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Implementation status report on the installation of 60 bicycle racks

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1. Background information on measure 4.8-ZAG

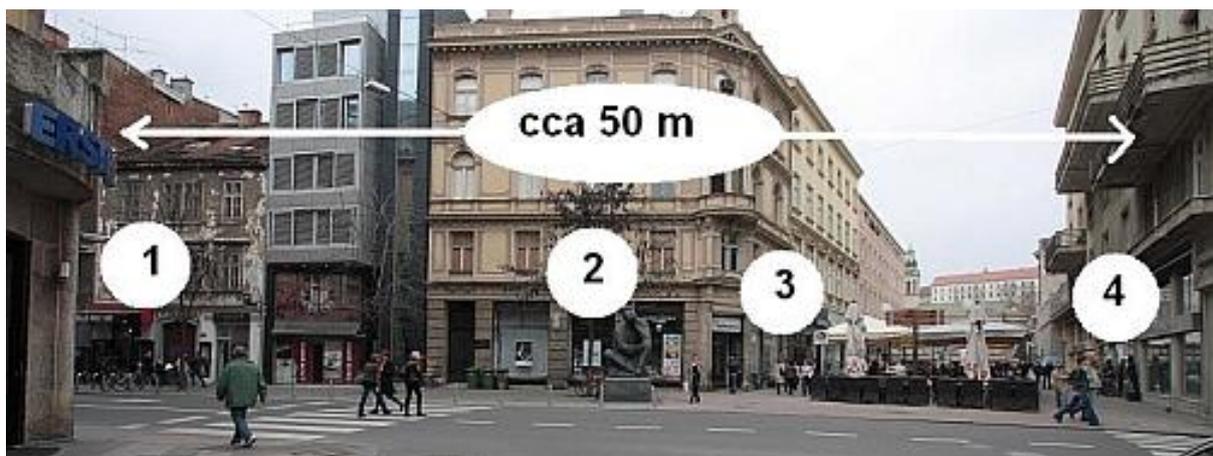
At the last population census, Zagreb had 890,000 citizens and 52% of them are occasionally use bicycles. According to results of a survey from the year 2008, the number of everyday cyclists in the city is 10%. In addition, around 10% of the population are using bicycles for recreation during weekends or at several occasions during the year.

In the last ten years Zagreb has undertaken activities for boosting cycling, but not in a consistent manner and without a strategic plan. Cycling tracks and lanes are signed throughout the town occasionally, mostly on new roads and streets outside the city centre. The trigger initiative for changing the status of acceptance of cycling in the city was a petition for denivelation of curb stones spread in the city, undertaken by BICIKL in the year 2004. Setting up a first series of parking lots in the city centre was done in 2006 in public-private partnership between BICIKL and the Coca Cola Company, on ten locations with a total of fifty parking places. In the same year Zagreb installed the first traffic light for cyclists. According to Zagreb's town-planning scheme the city is obliged to build a cycling lane or track on every newly-built or renewed street in the city which brings more length of cycling tracks, but too often those tracks are not connected. In the same time nothing further was done regarding parking lots, what means that the city's cyclists gain a habit to leave bicycles everywhere.

Cycling culture is often a problem too because there is no city programme for especially young cyclists which are forced to ride bikes for recreational reasons on the streets and city squares disturbing pedestrians and giving a wrong picture about cycling in general. A lack of cycling paths is the main reason for conflict between pedestrians and cyclists too, and this is an additional reason for a rather bad image of cycle users among the population of non-cyclists.

Education about safe cycling and cyclists' behaviour is poor too, what results with too many non-equipped or improper bicycles on the roads. For the police this is most often not an issue, if so, then after a problem occurred.

Very interesting is that local cycle users in most cases don't have cheap bicycles, but still are not concerned about safety, locking them on the fences or some traffic sign column or just recline them on the wall or storefront, although there are parking facilities near their destination point (pictures 1, 2, 3, 4 and 5).



Picture 1: One of the main squares in the city centre. Number 1 is a parking lot for 8 bicycles. Numbers 2, 3 and 4 are bicycles left at improper places.



Picture 2: An almost empty parking ...



Picture 3: Ten steps toward the square...



Picture 4: Ca. 30 meters further...



Picture 5: About 50 meters between parking lot and reclined bicycles

On the other hand, according to a survey 73% of cyclists in the city would be willing to pay for parking services in existing car garages in the city, if such a service would be provided.

This is pointing out the very urgent demand of a strategic approach which provides the framework for CIVITAS ELAN measure 4.8.-ZAG.

According to the measure plan, Zagreb and BICIKL will conduct studies on the state of cycling in the city before the start of the measure, a series of local studies and proposals, workshops with the goal of educating and preparation of decisions on the cycling policy in the city, and a set of tangible outputs regarding to the work plan (see table below).

Objectives	Tangible outputs	Expected outcomes
Enhance the conditions for cycling, particularly on the Savska corridor	Identify gaps and black spots on the cycling network and remove them by conducting a cycling audit	Increase the number of students regularly using bicycles from 10 to 20%
Strengthen the integration between cycling and public transport (bike & ride)	Installing 30 racks for 60 bicycles at 3 major public transport stops along the Savska corridor	Increase the number of city employees commuting by bicycle from 3 to 10%
Identify gaps and black spots on the cycling network and remove them	Installing 30 racks for 60 bicycles at PT terminals (10 ea. at Črnomerec, Ljubljana, Dubrava)	Pushing the role of cycling as a serious transport mode
Develop a cycling master plan as base of an integrated cycling policy	Creating the position of a Cycling Coordinator in the City of Zagreb	Achieve a shift towards clean and energy efficient modes
Increase safety of cyclists	Increase safety of cyclists by introducing 30km/h zones	Increased public awareness about the benefits of a sustainable transportation system

Foster enforcement and promote mutual respect of road users	Develop a public bicycle scheme in Zagreb	Promote active & healthy lifestyles
Promote active & healthy lifestyles	Introduce dedicated sign-posting and develop a network of high level cycling routes	Foster enforcement and promote mutual respect of mobile citizens
Increased public awareness about the benefits of a sustainable transportation system	Develop a cycling master plan as framework of an integrated cycling policy featuring strong participatory elements	Strengthen the integration between cycling and public transport
Achieve a shift towards clean and energy efficient modes	Implement a target group centred marketing campaign (i.e. students and council clerks, incl. giving "test bikes" to council clerks)	Together with other measures within CIVITAS-ELAN, contribute to more efficient energy use and reduction of CO ₂ by 5% as well of air pollutants and transport related noise
Pushing the role of cycling as a "serious" transport mode	Develop and install of interactive cycle-map on Zagreb's homepage and other web sites	

2. Summary of the current situation

Since September 2009 BICIKL prepared a short study about the demands for parking lots for bicycles along the CIVITAS-ELAN corridor in Zagreb.

This study provides the most relevant data regarding parking installation: the location, design of the rack and their number. The location of the parking lot has to be determined considering several facts as frequency of bike stops regarding some point of interest or destination (schools, shopping areas, tram or bus stations, pedestrian zone entries, etc.). Another, very significant fact about the location of the parking lot is space requirement, which is a huge challenge due to very high density of space structure at most points of interest.

The second point of this study is a design of the rack, as a result of good experience from many cities spread the world. The so-called "upside down U" is regarded as the best choice for several reasons: they provide a possibility for locking bicycles at more than one point (one could lock a bike on the front wheel, on the frame and the rear wheel at the same time), they are almost "invisible" when empty, which is important from the citizen's point of view, and they are easy to use and maintain.

Their number has to be given as a result of combination of user's demands and disposable space.

On 31 March 2010 ELAN partners in Zagreb prepared a study on the envisaged new inter-modal terminal Sava-North (in measure 2.5-ZAG) for which a parking lot for 100 bicycles is foreseen. According to the plan, this parking lot will be constructed underground which means that the space is covered and illuminated.

This location was chosen as it is assumed that it will support cycling and bike-sharing (there will also be station for public bicycles) for commuters because it will be possible to use trams, trains, buses, taxis and bicycles, all at the same station.

The main challenge for the implementation of the 30 racks along corridor is space which has to be chosen based on intermodality aspects and has to fit into given space regarding passenger flows.

3. Description of the current plan

3.1. Types of parking lots

On the corridor two types of parking lots are planned:

a) Medium term use parking lot

An underground parking lot as a part of the Sava-North terminal which is not a subject of this document but is part of the total parking capacity on the corridor, is meant to be a medium term parking lot. This means that this type of bike parking requires a stationary object in which the cyclist can lock the frame and both wheels with a user-provided lock. These bike racks usually involve something that clamps around the bicycle and a cage that helps to protect the lock from being damaged or broken. It is important to avoid solutions which cause complains due to complicated use of these racks without dinging or scratching bicycle.

b) Short term use parking lot

Parking lots will be put up at strategic points along the corridor with 5 to 15 racks for 10 to 30 bikes at each location. The proposal of BICIKL for parking lots is based on:

- **Visibility:** Cyclists will easily spot parking when they arrive at a destination. A highly visible location discourages theft and vandalism. BICIKL's proposal avoids locations "off the side", "around the corner" or places with no passenger flow.
- **Access:** The parking areas are conveniently located next to buildings and PT entrances and have street access. However, it's impossible to be away from normal pedestrian and motorized traffic (regarding to that request, parking lot in Dubrava is the best location).
- **Security:** Even informal surveillance is essential to reduce theft and vandalism. Due to close visual contact with passengers, this will work at all chosen location.
- **Lighting:** Bicycle parking areas are well lit for theft protection, personal security and accident prevention.
- **Avoid conflict with pedestrians:** Ideally, racks will be located so that parked bicycles won't block the pedestrian path, but in city core this is almost impossible.
- **Avoid conflict with cars and trams:** Separate bicycle parking and car parking and roads areas with space and a physical barrier. This prevents motor vehicles from damaging parked bicycles and keeps some thieves at a distance. Most professional bike thieves use vans or similar vehicles to hide their activities and make a get-away faster. The closer bicycle parking is to car parks, alleys, roads, etc., the better the opportunity for a bike thief.

3.2. Location

Every location has to fulfil the following demands:

- the shortest possible walking distance from the parking lot to the next tram or bus station or other important point of interest (institutions, schools, shopping mall, etc.);
- located close to a bike lane or track;
- located at an open place in sense of visibility;
- with enough capacity for daily demands of commuters.

Taking these issues into account, BICIKL has made the following proposals for locations:

- Main railway station: connection with public transport facilities (trams and buses), close to many institutions, a big shopping mall and main post office; 10 racks
- Student centre: one of the most frequented points in the city; 5 racks (another 5 are installed already and another 3 are already installed in front of the CIVITAS-ELAN info point)
- Ilica St / Frankopanska St. crossing: point open in all directions for walking through the centre of the city, close to the big tram crossing, in the middle of the shopping area; 10 racks

After a discussion on this proposal with Zagreb's Office for Transport, the conclusions regarding the new locations for bike parking places are as follows:

- The type of parking element should be easy movable and not fixed on the surface; the main reason is to have a possibility to move the racks due to street works or other demands. The second reason is connected to installation problems due to bolt fixation of the "up-side D" element. Due to the bolt fixation system, more than half of the D-type racks that had been installed by BICIKL in 2007 were stolen or ruined.
- No permission was granted to install cycling racks at the crossing point Ilica/ Frankopanska due to the general overload of the surface: taxi station, three tram stations, two news-stands and heavy pedestrian flow. Therefore, the cycling racks were installed on Gundulićeva Street, hundred meters in the direction of the city's main square. This new location is connected to the entrance of the local post office which is also very close to the entrance to the pedestrian zone (30 meters).



- The parking lot at the main railway station is divided into two locations: in 2008 one was installed at the entrance stairs to the underground passage, and a new one is now installed in front of the entrance of the city's main post office.



- The third location on the corridor is in front of the Health and Medical Centre. This cycling rack is also very close to the Student Centre on Savska street, the botanical garden and several schools and faculties.



- The fourth location covers the eastern end of the corridor, near the end point on Palmotićeve Street/ Jurišićeva Street. In front of the biggest post office in the centre of Zagreb BICIKL installed another cycling rack for ten bicycles.



- BICIKL's proposal for a location in front of the Art School on Marshall Tito's Square was relocated by ca. 100 meters in the direction of the pedestrian zone, on the opposite side of the Square. The location of these cycling racks is banned for car traffic and protected with pillars, in front of National Theatre and Law Faculty.



- About three hundred meters in the southern direction is a sixth location, just across of three high schools and one elementary school, near the Art School and Art Academy.



All cycling racks were installed in November 2011.

3.3. Type of rack and space requirements

BICIKL's recommendation for 'D'- racks was combined with the City office's demand for lighter and movable type, both of them are visible on the pictures from the streets.

The provision of secure, well located bicycle parking is essential if people are to be encouraged to use a bicycle as a means of transport. By indicating to the public that cyclists are welcome, cycle parking facilities act as a message to motorists to consider cycling in the future. Cycle parking should be prominent on the ground and clearly advertised in any promotional material.

In order for cycle parking to be useful, a few important factors must be taken into account when choosing the design and location. This information sheet aims to avoid expensive mistakes and offer guidance on the best solutions.

The location of the cycle storage/ parking is absolutely critical to its success. It must be located as close as possible to the main entrance of a destination (school, office building and shopping centre) or it will not be used. It must offer a real advantage over the location of the nearest car parking space. Ideally, the location should be one that is constantly under surveillance by the general public and is well lit.

This reduces the opportunity for vandalism/ theft and inspires confidence to cycle to that destination. Bike parking should not be hidden away behind buildings or placed away in the corner of a car park as this removes any convenience over driving a car and allows thieves to work out of view.

Design and Installation

This is a key consideration for cyclists; even those leaving their bikes for a very short time. The design of the stand therefore has to ensure peace of mind. The device must be easily accessible, facilitate the use of 'U' type locks and conventional chains/ cables, provide support for the bicycle and allow both frame and wheels to be secured in a way that suits the individual user.

If all the above factors have been considered, the following details have to be care of:

- Care should be taken to ensure that the cycle parking (when in use) does not cause an obstruction to pedestrian flow. Calculating the actual floor space required an allowance of ~1 cycle/1 sq. metre (0,5 x 2 m) provides a good guide. It needs to be assured that this does not obstruct pedestrian desire lines. If it does then relocation should be considered, possibly to the carriageway within a bay protected by bollards or kerb extensions.
- If the planned parking is to be incorporated into a new streetscape or highway scheme then thought should be given to highlighting the presence of the 'parking area footprint' with a change in surface colour or texture. This emphasises the area to both potential users and visually impaired pedestrians.

3.4. Risk management

Following experiences with previous parking lots in the city, BICIKL is aware of several risks:

- due to bolt fixation which will presumably be used digging for foundation could damage other underground installations;
- racks could be stolen as they are only fixed to the ground with bolts;

- racks could become staggeringly fixed on some rootstocks.

BICIKL decided to use combined designs due to the characteristics of the particular location.

4. Next steps and future plans

According to the plan to install further new cycling racks, several proposals have been made within the city centre:

1. Ministry of Sea and Tourism, Prisavlje
2. Miramarska 26
3. Branimir Centre, near the entrance in the Sheraton Hotel Zagreb
4. Importanne Gallery
5. Kaptol Centre
6. Main bus station, Držićeva Street
7. FINA in Vukovarska Street
8. Preradovićeva Street, in front of Zagreb Tourist Office
9. Yard of the Student Centre, Savska Street
10. City bazaar entrance, Bakačeva Street
11. St. Catherine's Square on the Upper Town
12. Ilirski Square, at the number 2 entrance
13. In front of Ministry of Culture, Runjaninova Street
14. At the entrance of the City's graveyard Mirogoj
15. British Square
16. Racks in the underground car garage, on the surface floor or near the entrance
 - garage Tuškanac
 - garage Langov trg
 - garage Cvjetni trg
 - garage Kaptol centre

All locations in the garages are proposed to also serve as public bicycle service points. BICIKL has planned that (outside the ELAN project) in 2012 all locations from this list will be provided with a light version of the cycling rack. On the open places they will be replaced with 'D' type racks due to situation at the particular location.

4.1. Evaluation of implementation status of installation of bicycle racks

Evaluation is being conducted with regard to:

- the design of the racks
- the number of racks
- location points of the installation

- the impact of usage of bicycles in commuting
- future plans of installations during period in year 2012

Design of the racks

According to the City's traffic office demand for the implementation of lighter and movable racks, used racks are the logical choice, with drawback in sense of security of parked bikes. Another limitation is the difficult approach for bicycles with disc brake because the disc rotor might be damaged while the bike is pushed into the rack.

Number of racks – capacity of each parking lot

The number of the racks is in accordance with the plan. All racks in open space provide more than 10 places per location.

ZFOT will organize a counting of parking lots when the winter season finishes. It is expected that the number of cyclists increases, together with an increase in the number of parking lots.

Location points of the installation

According to the fact that this installation mean the beginning of acceptance of cycling as a serious transport mode in the city, the location points have been chosen with care, close to bicycle lanes and tracks, interesting objects. It has been paid attention to install the racks in visible and lively places and to avoid collision with pedestrian traffic.

Impact of usage of bicycles in commuting

Preliminary results from counting cyclists in the demonstration corridor show an increase of up to three times in several streets. Changes are expected in modal split figures. The modal split survey will be conducted in April 2012.

Future plans of installations during period in year 2012

The list of locations has to be implemented after the snow season (ca. beginning of March). No further delays can occur as all necessary procedures (permits and documentation) have already been completed and the racks are already stored at the warehouse of the city's company "Zagrebačke ceste", ready for installation.