

1 Measure title: **An integrated mobility plan for the Technical University of Krakow**

City: **Krakow**

Project: **CARAVEL**

Measure number: **11.9**

A Introduction

A1 Objectives

The measure objectives are:

- Introducing an integrated mobility plan for students and employees of the Technical University of Krakow (PK)
- Changing employees' and students' mobility behaviours
- Creation of an institutional mobility consultant
- Designing a new internet based information about cycle parking, walking initiatives, PT information, special integrated fares for students and employees and about carpooling system
- Increasing the use of sustainable transport modes
- Reducing parking needs for cars in the University campuses
- Reducing traffic congestion near the Warszawska St

A2 Description

Car traffic caused by students and employees led to considerable problems related with congestion and parking in the area of the University. Inquiry about employees' and students' travel behaviours at the Technical University of Krakow showed that employees and students more often choose public transport in their trips to and from University, but the car trips have also large share in modal split – against the demand of sustainable mobility.

In order to change this situation, CARAVEL team at University prepared “An integrated mobility plan for Technical University of Krakow” as a pilot solution. The aims of this plan were: change of employees' and students' travel behaviours towards sustainable transport modes, reduction of parking needs in the University campuses and reduction of congestion in the area of the University.

An integrated mobility plan for Technical University of Krakow contains strategies for the promotion of sustainable mobility forms and many activities and solutions to achieve an idea of sustainable mobility. The promotion of this idea means that employees and students will be encouraged to travel by public transport, bikes, walking trips through seminars, campaigns, leaflets etc. Another important aspect is the recommendation of carpooling system - more efficient way of private car usage – when more people use one vehicle during travelling to work, study or even for their leisure activities. Some of activities that are part of the of sustainable mobility idea are:

- Creation of a concept of better public transport connection between University campuses
- Creation of a concept of bike paths between University campuses
- New information website with data concerning PT, bikes, walking initiatives and carpooling system at the University
- Creation of a mobility consultant position – that will be in charge of giving employees and students advise and information about travelling
- New car parking policy – reduction of parking needs and increase in parking costs in the area of the University

- New bike policy – promotion of bikes and location of new bike racks in University campuses

B Measure implementation

B1 Innovative aspects

The innovative aspects of the measure are:

- **New conceptual approach** – There is no official mobility plan in Krakow, so an integrated mobility plan for PK would be a new idea in the city and even in Poland. A mobility plan will be the most important instrument of mobility management at the University.
- **Use of new technology/ITS** – within the framework of the mobility plan a new internet data base for the University community about travelling across the city concerning bike, PT, carpooling, car trips will be developed. On this website a PT route search engine based on original software created by a PK student will be placed.
- **New mode of transport exploited** – An important aspect of the mobility plan is the recommendation of new private car usage - carpooling system – as a great way of travelling to work, to the University and also for leisure purposes.
- **Targeting specific user groups** – This integrated mobility plan is directed to University student and employees. PK campuses are located in different areas of Krakow, so the University community has to travel a lot in order to get PK buildings. Besides, PK employees are a specific group – most of them drive their car to work so they represent a good group for the implementation of activities that can encourage them to change their mobility behaviours and convince them to travel in other ways – by PT, bikes, by foot or in carpooling system. Students are generally very active and they like new solutions regarding their transport modes. Young people usually travel by PT and enjoy driving a bike. That is why students are a specific target group for the implementation of measure within the mobility plan.
- **New organisational arrangements** - Creation of a mobility consultant position – someone who will give employees and students advise and information about travelling especially by using sustainable transport modes

B2 Situation before CIVITAS

Traffic congestion near the Warszawska-Street is the main reason of loss of time and has a considerable influence on the environment and on the decrease of accessibility. This situation is due to an ongoing strong trend of increasing car ownership, especially among young people. There are also problems with parking – The Technical University of Krakow on the Warszawska-Street is placed in the city centre, in B-zone and the access to the University car parking is difficult due to a decreasing number of parking places on the campus. Parking places will be reduced in the near future as a result of the construction of a new library of PK. Students and employees will be enforced to either park in a restricted car parking zone or change their means of transport. Because of the problems related to parking and congestion, a possible solution was to implement new alternative forms of transport, propagate PT, cycling culture and walking trips among users of private transport. Regarding the transport connections between the different sites of the university and most of the places in the city, there were many direct buses and tram routes, but there were no direct connections between all the campuses of university (only the bus line “129” connecting the campus on the Warszawska-Street and the campus in Czyżyny and the tram line “4” connecting campus on the Podchorążych-Street and campus in Czyżyny).

B3 Actual implementation of the measure

The measure was implemented in the following stages:

Stage 1: Identification of the situation “before” measure implementation (01.2006 – 06.2007) – Analysis of “before” situation included inquiry about students’ and employees’ travel behaviours and preferences and inventories such as: inventory of parking places in the area of PK, inventory of bike lines around PK campuses and inventory of transport operators operating near PK campuses. The outcome from users structure survey on 129 bus line that is one of PT connections between PK campuses has been included.

Stage 2: Creation of concepts about realization of activities and solutions within measure 11.9 (01. 2006 – 06.2007) – the concepts of realization of all activities concerning the implementation of a mobility plan at PK were prepared. Two working Documents: WD 11.9.1 – “Concepts about PT connections, bicycle paths and carpooling system” and WD 11.9.2 “An integrated mobility plan for Technical University of Krakow” were developed. WD 11.9.2 is an exhaustive document based on an analysis of the current situation, it includes a list of targets to be achieved, list of most important schemes, activities and solutions for the realization of sustainable mobility. This document includes all forms that may contribute to the reduction of car trips to and from PK campuses and promotion of pro-ecological transportation among employees and students of the University.

Concepts of activities realized within an integrated mobility plan are presented below:

- Concept of better PT connections between PK campuses (improvement in PT connections)
- Concept of bike paths between PK campuses
- Concept of carpooling system implementation at PK
- New information website with data concerning PT, bikes, walking initiatives and carpooling system at University
- Creation of mobility consultant position at PK
- New car parking policy
- New bike policy
- Improvement in accessibility to PK campuses
- Improvement in mobility conditions for handicapped and older people
- Workshop for employees and students
- Activities of promotion of sustainable mobility (happenings, leaflets, campaigns).

Stage 3: The stage of measure 11.9 implementation (05.2007 - 06.2008) – Implementation of all concepts, activities and solutions in the framework of an integrated mobility plan.

Stage 4: The stage of measure 11.9 dissemination (04.2007 - 11.2008) - Dissemination of all activities and solutions within the realization of an integrated mobility plan.

Stage 5: Analysis of results of mobility plan implementation (01.10.2008 – 21.11.2008) – Within analysis of results of mobility plan implementation the situation “before” and “after” measure implementation was investigated.

B4 Deviations from the original plan

The deviations from the original plan comprised:

- **Delay of start of new internet database about travelling** – The new internet database was a result of student's master dissertation. During building up process of the website, technical problems occur and it was a time consuming to solve them. The problems were related with creation of search engine which enable users to precise plan of trips by PT and car. A lot of time took also a correction of website appearance and content.
- **Delay in implementation of concept of improvement in PT connections between University campuses and concept of bike paths between University campuses**

PK has prepared two concepts concerning necessary changes in bus routes and streets circulation to improve PT travelling and cycling between PK campuses. Creation of concepts was preceded by comprehensive analysis. Implementation of the concepts was on the city administration side and PK has no influence on any further activities.

Several meetings with road and transport administrations (units of the Krakow Municipality) were organised, but current situation of the bus routes changes concept is rather not positive. Krakow Road and Transport Administration (ZDiT) decided to sign a contract for "independent" measurements (number of passengers and their destination stops, etc), to have strong argument for implementation of the concept (despite PK measurement results). The decision should be undertaken in May 2008, but public tender was unfortunately delayed (due to some complains), and during the students vacations measurements has no sense. Thus decision about bus routes changes has been shifted to October 2008 what raise a risk that it will not be implemented before final evaluation report.

Similar situation concern a concept of necessary changes in streets circulation which improve cycling between PK campuses. Several consultations were made with authorities, and two units already gave a positive feedback to the professional project prepared by PK. Still one permit is needed. However at least two months are necessary to implement all ideas assumed in the concept, thus also these changes might not be realized before the submission of the evaluation report.

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

Measure 9.2 An integrated mobility plan for the Technical University of Krakow – The mobility plan aim is the promotion of new and pro-ecological transport modes and carpooling system is one of these transport modes. In the framework of the mobility plan, employees and students will be encourage to travelling in carpooling system by information at internet database, in brochures or during workshops. This form of transport will be also recommended by the mobility consultant.

C Evaluation – methodology and results

C1 Measurement methodology

C1.1 Impacts and Indicators

Table of Indicators.

Evaluation Category	N°	Indicator	Units	Source of data	Methodology for indicator construction (survey, modelling, etc)	Baseline date
Transport	26,27	Average modal split	%	PK	Survey	11/2006
	Own	Increase in bike infrastructure near PK campuses	km	PK	Measurement	11/2006
	Own	Percentage of increase in bicycle trips	%	PK	Survey	11/2006
	Own	Percentage of increase in PT trips	%	PK	Survey	11/2006
	Own	Percentage of increase in trips by car as a passenger (when driver regularly or occasionally give a place in car) – carpooling	%	PK	Survey	11/2006
	Own	Percentage of employees and students who own an identifier which entitle to entry and park in the area of PK	%	PK	Survey	11/2006
	Own	Improvement in accessibility from PK campus at Warszawska St. to railway track	km	PK	Measurement of travel distance between PK campus at Warszawska St. And railway track	10/2007
	Own	Improvement in accessibility from PK campus at Warszawska St. to Bus Station	km	PK	Measurement of travel distance between PK campus at Warszawska St. and Bus Station	10/2007
	Own	Increase of direct connections between PK campuses	No.	PK	Measurement of direct connection between PK campuses	10/2007
	Own	Evaluation of park places for bikes in the area of PK	%	PK	Survey	11/2006
Society	Own	Level of interest in getting information about travelling	%	PK	Survey	11/2006

Detailed description of the indicator methodologies:

- **Average modal split** – indicator is defined as a percentage of students and employees who travel by individual transport mode (PT, car, bikes, carpooling, walking trips) in their trips to and from PK campuses. Indicator for “before” situation was determined during inquiry about students’ and employees’ travel behaviours and preferences (11.06 – 01.07). Indicator for “after” situation was

determined during inquiry about students' and employees' travel behaviours and preferences carried out in October 2008.

- **Increase in bike infrastructure near PK campuses** - indicator is defined as length of bike paths near PK campuses (in m). It was expected that the bike infrastructure near University campuses will be increased after mobility plan implementation. Indicator for "before" situation was determined during inventory of bike paths near University campuses in July 2006. Indicator for "after" situation was determined in the same way in October 2008.
- **Percentage of increase in bicycle trips** - indicator is determined through comparison the percentage of bike trips (to and from PK campuses) before and after implementation of the mobility plan. It was expected that bike trips will be increased after implementation of activities within mobility plan. Indicator for "before" situation was determined during inquiry about students' and employees' travel behaviours and preferences (11.06 – 01.07). Indicator for "after" situation was determined during inquiry about students' and employees' travel behaviours and preferences carried out in October 2008.
- **Percentage of increase in PT trips** - indicator is determined through comparison the percentage of PT trips (to and from PK campuses) before and after implementation of mobility plan. It was expected that PT trips will be increased after implementation of activities within mobility plan. Indicator for "before" situation was determined during inquiry about students' and employees' travel behaviours and preferences (11.06 – 01.07). Indicator for "after" situation was determined during inquiry about students' and employees' travel behaviours and preferences carried out in October 2008.
- **Percentage of increase in carpooling trips** - indicator is determined through comparison the percentage of carpooling trips (to and from PK campuses) before and after implementation of mobility plan. It was expected that carpooling trips will be increased after implementation of activities within mobility plan. Indicator for "before" situation was determined during inquiry about students' and employees' travel behaviours and preferences (11.06 – 01.07). Indicator for "after" situation was determined during inquiry about students' and employees' travel behaviours and preferences carried out in October 2008.
- **Percentage of employees and students who own an identifier which entitle to entry and park in the area of PK** - indicator is determined through comparison the percentage of employees and students who own an identifier which entitled to entry and parking in the area of PK. It was expected that after mobility plan implementation the bike, PT and walking trips will be increased and car trips will be reduced so the number of people who have an identifier will be smaller. Indicator for "before" situation was determined during inquiry about students' and employees' travel behaviours and preferences (11.06 – 01.07). Indicator for "after" situation was determined during inquiry about students' and employees' travel behaviours and preferences carried out in October 2008.
- **Improvement in accessibility from PK campus at Warszawska St. to railway track** - indicator is defined as distance (in m) between PK campus at Warszawska St. and railway track. It was expected that after mobility plan implementation this distance will be decreased so the accessibility from PK campus at Warszawska St. to railway track will be better. Indicator for "before" situation was determined through distance measurement in May 2007. Indicator for "after" situation was determined in the same way in October 2008.
- **Improvement in accessibility from PK campus at Warszawska St. to the Bus Station** - indicator is defined as distance (in m) between PK campus at Warszawska St and the Bus Station. It was expected that after mobility plan

implementation this distance will be decreased so the accessibility from PK campus at Warszawska St. to the Bus Station will be better. Indicator for “before” situation was determined through distance measurement in October 2007. Indicator for “after” situation was determined in the same way in October 2008.

- **Increase of direct connections between PK campuses** - indicator is defined as number of direct PT (tram and bus) connections between PK campuses. It was expected that after mobility plan implementation the number of these connection will be increased. Indicator for “before” situation was determined during inventory of PT operators operating near University campuses in February 2006. Indicator for “after” situation was determined in the same way in October 2008.
- **Evaluation of park places for bikes in the area of PK** - indicator is defined as evaluation of number of bike parking places in the area of PK. It was expected that after mobility plan implementation the number of bike racks will be increased so employees and students will evaluate the number of bike parking places as sufficient. Indicator for “before” situation was determined during inquiry about students’ and employees’ travel behaviours and preferences (11.06 – 01.07). Indicator for “after” situation was determined during inquiry about students’ and employees’ travel behaviours and preferences carried out in October 2008.
- **Level of interest in getting information about travelling** - indicator is defined as percentage of employees and students interested in getting information about travelling by leaflets, brochures, mobility consultant and devices located at PK. Indicator for “before” situation was determined during inquiry about students’ and employees’ travel behaviours and preferences (11.06 – 01.07). Indicator for “after” situation was determined during inquiry about students’ and employees’ travel behaviours and preferences carried out in October 2008.

C1.2 Establishing a baseline

Baseline data was established at February 2006 when the available data and the methods of measurement were determined.

C1.3 Building the business-as-usual scenario

Will be soon.

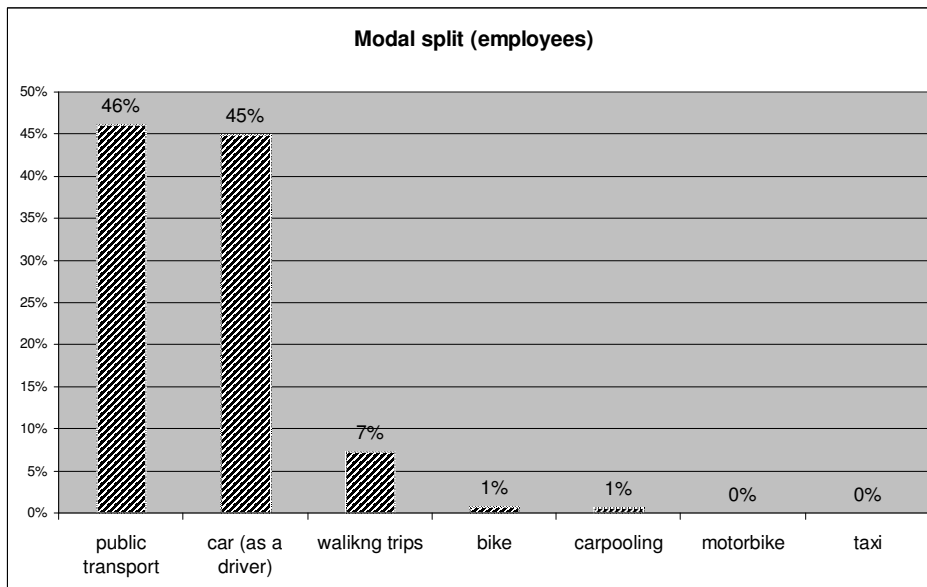
C2 Measure results

The results are presented under sub headings corresponding to the areas used for indicators – society and transport. The results are presented for “before” and “after” situation.

C2.4 Transport

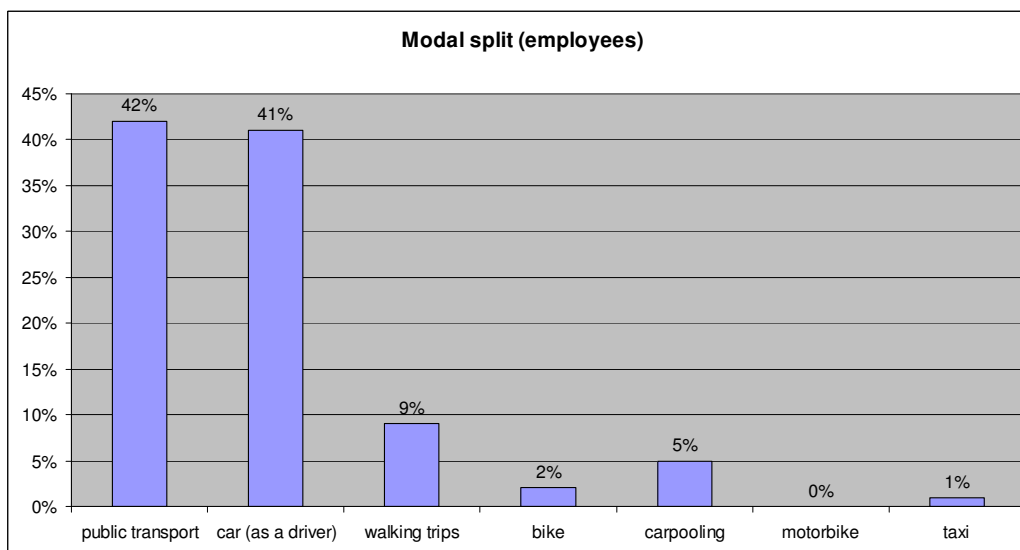
Indicator: Average modal split:

C2.4-1. Results in "before" situation for employees of University (01.2007):



45% of employees have travelled by car to work places. Almost the same - by PT (46%). Walking trips were chosen by 7% of employees. Only 1% of them used bikes in their journeys! 1% of carpooling trips might be caused by misunderstandings of term of carpooling. Employees might travel in carpooling but might not know that they used carpooling.

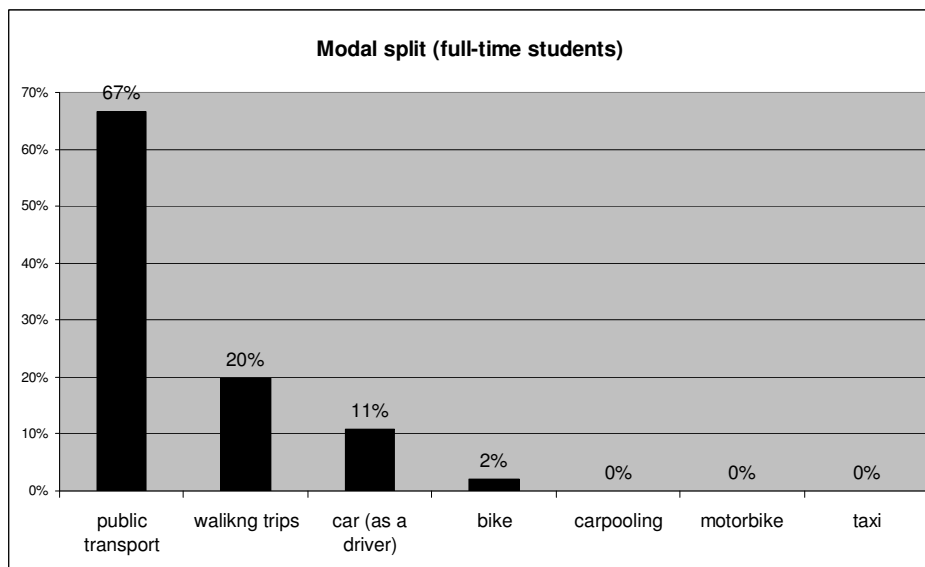
C2.4-2. Results in "after" situation for employees (10.2008):



Comparing results in "before" and "after" situation, increase in bicycle trips by 1% is a result of successful implementation of mobility plan measures. But this percent of increase is still not high and might be a result of delay in implementation of concept of bike paths between University campuses (implementation of this concept is now on the city administration side). Increase in walking trips by 2% probably came after the pedestrian friendly street

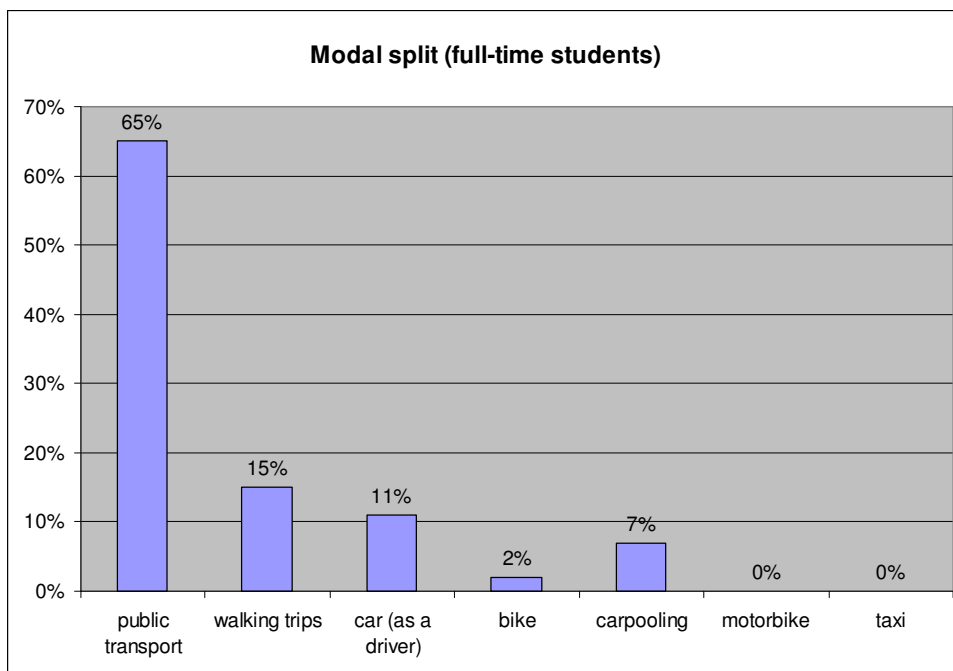
reconstruction nearby campus at Warszawska St and successful implementation of the mobility plan measures. 4% increase in carpooling trips is caused mainly by increased awareness level – however before measure implementation many employees used carpooling they were not aware about it. Another reason is that carpooling is becoming more popular among employees. Concerning decrease of 4% in PT trips, this situation may be caused by increase in carpooling trips. However the car tips were decreased by 4%.

C2.4-3. Results in "before" situation for full-time students (11.2006):



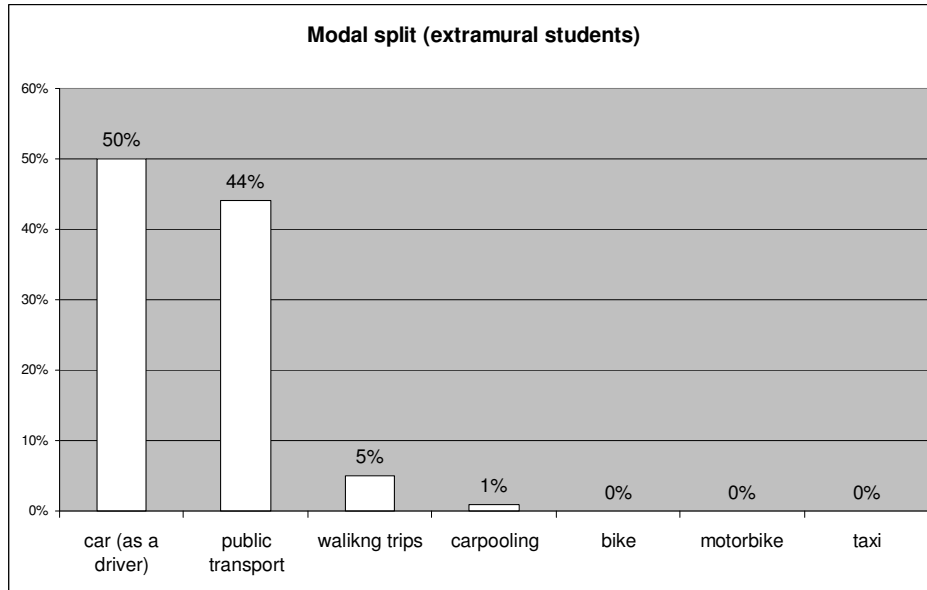
Most of full-time students (67%) travelled by PT but also a number of car trips was significant. 20% travelled by foot and only 2% by bike – the most important reasons of low level of bike trips were: insufficient number of parking places for bikes and lack of cohesive bike track system. 0% of carpooling trips might be caused by misunderstandings of term of carpooling. They might travel in carpooling but might not know that they used carpooling.

C2.4-4. Results in "after" situation for full-time students (10.2008):



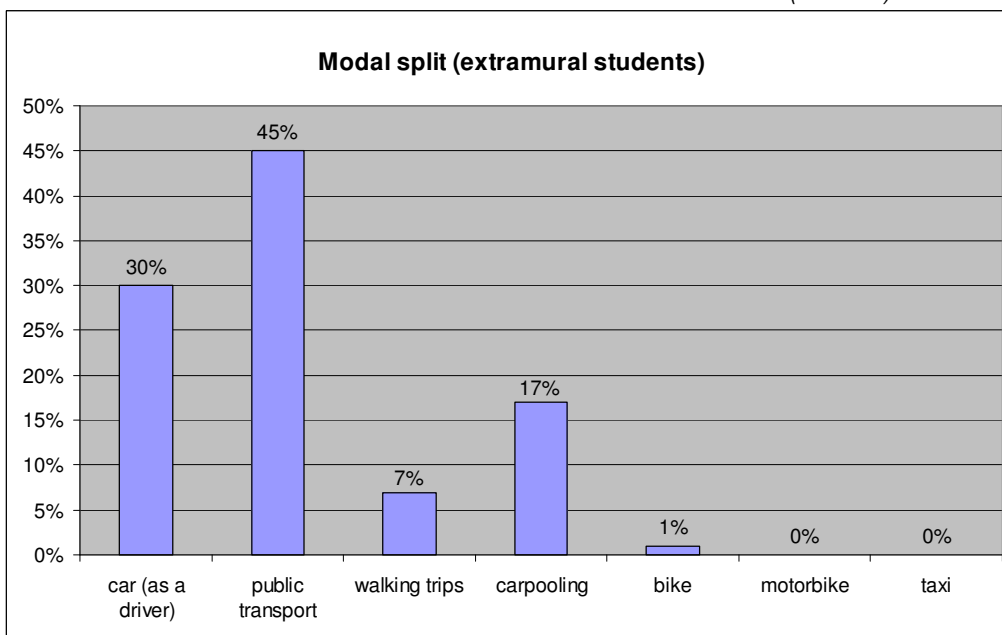
Comparing results in “before” and “after” situation, lack of increase in bicycle trips (still 2%) may be the result of a delay in the implementation of concept of bike paths between University campuses. The conditions of bike trips are still the same (non-cohesive system of existing bike tracks, lack of sufficient bike paths infrastructure near University). Concerning decrease of 2% in PT trips and decrease of 5% in walking trips, this situation may be caused by an increase in carpooling trips – more students travel in carpooling system because of the successful implementation of carpooling at University. The second reason is related with the establishment of an informal parking (private possession dedicated for future investment) near PK campus at Warszawska St. Full-time students (they are not allowed to have an identifier – permission which entitles them to park at University area) can park at this informal parking without any charge. 7% increase in carpooling trips is caused mainly by increased awareness level – however before measure implementation many people used carpooling they were not aware about it. Another reason is that carpooling is becoming more popular among students.

C2.4-5. Results in “before” situation for extramural students (11.2006):



50% of extramural students travelled by car to the University, 44% - by PT. Walking trips were chosen by 5% of students. 1% of carpooling trips might be caused by misunderstandings of term of carpooling - students might travel in carpooling but might not know that they used carpooling. They didn't use bikes in their journeys.

C2.4-6. Results in “after” situation for extramural students (10.2008):



Comparing results in “before” and “after” situation, the very low increase in bicycle trips (from 0% to 1%) may be caused by a delay in the implementation of concept of bike paths between University campuses. The conditions of bike trips are still not good (non-cohesive system of existing bike tracks, lack of sufficient bike paths infrastructure near University). Concerning low increase in PT trips (1%), this situation may be caused by increase in carpooling trips or in walking trips – after mobility plan implementation more students travel in carpooling or by foot. Very significant increase in carpooling trips is caused mainly by increased awareness level – however before measure implementation many people used carpooling they were not aware about it. Another reason is that carpooling is becoming more popular among students. However, what is very successful achievement the number of car trips was decrease by 20% (probably as a result of increase in carpooling trips).

Indicator: Increase in bike infrastructure near PK campuses

For “before” situation, length of bike infrastructure (in m) near University campuses was (07.2006):

Name of University campus	Length of bike paths (m)
Warszawska st. campus	0
Podchorążych st. campus	1200
Czyżyny campus	4400
Students Town	1500

For “after” situation, length of bike infrastructure (in m) near University campuses is (10.2008):

Name of University campus	Length of bike paths (m)
Warszawska st.campus	450
Podchorążych st. campus	1200
Czyżyny campus	4400
Students Town	1500

As we can see bike infrastructure was increased only in the area of campus at Warszawska St. One of the mobility plan measures was the creation of concept of bike paths between University campuses (the same – increase in bike paths infrastructure near University campuses and creation of good conditions of bike travelling for employees and students) The implementation of concept was on the side of the Krakow Road and Transport Authority. Due to a delay in the implementation of concept (lack of final permit from Administration) bike infrastructure will not be increased before the submission of the evaluation report.

Indicator: Percentage of increase in bicycle trips

Comparing results in “before” and “after” situation, the percentage of increase in bicycle trips to and from University campuses is:

- For employees: 1%
- For full-time students: 0%
- For extramural students: 1%

These very low increase in bicycle trips (for extramural students) and lack of increase (for full-time students) may be resulted in delay in implementation of concept of bike paths between University campuses (what was explained above). The conditions of bike trips are still not good (non-cohesive system of existing bike tracks, lack of sufficient bike path infrastructure near University).

Indicator: Percentage of increase in PT trips

Comparing results in “before” and “after” situation, percentage of increase in PT trips to and from University campuses is:

- For employees – decrease by 4%
- For full-time students: decrease by 2%
- For extramural students: 1%

Concerning low increase in PT trips (for extramural students), decrease by 2% in PT trips (for full-time students), and decrease by 4% (for employees) this situation may be caused by increase in carpooling trips. University community more often travel in carpooling system than before because of the successful implementation of “Jedźmy razem” system. The

second reason is related to the establishment of an informal parking (private possession dedicated for future investment) near PK campus at Warszawska St. Full-time students (they are not allowed to have got an identifier – permission which entitles them to park at University area) can park at this informal parking without any charge.

Indicator: Percentage of increase in trips by car as a passenger (when driver regularly or occasionally give a place in car) – carpooling

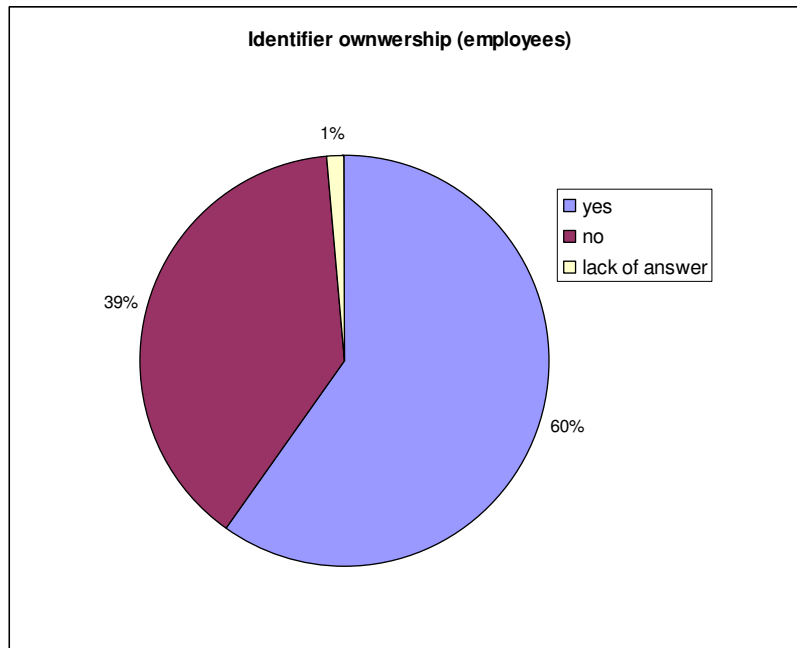
Comparing results in “before” and “after” situation percentage of increase in trips by car as a passenger (carpooling) to and from University campuses is:

- For employees: 4%
- For full-time students: 7 %
- For extramural students: 16 %

It is a very significant increase in carpooling trips for extramural and for full-time students as well as for employees. It is caused mainly by an increase in the awareness level – however as it has already been stated for other indicators, before the measure implementation many people used carpooling but they were not aware about it. Another reason is that carpooling is becoming more popular among University community (especially among extramural students) as a result of successful implementation of “Jedźmy razem” system. Also full-time students, who nowadays can park at an informal parking close to University main Campus, realize a lot of carpooling trips.

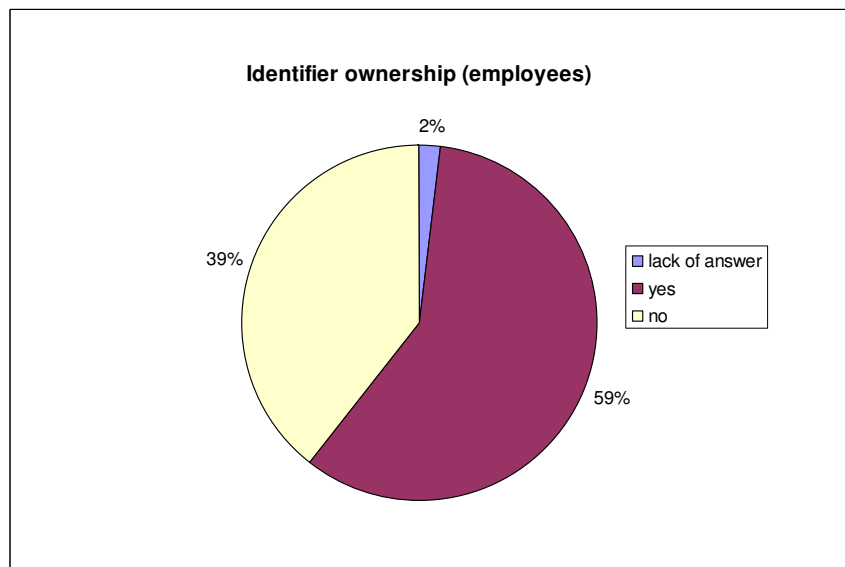
Indicator: Percentage of employees and students who own an identifier which entitle to entry and park in the area of PK

C2.4-7. The results for "before" situation for employees of University (01.2007):



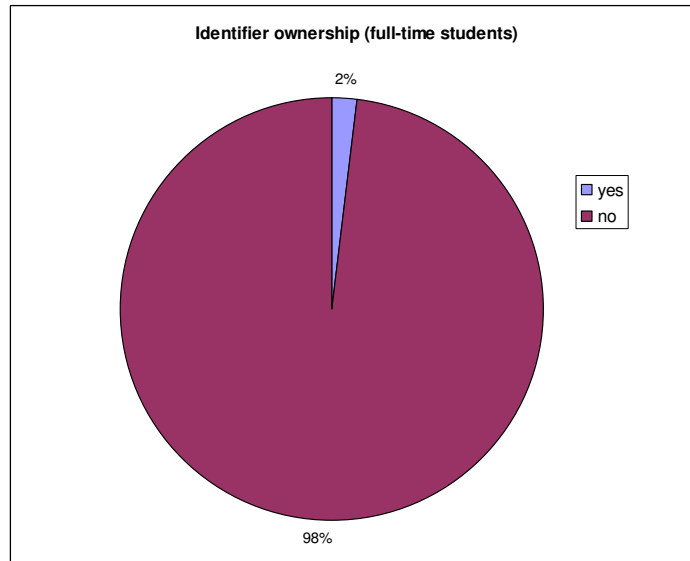
Before mobility plan implementation 60% of employees declared the ownership of identifier (permission which entitled them to entry and park in the area of University).

C2.4-8. The results for "after" situation for employees of University (10.2008):



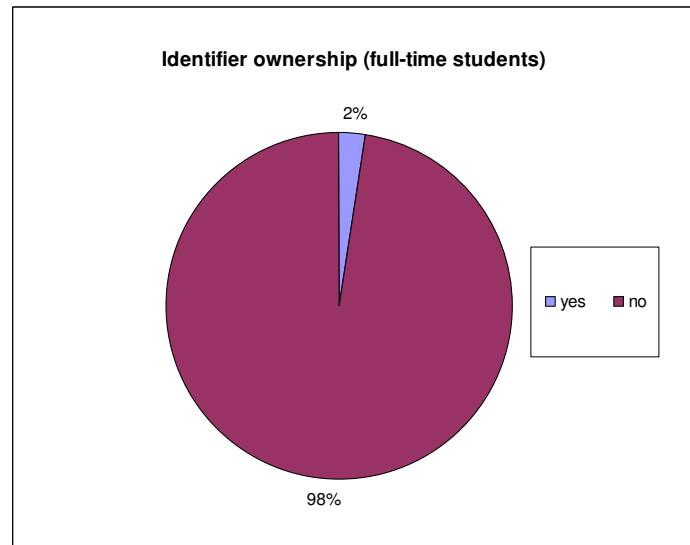
After the mobility plan implementation the share of employees who own identifiers is almost the same – 59%.

C2.4-9. The results for “before” situation for full-time students (11.2006):



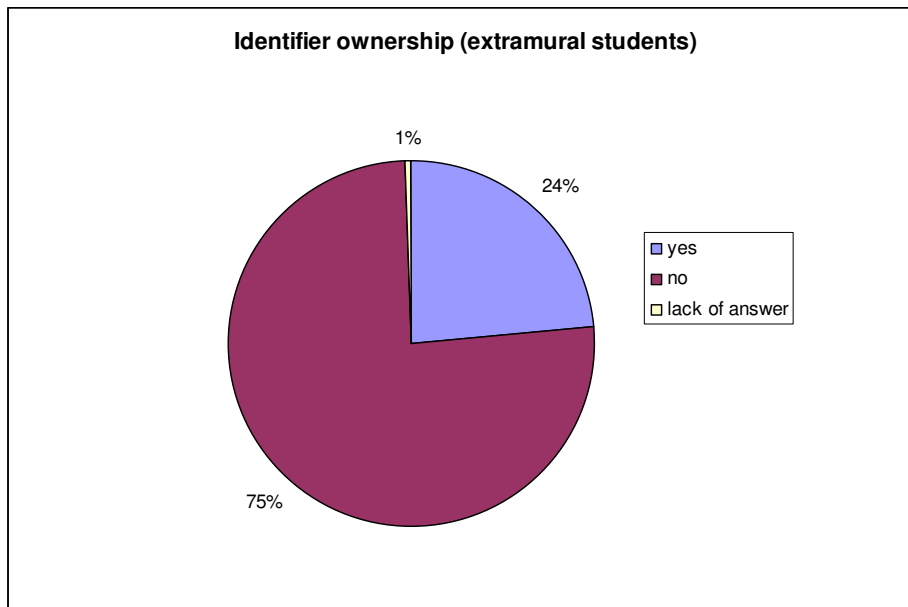
Although full-time students are not allowed to have an identifier – permission which entitle to park at University area, 2% of them declared its ownership!

C2.4-10. The results for “after” situation for full-time students (10.2008):



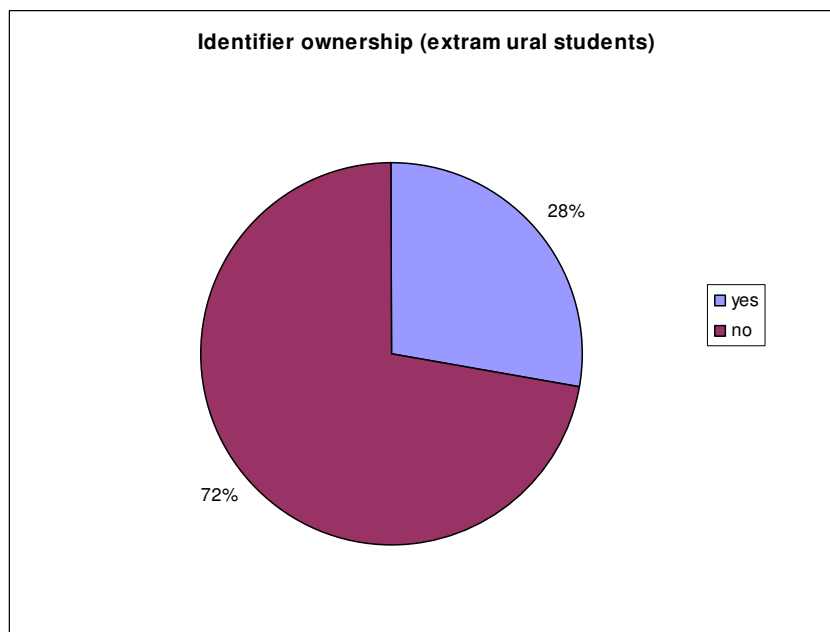
After mobility plan implementation still 2% of full-time students declare its ownership! Probably they get the identifiers in informal ways.

C2.4-11. The results for "before" situation for extramural students (11.2006):



Before the mobility plan implementation 24% of extramural students declared the ownership of identifier (permission which entitled them to entry and park in the area of University).

C2.4.12. The results for "after" situation for extramural students (10.2008):



After mobility plan implementation 28% of extramural students declare the ownership of identifier.

Indicator: Improvement in accessibility from PK campus at Warszawska St. to railway track

For the “before” situation (05.2007), the accessibility from Warszawska St. Campus to railway station was 600 m.

For the “after” situation (10.2008) the delay in the opening of the bike and pedestrian tunnel under the rail track near the University campus at Warszawska St, the accessibility from Warszawska St. Campus to the railway station is still 600 m.

The opening of the bike and pedestrian tunnel together with some mobility plan measures should reduce the distance to the Main Railway station and it could be a great solution for University employees and students. Unfortunately, and because of the delay in the tunnel opening, the distance will not change before the submission of the evaluation report. The reason of this delay was problem with tender for tunnel completion (tunnel completion is on the side of Krakow Public and Road Administration).

Indicator: Improvement in accessibility from PK campus at Warszawska St. to Bus Station

For the “before” situation (10.2007), the accessibility from Warszawska St. Campus to Bus Station was: 800 m

For the “after” situation (10.2008), because of the delay in the opening of the bike and pedestrian tunnel under the rail track near the University campus at Warszawska St, the accessibility from Warszawska St. Campus to the Bus Station is still 800 m.

The opening of the bike and pedestrian tunnel together with some mobility plan measures should reduce the distance to the Bus Station – it could be a great solution for University employees and students. Unfortunately, and due to the delay in the tunnel opening, the distance will not change before the submission of the evaluation report. The reason of this delay was problem with tender for tunnel completion (tunnel completion is on the side of Krakow Public and Road Administration)

Indicator: Increase of direct connections between PK campuses

For the “before” situation (02.2006) the number of direct connections between PK campuses was:

Campus name	Campus name	Campus name	Number of direct connections	Number of bus or tram line
Campus at Warszawska St	Students' Town	Campus in Czyzyny	1	# 129
Campus at Warszawska St	Campus at Podchorazych St	-	1	# 24
Campus in Czyzyny	Campus at Podchorazych St	-	1	# 4

In “before” situation the number of direct connections between PK campuses was three.

For “after” situation (10.2008) the number of direct connections between PK campuses is:

Campus name	Campus name	Campus name	Number of direct connections	Number of bus or tram line
Campus at Warszawska St	Students' Town	Campus in Czyzyny	1	# 129
Campus at	Campus at	-	1	# 12

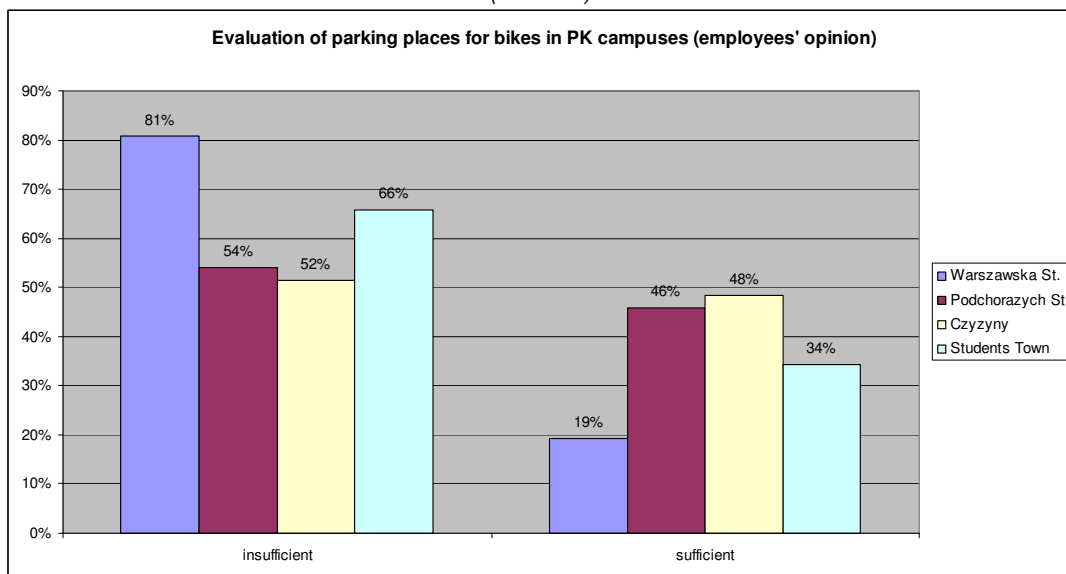
Warszawska St	Podchorazych St			
Campus in Czyzyny	Campus at Podchorazych St	-	1	# 4
Campus at Podchorazych St	Sports Hall	-	1	# 12
Campus at Warszawska	Sports Hall	-	3	#12, #19, #34

So in "after" situation the number of direct connections between PK campuses is seven.

One of the mobility plan measures aimed at the creation of improvement in PT connections between University campuses (also related with establishing of new direct connection). This concept was prepared by the University Caravel team, but there is still lack of agreement from the part of Krakow Road and Transport Administration. At the same time there were established other new tram connections between several of University campuses.

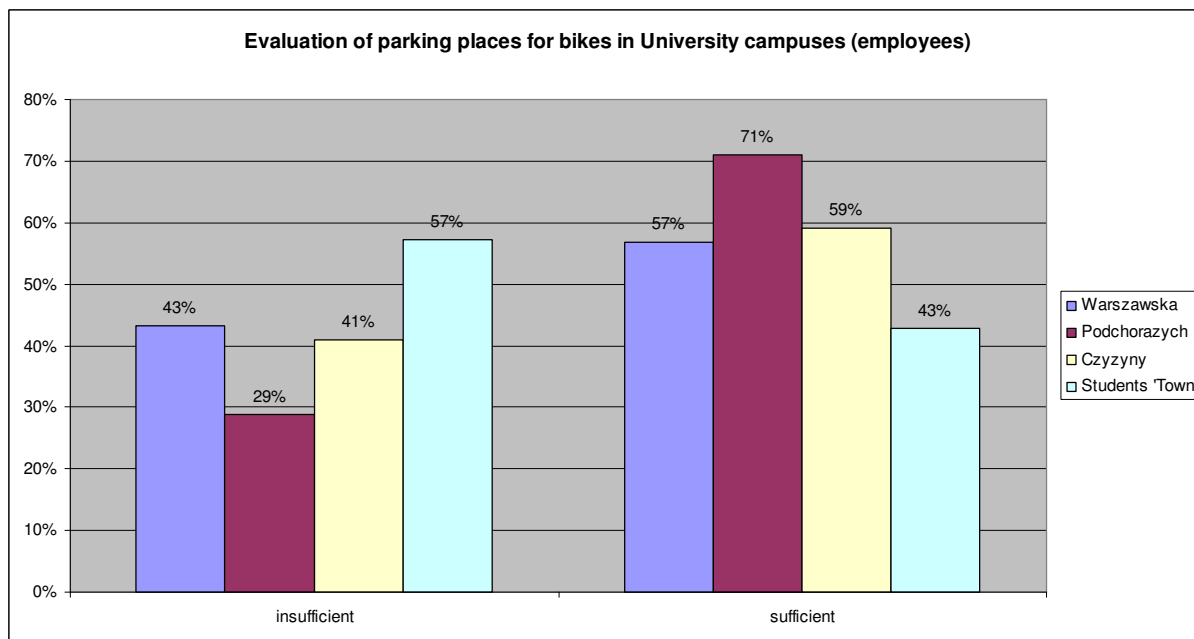
Indicator: Evaluation of parking places for bikes in the area of PK

C2.4-13. Evaluation of parking places for bikes in the area of PK (in the opinion of employees) in "before" situation (01.2007):



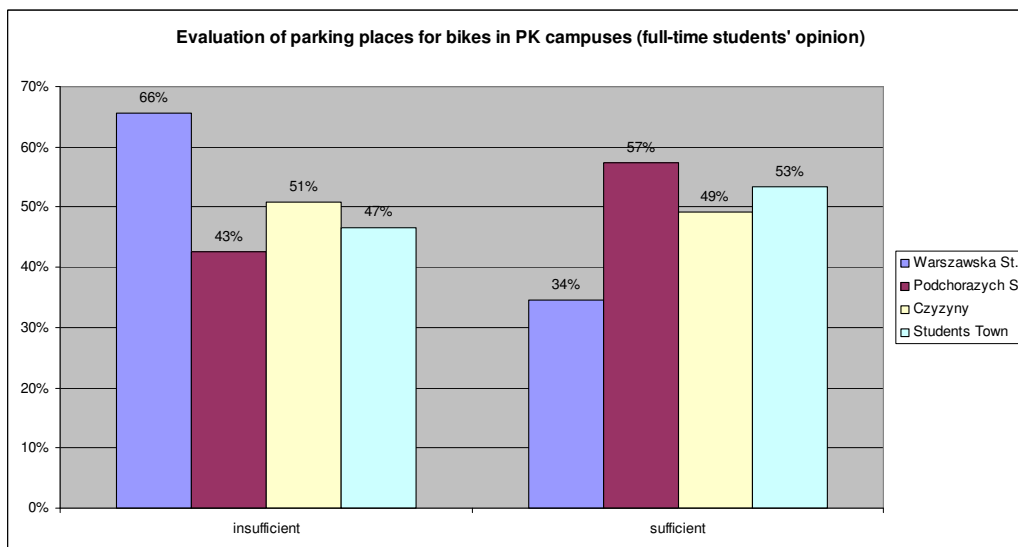
Before the mobility plan implementation there was insufficient number of parking places for bikes. Employees and students strapped their bikes into everything, into: fences, wires, trees and even traffic signs. Also results from inquiry confirmed this intolerable situation.

C2.4-14. Evaluation of parking places for bikes in the area of PK (in the opinion of employees) in "after" situation (10.2008):



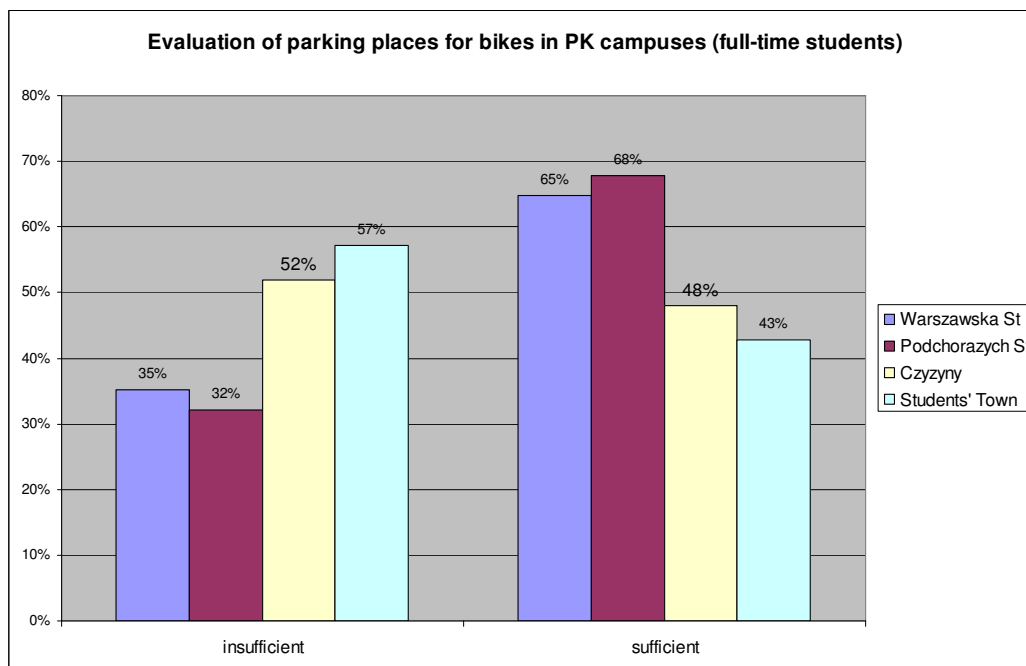
After the mobility plan implementation and installation of 23 new bike rack (number of parking places for bikes was increased from about 60 to 160), employees noticed this positive change (less employees claim that in University campuses is insufficient number of parking places).

C2.4-15. Evaluation of parking places for bikes in the area of PK (in the opinion of full-time students) in "before" situation (11.2006):



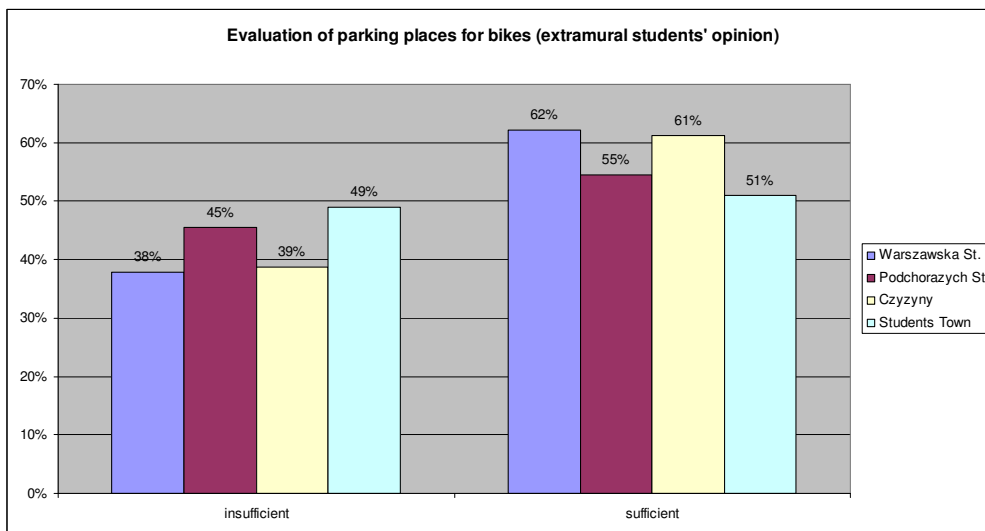
Before the mobility plan implementation there was insufficient number of parking places for bikes according to full-time students.

C2.4-16. Evaluation of parking places for bikes in the area of PK (in the opinion of full-time students) in "after" situation (10.2008):



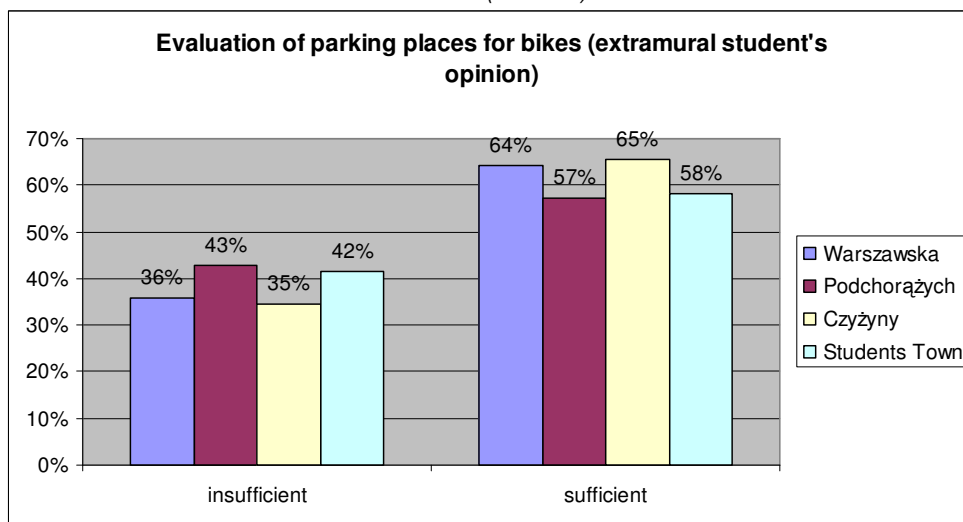
After the installation of new bicycle rack (with about 100 new parking places) at the University campuses, more full-time students claim that the number of parking places for bikes is sufficient. In their opinion, in the area of Students' Town there is still insufficient number (more people support this claim).

C2.4-17. Evaluation of parking places for bikes in the area of PK (in the opinion of extramural students) in "before" situation was (11.2006):



Before the mobility plan implementation there was insufficient number of parking places for bikes according to extramural students.

C2.4-18. Evaluation of parking places for bikes in the area of PK (in the opinion of extramural students) in "after" situation (10.2008):

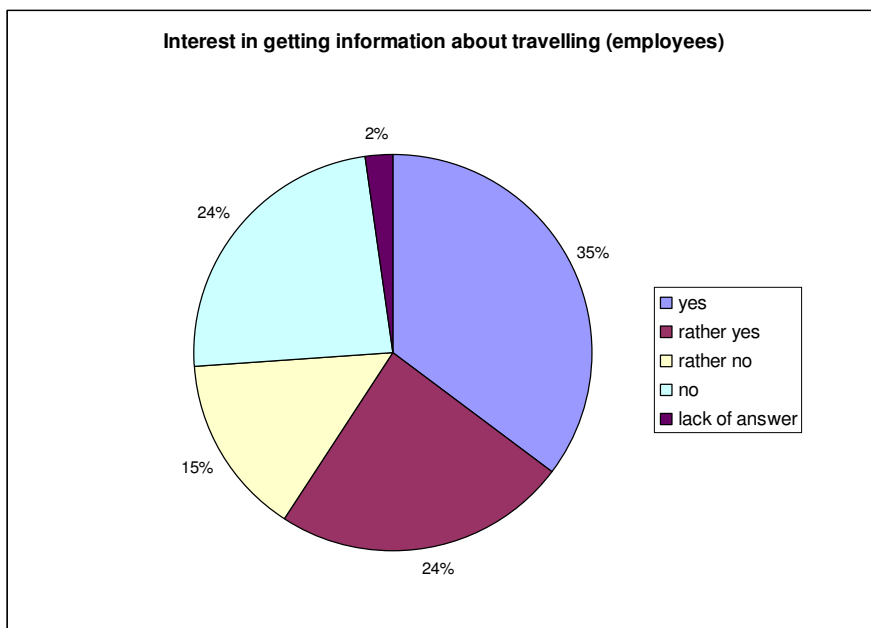


After the installation of new bicycle rack (with about 100 new parking places) at the University campuses, more extramural students claim that the number of parking places for bikes is sufficient.

C2.5 Society

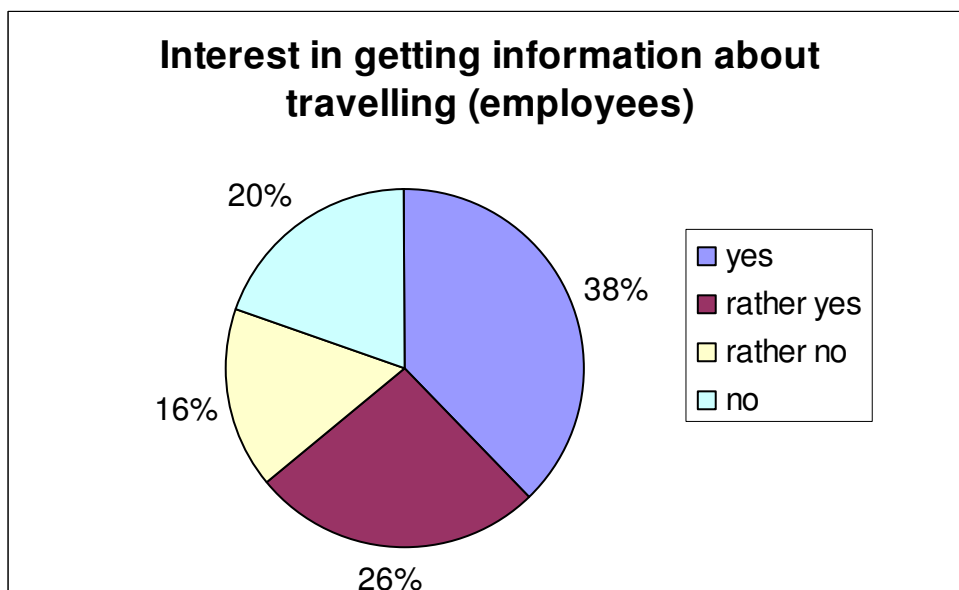
Indicator: Level of interest in getting information about travelling

C2.5-1. Results in "before" situation for employees of University (01.2007):



Before the mobility plan implementation about 60% of employees expressed the interest in getting information about travelling (through leaflets, mobility consultant service etc.)

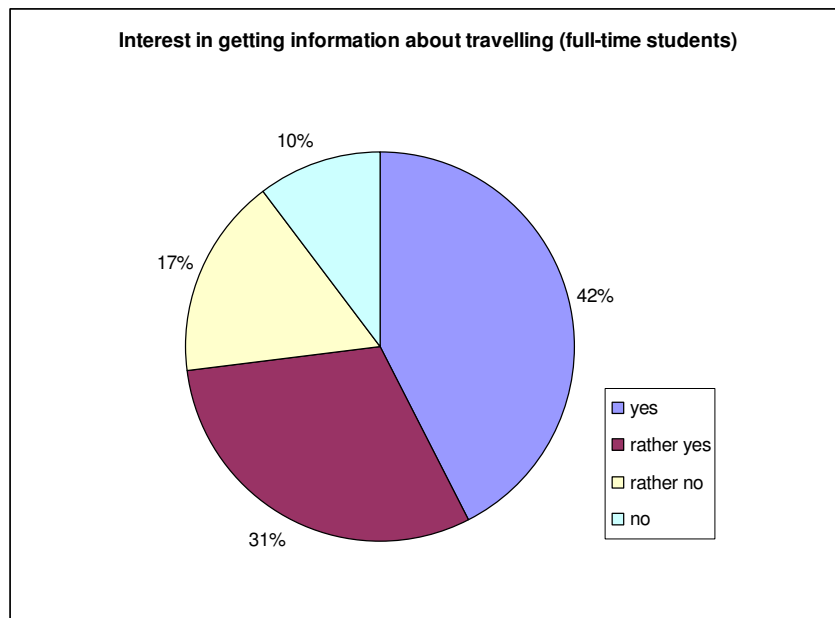
C2.5-2. Results in "after" situation for employees (10.2008):



After the mobility plan implementation 64% of employees express the interest in getting information about travelling. This increase of 4% may be caused by marketing and educational activities realised within the mobility plan and directed to the employees – after

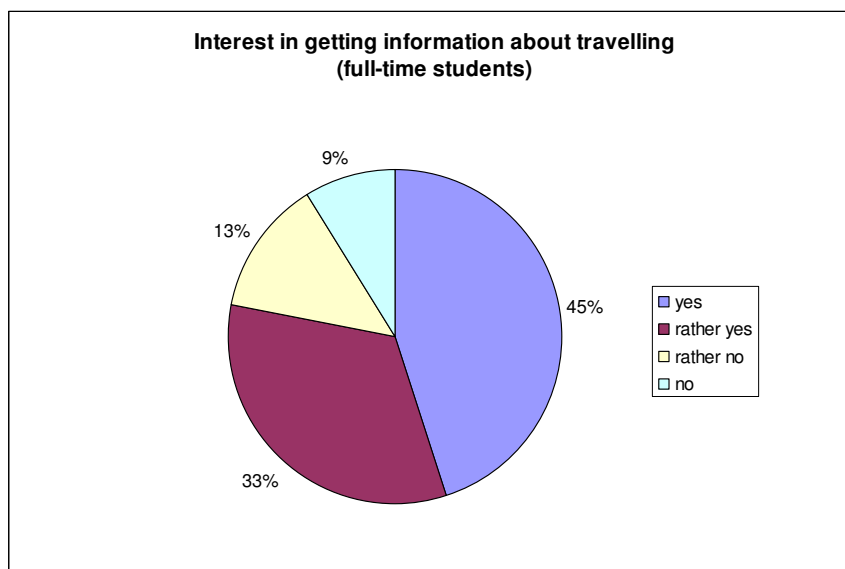
these actions they know potential of sustainable mobility modes and they want more information about possibility of travelling in sustainable way. Besides they have an opportunity to get information about travelling after establishing of mobility consultant office and new information website about PT, bikes and carpooling.

C2.5-3. Results in "before" situation for full-time students (11.2006):



Before the mobility plan implementation 73% of full-time students expressed the interest in getting information about travelling (through leaflets, mobility consultant service etc.)

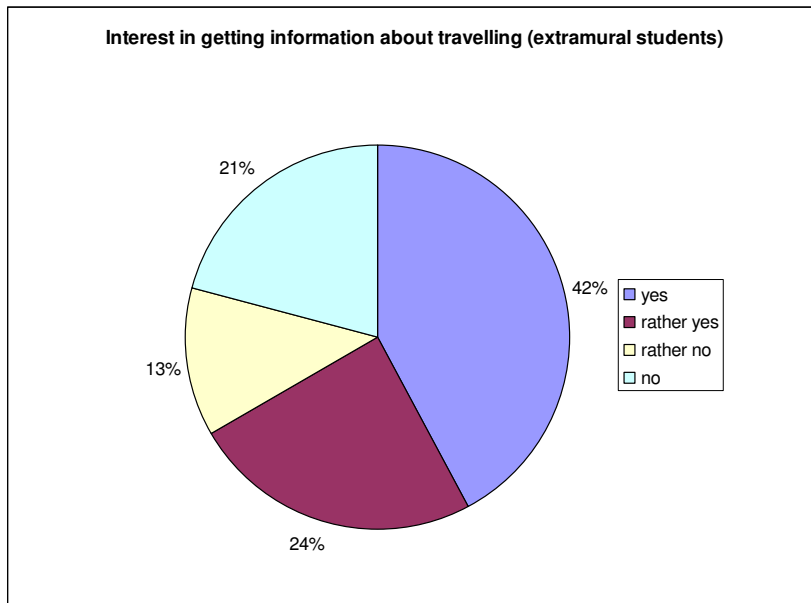
C2.5-4. Results in "after" situation for full-time students (10.2008):



Interest in getting information was increased of around 7% among full-time students. It may be caused by marketing and educational activities realised within mobility plan – after these actions students know potential of sustainable mobility modes and they want more information about possibility of travelling in sustainable way. Besides they have opportunity

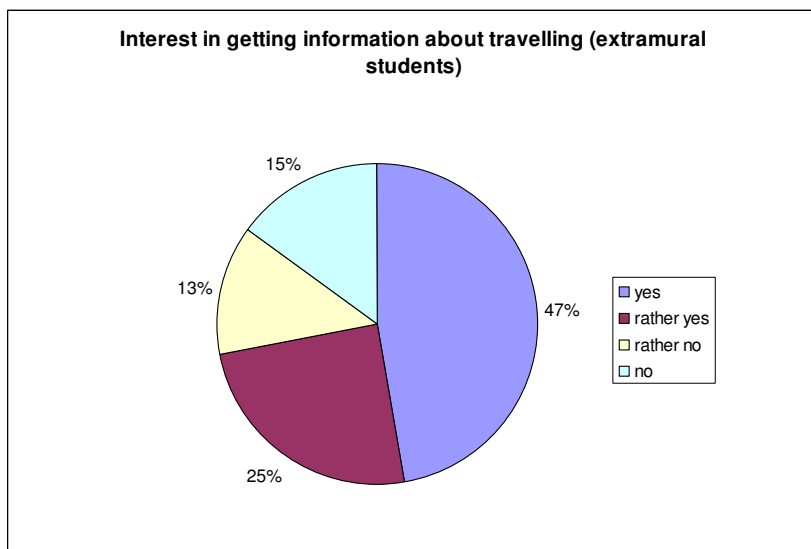
to get information about travelling after establishing of mobility consultant office and new information website about PT, bikes and carpooling.

C2.5-5. Results in "before" situation for extramural students (11.2006):



Before the mobility plan implementation 66% of extramural students expressed the interest in getting information about travelling (through leaflets, mobility consultant service etc.)

C2.5-6. Results in "after" situation for extramural students(10.2008):



Interest in getting information was increased of around 6% among full-time students. It may be caused by marketing and educational activities realised within mobility plan – after these actions students know potential of sustainable mobility modes and they want more information about possibility of travelling in sustainable way. Besides they have opportunity to get information about travelling after establishing of mobility consultant office and new information website about PT, bikes and carpooling.

C3 Achievement of quantifiable targets

No.	Target	Rating
1	Increasing the use of sustainable transport modes	**
2	Reducing parking needs for cars in the PK campuses	**
3	Creation of an institutional consultant of mobility	**
4	Introducing an integrated mobility plan for students and employees of PK	**
5	Changing mobility behaviours	**
6	Designing a new internet based information about Cycle parking, Walking initiatives, PT information, Special integrated fares for students and workers carpooling system	**
NA = Not Assessed * = Not achieved ** = Achieved in full *** = Exceeded		

C4 Up-scaling of results

As an actual up-scaling of results other institutions in Krakow will be “infected” with the idea of a mobility plan implementation.

According to the Measure Description, Working Document 11.9.4 “Preconditions for applying of the mobility plan for two further institutions” has been prepared. Formal invitation letters with description of the Mobility Plan and dissemination of the measure results at PK was sent to:

- Wisla Krakow Football Club
- Krakow Municipality
- Marshall Office
- 5 largest Krakow Universities

Positive answers came from the Municipality of Krakow, the University of Agriculture in Krakow and Krakow University of Economics. Until April, 30th only the Municipality of Krakow (UMK CARAVEL Partner) carried on the first activities (preparation of a survey concerning employees’ transportation behaviour and expectations).

C5 Appraisal of evaluation approach

In general approach to measure evaluation is appropriate. Comparison of situation “before” and “after” measure implementation is the most common method of evaluation. However, in general, approach seems to be adequate some indicators do not properly assess how is influence of the mobility plan measures. Indicators like: “Improvement in accessibility from PK campus at Warszawska St. to railway track” and “Improvement in accessibility from PK campus at Warszawska St. to Bus Station” are hard to assess because redevelopment of street network and transport investments have a big influence in the determination of these indicators.

The most appropriate indicators are: Average modal split, Percentage of increase in bicycle trips, Percentage of increase in PT trips, Percentage of increase in trips by car as a passenger (when driver regularly or occasionally give a place in car) – carpooling, Evaluation of park places for bikes in the area of PK. They really show how big is the impact of implementation of the mobility plan measures on people’s mobility behaviours.

Also determination of percentage of bike trips (for modal split) could be realized in other way. A lot of factors have a big influence on bike travelling like: weather conditions, realization of other trips (not connected with work, studies places) during one day, health etc. Thus better solutions would be the measurement of the number of bikes strapped into the bike rack in the area of the University in specific period (for example during one week) instead survey and asking respondents for trips realized in day before the day of survey.

C6 Summary of evaluation results

The key results are as follows:

- **Key result 1** - Number of bike trips was increased of 1% for employees and extramural students (probably thanks installation of new bike rack, educational and marketing activities). Concerning trip conditions in Krakow (lack of cohesive bike system) and lack of implementation of concept of bike paths between PK campuses it is a good achievement.
- **Key result 2** - Number of car trips was decreased for employees of 4% and for extramural students of 20% (!). It is a very good achievement. For extramural students it was probably a shift from car trips (only as a driver) to carpooling trips.
- **Key result 3** - Number of carpooling trips was increased for employees of 4% for full-time students of 7% and for extramural students of 16%. It means that carpooling become a very popular and the “Jedźmy razem” system was successful implemented. Other explanation – in past employees and students traveled by carpooling but they were not aware about it, thanks to the marketing and educational activities they got to know the terms of carpooling.
- **Key result 4** - Employees’ and students mobility behaviors have been changed towards sustainable mobility modes, the usage of sustainable mobility modes is increased little by little
- **Key result 5** - The needs for parking at University campuses were reduced due to the increase of carpooling trips
- **Key result 6** - Number of parking places for bikes was increased from 60 to 160 and now most of employees and students are satisfied and state that it is now sufficient.
- **Key result 7** - The Technical University of Krakow is probably the first institution in Poland to have implemented a mobility plan
- **Key result 8** - The Technical University of Krakow is probably the first institution in Poland to have created a mobility consultant position
- **Key result 1** - Up till now the mobility consultant gave information related only with sustainable mobility modes (PT, bikes, carpooling), there was no client who want to get information about car trips
- **Key result 1** - The number of people who visited the internet database about sustainable mobility “Info.Komunikacja” is over 1300

D Lessons learned

D1 Barriers and drivers

D1.1 Barriers

- **Redevelopment of street network surrounding PK campus at Warszawska Street** – Investments around PK campus caused disability in estimation of some indicators – these indicators were replaced by others indicators
- **Delay in opening of bike and pedestrian tunnel under the rail track near the University campus at Warszawska St** – opening the bike and pedestrian tunnel together with mobility plan measures should short the distance to Main Railway station and Bus Station – it could be great solution for University employees and

students. Unfortunately, concerning delay in tunnel opening, the distance will not be changed before the submission of the evaluation report.

- **Establishing of “informal” parking for cars (private possession dedicated for future investment) in front of University campus at Warszawska St** – because of establishing of this informal parking near PK campus the University students can park there without any charge so the number of car trips is still very relevant (regardless of mobility plan measures).
- **Lack of agreement with Krakow Road and Transport Administration concerning improvement in PT connection between University campuses** - concept was prepared by University Caravel team, but there is still lack of agreement from the part of Krakow Road and Transport Administration.
- **Delay in implementation of concept of bike paths between University campuses** – concept was prepared by University Caravel team, but the delay in concept implementation is caused by lack of final permit from Krakow Road and Transport Administration.

D1.2 Drivers

- **Driver 1** – very good cooperation with University Authority
- **Driver 2** – very good cooperation with Students' Self-government and other PK students
- **Driver 3** – very good cooperation with CARAVEL partners – UMK, MPK and Form Group

D2 Participation of stakeholders

- **Employees, students of University, Student Self-government Body** - the target groups of the measure 11.9 – they were involved in mobility plan implementation through: meetings, series of seminars, marketing actions, competition on PK Expedition, Information Points, surveys. They support implementation of this measure through: master thesis, participation in measurements, ideas, opinions, support in realization of measure activities.
- **University Authorities** – they were involved in mobility plan implementation through: meetings, formal letters. They support implementation of this measure through: agreement on activities realized within 11.9, support in realization of activities.
- **Municipality Council, City Administrative (Sectoral) Departments, PT operator, Infrastructure operators, Public Transport Authority** – they were involved in mobility plan implementation through: meetings, formal letters, consultancy. They support implementation of this measure also through: hand in necessary documents, help in realization of measures and opinions
- **Bike users, PT users** - they were involved in mobility plan implementation through: meetings, surveys, marketing actions, consultancy, ideas, opinion.

D3 Recommendations

- **Recommendation 1** - Successful implementation of mobility plan is guaranteed in a situation where there is a very good level of cooperation with target groups and stakeholders (opinions, consultancy, participation and support in implementation)

- **Recommendation 2** - If we want to change people's mobility behaviors we first have to create good trip conditions (providing of bike infrastructure, improvement in PT trips), coordinate this with parallel with educational actions and then promote these infrastructural solutions.
- **Recommendation 3** – A very good strategy, during process of influence on change of people's mobility behaviors is the recommendation of sustainable ways of travelling through consultancy and providing the information as well as the organization of marketing and promotion actions
- **Recommendation 1** - Bureaucracy and formal activities and cooperation with public institutions take a lot of time, it is a necessity to take it into account while planning the measure timing.

D4 Future activities relating to the measure

As was written above in "up-scaling of results" the future activities to the measure will deal with the "infection" of other Krakow institutions with the idea of mobility plan measures. In the future, it would be a real success to implement mobility plans also in these institutions. In the area of Krakow University of Technology the promotion of sustainable mobility transport means among employees and students. will still be carried on.
