

# Toward Management Of Traffic Culture In Macedonia

Jasmina Bunevska Talevska<sup>1</sup>

<sup>1</sup>Department of Traffic and Transport Engineering, Faculty of Technical Sciences Bitola, Bitola, 7000, North Macedonia (Ph.D)

**Abstract** The World Health Organization in its agenda on sustainable development 2030 sets a goal to reduce the number of traffic-related accidents by 50% [1]. According to the trend of reducing the number of traffic-related accidents and the latest statistics report by SIA Bitola, this is a very high goal for our city and a great challenge which we could try to reach if we start acting right now by trying to rise and advance the traffic culture; to provide infrastructural facilities and elements that are planned and designed according to safety principles that correspond to the projected speed and road function, with access to frontal facilities and protective greenery as well as preserved historical and aesthetic features; to provide a safe infrastructure for pedestrians, the elderly and persons with disabilities, but primarily permanent and visually attractive; to provide a safe and continuous bicycle infrastructure; to introduce traffic calming; to exclude and limit access of freight vehicles for transit and traffic in housing zones; to improve the services of taxis and public bus transport of passengers, namely to improve everything related to safe traffic and transport in our country. The general objective of this article is presentation of the approach to raising traffic safety and improving the traffic culture in our country through field educational workshops on the example of the city of Bitola, Macedonia.

**Keywords** Traffic Culture, Road Traffic Safety, Management

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## 1. Introduction

The campaign ROAD TRAFFIC SAFETY WEEK was held in six Macedonian cities and in the city of Bitola from 2nd till the 9th of September 2018. The campaign has an educational character and its main goal was to raise citizens' awareness and improve their behavior in traffic, namely in following road traffic rules and regulations. However, we also aim to encourage relevant institutions to take an organized approach to the resolution of traffic issues and to show that the safety of all traffic participants is their institutional obligation and interest of the highest level, particularly the safety of children.

All of the activities planned were carried out in the field, "directly involved with the citizens". The activities included: measures to increase children's safety through the workshop School Pavements Are For Children, Not Vehicles, as well as measures to deter and reduce illegal parking, Measures to improve street signalization, particularly in the area of horizontal signalization, Measures to improve cycle traffic (routes, cycle routes, ramps) and the promotion of cycle parking lots at three new locations in the city (Javor, At Pazar and near the Officers' Hall)- all three a donation from DPN CITY PARKING LOTS, Bitola. A workshop to improve the taxi service and the public transport service, particularly the condition of bus stops, alcohol patrol, and so on.

ROAD TRAFFIC SAFETY WEEK- BITOLA	
<b>ACTIVITIES</b>	Pre-conference at 12:00 Start of Week between 8:00 and 18:00 CLOSING OF THE CAMPAIGN
<b>Day 1</b> 2.9.2018 (Sunday)	Start of Week between 8:00 and 18:00 CLOSING OF THE CAMPAIGN
<b>Day 2</b> 3.9.2018 (Monday)	Beginning at 10:00 - THE SCHOOL 1400 for ELEMENTARY SCHOOLS LOCAL LEVEL Beginning at 10:00 - THE SCHOOL 1400 for ELEMENTARY SCHOOLS LOCAL LEVEL • Traffic education for all grades • Training area: temporarily parked vehicles • Parking on ramps • Six 30min parking services with a fixed police record in front of each school throughout the five days of the campaign.
<b>Day 3</b> 4.9.2018 (Tuesday)	Beginning at 10:00 - School level • Workshop • Blocking of the vehicles of PE (Pedestrian) • Blocking of the vehicles of PE (Pedestrian) on the street Eparokl. (near the Old Hospital - Salavka St. - Viterok) • Parking on ramps (back to the street of the temporarily parked vehicles - placement of vehicles) • PE (Pedestrian) workshop to continue the actions throughout the day.
<b>Day 4</b> 5.9.2018 (Wednesday)	Beginning at 10:00 - School level • Workshop • Workshop of three pedestrian crossings in front of the Emergency clinic, Baskilar and Javor department stores • Technical operation: clearing, marking and lighting. • PE Civil Engineering provides a telephone service or e-mail contact to report damages to the vertical signalization CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 5</b> 6.9.2018 (Thursday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 6</b> 7.9.2018 (Friday)	Beginning at 12:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 7</b> 8.9.2018 (Saturday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 8</b> 9.9.2018 (Sunday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 9</b> 10.9.2018 (Monday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 10</b> 11.9.2018 (Tuesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 11</b> 12.9.2018 (Wednesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 12</b> 13.9.2018 (Thursday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 13</b> 14.9.2018 (Friday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 14</b> 15.9.2018 (Saturday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 15</b> 16.9.2018 (Sunday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 16</b> 17.9.2018 (Monday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 17</b> 18.9.2018 (Tuesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 18</b> 19.9.2018 (Wednesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 19</b> 20.9.2018 (Thursday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 20</b> 21.9.2018 (Friday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 21</b> 22.9.2018 (Saturday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 22</b> 23.9.2018 (Sunday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 23</b> 24.9.2018 (Monday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 24</b> 25.9.2018 (Tuesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 25</b> 26.9.2018 (Wednesday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 26</b> 27.9.2018 (Thursday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 27</b> 28.9.2018 (Friday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 28</b> 29.9.2018 (Saturday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 29</b> 30.9.2018 (Sunday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>
<b>Day 30</b> 1.10.2018 (Monday)	Beginning at 10:00 - School level • Workshop • PE Civil Engineering provides the continued validation of pedestrian crossings in front of the Hospital CIVIL ENGINEERING, TEL: 22 818, e-mail: <a href="mailto:ce@ce.gov.mk">ce@ce.gov.mk</a>

Figure 1. The General Agenda of the campaign

## 2. Workshop-School Pavements Are For Children, Not Vehicles

Every mistake comes at a price; however, mistakes in traffic can result in the loss of a child's life! It is high time that we, all of us, take a share of the responsibility and make a personal contribution to greater safety of children in road traffic.

Through the workshop SCHOOL PAVEMENTS ARE FOR CHILDREN, NOT VEHICLES, which take part in all

municipal primary schools, we aim to educate and inform pupils and their parents/guardians on how to find the safest route to get to school and back home. However, we were also trying to send a special message to drivers of motor vehicles, particularly the drivers who park illegally on pavements beside schools, about the risks and danger they are causing.

We distributed the message directly and we had handed out many educational flyers and leaflets to children, parents/guardians and drivers as well as additional door hangers giving an Excellent 5 grade to parents who use a booster seat and safety seatbelts, to drivers who carefully choose where to park their vehicle near schools and to drivers who slow down their vehicle near schools and who stop at pedestrian crossings to let school children pass, while an Insufficient 1 grade was given to all vehicles parked on pavements or who, with their lack of traffic culture, forced students to walk on the street and roads thus directly putting their safety at jeopardy.



Figure 2. Photo moments of the workshop “School Pavements Are For Children, Not Vehicles”

### 3. Workshop- SAFE Parking

The public functional space reflects the basic character of each city, through which Bitola should remain recognizable and remembered. However, mobility, the rapid growth-rate and the high level of motorization have led to supply being higher than demand both in the dynamic and in the stand-still traffic. European research shows that 30% of pollution emissions in the central areas in cities comes from vehicles that circle the streets in search of a parking spot, and as a measure by the same EU experiences, a gradual limitation and reduction in the number of available parking spaces in city centres is suggested as opposed to increasing the capacities of public parking garages, located at the entrance to the centre of the city. In our city, there is a problem with lack of parking spaces in housing and school zones, while

demand is especially pronounced in the central core due to the concentration of various activities. The main threat is that approximately 70% of the journeys are realized with passenger vehicles and there is a high percentage of illegal street parking that entails reduced capacity and safety on the streets [1].



Figure 3. Photo moments of the workshop “Safe Parking”.

### 4. Workshop- SAFE STREETS

The WORLD HEALTH ORGANIZATION in its agenda on sustainable development 2030 sets a goal to reduce the number of traffic-related accidents by 50%, [2]. According to the trend of reducing the number of traffic-related accidents and the latest statistics report by SIA Bitola [3], this is a VERY HIGH GOAL for our city and a great challenge which we could try to reach if we start acting right now by trying:

- TO provide infrastructural facilities and elements that are planned and designed according to security principles that correspond to the projected speed and road function, with access to frontal facilities and protective greenery as well as preserved historical and aesthetic features,
- TO provide a safe infrastructure for pedestrians, the elderly and persons with disabilities (signalized, with pedestrian overpasses and underpasses, with 3D foot passages, creative, with sensors and lighting), but primarily permanent and visually attractive,
- TO provide a safe and continuous bicycle infrastructure (signalized, lit up),
- TO introduce low traffic zones (ZONE 30) and to limit the speed for motor vehicles,
- TO exclude and limit access of freight vehicles for transit and traffic in housing zones,
- TO improve the services of taxis and public bus transport of passengers.





Figure 4. Photo moments of the workshop “Safe Streets“.

For this workshop, the Republic Council on Road Traffic Safety- RCRTS donated 100 liters of white paint used for horizontal signalization. The teams of PE Civil Engineering and PE Komunalec come in the field with the necessary resources, working on the stretch between Filip II Makedonski St., Stolarska St. and Boulevard 1vi Maj by restoring the pedestrian crossings in front of the emergency clinic, near Bezisten and in front of Javor. For the next few days we plan to mark the pedestrian crossings at two more locations, in front of Hotel Epinal, on the street intersection between Leninova St. and Dimitar Ilievski Murato St. and the pedestrian crossing in front of the entrance of the City Hospital on Partizanska St. As part of the campaign, PE Civil Engineering introduced a telephone and email service

where citizens can report damages to the vertical signalization.

### 5. Workshop - TOWARD SAFE CYCLE INFRASTRUCTURE

European experiences show that improvements to cycling infrastructure allow for 45% less vehicles and faster public transport. That is why today we have asked the question, why not Bitola, too? If for instance, Ljubljana, with 270000 residents, can have around 150 km of cycling routes or the “green city” Freiburg, which numbers 220000 residents and 30000 students, can have 420 km of cycling infrastructure and realize 30% of trips by bike, why not Bitola, too?

Bitola is one of the cities whose size, favorable topographical location and weather conditions throughout the year allow for the development of excellent cycling infrastructure. The disadvantages are the tight geometrical profiles of the street network and the need to take away space from the motorized traffic of pedestrian traffic and also the fact that the bicycle has been neglected for a long time when planning the city infrastructure. Another drawback is the lack of awareness and tradition of its use, so that comprehensive planning of the cycle network is needed by adjusting the existing infrastructure and designing a new one.



Figure 5. Photo moments of the workshop “Safe Cycle Infrastructure“.

To execute the primary activity, predicted for the 5th day of the campaign- CYCLING DAY, as well as the campaign in general, we received a tremendous amount of support from Bitola on Bikes, with whom at 17.00 at the Magaza, part of the NI Institute and Museum Bitola, we prepared



and opened the exhibition CYCLE PHOTOGRAPHS, created by Bitola on Bikes. In addition, we also presented the map SUGGESTED CYCLE ROUTES (primary network).

Later same day, together with Mayor Natasha Petrovska, MA, we cycled with Critical Mass 52- SAFE CYCLE INFRASTRUCTURE.



Figure 6. Photo moments of the workshop “Safe Cycle Infrastructure“, part2.

The fifth day of the campaign, dedicated to BICYCLE TRAFFIC, was enriched by the promotion of three bicycle parking lots near Javor, At Pazar and the Officers’ Hall (locations approved by the department of communal activities and landscaping of public land within the Municipality of Bitola).



Figure 6. Bicycle parking lots “before and after”

## 6. Workshop - SAFE TAXI TRANSPORTATION AND MOBILITY

Incentive schemes and subsidies have proven effective in the process of improving the current situation, therefore we organize awarding discount VOUCHERS for Casco insurance to the taxi vehicles and the vehicles of the Public bus transport service who meet the required terms according to the planned code.

Namely, it has become evident that the taxi service in Bitola is not uniformed! And it should be, in appearance- both in the color of vehicles and the uniform- the color of the clothes of the taxi drivers, and above all in the quality of the service provided (technically functional and clean vehicles).

These terms and conditions are stated in the Regulation of the Municipal Council, however, they are not followed. We also listened to the problems and the requests of the taxi drivers and in the following activities we will try to meet their needs, however, we did point out their responsibilities as well!

On this workshop PE Komunalec-Bitola which supports of the Campaign in full helped in cleaning up some of the bus stops in the city from advertising and other material under the message I AM NOT AN ADVERTISEMENT BOARD, (Figure 8).

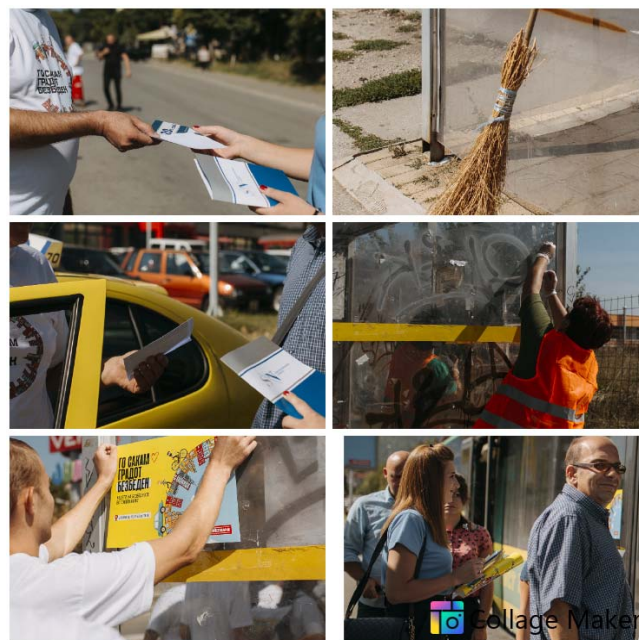


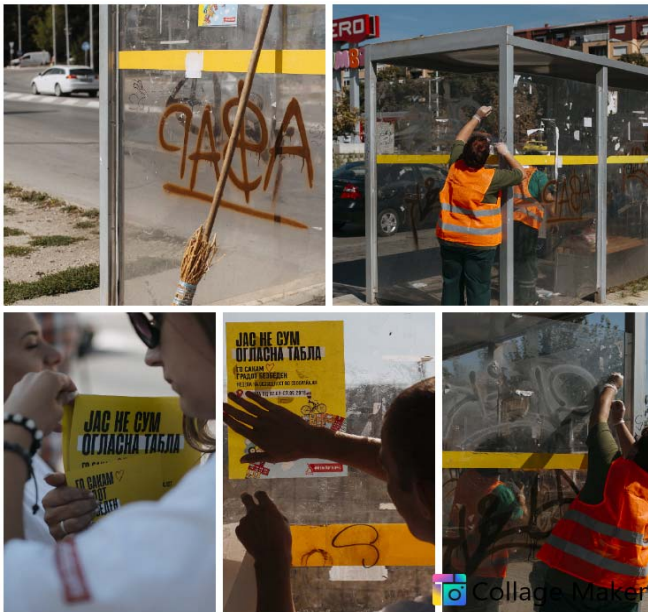
Figure 7. Photo moments of the workshop “Safe taxi transportation and mobility“.

## 7. Conclusions

Conclusions of the campaign ROAD TRAFFIC SAFETY WEEK, were stated at the round table that was held at the FACULTY OF TECHNICAL SCIENCES-BITOLA, another one of the institutions that fully supported the initiative I

WANT THE CITY SAFE, in order to develop an open discussion and eventually decide on quality and specific RECOMMENDATIONS to the Council of the Municipality of Bitola, so that they could take measures that would resolve some of the traffic issues as well as improve the image of road traffic in the city.

The meeting was attended by Professors-experts in various areas of traffic and transport engineering and the Dean of the Faculty Of Technical Sciences-Bitola, authors of [2], Representatives of the City of Skopje who unreservedly shared with us their experiences from the implementation of certain traffic regimes in the City of Skopje, Representatives of the Republic and Municipal Council on Road Traffic Safety, Representatives of SIA Bitola [3], Representatives of the Municipality of Bitola, Representatives of the Committees within the Council of the Municipality of Bitola, Representatives of Public Enterprises in Bitola-Civil Engineering and Komunalec, a representative of Bitola on Bikes and a representative of the regional geographic society GEOSFERA-Bitola.



**Figure 8.** Photo moments “ I'am not an advertisement board! “.

We received exceptionally specific and clear SUGGESTIONS which were turn into RECOMMENDATIONS for certain draft-measures, and was passed on for further processing and coordination to the relevant Committees within the Council of the Municipality of Bitola.

## ACKNOWLEDGEMENTS

The campaign was greatly supported. We thank to all citizens, organizations, and all of the companies from the city of Bitola and abroad, for their assistance, support and help. We are grateful for all the comments and donations.

## REFERENCES

- [1] 2030 Agenda for Sustainable Development, 2016.
- [2] Municipality of Bitola, Traffic Study of Bitola, 2011.
- [3] Statistical reports by SIA Bitola.