Roads to Respect 2010, Students Final Report

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1-Definition of the High risk site

High risk site that I have found it's a part of local roads of Jagodina, Central Serbia, and it connect two villages Vinoraca and Deonica. Most dangerous part is in length of about 1km, and in that road section I have defined three black spots (A,B and C), lead by principles of subjective and objective risk of road traffic accidents. In a period of last 4 years on that road section was happened 14 accidents with injury people (1 died three days after accident). For this road section there is no recorded data about traffic flow, traffic volume and peak hours since 1975.

I identify following problems on this road section:

- lack of traffic signs
- no road marking
- poor visibility
- holes on the road surface on the curve
- destroyed road fence on the bridge

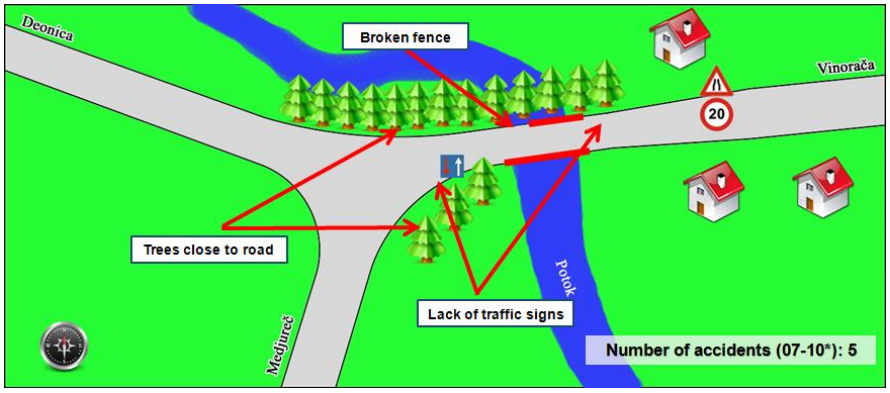
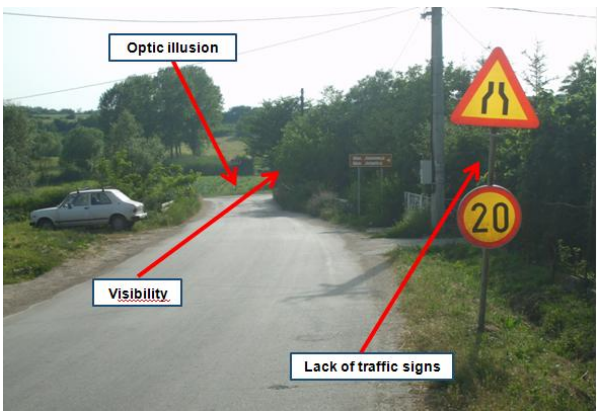
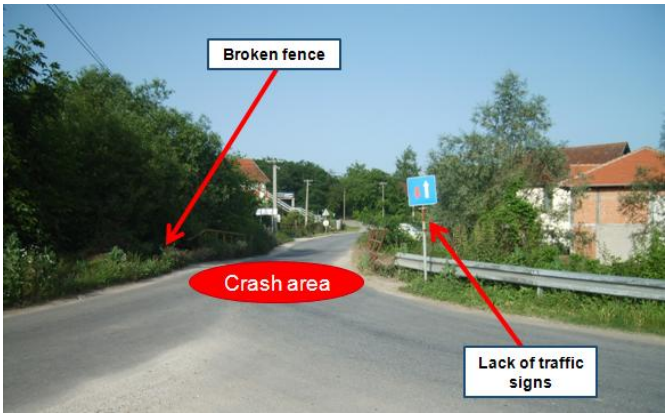


Image 1. Traffic situation at the black spot A





Photos 1. and **2.** Infrastructure problems at the black spot A

At the black spot A major problems are: poor visibility because of trees near road, lack of traffic signs that in revert sides confusing driver which driver have a right to cross a bridge first, broken fence near crash area. In whole project this black spot is the most expensive to fix but some elements are necessary for elementary safe on the road and should be treated.

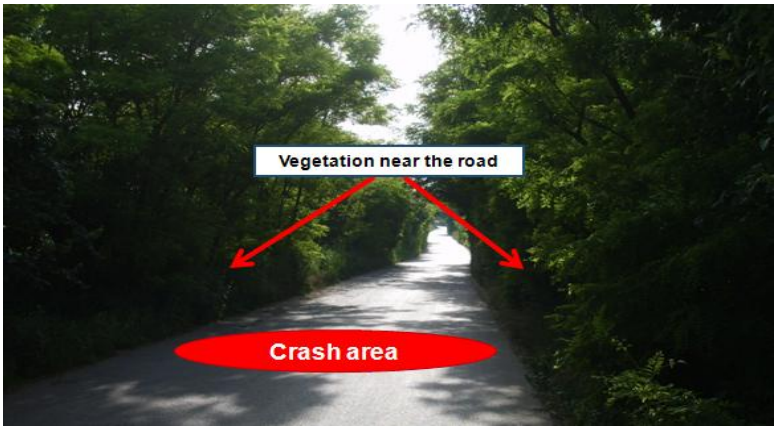
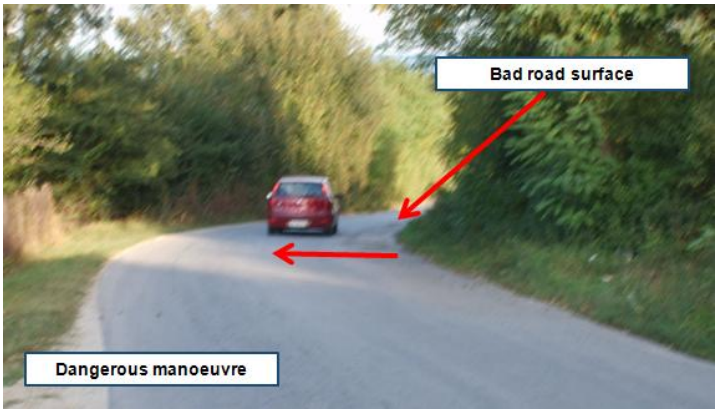


Photo 3. Black spot B – Maintenance problem, poor visibility



Photos 4. and **5.** Black spot C problems - holes on the road surface provoke dangerous maneuvers

During research I have found police accidents report data related with this road section.

Table 1. Accident data for a 2007. year

Number of accident Vinoraca-Deonica: Year 2007.				
Date	**Time**	**Site**	**Cause**	**Material damage(RSD)**
29.jan	22:20	A	speeding	30000
9.apr	17:25	C	alcohol	25000

Table 2. Accident data for a 2008. year

Number of accident Vinoraca-Deonica: Year 2008.				
Date	**Time**	**Site**	**Cause**	**Material damage(RSD)**
6.jan	8:45	C	insufficient distance	5000
15.jun	20:45	A	overtaking	15000
12.dec	17:38	B	speeding	1000

Table 3. Accident data for a 2009. year

Number of accident Vinoraca-Deonica: Year 2009.				
Date	**Time**	**Site**	**Cause**	**Material damage(RSD)**
3.feb	1:10	A	speeding	60000
22.feb	8:45	C	alcohol	10000
10.jun	13:55	A	reckless	2000
1.jul	14:25	A	insufficient distance	25000
31.jul	9:30	B	overtaking	25000
24.avg	12:15	C	alcohol	25000

Table 4. Accident data for a 2010. year* (period January - June)

Number of accident Vinoraca-Deonica: Year 2010.				
Date	**Time**	**Site**	**Cause**	**Material damage(RSD[1])**
4.apr	22:00	A	alcohol	100
	5:15	C	alcohol	100000
15.maj	20:45	C	alcohol	30000

After collecting the road accident data I have concluded that dominate human behavior factors on this road section is **alcohol** and **speeding**. Most dangerous black spots with objective risk of accident it is **black spot A** and **black spot C** with same accident rate.

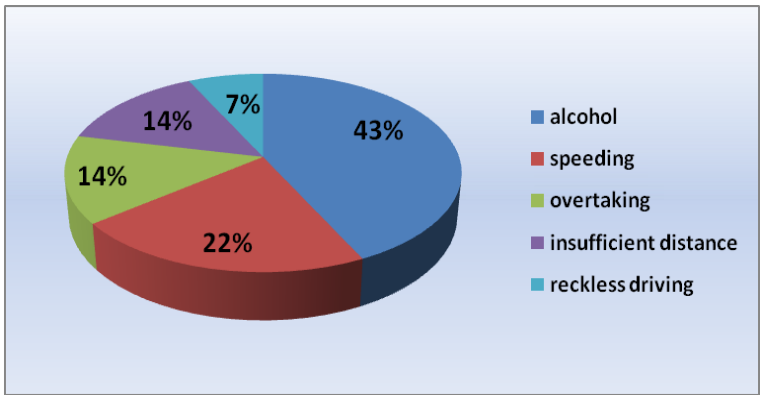


Chart 1. Human behavior factors in reported road accidents (2007-2010*)

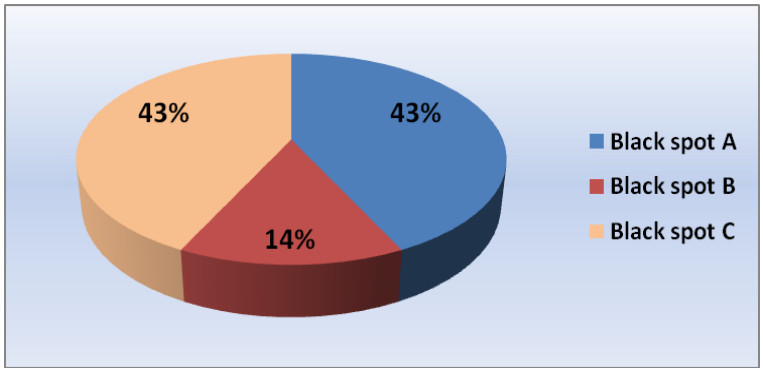


Chart 2. Rate of accidents on different sites (2007-2010*)

2- Project proposal to treat the selected high risk site

After defining a problems on the mention black spots, I have project proposal for treating this high risk site. This engineering measures are necessary for improving road safety but also defined as a low cost measures.

Analyzing problems at the **black spot A**, proposal for treating that site is:

- to fix bridge fence
- to set proper traffic sign for speed limit, that is missing
- to set proper traffic sign for yield to oncoming traffic
- to set protective fence

[1] RSD – **R**epublic of **S**erbia **D**inars. Monetary course was changed from **1€=80RSD**(2007.) to **1€= 107RDS**(end of 2010.). This material demage report is just first police estimate, real materal cost are much higher.

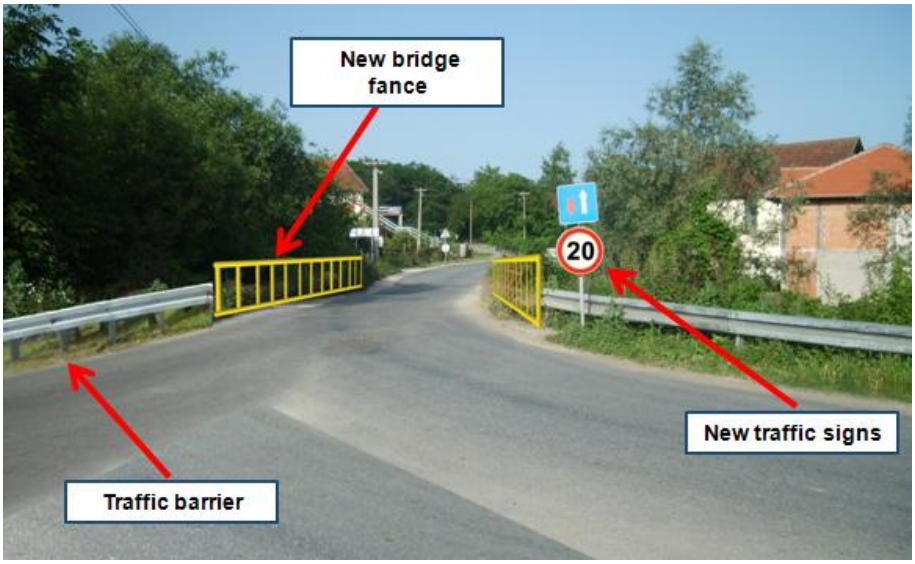


Photo 6. Black spot A treat proposal (looking from Deonica)

Photo 7. Black spot A treat proposal (looking from Vinoraca)

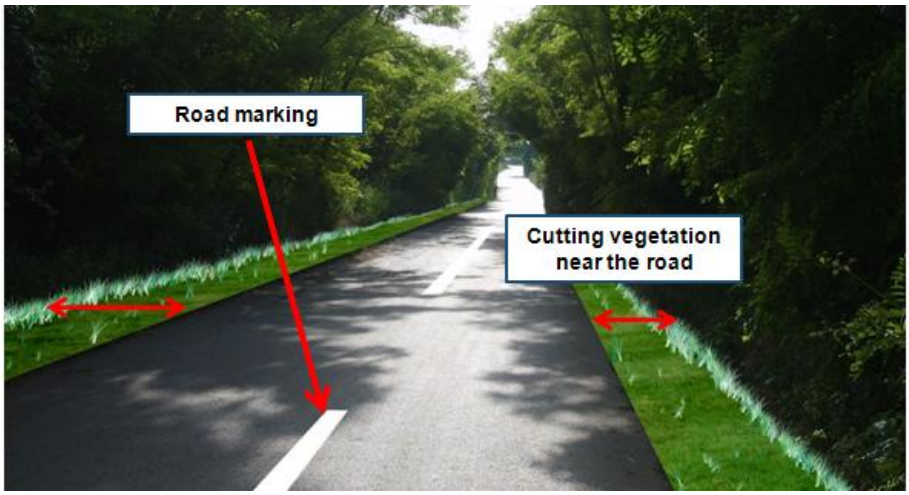


Photo 8. Black spot B treat proposal

At the **black spot B** treating proposal is just simple, to cut a vegetation near the road. That will improve visibility but also will prevent sun flashing distraction during a long day period in the summer months. Also my proposal is to set a road marking dashed line, because this road section is long enough for overtaking, couple of hundred meters before dangerous curve.

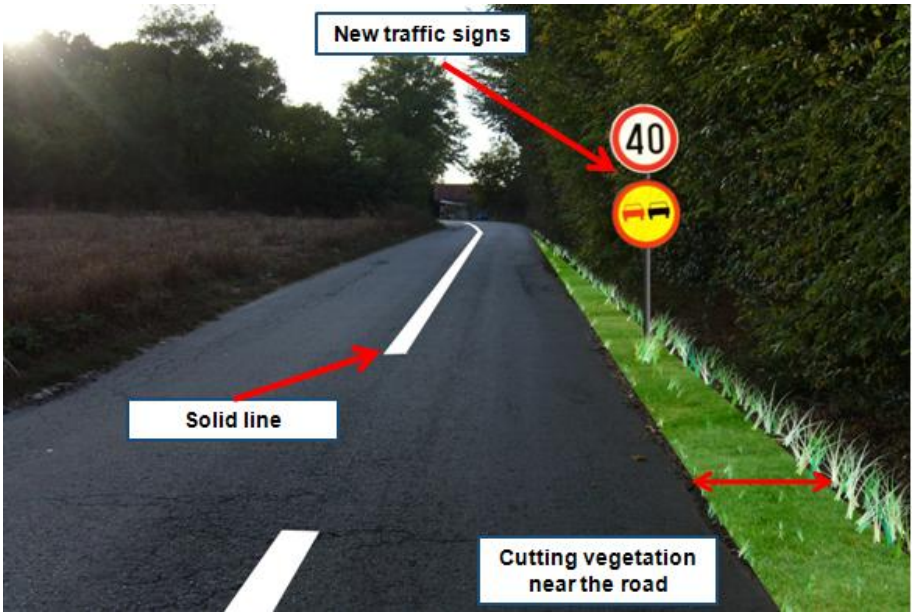


Photo 9. Black spot C treat proposal

Photos 10. and **11.** Black spot C treat proposal

Proposal for treating **black spot C:**

- to cut vegetation near the road very close to curve start
- to set a new speed regulation with traffic sign
- to repair road surface at shown places at the curve
- to set road marking solid line

Characteristic for **black spot C** site is that there are a few residential house between two curve. Setting the speed limit will improve life condition at this site, because of lower noise and stress when the residents leave the houses.

All of proposed measures are based on low cost principle. The most expensive to treat is **black spot A**, because of relative higher cost of reconstruction bridge fence but at this stage of project I didn't count this cost. At the **black spots B** and **C** treating cost are much lower.

Budget for treating **black spot B** and **C** consist economic cost for:

- repair road surface less than $25m^2$:
- setting a 4 traffic signs: 4
- setting a road marking : $60m^2$ of paint
- other cost (workers, machine fuel, atomization)

From this point, for this work on **black spot B** and **C** will be need two days, but for **black spot A** it is hard to predict, mostly because of problem with a fence on the bridge and time needed for repair a fence.

3- Campaign to get the high risk site treated

First step in my campaign was contact with my professor Milan Vujanic, chief of cathedra for Road Safety (Appendix 1). He support my project. With his support I meat with Damir Okanovic, director of Serbian Road Safety Committee, he also gave me support letter (Appendix 2). His support will be important for me to write an article for one science magazine which is delivering to all Serbian local authorities, and it will be an example how some dangerous sites on the local road can be repair in relative short time with relative low costs.

With this idea was lobby on local authorities, their reputation will rise in science circles, but also that can be one more argument what was done in Jagodina during last 4 years for election next year. I tried to meet with Jasmina Milosevic, Serbian parliamentarian and member of Committee on Transportation (also living in Jagodina), but after I arrange meeting with her, she resigned in Serbian parliament because of illness.

My strategy was to present whole project, and to force local authorities to treat two of three black spots. Treating of **black spots B** and **C** in summary cost lower than treating **black spot A.** On this sites (B and C) was recorded 57% of accidents, and implementation of this low cost project in relative short time will make this road section safer.

In Jagodina, I contacted with a mayor Dragan Markovic, and he connected me with Zoran Vasic, president of **Jagodina Road Committee**. I present to him R2R project and activities of ETSC, he was very pleased that project like this will be implemented in his/my hometown. He promise me that some elements of this proposal will be implemented and then he connect me with a Petar Jankovic, **Director of road sector, Jagodina Land development public agency**, but this was my second contact with Mr Jankovic, because I already talked with him while I was collecting technical information about this road section and presented him problem and my solution. He approved solution and said that implementation will depend on political/economic support.

In beginning, I have prepared strategy for road safety campaigning. I discovered that human behavior factors related with my high risk site is speeding and alcohol, so I had idea to carry out campaign against alcohol and speeding. My idea was to use different elements for target groups.

Elements that I planed to use in this campaign were:

- Newspapers
- Radio
- Posters and flyers
- **Website**
- **Facebook**
- **Twitter**
- **LinkedIn and Google+**

Unfortunately I didn't manage to achieve **newspaper** as a campaigning element because local newspaper "Novi put" no longer exist. That was the only one newspaper in city of Jagodina but in beginning of 2011. company was closed. Another problem was with **radio** stations, because several local radio stations have a music scheme, without serious talk show.

My idea was to provide **posters** which will be placed in high school to target young drivers and flyers to be placed on car windshield, parked near city market, because most of rural population come to this market. I have tried to find stakeholders who will be sponsors for posters and **flyers** but because of serious economic situation in Serbia I didn't achieved this part of campaign. I already designed poster (Poster 1) but still main reason for failure of using this element was lack of economic interest for support. Image from poster with slogan "**Живот нема RESET**, вози пажљиво**!**" (eng. ***Life don't have RESET button, drive safely***) I have used with other elements of this campaigning.

Poster 1. Poster with slogan and sponsors/supporters

Probably the cheapest elements of my R2R campaigning was use of internet features: **websites**, and **social networks**.

For campaigning purpose I have created website **www.vozibezbedno.com**[2] (eng. drive safely). This is my informative base about project, with explanation of project, pictures of dangerous road section, and and information about ETSC. My idea for this website was to continue to work on it after campaigning also, not only during this project, because problem on black spots was also related with human behavior (alcohol and speeding) and it could be very important for further education and changing attitude of some drivers. This website is in Serbian language. In additional, article that I have used on this site (Appendix 3 - direct link: http://www.vozibezbedno.com/) I have also posted on some Serbian forums, especially **www.mycity.com** one of the most popular Serbian forum with special category just for road safety topics (direct link: http://www.mycity.rs/Opsta-diskusija-i-bezbednost-saobracaja/Roadst-to-respect-Kampanja-za-povecanje-bezbednosti-saobracaja.html#1195450).

On the vozibezbedno.com website I have posted a Poll with question: **Do you think that proposed solution will bring better road safety condition at the site**. This is results by now for proposed answers:

- Yes, It will: 14
- It is not enough: 2
- No, will not: 0
- Not interesting: 1

[2] **web sites are optimized for Google Chrome and Mozilla Firefox**

Another website that I have created for purpose of lobby is **www.global-traffic.net**[2] and this website is in English language, containing categories not only for road safety. My main idea of using of this web site was to present my project in some professional forums in order to get some additional support for my project. On global-traffic I wrote an article (Appendix 4 - direct link: http://www.global-traffic.net/road/roads-to-respect-european-campaign-for-better-road-safety/), which is translation of article from www.vozibezbedno.com and this article I have used to present my idea and activities for international stakeholders. One of succeed of this way of lobby was a promotion professional social network **LinkedIn.com** and with support of some international experts I have found CAST tool for evaluation of road safety campaigning which I will use for evaluation of my R2R campaign and for that purpose, but also got support from **Walter Viti**, Road Safety/Traffic Eng.-Transport Planning Specialist form Melbourne Area, Australia, specialist for evaluation of road safety campaigning. While I was presenting my project on linkedin.com I have received invitation (from **Mr Joop Goos,** Vice president at La Prévention Routière Internationale PRI) and attend **UNECE Decade of action conference** in Belgrade 27.-29. April 2011. and there I was present my project to some road safety professionals (Photo 12).

Photo 12. UNECE Decade of action conference group photo (I am first on left side in second row)

Social networks was additional feeder to websites, which I used to present my project to the public. I created Twitter account **@vozibezbedno** (Image 2 direct link: http://twitter.com/#!/vozibezbedno), in Serbian language, which was a tool for presenting problem of road safety to the people, and promotion of my R2R project. On this twitter account I have provided many interesting link about road safety, tips about traffic accidents and what to do in case of accident in order to get more followers and larger audience. Many of followers are interesting in road safety topic and active in conversation. For global-traffic.net I have created twitter account **@global_traffic** (Image 3 direct link: http://twitter.com/#!/global_traffic), which is account in English language and just a additional element for international promotion of **Roads to Respect** project.

Images 2 and **3**. Twitter accounts **@vozibezbedno** and **@global_traffic**

In campaigning activities I have also used **Facebook** groups and Fun(Like) pages and I posted links from www.vozibezbedno.com in order to inform more people about R2R project. **Google+** is a new social network, and I posted links to website on this social network. Google+ started just few weeks ago, by now there is low number of users in Serbia, but it is worth to mention about possibility of using this social network for road safety campaigning, and particularly for my R2R campaign.

4-Achievements of the project

After a nine moths of R2R project result about treating black spots is that local authorities have treated **Black spot B**. Trees were cut from left side of road (Vinoraca - Deonica direction), even more that I propose, and now at that road section is better visibility condition and wider road width. Current situation in shown on photos below.

Photo 13. Treated black spot B (direction Vinoraca - Deonica)

Photo 14. Treated black spot B (direction Deonica - Vinoraca)

At beginning of my campaigning I have set goal for successfully implementation of project and that was treating of black spots B and C. Unfortunately I didn't manage to achieve treating of both black spots, but only black spot B, because of evident economic problems in city of Jagodina. Local authorities have a strong explanation, they are now aware of problem, but they gave me a promise, that they will fix some elements of project when they define a budget for that activities but I didn't get any written document about that part of project.

I had idea to take survey at the black spots location but there was a couple of houses and residents didn't wanted to cooperate, and because of high speed of vehicles survey of drivers could be very dangerous so I have decided not to take survey. During this couple of months after treating black spot B there was no recorded road accident at that part of road section.

My Idea for evaluation of campaigning was actually to evaluate internet campaigning. This was not so easy because CAST tool for evaluation of road safety accident don't provide such a instruction. So I decide to try evaluate with some statistical method. Unfortunately I have found Google analytics to late for this report. This tool for website statistic can provide different data about site visitors. At first on web sites I had regular counters, and after implementation of Google analytics I had data about visitors by countries, cities, time on site… This part of project I will continue to develop because I will need a couple of months recorded data.

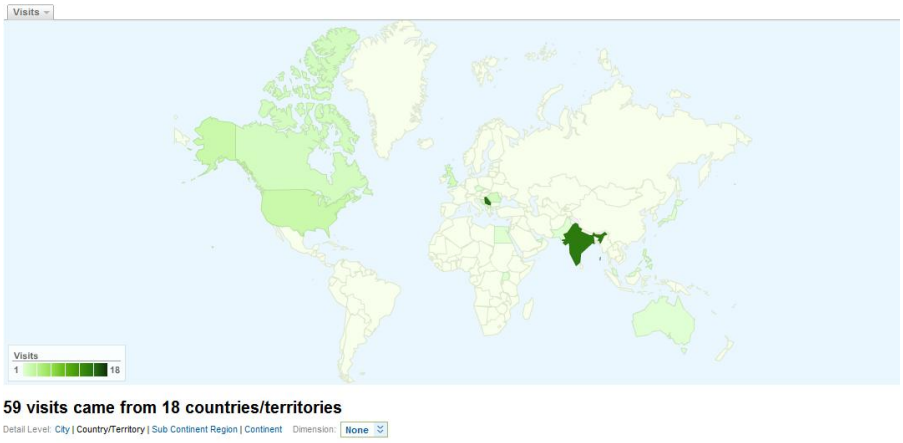


Image 5. Visitors (global-traffic.net) by countries recorded by Google analytics - Graphic view

59 visits came from 18 countries/territories

Detail Level: City | Country/Territory | Sub Continent Region | Continent Dimension: None

Site Usage | Goal Set 1

Visits	Pages/Visit	Avg. Time on Site	% New Visits
59	1.32	00:00:51	89.83%
% of Site Total: 100.00%	Site Avg: 1.32 (0.00%)	Site Avg: 00:00:51 (0.00%)	Site Avg: 89.83% (0.00%)

	Detail Level: Country/Territory	Visits ↓	Pages/Visit	Avg. Time on Site
1.	Serbia	18	1.44	00:00:50
2.	India	17	1.18	00:01:17
3.	United States	3	1.00	00:00:00
4.	Bosnia and Herzegovina	2	1.00	00:00:00
5.	Romania	2	1.50	00:00:05
6.	Philippines	2	1.00	00:00:00
7.	Canada	2	1.00	00:00:00
8.	Macedonia [FYROM]	2	2.50	00:00:31
9.	United Kingdom	2	1.00	00:00:00
10.	Australia	1	1.00	00:00:00

Filter Country/Territory: containing Go Advanced Filter Go to: 1

Image 6. Visitors (global-traffic.net) by countries, number of visits, pages per visit and average time on site recorded by Google analytics - Table view

Costs of internet campaigning:

Website domen **global-traffic.net**: 8€ / year
Website domen **vozibezbedno.com:** 8€ / year
Web server for data: 30€ /year

Both websites I was create by myself and summary costs of my R2R project campaign is **46 euros**, just because of technical requirement.

APPENDIX 1 - Support letter from prof. Milan Vujanić - chief of cathedra for Road Safety in Faculty for transport and traffic engineering, University of Belgrade

Саобраћајни факултет
Универзитет у Београду
Катедра за безбедност саобраћаја и
друмска возила
Тел: 011 30 91 270

Београд, Новембар
2010.

Поштовани господине/госпођо,

Овим писмом желимо да пружимо подршку **Марку Милићу**, који ради на пројекту Европског савета за безбедност саобраћаја (ETSC – Roads to Respect) чији је крањи циљ побољшање безбедности саобраћаја у локалној средини (конкретно у граду Јагодина). Са тим у вези, он је навео да је боравио у Бриселу где је образложио проблеме на једној путној деоници и дао предлоге за имплементацију пројекта.Овај пројекат подржале су компаније Тоуота и 3М.

Идеја пројекта је да се на опасној деоници на којој је забележен велики број незгода, примене мере, које не захтевају велике материјалне трошкове имплементације а које могу допринети да се повећа безбедност саобраћаја. Такву деоницу пута је идентификовао н а локалној мрежи п утева Општине Јагодина, између села Винораче и Деонице, образложио узроке саобраћајних незгода и предложио решења којима би се побољшала безбедност саобраћаја на овом делу путне мреже.

Имплементација овог пројекта, као и кампања коју планира да спроведе, повећале би безбедност саобраћаја на третираној деоници пута, али би ефекти овог пројекта имали и шире дејство. Надамо се да ће те му изаћи у сусрет и реализовати овај пројекат јер би уз мала улагања користи биле вишеструке.

Шеф Катедре за безбедност саобраћаја
и друмска возила

Проф. др. Милан Вујанић, дипл. инж.
Саобраћајни факултет у Београду

APPENDIX 2 - Support letter from Damir Okanović - chief of cathedra for Road Safety in Faculty for transport and traffic engineering, University of Belgrade

Srpski komitet za bezbednost saobraćaja
Jug Bogdanova 19, 11000 Beograd
Tel/Fax: 011 629 054
Mob: 065 381 6565
e-mail: kancelarija@kbs.rs

Beograd, Novembar 2010.

Poštovani gospodine/gospođo,

Srpski komitet za bezbednost saobraćaja pozdravlja napore i mere koje sprovode državni organi, nevladine organizacije kao i pojedini stručnjaci a u cilju poboljšanja bezbednosti saobraćaja u Republici Srbiji. Ovim putem želimo da pružimo podršku Marku Miliću, diplomiranom inženjeru saobraćaja, koji radi na projektu Evropskog saveta za bezbednost saobraćaja sa sedištem u Briselu.

Ovim projektom bi se implementiralo rešenje koje je on predložio u cilju postizanja elementarnih mera bezbednosti na deonici puta na kojoj je zabeležen veliki broj nezgoda sa povređenima i materijalnom štetom. Cilj ovog projekta ja da se uz mala ulaganja postignu željeni rezultati – povećanje bezbednosti saobraćaja na delu lokalne putne mreže. Nadamo se da ce te implementirati predložena rešenja i time doprineti poboljšanju bezbednosti saobraćaja u Jagodini.

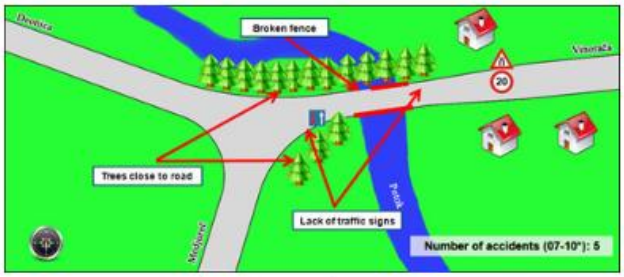
Damir Okanović
Direktor Srpskog komiteta za bezbednost saobraćaja

APPENDIX 3 - R2R article on Serbian website: http://**www.vozibezbedno.com**

Roads to Respect – Kampanja za povećanje bezbednosti u saobraćaju

Evropski savet za bezbednost saobraćaja (European Transport Safety Council) je ne-vladina organizacija sa sedištem u Briselu, čiji je rad posvećen smanjenju broje nazegoda, poginuli i povređenih na putevima Evrope. U tom smislu ETSC je započeo nekoliko projekata vezanih za bezbednost saobraćaja. **"Roads to Respect" (R2R)** je studentski projekat fokusiran na sprovođenje kampanje kojim bi se uticalo na lokalne vlasti da poprave elemente puta na uočenoj opasnoj lokaciji, ali niskobudžetnim sredstvima u relativno kratkom vremenskom roku. Svaki R2R student, dobio je zadatak da pronađe pogodnu lokaciju za tretman, na kojoj je zabeležen određen broj saobraćajnih neszgoda sa povređenima, poginulima i materijalnom štetom. Zadatak je bio da se definiše i sprovede metodologija lobiranja kod nadležnih organa i zainteresovanih strana za projektat. Cilj ovog projekta da se simulira kampanja za povećanje bezbednosti saobraćaja, od uočavanja problema, predloga mera, lobiranja, eventualnog uspeha i implementacije rešenja i konačnog vrednovanja kampanje.

Opasna deonica puta koju sam ja izabrao za projekat nalazi se u Jagodini i spaja dva sela, Vinoraču i Deonicu. Najopasniji deo ove deonice je dužine 1km i na tom delu puta definisao sam tri **"crne tačke"** (A,B i C), na osnovu subjektivnog i objektivnog rizika tj. na osnovu dobijenih statističkih podataka o saobraćajnim nezgodama na toj deonici puta. U periodu od proteklih 4 godine na toj deonici puta registrovano je 14 nezgoda sa povređenima i materijalnom štetom. Problem je definisam i obrazložen na sledećim slikama.



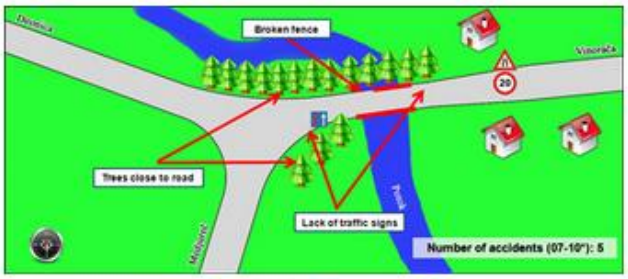
APPENDIX 4 - R2R article on English website: http://**www.global-traffic.net**/road/roads-to-respect-european-campaign-for-better-road-safety/

Roads to respect – European Campaign for Better Road Safety

Category: Road, Safety

European Transport Safety Council is a Brussels-based indipendent non-profit making organization dedicated to reducing the numbers of deaths and injuries in transport in Europe. ETSC started with several projects related with road safety. The **"Roads to Respect" (R2R)** it's a student project focuses on treating high risk infrastructure sites as this is the area of road safety work where the most substantial and sustainable casualty reductions can be achieved in relatively short time and at relatively low cost. Every R2R student, had a task to find black spot which can be treated in relative short time and with low cost engineering measures. Second task was to develop lobby activities and campaigning for making black spot treated.

High risk site that I have found it's a part of local roads of Jagodina, Central Serbia(35000 habitants), and it connect two villages Vinoraca and Deonica. Most dangerous part is in length of about 1km, and in that road section I have defined three black spots (A,B and C), lead by principles of subjective and objective risk of road traffic accidents. In a period of last 4 years on that road section happened 14 accidents with injury people. Problems I have found you can see in pictures below.



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