



Reference stamp of the Public Enterprise Putevi Srbije

with the following text:

[Public Enterprise Putevi Srbije

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Belgrade, 282 Kralja Aleksandra Blvd.]

MINUTES OF PRESENTATION

Subject of the presentation:	Application of innovative methods and tools in the analysis of visibility on the existing roads
Place:	PE Putevi Srbije, 282 Kralja Aleksandra Blvd.
Time:	Wednesday, June 29, 2022, from 9:00 to 11:00

Present at the presentation:

Zoran Stojisavljević, MScCE	PE Putevi Srbije, Maintenance Department
Gordana Subotički, MscCE	PE Putevi Srbije, Investment Department
Miodrag Poledica, MSc Traff. Eng.	PE Putevi Srbije, Strategic Department
Zoran Pešović, BSc Traff. Eng.	PE Putevi Srbije, Information Systems Department
Dragan Pavković, MscCE	PE Putevi Srbije, Maintenance Department
Marko Mladenović, BSc Traff. Eng.	PE Putevi Srbije, Maintenance Department
Lazar Zečević, MSc Traff. Eng.	PE Putevi Srbije, Strategic Department
Marija Doto, BSc Traff. Eng.	PE Putevi Srbije, Information Systems Department
Marko Milošević, MSc Traff. Eng.	PE Putevi Srbije, Investment Department
Danijela Sekulić, BSc Traff. Eng.	PE Putevi Srbije, Maintenance Department
Natalija Koceva, M. Arch.	PE Putevi Srbije, Maintenance Department
Ljiljana Nedić Pavlović, MScCE	PE Putevi Srbije, Maintenance Department
Mišel Sabo, MScCE	Panpro Team d.o.o.

The presentation has been organised upon the invitation of the chief of the Department for maintenance of class I and II state roads – Zoran Stojisavljević. After the introduction, Zoran Stojisavljević gave the floor to Mišel Sabo who gave a presentation of the application of innovative methods and tools in the analysis of visibility on the existing roads, which were developed in the project-based organisation of Panpro Team d.o.o. from Belgrade.

During the presentation, they presented an article which was also presented at the recently completed 4th Serbian Road Congress, titled:

- Analysis of the Available Visibility on the Existing Roads

The subject article is also available in the Proceedings of the said Congress, as well as the following link:

- <https://drive.google.com/drive/folders/1rU0wTIS4aQVgwBrmpnwyi847h650Vw6F?usp=sharing>

They also presented the result of the application of the said innovative method and tools within the project of traffic safety evaluation which is currently undergoing on a section of the network of the class I state roads.

In short, the subject innovative methods and tools come down to the application of hardware-software solution which in a point cloud, generated by modern lidar-laser devices, simulates the

movement of the drivers and obstacles at a distance at the lines of sight defined by the current legislation and standards and determines the flaws in visibility.

Some of the most important results of the application of the said methods and tools during the traffic safety evaluation on the section DP IB23 02334 (Pakovraće–Kratovska Stena) are as follows:

At the said section, which is 17,745 km long, the required visibility is not achieved at:

- 7050 m, for direction Čačak–Požega (according to calculated designed speed);
- 2825 m, for direction Čačak–Požega (according to the existing speed limit);
- 7724 m, for direction Požega–Čačak (according to calculated designed speed);
- 2495 m, for direction Požega–Čačak (according to the existing speed limit);

Also, it has been stated that during the traffic safety evaluation, it was determined that at cc. 70% of segments of the said section where overtaking is currently allowed, not only is the overtaking visibility not achieved, but the required (stopping) visibility is not met either.

During and after the presentation, in an open and active discussion between most of the participants, a review was also made of the accompanying and similar topics, including:

- Review of the local and foreign regulations in the subject field;
- Previous practice and its shortcomings that limit or completely exclude adequate analysis of the visibility of the existing roads;
- Inconsistency of the umbrella laws (Law on Roads and Law on Traffic Safety);
- Data on traffic accidents with (in)direct impact of the lack of available visibility;
- Possibilities and effects of the application in processes and activities of PE Putevi Srbije.

All of the present persons unanimously agreed that the application of such innovative methods and tools is extremely important for overall improvement of road infrastructure and consequentially, road safety as well.

Conclusions:

- Given all of the above-stated, but considering also that the Article 2 of the Law on Roads defines that the required visibility determined based on the design speed in both driving directions must be secured at every point of the road, it is necessary for the application of the methods and tools that would enable it to be implemented in the everyday processes of the PE Putevi Srbije, as well as to be required and fulfilled by all other external participants in the processes of planning, designing, evaluation and revision of safety, maintenance, etc;
- The most important effects of the application of such methods and tools are expected and recognised in the phases that precede the production of project tasks and design, such as road diagnostics and evaluation of traffic safety, independent assessment of road impact on occurrence of traffic accidents with fatalities, etc.;
- For the purpose of road maintenance in terms of regular maintenance, cleaning, mowing, removal of vegetation, etc., it is especially important to create adequate maps in which zones and envelopes of the required and available visibility overlap;
- For the purpose of permanent education of all participants in the processes of management, planning, designing, construction and maintenance of the road network and protection of road safety, PE Putevi Srbije shall, as soon as possible, organise additional lectures and presentations regarding this subject.

- Certified translation from Serbian language -

Signatories:

Zoran Stojisavljević, MScCE [signature illegible] and round seal of PE Putevi Srbije	Gordana Subotički, MscCE [signature illegible]
Miodrag Poledica, MSc Traff. Eng. [signature illegible]	Zoran Pešović, BSc Traff. Eng. [signature illegible]

- END OF TRANSLATION -

I, Dubravka Smiljanić (court interpreter for English),
certified by the Republic Secretariat of Justice, Certificate no. 74-94/89-03),
hereby certify that the above translation is a faithful and complete translation
of the original document written in the Serbian language.

