 https://doi.org/10.3311/PPtr.38721
Creative Commons Attribution

Periodica Polytechnica Transportation Engineering, 53(3), pp. 260–266, 2025

Road Truck Accident Rate in Terms of Major Causes: A Case Study

Jiří Hanzl[1*]

[1] Department of Transport and Logistics, Faculty of Technology, Institute of Technology and Business in České Budějovice, Okružní 517/10, 370 01 České Budějovice, Czech Republic
[*] Corresponding author, e-mail: hanzl@mail.vstecb.cz

Received: 01 November 2024, Accepted: 05 April 2025, Published online: 11 April 2025

Abstract

The aim of this paper is to familiarize the reader with a case study of the main causes of road trucks' (RT) accidents on roads by applying analytical methods and a questionnaire survey. In the introductory part of the paper, the theoretical foundations in the field of road safety from the view of road infrastructure and vehicle construction, which are applied nowadays to prevent and minimize the severity of traffic accidents, are briefly described. Subsequently, the above-mentioned issues are applied in a real environment, when, based on the analysis of registered traffic accidents of RT and a questionnaire survey among professional drivers, the main causes of these accidents were identified and measures were proposed, including the possibility of their implementation in real traffic conditions. In the final part of the paper, a short evaluation of the variants of measures is carried out in terms of the expected impact on the accident rate.

Keywords

road truck, road safety, accident rate, questionnaire survey, measures

1 Introduction

Transport and infrastructure, as part of the national economy and strategy, affects all areas of human life, whether it is the individual mobility of each person (travel to work, schools, for entertainment, etc.) or the transportation of products from producers to final consumers. Domestic and international freight transport thus ensures the availability of products in shopping centers, distribution warehouses and store shops. Road freight transport therefore becomes an important part of both direct and combined transport. In order to ensure efficient transport, however, an adequate road infrastructure is also necessary, which ensures the overall safety and continuity of road traffic. According to traffic accident statistics, in the years 2019 to 2023 (i.e., from January 1, 2019 to December 31, 2023), a total of 85,132 traffic accidents involving road trucks (RT) were registered in the Czech Republic by the Police of the Czech Republic, which represents 16.90% of all of registered traffic accidents in this time period. Police statistics also show that traffic accidents involving a truck are significantly more serious than other accidents in terms of the impact on the health of those involved. In the following part of the article, the main causes of traffic accidents involving RT on the selected road network are analyzed and subsequently, as part of a case study, the possibilities of implementing selected design measures in the real environment of the district town of Jindřichův Hradec located in the Czech Republic are presented.

2 Literature review

Road truck accidents are a serious topic that receives considerable attention from both experts and the lay public. This literature review focuses primarily on the issue of the main causes of road truck accidents on roads and provides an overview of the relevant professional literature. Research into road truck accident rates focuses on various aspects, including driver errors, vehicle technical condition, infrastructure and regulatory measures. Studies such as Castillo-Manzano et al. (2021), Zainuddin et al. (2023), Zubaidi et al. (2022) analyze road truck accident data in detail and identify key factors contributing to these events. According to scientific studies (Afghari et al., 2022; Sherry et al., 2022), driving errors are the main cause of truck accidents, including overloading, fatigue behind the wheel and lack of attention. The research carried out in Schindler and Bianchi Piccinini (2021), Shandhana Rashmi and Marisamynathan (2023) and Wang et al. (2022) suggests

Cite this article as: Hanzl, J. (2025) "Road Truck Accident Rate in Terms of Major Causes: A Case Study", Periodica Polytechnica Transportation Engineering, 53(3), pp. 260–266. https://doi.org/10.3311/PPtr.38721

that not only the technical condition of vehicles, including insufficient maintenance and technical failures, but also excessive speed and possibly aggressive driving can significantly contribute to the accident rate of trucks.

The legislative breakdown of vehicles, both passenger and lorry, states in Act No. 56/2001 Coll. (Ministry of Transport and Communications, 2001) about conditions for operation of vehicles on roads and its implementing regulations. The division of roads into categories in the Czech Republic is then clearly defined in Act No. 13/1997 Coll. (Ministry of Transport and Communications, 1997) on roads, including its implementing Decree No. 104/1997 Coll. (Ministry of Transport and Communications, 1997). Traffic safety is a very important aspect of road traffic. According to processed data from the Police of the Czech Republic, 2,477 people were killed in road traffic accidents in the Czech Republic between 2019 and 2023, 9,633 people were seriously injured and 111,530 people were slightly injured (CDV, online). To increase the safety and smoothness of road traffic, there are many elements that try to reduce, ideally eliminate, the negative consequences of road accidents. They are found on the one hand in road vehicles as so-called active and passive safety elements, on the other hand there are web portals such as BESIP (online) and Safe Roads (online).

The mission of the "Safe Roads" portal is to educate and present effective examples from the practice of traffic safety and thereby support the reduction of accidents, and above all the number of injuries (even fatalities). By using a number of multimedia elements, animations and videos, the comprehensibility and memorability of the most important information and rules can be significantly improved (Safe Roads, online; Szumska et al., 2020). It tries to educate and inform interested parties and the public, focuses on children and teenagers and spreads awareness of potential dangers in road traffic. "BESIP" is a project and department of the Ministry of Transport of the Czech Republic, which contributes to the dissemination of important information to the public in the field of road traffic safety (BESIP, online). Traffic calming and the correct design of roads, including their safety elements, which can be read about in Fancello et al. (2019), Ližbetin and Stopka (2016) and Tollazzi et al. (2010), for example, contribute to a considerable extent to the elimination of risky situations and the reduction of the consequences of traffic accidents on the health of those involved (drivers, fellow passengers, other users of road operation).

The case study then uses data processed from the application (CDV, online), which are uploaded to this portal from police statistics and contain all accidents that were investigated by the Police of the Czech Republic (Majerčák and Vakulenko, 2023). To make addressing respondents and collecting answers more efficient, the online platform SURVIO (online) was used, which significantly increased the number of answers, which contributed to obtain a representative sample of respondents and the associated more accurate and quality information. Last but not least, Ishigami and Klein (2009), Jackson (2025) and Soccolich et al. (2014) are mentioned in the article for clarification and a proposal for solving the problem of not paying attention while driving. These studies and other professional articles (Alajali et al., 2018; Aron and Florin, 2024; Bańkowski and Frej, 2023; Benallou et al., 2024; Beňuš et al., 2022) clarified the seriousness and difficulty in finding a solution to this issue, as the accident rate of RT is truly a multidimensional problem with various factors influencing its origin and occurrence. The case study presented in this article thus represents one of the possible tools for identifying specific causes of accidents and formulating effective preventive measures in the area (district) under consideration.

3 Road accident analyses

According to Table 1, 85,132 traffic accidents involving RT were registered in the Czech Republic in the last 5 years, in which 714 people were killed, 1,500 people were seriously injured, and 14,415 people were slightly injured. A total of 54,458 accidents with the direct fault of the RT drivers were registered, in which 312 people were killed, 854 people were seriously injured and 8,315 people were slightly injured (CDV, online).

From these numbers we can conclude that although there are more traffic accidents involving RTs, their drivers caused almost 64% of them. However, there are fewer injured and killed persons compared to RT participation in the number of accidents in all directions. Data expressed in absolute frequency have a greater informative value than data expressed in relative frequency due to the established fact that in every accident not all parameters recorded by

Table 1 Absolute numbers of traffic accidents between 2019 and 2023

Accident numbers	Involving a truck	With the fault of the truck driver
No injuries	68,503	44,977
Slightly injured	14,415	8,315
Seriously injured	1,500	854
Killed	714	312
In total	**85,132**	**54,458**

the police are registered (e.g., if the culprit of the accident got away), and so in some cases, when comparing the number of traffic accidents in certain parameter and the total number of traffic accidents, there is a certain discrepancy (Rejthar, 2024). Therefore, this article presents the relative frequency in relation to the total number of traffic accidents only if the relative frequency has a similar informative value as the absolute frequency, as mentioned in (Bartuška et al., 2015).

In the district of Jindřichův Hradec, 342 traffic accidents involving RTs were registered over the past 5 years, in which 8 people were killed, 20 people were seriously injured and 125 people were slightly injured. Out of the total number of traffic accidents, 143 (42%) occurred in the inner city and 199 (58%) in the extra city. As already mentioned, the human factor in traffic accidents mostly causes damage to property and injury to health. In this case, motor vehicle drivers caused 320 (out of a total of 342) traffic accidents, of which 199 were caused by RT drivers. The type of accident, referred to as „crash", has 174 cases, a collision with a moving non-rail vehicle in 152 cases and a collision with a pedestrian in 3 cases. Of these, RT drivers caused 137 accidents, 54 collisions with a non-rail vehicle and 2 collisions with a pedestrian. RT drivers often, both when maneuvering the vehicle and driving the vehicle, either do not have a sufficient view, and thus a lack of information about what is happening in the road traffic around them, or they do not adjust their speed to the given situation on the road. Human error, inattention, or not paying attention to driving the vehicle has the largest share in traffic accidents. However, in the Jindřichův Hradec district, RT drivers caused only 35.50% of collisions with non-rail vehicles, while in the entire South Bohemian region this ratio is 45.60% (Rejthar, 2024).

The main causes of RT traffic accidents can then be further divided into a total of 5 groups according to their type (see Fig. 1).

Incorrect driving style is the biggest and most important factor in traffic accidents. It is represented by 139 traffic accidents, which makes up 70% of the total number, while in 87 cases the driver did not pay full attention to driving, in 26 cases the driver drove onto an unpaved road, in 11 cases the driver turned or backed up incorrectly, in 10 cases the driver drove in opposite direction and in 5 cases the driver did not keep a safe lateral distance when avoiding.

Failure to adjust driving speed is one of the four main factors that result in traffic accidents caused by RT drivers. For example, the speed may not be adjusted to the traffic

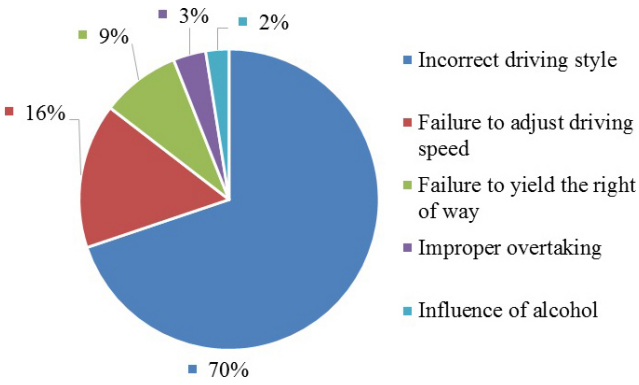

Fig. 1 The main causes of traffic accidents caused by truck drivers in the Jindřichův Hradec district

intensity, visibility or the characteristics of the vehicle and load. Failure to adjust driving speed accounts for 31 traffic accidents caused by RT drivers out of the total number. However, the biggest share here is the failure to adapt the speed to the road condition (15 accidents) and the traffic technical condition of the road (16 accidents).

Failure to yield the right of way is an even less frequent, though important cause of traffic accidents. RT drivers are often motivated by their employers to drive for lower consumption. However, this requires more constant driving, often not using the service brake and using the engine brake instead. However, this does not stop the vehicle; rather it saves consumption and slows down the vehicle before reaching the intersection. Drivers are thus motivated to slow down when approaching an intersection, but not to stop, in order to pass the intersection without stopping, which causes risky situations, especially at intersections where the driver has to give way to other road users and does not have a sufficient view. A total of 17 accidents involving RTs are recorded in this group.

Improper overtaking has a small presence among RT drivers. Only 7 traffic accidents in the last 5 years are registered in the Jindřichův Hradec district.

The influence of alcohol has a considerable presence here. During the observed period of 5 years, a total of 5 accidents involving RTs occurred under the influence of alcohol, of which all 5 were directly caused by RT drivers, 3 of them were caused by a vehicle owned by a private organization (Rejthar, 2024).

3.1 Evaluation of the questionnaire survey

As already mentioned in the introductory part of the article, part of the case study was the implementation of a questionnaire survey among professional truck drivers. In order to effectively address the respondents, an online

questionnaire was created on SURVIO (online). In order to reach as many respondents (truck drivers) as possible, the questionnaire was sent to social networks and groups focused and created for professional drivers. At the same time, some professional drivers from companies based in the South Bohemian region and their colleagues from the surrounding area or other organizations were contacted by phone. A total of 281 respondents answered, of which 252 professional drivers (231 men and 21 women) were actively practicing this profession (Rejthar, 2024).

To the question "What do you think is the most common cause of a crash (a vehicle hitting a fixed obstacle)?" the most common answers were not paying attention to driving (150 answers – 63%) and failure to adjust driving speed of the vehicle (49 answers – 21%). Other causes then include insufficient view (16 responses – 7%), impaired vehicle controllability (11 responses – 5%), fatigue (8 responses – 3%) and driving under the influence of alcohol (3 responses – 1%), see Fig. 2.

To the question "In your opinion, what is the most common cause of a collision (a vehicle hitting another road user)?" the most common answers were not paying attention to driving (144 answers – 59%) and failure to adjust driving speed of the vehicle (57 answers – 23%). Other causes then include not giving way to another vehicle (16 responses – 7%), insufficient view from the vehicle (14 responses – 6%), insufficient distance between vehicles (6 responses – 2%), accidents caused by other participants (5 responses – 2 %), impaired vehicle controllability (2 responses – 1%) and driving under the influence of alcohol (1 response – 0%), see Fig. 3.

To the question "In your opinion, what is the most common cause of risky situations in which a traffic accident can occur?" the most common answers were not paying attention to driving (128 answers – 53%) and failure to adjust driving speed of the vehicle (67 answers – 27%).

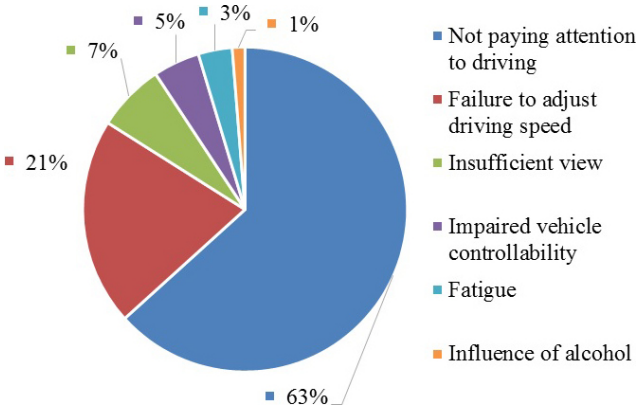

Fig. 2 The main causes of truck crashes in the Jindřichův Hradec district

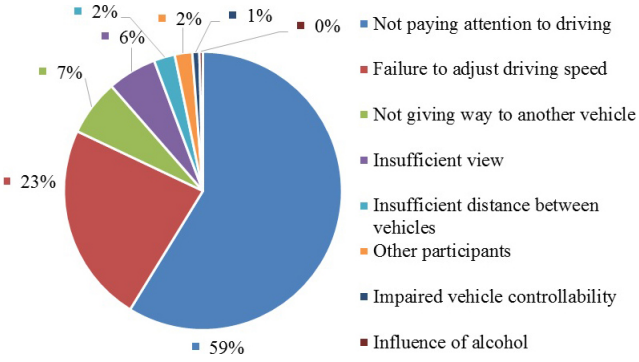

Fig. 3 The main causes of truck collisions in the Jindřichův Hradec district

Other causes then include not giving way to another vehicle (14 responses – 6%), accidents caused by other participants (13 responses – 6%), insufficient view from the vehicle (6 responses – 2%), driving under the influence of alcohol (6 responses – 2 %), impaired vehicle controllability (5 responses – 2%) and insufficient distance between vehicles (4 responses – 1%), see Fig. 4.

4 Selection of the accident location

For the needs of this case study, the district of Jindřichův Hradec was chosen, as it had the highest number of traffic accidents involving RT between 2019 and 2023 within the South Bohemian region. All these accidents are shown in Fig. 5: traffic accidents with fatal injuries are marked

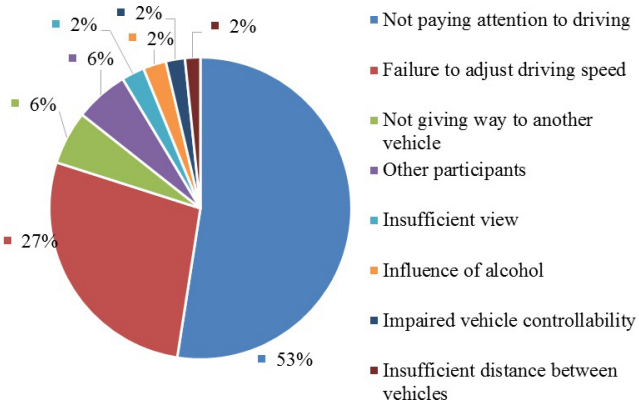

Fig. 4 The main causes of traffic risky situations in the Jindřichův Hradec district

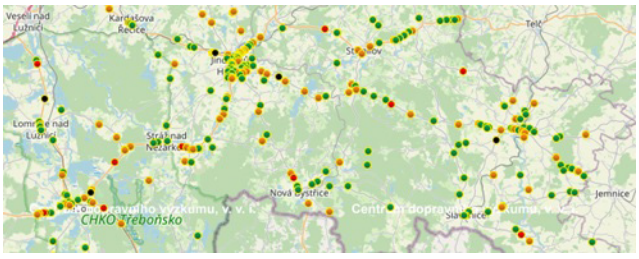

Fig. 5 Traffic accidents in the Jindřichův Hradec district in 2019–2023 (CDV, online)

in black, accidents with serious injuries in red, accidents with slightly injuries in orange and accidents without injury to health only with material damage to vehicles in green. Although traffic accidents in the Jindřichův Hradec district are among the most serious ones not only in the South Bohemian region, but also in the entire Czech Republic, it is evident that clusters of traffic accidents only occur in the surroundings of larger cities, otherwise traffic accidents are more or less equally distributed throughout the district. The connection of the ORLEN Benzina fuel filling station to the first-class road No. I/34 (E 551) and the adjacent section of this road (Jarošovská street) behind the entrance to the city of Jindřichův Hradec were then evaluated as the most common accident sites. The last identified dangerous section is located on the same road No. I/34 between the municipalities of Třeboň – Štěpánovice, which is, among other things, dangerous due to its traffic-technical arrangement (narrowed passing profile, directional conditions, etc.).

4.1 Consequences of traffic accidents

For the purposes of this article, a simplified table was drawn up comparing the above-mentioned individual accident locations in terms of the severity of traffic accidents with the participation of RTs, which occurred there between 2019 and 2023 (see Table 2).

On May 29, 2018, a tragic traffic accident involving 4 vehicles with the death of one person took place in the third accident location between the municipalities of Třeboň – Štěpánovice, located on road No. I/34. The culprit of this accident was the driver of a passenger car who drove onto the wrong side of the road before the first left-hand turn, then skidded while avoiding an oncoming vehicle and collided with a truck sideways. As a result, the driver of the passenger car died. The driver of the truck that the car crashed into suffered minor injuries and was transported by air ambulance. The third vehicle was a passenger car, the driver of which suffered minor injuries and was transported by ambulance. The driver of the fourth vehicle escaped without injury. This mass accident of 4 vehicles happened in daylight and in unimpaired weather conditions; visibility was not affected by adverse weather. The surface of the road was dry and free of pollution at the time of the accident.

4.2 Evaluation of road accident analysis and design of possible measures

On the basis of the analysis of traffic accidents and accident locations, it is clear that all the causes of the analyzed accidents are directly related, on the one hand, to the difficult controllability of the RTs compared to smaller and lighter road vehicles, and, on the other hand, to the fatigue of drivers or not paying attention to driving. Analyzing traffic accidents caused only by RT drivers, 70% of these accidents have "improper driving" as the main cause. According to the questionnaires, drivers are aware of their behavior on the roads, and yet they often do not pay attention to driving. Accident statistics, awareness and statements of drivers thus partially coincide. Human nature, boredom and fatigue force drivers to divert their attention during long drives. The majority of drivers answered that they consider the most frequent main cause of both accidents and collisions to be due to inattention to driving caused by various activities on electronic devices, be it a mobile phone, tablet or laptop. It is necessary to propose at least a temporary solution to this identified alarming problem, because not every time a driver does not pay attention to driving, a traffic accident occurs.

Most organizations today use hands-free technology, which also serves to increase employee productivity compared to a mobile phone. Although hands-free technology allows the driver to have both hands free to devote to driving, many foreign studies (e.g., Ishigami and Klein, 2009; Vilem et al., 2024) agree that there will not be a significant increase in attention. Even during a phone call using hands-free technology, the driver's attention is limited (Gorzelanczyk and Tylicki, 2023; Ľupták et al., 2017). However, the results of an American study (Soccolich et al., 2014) show that hands-free use reduces the total

Table 2 Consequences of traffic accidents in the selected accident locations in the Jindřichův Hradec district

Location	Number of accidents with fatal injury (death)	Number of accidents with severe injury	Number of accidents with minor injury	Number of accidents without injury (material damage)
Fuel filling station ORLEN Benzina	0	2	2	8
Jarošovská street (road No. I/34)	0	0	9	9
Road section Třeboň – Štěpánovice (road No. I/34)	1	2	8	6
Total	**1**	**4**	**19**	**23**

time of interaction with devices. However, a better solution would be to use voice control and voice commands via a business mobile phone connected to a car radio or a modern on-board computer in the vehicle and to install a microphone e.g., to the seat or headrest on the driver's seat to ensure intelligibility. Using the voice control of a mobile phone or on-board computer, the driver could then carry out activities such as dialing a call, talking to the dispatcher and subscribers, or setting up the navigation and car radio (Stopka et al., 2019).

As part of the design measures at accident locations, the cause of registered traffic accidents is taken into account first of all (Šarkan et al., 2020). In case of the fuel filling station and Jarošovská Street, vehicles often turn left, and thus the speed of the entire traffic flow suddenly decreases (absence of a turning lane for left turns). Thanks to this inhomogeneity of the traffic flow, the risk of a rear-end collision or the risk of overlooking another vehicle increases. As a design measure, it is therefore proposed to widen the body of the road by a left turn lane to the fuel filling station and further to reduce the maximum permitted speed from 90 km/h to 70 km/h. As for the accident-prone section Třeboň – Štěpánovice, the ideal (and also the most financially demanding) solution would be the reconstruction of the entire road section on a road with parameters and traffic – technical arrangement corresponding to its design category and the highest permitted speed (Bartuška et al., 2015).

5 Conclusion

The aim of this paper was to present a case study dealing with the analysis of the main causes of traffic accidents of RT on roads over the years 2019–2023 by applying analytical methods and a questionnaire survey. After their evaluation, the dangerous accident sections in the real environment were selected and the subsequent proposal of possible measures including the introduction to the possibilities of their implementation in real traffic were proposed in order to reduce the accident rate and increase the safety of road traffic in the addressed locations. In case of inattention while driving, this case study proposes an obligation for employers to include the obligation to use wireless technology for communication with the dispatcher in the employment contracts of professional drivers and to secure every road truck with such technology so that the driver can fully concentrate on driving without any manual setting navigation or using a mobile phone. In addition, safety measures are proposed (recommended) in selected localities in the Jindřichův Hradec district, consisting of the installation of new traffic signs, the implementation of minor construction modifications (expansion of the road body) and large-scale investment actions (reconstruction of the entire section). All these measures were mentioned in order to reduce the risk of traffic accidents and to increase the safety of road and traffic flow.

References

Afghari, A. P., Papadimitriou, E., Pilkington-Cheney, F., Filtness, A., Brijs, T., Brijs, K., Cuenen, A., … Rodrigues, L. (2022) "Investigating the effects of sleepiness in truck drivers on their headway: An instrumental variable model with grouped random parameters and heterogeneity in their means", Analytic Methods in Accident Research, 36, 100241. https://doi.org/10.1016/j.amar.2022.100241

Alajali, W., Zhou, W., Wen, S. (2018) "Traffic Flow Prediction for Road Intersection Safety", In: 2018 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovations (SmartWorld/SCALCOM/UIC/ATC/CBDCom/IOP/SCI), Guangzhou, China, pp. 812–820. ISBN 978-1-5386-9381-0 https://doi.org/10.1109/SmartWorld.2018.00151

Aron, C., Florin, M. (2024) "Current Approaches in Traffic Lane Detection: a minireview", The Archives of Automotive Engineering – Archiwum Motoryzacji, 104(2), pp. 19–47. https://doi.org/10.14669/AM/190157

Bańkowski, A., Frej, D. (2023) "The safety of motorcycle users", The Archives of Automotive Engineering – Archiwum Motoryzacji, 101(3), pp. 32–49. https://doi.org/10.14669/AM/172911

Bartuška, L., Stopka, O., Ližbetin, J. (2015) "Methodology for Determining the Traffic Volumes on Urban Roads in the Czech Republic", In: Proceedings of 19th International Conference. Transport Means, Kaunas, Lithuania, pp. 215–218.

Benallou, I., Azmani, A., Azmani, M. (2024) "Behind the wheel: understanding the risks for truck drivers in the era of the internet of things and advancements in autonomous vehicles", Scientific Journal of Silesian University of Technology. Series Transport, 124, pp. 25–36. https://doi.org/10.20858/sjsutst.2024.124.2

Beňuš, J., Poliak, M., Lazaroiu, G. (2022) "Violations of social regulation and traffic accidents in road freight transport", The Archives of Automotive Engineering – Archiwum Motoryzacji, 97(3), pp. 51–59. https://doi.org/10.14669/AM/155050

BESIP "Traffic safety on Czech roads", [online] Available at: http://besip.cz/ [Accessed: 29 February 2024]

Castillo-Manzano, J. I., Castro-Nuño, M., Fageda, X. (2021) "Analyzing the safety impact of longer and heavier vehicles circulating in the European market", Journal of Safety Research, 77, pp. 1–12. https://doi.org/10.1016/j.jsr.2021.01.001

CDV "Traffic accidents in the Czech Republic. Statistics", [online] Available at: https://nehody.cdv.cz/ [Accessed: 29 February 2024]

Fancello, G., Carta, M., Fadda, P. (2019) "Road intersections ranking for road safety improvement: Comparative analysis of multi-criteria decision making methods", Transport Policy, 80, pp. 188–196. https://doi.org/10.1016/j.tranpol.2018.04.007

Gorzelanczyk, P., Tylicki, H. (2023) "Forecasting the Number of Road Accidents in Poland Depending on the Day of the Week using Neural Networks", LOGI – Scientific Journal on Transport and Logistics, 14(1), pp. 35–42. https://doi.org/10.2478/logi-2023-0004

Ishigami, Y., Klein, R. M. (2009) "Is a hands-free phone safer than a handheld phone?", Journal of Safety Research, 40(2), pp. 157–164. https://doi.org/10.1016/j.jsr.2009.02.006

Jackson, N. M. (2025) "Why a Hands Free Device May Still Distract Drivers", EXTRAMILE The Hartford, March 06. [online] Available at: https://extramile.thehartford.com/auto/driving/distracted-driving-hands-free-devices/ [Accessed: 27 February 2025]

Ližbetin, J., Stopka, O. (2016) "Proposal of a Roundabout Solution within a Particular Traffic Operation", Open Engineering, 6(1), pp. 441–445. https://doi.org/10.1515/eng-2016-0066

Ľupták, V., Gašparík, J., Chovancová, M. (2017) "Proposal for Evaluating a Connection Quality within Transport Networks", MATEC Web of Conferences, 134, 00033. https://doi.org/10.1051/matecconf/201713400033

Majerčák, J., Vakulenko, S. P. (2023) "The Impact of COVID-19 Pandemic on Population Mobility in the Czech Republic and Slovakia", LOGI - Scientific Journal on Transport and Logistics, 14(1), pp. 158–168. https://doi.org/10.2478/logi-2023-0015

Ministry of Transport and Communications (1997) "Act No. 13/1997 Coll., Act on Roads, as amended", Prague, Czech Republic.

Ministry of Transport and Communications (1997) "Government Decree No. 104/1997 Coll., Decree of the Ministry of Transport and Communications implementing the Act on Roads, as amended", Prague, Czech Republic.

Ministry of Transport and Communications (2001) "Act No. 56/2001 Coll., Act on the Conditions of Operation of Vehicles on Roads, as amended", Prague, Czech Republic.

Rejthar, O. (2024) "Bezpečnost a nehodovost vozidel silniční nákladní dopravy v České republice" (Safety and accident rate of road freight transport vehicles in the Czech Republic), BSc thesis, Institute of Technology and Business in České Budějovice. (in Czech)

Safe Roads "Safe roads in the Czech Republic", [online] Available at: https://bezpecnecesty.cz/ [Accessed: 29 February 2024]

Šarkan, B., Hudec, J., Kiktová, M. (2020) "The Analysis of the network of technical inspection stations for road vehicles and traffic accidents in Slovakia", In: 2020 XII International Science-Technical Conference on AUTOMOTIVE SAFETY, Kielce, Poland, pp. 1–7. ISBN 978-1-7281-5813-6 https://doi.org/10.1109/AUTOMOTIVESAFETY47494.2020.9293531

Schindler, R., Bianchi Piccinini, G. (2021) "Truck drivers' behavior in encounters with vulnerable road users at intersections: Results from a test-track experiment", Accident Analysis & Prevention, 159, 106289. https://doi.org/10.1016/j.aap.2021.106289

Shandhana Rashmi, B., Marisamynathan, S. (2023) "Factors affecting truck driver behavior on a road safety context: A critical systematic review of the evidence", Journal of Traffic and Transportation Engineering (English Edition), 10(5), pp. 835–865. https://doi.org/10.1016/j.jtte.2023.04.006

Sherry, A. P., Clemes, S. A., Chen, Y.-L., Edwardson, C., Gray, L. J., Guest, A., King, J., Rowlands, A. V., Ruettger, K., Sayyah, M., Varela-Mato, V., Hartescu, I. (2022) "Sleep duration and sleep efficiency in UK long distance heavy goods vehicle drivers", Occupational & Environmental Medicine, 79, pp. 109–115. https://doi.org/10.1136/oemed-2021-107643

Soccolich, S. A., Fitch, G. M., Perez, M. A., Hanowski, R. J. (2014) "Comparing Handheld and Hands-free Cell Phone Usage Behaviors While Driving", Traffic Injury Prevention, 15(sup1), pp. S21–S26. https://doi.org/10.1080/15389588.2014.934958

Stopka, O., Stopkova, M., Kampf, R. (2019) "Application of the Operational Research Method to Determine the Optimum Transport Collection Cycle of Municipal Waste in a Predesignated Urban Area", Sustainability, 11(8), 2275. https://doi.org/10.3390/su11082275

SURVIO "Create a questionnaire", [online] Available at: http://survio.com/cs/ [Accessed: 11 October 2023]

Szumska, E., Frej, D., Grabski, P. (2020) "Analysis of the Causes of Vehicle Accidents in Poland in 2009-2019", LOGI – Scientific Journal on Transport and Logistics, 11(2), pp. 76–87. https://doi.org/10.2478/logi-2020-0017

Tollazzi, T., Rencelj, M., Rodošek, V., Zalar, B. (2010) "Traffic Safety of Older Drivers in Various Types of Road Intersections", Promet – Traffic&Transportation, 22(3), pp. 193–201. https://doi.org/10.7307/ptt.v22i3.275

Vilem, K., Alexandros, S., Panagiota, X. (2024) "Relationship Between Vehicle Price and its Safety Ratings", LOGI – Scientific Journal on Transport and Logistics, 15(1), pp. 37–48. https://doi.org/10.2478/logi-2024-0004

Wang, J., Parajuli, S., Cherry, C. R., McDonald, N. C., Lyons, T. (2022) "Vulnerable road user safety and freight vehicles: A case study in North Carolina and Tennessee", Transportation Research Interdisciplinary Perspectives, 15, 100650. https://doi.org/10.1016/j.trip.2022.100650

Zainuddin, N. I., Arshad, A. K., Hashim, W., Hamidun, R. (2023) "Heavy Goods Vehicle: Review of Studies Involving Accident Factors", Jurnal Kejuruteraan, 35(1), pp. 3–12. https://doi.org/10.17576/jkukm-2023-35(1)-01

Zubaidi, H., Alnedawi, A., Obaid, I., Abadi, M. G. (2022) "Injury severities from heavy vehicle accidents: An exploratory empirical analysis", Journal of Traffic and Transportation Engineering (English Edition), 9(6), pp. 991–1002. https://doi.org/10.1016/j.jtte.2021.02.009