

Roads to Respect 2010, Students Final Report



Boris Sakic
University of Sarajevo – Faculty of Traffic and Communication
sakic.boris@gmail.com
+38761723979

1-Definition of the High risk site

The high risk site that I have chosen for the R2R 2010 is located in Sarajevo, the capital of Bosnia and Herzegovina (43°50'34.55" N, 18°19'41.77" E). It is a T – shaped junction on the main arterial road which leads from the city center toward the highway exiting the city. The main arterial road has a very high average annual daily traffic (53.000 vehicles per day) and it is placed between second largest bus terminal in the city and two tram stops, which altogether generate an extremely high volume of pedestrians who are constantly at risk as Fig.2 displays. On average, trams departure every 4 minutes and buses every 15 minutes.

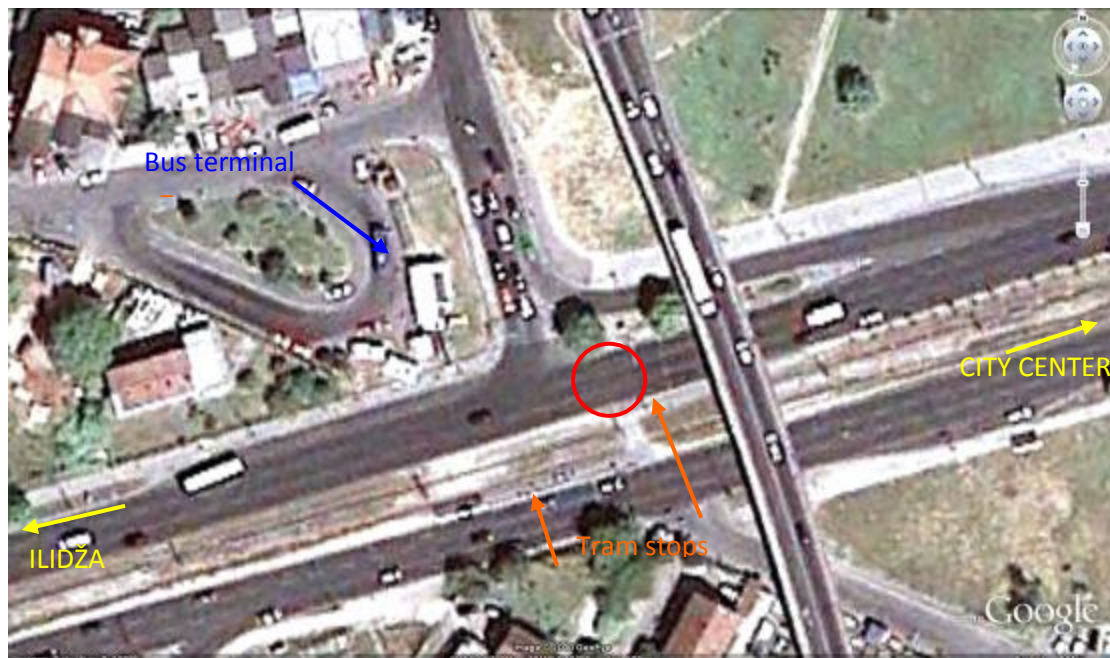


Figure 1: Orthophotograph of high risk site in Sarajevo, Bosnia and Herzegovina (Source: Google Earth)

During a lecture on traffic safety at the Faculty of Traffic and Communication at the University of Sarajevo prof. dr. Osman Lindov suggested me that I should pick this spot as he already knew that this is a high risk site due to his work as a road crash investigator for the court of law. After that, I have decided to contact police authorities and try to get their opinion and accident data for past 6 years. Upon obtaining the data (Table 1) there was no doubt that this is a case of a high risk site since 19 people were injured and 2 were killed during last 6 years.

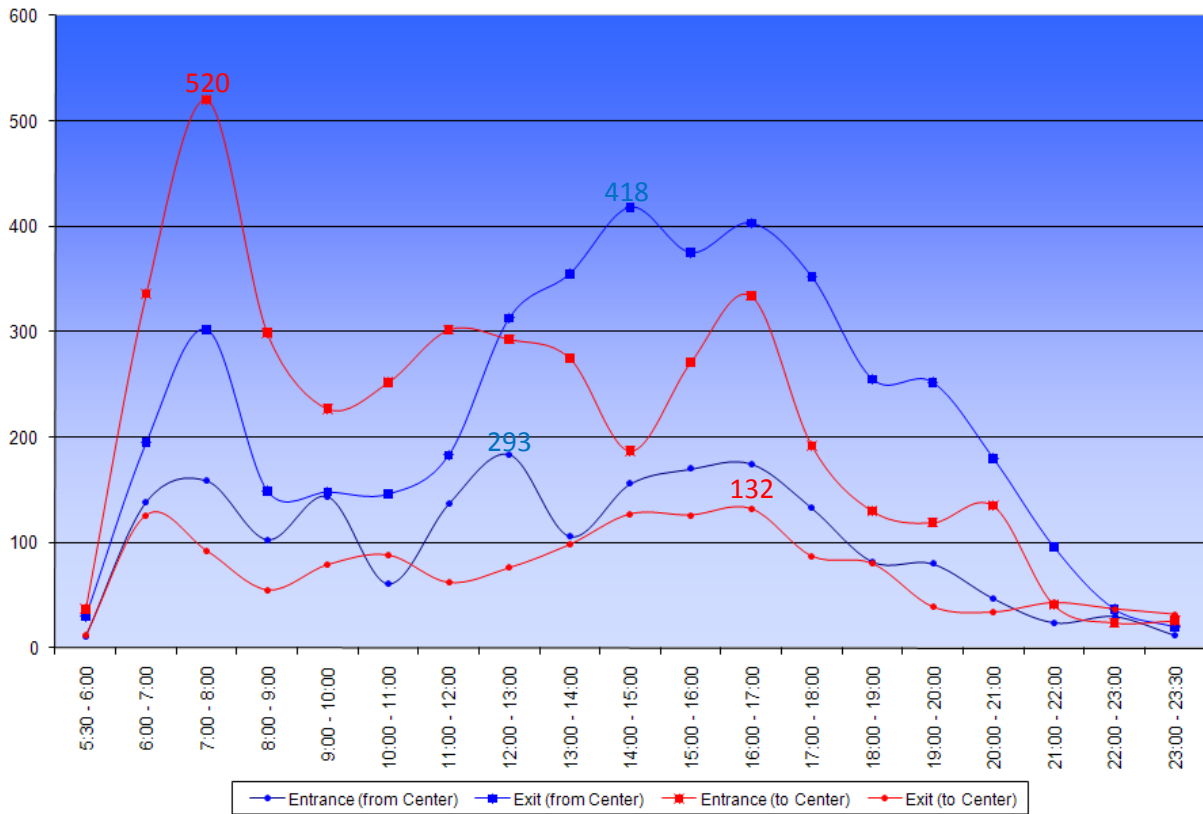


Figure 2: Average number of entrances and exits for both tram stops at Stup, Sarajevo (November 2011; Source: GRAS Sarajevo)

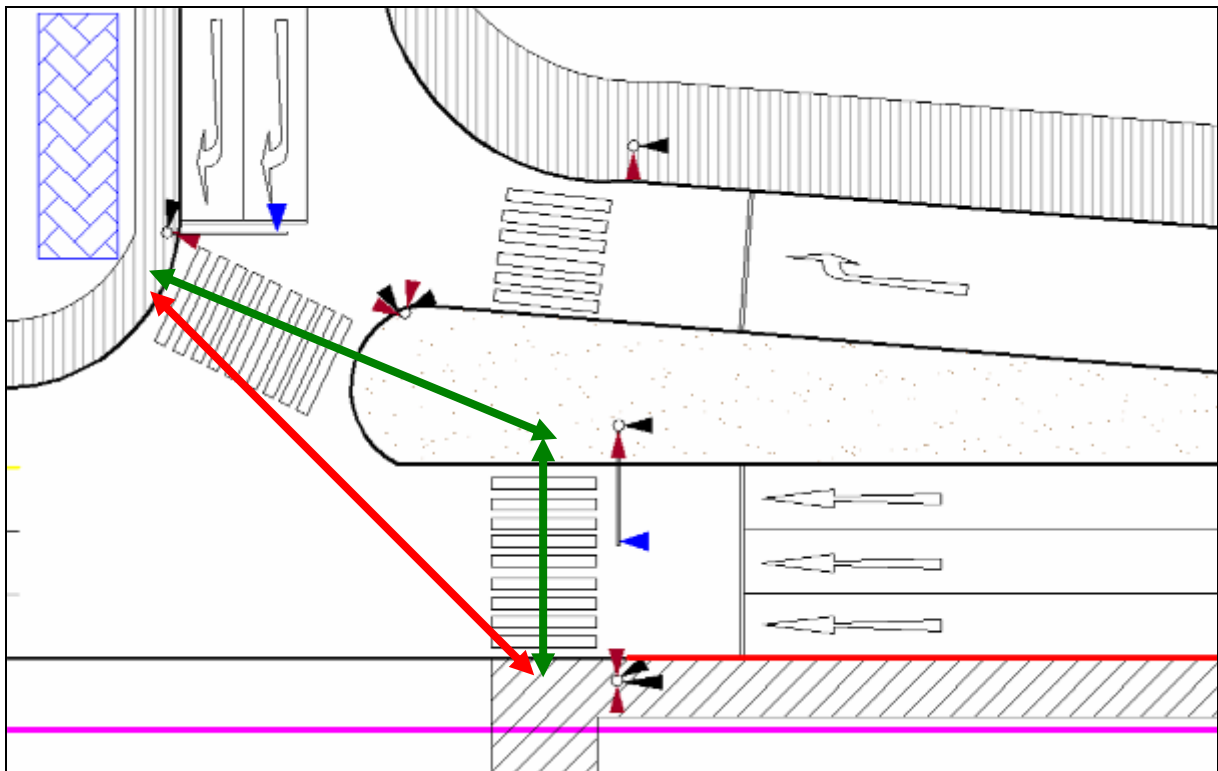


Figure 3: Current spatial design of crosswalks with possible pedestrian maneuvers from the tram stops to the bus terminal and vice versa

However, what seriously surprised me was the fact that local police authorities and government representatives failed to recognize infrastructural component of this problem as they exclusively blamed reckless pedestrian behavior for picking the shortest possible route (red line) between tram stops (magenta) and the bus terminal (blue) instead of choosing the longer, safer one over the pedestrian island (green). Even though every person is held accountable for their actions it would be wrongful not to notice the poor spatial design of this particular site. Worst of all, this place is not labeled as a ‘black spot’ or a ‘high - risk site’ since the legal definitions of those terms in Bosnia and Herzegovina do not exist.

Year \ Severity	Minor injuries	Severe injuries	Fatalities	TOTAL
2005	3	2	1	6
2006	1	2	0	3
2007	2	1	0	3
2008	3	1	1	5
2009	1	1	0	2
2010	2	0	0	2
TOTAL	12	7	2	21

Table 1: Road traffic accidents involving pedestrians (2005 – 2010) (Source: Ministry of Internal Affairs of Canton Sarajevo)



Figure 4: Pedestrian crossing – a high risk site in Sarajevo



Figure 5: Another example of hazardous behavior



Figure 6: Pedestrian crossing from a different perspective

2- Project proposal to treat the selected high risk site

Consulting my professors and other traffic engineers I have come to the conclusion that it is possible to achieve a high cost - benefit ratio through a set of low cost measures.

First set of measures consists of altering the spatial design of pedestrian crossings by displacing it 30 meters down the road, as well as changing the design of traffic light signals, as it is shown in Fig. 7. Through this it is possible to provide a higher level of safety for pedestrians because pedestrians will walk from tram stops to bus terminal using the shortest possible route (approximately, the distance will be reduced by 16 meters). This design is beneficial because it will also reduce time needed for crossing, thus it will reduce the time during which pedestrians are exposed to the conflicting road traffic flow. This set of measures will eventually lead to a higher flow of pedestrians. Respecting information acquired during the project presentation in Department of Roads of Sarajevo Canton, currently it is possible to displace only upper tram stop due to unresolved legal issues.

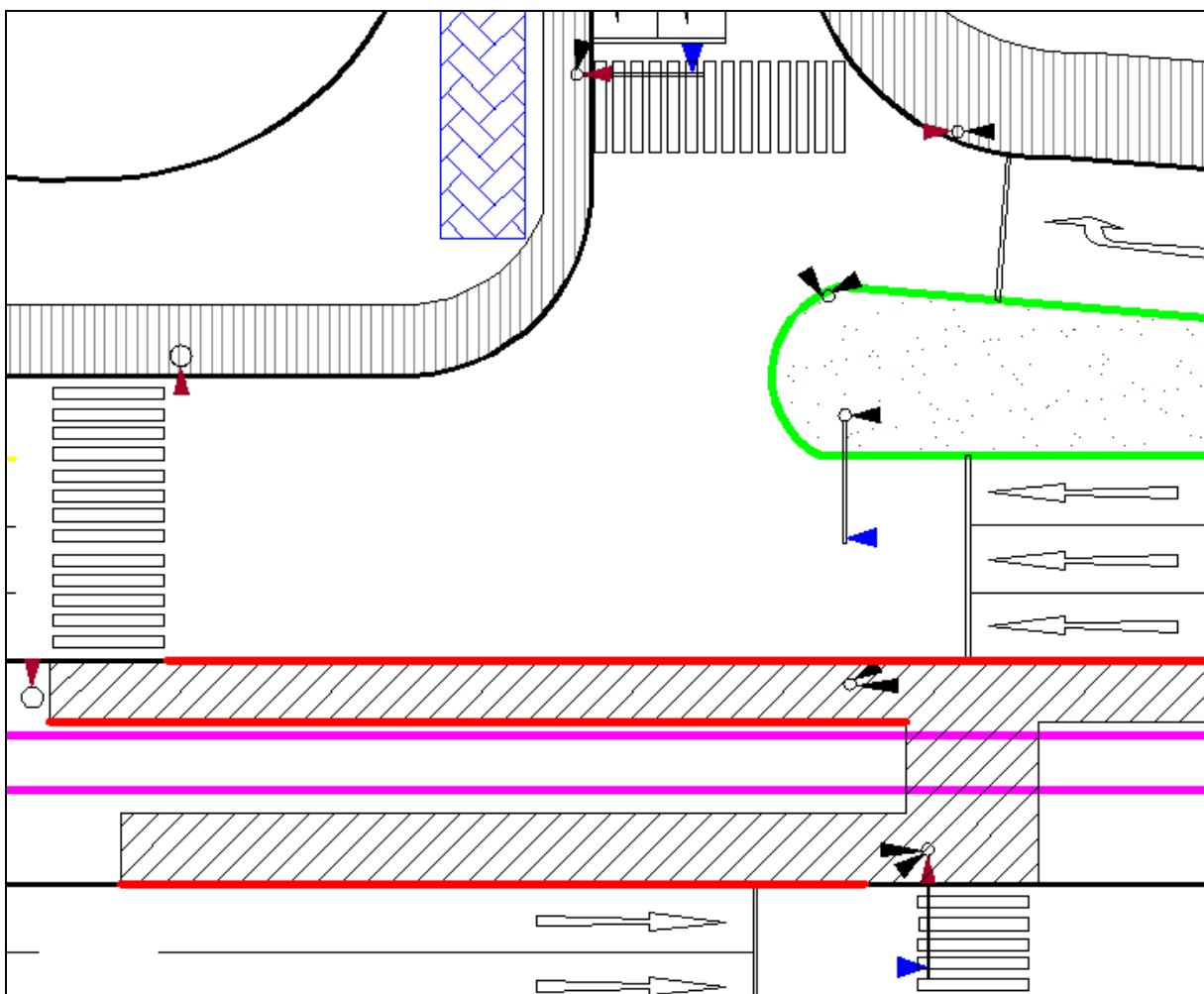


Figure 7: Proposed spatial design

Second measure was suggested after R2R camp since prof. Tracz and dipl. ing. Vesper pointed out that the problem of this site is not only with conflicting pedestrians and road traffic flows, but also with the relatively high speed of passing vehicles. The measure consists of adding 'Pedestrian crossing' and speed limit signs 150 meters before actual crossing which should make drivers more aware of upcoming pedestrians, as well of legal speed limitation.



Figure 8: Before and after (computer simulation) the second set of measures – ‘Pedestrian crossing’ and speed limit signs 150 meters in front of the crossing

Third measure will include displacement of the 2nd (lower) tram stop and it will also be the final measure as soon as the legal issues are solved (expropriation). This design will be favorable because it will provide in – line natural pedestrian flow from the one side to another.

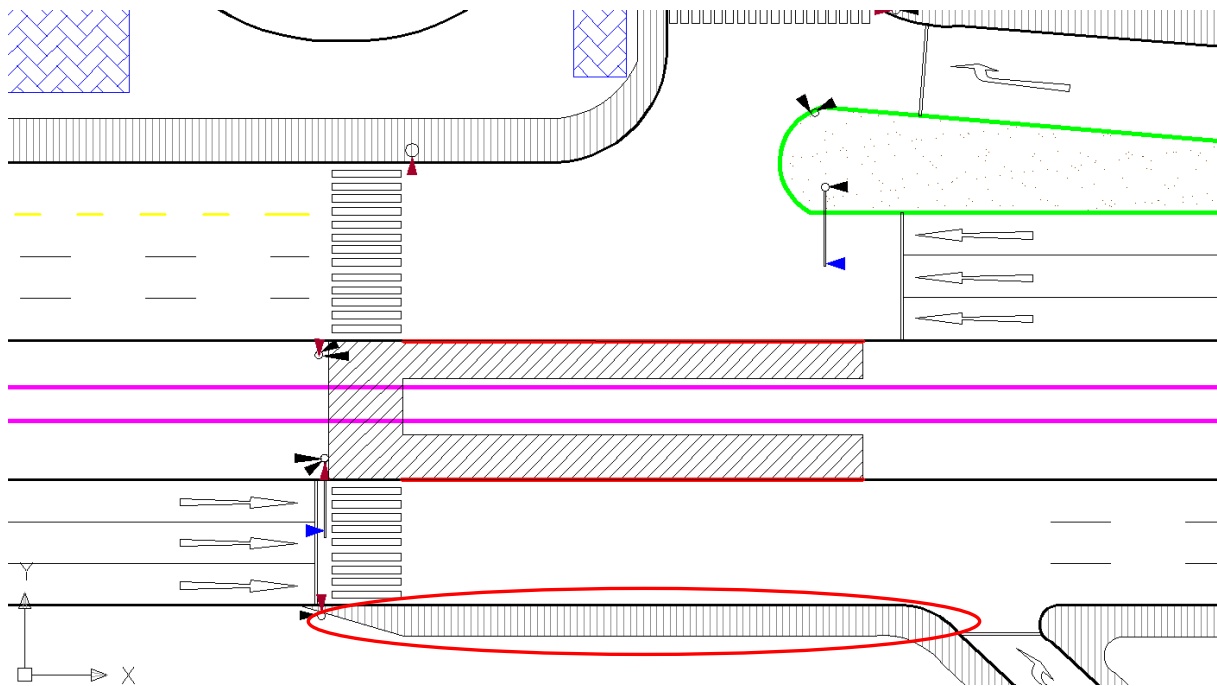


Figure 9: High – risk site after the implementation of third and final measure (red area indicates a land strip that has to be expropriated)

The budget needed for the first and second set of measures will not exceed 11.000 BAM (5.500 Euros) and it is possible to complete all constructional work in just 3 days. The construction works include:

- displacement of 4 existing traffic light poles,
- installation of 2 new poles for pedestrian traffic lights,
- building a 25 meters long sidewalk next to the upper tram stop,
- setting up new road marks and traffic signs,
- installation of barriers which will prevent undesirable pedestrian behavior (red) and
- shutting down the pedestrian island using a hedgerow or pedestrian barrier (green).

3- Campaign to get the high risk site treated

Upon returning to Sarajevo I have contacted my faculty and explained the outcome of the R2R camp which resulted with getting a letter of recommendation and full support from my professors. Next thing that I did was that I conducted an opinion poll among over 550 pedestrians near selected high risk site. Since I have already determined objective risk through the accident data and manouvre analysis, I was eager to find out what pedestrians think and feel in the terms of pedestrian safety. Furthermore, I wanted to create an “alliance” with citizens so I could display general concern for the safety which I could channel toward the city and the local community representatives. Needless to say, the majority of interviewed pedestrians (89%) regard this spot as a high – risk site and 81% of interviewed think that something should be done in terms of improving the safety. Also, I have contacted various media asking for my campaing support. Based on the circulation statistics and the website hit counters, so far I have managed to reach approximately 45.000 people through two web sites and one printed magazine which focus on the automotive industry and safety.



Figure 10: Extracts of articles reporting on R2R

Regarding meetings with the decision makers and stakeholders, I have identified them and managed to have at least two meetings. Decision makers that are involved into my campaign plan are:

- Municipality Ilidža (the municipality where my black spot is placed and important because they manage regulation plans),
- Sarajevo Canton's Department of roads (which manages all spatial and urbanism plans in the canton),
- Sarajevo Canton's Ministry of Traffic (which issues construction permissions and will finance this project).
- STEP d.d, (the company responsible for installation and maintenance of vertical signalization).

First two meetings that I have managed to arrange were meetings with the CEO of STEP d.d. Mr. Midhat Hajrić and the municipal mayor of Ilidža municipality Mr. Amer Čenanović held on October 28th and November 11th 2010, respectively. Through these meetings and presentations of my campaign plan I have managed to find out exact value of the budget needed for the implementation of proposed measures and more significantly, to gain support of the local community representatives as long as this project would not interfere with the spatial and urbanism plans of Sarajevo Canton. The meeting with the municipality mayor was important because municipalities are those who issue regulation plans; therefore they proved to be the key decision maker.



Figure 11: Letter of support from the Faculty of Traffic and Communication, a photo from a first meeting with the Mayor of Ilidža municipality and the interview of citizens who use the crossings on a daily basis

Second meeting that I had was with the representatives of Canton's Sarajevo Department of roads. This meeting was important for my campaign because through it I have presented my project on higher administrative level for the first time and also found out that my proposal does not interfere with future spatial and urbanism plans and it resulted in obtaining a letter of support. Third and the most important meeting was with the representatives of Canton's Sarajevo Ministry of traffic. This meeting proved to be beneficial not only because they displayed genuine determination for resolving this problem, but they also gave me a couple of technical guidelines which helped me during my R2R campaign.

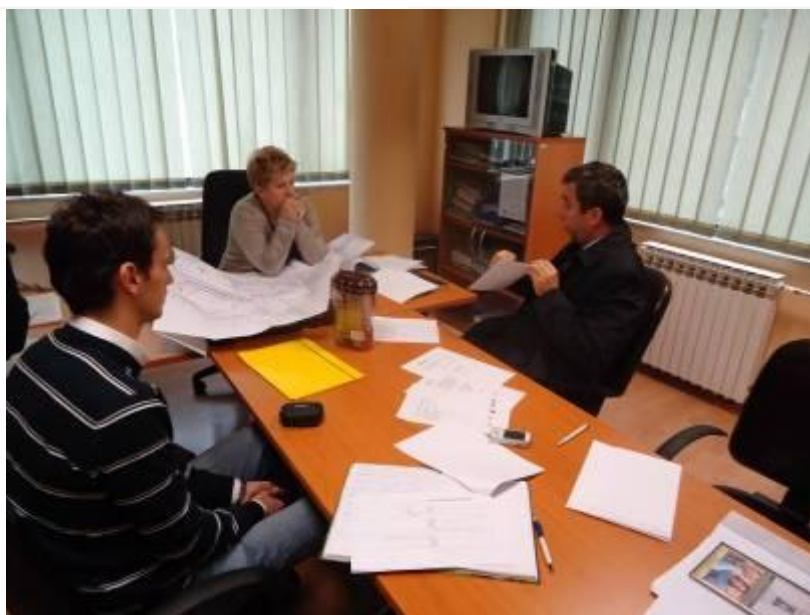


Figure 12: Letters of support from the Sarajevo Canton's Department of roads and the Ministry of Traffic, a photo from the first meeting at the Sarajevo Canton's Department of roads

On March 10th 2011 I attended a work meeting with road infrastructure experts from the SWE Road (a subsidiary of the National Swedish Road Administration) and had an opportunity to present my campaign and high risk site treatment plan which found their approval. On May 3rd I had a second meeting with representatives of STEP d.d. and I was very satisfied with the results made after this meeting. STEP d.d. proved themselves as a social responsible company since they recognized this project as a project of high importance for the local community and promised to do all construction work at the 15% discount rate (for almost 1000 Euros).



Figure 13: Letters of support from STEP d.d., the second meeting with the representatives of STEP d.d. and making a statement on the Radio of Federation of Bosnia and Herzegovina

After gathering all letters of recommendation and support (including one received from Ministry of Traffic) I have sent them all along with technical data and drawings as an attachment to the inquiry to the Municipality regarding issuing the final clearance for the implementation. The representatives of Municipality were very pleased with the achieved outcome (written statements from the Department of roads and the Ministry of Traffic) so they made it clear they are highly interested and want to solve this black spot in September.

The strategy that proved to be most beneficial for my campaign was making the strongest possible alliance which was made out of my faculty professors. This strategy proved to be helpful because not only my professors were familiar with all decision makers, but they were able to assist me with various areas of expertise that were not familiar to me (e.g. traffic legislation, land ownership, process of expropriation etc.). Since I had a lot of success managing this campaign I felt there was no need to put the additional pressure on the stakeholders through various media. Instead, since there is a significant pedestrian component in this problem, I made a statement about the “Roads to Respect” project, current safety level and the campaign on the second largest radio station in Bosnia

and Herzegovina, the Radio of Federation of Bosnia and Herzegovina (RFBiH). Also, I made a much more direct approach when it comes to pedestrians, so on June 4th I organized distribution of 500 leaflets among pedestrians in effort to correct their wrong behavioral pattern (Fig.14). This part of the campaign would be impossible without the help of a local copy shop which offered to print leaflets at the 50% discount rate.



Figure 14: The distributed leaflet – “Why run for a tram when the next one is coming in 4 minutes?”

4-Achievements of the project

The main achievement of my project proposal and overall, my campaign to get this site treated is that I have managed to point out the fact that this is not exclusively “a case of reckless pedestrians” as local and police authorities have claimed but there is also a major infrastructural component of this problem which will be solved. I have achieved that through meetings with all decision makers on different administrative levels who were involved in my campaign plan. That would have been impossible if I did not channel fears and doubts of pedestrians who use this crossing on a daily basis and are constantly at risk through activities of my direct communication campaign (the opinion poll and the distribution of leaflets). Also, I would like to point out much wider approach through web – site and magazine articles and making a statement on the radio which reaches listeners in the entire country which contributed in general approval of my idea.

After I gathered all results of made analysis (including the analysis of the spatial and temporal features of the junction, pedestrian flows, public transport time schedules, cost – benefit and the accident data) I have managed to have meetings with all decision makers so I could present them analyzed data and noticed infrastructural flaws, as well as the proposal for overcoming these difficulties. In period from late October to late June I have had 11 meetings in total and I can report with great satisfaction that I got a strong guarantee from the representatives of Municipality Ilidža’s Department of Urbanism that they will issue a regulation permission so that the Ministry of Traffic, as an investor, could finally solve this problem in September which will lead to improvements when it comes to the pedestrian safety and will look like the Fig. 15b displays. I have also managed to negotiate a 15% discount for works needed to be done and I have assisted on making the technical documentation for this project. Not only is the cost – benefit ratio improved through the reduction of costs, but I have managed to gain valuable experience which will be of great use to me in future endeavors.

Since my proposal for the improvement of a high – risk site is not fully implemented I plan to organize another round of meetings with representatives of the Municipality and the Ministry of Traffic so we could discuss and make a final schedule plan for construction works, as well as try to negotiate additional 5% discount for the works which will eventually result in even higher cost – benefit ratio.

Furthermore, I plan to develop and launch an extra campaign which will have a goal to acquire funds needed for expropriation of a land strip needed for the construction of a pedestrian path. I find this very important because it is only possible to achieve optimal level of safety for pedestrians through the displacement of the second tram stop.

Speaking of the achievements of the project, the fact that makes me satisfied is that in the period from November ’10 to July ’11 not a single person was neither killed nor injured while crossing this pedestrian crossing. Even though I have not managed to fully implement my proposal for improving this high – risk site I firmly believe that activities of my communication campaign, such as the distribution of leaflets, making an opinion poll or making a statement on the radio had a certain influence on that fact and the local community. Also, this entire project has been a personal success since I have met a lot of great people and learnt things that will help me in my future professional development. This entire “voyage” would be impossible without ETSC, 3M and Toyota and for that I thank them.

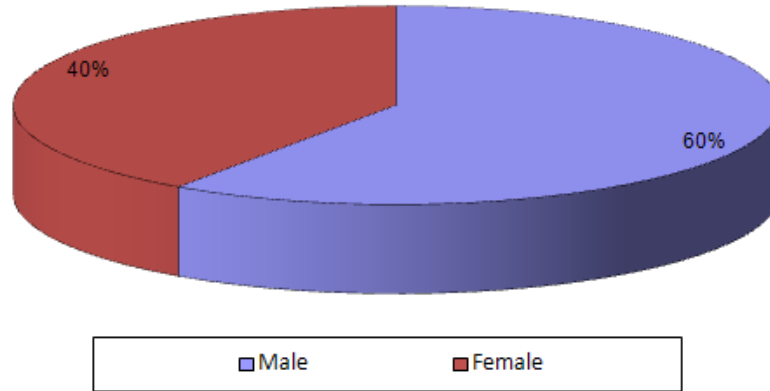


Figure 15: High – risk site before and after (computer simulation) implementation of first and second set of proposed measures

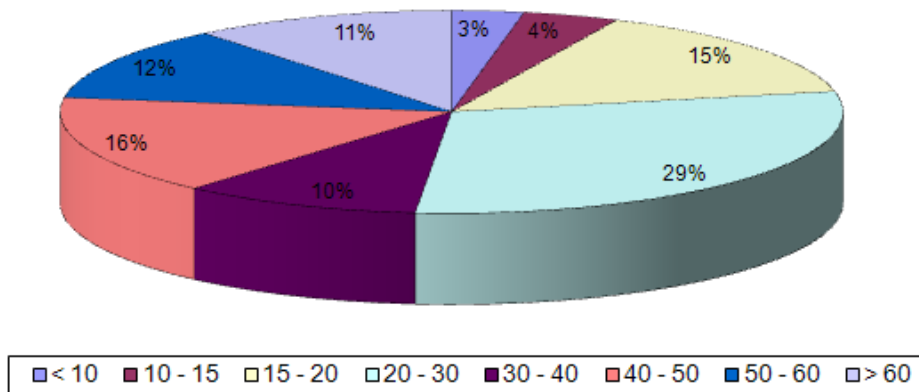
*** ANNEX**

Results of an opinion poll conducted among 558 pedestrians near selected high risk site.

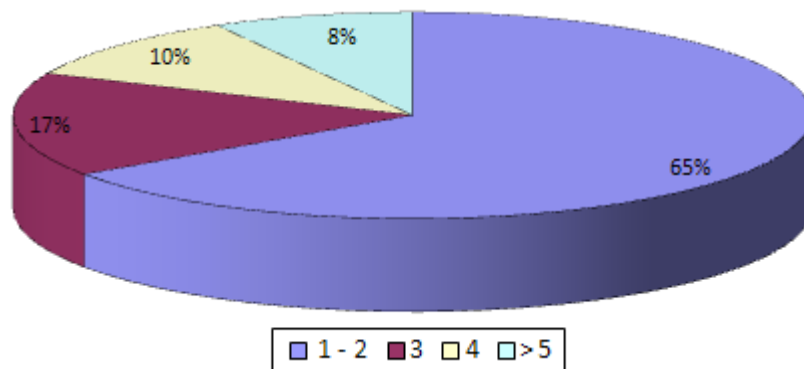
Question 1: Gender



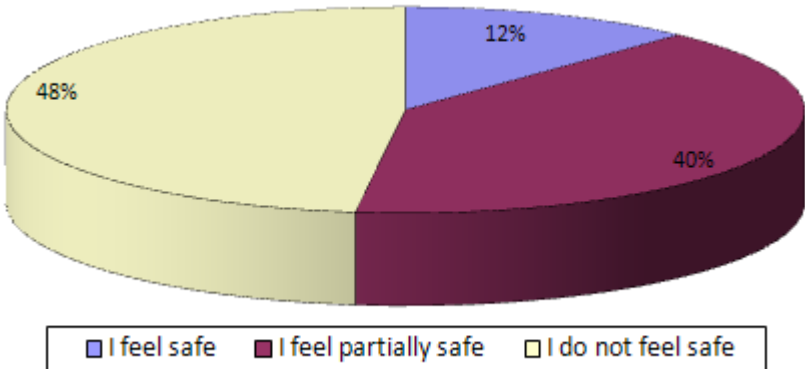
Question 2: Age



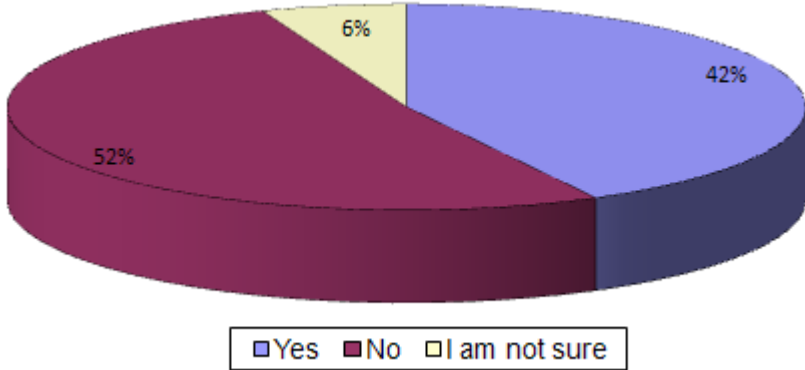
Question 3: How many times per day do you cross this pedestrian crossing?



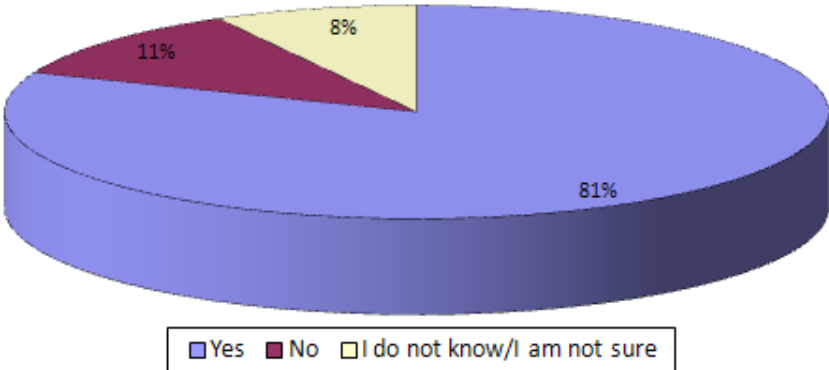
Question 4: Do you feel safe while you cross this crossing?



Question 5: Did you find yourself in a dangerous situation while crossing this crossing?



Question 6: Do you think something should be done regarding current level of safety?



Question 7: Do you think this particular crossing is a high – risk site?

