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ESTABLISHMENT OF A NETWORK OF CYCLING ROADS IN SOFIA

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Abstract: *This publication presents a conceptual idea of establishing a network of cycling roads in Sofia in order to increase the popularity of bicycle as a way of transportation in the big city. The creation of the network will make bicycle ride much more convenient, easing and helping overloaded street traffic at the same time. It is planned that the network will have radial and concentric configuration. It should engage to maximum extent most of the appropriate infrastructural elements that exist at presen, turning down to minimum construction of new such elements.*

Creation of a cycling network in Sofia

Introduction

As a few decades ago our parents played football even on central streets of Sofia like "Grafa" (Graf Ignatiev), gen. Gurko and more like them, today's street traffic is so heavy that traveling by a car from the suburbs to the center in a rush hour may take sometimes even more than two hours. Transportation system crisis that has been observed recently in our capital is a subsequent result of the processes of urbanization and development of Bulgarian economy. Sofia is not an exception when the word is about heavy traffic. Traffic jams are observed in most of world's large towns with population over 1 million people. Of course this does not at all mean that solutions for this global problem should not be sought

A really good opportunity for improving the traffic situation is to make people stimulated to more often use of bicycles. Bike - this classical vehicle with almost three century tradition in use, has been a bit illogically ignored nowadays – to ride a bicycle in Sofia today is not only inconvenient but to certain extent dangerous. Cyclists on the road are looked at as not welcomed disturbers who only trouble the normal traffic

flow. But does it have to be like that? And is it good to be so? Of course, not. There are many places on in the world where cycling is put on high pedestal – for example in the Netherlands, China, Japan, Denmark, and this is very beneficial to urban communities. Traveling by bike in a rush hour is not only more pleasant than doing so by a car or public transport, but also in many cases such transportation is takes much less time. Of course, there should exist some elementary conditions – no cyclist feels good to slip through cars clusters and breed their outlet gases. That is why many big cities in the world build networks of special roads for cycling – a very fresh example for this is the network in London – the London Cycling Network.

In author's opinion creation of such network in Sofia will be of no doubt useful and necessary. It will stimulate the use of bicycles thus affecting positively the traffic situation.

Advantages and disadvantages of bicycles as an additional transport vehicles in Sofia

What are bicycle's advantages?

1. This is a free way of transportation which expenses for purchase, repairs and maintenance are much smaller than those of cars. Something more – the small gabarites and the easy maneuvering make bikes incredibly flexible and very effective for small distances – most of all for traveling within city center. Going away of the center the effectiveness of bicycle transport steadily decreases, as the traveling times become longer according to those when traveling by car. Despite that the lack of fuel expenses often makes bicycles wished by the people that live in the suburbs.

2. The use of bicycle requires muscle activity. Most of the people that work in the center have too low rate of physical activity during workdays (especially those that spend all day in offices, working on computers). In this aspect going to work by bicycle will maintain these people physically fit and healthy, while turning back will help their eyes to have some rest before evening TV programme.

3. Bicycle is absolutely friendly to the environment – it des not emit neither noise nor any pollutants.

4. Accidents with bicycles are usually much lighter an much more "innocent" than those related to the use of other types of transportation.

What are the disadvantages?

First of all this is the inconvenience of bicycle use when weather conditions are bad – in rain, snow as well as during heavy winter colds. Weather conditions introduce a natural limitation in bicycle usage, which makes this type of transport seasonal to some extent. Here we have to point out that in the present concept bikes are not considered an alternative to cars or public transport, but most of all as an additive way of transportation which to ease the heavy traffic. We do not advise people to buy bicycles instead of cars, we wish that they are stimulated to restrict the use of cars and public transport in the periods when use of bicycle is possible, favorable and convenient. In our climatic conditions such days have quite a big number through the year – the summer in Sofia is much more sunny and warm than that in Amsterdam. Hague or Copenhagen, while we know that those cities are famous with the use of

bicycles. Spring and autumn also provide long time for excellent biking, and even many winter days offer good enough weather for a ride.

Second disadvantage is the need of bikers own muscle powers, but as it was shown this could be looked at as an advantage as well. Physical discomfort is bigger on steep terrains. Here is the place to remember that Sofia is mainly situated in a hollow bottom, and some really steep roads there are only in the southern periphery of the town – south of the Ring road. There are some tilted streets on the low hills that rise from hollow bottom – Reduta, Lozenets, the old television tower. Such sections are short and actually do not disturb the normal development of bicycle transport within town's central parts. In the very center, where bike usage is most necessary and effective, tilts de facto are not a problem.

Looking at bicycle's advantages and disadvantages, it becomes clear that there is definitely a great sense in intensifying the use of bicycle as an additional type of transportation – Sofia has a quite big potential and lots of unused opportunities for this.

Main principles of cycling network creation

Network construction most be performed in a way not to upload, but to download street traffic. A maximal rationality of expenses should be also aimed. In this aspect the creation of Sofia cycling network should lie on the following principles:

1. Bicycle roads should the least coincide with streets that are heavy loaded by traffic. As much as possible such streets should be crossed only at single points. This can be achieved through:

а/ maximal use of green areas (gardens, parks, areas between blocks in complexes)

б/ use of pedestrian zones (islands, streets and squares)

в/ use of parts of wide pavements

г/ use of calm and quiet streets

2. The network must be created with maximum use of infrastructure that has been built already and is present at the time – lanes, alleys, pathways, pavements, subways. Relatively small sums will be spent on linking ready road sections, such as for:

- more complete equipment of subways with tilted paths and iron rails;
- positioning of tilts between pavements and street lanes (or lowering pavement sections);
- construction of relatively short (several metes to hundreds of meters) passages of pathways and tilts for passing of stairways
- construction of small bridges

3. If there are several possible variants for tracing a road there should be chosen that which offers a best combination of straightness, steadiness and traffic quietness.

4. Good and clear signing marking of network elements – roads, crossroads, other elements – placement of information labels, marking of roads with paint or tiles. It will be good if new passages and roads are marked mostly by changing tile pattern, not only with painting because paint is soon washed away.

5. Placement of rain shelters at some of the network's key places.

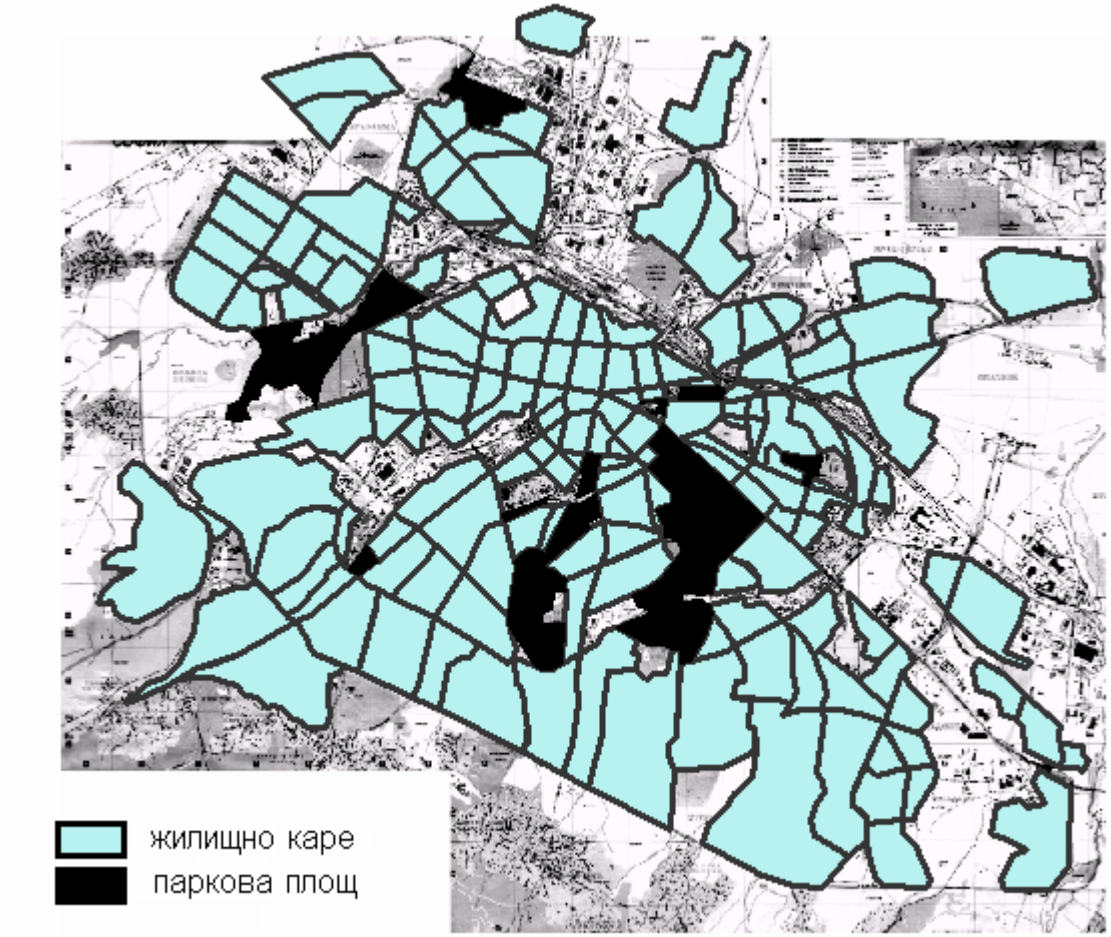

Figure 1. Housing quadrants (in blue) and park areas (in black) for the purposes of cycling network

6. Active promotion and advertising, including: promotion of the cycling network and of the possibilities to use bicycle as an additional way of transport. Designing of special symbols – logo and trade mark (like, for example, in London), publishing of maps, leaflets, souvenirs etc.

7. Assuring of legal guarantees – it is good if preserving the network is included in driving regulations. The following would improve cyclists; safety:

- putting of traffic lights for cycles (like those on the crossing between Totleben and Iv. Ev. Geshov boulevards),
- signing special cycling paths for crossing big or heavy loaded streets (at places where crossing can not be done under or above ground),
- providing advantage for the cyclists when they are on network's roads
- placement of attention signs at sections where car and bike roads coincide.

Network configuration. Main relations

In accordance to the current type of infrastructure planning of Sofia, as well as on the basis of appropriate objects that are present at the moment, it is planned that the configuration of the cycling network will follow a radial-concentric model - similar to those of the main streets. It will consist of the following elements:

1. A ***Central Ring***, located close to city center;

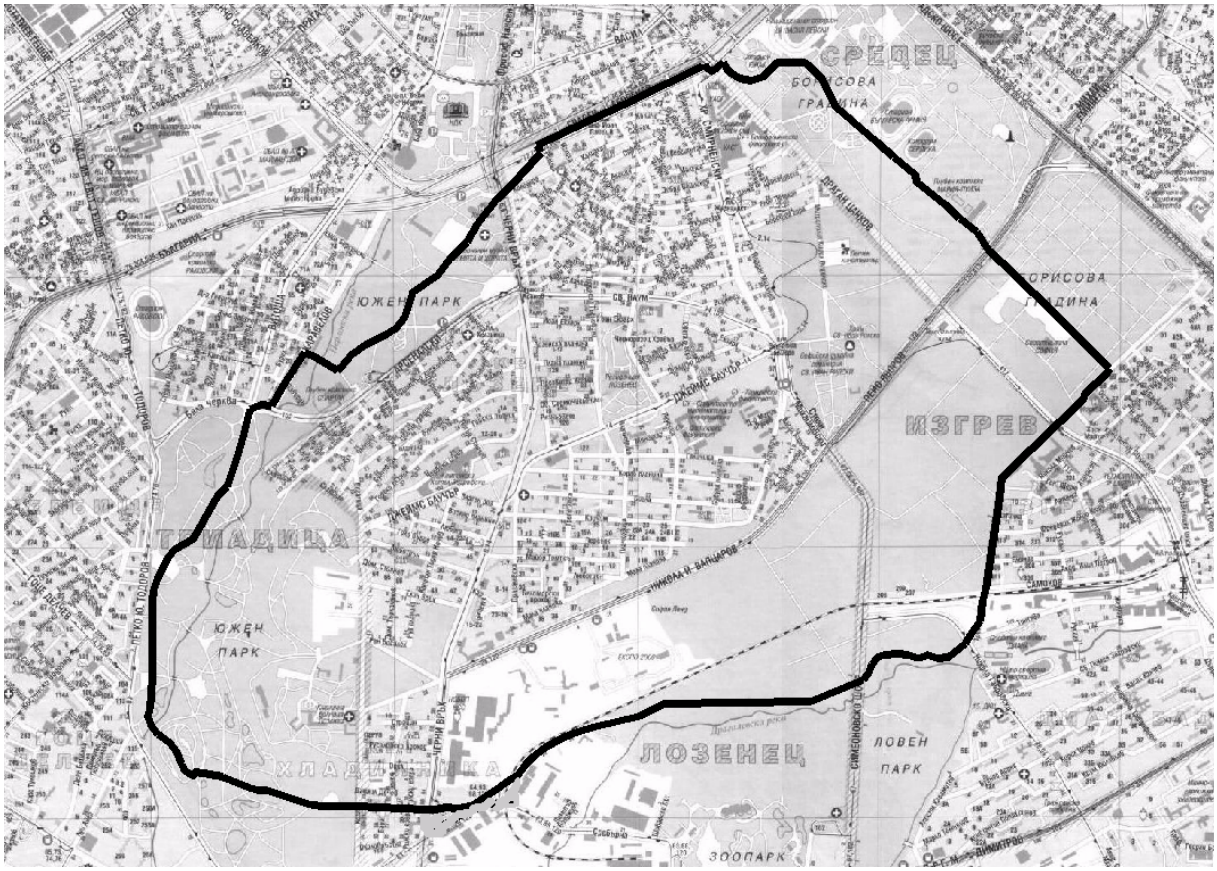

Figure 2. The Central Ring

2. ***Rays*** – main radial roads that come from the central ring and head towards the suburbs in all main directions;

3. ***Rings*** – circle roads that cross all the rays at different distances from the center;

4. ***Diagonal Roads*** – other roads that connect important points of the city.

5. ***Hordes*** –routes within the Central Ring

6. ***Local Roads*** - short appendixes to other roads

For reaching maximal effectiveness it is designed that Sofia will be divided into large living areas separated by main streets – "quadrants" (figure 1), each of which should be linked to the main network elements.

It is projected that the Central Ring (C) should link the main parks near the city center. That is why it is configured a little south of the absolute city center. Central Ring should follow the route: Vasil Levski stadium (the underground station) – Borisova gradina – pool "Maria Louisa" – Academic tennis courts – Pioner station – cyclists alley between Loven park and Hladilnika – Hladilnika (last tram station)– Kishinev str. – South park – pool "Spartak" – Hilton hotel – cyclists alley on Evlogi Georgiev blvd. (green area along the channel) – Vasil Levski Stadium (figure 2).

12 rays (L) are planned to come out of the central ring. They are:

L1 – Hilton hotel – National Palace of Culture – Han Presian str. – Kiustendil str.– Krasno selo (the market) – Kniazhevo (following the cyclists alley on Tsar Boris III blvd.) – with an appendix to Ovcha kupel and Gorna bania;

L2 – South park – Gotse Delchev neib. – Borovo – Buckstone – Pavlovo - Boiana;

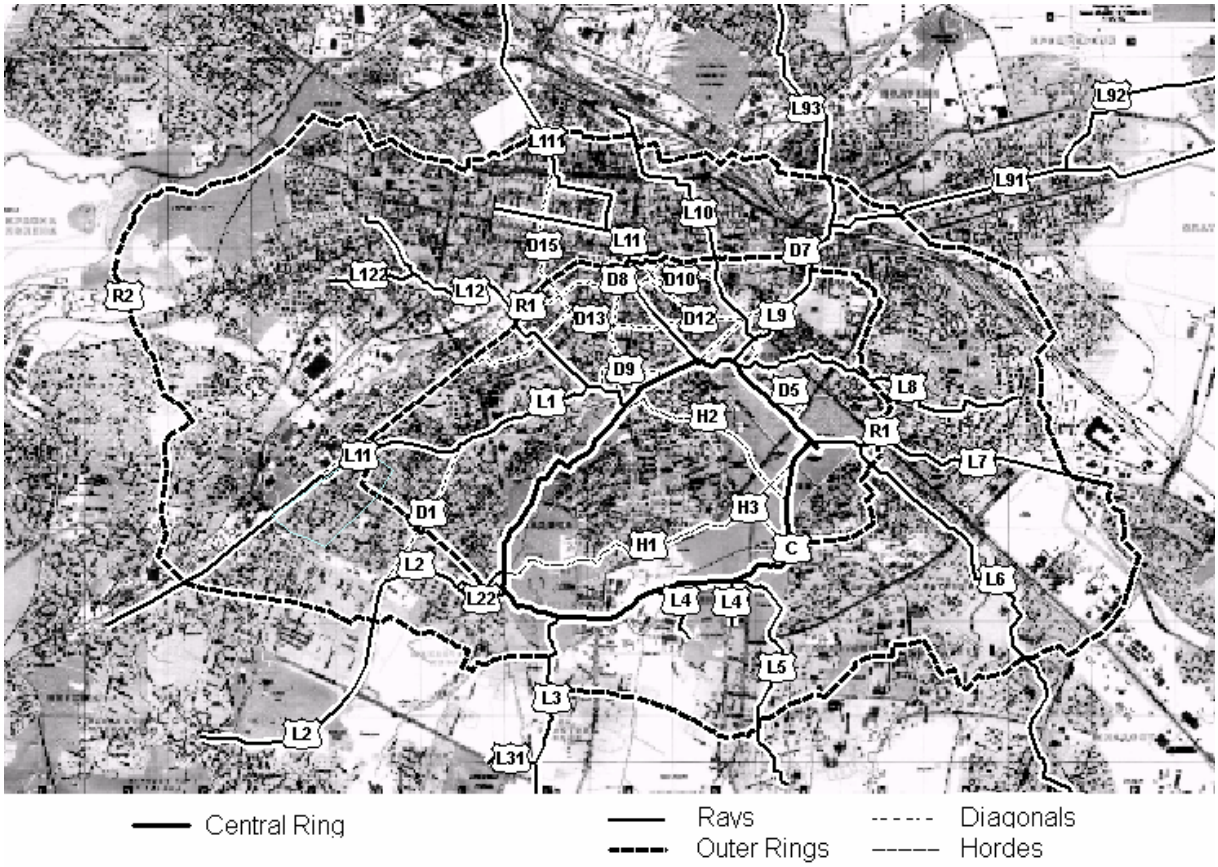

Figure 3. Preliminary scheme of Sofia Cycling Metwork

L3 – South park – Mircho Draganov neib. – Botanical garden – Dragalevci neib.

L4 – Hladilnika – the Zoo (and Loven park – the Zoo – the other entrance);

L5 – Loven park – Dianabad – Studentski grad;

L6 – Borisova gradina (Academic courts) - Iztok neib. - Musagenitsa – Mladost - Gorubliane – German village;

L7 – Borisova gradina – (Academic courts) – Pliska hotel – Geo Milev - Druzhba;

L8 – Polygraphy – Yavorov neighb. – Sitniakovo (Romanian embassy) – Geo Milev - Slatina;

L9 – Borisova gradina (near Ariana lake) – Zagore str. – Military Academy – Sofia theatre with 2 branches: 1/ Poduene – V. Levski neighb. – Vrazhdebna; 2/ Hadzhi Dimitar – Malashevci - Orlandovci – Benkovski;

L10 – Ariana lake – Sofia University – Lavov most – Central Railway Station;

L11 – Vasil Levski stadium – Graf Ignatiev str. – Sv. Nedelia square – Pirotska str. with 2 branches: 1/ Zhenski pazar – Banishora – Fondovi zhilishta – Triugulnika – Nadezhda (Obelya) – Ilienci; и 2/ Pirotska str. – Sv. Troica neighb.– Gevgelijski neighb. – Liulin;

L12 – Hilton hotel – National Palace of Culture – Pirogov Inst. – Rodina hotel – Zone B5 – Razsadnika – Krasna poliana.

Initially 2 rings are planned except the central ring – Inner and outer ring:

R1 – inner ring (it is connected to the central ring on southern side) - Loven park – Iztok neighb. – Pliska hotel – Sofia theater – Sv. Nedelya square – Positano str. – Totleben blvd. – Krasno selo – Gotse Delchev heighb. – South park;

R2 – outer ring – Mircho Draganov neighb. – Vitosha neighb – Studentski grad – Darvenitsa – Druzhba – Slatina – Hadzhi Dimitar – Central Railway Station – Zaharna fabrika – Zapaden park (West park) – Ovcha kupel – Pavlovo – manastirski livadi – Mircho Draganov neighb.

The general scheme is shown in figure 3. The main elements are marked in different colors.

Conclusion

What was presented here is still a preliminary concept. It was prepared on the basis of the experience of the author, who has been a keen cyclist for long years, and his knowledge about the existing infrastructure in the city, the specifics of road and traffic situation and the necessary conditions that would make people leave their cars in a sunny day and get on bicycles. If a discussion with city authorities occur there will probably be drawn some more perspectives for development of the network – this will depend on the desire of municipality government to accept and approve such an idea, as well as according to available funding, the legal state of the territories that may be crossed by bike roads, as well as according to construction and regulatory plans that were already approved. Anyway, the idea is still in development. It is better if eventual approval of the general route scheme is preceded by a preliminary survey of probable passenger flows.

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