [10, p. 223].

<sup>12</sup> Driving a vehicle inside the quarter is prevented by vehicle barriers in the form of posts. This ensures that transit traffic goes around the quarters. Cars are seen sporadically and usually belong to visitors (Fig. 2).



Greenery is the dominant form of space dedicated to people. It constitutes 85% of all public spaces in this area<sup>13</sup>. We can list 5 different types according to size, role within the corridor layout<sup>14</sup>, social role, and degree of accessibility. Green areas are also characterized by a clearly defined hierarchical structure. This includes not only private spaces (e.g. small farming fields, semi-private spaces) as a part of the development of internal courtyards (Fig. 4), but also public spaces, which are the dominant form.

The largest area is occupied by type 1, which forms the eastern and western green belt – the main element that integrates with the surrounding attractive nature areas. The second type is the central park, which is the reference point for the next two types of linear layouts of greenery. These are made up of parks which play the role of the main pedestrian and bicycle traffic corridors and the role of side corridors that feature a more cameral character. The fifth type of park space is the neighbourhood parks that are distributed all around the area – the so-called Grätzl park<sup>15</sup>.

### 3.6. Road layout

The core of the circulation system is the ring road, a type of internal bypass which will be linked to the planned A23 motorway as well as the surrounding roads (Fig. 5). The architects proposed a rich typology of streets, adapted to the capacity and scale of the surroundings. The widths measured between boundary lines range from 12 m to 32 m. The roads inside the urban blocks were designed as one-way roads. Most of the parking spaces were arranged in relatively shallow underground parking facilities located close to the exit from the access road. The garages have flat, green roofs.

### 3.7. Transport systems

Access to various forms of transport is a characteristic quality of the layout. In order to provide circulation services, a metropolitan railway line – extended explicitly for this purpose and placed above ground level so as not to create a physical barrier – has been provided. In addition, the design assumes the use of a metropolitan bus and a tram line. It will run along the main commercial street, with a terminus near the northern metropolitan railway station. Essential local, national and international railway connections have been provided here. The rich modal offer is supported by the promotion of environmentally friendly individual mobility. First of all, the district has been equipped with points for the rental and charging of municipal bicycles (including cargo bicycles which make it possible to transport, for instance,

<sup>13</sup> 70% excluding the eastern and western green corridor from the balance. Paved public spaces constitute 15% (balance including the green corridors) and 30%, respectively.

<sup>14</sup> This constitutes a network of pedestrian and bicycle connections which is an alternative to motorized vehicular traffic.

<sup>15</sup> The word Grätzl is an old word used in Vienna to describe a small neighbourhood unit, but not a district, as it is too large. Grätzl is more like a quarter or an urban block in one's place of residence, where people know each other well [22].

heavier groceries). The promotion of sustainable mobility would not have taken place had it not been for the previously discussed network of green corridors which provide a safe and quick form of travel.

#### **4. The Aspern district today – the implementation of conceptual design assumptions**

Almost 10 years have passed since construction started. The completed fragment is expansive enough to ascertain the compliance of the finished element with its conceptual assumptions. After arriving in Aspern, we can state that despite its considerable distance from the centre of Vienna, the extended metropolitan railway line provides a quick connection that does not exceed 30 minutes of travel time. Our attention is attracted not only by the exact compliance with the design of the metropolitan railway route outline, but also the compliance of the spatial form – a railway line raised above ground level. The central point of the layout is an expansive park with a lake, which – similarly to the design – was created from groundwater which was released by the large-scale excavation work. Apart from the central park we can observe three other park areas located precisely where they were placed in the conceptual design. These include Hannah-Arendt-Park (Fig. 6), Yella-Hertzka-Park, as well as the Madame d'Ora communal gardens. Similarly to the streets, they are named after famous women. There will also be another linear park, whose conceptual design was selected through an architectural competition that came to a conclusion towards the end of 2017 [23]. Its location has been slightly altered in comparison to the original assumptions. Today it is meant to primarily occupy the areas underneath and directly adjacent to the metropolitan railway route. The conceptual design was acknowledged for its ability to integrate the infrastructure of the metropolitan railway route with the architecture of the landscape. Of note is also the continuation of the idea of a neighbourhood park featured in the initial plans, as well as of the character of the local green corridor.

The Hermine-Dasovsky-Platz paved public square (Fig. 3) has been built inside one of the urban blocks in accordance with the conceptual design.

The layout of the ring road, along which commercial services have been placed on ground floors, can already be seen within the structure of the buildings. There is a minimum of traffic within the internal urban blocks. In this area the city can appear as if it were abandoned.

Due to its considerable size, the construction of the estate had to be divided into stages spread over a period of time. The last of them is to be completed towards the end of the 2030s. However, each of the stages constitutes a functional whole. Already at this early stage the residents have access to all the necessary elements in terms of transport, commercial services and retail, as well as green areas and schools. Construction work is currently ongoing on the urban block called Lakeside Park Quarter [24], which was assigned in the conceptual design for the construction of a research campus. Nine different construction projects are being carried out by different construction companies based on different conceptual architectural designs. For the most part, the dominant type of buildings are urban hybrids combining within

them residential forms of use, retail, and offices in line with the live and work idea. Typical residential buildings have, however, been designed with commercial ground floors which also feature day care facilities, in addition to providing access to the greenery of the internal urban block. The aforementioned functions are being rounded out by the buildings of the dormitory and a multi-story parking facility. Work on another quarter, called Am Seebogen Quarter, is to start towards the end of 2018, continuing the aforementioned principles concerning the built environment.

## 5. Conclusion

The Seestadt district should be considered one of the most interesting urban projects currently being carried out in Europe. Its further development should be observed with particular attention that is directed at evaluating the effectiveness of the adopted urban model in the creation of an urban organism that teems with life, as well as in changing the actual transport behaviour of residents as a result of the skilful promotion of alternative forms of travel to individual car transport. Doubts concerning the above can only be raised by the relatively low population density, which is a result of assigning most of the areas for non-residential forms of use, including large-scale industry.

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Fig. 1. View to the south on the Central Park and the metropolitan railway line. Image source: original work



Fig. 2. View on one of the streets inside the residential urban blocks. Image source: original work





Fig. 3. Hermine-Dasovsky-Platz. View to the north-east. Image source: original work



Fig. 4. View of the semi-private greenery of the residential courtyards. Image source: original work







Fig. 5. View of the ring road. Image source: original work



Fig. 6. Hannah-Arendt-Park. View of the education campus. Image source: original work