

*Barje*, quite the contrary, they coincide. Only by planned development and rehabilitation of the entire area will the city be able to create conditions for coexistence with the Landscape park. The concept of the new park will thus help in the establishment of a new functional centre, serving both the city and landscape park.

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### Explanation

*The article is based on the proposed layout of the Barje sports and recreation park drawn in 2002 and commissioned by the Municipal Department for urbanism. The proposal was drawn by the authors of the article, in cooperation with Urška Kranjc and Luka Vidic, students of landscape architecture, Martin Žerdin, M.Sc. and Andrej Sovinc, M.Sc., partners on the environment and protection of nature, and Mateja Doležal, representative of the Municipality.*

### Notes

- [1] The term wetlands annotates lands on the transition from continental to water environments. Wetlands are important for the metabolism and storage of nutrients and sediments in the primary production and containment of high waters and for the containment of effects of flood waves. Wetlands are important habitats of numerous animal and plant life. They are natural water reservoirs and a source of potable water. They are important in cleaning polluted waters, because they also function as natural biological clean. They are important as recreation surfaces and also provide certain raw materials.
- [2] Natural values, as stipulated in the Law on preservation of nature, include all natural heritage on Slovenian territory. Natural value are besides being rare, precious or known natural phenomena, also other valuable phenomena, components or parts of living or other nature, nature areas or parts of nature areas, eco-systems, landscapes or built nature.
- [3] The landscape park is a wider area of nature, protected according to the Law on preservation of nature.

### Illustrations

- Picture 1:** Municipalities joined by the landscape park Barje  
**Picture 2:** Development concept and development models (protection model, longitudinal model, model with two poles) and the chosen model  
**Picture 3:** Centre  
**Picture 4:** Urban park  
**Picture 5:** Nature park  
**Picture 6:** Allotment gardens  
**Picture 7:** Golf course

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Mojca ŠAŠEK DIVJAK

## Building the city with emphasis on urban mobility – examples from USA

### 1. Introduction

Cities and other settlements are at the core of all development since they represent the place of overlapping economic and social ties. Simultaneously they are major users of space, natural resources and polluters. Concentration of people enable urbanised lifestyles with positive and negative effects on the quality of life, health and well being of people. The city offers opportunities for employment, socialising, cultural life, better use of all infrastructure, but also causes environmental and social-psychological problems. In a well-organised city larger concentrations ensure vitality and development, but also with negative effects: traffic jams and chaos, pollution, noise, alienation, loss of place, insecurity etc. These are the reasons why increasing numbers of people are deciding to live in the immediate outskirts of larger cities or the countryside, which offer better ties to the natural environment, coupled with social and economic reasons (lower land and construction prices). Contemporary cities cannot be easily discerned from the countryside, urban agglomerations stretch out for kilometres outside the city proper and form metropolitan regions. All developed countries are afflicted by issues of suburbanisation and dispersed settlement, thus the sustainable model of regional city emerged. It includes development of central compact parts of cities and decentralised concentration in suburban areas.

The need for separate urban functions, which were enforced in »modernist« times has changed significantly in the last decades. The main reason is modernised technology: industrial production is cleaner, production is transforming into service activities. New electronic communications allow faster and more accurate conveying of information, enabling working from home or nearby. The quantity of employment opportunities in services is increasing and these can be easily tied to residential areas.

### 2. Developments in Europe and USA

Urban planning concepts from the nineteenth and first half of the twentieth century, which significantly marked modern cities, tried to solve urban problems of the times (sanitation, industrial pollution, slums). These concepts were the »garden city« (E. Howard: Garden Cities of Tomorrow, 1902), the antipode »industrial city« (T. Garnier's plans for the Cité Industrielle, 1901) and the most often copied »functionalist city« (La Charte d'Athènes, 1933, especially the influence of Le Corbusier), which influenced the transformation of cities into distinct areas for residence, leisure, production and transport. The »zoning« concept of the functionalist city actually tried to solve some issues of urban development, but also caused many new ones. Monotonous housing units, distant industrial areas, noisy highways, concentrations of work places and central functions etc., all led to new social

ghettos, traffic congestion and functionalist, as well as aesthetic poverty in European cities.

In the early twenties of the last century, on the American continent, a group of »early regionalists« (architects, planners and social activists) proposed the urban functional region to be dealt with comprehensively, led by Lewis Mumford, Clarence Stein, Henry Wright and Benton MacKaye. They came up with a very early finding that new technologies (motor car, electricity, telephone and radio) would transform the industrial or »dinosaur city«, as put Clarence Stein. Because of such development there was no need for bundling all urban functions into regional centres, i.e. the central city of high densities. Instead, urban development should be planned comprehensively, within the entire region, including small towns and villages, which were seen as opposite to the urban lifestyle. Their supposition was that correctly planned de-centralisation could bring about the development of new towns with approximately 30.000 inhabitants, which could provide pleasant living and employment possibilities. The main urban body would be surrounded by a green belt. They envisioned these towns as more functional, aesthetically built and socially just, in comparison to existing industrial cities where slums and pollution prevailed. Such development never happened. After the Second World War cities in USA boomed, but in the opposite direction. They grew as hybrid settlements with low density, expanding across entire regions and erasing boundaries between towns, suburbs and countryside. Mumford named this occurrence »anti-city«.

Similar issues can be found even in European urban development after the Second World War, but in a shorter time period. Because of the problems, which emerged after the construction of large housing estates in suburbs (especially detached homes), whose organisation is tied to the use of motor cars, several years ago leading universities (in USA and Europe) started to conduct research about densening settlements and urban design, in the sense of balanced sustainable development. The model of decentralised settlement densening became the answer in all the places where low-density development (above all detached homes) prevailed, similarly also in our (Slovenian) suburbs.

### 3. Comparison of different concepts

In many researches the themes were urban form and alternative development models, both in the narrow (micro structure) or wider regional sense (macro structure). Today the topic of debate is, which concept is better in integrating parameters of sustainability. In the urban micro structure we demand a high level of functionality adapted to the inhabitants needs, mobility and access to basic provision and other services. Besides a well-organised road network, public transport has to be given appropriate care (railway, buses), access for cyclists and walkable distances.

In the wider – macro structure, comparisons of quality are important: adaptability for change, social and economic conditions, possibilities for better building forms, social diversity, good environmental conditions, access to open spaces, leisure and other functions.

A very clear review of these models was presented by Hildebrandt Frey in the book *Designing the city, Towards a*

*more sustainable city* (Frey 1999). He gave a detailed description with possibilities for developing urban macro structures (conditioned by transport connections) and compared them according to population size, spatial needs and dimensions of the city structure. These were the models:

- compact city,
- linear city,
- star-shaped city (such as Copenhagen or Ljubljana),
- satellite city (such as Howard's »garden city«),
- galaxy of settlements (based on Lynch's metropolitan model),
- urban developed tied to public transport (TOD by Calthorp),
- polycentric network or regional city.

Following evaluation and comparison between various models, according to functional and sustainable indicators, the author states that the most sustainable solution is the polycentric network or regional city, which is in fact a combination of the compact city model and decentralised densening in suburban areas (mainly tied to public transport), connected into an emerging polycentric network (Frey 1999, pp. 59–69). Hierarchy of particular settlements or centres is also stressed and necessary for comprehensive organisation and significance of particular settlements within the region.

### 4. The importance of well-organised public transport for urban development

All across the World, the car as a transport vehicle, which offers comfort, pleasant travelling and flexibility, has spread widely. Even the present development trend in European countries shows massive increase of car use per person. Thus car use is increasing, even in comparison to other modes of traffic – public transport, cycling, pedestrian. In conjunction, environmental pollution is increasing (air, soil, noise, tragic effects of accidents).

Transport modes, where car traffic prevails, often lead to traffic congestion and increased investments into road infrastructure. With increased personal mobility, settlement becomes dispersed, which again demands more roads and diminishes the efficiency of public transport. Land usage and the need for a highly branched services infrastructure are irrational, costs grow, and communities become incapable of dealing with problems, social segregation swells. This is a vicious circle with effects of social and environmental degradation. Such conditions lead to urban development that is not sustainable and causes environmental damage.

Accidents, noise, pollution and costs stemming from car use imply higher community costs (for example in France these costs amount to 10–20 billion EUR for 120 billion car-km per year). These costs are 1–2 % of the French gross domestic product (TTK 1999). Even in USA, where the car is still »King« among all transport modes and fuel is cheaper than in Europe, the mentioned problems and traffic congestion in peak hours are causing a reassessment of benefits from public transport. Light rail is experiencing a true renaissance in the larger cities.

Clearly investments in roads are, in the long run, neither economical nor environment-friendly solutions. Reinstatement of public transport is much more efficient: on a certain route

cars can on average carry 2.000 persons per hour, a public transport rail carried line can carry 22.000 persons per hour (Crozet, Perez, 1995 v TTK 1999). Public transport modes are ten to twenty times more efficient in land usage, if we calculate the complete infrastructure needed for cars (roads, parking, garages etc.). The problem is competitiveness of public transport in comparison to car traffic, meaning: greater speed, comfort and close access to one's destination.

In France many cities are reintroducing modern tramway traffic (light rail), although they were scrapped 40 years ago: Nantes, Grenoble, Strasbourg, Lille and St. Etienne are known successful examples. Presently under development or extension are systems in Lyon, Montpellier, Orleans, Nantes and Strasbourg, while some other cities are planning their construction. In Germany many cities maintained and preserved their tramways, such as Oberhausen, Saarbrücken and Heilbronn. Similarly in other European countries, such as: Great Britain, Ireland, Spain and Portugal, tramways are gaining in support. Even in USA light rail is being built (Los Angeles, San Diego, Portland, Seattle, Dallas, St Louis, Salt Lake City, Denver). San Francisco has preserved its cable car as a tourist attraction, but also has a modern, varied and widespread modern public transport system: the BART subway, Caltrain regional railway, electric urban railway, trolley buses, buses, ferries etc.

Many authors point out that with large investments, such as a public transport system, harmonisation of various traffic modes at various levels is very important: urban, regional, national. Coordination is needed between all transport institutions in the region and city. Users find integrated types of public transport interesting (rail traffic, boats, buses, bicycles, connections to private car P+R systems – park and ride), usually provided as sheaper offer of all types of regional tickets.

## 5. Traffic habits tied to public transport

For the concept to be used, traffic habits are essential: the method of travelling, frequency of voyages and daily voyage distances. Besides the established road network and traffic in general, many factors condition transport habits: cost of fuel, availability of cars, parking costs, time of voyage, quality of public transport etc. However, urban layouts and patterns, geo-morphological conditions are those factors, which are the rationale for establishing: voyage distances, duration of voyages and calculations of investment costs. If urban design of settlements basically gives advantage to cars, the expected consequence is the increased number of cars, which demand adequate transport infrastructure: from roads to parking, garages etc. On the other hand, urban design of settlements can offer alternatives: pedestrian and bicycle paths, public transport, but also cars, thus enabling less voyages by car, less congestion on the roads and less air pollution.

Urban patterns that are respectful to various types of transport can achieve numerous positive feedbacks. If public transport increases, its services can improve and provide better offer for more people. Thus social equality concerning accessibility can be achieved (for less affluent people who don't possess cars, school children and the youth, elderly people, functionally disabled people etc. who together form a much larger share of the population, than those with

cars at their disposal). By diminishing private car voyages air pollution decreases. At the end of the day even less fuel, i.e. petrol, is consumed and environmental conditions can improve.

After the Second World War suburban housing estates developed in the sense of privatising life and specialised employment. The result was loss of community, human scale and natural space. These patterns on one hand caused over-occupancy, pollution, isolation and diminishment of public investment, and economic shortcomings on the other.

Quantifying problems of suburban expansion could be a simple task, but the symptoms and causes for its emergence are complex, they include historical development, habits, desires, as well as the development of infrastructure and economy.

## 6. Examples of urban development tied to public transport in USA

I have dealt with examples of development and mobility in European cities in many previous articles. Since I have recently returned from USA, where I was a visiting teacher and researcher at the Berkley University in California, I will limit my examples to recent ones from USA, especially the San Francisco Bay area.

### 6.1 San Francisco Bay – The Crossing, Mountain View (California)

During the last decade internationally renown and influential urbanistic approaches were developed in the San Francisco Bay area. New concepts are emerging and promoted as the **new urbanism** movement, which published its manifesto in 1993. For a whole decade new neighbourhoods have been built, influenced by their principles and promoting community structuring in easy walking distances to public transport stations, where also central functions of provision and new jobs are positioned. The movement is also receiving critique from certain parties, i.e. that it is too traditional in architectural expression and that these neighbourhoods are predominantly intended for the middle class. However even within such a framework new architectural experiments are possible and even inclusion of various social groups into communities is being attempted. The key figures promoting the movement are Peter Calthorpe, Andres Duany, Elizabeth Plater-Zyberk and Daniel Solomon. It had significant influence on events in Europe, especially Great Britain, but also conditioned many successful communities in the San Francisco Bay area, Florida and elsewhere.

In close conjunction with New urbanism, another planning movement sprung up in the mid-nineties, coined »**Smart growth**«, which emphasises the need for efficient urban growth coupled with public transport, rational costs of infrastructure and stressed rehabilitation within existing built urban structures. Many civil initiatives are tied to this movement, such as the Greenbelt Alliance. They are trying to build cooperation between the nine counties within the San Francisco Bay metropolitan region, protect green open spaces and stimulate cost efficient, sustainable housing construction, above all by filling in urban spaces and increasing densities in the vicinity of light rail stations (Wheeler 2002).

A wide coalition of government, non-government organisations and various private groups in the San Francisco Bay area are developing an elaborate land use plan, in the sense of »smart growth«. The plan is being prepared by the Bay Area Council, union of local authorities and various agencies: air quality, preservation of natural and cultural heritage, transport etc. They organised numerous meetings, workshops and debates about possible scenarios. In the whole area (7 million people in an area half the size of Slovenia) they are expecting an increase of 1 million people by 2020, also because of strong immigration flows from USA and Mexico.

The method of reaching successful solutions for new settlements, in view of the long-term goals, is therefore of utmost importance:

- economic revival of the areas (during the period when suburbanisation happened large areas of single family detached homes caused irrational occupancy of land, pollution, but also the diminishment of urban and economic investments in these areas);
- enforcing decentralised dense settlement with the development of new mixed use centres;
- positioning these centres along transport routes and urban traffic nodes, next to public transport stops, thus complementing low density single family detached homes with higher densities and content;
- filling in reusable urban lands (brown sites), e.g. under-occupied or dilapidated »malls« that were built during the former suburbanised times;
- managing integral traffic on the regional level, by connecting all modes of transport, management and expansion of public transport and tendency for reducing car use;
- enabling preservation of large green areas and reducing environmental pollution caused by car traffic and rationalising development.

One of the leading experts and planners is Peter Calthorpe, who, together with William Fulton published a book about sustainable development of the regional city (Calthorpe and Fulton 2001). Contrary to other early regionalists, who expected the downfall of old cities, they advocate the importance of their rehabilitation and revitalisation, as well as their completion with new areas complementing their programmes. This is part of a wider regional strategy, which emphasises the need for distributing gains between the city and countryside, improving accessibility to housing in the entire region and essential revival of public transport. The later should connect urban communities (with adequate settlement densities, mixed use areas), which could be beneficial for future development and balancing inequalities. They focused on the rehabilitation of existing settlements and defining urban centres and open public spaces within walking distance. Regional development was tied to public transport, mainly light rail, whereby its stations become the central points of new neighbourhoods.

#### The Crossing, Mountain View

Several stops away from the renown town Palo Alto and the Stanford University is an area called Crossing, which is partially completed and partially still under construction. It lies alongside a transport corridor and is an infill in a suburban area, covering the site of a former under-utilised shopping mall with an expansive parking lot. This new neighbourhood was created to facilitate the growing demands for housing in the San Francisco Bay area, but also changed retail methods and forms. Around the new railway station a mixed-

use neighbourhood is being built, typical for numerous similar neighbourhood developments in California. It comprises a central part with commercial and office space, public programmes, common open spaces and various types of housing. Larger units include multi-apartment, multi-floor buildings with swimming pools, fitness places, common offices and places for gathering. The layout also includes row housing and closely packed single-family detached homes, on relatively small plots.

#### 6.2 Portland – Clackamas (Oregon)

Amongst new regional plans built (according to the previously mentioned goals) the wider areas of Portland (Oregon) and Salt Lake City (Utah), which hosted a major conference about sustainable urban development just before the Winter Olympic Games, are often mentioned. Both regions were subject to violent development during the nineties, above all in outer city areas, with low-density single-family detached homes. The state of Oregon has 2.2 million inhabitants; Wasatch Front has 1.7 million, which is approximately the size of Portland's metropolitan region.

#### 6.3 The Salt Lake – Provo region (Utah)

The rationale of the Wasatch Region's plan includes in-fills of urban areas, rehabilitation of historical urban centres and the development of new denser areas along the existing railway, where mixed-use is emphasised. New strategies took years to be completed and were supported by public processes and participation, numerous workshops, public debates, alternative analyses and common assessments, which were an important alternative to standard working processes. In the presented scenario of »qualitative growth« (the goal being higher density and clearing of mono-functional low-density areas) various new centres with mixed uses will cover almost 52 % of all housing needs in the region and 57 % of all employment. The typical linear pattern of settlement and urbanisation structure in the region is partly a consequence of the area's topography (valley between high mountains and lakes) and partly the historical railway route. This structure can easily connect public transport with new urban development. Low-density areas and vacant land lie alongside the railway and demand complementary programmes and better use of areas in the vicinity of public transport stations.

### 7. Conclusion

During the last decades developed countries have been trying to improve and enlarge public transport capacities in urban regions, because of the established negative effects of motorised car traffic on urban mobility. In Slovenia the trend is opposite: parallel to the increase of private car use, the use of public transport is diminishing. Presently public transport caters to only 10 % of all voyages in Ljubljana (34 % in 1994 and 22 % in 1998), the remainder is done with cars.

New movements, which emerged during the nineties in USA, are commonly known as »smart growth« and emphasise the necessity of comprehensive dealing with cities on the regional level and contemplation about efficient urban

growth, which should be tied to public transport, thus ensuring rational infrastructure costs and better usage, especially in existing urban areas.

The preparation and implementation of more complex projects on the regional level (such as concentration centres tied to public transport) is a long-term lengthy project that demands the cooperation of a wide range of actors: the state, municipalities, investors, financial institutions, experts from various fields and disciplines, the public etc. Public participation in the preparation of various assessments of different development scenarios at debates, workshops etc., is essential. Even in Slovenia we should follow these experiences from developed countries and plan »smart growth« of urban regions. Besides massive investments in the highway network we should modernise the presently neglected public transport systems (especially the railways) and use them as the backbone for future urbanisation.

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#### Illustrations:

**Picture 1:** Different macro structures of cities (source: Frey 1999)

**Picture 2:** Increasing urban mobility by improving the tramway network in European cities (source: TTK 1999)

**Picture 3:** Different modes of public transport in the San Francisco Bay area

**Pictures 4 and 5:** Light-rail is experiencing a renaissance in American cities. The example from Dallas: »light« and »heavy« railways meet with joined railway stations and public transport stops in the SE part of the city.

**Picture 6:** Illustration of population growth in the San Francisco Bay area (source: Wheeler 2001)

**Picture 7:** Plan for organising development in an entire neighbourhood with a light-rail station, headquarters of a large multinational company (South part) and different types of buildings

**Picture 8:** The Portland metropolitan region, example of urban growth development. The central city is Portland. Regional and smaller urban centres and communities follow hierarchically – connections are with public transport (source: Calthorpe and Fulton, 2002)

**Picture 9:** Example of an area being filled in with rehabilitation and new growth, tied to the development of public transport (railway) (source: Calthorpe and Fulton, 2002)

**Picture 10:** Provo, the second largest centre in the region lies North of Salt Lake City. The wider area includes the Bright Young University and historical town core. An example of development of a neighbourhood with mixed use, connected to the planned railway station is shown. This is the centre of a rehabilitated area with higher settlement density and mixed use: housing, central contents, retail and offices. It integrates the existing blocks of detached housing, formed in various typologies. The central railway station is designed to connect both sides of the tracks (source: Calthorpe in Fulton, 2002)

**Picture 11:** The example of Clackmas shows the reconstruction of an old shopping centre with an expansive parking lot into a more humane type of structure. The central part of the shopping centre was maintained. Blocks of new development are equal in size to those in central Portland; parking lots are integrated into the structure of particular blocks. The backbone of the area is the line of the light rail, to which all the public spaces open (source: Calthorpe in Fulton, 2002)

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## Competitive advantages of Central European cities in the cross-border region Alpe–Adria

### 1. Introduction

Based on empirical research presented in the first phase of the project Comparative and competitive advantages of Ljubljana in European integration processes (Pichler-Milanović et al. 2001) and starting points of the proposal for the development strategy of sustainable development of Ljubljana (Dekleva, 2002), we conformed that the city is competitive mainly within the national urban system (Pichler-Milanović, 2001). We defined those factors and comparative advantages, which are important for improving Ljubljana's supra-national position and international competitiveness in the network of European cities. The research confirmed the hypothesis that Ljubljana's competitive advantages depend not only on size, geo-strategic position, diversification of urban functions, economic strength, social cohesion and preserved natural and cultural heritage, but also conscientiousness and efficiency of the municipal authorities when drafting and implementing development strategies. At the time we didn't enough data to perform a detailed and more accurate evaluation of the supra-national position and competitiveness of Ljubljana, we did however hypothesise that Ljubljana is already potentially competitive in comparison to:

- neighbouring cities in the cross-border region Alpe–Adria (Graz, Trieste, Zagreb),
- Central European capital cities (Baltic capital cities (Tallinn, Riga, Vilnius), Bratislava, Prague, Budapest, Warsaw),
- Capital cities of new independent states in former Yugoslavia (Belgrade, Sarajevo, Skopje),
- other capital cities in Southeast European countries (Sofia, Bucharest).