Bike Pal Project 2013

Safety intervention for the Strada Alzaia Naviglio Pavese junction - Rozzano, Milano

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Project promoted by:

European Transport Safety Council

POLITECNICO DI MILANO

In collaboration with:

Comune di Rozzano

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1. INTRODUCTION AND GOAL

The aim of this report is to describe the development of the Bike Pal project, promoted by European Transport Safety Council (ETSC), by *Bike Pal Milano Team*, composed by Stefano Grillo and Giorgio Wetzl.

As defined in ETSC web page, *"ETSC is a Brussels-based independent non-profit making organization dedicated to reducing deaths and injuries in transport in Europe. Founded in 1993, it provides an impartial source of expert advice on transport safety matters to the European Commission, the European Parliament and Member State".* As part of its activity, ETSC periodically launches projects involving European universities and their students, in order to promote local actions which could improve transport safety.

As ETSC explains, *"Bike Pal is a pan-European project that aims to improve cycling safety through information and awareness-raising to policymakers and through outreach to university students. The project has produced a cycling safety ranking of European countries, a scientific review of cycling safety policies and an accessible manual for all cyclists. As part of the project, ETSC organised a university tour. During this phase of the project, students were given a manual on safe cycling and attended practical demonstrations. After attending one of the BIKE PAL lectures in their university students had the opportunity to devise an idea for a cycling safety project"*. The students submitting the best project proposals were selected and were given the task to create an infrastructural or communicative project, to improve local cycling safety conditions, and to implement it. Moreover, all selected students took part in the Bike Pal Camp, a one-week training course in Bruxelles organized by ETSC, in March 2013. During the camp they attended theoretical lessons and practical exercises in order to acquire knowledge and useful tips from international experts about the development of cycling safety projects. After the training period students carried out their projects, with the support of ETSC and their local university, in the most successful way.

This report is written by Stefano Grillo and Giorgio Wetzl, students at Politecnico di Milano who were selected for participating in Bike Pal. In order to promote and carry out our project with a uniform strategy, we acted under the name of *Bike Pal Milano Team*, which was univocal reference for all the actors and partners involved.

Stefano Grillo is a Civil Engineer specialized in the field of Transport, with specific interest in sustainable mobility and cycling mobility. Giorgio Wetzl

is a Urban Planner and Policy Designer and operates in Milan Urban Area developing researches and projects in the field of Urbanism.
Our cooperation integrates our different academic and professional backgrounds for developing a better project, which could be more effective and easier to implement. Thanks to the engineering point of view, we could achieve a high quality project, based on data analysis of cyclist accident data and the best technical solution; thanks to the urban planning point of view, we could integrate our project proposal with different urban and local policies, developed for improving safety cycling conditions, and carried out in collaboration with local authorities.

The following paragraphs describe our actions, considerations and difficulties concerning the realization of our project.

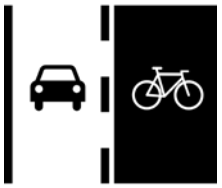
2. BIKE PAL PROJECT STRATEGY AND FEATURES

As the starting point of our project description, first we should define the features of our proposal and the strategy we adopted for implementing it. So we listed some features which should be respected to facilitate the implementation of our project. They were the following:

- Our Bike Pal project had to be localized: the selection of a small intervention area could help to precisely define safety problems and constraints, and develop a specific intervention proposal;
- Our Bike Pal Project had to be cheap: a low cost project would not find major economical constraints and could be easier to implement for local authorities;
- Our Bike Pal Project had to be "effective": it should be a simple project that could reach concrete results and relevant impacts on the territory and among citizens.

Hereupon, considering that our aim was to improve cycling safety in a local context, we established the following *double-level* strategy. We have undertaken a localized infrastructural project whose realization could effectively improve cyclists safety; moreover the diffusion and communication of our initiative, if developed in a proper way, could potentially increase citizen awareness about cycling safety and mobility.

3. ABOUT CYCLING MOBILITY AND ROAD SAFETY



Approaching cycling safety from a scientific point of view is not an easy task. This is because of the uncertainty of data about cyclist population and the number of accidents involving cyclists on our roads. Indeed, since bikes' purchases and uses are not usually recorded and checked, it is quite difficult answering to the question "how many cyclists ride on our roads in a certain period of time, such as a day or a year?". Moreover data about cycling accidents are often not fully available: indeed accidents are usually recorded only in presence of wounded, misrepresenting the actual relation between accidents with injured cyclists and the total number of accidents involving cyclists.

A significant share of accidents involving cyclists happens, among other causes, because car drivers don't expect cyclist presence on the road and don't know how to react to avoid dangerous situations. This is the reason of the frequency of dangerous accidents related to the lack of cyclist visibility for car drivers. This often happens, for example, during the night when cyclists are not well visible or when cyclists are in the blind spot of cars.

From this point of view, focusing on cycling mobility, the first thing to do in order to reduce the number of accidents involving cyclists is to get drivers used to share roads with cyclists. Many accidents could be avoided if drivers get aware of cyclists movements, times and speed.

Regarding this we can note that cyclists presence on streets and the related awareness of drivers are in strict relation, whereby it is reasonable to state that the latter can significantly increase if cycling mobility (meaning cyclists present on roads) grows at the same time.

The awareness about cyclist presence on roads, however, strongly depends on several factors, among which road safety culture and education of citizens, and it probably needs, as everything concerning human habits, long periods of time to increase.

From another point of view, focusing on cycling safety, cycling mobility strictly depends on road safety conditions: people will use bikes only if they feel safe during their transfers. This is a necessary condition (and not sufficient!) that must inspire every approach to cycling mobility issues. Cyclists need to move in safe environments and, when possible, they need to be physically protected for reaching this basic safety conditions.

As previously explained, these issues are quite complex since cyclists safety and cycling mobility are strictly related topics, and they need to be developed together, even if sometimes they could be perceived as conflicting, in particular when they are not properly developed.

For this reason, to be sure to reach our goals, we approached these topics from a dual-point of view: on one side we developed a project that could really improve cyclist safety conditions and on other side, as consequence, could also contribute to the process of awareness-raising for road users.
Considering what discussed above, we prepared and scheduled the communication phase of our initiative with great consciousness, involving citizens in a public event and presenting them several possible meanings concerning road safety issues and cycling mobility topics.

4. MAIN DEVICES TO IMPROVE CYCLIST SAFETY

Different devices for improving cyclist safety have to be considered while designing a cycling safety project. The most important are the following:

- Cyclists need to feel safe in all their transfers. The presence of a single safety black spot is sufficient for discouraging people from using their bikes.
  Junctions are usually among the most dangerous sites for cyclists on roads, in particular for two reasons. First of all in junctions the trajectories of cyclists and cars can physically converge. Then contrary to what we could expect, in junctions infrastructural protection devices for cyclists tend to disappear (it is not unusual to see a bike lane interrupted in a junction). This means junctions need special attention in order to effectively improve cyclists safety;
- Being seen is of the utmost importance for a cyclist. In addition to what cyclists can do to increase their visibility (lights, reflecting jacket, etc.), the infrastructural design should help drivers to identify cyclists thanks to, among the others, flashing lights and coloured painted lanes;
- Clear vertical and horizontal road signs could help road users to comply with the rules and to understand the potential dangers and the possible ways for avoiding accidents. Similarly, clear legislative tools can ease the design of safe infrastructures and the punishment of lawbreakers;
- Involvement of citizens in safe cycling projects could increase their awareness about the topic and ultimately, as discussed above, could

raise cyclist safety in general. This objective can be reached through specific programmes on road education at school, organizing public events about urban and cycling mobility or communicating in a proper way road safety projects and policies developed by local authorities.

5. PARTNERS

During the 18 months of Bike Pal project we contacted, cooperated and discussed with several partners of different kinds. Their roles and contributions were fundamental for the good outcome of the project. These partners were different for the nature and type of support they provided us. They are institutional actors (ETSC, Regione Lombardia, Navigli Lombardi), territorial partners (Comune di Rozzano, Comune di Assago, Polizia Locale di Rozzano), technical partners (Politecnico di Milano), cycling organizations (TCI, Team Galbiati) and cycling activists ("In Bici a Scuola" project). These partners operate at different territorial levels (European, National, Regional, Metropolitan, Local) and their different contributions were fundamental for building the final proposal, strategy and outcomes of our project, both for the infrastructural part and the communication one.

ETSC (European Transport Safety Council)

Type of support: promotion of Bike Pal project, technical support, communication phase support, relation with Public Administration.
ETSC supported us during the development of our project, particularly in the relation with Rozzano local authority and in the communication phase, participating in the public event organised by us for presenting our initiatives.

POLITECNICO DI MILANO (Civil Engineering Department)

Type of support: technical support, relation with Public Administration, academic coordination of Bike Pal project.
Professor Emanuele Toraldo of Politecnico di Milano, Civil Engineer and expert on infrastructure and road projects, helped us in building the project proposal for Rozzano, following us throughout the implementation phase of the project, in particular in the relation with Rozzano Technical Municipal Office. Other Professors of different engineering departments of Politecnico di Milano helped us in building the first data analysis for supporting the future development proposal.

REGIONE LOMBARDIA

Type of support: co-financing of the infrastructural intervention.

Regione Lombardia is the reference regional body for Milan Metropolitan Area and for Rozzano Municipality. In the last few years it increased the financial investments for improving cycling interventions on its territory with the approval of the *Piano Regionale della Mobilità Ciclistica* (Regional Plan for Cycling Mobility). In this plan, an important role is attributed to the interventions for favouring the development of cycling mobility. Rozzano Municipality applied to a regional announcement to obtain by Regione Lombardia the co-financing of the development of a bike path (viale Monte Amiata bike lane), located close to our intervention area and related to our project proposal.

NAVIGLI LOMBARDI

Type of support: preliminary approval of the intervention.

Navigli Lombardi is the public-private body in charge for the development and management of the Navigli, a system of artificial canals that characterizes Milan, at regional level. Their consent on our proposal was essential for allowing Rozzano local authority to effectively consider our project proposal, that was focused on the bike path located along the bank of Naviglio Pavese.

COMUNE DI ROZZANO (Technical Municipal Office of Directorate of Territorial Planning)

Type of support: technical collaboration, referring administration, co-financing of the infrastructural intervention, communication phase support.

Comune di Rozzano (Rozzano Municipality) was our main project partner, due to the territorial responsibility on the intervention area we selected. The collaboration was carried out in particular with the experts of the Technical Municipal Office of the *Direzione Programmazione del Territorio* (Directorate of Territorial Planning) of Rozzano Municipality. Specifically we cooperated with arch. Antonio Panzarino and arch. Anna Bonilauri.

The collaboration with their office was fundamental for adjusting our initial technical proposal to the administration needs and possibilities for the implementation. Their support was also critical for the organization of the public event, crucial step of the communication phase.

COMUNE ASSAGO (Environmental and Territorial Assessor)

Type of support: communication phase support.

Assago is a small town (8,000 citizens) adjacent to Rozzano Munipality. Due to the fact that our project area is located close to the border of Assago Municipality and that important centralities of this territory are located within the territory of Assago (Assago Forum, MilanoFiori M2 underground station, MilanoFiori Business and Commercial district), it was important to relate their cycling development projects to the ones of Rozzano Municipality. The contribution of Assago Municipality, represented by Assessor Mario Burgazzi, to the public event we set up was useful for presenting their cycling strategies and future development plans, also in an inter-municipal network perspective.

POLIZIA LOCALE ROZZANO

Type of support: data analysis support.

Polizia Locale di Rozzano (Rozzano Municipal Police) support was helpful in giving us the possibility for using their database, in particular for studying cycling accident data in Rozzano. This collaboration was fundamental for building the cycling accident map of Rozzano, for the period 2005-2013 (see Appendix 1).

TCI (Touring Club Italiano)

Type of support: communication phase support.

Touring Club Italiano is an important national organization active on cycling, tourism and environmental topics. TCI is particularly active also in the southern Milan Metropolitan Area, due to the recent development of the *Parco Cicloturistico dei Navigli* (Cycling Holidays Park of Navigli). Their involvement in our project was related to the public meeting we set up at Cascina Grande Cultural Centre in Rozzano, where we asked TCI, represented by dr. Jacopo Zurlo, to present their project as a good example of cycling intervention in southern Milan area.

TEAM GALBIATI

Type of support: communication phase support.

Team Galbiati is a cyclist junior team and cyclist association based in Corsico (south-western town in the Milan Metropolitan Area), founded in 1977 by Rossella Galbiati, former professional cyclist. Team Galbiati develops several educational, professional and cultural initiatives for promoting the use of bike. Among others, *Scuola di Ciclismo* (School of Cyclism) is focused on educating children to cycle culture and improving their awareness about

cycling safety. Their support to our project was related to the communication phase, we invited them to present *Scuola di Ciclismo* initiative.

IN BICI A SCUOLA

Type of support: communication phase, support in the early stage.
In Bici a Scuola (Bike to School) is a recent project developed in Milan by some cyclist activists of the Critical Mass Milan group. The aim of this project is to accompany elementary school children in reaching their school by bike. Their contribution and project was presented by Marco Mazzei, one of the promoter, during the communication phase of our project.

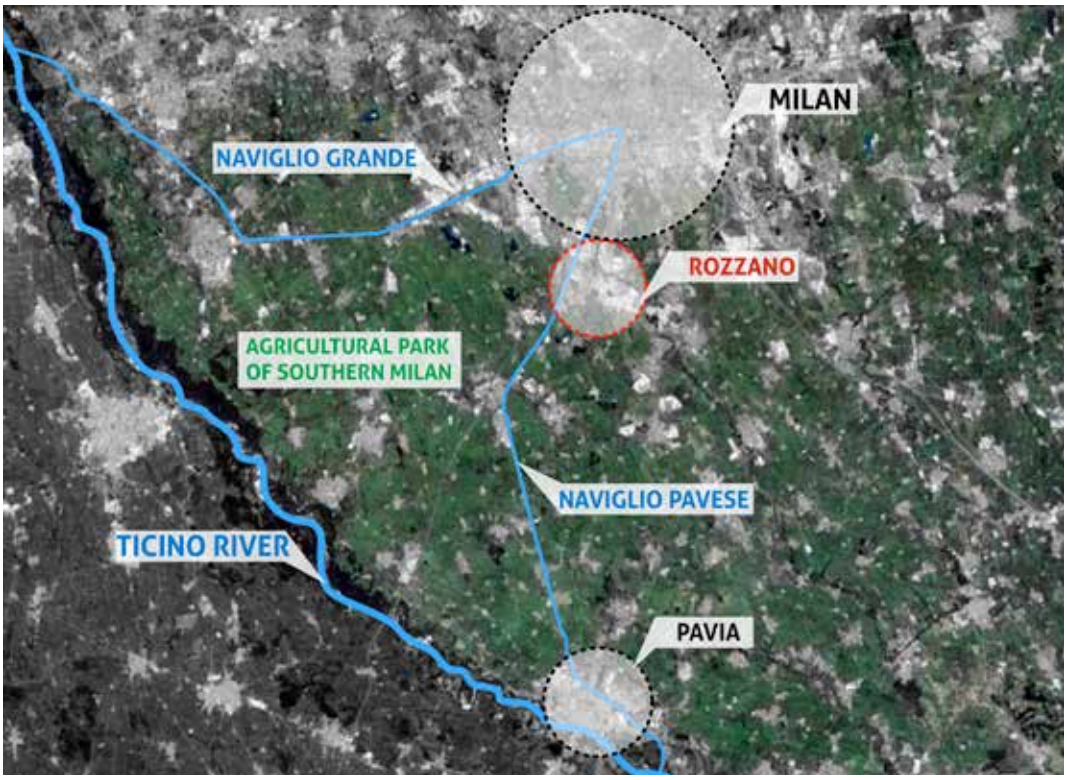
6. LOCATION OF THE PROJECT AND TERRITORIAL CONTEXT

The proposal developed by us for the Bike Pal project is localized in Milan Metropolitan Area (3.9 million population), in particular in the southern part within the administrative boundaries of Rozzano.
Rozzano (40,000 population) is an important municipality of the Milan's first ring periphery, strongly dependent on Milan services and economic activities.

picture 01
Rozzano's localization in relation to Milan.

Rozzano is surrounded by the most important metropolitan park of Milan, *Parco Agricolo Sud Milano* (Agricultural Park of Southern Milan), which pre-

serves the environmental quality and characteristics of this territory.
Other fundamental environmental and historical resources are the Navigli, a regional system of artificial canals built for commercial purposes between 12th and 19th Centuries. This system is composed by five canals, one of which is the Naviglio Pavese connecting Milan to Pavia (another Lumbardy Province located 35 km south of Milan) passing through the administrative territory of Rozzano. Along the bank (*Alzaia*) of Naviglio Pavese in the last few decades a continuous cycle-pedestrian path was developed, which allows the effective public fruition of these important environmental and territorial features.

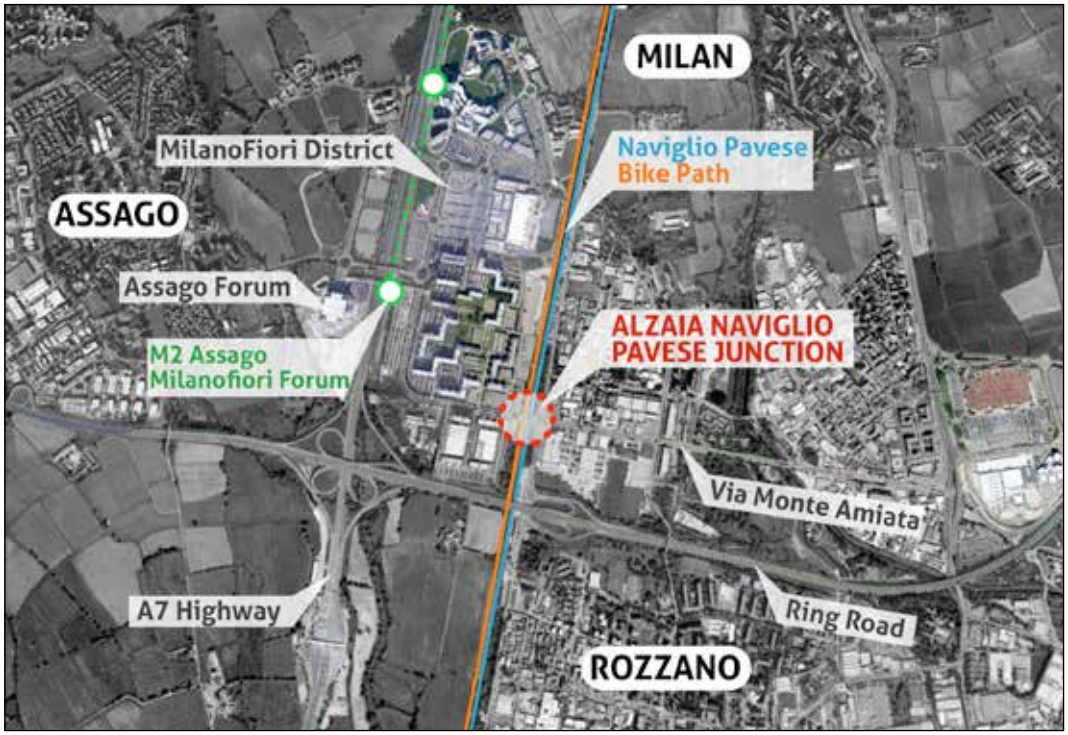


picture 02
Milan southern territory is characterized by several environmental resources, such as the Navigli System and the Agricultural Park of Southern Milan.
Naviglio Pavese connects Milan to Pavia, passing through Rozzano territory.

picture 03
Along the Naviglio Pavese there is a 35 km cyclo-pedestrian path connecting Milan to Pavia and Ticino River.
This cycling path is almost entirely continuous and passes in Rozzano territory.

The project we proposed, as said before, was localized in Rozzano territory, in a junction (following called the project junction) between the bike lane of Strada Alzaia Naviglio Pavese and via Gran San Bernardo road, close to the administrative borders of Assago and Milan. This intersection is particu-

larly crowded since it is one of the main west-east connections between Rozzano and Assago.
Moreover the presence of some important centralities in southern Milan territory, such as Assago Forum (music venue), MilanoFiori district (commercial, tertiary and residential district), underground line 2 final station (Assago MilanoFiori) and the ramps to Milan Ring Road and to A7 Highway (Milan-Genoa), create consistent fluxes of vehicles and traffic congestion, especially during rush hours. The viability of this intersection is even more complicated due to the presence of two close roundabouts (less than 100 metres apart) connected by a bridge.



picture 04
The area we chose for the Bike Pal project is localized at the junction between the Naviglio Pavese cycling path and via Gran San Bernardo, within Rozzano territory. Alzaia Naviglio Pavese junction is close to Assago, Milan and several territorial centralities, such as Underground line 2, MilanoFiori district, Assago Forum.
In this part of the territory there are also some of the main Milan's infrastructural connections, such as A7 Highway and the Milan Ring Road.

In the junction, the cycle path was interrupted and any kind of road signs for highlighting the presence of cyclists to car drivers was completely missing. Moreover the bridge made the presence of cyclists less visible to drivers but, despite that, cyclists used to cross the road exactly in this point, because it is the shortest and most intuitive way to cross.
Therefore, the situation was very dangerous for cyclists, which were unprotected and felt unsafe during the crossing, requiring an infrastructural intervention for improving overall safety conditions.

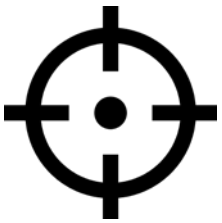
The viability constraints were potentially balanced by some cycling development opportunities. Indeed, the regulation of the viability of this intersection and the expected development of the viale Monte Amiata bike lane (which would have ended at the project junction), could create one of the major cycling intersection of this southern Milan Area.

The increase in safety conditions for cyclists could lead to a real shift in means of transport use by Rozzano population, moving it towards inter-modal combinations of means of transport, such as bike and underground, to reach Milan or Assago or to commute to work. Moreover, the increasing costs of driving and the congestion of roads, could indirectly support this change in mobility habits, causing an increase in cycling both for commuting reasons and for leisure activities.

picture 05
Aerial photo of the selected project area at the Alzaia Naviglio Pavese junction. Here the Strada Alzaia Naviglio Pavese bike path was interrupted and safety conditions for crossing the road were missing.

picture 06
Main cycling and safety constraints in the Alzaia Naviglio Pavese junction.

7. PROPOSED SOLUTION: LOCAL OBJECTIVES, STRATEGIES AND FEATURES



The proposal we developed for the project junction in Rozzano aimed at increasing safety conditions in the intersection, improving overall cycling situation in Rozzano territory.

We focused our attention on three main aspects considered strictly related and essential in order to reach our goals. They were:

- The improvement of cycling fluxes visibility and, consequently, of safety;
- The reinstatement of the continuity of the Strada Alzaia Naviglio Pavese cycle path, considering its regional attractiveness;
- The improvement of cycling connections between Rozzano, Assago and Milan in order to facilitate the use of bike for reaching the environmental resources and the main territorial centralities.

For reaching our goals we undertook two main strategies:

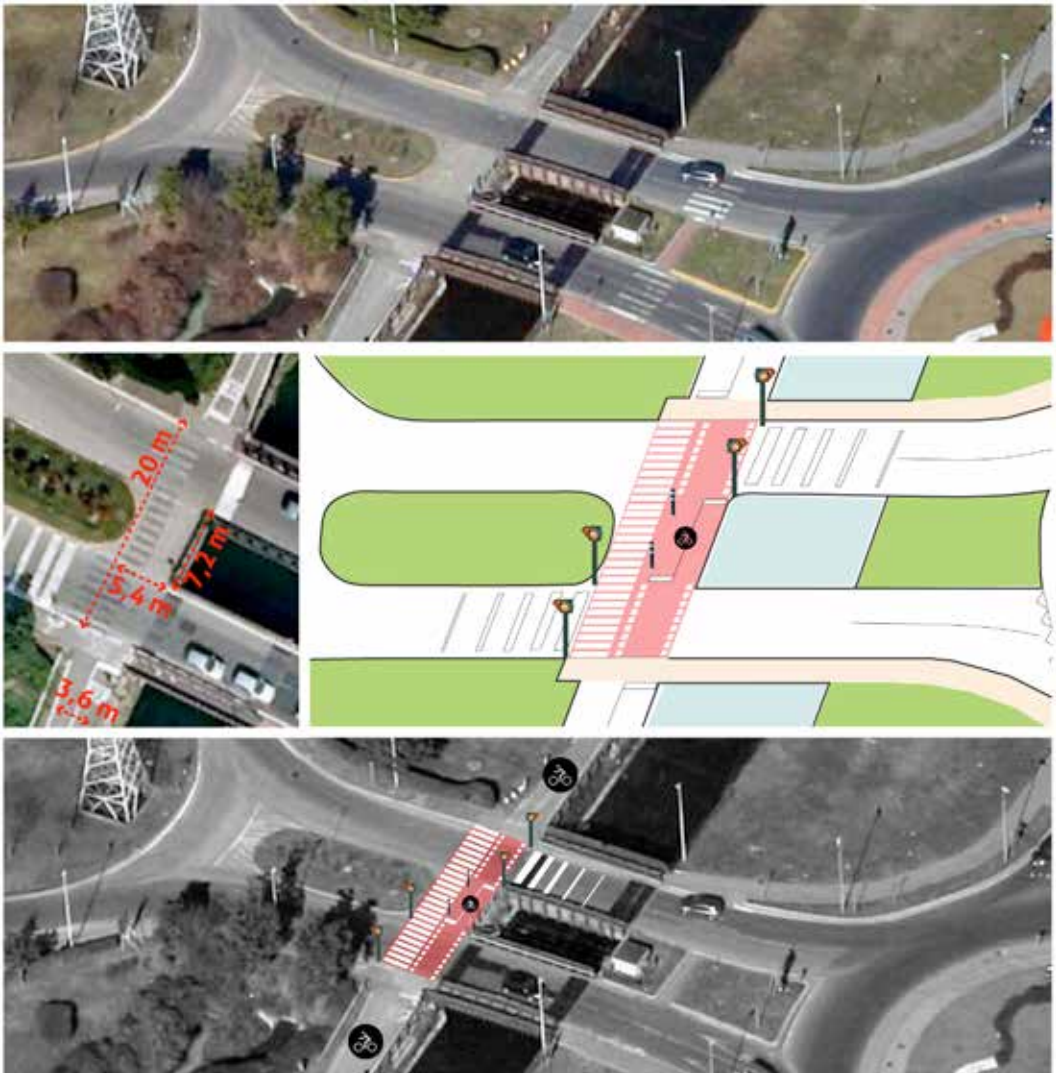
- On one side, we proposed a micro-local infrastructural intervention aiming at regulating and creating a safe cycle crossing at the intersection;
- On the other side, we planned to develop an effective communication strategy for involving and informing local population about our project and the cycling development plans of Rozzano local authority.

As for the first strategy, the infrastructural project we developed was very limited in terms of changes compared to the actual road infrastructure. The proposed cycle crossing should to be developed considering the overall viability of the area, for reducing the potential negative outcome for car transit. According to this, the presence of two closed roundabouts, together with a pedestrian crosswalk 15 metres far from the cycle path, required a particular attention during the development stage of the proposed infrastructural solution.

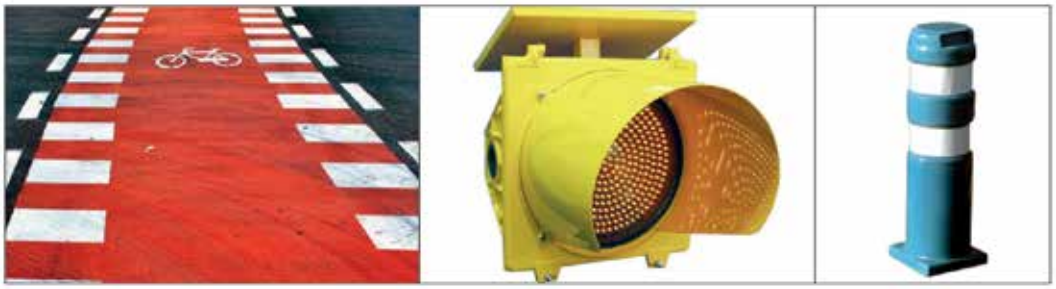
According to our strategy and considering the micro-local constraints of our project area, the proposed infrastructural solution was composed by three kinds of measures:

- The hierarchical organization of the existing traffic fluxes, with the unification of the cycle and pedestrian crossings, allowing a single stop for cars in this 50 metres road between the two roundabouts, and thanks to the installation of horizontal and vertical road signs which identified the crossing;

- The painting of a coloured layer (possibly red) in the crossing and the installation of flashing traffic lights that could immediately indicate the presence of the cycle and pedestrian crossing;
- The protection of the cross with the use of posts between opposite flows of cars, for avoiding possible U-turns by vehicles, for protecting cyclists and pedestrians and for reducing the width of the cross in order to decrease the negative impacts for cars.



picture 07
From top to bottom:
- the previous situation in the Alzaia Naviglio Pavese junction;
- dimensions (length and width) of the project area;
- representation of the project proposal for the junction;
- the possible project outcome for the Alzaia Naviglio Pavese junction.



picture 08
Some of the proposed safety devices for the Alzaia Naviglio Pavese project:
- red painting for highlighting the passage of bikes;
- flashing lights for making visible the intersection between the road and the cycle path;
- road posts for avoiding U-turns of cars.

Together with the infrastructural part presented before, we recognized the importance of developing an effective communication strategy, both for informing citizens about our project and possible solutions of cycling issues in Rozzano and for actively involving them on cycling topics regarding environment, mobility, tourism, territorial development and cultural topics.

For these reasons, in the last semester of our project (January – June 2014) we worked to develop an effective communication campaign. The focus of the communication strategy was to highlight the actions undertaken by the Municipality for improving safe cycling conditions in Rozzano, related also to their involvement in our Bike Pal project, and to deepen the possibilities for local projects on specific topics, such as Bike Pal, that could link University, students, Municipalities and European organizations.
This second part of our Bike Pal proposal was an integral part of the overall strategy developed and was useful for promoting a greater involvement of citizens on cycling topics.
Indeed, at the beginning of our project, we found that in Rozzano a *Cycling Culture* was completely missing, since there was an evident lack of cycling facilities and only few cycle activists. A clear evidence of this is the complete absence of bike shops in Rozzano, although the use of bike is quite common in the town, especially for short trips.

The main event of our communication strategy was the public debate "*Prospettive Ciclabili nell'area sud milanese*" (Cycling Perspectives in the southern Milan Metropolitan Area), that we organized on April 12, 2014 at Cascina Grande Cultural Centre in Rozzano.
This event aimed to involve citizens and create awareness on cycling topics and their different meanings, interpreting cycling not just as a leisure activity, but also as a means of transport, a cultural issue and a possible element for territorial development and for local growth.
We invited ten experts and speakers to discuss on projects, policies and good practices activated in southern Milan Metropolitan Area for favouring the use of bike, starting from our Bike Pal proposal. This was also an important occasion for all the participants, and in particular for speakers, of knowing different approaches and projects that have been developed in bordering territories.
Therefore the public meeting was a great occasion of networking and sharing ideas between all the participants working on cycling topics and a possible starting point for future partnerships, also in an inter-municipal perspective.

picture 09
From top to bottom:
- flyer of the public event we organized in Rozzano (April 12, 2014) for presenting our project and other cycling issues concerning Rozzano and the southern Milan area;
- Stefano Grillo introducing the public meeting;
- Francesca Podda presenting ETSC activities and Bike Pal project at the public meeting.

8. FORESEEN AND DEFINITIVE TIMETABLES

Timing was a crucial factor during all project development, indeed the requirements of the Bike Pal were quite pressing: we should structure an intervention proposal, cooperate with partners about our project proposal, implement it and communicate the intervention, in less than a year (9 months after Bike Pal Camp). So the organization of a working timeline was an essential step of our Bike Pal project.
In this section, we wish to point out the differences between the expected timing of the project and the real one. This process can be helpful to show the main constraints and phases we underestimated at the beginning and which were the factors that slowed down the entire process.

Initial Timeline:

January March 2013	Application for Bike Pal project	Application process for taking part in Bike Pal project. Development of a draft proposal for our intervention.
March 2013	Bike Pal Camp	Bike Pal Camp (Bruxelles, 18-22): meeting experts, sharing ideas, discussing with other participants from all over Europe and further definition of the draft of our project proposal.
April 2013	Definition of the project proposal	Start of the real on-field work. Surveys, analysis and definition of the proposal for improving our project. Expected duration of this phase: one month.
May 2013	Networking	Contacting several partners, in particular sectorial ones such as cyclist associations and organizations working in Rozzano and in Milan Metropolitan Area, for receiving their support. This step was considered essential for reinforcing our proposal and for lobbying local authority. Expected duration of this phase: one month.
June July 2013	Working with the Technical Municipal Office	Cooperation with the Technical Office of Rozzano Municipality (Directorate of Territorial Planning) deepening the financial opportunities for realizing our proposed intervention and detailing the related technical measures. Final approval of our intervention was expected by the end of July.
August September 2013	Realization of the proposal	Realization of the project after detailed financial, technical and feasibility analysis, taking advantages of the end of summer period for reducing the negative outcome during roadworks. Expected duration of this phase: two months.
October November 2013	Evaluation and Communication	Evaluation analysis regarding our intervention to understand the effectiveness of our project and communication campaign for sharing our work and analysis with the citizens. This phase is expected to take two months, ending just before the original deadline of Bike Pal project (December 2013).

Starting from our initial timing hypothesis and considering our real path (which will be presented below), we can now understand some of the mistakes we made in estimating the length of the process.

First of all, we considered that 4 months would have been enough for working with the Public Administration and for realizing our proposed intervention. So we underestimated the administrative processes and the difficulties we could have had to be considered by Rozzano local authority. Moreover and in relation to this point we overestimated the possible role of sectorial and local partners in supporting our proposal and we were optimistic about their contributions for lobbying the local administration. We found that in Rozzano strong local cyclist organizations which could potentially support our project were missing.

Another weak point of our hypothesis was the consequentiality of the entire process. In our initial hypothesis we thought that an effective way of developing the entire project, both its infrastructural part and the communication one, was to give priority to the realization of the safety measures and then to communicate our findings, analysis and solution. In this way, we underestimated the importance and possible role of the communication campaign that could help us in lobbying faster and better the local authority, due to the indirect involvement of the citizens.

Having presented the foreseen timetable, based on our initial expectations and hypothesis about the possible timing of the entire process, now we want to focus on the real timing of our Bike Pal proposal for Rozzano.

The actual process lasted 6 months more than was initially estimated, although these months were mainly dedicated to manage the necessary administrative processes for the realization of our proposal, and in particular for the application for the co-financing by Regione Lombardia.
In fact, it took one year from our first contact with the Public Administration until the concrete realization of our proposed infrastructural intervention for the project junction, even if the proposal was soon approved by competent authorities (Navigli Lombardi and Rozzano Municipality).

In the last semester of our Bike Pal project, we could in depth define and develop the communication phase of our project, since the infrastructural intervention had positive outcome and we were waiting for the conclusion of all the administrative formalities.

In general, we can recognize that in the last semester a crucial speed up for the project was possible due to the upcoming Rozzano municipal elections, that were held at the end of May 2014. This was one of the reasons why we pushed hard for achieving the final approval of the project before the elections took place.

In the end, we can affirm that we underestimated the complexity and the length of the administrative processes necessary for realizing our proposed intervention. Moreover, the relation with the Technical Municipal Office, and with Rozzano local authority in general, was not always easy, in particular in the initial phases of the project. Because initially the local authority saw us merely as university students promoting a non-funded project.
However a key move, which simplified the relation with the local authority, was insisting on the potential good outcomes of a European project, such as Bike Pal, in terms of public visibility for Rozzano Municipality.

Actual Timeline:

January March 2013	Application for Bike Pal project	As foreseen.
March 2013	Bike Pal Camp	As foreseen.
April June 2013	Definition of the proposal and strategy	Detailed analysis concerning cycling issues in Rozzano to draw a cycling accident map to highlight the most unsafe spots in Rozzano. Discussion with some professors of Politecnico di Milano for defining our development strategy and our project proposal.
June December 2013	Relation with Technical Municipal Office	Presentation and discussion of our project proposal with the Technical Office of Rozzano Municipality, in particular with *Direzione Programmazione del Territorio* (Directorate of Territorial Planning). Display of interest by the local authority and analysis of the technical and economical possibilities for its implementation. Approval by Navigli Lombardi and inclusion of the project in a major cycling project concerning the realization of another bike lane (in viale Monte Amiata), developed by Direzione Programmazione del Territorio. Application by Direzione del Territorio for a regional announcement of Regione Lombardia, aiming to find additional economical resources for the implementation of the project. ETSC mid-term visit, when we could discuss with the Technical Municipal Office about the progresses of our Bike Pal project.
December 2013 April 2014	Definitive approval of the proposal, definition of the communication phase	Approval of the application for regional fundings: co-financing of the project by Regione Lombardia. Administrative processes to begin realizing the project. Start of the communication phase of the project. Participation in several public meetings on cycling topics and contact with different organizations and experts involved in those topics in the Milan Metropolitan Area, for realizing a public event in Rozzano.
April June 2014	Public meeting and realization of the infrastructural project	Organization of the public meeting in Rozzano focused on cycling safety projects and cycling mobility. Finalization of the necessary administrative processes and realization of our proposed infrastructural project. Realization of the public meeting called "*Prospettive Ciclabili nell'area sud milanese*" (Cycling perspective in the southern Milan Metropolitan Area), held on the 12 April, 2014.

In the following paragraphs we will detail all the steps that led us from the initial conception of the project to the realization of our infrastructural proposal and of the related public event.

9. BIKE PAL CAMP: THE BRUXELLES EXPERIENCE (MARCH 18 – 22, 2013)

The official start of our Bike Pal project was the Bike Pal Camp held in Bruxelles on March 18 - 22, 2013. This training camp was fundamental for explaining and deepening the objectives and the features of Bike Pal.

On that occasion we knew all the selected participants, coming from different European countries (Spain, France, Germany, Lithuania, Poland and Italy) with different academic and professional backgrounds (engineers, architects, policy makers, IT experts).
The great multidisciplinarity and transnationality of the project were important for all the participants, since they helped us to expand our knowledge in relation to cycling topics and issues. Indeed all draft projects proposed by the different teams were extremely various and strongly related to specific issues of each local and national context.

During that week, we understood the complexity of a cycling safety project, thanks to the different contributions proposed by experts and professionals working on these topics in different organizations and territorial contexts. The training activities covered different practical aspects related to cycling issues, such as infrastructural interventions and measures, actions for improving road safety, evaluation of risk and cyclist behaviour, tips and strategies for lobbying local authorities and structuration of a communication campaign.
Moreover, the week was also focused on the concrete improvement of our draft proposals, thanks to practical exercises and expert advices for successfully developing our project. This step, in particular, was fundamental for understanding the main constraints we could have faced during the development of our project, trying to strategically improve it for fully achieving our goals.

Finally, during the Camp we also had the occasion to meet some policy makers, firstly at the European level, visiting the European Parliament where we spoke with some members active on cycling topics, and then, at Bruxelles

Metropolitan level, doing an on-field cycle trip where we met the planners of the Municipal Office for cycling development.

picture 10
Photos taken at the Bike Pal Camp, held in Brussels in March 2013.
Clockwise:
- introduction on the objectives of the Camp;
- some of the participants to the Camp;
- field-trip with Brussels Municipal Manager in charge for cycling development;
- workshop during the Camp.

(Photos courtesy of Rebecca Alper)

10. ACCIDENT ANALYSIS

Returning to Italy after the Bike Pal Camp, we focused on the evaluation and quantification of the level of danger for cyclists in the selected project junction, in order to obtain a numerical and scientific support to our project that could strengthen our proposal, in particular in relation with local authorities.
So we set up the collection and analysis of data regarding accidents involving cyclists within Rozzano municipal boundaries. Thanks to the cooperation by Polizia Locale di Rozzano, from their database we extracted data about accidents involving cyclists, starting from January 1, 2005 and we analysed them to identify and classify cycling black spots in Rozzano.

In the January 1, 2005 - May 15, 2013 (date of data collection) period, 105 accidents were recorded within Rozzano Municipality.
Furthermore data analysis showed that accidents were spread all around the municipal territory. The spots with at least one accident recorded were indeed 71. Moreover, some black spots were present, where cycling acci-

dents most frequently happened.
Table 1 and Table 2 in Appendix 1 (pag. 38) show temporal and spatial distribution of accidents.

It is important to remark that changes in cycling safety conditions cannot be related only to differences in the total number of accidents, but also to the varying of cyclists really riding in Rozzano. For exampe it could happen that some interventions for improving cycling safety produce, as direct consequence, an increase in cycling safety conditions that cause a decrease in the relation between the number of accidents and the number of transits, even if the number of accidents grows.
Unfortunately, for intrinsic features of cycling mobility, cycling transits on roads are not recorded as often as cars, so significant data were not available.

However, data analysis confirmed that:

- Junctions are the most dangerous spots for cyclists (indeed the first 10 spots for number of total cycling accidents were junctions);
- The project junction was one of the most dangerous places, compared to all other spots in Rozzano territory. Moreover it was also the second spot for number of cycling accidents, since in the last 8 years five accidents were recorded there.

Considering that the first spot for total number of cycling accidents was an important roundabout where six streets converged, a place quite problematic to work on for improving safety conditions, the selected project junction (Alzaia Naviglio Pavese junction) could be the most suitable location for developing our Bike Pal project.
Indeed, in this spot cycling safety conditions could be effectively improved thanks to minimum infrastructural interventions neither very complex nor expensive, primarly working on road signs, as we proposed.

11. COOPERATION WITH THE TECHNICAL OFFICE OF ROZZANO MUNICIPALITY

After the re-elaboration of our project proposal and implementation strategy, thanks to the activities carried on during the Bike Pal Camp, and after the quantitative analysis done for evaluating cycling accidents in Rozzano, we were ready to present our project proposal to local authorities and to try to convince them to implement it.
We met some representatives of Rozzano Municipality many times, and we kept a continuos (although not always frequent) mail correspondence with them during all project development phases.

On May 2013 we met for the first time arch. Antonio Panzarino, chief of Rozzano Directorate of Territorial Planning. We described him ETSC activities and Bike Pal project and presented our proposal for the project junction. He said that the project proposal was interesting and agreed with us about the high level of danger in the junction, so we started cooperating in order to find the best possibilities for realizing our project by the deadline of the Bike Pal. Initially, the project should have been implemented in 9 months, so a big effort was needed for obtaining all the necessary authorisations and fundings.
The most important steps carried on during this period were:

- Technical Municipal Office suggested to insert our project proposal in a bigger cycling project, for the realization of a new bike lane in viale Monte Amiata, which would cross the Strada Alzaia Naviglio Pavese bike path at the project junction. This move could speed up the necessary administrative requirements since the procedures for obtaining authorizations for the viale Monte Amiata bike lane had already started. We agreed that this would be the fastest way for realizing our project.
- Permission for realizing a cycling safety intervention in the project junction was asked to Navigli Lombardi, which gave it.
- It was asked to Regione Lombardia to finance the 50% of the project costs, while the remaining 50% costs would be supported by Rozzano Municipality.
- It was decided to leave the existing pedestrian crossing separated from the cycling one. Rozzano Municipality data showed that car flows were not so great as to require a unified cross for cyclists and pedestrians.

On November 2013 we scheduled a meeting between Rozzano Municipality (represented by Anna Bonilauri), ETSC (represented by Francesca Podda),

Politecnico di Milano (represented by prof. Emanuele Toraldo) and Bike Pal Milano Team. This was an opportunity for contextualizing our project within the activities of ETSC, showing the remarkable results obtained by ETSC for road safety. Rozzano Municipality informed us that Regione Lombardia granted the financing for the project; in this way the project could be effectively implemented but the realization works would not have been started before Spring 2014, due to administrative formalities. Moreover it was also agreed to move the deadline of the Bike Pal project to June 2014.

On March 2014 we met once again arch. Antonio Panzarino in order to be updated on the implementation timetable regarding our project and for obtaining his approval and participation to the public event we were organizing for promoting the realization of our project.
We defined all the details regarding the public event, getting the confirmation of his participation and being informed that realization works had been assigned through public tender, and would start in the second half of April.

On April 12 we carried out the public event called "Prospettive Ciclabili nell'area sud Milanese", as we detail in the following paragraph. This was an opportunity for getting the official confirmation about the starting of realization works and for thanking Antonio Panzarino and Rozzano Municipality, represented by Deputy Major Errico Gaeta, for their cooperation and support in implementing our Bike Pal project proposal.

12. COMMUNICATION CAMPAIGN

The communication phase, as said before, represented a fundamental step of our Bike Pal project.
Our initial proposal was mainly focused on the infrastructural intervention for the project junction but, developing this part, we understood the strategic importance of communicating our project, for reaching Rozzano citizens and sharing our analysis and considerations with them. In this way, starting from December 2013, we began to organize a public event that could be the occasion for making a step further on cycling topics and on citizens awareness in Rozzano.

The first step of the communication phase was our participation in different public debates on cycling topics organized in Milan Metropolitan Area. This

activity helped us in building a strong network of organizations, experts and individuals active on cycling topics who could take part in our public meeting. During this phase, we interacted with several potential partners, such as Assago Municipality, Touring Club Italiano, Team Galbiati, In Bici a Scuola project.

Later we started interacting with our main Bike Pal project partners, for concretely organizing the public event in Rozzano. Dr. Francesca Podda of ETSC and prof. Emanuele Toraldo of the Politecnico di Milano soon gave their availability for participating at the meeting, while it took some more time to obtain the final approval and confirmation from Rozzano Technical Municipal Office, because of some specific details about the organization.

Having completed the list of potential speakers, the successive steps of the communication phase were the precise definition of the meeting topics and the search for the location. We decided to call the event "Prospettive Ciclabili nell'area sud milanese" (Cycling perspectives in the southern Milan Metropolitan Area) and we defined two main topics to be discussed during the event.
On one side, we decided to present Bike Pal project, our proposed intervention, the importance of road safety in cycling development strategies and some projects activated by Rozzano Municipality.
On the other side, we decided to present some projects, policies and good practices activated in the Southern Milan Metropolitan Area by the different organizations and experts we invited to speak, to highlight the possible different meanings (environment, mobility, education, territorial development, etc.) of cycling topics could have and for try to increase cycling awareness among the citizens.

As for the location, we agreed with the Technical Municipal Office to organize the event at Cascina Grande Cultural Centre, the main location for conferences and seminars in Rozzano. It is a multipurpose space that hosts the central public library, a children library, a café and two different conference rooms.
Cascina Grande (literally Big Farmstead) is a historical building that well represents the agricultural past of this territory. It has been restored during the ninties by Rozzano Municipality and it was one of the first example in the Milan Metropolitan Area of reuse project for transforming historic farmsteads.

picture 11
Photos of Cascina Grande Cultural Centre (Rozzano) where the public meeting "Prospettive Ciclabili nell'area Sud Milanese" was organized.

The following step was the communication of the public meeting, both in Rozzano territory and on the internet and social networks. For this purpose, we prepared specific communication materials (posters and flyers) and we created a Facebook page and a Facebook event for spreading our initiative (4,000 views).
While the arrangement of social networks communication was quite easy, thanks also to the support offered by invited speakers, the on-field communication in Rozzano was more difficult, particularly for the lack of territorial partners directly involved on cycling topics. For this reason, we went to Rozzano in the weekends before the event for flyering in the streets, in the shops, at the schools and for informing and involving directly the citizens in our public meeting.

The last step of the communication phase was the public meeting, which took place on April 12, 2014. The contributions concerning cycling mobility and road safety were the following:

- Errico Gaeta (Deputy Mayor of Rozzano) welcomed the participants and officially started the event;
- Stefano Grillo (Bike Pal Team Milano) briefly presented the organization of the public meeting and the Bike Pal project;
- Francesca Podda (ETSC) presented the activities of ETSC for improving road safety across Europe;
- Emanuele Toraldo (Politecnico di Milano) presented the last infrastructural and technical developments concerning cycling safety measures;
- Giorgio Wetzl (Bike Pal Team Milano) presented the Bike Pal Milano Team project;
- Antonio Panzarino (Rozzano Directorate of Territorial Planning) presented the cycling development strategies of the Municipality and, in particular, viale Monte Amiata bike lane project and the intervention for the project junction;
- Mario Burgazzi (Assago Environmental and Territorial Assessor) present-

ed the cycling development strategies for its Municipality, concerning in particular the *MilanoFiori Velostazione* (cycling station).

- Jacopo Zurlo (Touring Club Italiano) presented the activities of TCI on cycling topics and, in particular, the recent project of the *Parco Cicloturistico dei Navigli* (Cycling Holidays Park of Navigli).
- Rossella Galbiati (Team Galbiati) presented the activities developed by her organization, in particular the *Scuola di Ciclismo* (School of Cyclism) an educational project for children.
- Marco Mazzei (In Bici a Scuola project) presented the project developed in Milan for accompanying elementary school children to reach their school by bike in safety.

picture 12
On the left: Rozzano Municipality official website announced the realization of the new via Monte Amiata cycle path.
In the red circle the communication about the public meeting of April 12, 2014.
On the right: the flyer of the "Prospettive Ciclabili nell'area Sud Milanese" event we distributed to the citizens, with the list of speakers and the objectives of the public meeting.

The citizens that took part in the public meeting were almost 40, a good result considering that it was one of the first occasion of public debating on cycling topics in Rozzano. The public meeting was also an important occasion for networking between the different organizations and individuals operating to improve cycling conditions and awareness in southern Milan Metropolitan Area. It was also an important occasion of involvement and information for the citizens, about what the Municipality was developing for cyclists and about the possibilities for territorial development related to European projects and initiatives.

Moreover, the public meeting prepared the ground for future cooperation

between different territorial actors and sectorial organizations for developing and coordinating new projects, also in an inter-municipal perspective.

picture 13
Photos of the public meeting "Prospettive Ciclabili nell'area Sud Milanese", held on April 12, 2014.
Clockwise:
- the conference room of Cascina Grande Cultural Centre with the participants to the event;
- Francesca Podda introducing ETSC activities and Bike Pal Project;
- arch. Manuela Guffanti presenting Assago Municipality cycling development plans;
- arch. Antonio Panzarino (Rozzano Directorate of Territorial Planning) presenting Rozzano Municiality cycling development plans.

(Photos courtesy of Adriana Andò)

13. PROBLEMS AND CONSTRAINTS

The development of our Bike Pal project, which lasted 18 months, was characterized by several difficulties and constraints that emerged during the entire process. In this perspective it seems useful to analyse the problems we encountered for understanding how we solved them for achieving our goals.

Most of the difficulties of the process emerged in the relation with Rozzano local authority and, in particular, with the political spokespersons.
Rozzano Municipal Council lapsed in March 2013, due to the election of the Mayor to the Regional Council. For this reason, at the beginning of our project it was quite complicated interacting with Municipal representatives due to this transition period.
The election for the new Municipal Council was held in May 2014 and, as a consequence, we had to develop and present our project proposal in an undefined political situation which represented a great constraint to the development of our project.

This situation was surely problematic, because all the Municipal members we should speak to had very short-term perspectives but, at the same time, it represented a potential opportunity for pushing and for insisting on the positive impacts of our European project, also in terms of public visibility and outcomes for the Municipality.

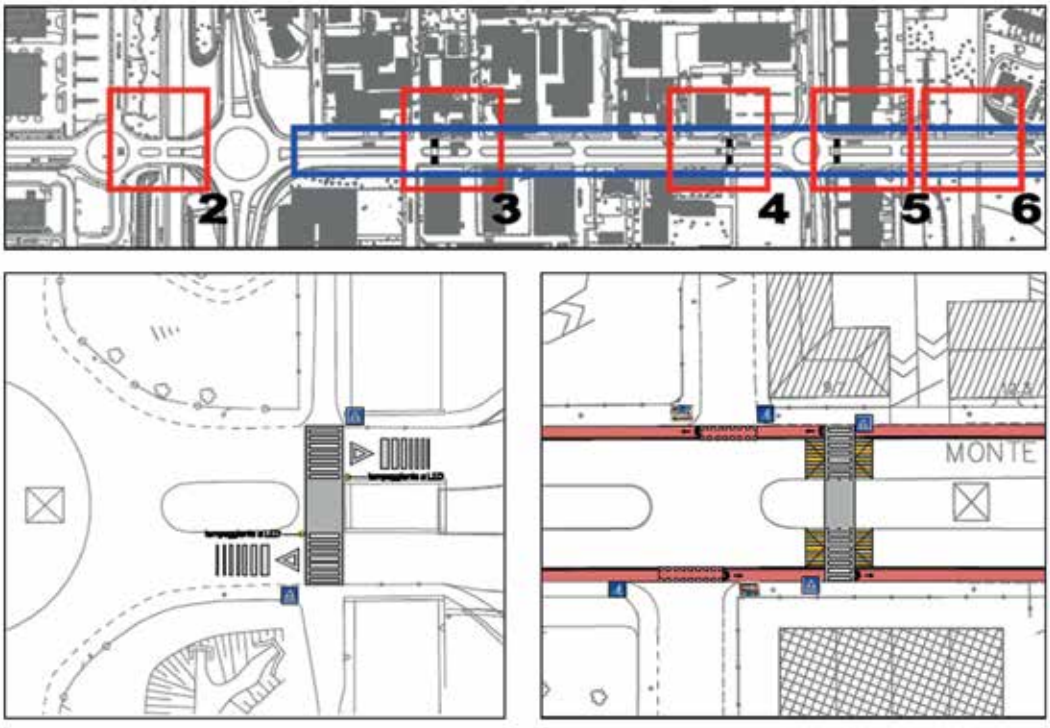
Another kind of problems arose in relation to the length of the administrative processes for the realization of our infrastructural project. The duration of these processes lasted more than we expected, requiring almost 6 months more than we had foreseen for having definitive approval about the financing with Regional funds. Subsequently when the proposed project was declared eligible for the Regional financing it took almost other 4 months for completing the necessary administrative formalities before starting the concrete realization of the project.

These constraints were also strictly related to the complicated economical conditions of the Italian municipalities, in relation to the overall Italian economic crisis. Regarding this, some national laws, such as *Patto di Stabilità Interno* (Internal Stability Act), strongly influenced the possibilities for municipal expenditures, reducing the autonomy of the municipalities for investing the money obtained from local taxes. So it was essential to search alternative possibilities for financing our intervention, such as Regional funds, although these alternatives required more time for being finalized.

Finally, another constraint we encountered during our project development was the weak knowledge and involvement of Rozzano citizens on cycling topics. This aspect, in particular, was related to the low level of cycling interventions and debates in the town. Indeed only in recent times Rozzano Municipality has started to actively work for improving conditions, tools and cycling infrastructures in the town and some safety problems were still unsolved, such as the one concerning our Bike Pal project.
This lack of active involvement and participation of citizens in cycling topics was a major problem during the search for local partners and organizations that could help us in lobbying Rozzano local authority. It was indicative of this situation the total absence of bike shops in the Municipality (40,000 citizens). As a consequence, also the involvement of Rozzano local authority in our Bike Pal project was initially low, since they considered that other municipal problems were more compelling.

14. REALIZATION

The realization works for the infrastructural intervention we developed for the project junction started in the second half of June 2014 and at this time (June 21, 2014) are almost completed. Their total completion is expected by the end of June.
The following pictures show the definitive project design, approved by Technical Office of Rozzano Municipality, for the project junction and for viale Monte Amiata bike lane.



picture 14
The official proposals for the project junction (red square 2) and viale Monte Amiata bike lane (blue rectangle), approved by Technical Office of Rozzano Municipality. Clockwise:
- overview of the planned cycling interventions for viale Monte Amiata and the project junction;
- design scheme of the new bike lane near an intersection on viale Monte Amiata (red square 3);
- definitive design layout for the infrastructural interventions in the project junction (red square 2).

It is possible to note that the definitive project partially differs from our original proposal, in particular for two main aspects. First of all, as already reported before, the Technical Municipal Office decided, based on vehicle flux data, to maintain the existing pedestrian crosswalk separated from the projected cycle crossing.
Moreover the Technical Municipal Office considered the installation of posts for avoiding U-turns of vehicles not necessary, since this kind of operation should be already discouraged by the presence of the two close roundabouts.

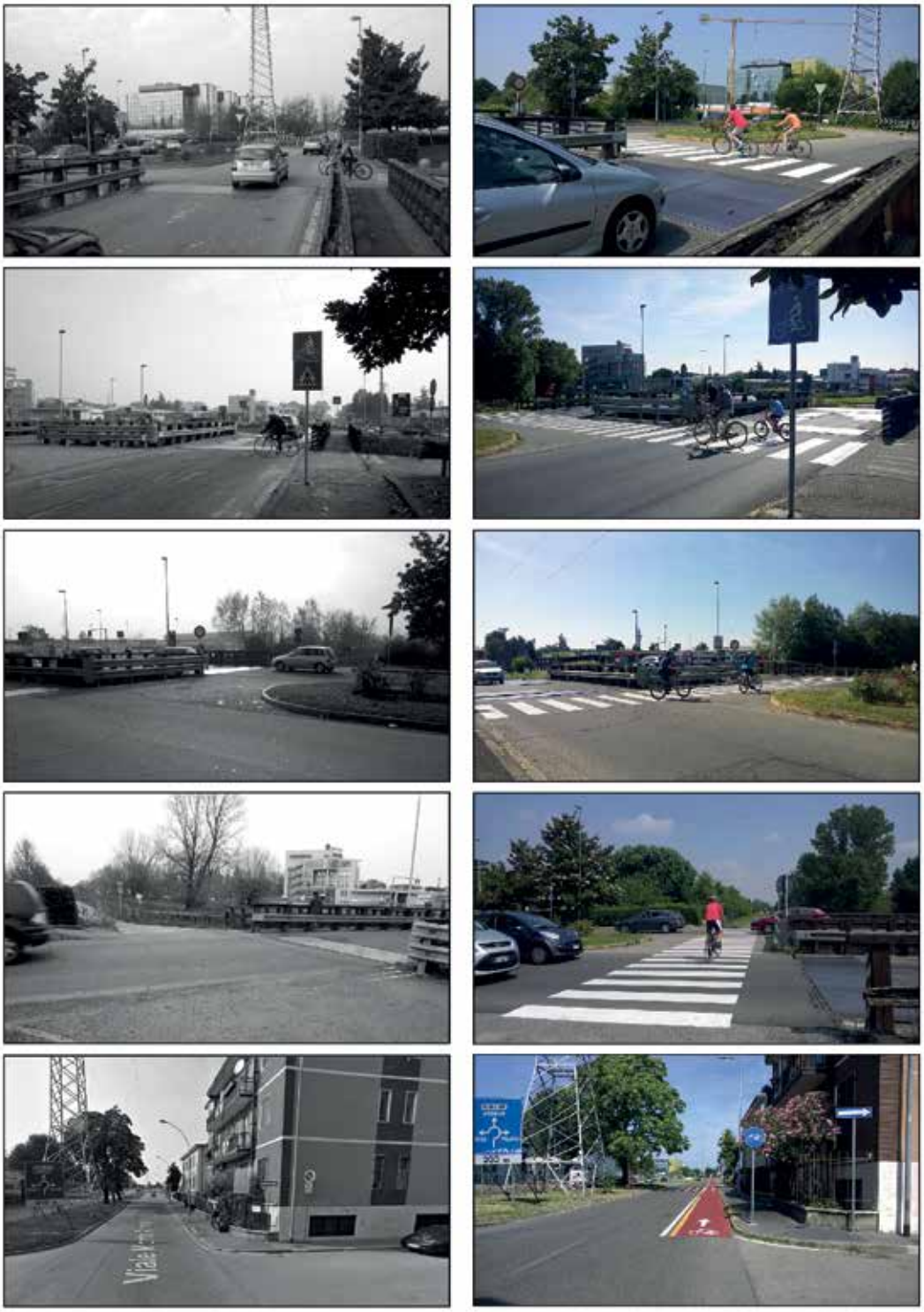
As described in the previous paragraphs, the Technical Municipal Office initially agreed on the possibility to apply a red painting layer on the street to better highlight the presence of cyclists crossing the road. However, in the final design and in the realization works for the project junction, this possibility was excluded, due to some new recommendations concerning

road signs by *Ministero delle Infrastrutture e dei Trasporti* (Italian Ministry of Infrastructures and Transports). Specifically these recommendations remarked that the best paint contrast for catching drivers attention is white painting on the black of road surface, so discouraging the application of a red painting layer at the crossing.

In June 2014 we made several on-field visits at the project junction for checking the progress of realization works. As shown by the pictures below, the works are already completed with regard to the painting of the zebra crossing, the installation of the vertical road signs and of the flashing lights. The horizontal white stripes, which highlight the presence of the cycling crossing to car drivers, are still missing and will be realized in the next few weeks, according to the planning of the Technical Municipal Office.

picture 15
Photos of the completed interventions for improving cycling safety conditions in the project junction.
From top to bottom:
- the zebra crossing reconnecting Naviglio Pavese bike path;
- the vertical road signs highlighting the presence of the cycling crossing;
- the flashing lights making the crossing more visible to car drivers.

As we can note in the pictures, after the realization of the proposed infrastructural project, cyclists can cross the junction in safer conditions, being more visible to car drivers thanks to the presence of vertical road signs and of flashing lights.
Moreover the realization of the project junction proposal, together with the realization of the related viale Monte Amiata bike lane, really improves the overall cycling conditions of this part of Rozzano territory, developing safer conditions for cycling and, as a consequence, generating more consistent cycling fluxes.



picture 16
Photos of the previous and current situation at the project junction.
On the left, the situation before the realization of the infrastructural intervention, on the right it is possible to see how the junction changed after the realization of the proposed safety measures (zebra crossing, vertical road signs, flashing lights).
At the bottom the previous and current situation in viale Monte Amiata, regarding the realization of the new bike lane.

Finally we hope that the realization of our intervention would be the first step for working on cyclist safety in Rozzano, reducing potential dangers and improving the overall cycling conditions. Indeed this first sperimental phase should be tested in the next few years to understand the real changes generated in terms of improved cycling safety conditions.

15. EXPECTED RESULTS AND CONCLUSIONS

Probably getting reliable results in the change of accident involving cyclist figures should take some years of survey. This is because the survey period must be representative and not affected by the unavoidable random fluctuations that characterize short time intervals.

After the realization of our project we expect that cyclist safety in the project junction and in Rozzano territory will increase. This increase should be represented by a decrease in the relation between the number of accidents involving cyclists and the number of cyclist transits in each spot.
This is because accident figures must be related to the number of cyclist transits to be reliable. Indeed, a possible increase in the number of accidents could not indicate a worsening of cycling safety but could be due to an increase in cyclist transits, entailing a greater probability of accidents.

The infrastructural intervention in the project junction should cause an immediate and localized improvement in cycling safety. Cyclists are expected to effectively be and feel safer and the accident figure is expected to decrease. Moreover, the communication of the project, the cooperation with the Public Administration and the involvement of citizens in projects and events about cycling safety and mobility should have positive long-term effects.

The successful cooperation with Rozzano Technical Municipal Office should have made this Public Administration aware of the importance of cycling safety and should promote a greater and wider attention for starting new cycling safety policies and projects.

The realization of the public event, where we discussed and showed the benefits of cycling mobility and cycling safety, should entail a major engagement and a more conscious interest from the citizens. It means that those who already ride bikes will pay more attention to cycling safety whereas some of those who did not use bikes as a means of transport, could start using bikes with an increased knowledge about road safety. So, as discussed in this report, the increasing number of cyclists should promote safer overall conditions for all road users.

Finally, thanks to the implementation and the following communication phase of our Bike Pal project, we expect all actors involved (university students and professors, citizens and Public Administration) have increased

their knowledge and awareness about ideation, development and management of successful projects.

Bike Pal project has been successfully implemented thanks to the specific contribution of each of the actors involved:

- Bike Pal Milano Team, as we called ourselves, with the support of the Politecnico di Milano, supplied scientific and technical knowledge and skills.
- Rozzano Municipality supplied the territorial knowledge and the effective expertises for realizing the project.
- ETSC supplied strong influence, support in lobbying the Public Administration and European resonance for the project implementation.

We consider that this kind of European projects can be promoted in different territorial contexts and can be suitable for cycling safety projects, road safety projects and, in wider terms, for any project that required the effective interest and participation of several stakeholders.

APPENDIX 1: DATA ANALYSIS

The following Table 1 and Figure 1 show temporal distribution of accidents involving cyclists in Rozzano Municipal territory:

Year	Number of Accidents
2013 (January-May)	1*
2012	16
2011	10
2010	13
2009	24
2008	14
2007	13
2006	8
2005	8

Table 1. *Temporal distribution of accidents*

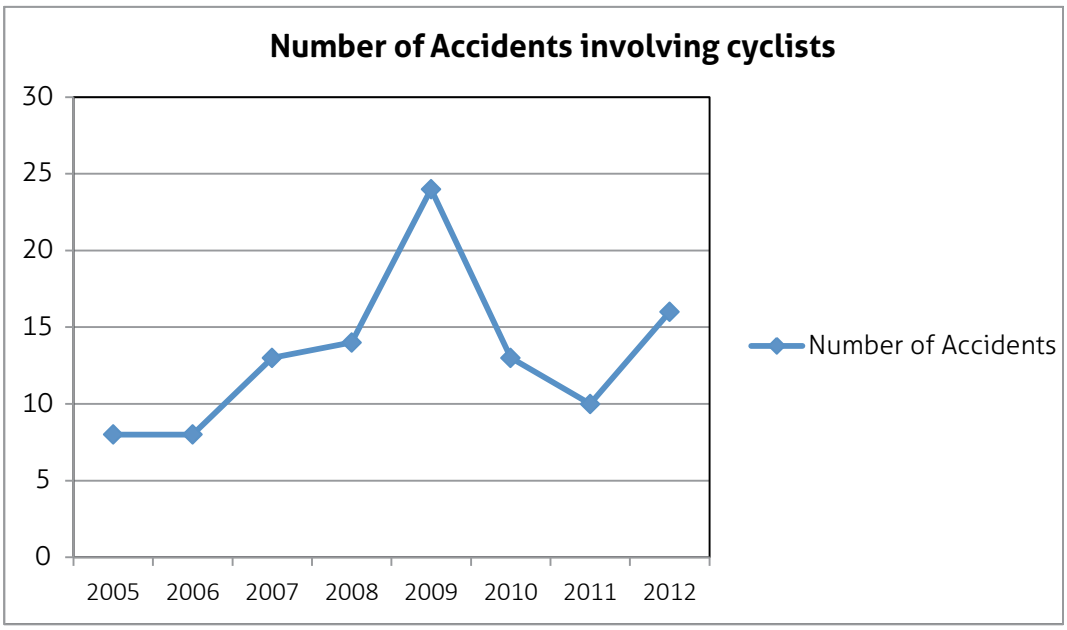


Figure 1. *Temporal distribution of accidents*

* Data concerning 2013 are not significant and they are not considered in Figure 1. This is because data were available only for the first four months of 2013, when people usually do not ride bike, due to weather conditions.

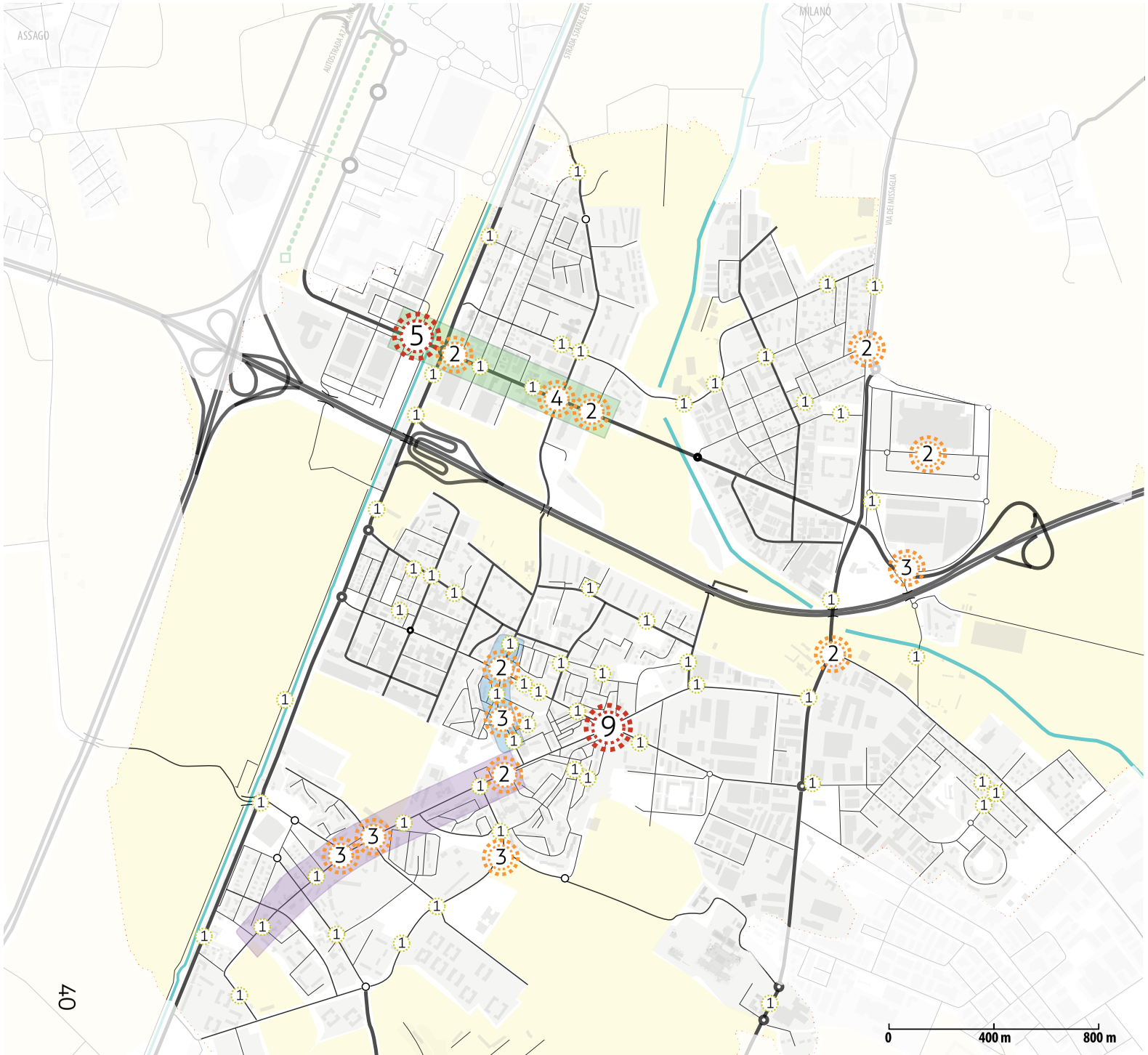
The following Table 2 shows the spatial distribution of accidents, focusing on the spots where at least 2 accidents happened:

Location	Number of Accidents
Roundabout viali Lombardia – Don Lonni – Romagna – Toscana	9
Project Junction between Strada Alzaia Naviglio Pavese and via G. S. Bernardo	**5**
Junction between via Monte Amiata and viale Monte Penice	4
Junction between via Perseghetto, via Orchidee and via Rossa	3
Junction between viale Togliatti and via La Malfa	3
Junction between viale Togliatti and via Rossa	3
Junction between via Gerani and via Mimose	3
Junction between via De Filippo and via Di Vittorio	3
Junction between SS 35 and Highway exit	2
Junction between SS 35 and viale Monte Amiata	2
Via Monte Amiata n.37-38	2
Via Curiel n. 25	2
Junction between viale Lombardia and via Roma	2
Via Liguria altezza scuole PAM	2
Junction between via Curiel and via Europa	2
Junction between via Mazzocchi and via Buozzi	2

***Table 2**. Spatial distribution of Accidents*

The map on the following page shows the spatial distribution of cycling accidents in Rozzano municipal territory:

- Red circles represent spots with 5 to 9 accidents.
- Orange circles represent spots with 2 to 4 accidents.
- Yellow circles represent spots where only one accident happened.



Accident Map (involving cyclists), in Rozzano Municipality

period: January 2005 - May 2013

Data analysis conducted in collaboration with:
Corpo Polizia Locale di Rozzano

Total accidents: 105

Legend:

- 5-9 accidents
- 2-4 accidents
- 1 accident

Black spots for number of accidents:

- Via Romagna, via Lombardia, via Lonni, via Toscana Roundabout (9 accidents);

- Alzaia Naviglio Pavese - via Gran San Bernardo Intersection (5 accidents);

- Via Monte Amiata - via Monte Penice intersection (4 accidents);

Road corridors with many accidents:

- Via Monte Amiata (15 accidents)

- Viale Liguria, via Togliatti (12 accidents)

- Via Mimose, via Gerani, via Roma (8 accidents)

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