



Cracow, May 2014

# **BIKE PAL PROJECT**

## **BŁONIA CYCLE PATH**



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BIKE PAL 2013-2014



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## Introduction

We are two graduated students of Cracow University of Technology, who've studied Civil engineering (specialization: Road engineering) in Cracow, Poland. Both of us spend free time riding a bicycle as often as possible. We chose to take part in the BIKE PAL Project in December 2012 to improve cycling safety in our home city. Every day we see many problems which involve cyclists directly. BIKE PAL gave us a big opportunity to solve some of these. We want to ride a bike safely and do something for us and other people who love cycling in Cracow.

Cracow is the second largest city in Poland located on the Vistula River in south Poland (Fig. 1). The Cracow metropolitan area counted 1.7 million inhabitants in 2012.



The city is one of the most important economic centers and a major center of education in Poland. There are twenty four institutions of higher education with more than 200,000 students.

*Fig. 1 – Location of Cracow, Poland*

The aims of this report are to present our infrastructural solution we proposed to improve safety of cyclists in very important and strategic zone of Cracow, detail the different steps of the project phases and also expose and analyse trouble that we ran into.



## 1. Selection of site

### 1.1 Cycling in Cracow

To show that Cracow needs a safe cycling infrastructure we believe it is important to present some data about cycling in Cracow.

Currently Cracow has about 3 – 4% (2011) share of cycling trips in urban traffic. Observations and experiences say that from year to year cycling traffic increases. Already it has a significant share in the total number of everyday travels. Farther more, it has a huge potential for development.

Geographically cycling focuses on Śródmieście (the downtown area) and Krowodrza district, and locally also in Nowa Huta district (Fig. 2)

Unfortunately, the Cracow cycling network is rudimentary and inconsistent. According to the City Government (Urząd Miejski Miasta Krakowa) the total length of bike roads (DDR) is 96.625 km (2010). But in addition to the bike roads network, there are also pedestrian-bicycle paths in Cracow.



Fig. 2 – Cycling paths in Cracow





## 1.2 Location of the site: Błonia Krakowskie

Błonia Krakowskie is a vast meadow with an area of 48 hectares directly adjacent to the historic centre of Cracow. History of Błonia dates back to 1162. Today Błonia Krakowskie, being just a part of the old, big Błonia, are enclosed in a triangle of streets: Foch, 3 Maj and Piastowska (Fig. 3, Fig. 4).

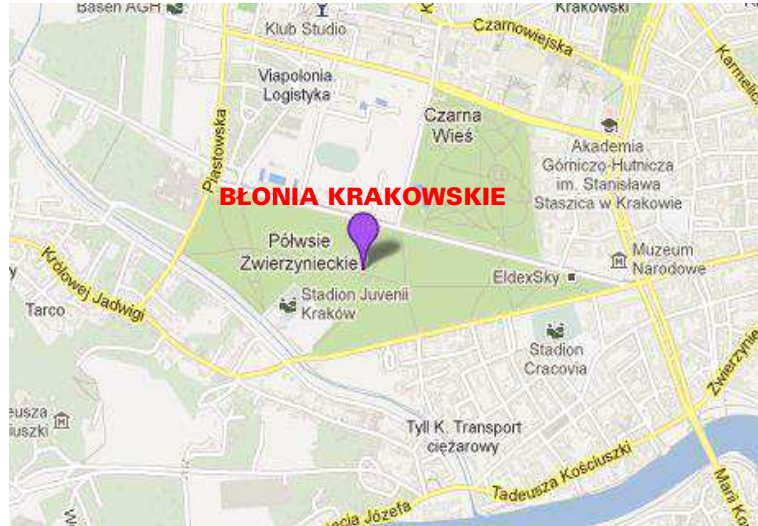


Fig. 3 – Location of Błonia Krakowskie

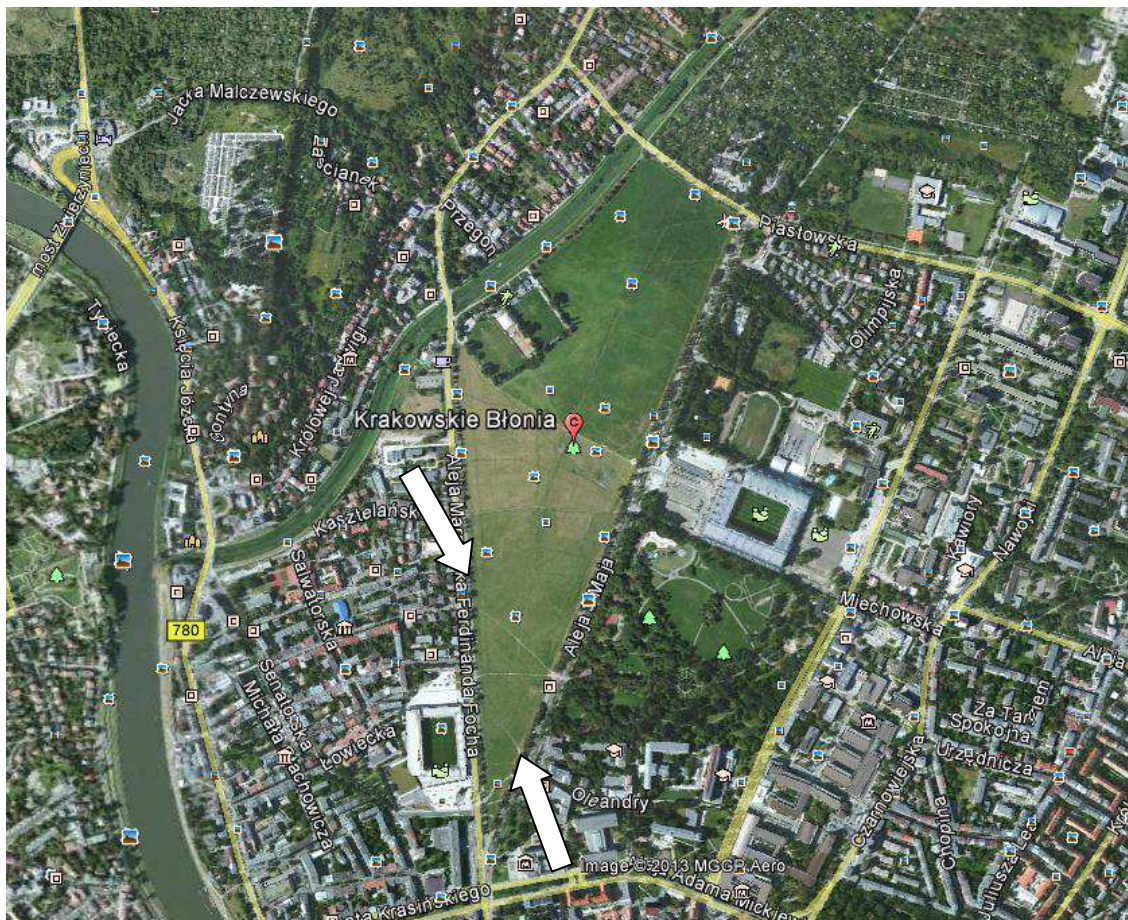


Fig. 4 – Location of Błonia cycle path





Błonia are one of Europe's largest meadows in the center of the city. In their area there are two sports clubs: Zwierzyniecki Sports Club and Juvenia Cracow.

The main type of our cycling safety project, what we ran, was the separation between cyclists and pedestrians who use the same path. Ineffective and unseen separation, or none of it, causes many incidents and accidents, sometimes very seriously.



The example of this problem is the pedestrian-bicycle lane (called Błonia cycle path) surrounding area of Krakowskie Błonia (Fig. 4, Fig. 5), which is important place on the Cracow recreation map with large intensity of users. The aim of our project is to improve safety of this area and make it better and more friendly for all users.

*Fig. 5 – Błonia cycle path in main view*



*Fig. 6 – Cyclist crossing next to Błonia cycle path*

## 2. Objectives

In spring and summer season there is large intensity of cyclists and pedestrians who use Błonia path. Existent separation hasn't functioned properly. Many times pavement and bike road were used incorrectly (Fig. 7, Fig. 8).

We are aware that ineffective separation or none of it causes many accidents, sometimes very seriously. Because of that situations, we proposed objectives of our project which involved improving the separation between cyclists and pedestrians using Błonia path and increasing the awareness of properly behaviours (red lane is only for cyclists).



*Fig. 7 – Problems of Błonia cycle path*



*Fig. 8 – Problems of Błonia cycle path*





### 3. Ideas to improve safety on the Błonia cycle path

#### 3.1 Solution 1

The first solution was to change a colour of the cycling lane's surface from standard black asphalt to red or eventually another more perceptible colour (Fig. 9)

The red surface with white bicycle stamps is much more perceptible and visible than the gray asphalt. This warning colour effectively not allow to use bike road by pedestrians, who consciously know that red part of path with white badge it's only for cyclists.



*Fig. 9 – Solution 1 -> colour's change of cycling lane*

New bike roads in Poland often have red surface. So we've thought that this change also would help to change colour of surface to red on all bike roads in near future. In our opinion red colour on bike paths' surface should be a clear sign that these paths or lanes are only for cyclists.





### 3.2 Solution 2

The second solution was to use and install separating posts between pedestrian lane and cycling lane. (Fig. 10)

Separating posts permanently select cyclists and pedestrians. They cause that it's more difficult for rollerblades, children and other people to suddenly enter the bike path. They keep them out of lane for cyclists.



*Fig. 10 – Solution 2 -> separating posts*

### 3.3 Final Solution

Selection of the final proposal was preceded by consultation with project's supervisors from Cracow University of Technology (Mr. Prof. Marian Tracz and Mr. Krzysztof Ostrowski) as well as the representative of the cycling associations in Cracow (Mr. Marcin Hyła) and the managers of Błonia cycle path (Zarząd Infrastruktury Komunalnej i Transportu). Discussions focused on how to use these solutions in the best way and if their connection would be possible. Specific tips and valuable advices contributed to the choice of the first proposal as a solution to implement (Fig. 11). Also BIKE PAL Camp's experts were unanimous that this solution will be more effective in matter of improving segregation between pedestrians and cyclists.

The combination of the proposed solutions could generate significant costs, impossible to finance. Furthermore, there were opinions that the use of the posts could increase a risk of danger to cyclists and was impossible to install at the Błonia cycle path.

The idea of changing colour of cycling pavement among with a new horizontal and vertical marking has been welcomed by all representatives. Main advantages (which has been told by them):

- Visible separation of pedestrians and cyclists;
- Transparency in the marking of bicycle paths in the city;
- Reducing accidents.

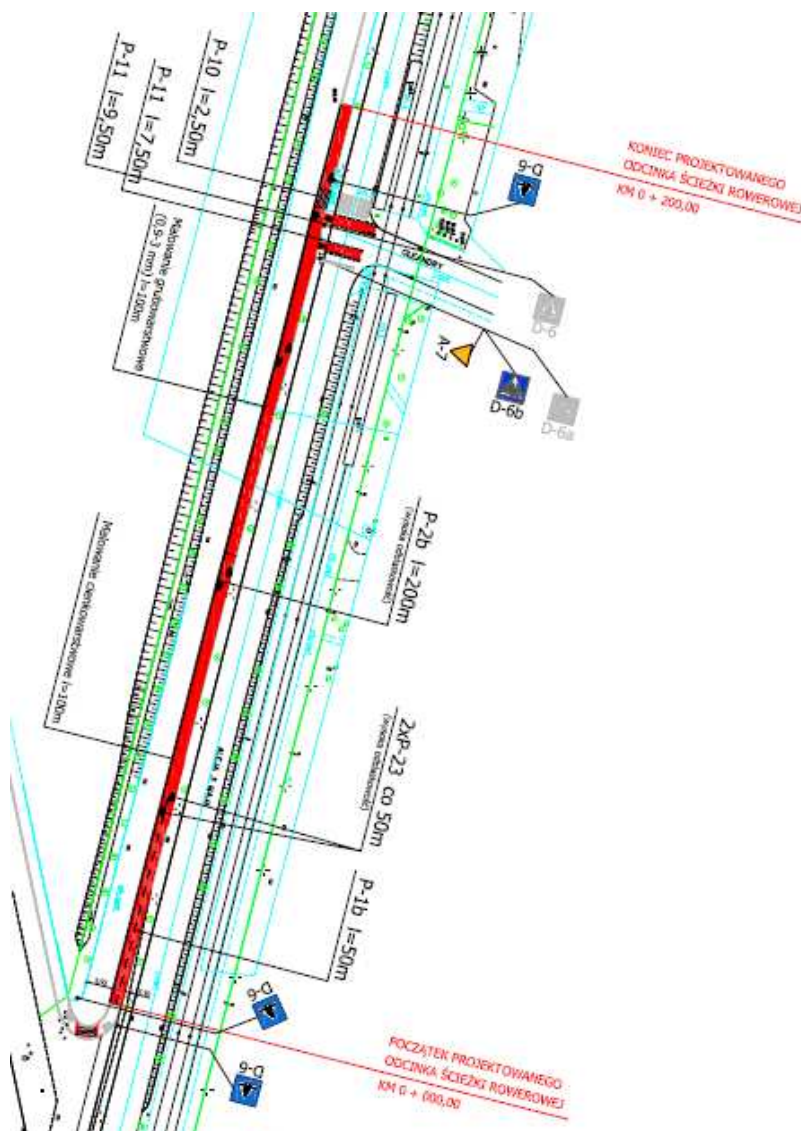


Fig. 11 – Designing drawing of the final solution





## 4. Steps in BIKE PAL Project

### 4.1 Planning

Mrs. Francesca Podda executed presentation at the Cracow University of Technology in autumn 2012 about the safety of cyclists on the roads and led us both to reflect. Participation in the BIKE PAL Project seemed to be the perfect opportunity to expand and use the knowledge gained during the studies in order to improve the quality of the bike move around the city.

Cycling infrastructure in Cracow is in the early stages of development. The resulting paths and contraflow cycling provide moderate sense of security for both cyclists and car drivers. Applied technical solution segregate traffic and bicycle legibly. Prior to the draft BIKE PAL we analyzed the potential threats await cyclists. To select where to make changes we asked several friends what most bothers them cycling. These discussions confirmed our feelings - a big problem for cyclists, pedestrians are not in compliance with the principles of the use of shared space dedicated to walkers - cyclists. The conclusions drawn are based largely on the basis of our experience gained during recreational cycling.

The problem arises at the level of the relationship pedestrian - cyclist. In this sector is erased limit – use of bike paths by pedestrians is often due to the lower speed developed by cyclists and the lack of a massive vehicle. In our opinion, it is a big problem of segregation of pedestrians and cyclists on shared lanes - the problem is often underestimated as a consequence of accidents that happen.

The idea of our participation in the project was to improve traffic safety in the context of the risks associated with a lack of respect for traffic segregation at the pedestrian-bicycle lanes.

### 4.2 BIKE PAL Camp

BIKE PAL Camp lasted from 18th to 22nd March 2013 in Brussels. This camp concerned cycling safety. The aim was to stir the risks faced by cyclist on the road, how to solve and eliminate them by the use of traffic rules and technical infrastructure. Another equally important issue was conscious ways of informing the public about safe riding, not only the bike.



During the camp lectures, meetings with experts, group tasks and presentations of projects all selected groups have been organised. In addition, bicycle tour around Brussels showed solutions which improving cycling safety. All forms of activities were experience which allowed to expand our knowledge. Important for us was to have lectures of creating public awareness campaign about the dangers in traffic. In our ongoing studies only technical thinks were discussed, social campaign is not paid much attention.

Particularly valuable were the lectures where all the current groups presented their projects to the experts. As a result, we met problems and often innovative solutions proposed by the friends of the other countries. Asked questions, comments and valuable advices and guidance to the presentation of expert consultants have shown us new possibilities for our project implementation actions.

Attendance at BIKE PAL Camp allowed us to expand the knowledge of bicycle safety. On our return to Cracow, knowledge gained during the camp helped us continue the project.

### 4.3 Design Phase

The following section presents the course of the development of our project. Conceived steps towards implementation of our project:

**April 2013:** On our return to Cracow, we organized meetings with the University authorities - prof. Marian Tracz, prof. Stanisław Gaca and dr Krzysztof Ostrowski. During these meetings we were discussing our project. For our part, we introduced the University authorities knowledge gained during the camp, presented comments and suggestion of expert consultants. As a result, we began to explore how to reduce the cost of implementation actions of our project. After the talks with our professors, we started searching potential partners of our project.

**May 2013** - Getting the recommendation of the University regarding participation in the project "BIKE PAL" organized by the ETSC (Ap. 1). With the help of professors of Cracow University of Technology we started the first meetings with potential partners. The first meeting was held on May 11 with Mr. Jarosław Schabowski - president of WIMED (<http://www.wimed.pl>) - company manufacturing and installing a full range of traffic signs, gantries and other traffic equipment. Project was presented at the meeting and aroused interest. We've got a preliminary declaration of support for the installation of additional vertical signs.





On 25 - 31 May we organised the survey among the users of Błonia Krakowskie area. The interview questions were designed to determine: the frequency of use of the study area, to participate in a collision in the area, opinion if change the color of the surface will improve safety.

**June - August 2013:** Organizing a meeting with a potential partner - 3M's representative - Mr. Norbert Robak. Despite the lack of opportunities for financial or material support for our project, Mr. Robak has endorsed our idea and turned our attention to the formal aspects of the project implementation actions - the need to obtain permission from ZIKiT (Cracow Transportation Council).

The next step to be taken was to meet with ZIKiT to present our ideas for the improvement of the separation between pedestrian and cyclists. ZIKiT gave preliminary approval for our ideas and openness to implement them.

The opinion (called audit) and support of our project from the president of the "City for Bikes' Association - Mr. Marcin Hyla was also required. We started to prepare an official document of the authorization of our project.

**September - October 2013** – Getting a positive audit from Mr. Hyla (Ap. 2). After informing ZIKiT of the audit from "City for Bikes" Association we have organized a meeting with us, our professors (Prof. Gaca, Dr Ostrowski), ZIKiT's representative (Mrs. Małgorzata Jedynak – a person who is responsible for cycling in Cracow) and Mr. Marcin Hyla. During the meeting we discussed issues of a technical solution for colour's change of surface at the lowest possible financial burden. In order to reduce costs and increase arguments to the finalization of the project we proposed to perform 200 meter section of the test surface which was going to make of two different techniques: thin and thick emulsion layer. This solution would allow to compare the two technologies perform colored surface and provide information on the type of surface for the planned bicycle paths.

**November - December 2013** - Visit of Ilyas Daoud in Cracow and meeting along with Mrs. Jedynak and Dr Ostrowski which consist of the vision of a local area of Błonia cycle path and discussion about the newly created proposal of 200 meter test section. The second day of the visit was a meeting with Prof. Tracz in order to discuss the current progress of the project. During this period, we submit official proposal with completing technical project of Błonia cycle path to ZIKiT (Ap. 3).



After being informed by email about the possibility of co-financing by the ETSC in the amount of about 1,000 € we informed University professors and ZIKiT that ETSC had given such possibility. 20 December 2013 we received an official written response from ZIKiT, made by us on request (Ap. 4).

**February - April 2014** - An attempt to organize a further meeting with ZIKiT to determine the capabilities of our project implementation actions. At this time, we encountered difficulties in establishing the meeting because of that ZIKiT finalized a draft parking zone - no possibility of meeting in March due to sick leave of Mr. Olewicz – one of presidents of ZIKiT. During a telephone equalization meeting arrangements we received information that the cost of the project implementation is too high for ZIKiT. Despite of co-financing the project proposal submitted by the ETSC the cost to be incurred by ZIKiT is still too high (the cost of the investment is estimated at 40,000 PLN)

#### **4.4 Implementation**

Bicycle cycle path project has not been implemented. The reason why our project has not been finalized is the cost was too high. Our partners were interested in the idea of our project, but they couldn't finance it. The high cost of implementation of surface staining has caused that the project has not been implemented. The cost of implementation was 100 zł per m<sup>2</sup>.

Despite of the ETSC co-financing proposed aid in the amount of 1,000 euros and our attempts to reduce costs by proposing the test bike path's length of 200 m - the remaining price was too high for ZIKiT.

#### **4.5 Partners and strategy**

Our project's partners:

- Professors: Prof. Marian Tracz, Prof. Stanisław Gaca, Dr Krzysztof Ostrowski

University authorities provide support during the course of BIKE PAL Project Granted by their counsel, helped perform a full technical design for the implementation of changes in surface color. Given us a recommendation significantly facilitated our contacts with other co-partners.

- Local Authorities: ZIKiT – Mr. Andrzej Olewicz, Mrs. Małgorzata Jedynak (Cracow City Council)





ZIKiT are the main manager of cycling infrastructures in Krakow. To carry out this project it was necessary to obtain permission to make changes. Due to the size of the area of Błonia Krakowskie (4 km bike path length) and high costs proposed to use the test cut-off length of 200m made in the two technologies. The main reason for the use of two types of pavement was to provide information on which the technology is safer for users.

- Cyclists' Association: Mr. Marcin Hyla

Along with the professors was the main support of our project. He gave us the recommendations on the proposed project. Actively participated in meetings organized at the university and ZIKiT. Meetings with him gave us valuable advice and opened up new ideas.

- ETSC

ETSC provided support for our project during the visit in Cracow. Meeting with representatives of ZIKiT returned more attention to the problem of the separation of pedestrian and bicycle traffic. ETSC proposed co-funding to implement our project.

## 4.6 Evaluation

Evaluation of our project was to build on questionnaires before and after the planned changes to the colour of the bike path surface. These surveys determined the level of insecurity in terms of insufficient separation of pedestrians and cyclists and also gave information and users opinion about the colour's change of the analyzed surface area of Błonia Krakowskie.

Due to the non-implementation of the project, we are not able to compare the results but we can about people reaction for planning change. Analysis of the results for the study of change which assumed the project was described in section 5.



## 5. Results

### 5.1 Analysis of Błonia cycle path's survey

Although our project didn't implement due to financial problems and difficulties, in May 2013 we organized survey at Błonia cycle path as we told in section 4. The results are illustrated in the charts below. The Błonia cycle path's survey allowed not only to get the needed results to evaluate the solution adopted. The use of survey with specific questions allowed to draw attention to the importance of the lack of separation between pedestrians and cyclists, and most of all to think about a properly behavior on the pedestrian-bicycle paths, not only in Cracow.

The questionnaire was made during different times of day (morning, afternoon and evening), and among over 100 people who using the area of Błonia Krakowskie as pedestrians, cyclists and also skaters, from different age, social and education groups.

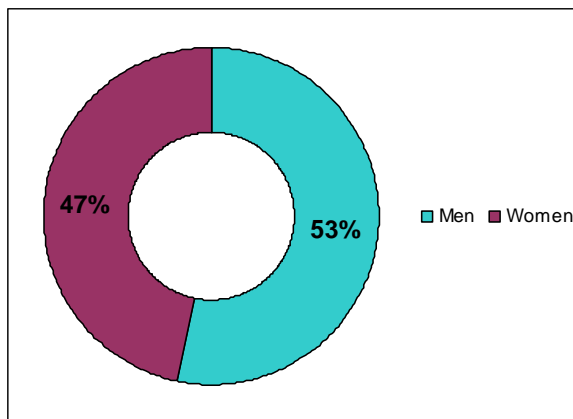


Fig. 15 – Gender group

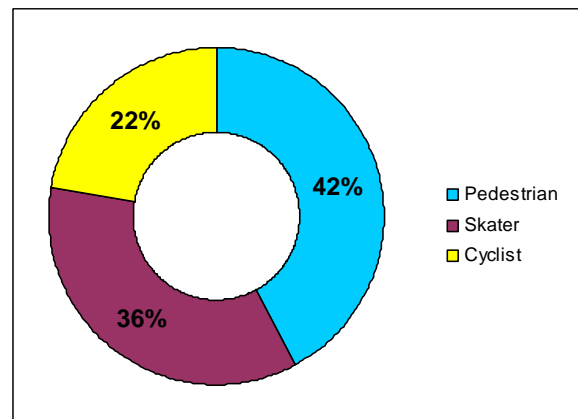
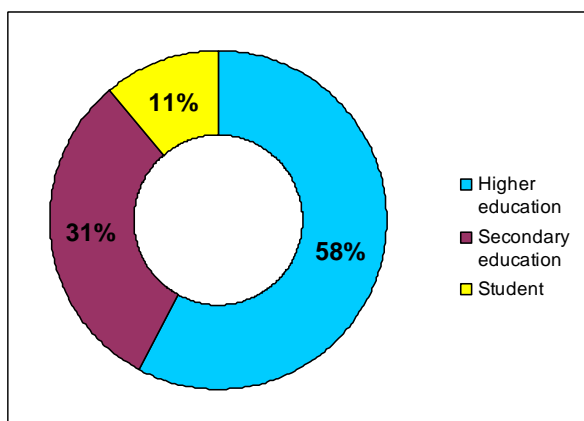


Fig. 16 – Users group

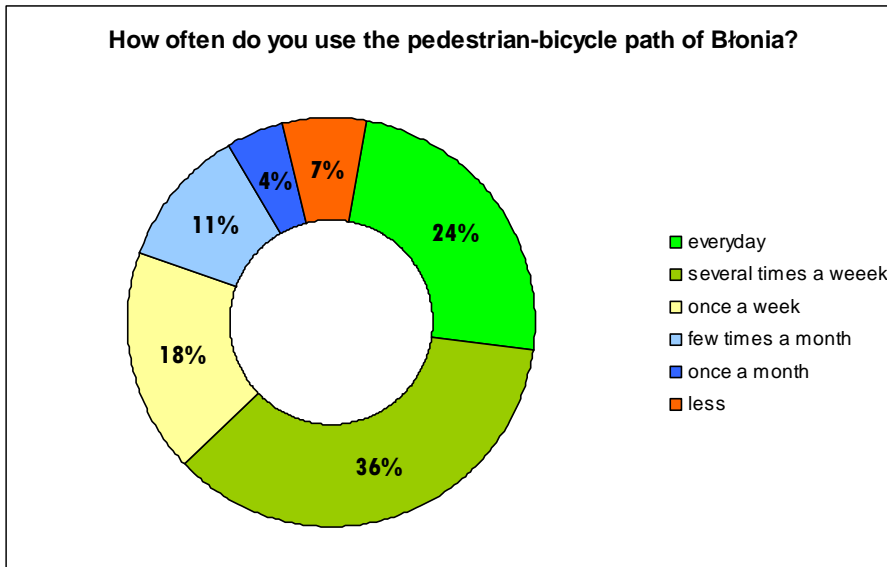


These graphs show the characteristics of a respondents because of the groups they belong to (Fig. 15, Fig. 16, Fig. 17).

Fig. 17 – Education group



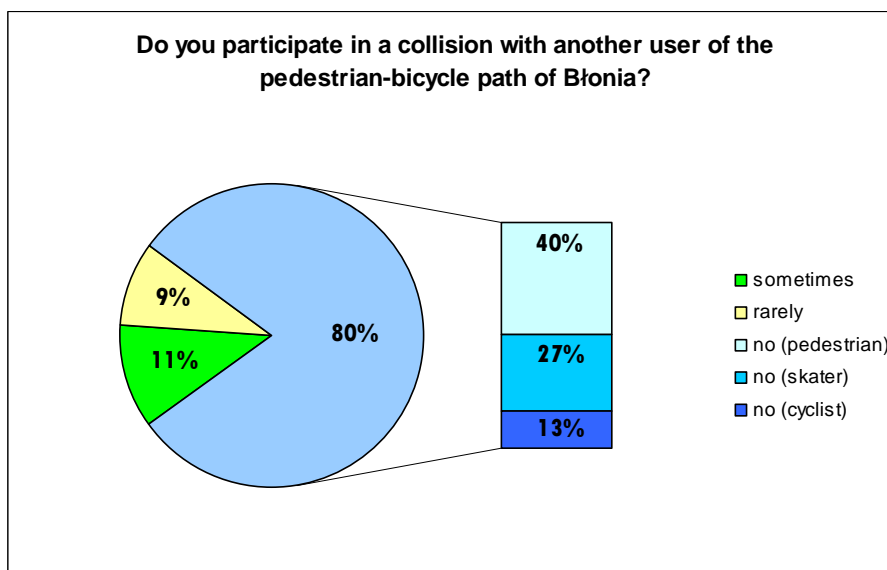
The survey enabled us to demonstrate that the pedestrian-bicycle path of Błonia is used very often during week. As we see on Fig. 18, more than half of the people declared that they use it at least several times a week, both for recreational purposes and as road to work, school or college.



*Fig. 18 – Intensity of use of the Błonia’s pedestrian-bicycle*

An important issue we can find in question: “Do you participate in a collision with another user of the pedestrian-bicycle path of Błonia?”. The goal of BIKE PAL Project is mainly to increase the safety of cyclists in different situations on cycling roads. The local police department didn’t have data of accidents at the pedestrian-bicycle path of Błonia. Therefore the result of the survey was the only document confirming that earlier there were collisions between pedestrians and cyclists at this area (Fig. 19),

probably due to poor visibility of lanes’ separation.



*Fig. 19 – Collisions at the Błonia’s pedestrian-bicycle path*



Finally, we asked users of Błonia path if colour's change of cycling lane for red asphalt surface will bring positive results. The vast majority of both pedestrians and cyclists (80% people) founded that changing surface's colour would increase safety and improve visibility of individual lanes (Fig. 20). Interviewed people expressed great enthusiasm for our project and proposal of change, considering that it's

interesting and needful solution being worth to realise.

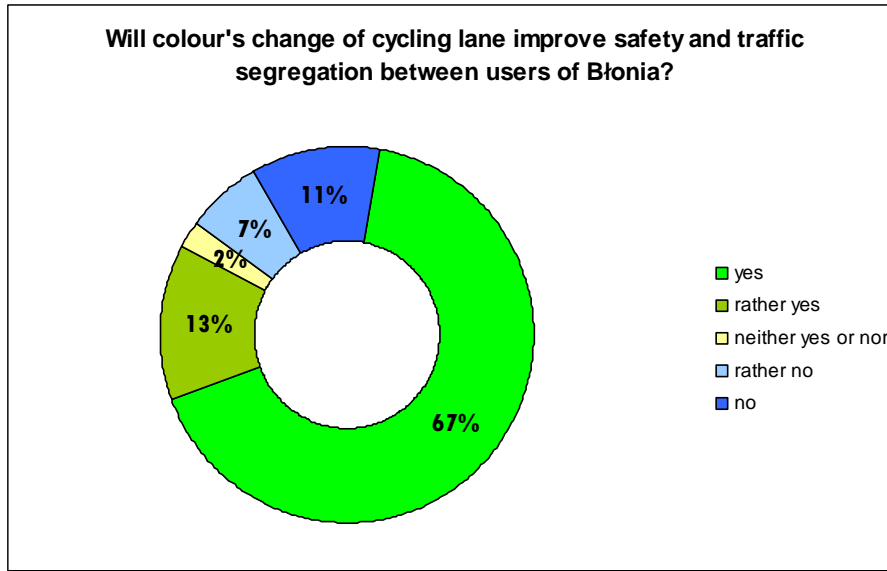


Fig. 20 – Reaction for the idea to change colour of Błonia cycling lane

Although implementation plans didn't materialise, we still believe that the colour's change of Błonia cycle path's surface will contribute to improving security in this area which is so much frequented and used for recreation by Cracow's citizens.



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## Appendages

*Ap. 1 – Recommendation letter from Cracow University of Technology*

*Ap. 2 – Positive audit from Mr. Marcin Hyla*

*Ap. 3 – Technical project of Błonia cycle path  
(global technical drawing of the final solution and technical description)*

*Ap. 4 – Official Letter from Mr. Olewicz, ZIKiT  
(support of our proposal but disagreement for financing the project)*



**Politechnika Krakowska**  
im. Tadeusza Kościuszki

**Instytut Inżynierii Drogowej i Kolejowej**  
Wydział Inżynierii Lądowej

22.42-240/2013

Kraków, 10 maja 2013 r.

## ZAŚWIADCZENIE

Instytut Inżynierii Drogowej i Kolejowej Politechniki Krakowskiej zaświadcza niniejszym, że Pani inż. Joanna JABŁOŃSKA i Pani inż. Agnieszka KOSAL – studentki II roku studiów stacjonarnych, II stopnia kierunku „Budownictwo” specjalności „Drogi ulice i autostrady” biorące udział w międzynarodowym projekcie „BIKE PAL” zorganizowanym przez ETSC - European Transport Safety Council, wykonują pracę na temat: „Poprawa segregacji ruchu pieszo-rowerowego wokół Błoni Krakowskich”. Opiekunem niniejszej pracy jest dr inż. Krzysztof Ostrowski.

Będziemy zobowiązani wszystkim Osobom i Instytucjom za wszelką pomoc udzieloną naszym studentkom w zebraniu materiałów i przygotowaniu przedmiotowej pracy.

Zaświadczenie wydaje się na prośbę zainteresowanych.

DYREKTOR  
Instytut Inżynierii Drogowej i Kolejowej  
*[Signature]*  
dr hab. inż. Stanisław Gaca, prof. PK



Zarząd Infrastruktury Komunalnej i Transportu  
ul. Centralna 53  
31-586 Kraków

Kraków, 12.09.2013

Audyt (opinia) do projektu organizacji ruchu na drodze dla rowerów w al. 3 Maja (projekt BikePAL, Politechnika Krakowska, autorki: Joanna Jabłońska, Agnieszka Kosal).

Projekt należy uznać za ciekawy i mający duży potencjał poprawy bezpieczeństwa lub przynajmniej minimalizacji konfliktów między pieszymi a rowerzystami na drodze dla rowerów zlokalizowanej wokół Błoi. Jako pilotaż może wskazać kierunek działań w innych sytuacjach gdy ruch rowerowych odbywa się w bezpośrednim pobliżu ruchu pieszego o dużych natężeniach, w tym - o nietypowym charakterze (wrotkarze, biegacze).

Projekt w obu wariantach jest poprawny, z zastrzeżeniami dot. skrzyżowania z ul. Oleandry i technologii jak poniżej. Można go ewentualnie zmodyfikować, stosując na drodze dla rowerów dodatkowo w jej osi linię segregującą P-1b. Wariant 2 (malowanie wybranych powierzchni, tła znaków poziomych P-10 i P-23) zapewne będzie znacznie tańszy.

Projekt organizacji ruchu na skrzyżowaniu z ul. Oleandry musi uwzględnić fakt, że droga dla rowerów wydzielona z chodnika została tam zlikwidowana i ruch rowerowy odbywa się w jezdni ul. Oleandry na zasadach ogólnych. Ponieważ ruch rowerowy na tym skrzyżowaniu odbywa się w poprzek jezdni al. 3 Maja w dwóch kierunkach, należy rozważyć zastosowanie oznakowania poziomego jak w przypadku analogicznego skrzyżowania al. Focha z ul. Kasztelańskiej (przejazdy dla rowerzystów kończące się w jezdni ul. Kasztelańskiej).

Należy zwrócić uwagę na następujące kwestie:

- wykonanie nawierzchni barwionej zgodnie z zaleceniami producenta, w tym - jeśli zachodzi taka potrzeba - stosując odpowiednie substancje uszorstniające w celu wyeliminowania ryzyka poślizgu np. w deszczu;
- należy rozważyć zastosowanie na eksperymentalnym odcinku różnych technologii (malowanie grubowarstwowe oraz cienkowarstwowe) w celu zebrania opinii użytkowników (rowerzystów) w zakresie jakości nawierzchni (trwałość, opory toczenia).

Marcin Hyla

*Ap. 2 – Positive audit from Mr. Marcin Hyla*







## **1. PRZEDMIOT PROJEKTU.**

Przedmiotem opracowania jest projekt organizacji ruchu na drodze rowerowej na terenie Błonia Krakowskich, obejmujący modernizację ścieżki rowerowej o szerokości 2,50 m w postaci zmiany koloru nawierzchni wraz z pełnym oznakowaniem poziomym i pionowym:

- odcinek o długości 200,00 m

Dodatkowo przewidziano do wykonania:

- korektę przejazdów rowerowych w obszarze skrzyżowania al. 3 Maja z ul. Oleandry.

## **2. OPIS PRZYJĘTYCH ROZWIĄZAŃ.**

Projekt organizacji ruchu na danej ścieżce rowerowej, uwzględniający jej modernizację, przewiduje:

- malowanie istniejącej nawierzchni rowerowej na kolor czerwony z zastosowaniem technologii cienkowarstwowej na odcinku 100 m (km 0+000 – 0+100);
- malowanie istniejącej nawierzchni rowerowej na kolor czerwony z zastosowaniem technologii grubowarstwowej na odcinku 100 m (km 0+1000 – 0+200);
- wykonanie linii ciągłej P-2b na odcinku 200 m z zastosowaniem farby o wysokiej odblaskowości;
- wykonanie linii separacyjnej P-1b na odcinku 50 m.
- lokalizację znaków P-23 w odstępach co 50 m (wykonanych z zastosowaniem farby o wysokiej odblaskowości);
- pełne oznakowanie pionowe zgodnie z rys.1.

Projekt organizacji ruchu przewiduje również polepszenie widzialności przejść dla pieszych – zastosowanie czerwonego tła - znajdujących się na projektowanym odcinku ścieżki rowerowej oraz korektę przejazdów rowerowych w obszarze skrzyżowania al. 3 Maja z ul. Oleandry. Korekta została przeprowadzona tak, aby przejazdy dla rowerów kończyły się w jezdni ul. Oleandry. Do wydzielenia przejazdów zastosowano:

- linię przerywaną P-11,
- oznaczenie powierzchni przejazdu na czerwono.

## **3. OZNAKOWANIE POZIOME I PIONOWE.**

Projektowane znaki pionowe:

- A-7 (1 sztuka),
- D-6 (3 sztuki),
- D-6b (1 sztuka).

Projektowane znaki poziome:

- P-1b (50 m),
- P-2b (200 m),
- P-10 (2,50m),
- P-11 (17 m),
- P-23 (10 sztuk).

## **4. ZAŁĄCZNIKI.**

Załącznik nr 1 - Rysunki:

- projekt organizacji ruchu – ścieżka rowerowa (rys.1).



**ZARZĄD INFRASTRUKTURY KOMUNALNEJ I TRANSPORTU W KRAKOWIE**

ul. Centralna 53, 31-586 Kraków, centrala tel. +48 12 616 7000, fax: +48 12 616 7417, email: sekretariat@zikit.krakow.pl

ZIKiT/S/97445/13/UN/79203

Kraków, dnia 19.12.2013

Dotyczy: projekt organizacji ruchu wykonany przez p. Agnieszkę Kosal i p. Joannę Jabłońską dla ścieżki rowerowej przy Błoniach Krakowskich w ramach projektu Bike Pal

**Katedra Budowy Dróg i Inżynierii Ruchu  
Politechnika Krakowska im. T. Kościuszki  
Ul. Warszawska 24**

W odpowiedzi na wniosek w sprawie wprowadzenia oznakowania ścieżki rowerowej na Błoniach Krakowskich Sekcja ds. Realizacji Polityki Rowerowej pragnie poinformować, iż popiera wprowadzenie przedmiotowego oznakowania z uwagi na fakt, iż może ono dostarczyć informacji na temat postrzegania przez rowerzystów różnych typów stosowanych nawierzchni.

Wprowadzenie oznakowania będzie jednak uzależnione od możliwości technologicznych i finansowych Zarządu Infrastruktury Komunalnej i Transportu. Z uwagi na braki w infrastrukturze rowerowej miasta w pierwszej kolejności realizowane są projekty wpływające bezpośrednio na bezpieczeństwo użytkowników. Jednostka nie jest w stanie zagwarantować czy i w jakim terminie projekt zostanie wprowadzony do realizacji.

Z-ca Dyrektora ds. Utrzymania  
Andrzej Olewicz

Otrzymują :  
1 x Adresat  
1 x a/a

*Ap. 4 – Official Letter from Mr. Olewicz, ZIKiT  
(support of our proposal but disagreement for financing the project)*