

The third number of the PE „Roads of Serbia“ Newsletter



*„In everything that man pushes by his vital instincts,
builds and raises, nothing is more beautiful
or more precious than bridges“.*
Ivo Andric .

HIGHLIGHTS:

New Beška Bridge is opened to traffic

Зоран Стојисављевић, B.Sc. (C.E.)

„Bigger investments – better roads“

Gazela Bridge Rehabilitation

Environmental Protection

Lower tolls for vans

Acknowledgement of the Tradition Preservation

Huge Construction Undertaking

On the occasion of works completion and opening to traffic the new bridge on the Danube at Beška, the Director General of the PE “Roads of Serbia”, Zoran Drobnjak, emphasizes: “I am proud that we have built one of the biggest and longest bridges in Europe. Even though we had big problems during construction because of the landslide occurrence on the right bank of the Danube and its remedy, we managed to build new bridge that is only five meters away from the existing one. Realization of these works is huge construction undertaking that requires great skills of everyone included in the construction of twin bridges over Beška. I congratulate everyone that contributed to the construction of this grand structure, which will be of use to the future generations and shall be in operation for the next 125 years”.



Gazela Bridge Rehabilitation



Works on the Gazela Bridge are in their final phase, which implies the bridge reconstruction on the main traffic route towards Novi Beograd.

The works on pavement of the upstream side of the bridge were finished in the last three months in Šid-Niš direction and one half of the bridge was opened to traffic in its full width on July 18th. Since August 25th the trolley bridge has been functioning again, and on September 10th the Gazela Bridge structure was lowered from temporary bearings it was elevated to for 15 cm to the designed level, because of works execution, while the traffic moved undisturbed.

During works execution on the Gazela Bridge rehabilitation, the so called MMA waterproofing that makes water penetration into structure impossible, gussasphalt as protection, and very specific protection of waterproofing as base course and finishing course were used for the first time.

It's about latest methods and materials that are used worldwide for bridge structure protection – bridge waterproof system used in bridge construction and applied by spraying – airless spray technique based on Methyl Methacrylate resin – abbreviated MMA.

High summer temperatures hindered road workers in their work performance, but they had also influence on the bridge height, as with every degree increase of the external temperature, the bridge height also increased for 4 mm. However, even tropical conditions couldn't impede workers to do their job on time and in the best possible way.

Demonstration

Demonstration of evacuation and employee rescue in case of industrial accident on the Gazela Bridge according to Survey on health and security measures for safety at work, was held on September 12th in the presence of the numerous media representatives.



New overpass „Tranšped“

Works on the overpass construction over E-75 highway, section Beograd-Niš, at residential area »Tranšped«, are completed. Technical acceptance is also in its final phase after which the setting of booths for toll collection on this location will follow, under the current project on modernization of toll stations.

The problem that lasted for several decades and was related to bus stops on the highway, which represented great danger for passengers and other traffic participants as well, is solved by overpass construction.

The works were financed by own means of the PE „Roads of Serbia“, hence the overpass is a gift to our fellow-citizens in the periphery of Belgrade.



Youth cleaned Gazela



In celebration of the International Youth Day on August 12th, 2011, the PE "Roads of Serbia" obliged Serbian Youth Umbrella Organization and enabled 50 volunteers to participate in cleaning the construction site under the Gazela Bridge. In cooperation with contractors and work inspection, our enterprise had previously tested all safety aspects of this action and concluded that with the training and certain necessary workplace safety measures, volunteers could conduct the cleaning actions. The idea of young people was to stimulate and promote youth activism and make a contribution to the Gazela Bridge rehabilitation through this community service.

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Lower tolls for vans

New Regulations on paying special fee (toll) for the state roads' use in the Republic of Serbia began to be applied on July 13th, 2011, on every toll station, and on the very same day it was placed on the website of our enterprise - www.putevi-srbije.rs

By reclassification of vans from II to I and III to II category the conditions for van drivers to pay a lower toll appeared.

Pančevo Bridge

On the Pančevo Bridge, on I category state road M-1.9, we've done extensive works this season on the regular bridge maintenance, first of all rebuilding of the pavement structure. In the first working phase the rebuilding of the bigger damages on the bridge pavement was done just above the steel structure. Interchanges on the Pančevo side of the bridge are completely rehabilitated, as well as descending road towards Zrenjanin and Pančevo and new road structure with to asphalt layers.

The PE "Roads of Serbia" financed works from its own means.

Interview

Zoran Stojisavljević, B.Sc.(C.E.)

Director of the Sector for Maintenance of I and II Category Public Roads



Bigger investments – better roads

The Sector for Maintenance of Public Roads of I and II Category is one of the most important sectors in the PE "Roads of Serbia" where large-scaled and responsible maintenance works on more than 15000km of the Republic of Serbia road network are performed, says Zoran Stojisavljević, B.Sc.(S.E.), the Director of the Sector.

All sector activities are accomplished in accordance with the Law on Public Roads, Law on Planning and Construction, Law on Traffic Safety, Law on General Administrative Procedure, Public Procurement Law and other

mandatory laws, current regulations, standards and proper Rulebooks.

The Director of the Sector, Zoran Stojisavljevic, states that the road and structure maintenance is accomplished through routine winter maintenance, electrical installations` and lighting maintenance. Besides regular maintenance there is also periodical maintenance work, road improvement and rehabilitation, whilst the urgent public road maintenance is conditioned by natural disasters and states of emergency in order to ensure road passability and safe traffic flow.

The contract realization is monitored by professional Sector services, and quality and quantity is controlled by supervising service with laboratory control.

Routine maintenance of public roads of I and II category lasts throughout the year and during winter, if weather conditions make it feasible. The most important work groups on routine maintenance are: road examination, maintenance of the road base, drainage system, asphalt, crushed-stone or broken stone-gravel pavement and traffic signalization, as well as road furniture. Works on the routine maintenance are planned and accomplished according the priority, i.e. importance of the road direction, especially during winter period.

On the routine maintenance of I and II category public roads` network, for the first seven months this year, 81000 t of asphalt was used for rebuilding, i.e. patching potholes, 27t of asphalt for smaller sections` overlay, 20 million m² of shoulders was adjusted, 105 million m² of grass was mown by cutting down bushes, 300 000 m³ of ditches was dug up, 3.6 million m² of flumes and berms was cleaned, 5 million meters of white line was painted, 142000 work items on vertical signalization were performed (fixing of new, placing or straightening of contorted guard posts, traffic sign posts or direction posts), 36000 m² of elastic-safety fence was placed.

In the same period, more than 4.3 million RSD was spent on public roads of I and II category and objects with electrical installations and lightning, 1.9 million RSD was spent on periodic road maintenance (landslide and retaining wall remedy, placing of lightning, access roads towards religious structures, as well as alternative and local roads), while 305 million RSD was spent on periodic bridge and tunnel maintenance.

The Director of the Sector, Zoran Stojisavljević, says for the Newsletter that the Rulebook on Maintenance of Public Roads of I and II Category anticipates works and activities in winter period that are necessary for safeguard of road passability and traffic safety.

All activities are performed according the Winter Service Plan that is made in advance and which pinpoints behavior of all participants and establishes the exact way of collection, processing and delivery of information about road conditions to the users. The full realization of the performed works on the winter road maintenance in this year cost more than 1.9 billion RSD.

In order to protect road network of the Republic of Serbia, professional services of the Sector issue licenses for the transport of vehicles that alone or with load exceed regulated permissible axel load (special transport). In the first seven months of the year, 4633 vehicles were controlled and 510 vehicles were caught in the offence and the applications were submitted against responsible persons.

Tasks performed within Sector in accordance with the article 14. of the

Law on Public Roads, include road protection, issuance of the technical requirements and agreements on construction, i.e. reconstruction of access to the public roads, modification of traffic surfaces of service facilities



on the public road; organization of sport and other manifestations on the public road, placing of billboards and panels, picture or sound announcing or advertizing units on or beside the public road.

Sector solves and eliminates successfully most of remarks of republic inspectors for state roads, which are important for traffic safety and road usability.

Most remarks are related to pavement construction damages, while only 10% of the remarks are about vertical and horizontal traffic signalization.

For completely efficient work and task performance within Sector, the Director Stojisavljevic emphasizes two essential preconditions: employment of larger number of experts and provision of additional funding for realization of the entire road maintenance program in the Republic of Serbia.

Road network in Serbia

The Republic of Serbia has approximately 537km of I category roads with motorway profile, 142 km with semi-motorway profile, 4.364 km of I category roads (main roads) and 10.830 km of II category roads (regional roads) which comprises 15.873 km of roads in total.

With reference to the network length and its quality, budget funds are not sufficient and works are performed according priorities.

Rehabilitation, i.e. reconstruction needs to be performed on 70% of road network, and this is a direct consequence of lower investing in maintenance over the last several years.

Road structures are not in better condition either and therefore bridges, overpasses, tunnels, retaining walls, culverts and the like need also to be thoroughly rehabilitated.

Inadequate investments cause rapidly declining road quality, hence in one moment a lot more funds will have to be provided in order to get the road network on the optimal level.

New Beška Bridge is opened to traffic



The PE “Roads of Serbia” has successfully finished one of the biggest infrastructure projects in the region and on November 3rd, 2011, the Bridge at Beška was opened to traffic.

The President of Serbia, Boris Tadić, the Minister of Infrastructure, Milutin Mrkonjić, the Minister of Environment, Mining and Spatial Planning, dr Oliver Dulić, EBRD representatives, the Director General of the PE “Roads of Serbia”, Zoran Drobnjak,

contractor`s representatives and numerous media representatives visited new bridge.

The bridge over Danube at Beška is the first ecological structure of this kind constructed in Serbia and it represents grand construction undertaking on the Corridor X route.

It is built less than five meters away from old bridge at Beska and it represents the latest technical achievements in bridge construction.

Experts and workers from Serbia, Austria, Germany, Hungary, Croatia, Norway, Sweden, England and Holland participated in designing and construction of the bridge.

Concurrently with access roads, the new bridge over the Arkanj Channel, which is 14,8m wide and is designed in motorway roadbase on Novi Sad side, was built.



“Bridge for three generations”

The President of Serbia, Boris Tadic, visited new bridge at Beska and emphasized that he is engaged in politics exactly because he wants to make his contribution to finalization of large infrastructure projects, such as bridge over the Danube. „I live for this kind of things. The great thing is when you have built something which will be of use for three generations”, the President of Serbia said.

Technical characteristics:

- New bridge is designed as twin bridge of the existing bridge over the Danube. Total length of the bridge is 2205 meters (42 structure fields, i.e. 43 pier locations). Designed bridge width is 15.1 m, and width from guardrail to guardrail is 14.4m. Pavement width is 11m with two pedestrian sidewalks of 2.05 m and two service paths 0.80m wide each.
- Bridge structure is divided into three structural entities: left approach structure (Novi Sad side, 1485m length), bridge structure over the Danube (540m) and right approach structure (Belgrade side, 180m length).
- Bridge structure is designed from prestressed concrete and 62155 m³ of concrete, 9.732 tons of reinforcement and 47,6km of prestressing tendons are placed in the bridge structure.
- Over 26800 m³ of concrete was placed in the foundations of the structure as well as over 13685m of piles with 1.2 diameter

Entire bridge structure was connected on July 7th, 2011.

Load testing with 12 trucks

The pilot testing of the statistical and dynamical bridge characteristics was executed on September 21st, 2011 when 12 loaded trucks with load of total weight over 360 tons crossed the longest bridge span of 210 meters. Test results are discussed in a separate survey which will be the part of documentation on the structure.



Environmental protection

The PE "Roads of Serbia", in compliance with its legal obligations and its wish to carry out corporate social responsibility, directs many of its activities towards environmental protection.

The basis of environmental policy of the PE "Roads of Serbia" is Strategic orientation of the Road Transport Sector of the Republic of Serbia to reduce the harmful traffic impact on environment and management of the state roads in compliance with regulations, Railway, road, water, air and intermodal Transport Development Strategy in the Republic of Serbia from 2008 to 2015 and National Environmental Program in the Republic of Serbia.



Environmental policy of the PE "Roads of Serbia" aim at impact mitigation of transport sector on air, water and soil pollution, noise, global warming and risk reduction during hazardous load transport.

The object of environmental protection in State Road Sector is construction of the infrastructure that is adjusted to natural and cultural surroundings in order to preserve natural resources along with admissible traffic impact on health and welfare of people.

Environmental protection in the PE "Roads of Serbia" is carried out within **Sector for Strategy, Designing and Development in Department for Environment Protection**

which deals with implementation of the assessment procedure of environment impact in all phases of project cycle, preparation of technical specifications and feasibility studies related to various aspects of environmental protection, coordination during preparation of spatial and urban plans in the part related to strategic impact assessment, etc.

Degree of realization of environmental policy in the PE "Roads of Serbia" can be seen through the number of implemented projects, observations of Technical Commission, coordination meetings, public debates, publications, seminars and other forms of professional development.

Engineers – the experts for this field - formulate policy and strategy for environmental management on the roads, in mid-term period through development of methods and operative techniques for raising environmental awareness on the policy, program and project level, as well as on the operational level.

Results of the cooperation between Serbian Government and Dutch Government through **Dutch Serbian Business Council** are two successfully implemented projects: **Use of secondary raw materials, electric-filter ash and clinker in road construction, No.G2G09/SB/5/4** and **Decreasing Traffic Noise, No. G2G08/SB/5/5**

Noise protection

Traffic noise is local problem directly linked to spatial and urban planning. Traffic noise impact on affected housings along existing roads has been seriously worsened over the last decade due to the enormous traffic increase.

The Republic of Serbia is planning new transport infrastructure network following **Technical Measures for Road Traffic Noise Mitigation applied in EU (END 2002/49/EC)** for elimination or mitigation of the negative noise impact on human health.

Pursuant to the Law on Protection against Noise in Living Environment and the Law on Public Roads the project holder is obliged to implement sound protection measures, i.e. to construct structures and equipment for noise protection in designing, constructing and reconstructing traffic infrastructure structures.

Feasibility Study on Technical Measures for Road Traffic Noise Mitigation on selected state roads` sections defines implementation of technical solutions from engineering and economic aspect, and at the same time it represents the basis for preparation of the strategic noise maps. Study analyses mitigation of the negative impact of the road traffic on the environment and control possibility, and mitigation of noise emission on the most occupied and endangered locations.



Ash usage in road construction

Usage of ash as a secondary raw material in road construction is defined by Strategy for the Accession of the Republic of Serbia to EU, Environment Protection Program with the aim of introducing recycling of the certain types of industrial waste, Strategy for Sustainable Development of the Republic of Serbia which promotes establishment of waste management system, National Waste Management Strategy with EU accession program which envisages greater usage of ash as secondary raw materials from thermal power plants.

Rulebook on conditions and collection methods, transport, storage and treatment of waste used as a secondary raw material or for energy production (“Official Gazette of the Republic of Serbia”, No. 98/10) defines ash as a secondary raw material. Thanks to that, it is possible to use fly ash instead of natural construction materials (soil, sand, gravel and crushed stone) and at the same time reduce area for ash and clinker disposal. Bigger economic savings can be achieved through usage of fly ash than through usage of natural materials.

Results

- The Rulebook “Environmental Protection in Road Sector” (“Twinning Project between PE “Roads of Serbia” and Swedish National Road Association – “SNRA”) is published.
- Technical specifications on environment impact assessment for road sector
- Feasibility study on technical measures for mitigation of road traffic hazardous impact on selected road sections of state roads.
- Impact assessments on the terms of reference`s level of E-763 motorway Beograd-Ljig-Pozega, on the Corridor X and seven sections of main roads.

- Decisions on Approval by sections on the following routes: E-75 (14 decisions), E-80(4), E-763 (11) and 4 decisions for other state roads.

Symposium “Contemporary Solutions for Traffic Noise in Serbia”



Symposium “Contemporary Solutions for Traffic Noise in Serbia” was held on September 20th, 2011, and there were presented Dutch experiences in application of sound barriers and pavement surfacing for noise emission reduction, advantages and limitations of so called “silent” asphalts and sound barriers. The usage of certain materials, their ability to absorb sound, construction cost analysis and long-term maintenance measures were presented. It was highlighted that on the occasion of placing of these structures the safety of traffic participants should

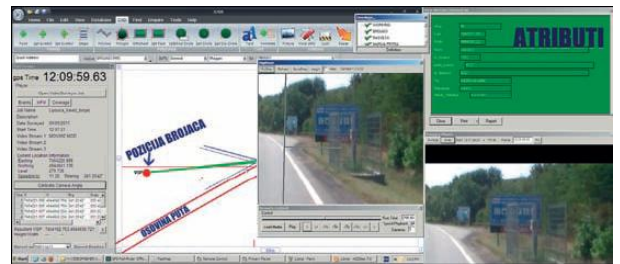
be enabled by placing non-combustible materials, emergency exits, etc.

Dutch experts became acquainted with plans of the PE “Roads of Serbia” for noise problem solutions on the existing roads and roads that have yet to be built.

The completion of G2G Project in cooperation with Dutch Government will contribute to further education of the employees and improving of acquired knowledge.

Road database – traffic counters

Sector for Traffic Control Information System has implemented new Trimble technology in the process of keeping evidence on roads. We approached, with our own strength, to road surveying and georeferencing of point objects along the road. We have collected all the data on position of automatic traffic counters in order to store them in a unique database.



Field activities included road recording from the vehicle by



video camera that is connected to a GPS device. The accuracy of GPS device is one meter. Speed limit is 40 kilometers per hour.

Camera is placed at an angle so it concurrently records a road and the structures on the right side of that road. Data collected during recording are processed later in the office. Trimble technology software package enables fixation on the desired object (traffic counter) on the video recording and determination of its GPS coordinates. These generated objects fill database and the attributes for each counter are stored simultaneously. Relevant data for traffic counters are: name, identification number, route, section, counter type (radar or with inductive loop), supply method, recording data and the like.

The result of processed data is a display of the roadway and traffic counter position while by click on the mouse on the counter position on orthoimage access to the database is possible. The migration of the original

data to MySQL relational database is completed and the user interface for data display is made. Attributes and metadata (data on data), counter snaps and graphics of the routes with marked position of the selected traffic counter can be seen on it.

These initial activities of the Sector for Traffic Control Information System will be continued through realization of database on traffic signalization.

This Sector will, likewise, approach to database realization for other road structures: bridges, tunnels, structures, landslides, dangerous locations, i.e. all structures and their data will be placed in space, through Georeferencing Information System.

Acknowledgement of the tradition preservation



On the opening of the 51. Guca trumpet festival, August 8th, 2011, the PE "Roads of Serbia" received public acknowledgment for outstanding contribution to development of this traditional event. Besides our enterprise, the others that received the acknowledgement were: festival host Milenko Kostic, ambassador of the Russian Federation in Serbia, Aleksandar Konuzin, Ministry of Internal Affairs, Ministry of Infrastructure and Energy, Ministry of Economy and Regional Development, as well as the PE "Srbijavode" and "Jugorosgaz". On the behalf of our enterprise, **Nevena Matijasevic** received reward from the President of the Festival Committee, Slobodan Jolovic.

.Putarijada 2011.

Employees in the PE "Roads in Serbia" have once again participated in 17. workers` sport games titled "Putarijada" and held in June on Zlatibor. Tremendous individual and team results were achieved. In total 11 medals were won – 8 team medals (three golden medals, three silver medals and two bronze medals) and three individual medals. In general classification of 19 teams, the PE "Roads of Serbia" took the 2nd position with 98 points.

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On behalf of the publisher: Director General, Zoran Drobnjak, B.C.E.

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