

Notes

- 1 The architects of the WTC site 1, 2, 4, 5 and 6: Minoru Yamasaki & Associates; Emery Roth & Sons, P.C.
- 2 Leslie E. Robertson Associates, RLLP (LERA)
- 3 A New World Trade Centre: Design Proposals, opening 6.4.2002 in the National Building Museum
- 4 A new »World Trade Centre«, New York, opening 17.1.2002 in the Max Protetch Gallery
- 5 Rayman, G. and Bowles, P.: Public Airs Ideas At WTC, survey 24.5.2002

Illustrations

Figure 1: World Trade Centre Plaza before September 11th 2001

Figure 2: The World Trade Centre Plaza amidst clearing

Figure 3: Proposal for the new WTC: Asymptote (Hani Rashid); Max Protetch Gallery, 2002

Figure 4: Proposal for the new WTC: NOX; Max Protetch Gallery, 2002

Figure 5: Proposal for the new WTC: Tom Kovac; Max Protetch Gallery, 2002

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Matej NIKŠIČ

The new tram in Ljubljana – excuse me, does it go to Maribor?

1. Introduction

The title of the article attempts to present the conceptual framework of the proposed future organisation of public transport in Ljubljana, which is based on integration of different transport modes and connections to the wider region. Changes during voyages to distant sites will be necessary even in the new system, they will however be much simpler and faster at so called transfer points. Right at the start I have to point out the real possibility for (re)designing the capital city's image, enabled by construction of the new tram system in Ljubljana (NTSL).

With increasing vehicular traffic ideas about the NTSL are again becoming a sensible solution, which should relieve the city of flows of metal canisters and exhaust fumes, reconstitute its status of a pleasant living environment and preserve its competitive advantages even in the future. Very few people remember the trams first voyage along Ljubljana's streets from 1901, but it still remains imbedded in the memory of many citizens: the last tram travelled through the city in 1958 before being replaced by the trolley-bus. Why and how this happened can be found in historical sources, we are more interested in future developments and chances.

I will first speculate on targets of present trends. Take a seat and listen carefully: data are frightening! Materialisation of the expected 60 percent increase in vehicular traffic by motorcars and 173 percent increase of freight traffic imply extensive widening of road profiles and 160 percent increase of fuel consumption with corresponding increase in exhausts. With extended voyage times, traffic jams, unbearable air quality and subjecting expansive areas of public space for traffic needs will decisively affect the quality of life and diminish possibilities for economic development thus inherently redirect functions elsewhere. »Ljubljana is sick« the refrain from a song by the punk band Pankrti from the eighties could be seen as the most dire possibility.

Such pessimistic development of events however isn't the only possible one. The public accepted with sympathy ideas about organising new public transport by transferring people from individual motorcars to public transport were. Popularisation of the new transport mode in the city and region amongst users is of key importance for solving the anticipated issues. The project was initiated as a joint venture between the Municipality of Ljubljana and the Slovenian Railways, which is, in view of the project's complexity, the basic condition for its success. Non-participation by neighbouring municipalities and the State is hopefully, only a feature of the early stages of the project.

Popularisation of the existing public transport system under present conditions surely will not suffice. To expect more users of public transport modes under present conditions when city buses together with motorcars are at a standstill in traffic jams, whereby the voyage speed is constantly decreasing, is an illusion. Solutions offering modernised transport systems integrated into the wider hinterland appear very logical. Let's take a look at systems, which are suitable and/or possible.

2. Proposals

Optimisation of the present system and possible upgrading with the tram system

The development of new systems demands immense investment into infrastructure, therefore when searching for a solution the main question is, whether renewal and upgrading the existing bus and railway traffic systems to meet increasing demands wouldn't be a more rationally and economically justifiable solution. Serious thoughts have to be put into the issue even because of the gradual shift to any new system. We can assume that the present organisation of public transport in Ljubljana is common knowledge. The weaknesses of its organisation are several: traffic carried by buses and the railway are poorly connected, regional and suburban trains don't have a synchronised schedule, urban buses share roads with other traffic and very seldom have a dedicated lane, uniform or common tickets for different public transport modes don't exist. Lack of coordination between providers of services is more than evident.

Research showed that in view of the settlement pattern and density improvements are possible mainly by increasing the number of stops along the existing railway tracks, improving access to them on the local level (e.g. with feeder buses to distant areas with important functions and significant settlement density), diminishing time needed for voyages, technical adaptations to tracks and signalisation, improving the

design and attractiveness of stops, enabling ties between public transport providers, the introduction of a uniform tariff system and strengthened propaganda and information activities. The establishment of a regional authority for public transport as the coordinator would also be beneficial, just as much as changing habits and building infrastructure in the sense of stimulating cycling and pedestrian traffic and improving the park and ride system.

After implementing such changes there would still remain the classical railway from Kamnik, Grosuplje, Vrhnika and Kranj, but with a higher frequency of departures (suburban railway) and lower frequency from Litija and Borovnica (regional railway). The railway corridors would remain intact, although passenger transport would be given dedicated two-lane tracks. All trains would terminate at the Ljubljana central station with numerous stops along the access routes (an example of such a stop can be seen in park Tivoli). The classical railway becomes the bearer of suburban public transport complemented with the bus system, while urban buses, often on dedicated lanes that could eventually later be used by the light rail system, service the city itself.

When (if) such changes occur, there will be two separate systems running on tracks: the light rail running along the existing seven main access roads and suburban railway covering the five urban prongs. The systems are physically separated since vehicles of the suburban railway are much wider and heavier and need larger riding circles, thus cannot be used on the city streets. At certain points, where spatial circumstances are beneficial, transfer between them is provided

3. Tram – train (i.e. light rail)

The second modernisation proposal presented to the public was introduction of a tram system, extended to the urban region. Efficient integration between the city and region, the source of 120.000 daily migrants travelling to work, schools or other goals, is surely the key issue for attracting users and success of the new system. Light rail is in the traffic engineering sense a hybrid of two technologies – train and tram. Trams are more suitable for shorter distances and frequent stops (250 – 500 meters), trains travel on longer distances with fewer stops. Independently neither system is suited for operation in the city or region simultaneously, thus the light rail system proves to be more effective. In the city it acts as a tram, it travels on dedicated lanes, travelling speed is lower and stops are frequent. When it reaches the suburbs and in the region it becomes a train, travelling at higher speed and with few stops. The second feature of the system is significant adaptability to real circumstances – it can travel on the surface or below it, it can crawl (travel very slowly) through medieval streets and pedestrian zones, while transfer to other transport systems, such as buses, taxis and bicycles, is simple.

If this proposal is really tested under real spatial circumstances, the final state (reached by several consecutive phases) is as follows: The light rail is extended into the region from Ježica to Kamnik, Rudnik to Grosuplje, Dolgi Most to Vrhnika and Logatec, Šentvid to Medvode and Kranj, meaning that it will be possible to travel along the main access roads from the centre of Ljubljana to neighbouring cities in the region without changes. The inner urban nodes are connected by a system of trams running on the same tracks. Certain urban centres outside the city,

such as Škofja Loka or Borovnica would retain their regional railway connections. Bus lines would be tied into the system at important stops on the light rail lines, transfers from one system to the other would be on the same tier. These stops would be provided with parking spaces and bicycle sheds, all part of the park and ride system.

3.1 Sub-proposal for a subway

The sub-proposal advocating a subterranean tram system through the city centre has certain definite advantages, such as higher speed, certainty of schedule, protection from the elements, less burdening of urban surfaces, i.e. an open ground level for other users (pedestrians, cyclists, greenery, public manifestation places), less demolition of buildings and a long-term orientation. Subterranean tram stations could also be seen as new programme poles that could enrich the central part of the city. However, construction of the subterranean routes is financially four times more demanding (depending on geological conditions), than the surface ones and the frequency of stops is much lower.

3.2 Bus on dedicated lane

Let us review another possibility for integrating urban and regional traffic. If we understand the tram as the carrier of internal urban traffic, its integration with regional traffic is possible also with buses running on dedicated lanes. Dedicated lanes for buses imply widening of major access roads from the final tram stops (where transfer to buses is provided on the same tier) to larger settlements in the region (i.e. Ježica – Domžale, Rudnik – Škofljica, Dolgi most – Vrhnika, Šentvid – Medvode), in practical terms demanding the extension of multi-lane roads from the city to the settlements. The ecological weaknesses of this proposal (widening of asphalt surfaces into the countryside, exhausts) were probably the reasons why it didn't gain significant support, although flexible traffic into the region carried by buses would cover more interest zones more effectively. In the indefinite future when internal combustion petrol driven motors will be replaced by electrical or solar driven motor systems, this idea will become less conflicting, but the question remains, why should a user replace ones comfortable motor car with the bus, after all »the road has been widened and the car can go faster...«

4. Public response

Before decisions were taken in the Municipal Council, the planners presented the project to the public. With the idea of obtaining opinions about the possibilities from citizens the municipal authority organised workshops with the given subject. Criteria stated by participants as most relevant for evaluating the suitability of particular possibilities were: financial feasibility, meeting deadlines, spatial positioning and user friendliness. Evaluation proved that the train-tram possibility with subterranean passage through the city centre was most appropriate, but also the most costly, thus disallowing the financial criteria as important in decision-making. More relevant results would probably be obtained if the sample of surveyees would have been larger and the workshops organised in the wider urban region. Doubts about future inclusion of the citizens' opinions in final decision making was nevertheless present among the workshop participants, but surely such public participation is an encouraging change from former practices.

5. Detailed design

Use and recognition of the new transport system are significantly conditioned by detailed design of particular vehicles and supporting structures, i.e. their attractiveness and thus are important factors for decisions concerning use of public transport. Modern technological solutions of tram carriages with low thresholds enable easy access, which is an important factor for functionally disabled people, cyclists etc. Tram stops, besides being protected from atmospheric elements have to provide substantial information about tram schedules, possible further connections or arrivals of other trams, while their design (image) has to follow an uniform, comprehensive system. Only in this way will the »new greens« become a recognisable and popular feature of Ljubljana.

Opportunity for adding to the city's image

The project for the new tram in Ljubljana is offering the city enormous possibilities for rehabilitation and redesign of the city's image, which has for decades lived the fate of a modern Snow White. The new tram in Ljubljana is the improbable prince, who could awake the slumbering princess – why not? Practice in cities comparable to Ljubljana has shown the approach to be a sensible one. Building an effective and able transport system coupled with improvements to the city's image can improve the competitiveness of particular cities versus comparable ones in the urban network. One could mention Grenoble in France, a renowned example of building an urban railway with simultaneous rehabilitation of the city, provision of pedestrian and green surfaces and renewal of the built stock. By introducing the urban railway the city was given a new, fresh image and replenished economic impetus. The system didn't prove itself only by efficient handling of transport, but was also the mode of urban revision in the noblest sense of the expression.

6. Conclusion (to be seen)

The project for the new tram in Ljubljana is still in the phase where numerous possibilities and routes are still being debated. These are more or less friendly to its users, more or less feasible in the present economic reality and present urban structure or even, more or less probable. The presented possible scenarios have to become the basis for a real plan in the near future with defined benchmarks, financing and physical limits. Public response showed that the tram would attract sympathy if the planning was well thought out, although the passage to implementation will probably be much more demanding. As individuals we can attempt the passage already by changing our travelling habits – what if we went about our daily business without a car?

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Illustrations:

Figure 1: Schematic presentation of the tram-rail construction phases (source: Municipality of Ljubljana)

Figure 2: The possible position of the ground level route – Dunajska Street (source: TTK, Karlsruhe).

Figure 3: The possible ground level route through the city centre (source: TTK, Karlsruhe).

Figure 4: Animation of the ground level route on Ljubljana's streets (source: RenderSpace – Pristop Interactive).

Figure 5: Possible subterranean routes through the city centre.

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Transformations in organised multi-apartment housing – concepts, technology, financing

1. Introduction

The statement »the home is a machine for living« was heard as early as 1853, when the architect Adolph Lance said: »The home is an instrument, a machine, that serves mankind, not only as a shelter that adapts as much as possible to ones needs, but also has to support ones activities and multiply the products of labour. Industrial buildings, offices and factories of all kinds are from this aspect almost perfect and worth copying as models«. ¹ On the other hand we are aware that the present times are times of massive changes in the field of urban development, which is similarly as other scientific or practical disciplines under increasing pressure of information technology. Traditional urban patterns, which were based on hierarchical order, cannot be controlled anymore, but we nevertheless consistently repeat concepts and ideas from the industrial revolution.

Today more and more people are choosing to live in multi-apartment housing with low density, which can provide the quality of life and advantages of detached housing² and simultaneously ensure benefits of collective construction (security, managed parking lots and open spaces, common infrastructure etc.). Therefore research of multi-apartment collective housing as constant, physical structures³ is important in the wider sense and not only from the viewpoint of physical manifestation in space.

In urbanism and also in architecture experts always ask themselves whether they have been innovative and above all efficient in improving the culture of living in their practical or executed concepts. Here we encounter the quest for motives and criteria for objective evaluation of novelties. All high quality development, idea, motive or concept of housing construction inherently includes six components: **social** (purpose, for whom and why), **economic** (economical construction, economical use of a site, legitimacy of the purpose of construction), **technological** (purpose and availability of technology in a given environment, the home as a serial product of the construction industry), **ecological** (pollution and degradation of the living environment)⁴, **physical** (legitimacy of intervention) and **artistic** (conceptuality of the act, architectural theory; modular coordination in housing development, typification and standardisation, and even flexibility etc.). These components are measures that serve as entry points for evaluation of proposed models, ideas and completed examples presented in this article, whereby we limited our discourse to Europe where the culture of living is still fairly traditionalistic and less inclined to new-age nomadic lifestyles.