

ORGANIZATION OF THE SECURITY TRAFFIC SYSTEM IN THE CITY OF GOSTIVAR

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Abstract

After the experiences of developed countries, such as America, Great Britain, Germany, and other more advanced countries, analyzing their experiences, we came up with the idea to address such a topic. Where it is about the safety of the road infrastructure and other facilities and entities that are directly or indirectly related to traffic safety in the city in general.

In this paper, we will give a brief description of the traffic safety situation in the city of Gostivar and beyond. The paper will include a brief description of how to organize the security system with some parameters that contribute to more efficient organization and implementation of the mentioned traffic safety system in the city.

Also, this paper will be processed a subsystem for traffic safety in the city of Gostivar and beyond. How to cooperate with other institutions that are within the city and are directly or indirectly related to traffic problems around the security system.

The necessary phases for the organization and realization of the security system will be perceived, as well as the factors that influence the organization of the system. During the elaboration of this paper, the "Ten Golden Rules of Driving Safety" of the Federation "(FIA) - World Automobile Federation" will be analyzed.

Analyzing the problems in traffic in general, especially nowadays when traffic accidents are on the rise as well as the safety of other road users and especially the safety of pedestrians on the road users.

In the end, a conclusion will be given where a short analysis of the work will be included, and conclusions will be made for more efficient possible realization of this system of traffic safety in the city of Gostivar and beyond in the rural settlements that gravitate around the city.

Keywords: traffic, security, system, City of Gostivar

1 Analysis of establishments, personnel relationships to the powerful operations of the city of gostivar

The city of Gostivar is in the upper part of the Polog Basin of Gorni Polog and is located at the southern end of the Gostivar field. The city occupies a favorable geographical position to the settlements of the area, which allows it to perform its central functions in the area of: administrative, political, economic, and cultural-educational activities. The city of Gostivar in a traffic sense occupies a very favorable position in the area, which, due to its mood, is almost at the crossroads from the lowland towards the sloping part of the municipality, so it represents a traffic center on the roads from the south and southwest towards Tetovo, Skopje and Tetovo, Vratnica, Urosevac, and vice versa, to exit these roads to Kicevo, Prilep and Kicevo Bitola if and Kichevo Ohrid, and through Mavrovo for Debar, Struga, and Ohrid. The main traffic artery connecting the settlements of the Polog valley is the main road M-4 Skopje Ohrid. This road is the main communication through which all economic and other traffic flows to the city of Gostivar and the settlements of its region, and thus connects the city of Gostivar with all the centers and settlements in the Republic of Macedonia. Macedonia and beyond. The importance of this road is even greater with the construction of the new highway Gostivar Tetovo and the Tetovo highway to Skopje.

The traffic road Skopje Ohrid through Mavrovo, as a western tourist highway, connects the city with the Mavrovo and Ohrid tourist regions. The city of Gostivar is connected via a railway line with Kicevo and

Skopje in the system of international rail lines north to the Republic of Serbia, and towards the South with the Republic of Greece.

The natural characteristics of the area of the city of Gostivar and its wider surroundings and geographical position, the city is located in the Polog valley in the northwest part of the Republic of Macedonia. The valley is located in the mining of the river Vardar, starting from the spring near the village Vrutok to the north and northeast to the Dervenskata Klisura.

The Upper Polog, the largest and most important settlement is the city of Gostivar, which is at the same time the largest economic, administrative, and political center not only for the new municipalities of this part of Polog valley but also for the population and settlements of the Mavrovo and Gornorekanski Kraj.

The territorial distribution of the population from the municipality of Gostivar with the new territorial division of the Republic of Macedonia is divided into nine (nine) Municipalities, one of which is Gostivar Municipality. This municipality covers 50 km² and has 45740 inhabitants and is included in the small municipalities in the country. The average population density is 914 inhabitants per 1km². However, if only the rural environment is taken, then the average population density is 305 inhabitants per 1 km², which is one of the largest densities in relation to rural municipalities in the country, and this has certain repercussions of agrarian overpopulation.

In the composition of the Municipality together with the central place and the seat of the Municipality of Gostivar, there are the settlements, such as villages: Čegrane, Forino, Cajle, Balin Dol, Turcane, Beloviste, Doberše, Stenče, and Volkovia.

The natural and mechanical movement of the population are basic constants, the natural movement of the population is the birth rate and the mortality, and their result is, as a rule, the natural increase.

Demographic economic characteristics of the population, population structure by sex, and age. According to the 1994 census, of the total population of the municipality and the city, there are 16248 men, and 16678 women, the Gostivar municipality has 22559 men and 23181 women, with the domination of the female population by about 1.3%.

According to the growing groups in the category from 0 to 14 years (inactive population), the male population prevails by 3.24% at the city level. The working population from 15 to 64 years in the municipality of Gostivar is 29387 and in the city 21496.

The contingent of a working-age population means total work potential, the active population contingent denotes the number of job positions, and the difference between these two sizes is the number of new jobs needed for full employment in a specific area.

According to the last census, the able-bodied population contingent at the municipal level is 28,516 or 62.30% of the total population at the municipal level, of which the active population is 10190 or 22.30% of the total population for the city of Gostivar.

Households and household structure increase the number of households which leads to the beginning of a fall in traditionally large families, and a decrease in the average number of members per household of 5.26.

The number of apartments in relation to the households in the municipality of Gostivar and the city of Gostivar is higher. According to the census in Gostivar, were registered 7710 apartments and 7244 households, while in the municipality of Gostivar there were 10051 apartments and 9470 households.

The city construction system is mixed in a combination of individual and collective housing. The social standard in gratitude defines non-economic activities: education, culture, health, social welfare, and social and political content.

The educational process of children and youth is divided at least in stages according to age: preschool education, primary education, secondary, higher, and higher education.

Pre-school education in city-grading is carried out through three facilities, and these activities take place in the facilities of elementary education in 15 classes.

Primary education takes place in 4 (four) buildings, where about 6802 students' study.

Secondary education takes place in 3 (three) schools, the city has a high school (SSD) with a capacity of 260 beds.

The health care in the city is carried out through a health center, which covers an area of 28881m², and a useful area of 183889 m².

The facility that provides social protection services is with a useful area of 446m², and a total location of 618 m².

In the area of culture, the activities take place in the building of the home of culture with an area of 2421 m², another object of culture is the Workers University with an area of 240 m².

State administration and judiciary from the structure of government in the Republic of Macedonia, consisting of: legislative, executive and judicial.

From the administrative bodies in the city of Gostivar, there are district offices of the ministries as they are. Ministry of Defense, Interior Affairs, Agriculture, Transport and Communications, Culture, Labor and Social Affairs, Culture, Finance as for Education. There are also inspection services in the regional offices.

The Municipal Court has the following bodies: Basic Court, Appeal, Public Office, and Public Attorney.

Administration and service activities have the following administrative buildings: administration of the municipality, post offices, banks, OVR, and fire departments.

Insurance companies that provide insurance for motor vehicles, real estate properties, and more like pension-disability and health insurance.

The objects that serve traffic in the city are: bus stations, railway stations, fire service as well as gas stations within the city. The city also has several public enterprises such as: JP Komunalec, JP for the arrangement of construction land, P.E. Macedonian Forests, and P.E. for parking.

There are also religious buildings in the city such as mosques, churches, and cemeteries. The physical culture in the city has facilities such as: a sports hall with 2000 seats for the public, and city football stadiums. The gradual development of the city takes place on the material produced in the municipality in the past period and is characterized by a tendency of decline. The reason for this is the general existing transport processes that were created after 1990, with the disintegration of the former Yugoslav community, and thus the economy in the Republic of Macedonia is separated from the higher economic system. This process coincided with the process of privatization of social capital, namely a change in the ownership of capital. This process coincided with the privatization process of social capital, namely a change in the ownership of capital.

According to the census data, of the total active population, the largest percentage is employed in private companies, while at the level of the city, and the municipal level, this percentage is very small, accounting for 27%, and therefore the population is forced to seek employment in the European industrialized countries.

Services and warehouses are currently grouped into urban unit number 12, which is located northeast of the city's urban reach. In this move to the northeast, the railway line Kicevo Skopje provides traffic connections with other urban centers in the country of the P + 1 act with a surface of 4550 m². The total area of stores is variable and is in the central core of the city.

2 Introduction of security traffic system in the city of Gostivar

The introduction of such a system of traffic safety in the city will address some areas that are influential factors for the implementation of this type of safety system, such as areas that have an impact on the security system in general, and those areas are:

1. Educating and retraining the professional staff with:
 - Innovations in technique and technology
 - The legal regulations that are currently in force
 - Traffic and road laws
 - Information on roads and road facilities
 - Traffic ethics.
2. Driver education and training:
 - Technological innovations
 - Legal regulations
 - Information on roads and road facilities
 - Knowledge of anti-fire actions
 - Knowledge in the field of medicine, i.e., from giving first aid
 - Traffic ethics.
3. Cooperation of municipal bodies with other institutions.
4. Factors influencing the organization of the security system:
 - The municipality that organizes the traffic safety system
 - Motor vehicle drivers
 - Vehicles transporting passengers
 - Bus stations and stops
 - Roads, intersections and road signs
 - Weather conditions.
5. Stages for organizing the security system:
 - The first phase - analysis of the security system
 - The second phase - providing funds for the conduction of the system
 - Third phase - introduction and conduction of the system.

2.1 Educating and further training the professional staff

Educating the staff dealing with traffic is of great importance for the introduction of the security system in the city where the traffic is fully realized. Although professionals are experts in their field specifically in traffic, they need to be educated. Because the technique, technology, laws, and rules are improving and changing from day to day, there is the emergence of new technologies, new laws, and rules, new

information from different areas that are directly or indirectly related to traffic in general, as well as other developments that have an impact on the operation of the traffic system.

To educate professionals, it would be most necessary to educate them in the following areas:

- Innovations in technique and technology
- Legal regulations that are currently in force
- Traffic and road laws
- Information on roads and road facilities
- Traffic ethics

Innovations in technology such as the production of new modern and state-of-the-art motor vehicles with their technical-technological characteristics produced by the latest technology, which are improved day by day, as well as equipment and apparatus for their control of technical correctness and maintenance of vehicles. Nowadays, it is very important to work with computer equipment, which nowadays can not be imagined working without them.

Traffic professionals should have some knowledge of the legal regulations related to traffic and be current in the application of the moment, to be able to manage drivers or other persons who are participants in traffic.

The Law on Road Traffic Safety is of great importance for the city and other areas where traffic takes place because this law determines the rules and regulations on how to act in traffic, so as not to be violated by participants in traffic, which means safe traffic on the roads.

Information on roads and road facilities - this information is of great importance because in the city where the traffic is performed, for a possible need to take appropriate measures for safe traffic. Of great importance is the information about the passability of roads, road defects, and road facilities such as winter conditions, conditions when there is fog, snow, rain, and various road collapses.

Traffic ethics - traffic ethics is of great importance for the safety of traffic participants such as: drivers, and pedestrians, and even how traffic is performed. Ethics means how the traffic participant should behave culturally towards other traffic participants.

The influence of traffic culture on the relations between students in traffic has an impact on the reduction of traffic accidents. The traffic culture of the traffic participants can be classified as:

- Driver-driver relationship,
- Driver-pedestrian relationship,
- Driver - roads,
- Driver - vehicle,
- Driver - traffic rules and regulations,
- Driver towards himself.

All the above relations are of great importance in the traffic as if there is a safer, safer, more efficient traffic in all hospitals at the level of the municipality and beyond, as well as at the level of the whole country in general. This means that all traffic rules and regulations should be respected and respected, although there is no traffic control everywhere and in every place. The participants themselves should be self-disciplined and have awareness and conscience as well as traffic ethics.

In determining this, the responsibility for the safety of all traffic participants as individuals and the company as a whole must continuously eliminate all the reasons that contribute to the occurrence of traffic accidents.

All these above-mentioned questions should be mentioned by the traffic technicians or the professional staff in the city that are directly related to the traffic problem, to transfer the knowledge to the drivers participating in the traffic so that they can be enriched with knowledge in the field of traffic safety. safer and more secure traffic.

2.2 *Respect for the ten golden rules of driving safety*

The World Automobile Federation (**FIA**) and the legendary leader " **Ferrari** " are set " **Ten golden rules of driving safety**", those golden rules are:

1. I will use a seat belt (I am responsible for all passengers).
2. I will obey the law and the rules of road safety (the procedures serve to protect us all).
3. I will respect the speed limit (my car is made of metal, but pedestrians and children are not).
4. I will check the condition of the tires (tread depth and prescribed pressure, including the spare tire).
5. I will be sober when I drive (when using alcohol or drugs, I pose a danger on the road).
6. I will protect which children (I will provide security for them, child seats).
7. I will be careful (I will not use my mobile phone for calls and messages, because it is dangerous).
8. I will take a break when I am tired (it is better to arrive later than not to arrive).
9. That I will wear a helmet (motorcycles and bicycles can not protect my head).
10. That I will be polite and careful when driving (I will respect other drivers) black numbers speak louder than words.

The president of the World Automobile Federation (FIA) and the legendary leader of Ferrari, former champion Jean Todt, said that it is unacceptable for a country with less than eight million inhabitants to have almost 1000 road deaths a year, and says that once is not enough. to pass and obtain a permit.

This means that traffic participants should always be educated and gain new knowledge about safety measures such as traffic rules and regulations.

Statistics in RS Macedonia say that there are on average 8 victims of a traffic accident per 100,000 inhabitants, a percentage that is considered very high.

3 The mutual cooperation of all influential stakeholders for the effective introduction of the traffic safety system

Cooperation is of great importance for each individual and especially for each institution that has an impact on citizens for their safety and security, especially when it comes to traffic safety. Cooperation should have all relevant factors related to traffic and around traffic, as well as other factors that are closely related to direct or indirect traffic.

For a system to be carried out, the most important thing is cooperation and what is possible with several institutions of state character, municipal bodies, associations, agencies, and even individuals who can have an impact on the realization of the security system in the city and beyond at the state level.

Listing these factors shows that cooperation is necessary because science is advancing and evolving day by day, production technology is being improved, and regulations and rules are being changed or supplemented.

Analyzing the above things, it can be stated with which bodies the city needs to be in cooperation in order to be able to more effectively implement or introduce the traffic safety system in the city and beyond.

The bodies or institutions that are of great importance for cooperation for the persons who will implement the security system in the city are:

- Ministry of Interior, more precisely the transport sector
- Ministry of Transport and Communications
- Ministry of Justice
- Ministry of Finance
- Ministry of Health, Public Health and Hospitals
- Agency for State Roads
- Road Maintenance Agency
- Traffic agencies
- Transport agencies
- Traffic technicians
- Driving schools
- Stations for technical inspection and control of motor vehicles
- Union of Traffic Engineers
- Faculties of Traffic and Transport
- High school traffic schools
- Insurance companies for motor vehicle insurance as well as insurance of passengers and other participants in traffic
- Banks that invest in road safety infrastructure
- Factories for the production of motor vehicles
- Companies that transport passengers and goods
- Motor vehicle maintenance services
- Local and regional TV and radio stations
- State TV and radio stations
- Financial funds and sponsors for support of this type of system, etc.

All the above-mentioned institutions, bodies, and organizations are relevant factors for the necessary cooperation of the city authorities or bodies to successfully implement the introduction of the safety system for passengers, drivers, pedestrians, and other road users in the city and beyond, and also for the safety of the means of transport as well as for the entire traffic road infrastructure at the city level.

4 Factors affecting the organization of the security system

When planning or realizing things, in this case, the traffic safety system at the city level always depends on some influential factors to be successfully introduced or realized. To realize this system for traffic safety in the city of Gostivar, the following key factors will be listed, as follows:

- The city of Gostivar will introduce a security system
- Municipal bodies, and bodies
- Roads, intersections, and traffic signals at the city level

- Motor vehicle drivers
- Vehicles moving on the road infrastructure of the City of Gostivar
- The impact of weather conditions

All the above factors have a great impact on the realization of this project or system. To assess which factor, what kind, and how much influence it has on the realization of the system, all are analyzed in more detail.

The city of Gostivar, which will be the main organizer for the realization of the security system in the traffic, the city is of the greatest importance because it should accept the proposal for the realization of the system as a system needed for the city, and then be engaged for its realization. Here the role of the municipality of Gostivar needs to be organized to form a professional staff or expert team that will implement the project professionally and promptly.

It is important to provide financial resources for the realization of the project (system), as well as to provide cooperation with other factors that can act directly or indirectly for the realization of the project (system).

Motor vehicle drivers, as factors that are also direct participants in the realization of this project, ie the traffic safety system. Because drivers are direct participants in traffic driving motor vehicles that transport passengers and goods. Therefore, they should have some knowledge of road traffic, which was listed in the previous titles of this paper.

The vehicles, with which the passengers and the goods are transported, are also a factor that has a great influence on the successful realization of the traffic safety system of the road infrastructure in the city. With the technical correctness of the motor vehicles, traffic safety is greater, which means that the system that is planned to be introduced in the city will be more successfully realized. Speaking of the means of transport used by the passengers as well as the goods, to be used or to be in operation, the term should not be too long, which means that the years of use of the vehicles should be limited. This restriction will be of great importance in the realization of this system, it means greater traffic safety, and maintenance of vehicles will be easier and more economical.

The bus stations and bus stop that the city has been mentioned because they are also factors that have an impact on the security system of the city. The entry and exit of passengers or the loading and unloading of goods are of great importance for safety in the traffic system in general.

Roads, intersections, parking lots, and signalization are a large part of the road infrastructure which from a safety aspect is of great importance for the proposed system. Signaling of intersections, roads, and parking lots, both vertical and horizontal signalization in general.

These factors are mentioned because vehicles travel in these areas and are of great importance for the security system of the city.

Weather conditions are an important factor, especially in the winter period of the year, because the traffic in that period is difficult and can not run normally. Drivers should pay special attention during this period due to snowfall, hail that is created at that time, as well as rainfall and rock, falls and more.

4.1 *Phases of organizing the security system*

Analyzing the overall security system that we propose to introduce in the city of Gostivar, we gave some suggestions, proposals, and analyses. It can be said that for the conduction of this system for traffic safety of the road infrastructure in the city, the system will have to go through several phases to be fully realized and to have the desired effects, so the following phases are proposed:

- In the first phase is the analysis and acceptance of the system by the city authorities, which means that the system should be well analyzed when and how it will start to be implemented. When well analyzed, it should be accepted by the municipal authorities and applied in practice.
- The second phase, providing financial resources for the realization of the system. This phase is of great importance because it is about financing the project. In practice, it is known that when the first phase passes, ie the phase for analysis and review, and comes to this phase for financing and many times things remain unrealized precisely because of the inability to provide financial resources. Therefore, this phase is of great importance for the realization of projects of this type, ie in the specific case of the traffic safety system. When the financial means are provided, then comes the final phase for the realization of the system.
- The third phase is the introduction and realization of the system. After passing the first two phases, this phase is the last in the realization of the system. Also, this phase is of great importance because care should be taken how the planned activities will be realized at a certain time and a certain moment, as well as the quality of realization of the advanced elements of the security system should be observed.

Conclusion

In the Republic of North Macedonia, so far not many analyzes of this type of system have been made to have a great experience in this field of traffic safety in the road infrastructure. Since this is a delicate area of work, more precisely for the security system of the city, more attention should be paid because it is about the safety of citizens as well as the safety of material goods such as motor vehicles, roads, intersections, roads, signaling, and more.

Reading and analyzing the experiences of America, Great Britain, and other developed European countries, one came up with the idea to address such a topic.

Introduction or realization of such a system as the safety system in the road infrastructure in the city such as the City of Gostivar and this project to grow to the level of the whole country.

To organize the security system, the traffic should be of great importance for the City of Gostivar, in the integrity of the road infrastructure at the level of the municipality and the level of the state. Therefore, certain activities should be undertaken for the formation of working groups, as follows:

- Working group, for effective and efficient analysis and planning of the system at the city level.
- Working group, which will respect the laws and regulations of the state.
- Working group, which will form a team with quality staff that should pay special attention to the findings-research in the field of traffic safety.

This is of great importance for the realization of such a system which will be called a "**Traffic Safety Subsystem**" at the municipal level, with the possibility of this growing to one "**Traffic safety system**" at the level of the state of the Republic of North Macedonia, a system that will be part of the "**European traffic safety system**".

References

- [1]. Safety Management System, Good Practices for Development and Implementation Revised, May 20, 1996.
- [2]. Traffic Safety Management System I Oakland County, Michigan, USA, (TIA) Traffic Improvement Association of Oakland County September 21, 1995.
- [3]. Union of Traffic Engineers of the Republic of Macedonia, Ministry of Transport and Communications: "Traffic and communications on the threshold of the XXI century", Proceedings (Symposium held on 23,24,25.09.1999 Ohrid.
- [4]. Archive and Gradot Gostivar . Lepavtsov , Engineering articles and roads, theoretical and practical evictions, Skopje (2001) runo, Smisao i značenje bajki , Cres . (2000).
- [5]. C. Aruchi , "Models for calculation na costs from traffic accidents" Master's degree labor, Technical Faculty, Bitola, (2006).
- [6]. J. Babic , Ethics and Morality, Philosophical Faculty Belgrade, Belgrade . (2008).
- [7]. P. Nedanovski , Economic Aspects of Environmental Protection, Economic Faculty, Skopje (2001)
- [8]. S. Aruçi, Doctoral dissertation, *Management of the road infrastructure and its impact on the economic development of the Republic of Macedonia*, Skopje (2018).
- [9]. S. Vig , *Poslovna ethics* , Zagreb. (2019).