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METHODOLOGY OF AVERAGE SPEED ENFORCEMENT SYSTEMS SPOT SELECTION ON LITHUANIAN ROADS AND ITS EVALUATION

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Abstract. Average speed enforcement systems were installed on Lithuanian roads in 1 September, 2018. The Lithuanian Road Administration document, created on 29 April, 2020 No. V-60 "Methodology for creating a priority order for the selection and installation of average speed enforcement systems locations in Rural areas" determined where these systems should be installed. 81 road sections were selected by this method where was average speed enforcement systems have been installed. 12 road sections which length is higher than in document No. V-60 "Methodology for creating a priority order for the selection and installation of average speed enforcement systems locations in Rural areas" have been selected by the paper authors. The following parameters of road sections are analyzed in this paper: crossroads or exits lanes, traffic volume, number of road accidents, number of fatal and injury road accidents. Conclusions and recommendations for the methodology of road section selection are drawn at the end of this article.

Keywords: average speed enforcement systems, speed, road safety.

JEL Classification: L91.

Introduction

The safe participation of every road user is an integral part of the proper functioning of the road and street network. One of the most common causes of road accidents is speeding. Various engineering measures for safe traffic are implemented to ensure road safety and speed limits on the roads. Fixed speed cameras have been operating on Lithuanian roads and streets for many years as a mean of speed control. However, one of the problems with speed enforcement with fixed speed cameras is that some drivers brake before passing the fixed speed cameras and then exceed the speed limit after passing it (De Pauw et al., 2014). So, the speed is reduced in a short section. Point-to-point (P2P) speed control helps to solve this problem. It is also known as average speed enforcement or section speed enforcement (Lynch et al., 2011; Soole et al., 2013), which is a relatively new technological approach to traffic enforcement, recently increasingly applied in many highly motorized countries. The average vehicle speed enforcement systems started operating on 25 road sections of national significance in Lithuania from 9 September, 2018. Regarding the data of Lithuanian Road Administration, the average speed enforcement systems were already operating on the 121 sections at the end of 2022. In order for the average speed enforcement system to be effective in improving road safety indicators, it has to be implemented in accordance with the methodology established and approved by the country. Lithuanian roads are equipped with average speed enforcement systems in sections where lengths are significantly longer than in other countries. Also, the length of these selected sections does not correspond to the methodology for selecting the locations of average speed enforcement systems currently in force in Lithuania. There are settlements with separate exits and exits to them within the boundaries of such sections. Therefore, part of the vehicles is not recorded at the start and end points of the section, thus giving road users the opportunity to not comply with the speed limit. Thus, it is necessary to

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analyse and improve the methodology for selecting the locations of average speed enforcement systems.

It is possible to make an assumption about the benefits of these systems, as well as to make proposals about the possibilities of developing the activities of these systems after conducting the research and analysing the data.

1. Methodologies for selecting locations of the installation of average speed enforcement systems

1.1. The experience of using systems in foreign countries

Montella et al. (2012) evaluated the efficiency of an average speed enforcement system installed on the Italian highway A1 Milan–Naples with the speed limit of 130 km/h. Vehicle speed data has been analysed using a before-after method applying an empirical Bayesian method. It was determined that the installation of the system has a statistically significant impact on the reduction of accidents. The number of road accidents decreased by 31.2% after the installation of the average speed enforcement system. It has been found that the implementation of the system has a significant impact on the reduction of road accidents with fatalities and serious injuries. They decreased by 55,6% after the installation of the system. Ziolkowski (2019) investigated the impact of average speed enforcement systems for speeding on 22 sections of national significance roads in Poland. The research focused on the efficiency of the speed enforcement system considering the speed of the driver. The statistical analysis of the collected data on speeding showed a very positive influence of such system, which effectively and significantly reduced the average speed and the number of speeding drivers. The system is more effective on roads in built-up areas where the speed limit is 50 km/h.

Table 1. An overview of the research conducted on the impact on road safety of average speed enforcement systems

Author, year	Research object	The indicators studied	Change in the indicator
Stefan (2006)	Kaisermuhlen Tunnel, Austria	Recordable roads incidents	Reduced by 33.3%
		Roads incidents with fatal and seriously injured	Reduced by 48.8%
		Roads incidents with light injured	Reduced by 32.2%
Montella et al. (2012)	Highway A1 Milan-Naples, Italy	Recordable road incidents	Reduced by 31.2%
		Roads incidents with fatal and seriously injured	Reduced by 55.6%

End of Table 1

Author, year	Research object	The indicators studied	Change in the indicator
Lee et al. (2013)	Misiryeong Tunnel, South Korea	Average speed	Reduced from 21.4% to 31%
		All kinds of roads incidents	Reduced by 45.9%
Soole et al. (2013)	Research analysis of different countries	Over-speeding	Number of exceedances reduced by 90%
		Roads incidents with fatal and seriously injured	Reduced from 35% to 85%.
De Pauw et al. (2014)	Two sections of highway, Belgium	Average speed	Average speed reduced by 5. 84 km/h. the probability of over-speeding decreased by 74%
Høye (2014)	Analysis of four scientific sources	All kinds of roads incidents	Reduced by 30%
		Traffic incidents with fatal and seriously injured	Reduced by 56%
Jung and et al. (2014)	9 sections in highways, South Korea	Total number of roads incidents; roads incidents with fatal and seriously injured	Total number of roads incidents and roads incidents with fatal and seriously injured reduced by 41.7%
Montella and et al. (2012)	Highway A56, Italy	Speeding	Averagely reduced by 80.5%;
		Total number of roads incidents	Reduced by 32%
Owen et al. (2016)	50 sections of national significance roads, Great Britain	Roads incidents with fatal and seriously injured	Averagely reduced 36%
		Total number roads incidents	Reduced by 16%
Ilgaz & Saltan (2018)	11 sections at university campus, Turkey	Speeding	Speeding reduced by 36.9%
Ziolkowski (2019)	22 sections on national significance roads, Poland	Average speed	Reduced by 22.6%
		Speeding	Only 3% of drivers exceeded the speed limit

The average speed on these sections was 22.6% lower than the average speed on other sections where the same speed is allowed. Better results have been observed on roads with a 90 km/h speed limit and in which the number of over-speeding drivers did not exceed 3%. According to the author, an important advantage of the average speed enforcement system is that it equalizes the speed and creates a calm phenomenon, so it helps to avoid collisions. However, as a result, there are drivers who drive much slower that can negatively affect the manoeuvres of drivers who drive faster.

After conducting a review of scientific research from various countries around the world, it can be concluded that average speed enforcement systems are effective in reducing both the number of drivers of vehicles exceeding the limit of driving speed, as well as the number of road accidents and the severity of their consequences.

1.2. Methodologies for selecting of installation sites

The scientific report of the Norwegian Public Roads Administration (2011) indicates that it is reasonable to install average speed enforcement systems when the goal is to maintain the decrease in vehicles speed in a longer section than the section of the instantaneous speed enforcement systems operation. Another criterion for system implementation indicates that the average speed of the vehicle recorded in the road sections selected for the installation of an average speed enforcement system should be higher than the safe one and the accident rate should be 30% higher than in other homogeneous road sections. There are also four additional criteria describing the suitability of road sections for the installation of average speed enforcement system:

- it is appropriate to install the system on road sections from 2 km to 10 km;
- the speed limit has to be the same throughout the metered road section;
- the geometry of the metered road section (horizontal and vertical curves) has to correspond to the speed limit (so that there is no speed limit on the curves);
- the metered road section does not have to have crossroads or exits with an average annual daily traffic volume of more than 250 vehicle/day.

The Order of the Minister of Transport, Construction and Maritime Economy of Poland on the conditions for placement, marking and measurement of speed meters (2013) states that when selecting the average speed enforcement systems, the road sections are initially divided into homogeneous sections and an analysis of the road accident is carried out. It is also written that stationary speed camera, which record violations of traffic rules on the certain road section, can be installed on road sections which length does not exceed:

1) 10,000 m in built-up areas;
2) 20,000 m outside built-up areas.

A report by the United Kingdom's Thames Valley Police and Crime Commissioner to the Thames Valley Police and Crime Commission meeting (Office of the PCC for Thames Valley, 2021) states that average speed enforcement systems help to reduce speeding over longer distances and they can be used in high-traffic areas across the section of road, as well as speed limit during roadworks. The installation of the system requires a mobile and/or Internet connection and power supply from the mains. The minimum distance to which the average speed enforcement system can operate is from 75 to 250 meters depending on the selected camera supplier. There is no theoretical maximum section length.

Currently, road sections suitable for the installation of average speed enforcement systems on Lithuanian roads are selected according to the methodology for the priority order of selection and installation of average speed systems locations in non-residential areas approved by Lithuanian Road Administration under the Ministry of Transport and Communications (2018). In regard with this methodology, road sections where it is appropriate to install average speed enforcement systems are selected in two stages:

- all road network is divided into homogeneous road sections;
- homogenous sections located in non-residential areas are evaluated according to conditions suitable for the installation of systems:
  - the length of road sections has to be from 1 km to 10 km;
  - if there are crossroads or exit lanes in the selected road sections, the number of vehicles driving through the road section has to be at least 85% of the all-road traffic.

For the installation of average speed enforcement systems, road sections of national significance located outside the territory of settlements are presented in the order of priorities, taking into account specific criteria:

Average annual daily traffic volume. When average annual daily traffic volume is 0-399 vehicle/day, the road section is given 5 points, when 400-2199 vehicle/day 10 points are given, when 2200-8999 vehicle/day 15 points are given, when 9000 and more vehicle/day 20 points are given;

Severity of roads accidents. If 1 person was killed or injured during roads accidents on the section in 4 years period, such infrastructure is given 10 points, if 2 people died, 20 points are given, if 3 or more people were killed 30 points are given to infrastructure. If there were no such roads accidents on the road section, no points are given.

Unsafe driving speed is a likely leading cause of roads accidents. 30 points are assigned to a road section, if in the reports of the Police failure to choose a safe driving speed is named as the reason for the creditable road accidents that occurred on the road section in the last 4 years. No points are given for the road section if the safe driving speed is not selected on the road section and it is not identified as the cause of the traffic accident or there have been no roads accidents in the last 4 years.

Overtaking restriction on the road section. If overtaking is prohibited up to 30% of the length of the road section where it is appropriate to install the system, such road section is given 5 points. 10 points are given if overtaking is prohibited from 30% to 50% of the road section length. 15 points are given if overtaking is prohibited from 51% to 70% of the road section length. If overtaking is prohibited on 71% or more of the road section, such road section is given 20 points.

The road section that is assigned more points according to the above criteria has a higher priority in the list.

2. Result and discussion

One of the objectives of the study is to determine the compliance of the test sections where average speed enforcement systems are installed with the section selection criteria specified in the national document "Methodology for the selection and installation of the priority order of the average speed enforcement systems locations in non-residential areas".

The following criteria have been selected for the study:

- The length of road sections has to be between 1 km and 10 km;
- If there are crossroads or exit lanes in the selected road sections, there has to be at least 85% of the vehicles driving on the entire road section;
- Other automatic speed limit or control systems (average speed enforcement systems variable information signs and/or their system) for which average speed enforcement systems are not installed.

There is one crossroad with the connecting road to the settlements of Raguva and Jotainiai (Figure 3) on the highway A2 "Vilnius–Panevezys" on the section from 110.961 km to 121.253 km (Figure 1). The speed limit on the entire section is 130 km/h in summer, 110 km/h in winter, except at the crossroad with the connecting road to the settlements of Raguva and Jotainai, here the speed is limited to 110 km/h.

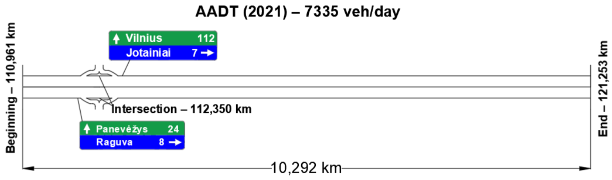

Figure 1. The scheme of crossroads of highway A2 "Vilnius–Panevezys", section from 110.961 km to 121.253 km

The first crossroad, located at 33,310 km, is a four-way, in the direction of Liepynai and Mamavys. The second crossroad, located at 36,820 km, is a three-way in

Table 2. Summary table of the compliance of sections with the criteria of the average speed enforcement system installation methodology

Road No.	Road	Section length (1–10 km). km		Average annual daily traffic volume, vehicles/day		Other speed limit enforcement systems on the section (instantaneous speed meters, signs of variable information)
		Km	Complies with the methodology (+)/does not comply with the methodology (–)	Percentage of the vehicles on the road section %	Complies with the methodology (+)/ does not comply with the methodology (–)	
A2	Vilnius–Panevezys	10.292	–	No data	+	+
A4	Vilnius–Varena–Gardinas	10.142	–	86.9	+	+
A4	Vilnius–Varena–Gardinas	19.342	–	92.7	+	+
A12	Riga–Siauliai–Taurage–Kaliningrad	11.182	–	85.3	+	+
A16	Vilnius–Prienai–Marijampole	10.792	–	No data	+	+
102	Vilnius–Svenčionys–Zarasai	13.922	–	98.6	+	+
128	Valkininkai–Daugai–Alytus	11.778	–	96.7	+	+
141	Kaunas–Jurbarkas–Silute–Klaipeda	15.581	–	56.4	-	+
155	Kursenai–Mazeikiai	17.318	–	89.5	+	+
195	Kedainiai–Krekenava–Panevezys	13.124	–	No data	+	–
215	Bubiai–Ramuciai	16.574	–	76.4	–	+
218	Kretinga–Skuodas	10.724	–	54.8	–	+
232	Vilijampole–Zeimiai–Seta	14.387	–	92.7	+	+

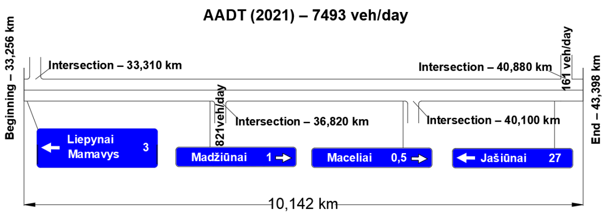

Figure 2. The scheme of crossroads of highway A4 "Vilnius-Varena-Gardinas", section from 33.253 km to 43.398 km

the direction of Madziunai. The third crossroad, located at 40.880 km, is a three-way, in the direction of Maceliai. The fourth crossroad, located at 43.100 km, is a quadrilateral, in the direction of Jasiunai.

In regard with the data on the average annual daily traffic volume in 2021, provided at the national access point of the Lithuanian Road Administration, average annual daily traffic volume of roads intersecting with the section was examined:

- 821 vehicles/day on regional road No. 176 "Pirciupiai-Jasiunai" in section from 0.00 km to 26.64 km;
- 161 vehicles/day on regional road No. 4733 "Madziunai-Inkleriskes" in section from 0.00 km to 0.81 km.

Totaling up the average annual daily traffic volume of the roads intersecting with the section 982 vehicles/day are received. It is 13.1% of all vehicles driving along the section. Considering the "Methodology for the selection and installation of the priority order of the locations of average speed meters in non-residential areas" according to point b of Chapter 4.1.2, there have to be at least 85% of vehicles driving on the entire road section. In this case it is 86,9 % and this corresponds to the criteria of the methodology.

The A4 "Vilnius–Varena–Gardinas" highway has 9 crossroads to settlements or places of interest in the section from 102,005 km to 121.347 km.

The first crossroad, located at 102.600 km is a three-way, in the direction of Bingeliai settlement. The second crossroad, located at 105.230 km, is a quadrilateral, with directions to the Merkine pyramid, Cesukai, Puvociai and Marcinkonys. The third crossroad, located at 107.360 km, is a quadrilateral, in the direction of Pasilinge. The fourth crossroad, located at 108.190 km, is a quadrilateral, in the direction of Maksimai. The fifth crossroad, located at 111.780 km, is a quadrilateral, in the direction of interest "The Place of Battle and Death of Lithuanian Partisans". The sixth crossroad, located at 113.130 km, is a quadrilateral, in the direction of Uciekas, Sunupis and Margioniai. The seventh crossroad, located at 114.340 km, is a four-way, in the direction of Randamonys. The eighth crossroad, located at 119.420 km, is a quadrilateral, in the direction to Masnycios and Ziogeliai.

The ninth three-way crossroad, located at 120.230 km and intersecting with Ilgio str. in the settlement of Grutas requires additional attention, as it is located on 1.110 km before the end of the section when driving in the direction Merkine-Druskininkai, or analogously at the same distance from the beginning of the section when driving in the direction of Druskininkai-Merkine. Speeding drivers using this Ilgio str. section can avoid being captured by the average speed enforcement systems and thus pass the entire 19,340 km long section by exceeding the speed limit.

Regarding the data on the average annual daily traffic volume in 2021 provided at the national access point of the Lithuanian Road Administration, average annual daily traffic volume of roads intersecting with the section was examined:

- 285 vehicles/day on regional road No. 5011 "Jablonavas–Puvociai–Marcinkonys", section from 0.00 km to 8.68 km;

This is 7.9% of all vehicles traveling along the section. In regard with the "Methodology of priority order selection and installation of average speed meter locations in non-residential areas" aaccording to point b of chapter 4.1.2, there have to be at least 85% of vehicles driving on the entire road section, and in this case, it is 92.1% and this corresponds to the criteria of the methodology.

There are three crossroads to settlements and places of interest on the road A12 "Riga-Siauliai-Taurage-Kalingrad" in the section from 35.474 km to 46.656 km. The first crossroad, located at 37.330 km, is a three-way in the direction of Nikanciai. The second crossroad, located 40.680 km, is a three-way in the direction of Tautiniai. The third crossroad, located at 43.830 km, is a three-way in the direction of the "Hill of Crosses" tourist attraction.

The 42.450 km section is a railway crossing regulated by traffic lights, approaching which the speed limit gradually decreases from 90 km/h to 30 km/h. Railway crossings are not mentioned in the "Methodology for the selection and installation of the priority order of

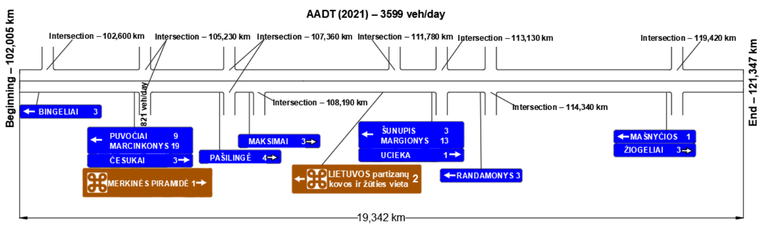

Figure 3. The scheme of crossroads of highway A4 "Vilnius-Varena-Gardinas", section from 102.005 km to 121.347 km

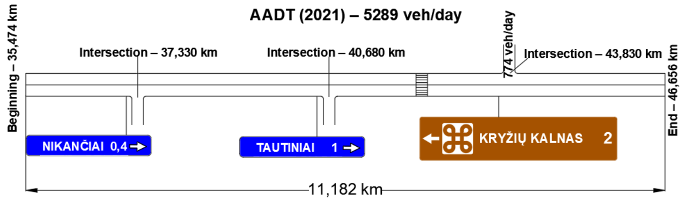

Figure 4. The scheme of crossroads of road A12 “Riga–Siauliai–Taurage–Kaliningrad”, section from 35.474 km to 46.656 km

the locations of average speed meters in non-residential areas”, but it should be taken into account, because the time allocated for driving is automatically extended for drivers of vehicles waiting at the crossing and they can pass the remaining distance of the section by exceeding speed without getting a penalty.

Figure 5. A railway crossing at 42.450 km of the A12 road

According to the data on the average annual daily traffic volume in 2021, provided at the national access point of the Lithuanian Road Administration, average annual daily traffic volume of roads intersecting with the section was analyzed:

- 774 vehicles/day on regional road No. 4033 “Access Road to Hill of Crosses from the Riga-Siauliai-Taurage-Kaliningrad” section from 0.00 km to 2.17 km.

This is 14.7% of all vehicles traveling along the section. Regarding the “Methodology of priority order selection and installation of average speed meter locations in non-residential areas” point b of 4.1.2. Chapter, there have to be at least 85% of vehicles driving on the entire road section, and in this case, it is 85.3% and this corresponds to the criteria of the methodology.

There are three crossroads to settlements or places of interest in the section from 105.537 km to 116.329 km on the highway A16 “Vilnius–Prienai–Marijampole”.

The first crossroad, located at 110.250 km, is a four-way, in the direction of Naujoji Uta. The second crossroad, located at 114.640 km, is a three-way, in the direction of the tourist attraction “Vincas Mykolaitis-Putinas homestead-museum”. The third crossroad, located at 115.330 km, is a three-way, in the direction of the Sakaliskiai castle hill.

There is no information about the annual daily traffic volume of the roads intersecting with the section in the national access point of the Lithuanian Road Administration.

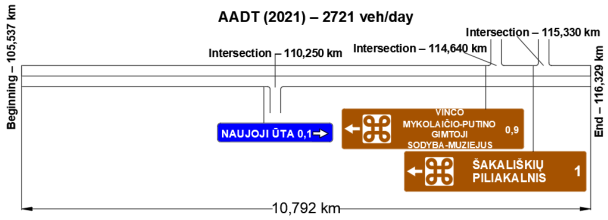

Figure 6. The scheme of crossroads of highway A16 “Vilnius–Prienai–Marijampole” in the section from 105.537 km to 116.329 km

There are 8 crossroads on the regional road No. 141 “Kaunas-Jurbarkas-Silute-Klaipeda” in the section from 12.779 km to 28.360 km. The speed limit is not constant. The driving speed of most of the section is 90 km/h, but in places the speed is limited to 70 km/h.

The first crossroad, located at 15.260 km, is a three-way, in the direction of the tourist attraction “Hill of the Gliders of Lithuania” and Netonys. The second crossroad, located at 17.600 km, is a three-way, in the direction of Kulautuva. The third crossroad, located at 22.130 km, is a three-way, in the direction of the tourist attractions “Pastuva’s old graves”, “Burying place of the signatory of the Act of Independence of Lithuania, Jonas Vailokaitis”, and Bubiai and Pastuva. The fourth crossroad, located at 22.750 km, is a quadrilateral, in the direction of Bubiai and Kvesai. The fifth crossroad, located at 23.520 km, is a three-way, in the direction of Bubiai. The sixth and seventh crossroads, located at 23.910 km and 24.620 km, are three-way, in the direction to Naujiena. The eighth crossroad, located at 27.410 km, is a quadrilateral, with directions to the places of interest “Holocaust victims’ graves”, “Jaucakiai castlehill”, and Jaucakiai and Antalkiai.

In regard with the data on the average annual daily traffic volume in 2021 provided at the national access point of the Lithuanian Road Administration, annual daily traffic volume of roads intersecting with the section was investigated:

- 2377 vehicles/day on regional road No. 1909 “Access Road to Kulautuva from the road Kaunas-Jurbarkas-Silute-Klaipeda”, section from 0.00 km to 2.06 km;
- 205 vehicles/day on regional road No. 1950 “Bubiai–Kvesai”, section from 0.00 km to 2.56 km;
- 316 vehicles/day on regional road No. 1951 “Access Road to Bubiai from Kaunas–Jurbarkas–Silute–Klaipeda”, section from 0.00 km to 1.00 km;
- 94 vehicles/day on regional road No. 1954 “Jaucakiai-Antalkiai”, section from 0.00 km to1.23 km.

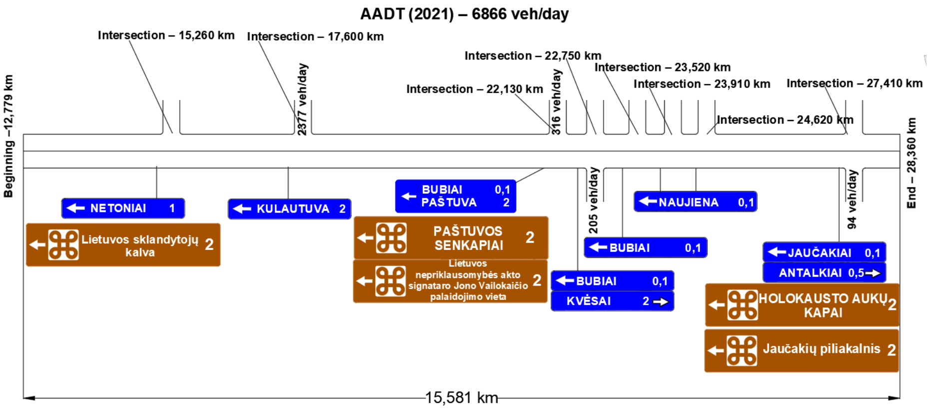

Figure 7. The scheme of crossroads of regional road No. 141 "Kaunas-Jurbarkas-Silute-Klaipeda", section from 12.779 km to 28.360 km

The total sum of the sections intersecting the section gives the annual daily traffic volume 2992 vehicles/day which is 43.6%. In accordance with the "Methodology for the selection and installation of the priority order of the locations of average speed meters in non-residential areas" point b of 4.1.2. chapter there have to be at least 85% of vehicles driving on the entire road section, in this case it is 56.4% and non-compliance with the methodology is recorded.

There are 6 crossroads to places of interest or settlements on the national road No. 195 "Kedainiai–Krekenava–Panevezys", section from 30.140 km to 43.264 km. The section crosses the Vinksnenai settlement, the speed limit in the settlement is 90 km/h.

The first crossroad, located at 33.400 km, is a quadrilateral, in the direction of Naujarodziai. The second crossroad, located at 34.110 km, is a three-way, in the direction of the attraction "Chapel of Rodai". The third crossroad, located at 34.200 km, is a three-way, in the direction of the "Roof pillar with sculptures" attraction. The fourth crossroad, located at 35.150 km, is a three-way, in the direction of Muciunai. The fifth crossroad, located at 35,490 km, is a three-way, in the direction of the tourist attraction "The Cross of V. Svirskis". The sixth crossroad, located at 37.150 km, is a three-way, in the direction of the tourist attraction "The Native land of J. Urbsys".

The road section has the wildlife fences with variable information signs No. 329 "Limited speed" and No. 131 "Wild animals" (picture). The purpose of these signs is to warn the driver in time about a herd of bison approaching the road. In accordance with the "Methodology for the selection and installation of the priority order of the locations of average speed meters in non-residential areas" 4.6. point, average speed meters are not installed on sections with variable information signs. Thus, in this case, non-compliance with the methodology is recorded.

2.1. Analysis of road accidents in the investigated sections

Data on creditable road accidents that occurred on the investigated sections within the period of 2017–2021 are provided from the data provided on the page of the Public Enterprise "Transport Competences Agency". 51 injured and 6 fatal road users were recorded in the investigated 5 sections of Lithuanian highways where the average speed enforcement system was installed.

The most common type of traffic accident was collision, 17 road accidents. The fewest road accidents

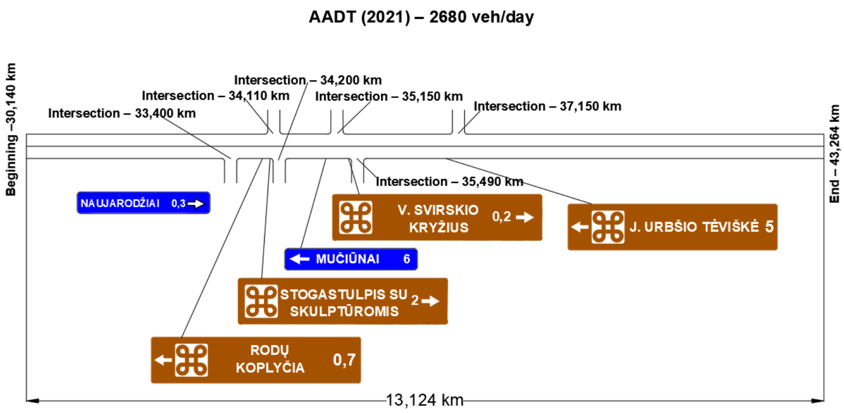

Figure 8. The scheme of crossroads of country road No. "Kedainiai-Krekenava-Panevezys" section from 30.140 km to 43.264 km

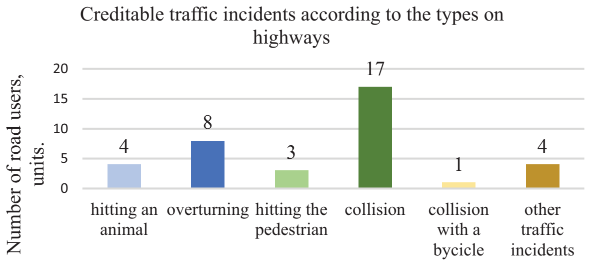

Figure 9. The distribution of creditable road accidents by the types on the highways under investigation within the period of 2017–2021

occurred in collisions with bicycles, 1 traffic accident (Figure 9).

111 injured and 8 fatal road users were recorded in the 8 road sections of the Lithuanian roads where the average speed enforcement system was installed.

The most common type of traffic accident was collision, 17 road accidents. The fewest road accidents occurred in collisions with bicycles, 1 traffic accident (Figure 10).

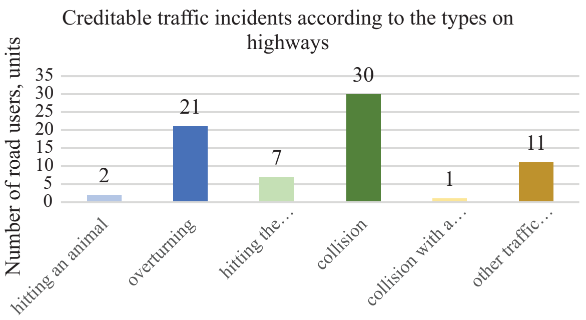

Figure 10. The distribution of creditable road accidents by types on the investigated roads within the period of 2017–2021

Conclusions

The following conclusions can be drawn after conducting a study of the compliance of the test sections with average speed enforcement systems to the section selection methodology for creating a priority order for the selection and installation of average speed enforcement systems locations in Rural areas:

1) None of the 13 studied sections meet the section length criteria;
2) 3 road sections do not meet the average speed enforcement system requirement of the roads intersecting with the investigated sections:
   – The section from 12.780 km to 28.390 km on the country road No. 141 "Kaunas–Jurbarkas–Silute–Klaipeda". The share of vehicles driving on the road section is 56.4%;
   – The section from 0.541 km to 17.115 km on the country road No. 215 "Bubiai–Ramuciai". The share of vehicles driving on the road section is 76.4%;
   – The section from 2.083 km to 12.807 km on the country road No. 218 "Kretinga-Skuodas". The share of vehicles driving on the road section is 54.8%;
3) Variable information signs are installed on the road No. 195 "Kedainiai–Krekenava–Panevezys" within the section from 30.140 km to 43.270 km.

Recommendations

1. It is recommended to move the average speed measuring camera to approximately 121.410 km in order to avoid drivers not recorded by the cameras on the road A4 Vilnius–Varena–Gardinas;
2. It is proposed to install fences to prevent animals from escaping onto the roadway in the section of the highway A2 from 110.970 km to 121.280 km;
3. To divide the section on the highway A12 Riga-Siauliai-Taurage-Kaliningrad measured by average speed enforcement systems into two sections, i.e., one section up to the railway crossing, the other section beyond the railway crossing. Or to shorten the road section by keeping the railway crossing in the direction of Riga-Siauliai as its end point;
4. Take more into account the crossroads and crossroads with the sections to the settlements and visiting places, conducting more detailed studies of their average annual daily traffic volume;
5. It is proposed to periodically control the speed of vehicles leaving crossroads and crossroads within the boundaries of average speed enforcement systems sections with mobile speed recording devices.

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