Roads to Respect 2010, Students Progress Report

Final report, 31. July, 2011.

Name: Jasmina Olovčić
University: Faculty of Traffic and Communication Sarajevo
e-mail: jasmina.olovcic@gmail.com, cimbica@yahoo.com
Telephone: +38761862973

Sarajevo, July, 2011.

1 – Definition of the High risk site

1.1. Location

The high – risk site, that I have been treated on road infrastructure is in Vogošća, location Gornji Hotonj, chainage 111 +114 km. Vogošća is a secondary suburb and municipality of Sarajevo, the capital of Bosnia and Herzegovina, located about 6 kilometers north of the city center and covering some 72 km².

Picture 1: *High – risk site*

Vogošća is one of two entrances to Sarajevo and therefore there is an enormous flow of traffic, especially at peak hours.

1. traffic flows 12.000
2. peak hours 07:00 – 09:00 am, 15:00 – 18:00 pm

As time passes Vogošća is developing and has become one of the larger municipalities in Bosnia, which leads to increasing concentrations of car on Main road M – 18, and this is the general problem of the municipality.

Namely, the existing road infrastructure is not very satisfactory results of which are frequent delays and accidents in this area.

1.2. Accident data

The following table presents data on traffic accidents in 2007, 2008 and 2009, classified by type of accident and the severity of the injured persons.

Table 1. *Accident data for 2007., 2008., 2009. year*

M – 18 Gornji Hotonj	**Accident severity**			**Casualty**			
	Damage only	Slight and Serious	Total	Driver	Passenger	Pedestrian	Total
				Slight	Slight	Slight	
2007	20	4	24	4			4
2008	23	6	29	3	3		6
2009	25	6	31	3	2	1	6

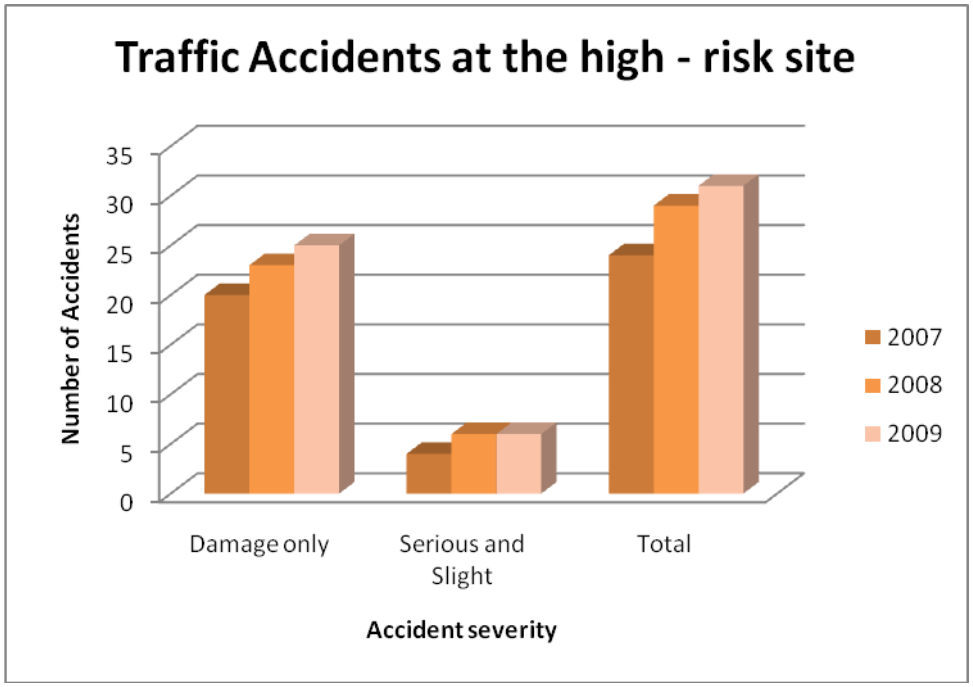


***Diagram1**: Traffic Accidents on the main road M - 18, section Gornji Hotonj, chainage 111 +114 km*

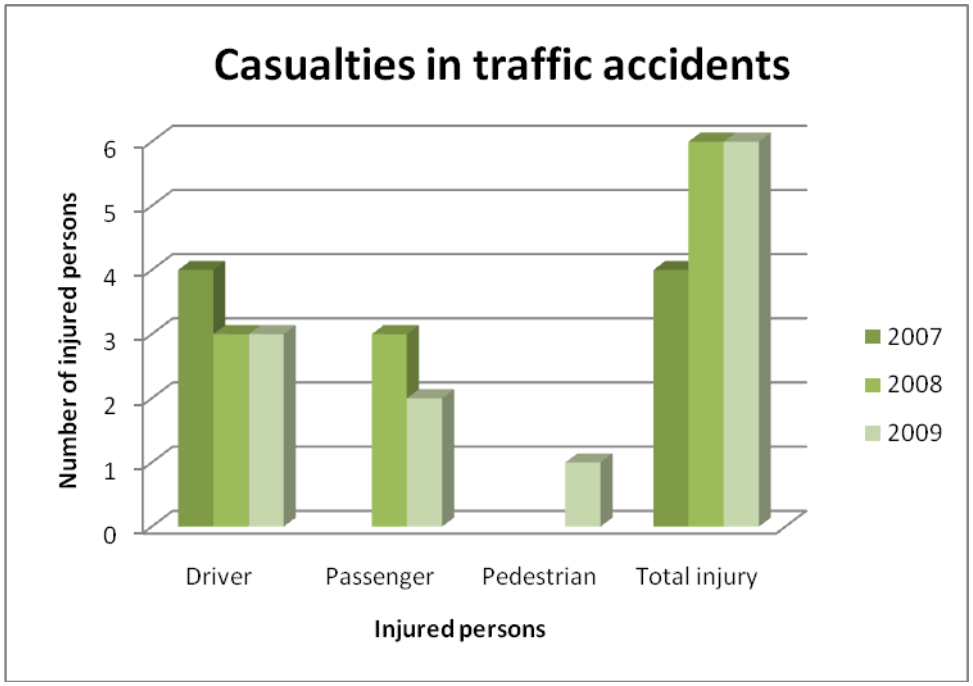


***Diagram 2.**: Casualties in traffic accidents*

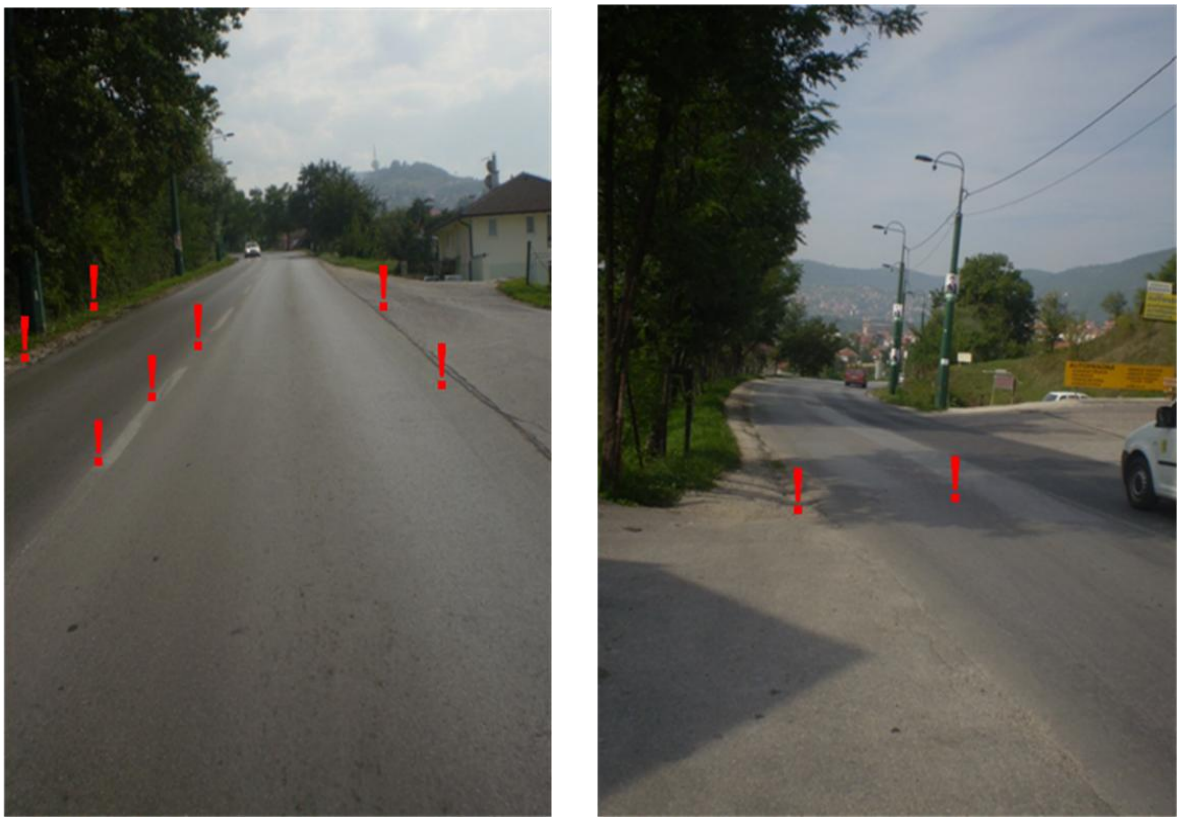
1.3. Why is this dangerous place?

My high risk site was designed without any protective crash barrier. Furthermore, there is not enough space to avoid a potential car crash. If vehicles get off from the road, it will hit a steel poles for lighting.

Picture 2.: *Problem:* ***Lack of protective crash bariers***

Picture 3.: *Problem:* ***Vicinity of street lighting***

Road pavement have moreover a waved form so that in some places it gives insufficient visibility.



Picture 4: *Problem:* ***Lack of adequate road markings***

The main problems of this area are curves, lack of visibility, lack of traffic signs, inadequate marking of pavements, inadequate maintenance of roads, lack of protective barriers, insufficient road width to avoid a traffic accident, and the proximity of steel poles for lighting.

Picture 5.: *Problem:* ***Curves, lack of visibility, lack of traffic signs***

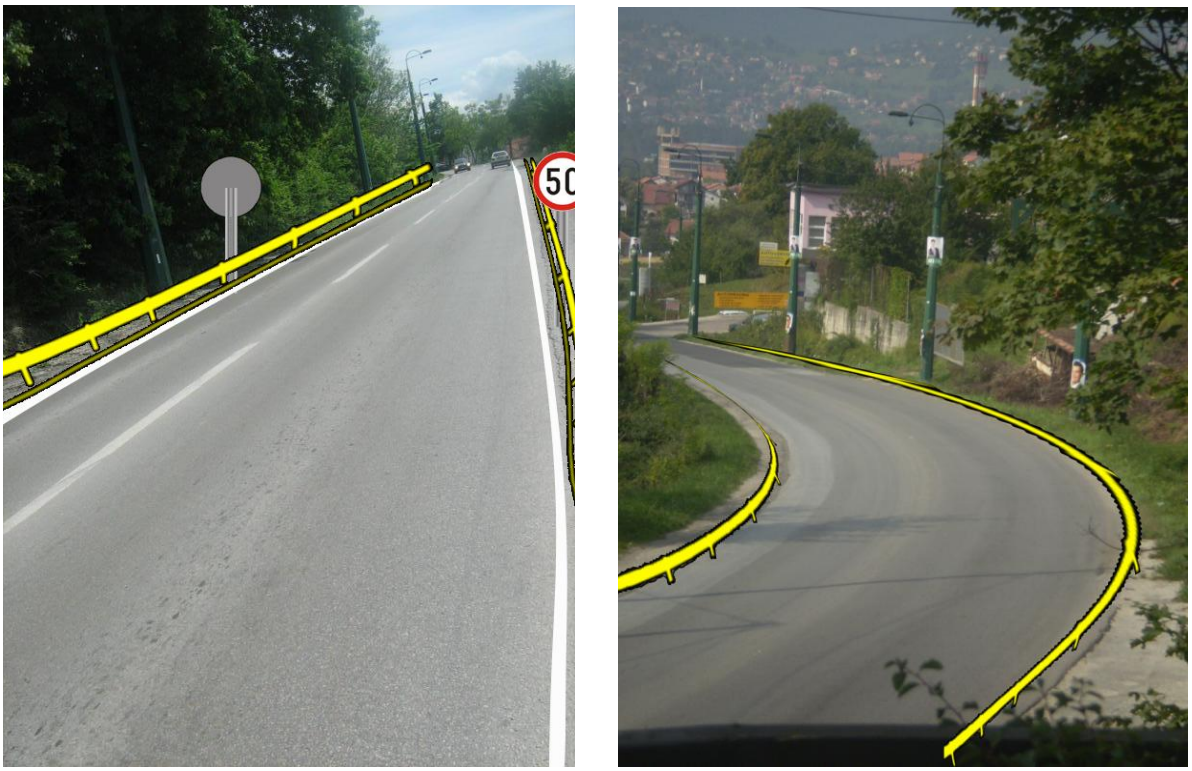
Picture 6.: *Problem:* ***Ditch and a water source near the road***

This all the above, prompted me to try to reduce: more often accidents and loss of innocent lives. I have been committed to propose low-cost measures in the area they selected to improve road infrastructure safety. This is why I am selected a high risk site right here.

2- Project proposal to treat the selected high risk site

My proposal consisted in:

- Installation safety crash barriers and road studs alongside of the road, which implies: update and replace the protective and pedestrian barrier, building berms (planning and alignment), planning and some partial repairs of slopes of cuttings and embankments, retaining walls, some partial repair of concrete curb.



Picture 7.: *Proposal to treat high risk site:* ***Installation safety crash barriers***

- Installations road markings to avoid scarce visibility of curves, which implies: scraping the damaged wearing course asphalt pavement thickness of 4-5 cm, changing the surface wearing course of igneous units in a given locality.

- Set horizontal and vertical signs, to be more visible to all users of the road, which implies: reconstruction and development of horizontal road markings (distribution and edge line width of 15 cm), building vertical traffic signs and replacing damaged.

Picture 8.: *Proposal to treat high risk site:* ***Pavement road markings and installation horizontal and vertical signs***

- The regulation of drainage (ditches, gutters, drainage, etc.) and set the grid and provide the best possible drainage; cleaning (pavement, drainage system, road, land, equipment, etc..); mowing grass and removing brush.

Picture 9.: *Proposal to treat high risk site:* ***Set the grid and provide the best possible drainage***

- Collapsible lighting columns and signs, mounted on shear bolts or made of yielding material and designed for electical safety

- Improvement of winter mainteance

The safety benefits of assessment are in:

- Minimising the risk of accidents occurring in the future as a result of planning decisions on new transport infrastructure schemes.
  (Table 2. *Accident data for December in 2010., January – June 2011*)

- Reducing the risk of accidents occurring in the future as a result of unintended effects of the design of road schemes.

- Reducing the long – term costs associated with a planning decision or a road scheme.

- Enhancing the awareness of road safety needs among policy-makers and scheme designers.

3- Campaign to get the high risk site treated

After your visit to the Faculty of Transport and Communications was followed by preparations for the application of high - risk sites. Given the state of road infrastructure in Bosnia and Herzegovina, and thus also in Sarajevo, it was almost impossible to decide what is the first and greatest need to be reconstructed.

In an interview with the professor Osman Lindov and his assistant in traffic safety Omerhodžić Adnan, who have been the largest and unselfish support during all this time, especially during the campaign, I decided for this place, Vogošća, Gornji Hotonj.

When I found out I was one of the participants of the camp in Brussels 2010, I was delighted. Guided by the experiences of previous participants R2R project, I immediately went into action.

Professor Osman Lindov helped me in the presentation of my work - he helped me to organized meeting with all students third and fourth year at the University where I presented my work and participation in the Camp in Brussels.

Campaign includes relevant stakeholders:

- Local autorities (Police, Municipalities)
- Larger companies
- Local bussinesspersons
- Road administration
- Universities
- Citizens
- Mass media

I started with the local police station in Vogošća and its employees. My first meeting was with associates of the police station working on the inspection of traffic accidents on my site - Alić Mufid and Džanko Halida. They helped me to get the records from the place of accidents, information about the place, time and the most common causes of traffic accidents, photo documentation, ect.

As we have learned in the camp that the locals the best informed and best reporters on all issues related to their environment, in your campaign and I joined them. I was interviewed people who live near my location, which saw the most frequent causes of traffic accidents

and that these are problems that they encounter when passing through this site. I soon picked up their hearts and together we set out to achieve our common goal.

In the period from 8 to 12 November 2010. The survey was conducted for the purpose of testing the current residents of the Gornji Hotonj satisfaction. A total of 400 people surveyed aged 6 to 66 + years. Questions asked were related to how they feel in terms of traffic safety, whether they experienced any discomfort or were in danger while using road, whether you consider it necessary to increase the level of security in this place and finally, whether they consider that this roads hazardous place when it comes to traffic safety.

The survey results showed a worrying situation given that almost 90% of respondents felt unsafe, while 81% believe that the competent cantonal and municipal authorities should make efforts to solve the problem of reducing the number of traffic accidents, the problem of speed on the road, and the problem of winter maintenance. Also, 90% of respondents believe that this is a risky high-traffic location.

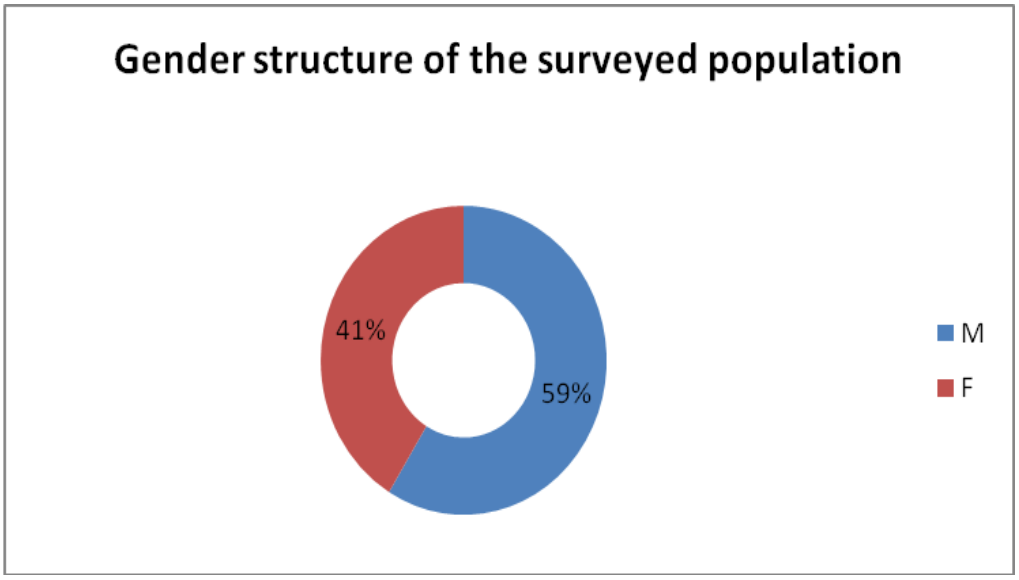


Diagram A.: Gender structure of the surveyed population

Table A.: Gender structure of the surveyed population

Gender	Number of surveyed	Percentage (%)
Male	235	59
Female	165	41
TOTAL	400	100

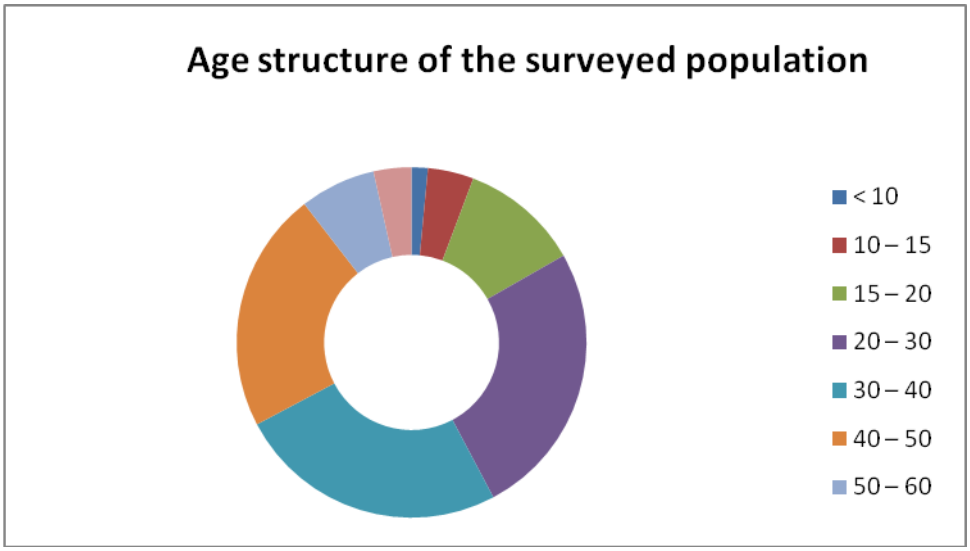


Diagram B:: The age structure of the surveyed population

Table B.: The age structure of the surveyed population

Age	Number of surveyed	Percentage (%)
< 10	6	1
10 – 15	17	4
15 – 20	44	7
20 – 30	102	26
30 – 40	100	25
40 – 50	89	22
50 – 60	28	11
> 60	14	4
TOTAL:	400	100

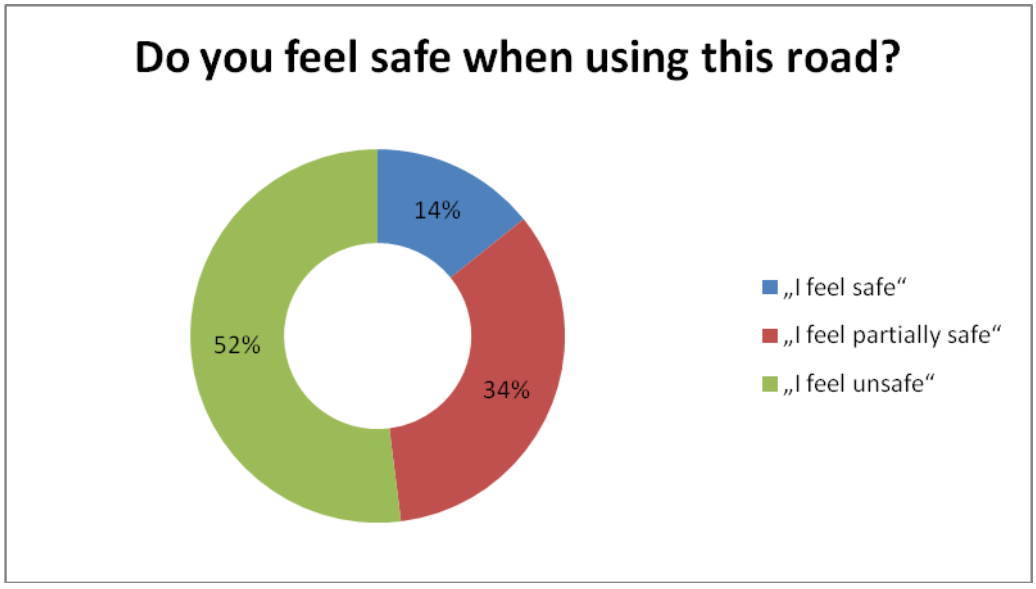


Diagram C.: Answers on the question: Do you feel safe when using this road?

Table C.: Answers on the question: Do you feel safe when using this road?

Answer	Number of surveyed	Percentage (%)
„I feel safe“	57	14
„I feel partially safe“	135	34
„I feel unsafe“	208	52
TOTAL:	400	100

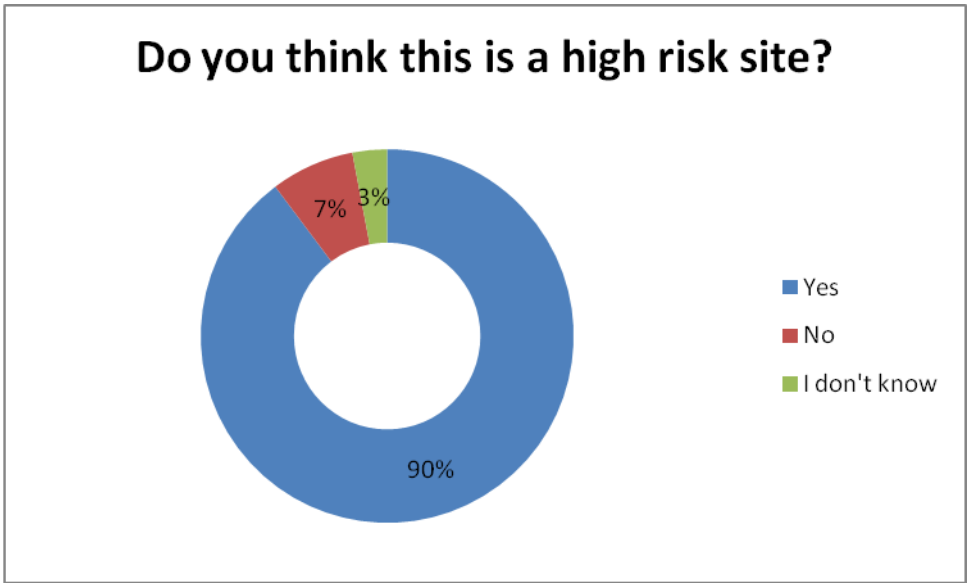


Diagram D.: Answers on the question: Do you think this is a high risk site?

Table D.: Answers on the question: Do you think this is a high risk site?

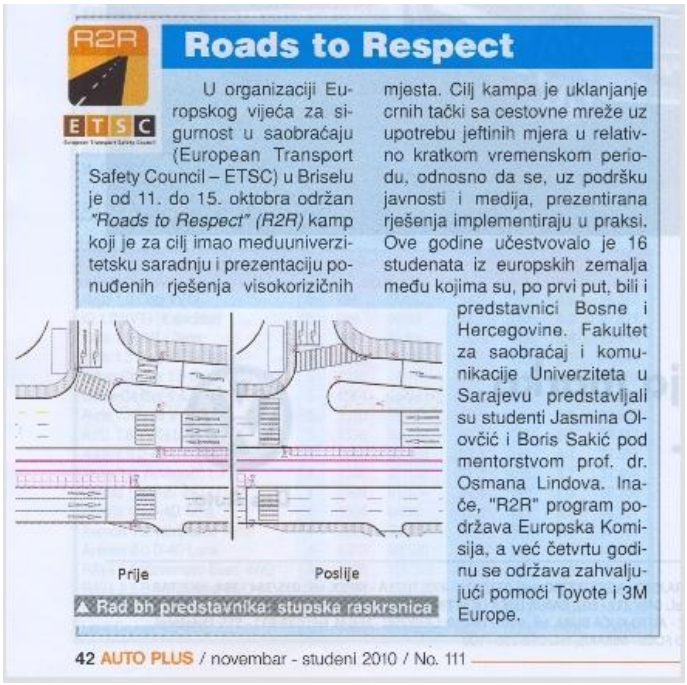
Answer	Number of surveyed	Percentage (%)
Yes	359	90
No	29	7
I don't know	12	3
TOTAL:	**400**	**100**

Here I was faced with a big problem: where and how to address and continue the implementation of the campaign. Nobody wanted to saw that they may hear, none of the TV and radio stations I could not convince me to join the program. I thought that this is the end of everything. And then I decided to try with some print media and internet.

Presentation of my work on the reconstruction of roads, as well as my participation in the Camp was published on the website Auti.ba (click at the link below)

http://www.auti.ba/index.php?sel=news&type=1&view=2498,

as well as magazine Auto-Plus. So, in the very beginning I based my campaign on the population that would sooner "hear" and "understand" the needs of reconstruction and repair of high - risk site.



Roads to Respect

U organizaciji Europskog vijeća za sigurnost u saobraćaju (European Transport Safety Council – ETSC) u Briselu je od 11. do 15. oktobra održan *"Roads to Respect" (R2R)* kamp koji je za cilj imao međuuniverzitetsku saradnju i prezentaciju ponuđenih rješenja visokorizičnih mjesta. Cilj kampa je uklanjanje crnih tački sa cestovne mreže uz upotrebu jeftinih mjera u relativno kratkom vremenskom periodu, odnosno da se, uz podršku javnosti i medija, prezentirana rješenja implementiraju u praksi. Ove godine učestvovalo je 16 studenata iz europskih zemalja među kojima su, po prvi put, bili i predstavnici Bosne i Hercegovine. Fakultet za saobraćaj i komunikacije Univerziteta u Sarajevu predstavljali su studenti Jasmina Olovčić i Boris Sakić pod mentorstvom prof. dr. Osmana Lindova. Inače, "R2R" program podržava Europska Komisija, a već četvrtu godinu se održava zahvaljujući pomoći Toyote i 3M Europe.

Prije Poslije

▲ Rad bh predstavnika: stupska raskrsnica

42 AUTO PLUS / novembar - studeni 2010 / No. 111

Picture 10.: An article in transport magazine Auto Plus

After this, with help of Letter recommendation and my Student Diploma from the ETSC things have turned in my favour.

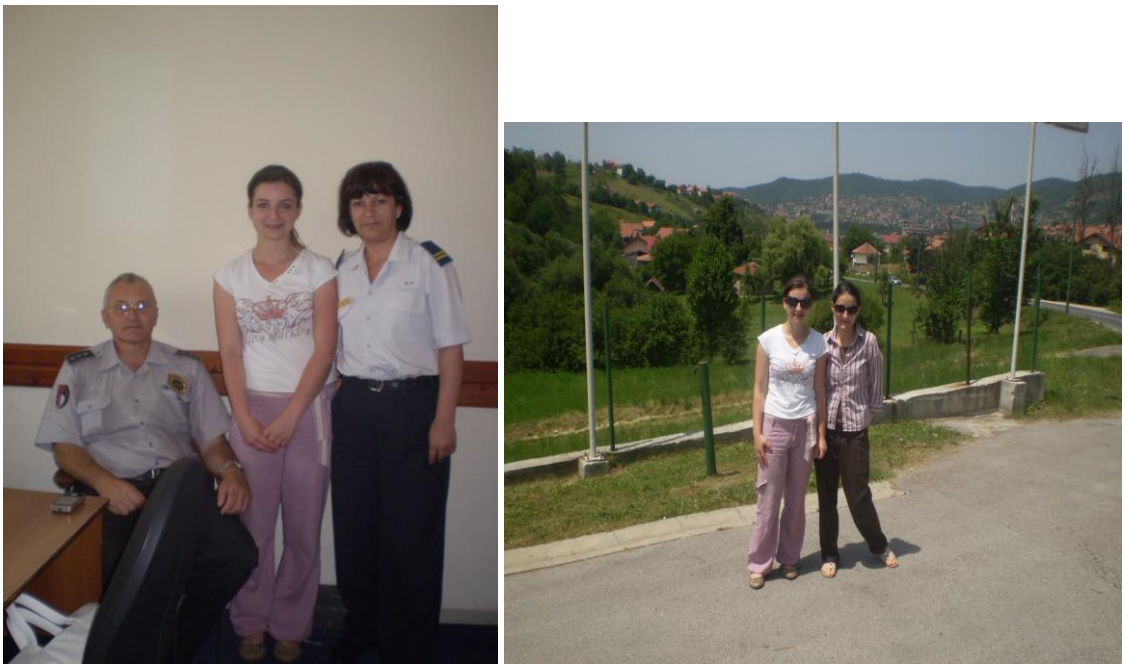
Namely, police employees Alić Mufid and Džanko Halida helped me to get in touch with the mayor Vogošća Mr. Asim Sarajlić, with the chief of police Vogošća Zaim Sarić and with the police commander Vogošća Džemal Arnaut where I presented my solution and all benefits what would it meant for local residents and beyond for the city of Sarajevo. After a resentment, they accepted my decision and in cooperation with the Federal Directorate of Road perform remediation of high - risk site.

Picture 11.: Meeting with officials from the Ministry of Interior Affairs with the help of the marketing agency "Boram"

Also, during my campaign, I made a successful cooperation with marketing agency "Boram", and with their help, I presented my high-risk site and solution to several round tables, Sarajevo, Goražde, Mostar. All this was accompanied by the media. Local TV stations and newspapers.

Picture 12.: Meeting with officials from the police and citizens with the help of the marketing agency "Boram"

As always, every beginning is difficult, and I'm starting my campaign. It was a difficult to persuade people to listen to me, and especially to invest in the presented solution. At the very beginning all were open minded, but when you should do something concrete, not everything went so easily. But I had the luck, that last year was an election year, and the government have already been planned for some funds to invest in infrastructure. Luckily, so I was react relatively on time and manage to directed part of these funds in the renovation of my high-risk site.



Picture 13.: Commissioner of the local police and assistant

Vogošća Municipality in cooperation with local police applied for the reconstruction of this part of the main road. The request was submitted to the Federal Directorate for Roads, they saw a problem and approve the request. Work started in March and were completed. Framework budget for the works on this site would amount to approximately 7,500 KM, and the work could be completed within one working week.

Solution that can help to increase the level of security on the site can be presented in the form of construction work and installation of additional elements of vertical traffic signs that give drivers a better perception of the upcoming curve.

Now I had a great deal of work done, I was left only with the problem of lighting columns. It is the steel columns that were before the war used to wear contact network. Namely, this road is used as a route for transport Trolleybus connecting Vogočća to downtown Sarajevo.

Further development of my campaign was directed towards the city Public Enterprise "Gras". In early June I had a meeting with Executive Director of "Grass", mr. Mustafa Mehanović. I asked him the question: "Whether the plan is to reinstall the before mentioned trolley line?" In conversation I found out that they have plans and that the Cantonal Ministry sent a request, given the amount of funds needed to restore it.

Then I applied for a meeting with the Cantonal Minister of Transport. The request was approved and I 15.7. 2011. I met with the Minister who told me the following:

"Establishing a trolley line was in plan immediately after the war, but there was no means interested donors. Whatever 1999. ATC consortium of La specie, Liguria region, Italy, shows interest in establishment of trolleybus traffic for Vogošća and March 2006. Whatever. signed a cooperation agreement between the Utilities and Transportation Company ATC Utility of public companies "Gras" in order to realize the project "Trolley in Sarajevo". To restore the trolleybus traffic for Vogošća is necessary:

- Build two-way contact network to share Vogošća in length about 9 km, the rehabilitation of existing and installation of a few new poles of contact network.
- Electro-school facilities in substations "Hotonj" and "Vogošča" and the purchase and installation of complete equipment.
- Taking about 10 km feeder cables from the substation to the electro-feeder network contact points section.
- Provide 10 kV power of these substations.

As for the existing poles, they would be re-used for hanging contact network. Two-way contact network are otherwise provided for two typical solutions:

1. hanging contact network poles in the cantilever

2. hanging contact network to default "paraphiliand ropes"

One of the pillars contact network used for the installation of public lighting lamps.”

This was discussed in the Document 1. Cantonal Ministry of Traffic: ***Establishing a trolley line*** (picture of the document is in part 4 – Achievements of the project)

4-Achievements of the project

As I mentioned earlier, I was able to implement most of the proposed measures. Here you can see the solution of the Federal Directorate of Roads, and the table where are presented number of traffic accidents made by Vogošća Police Station, for the month of December, 2010., January and February, 2011.

The decision of the Directorate for Roads are listed all the works covered by the reconstruction of high-risk site.

JP DIREKCIJA CESTA FEDERACIJE BIH

Broj: 01-02.2-2011/11-RB
Sarajevo, 25.03.2011. godine

Jasmina Olovčić
Fakultet za saobraćaj i komunikacije
71 000 Sarajevo

Predmet : **INFORMACIJA O REHABILITACIJI MAGISTRALNE CESTE M18, DIONICA : JOŠANICA – VOGOŠĆA - SARAJEVO**

U maju 2010. godine, na Fakultetu za saobraćaj i komunikacije, Sarajevo održana je prezentacija projekta "Roads to Respect" od strane predstavnika European Transport Safety Council (ETSC). "Roads to Respect" (R2R) program je usmjeren na saniranje visoko – rizičnih mjesta infrastrukture, jer je to područje sigurnosti na cestama gdje se znatna i održiva smanjenja nezgoda mogu postići u relativno kratkom vremenu i uz relativno nisku cijenu. Za učešće u projektu aplciralo je 48 studenata Fakulteta za saobraćaj i komunikacije. U oktobru 2010. godine održan je KAMP u Briselu, na koji su bili pozvani odabrani kandidati iz svake zemlje (dva studenta iz BiH) na obuku o sigurnosti na cestama. Tokom R2R kampa, studenti su bili dužni predstaviti svoje odabrane lokacije visokog rizika i početne koncepcije kampanje sigurnosti na cestama koje planiraju pokrenuti. Student Jasmina Olovčić je analizirala lokaciju Gornji Hotonj, na magistralnoj cesti M 18.

Ovim potvrđujemo da je u periodu oktobar – novembar 2010. godine izvršena rehabilitacija magistralne ceste M 18, dionica Jošanica – Vogošća – Sarajevo, koja je obuhvatila slijedeće radove:

- struganje oštećenog habajućeg sloja asfaltnog zastora debljine 4-5 cm,
- presvlačenje površinskog habajućeg sloja od eruptivnog agregata na datom lokalitetu,
- čišćenje (kolnika, sistema za odvodnju, cestovnog zemljišta, opreme i dr.),
- košenje trave i uklanjanje granja,
- obnovu i izradu horizontalnih oznaka na kolniku (razdjelnih i ivičnih linija širine 15 cm),
- upotpunjavanje vertikalne saobraćajne signalizacije i zamjena oštećene,
- dopuna i zamjena zaštitnih i pješačkih ograda,
- uređenje sistema za odvodnju (jaraka, rigola, drenaža i drugo),
- uređenje bankina (planiranje i poravnavanje),
- uređenje i mjestimični popravci pokosa usjeka ili nasipa, potpornih zidova,
- mjestimični popravci betonskih ivičnjaka.

Dostavljeno:

1. Imenovanoj
2. Evidenciji
3. A/a

Ljubo Pravdić, direktor

Javno preduzeće Direkcija ceste Federacije Bosne i Hercegovine društvo sa ograničenom odgovornošću, Sarajevo • Terezija 54, 71000 Sarajevo, Bosna i Hercegovina • Tel. +387 (0)33 250 370 • Faks +387 (0)33 250 400 • Reg. br. UF/I-2204/05, Općinski sud Sarajevo • Por. br. 01704213 • ID: 4200338240004 • Račun: Raiffeisen banka BiH 161000020440120, INTESA SANPAOLO banka

Document 1.: Federal Directorate of Roads: List of implemented measures on the high - risk site

In this document is discussed about:

We hereby confirm that during the period of March 2011. The completed rehabilitation of main road M 18, section Jošanica - Vogošća - Sarajevo, which included the following works:

- *Turning the damaged asphalt surfacing wear layer 4-5 cm thick,*
- *changing the surface of the wear layer of volcanic aggregates in a given locality,*
- *Cleaning (roadways, drainage systems, road, land, equipment, etc..)*
- *mowing grass and removing brush,*

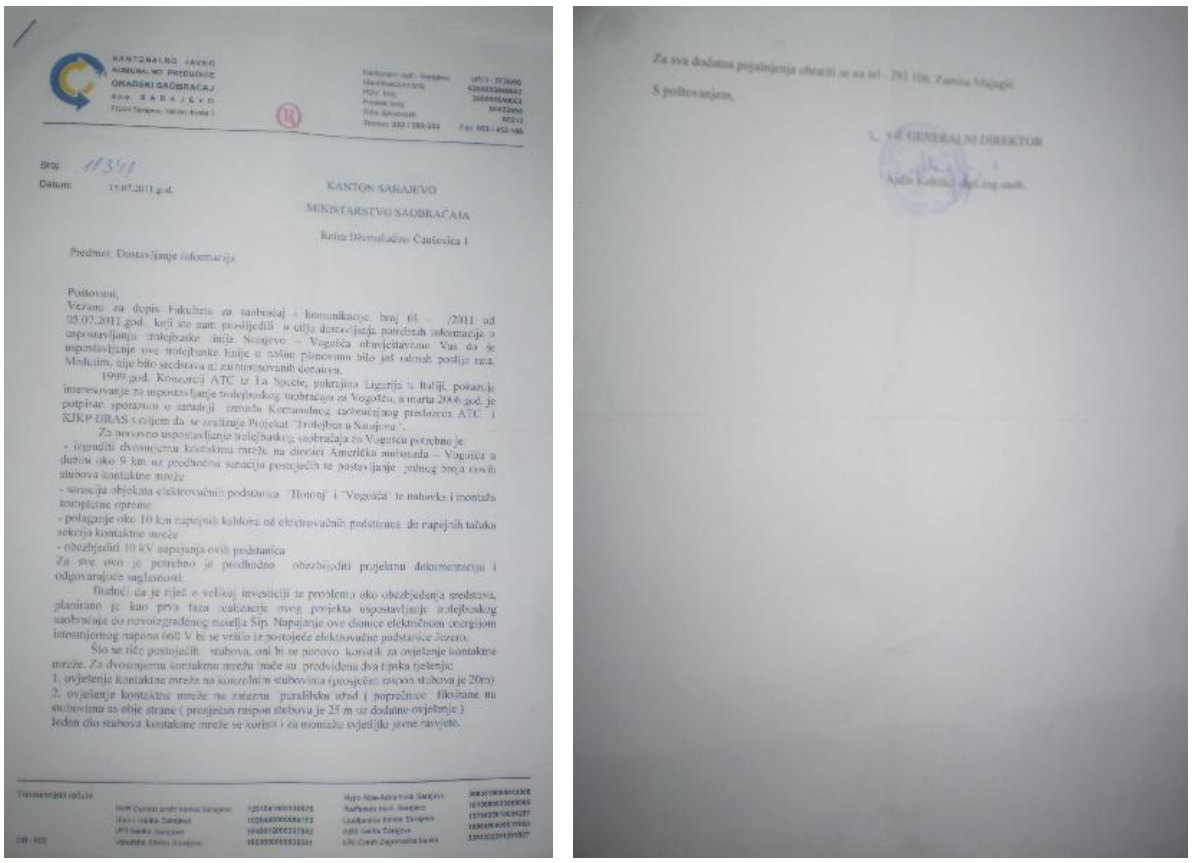
• Reconstruction and development of horizontal markings on the pavement (distribution and edge line width of 15 cm),
• completion of the vertical traffic signs and replacing damaged
• complement and replace the protective fences and walking,
• arrangement of the drainage system (ditches, gutters, drainage, etc.)
• Planning shoulders (planning and alignment),
• Planning and some partial repairs of slopes of cuttings and embankments, retaining walls,
• some partial repair of concrete curb.

Picture14.: Installation of protective crash barriers

Picture 15: Road pavement (An adequate road markings)

Picture 16:. Installation of the vertical signs

Document below is a statement that Canonal Ministry and Public Enterprise "Gras" in collaboration with the Italian ATC is working on restoring trolley line that will connect with Vogosca Center Sarajevo. As for the existing poles, they would be re-used for hanging contact network.



KANTONALNO JAVNO KOMUNALNO PREDUZEĆE
GRADSKI SAOBRAĆAJ
Broj: 11341
Datum: 15.07.2011.g.od.

KANTON SARAJEVO
MINISTARSTVO SAOBRAĆAJA
Kralja Dječanskog Čaušovića 1

Predmet: Dostavljanje informacija

Poštovani,
Vezano za dopis Fakulteta za saobraćaj i komunikacije, broj 01 -/2011 od 05.07.2011.god., koji smo zaprimili u cilju dostavljanja potrebnih informacija o uspostavljanju trolejbuske linije Sarajevo – Vogošća obavještavamo Vas da je uspostavljanje ove trolejbuske linije u našim planovima bilo još odmah poslije rata. Međutim, nije bilo sredstava iz zainteresovanih općina.
1999.god. Kongresni ATC iz La Spezie, pokrajina Ligurija u Italiji, pokazao je interesovanje za uspostavljanje trolejbuskog saobraćaja za Vogošću, a marta 2006.god. je potpisan sporazum o zajednji između Komunalnog saobraćajnog preduzeća ATC i KJKP GRAS s ciljem da se realizuje Projekat "Trolejbus u Sarajevu".
Za novo uspostavljanje trolejbuskog saobraćaja za Vogošću potrebno je:
- izgraditi dvosistemnu kontaktnu mrežu na dionici Američka ambasada – Vogošća u dužini oko 9 km uz predhodnu sanaciju postojeće te postavljanje jednog broja novih stubova kontaktne mreže
- sanacija objekata elektrovučnih podstanica "Hotonj" i "Vogošća" te nabavka i montaža kompletne opreme
- polaganje oko 10 km napojnih kablova od elektrovučnih podstanica do napojnih tačaka sekcija kontaktne mreže
- obezbjeđenje 10 kV napajanja ovih podstanica
Za sve ovo je potrebno je predhodno obezbijediti projektnu dokumentaciju i odgovarajuće saglasnosti.
Budući da je riječ o velikoj investiciji te problemu oko obezbjeđenja sredstava, planirano je kao prva faza realizacije ovog projekta uspostavljanje trolejbuskog saobraćaja do novoizgrađenog naselja Šip. Napajanje ove dionice električnom energijom izmjeničnog napona 660 V bi se vršilo iz postojeće elektrovučne podstanice Jezero.
Što se tiče postojećih stubova, oni bi se ponovo koristili za ovješenje kontaktne mreže. Za dvosistemnu kontaktnu mrežu inače su predviđena dva tipska rješenja:
1. ovješenje kontaktne mreže na konzolnim stubovima (prosječni raspon stubova je 20m)
2. ovješenje kontaktne mreže na zateznu "puralitsku užad (poprečnice fiksirane na stubovima sa obje strane (prosječan raspon stubova je 25 m uz dodatno ovješenje)
Jedan dio stubova kontaktne mreže se koristi i za montažu svjetiljki javne rasvjete.

Za sva dodatna pojašnjenja obratiti se na tel. 291 106, Zamira Mujagić.

S poštovanjem,

V.D. GENERALNI DIREKTOR
Ajdin Kahrović, dipl.ing.saob.

Document 2.: Cantonal Ministry of traffic: Establishing a trolley line

And at the end of this final report you can see list of traffic accidents for time period from beginning of December 2010 to beginning of July 2011. Here you can see that there was a reduction in the number of traffic accidents compared to the previous three years (see table1.)

Table 2. Accident data for December in 2010., January – July 2011.

M – 18 Gornji Hotonj	Accident severity			Casualty			
	Damage only	Slight and Serious	Total	Driver	Passenger	Pedestrian	Total
				Slight	Slight	Slight	
	10	4	14	2	2	-	4

BOSNA I HERCEGOVINA
FEDERACIJA BOSNE I HERCEGOVINE
KANTON SARAJEVO
MINISTARSTVO UNUTRAŠNJIH POSLOVA
PETA POLICIJSKA UPRAVA
Policijska stanica Vogošća

Broj: 02/4-5-2 -05-2- 437 /11
Dana: 15.03.2011. godine

police vogosca.jpg
Type: JPEG Image
Size: 231 KB
Dimension: 1232 x 1840 pixels

UNIVERZITET U SARAJEVU
FAKULTET ZA SAOBRAĆAJ I KOMUNIKACIJE
ul. Zmaja od Bosne br. 8
71000 SARAJEVO

PREDMET: podaci o saobraćajnim nezgodama , dostavlja se
VEZA: vaš akt br. 01- /11 od 11.03.2011.godine

U vezi vašeg akta broj i datum veze, dostavljamo vam tražene podatke o broju saobraćajnih nezgoda koje su se dogodile na magistralnom putu M 18 - lokalitet Gornji Hotonj, područje općine Vogošća, radi realizacije projekta «Roods to Respect».

S poštovanjem!

PRILOG:
tabela x 1

NAČELNIK PU
Glavni Inspektor
Željko Mijatović

Document 3.: Police station Vogošća: Accident data

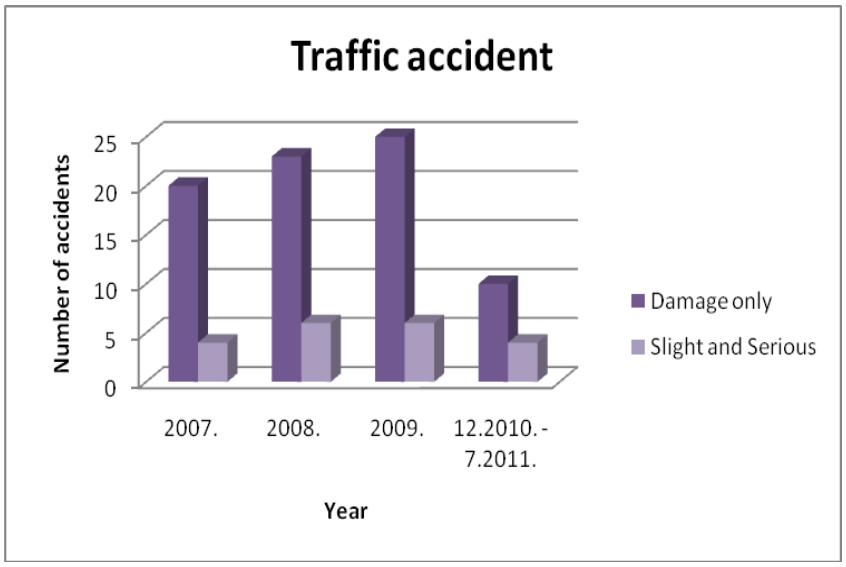


Diagram3.: Accident data- comparing for 2007-2011 year