

ных решений / В. В. Подиновский, М. А. Потапов // Бизнес-информатика. – № 3(25). – 2013. – с. 41–48.

9. Gaber, M. Traffic accidents prediction model using fuzzy logic: aswan desert road case study / M. Gaber, A. M. Wahaballa, A. M. Othman, A. Diab // Journal of Engineering Sciences Assiut University/ – Vol. 45. – №. 1 (2017) – pp. 28–44.

10. Leonowicz I., Bohdanowicz S. Utrzymanie nawierzchni. Nowe zasady opracowania systemów zarządzania ich stanem. / I. Leonowicz, S. Bohdanowicz // Magazyn Autostrady, № 12. – 2007. – Р. 36–41/

11. Богданович, С. В. Расчет обобщенного показателя состояния дорожного покрытия с использованием лингвистических переменных / Т. В. Богданович // Научно-технический журнал «Автомобильные дороги и мосты». – № 1. – Минск, 2008. – С. 113–119.

12. D'Andrea, A. Application of Fuzzy Techniques for Determining the Operating Speed Based on Road Geometry / A. D'Andrea, O. Pellegri // Promet-Traffic&Transportation, 24(3), pp. 203–214.

13. Driss, M. K. Traffic safety prediction model for identifying spatial degrees of exposure to the risk of road accidents based on fuzzy logic approach / M. Driss, K. Benabdeli, T. Saint-Gerand, M. A. Hamadouche, Geocarto International, 30:3, 2013. – pp. 243–257.

14. Скирковский, С. В. Экспертиза дорожно-транспортных происшествий: учеб. пособие / С. В. Скирковский, Д. В. Капский / М-во трансп. и коммуникаций Респ. Беларусь, Белорус. гос. ун-т трансп. – Гомель : БелГУТ, 2018. – 173 с.

KAPSKI Denis V., P., D. Sc. in Eng., Associate Professor, ice-chairman HAC<sup>1</sup>  
E-mail: d.kapsky@gmail.com

BOGDANOVICH Sergey V., Ph. D. in Engineering, Associate Professor, head of the department «Transport systems and technologies»<sup>2</sup>  
E-mail: oapdd@bntu.by

ZAJCEVA Inga S.  
engineer of the department «Transport systems and technologies»<sup>2</sup>  
E-mail: oapdd@bntu.by

<sup>1</sup>Higher Attestation Commission of the Republic of Belarus

<sup>2</sup>Belarusian National Technical University, Minsk, Republic of Belarus

Received 12 July 2023

## ON THE ISSUE OF ASSESSING THE SAFETY OF ADJUNCTION ON ROADS

*The principal aim of this article is to meticulously investigate and enhance the standards of highway safety and the accompanying infrastructural elements. The article scrutinizes data pertaining to vehicular mishaps over the preceding years, pinpointing crucial elements that precipitate the incidents. Among these contributing factors are the condition of the paved roadway, the clarity of view, the magnitude of vehicular flow, illumination, amongst others.*

*The authors devote considerable attention to the utilization of engineering management strategies, alongside risk management systems, to bolster the safety measures on highways. The discourse proposes the implementation of fuzzy logic allied with the FisPro system, as means to dissect and prognosticate traffic scenarios. The employment of these methodologies enables the consideration of the intricate and multidimensional nature of the issue of highway safety, taking into account the myriad of intertwined parameters.*

*The article underscores the necessity for a holistic approach to effectively amplify the safety standards of highways, encompassing all factors that exert influence on the prevailing traffic conditions. Such a comprehensive methodology permits not merely the response to budding issues, but also the anticipation*

*of potential risks, consequently enabling the timely implementation of preventative measures to avert them.*

**Keywords:** Road safety, road adjunction, dangerous sections of roads, management systems, fuzzy logic, FisPro system

## References

1. Wegman F, Elsenaar P. Sustainable solutions to improve road safety in the Netherlands. Leidschendam, Institute for Road Safety Research, 1997 (SWOV Report D-097-8).
2. World Report on Road Traffic Injury Prevention: Executive Summary/Edition Margie Peden ... [et al.]. [Electronic resource] – Mode of access: [https://apps.who.int/iris/bitstream/handle/10665/42925/9241591315\\_rus.pdf?sequence=5&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/42925/9241591315_rus.pdf?sequence=5&isAllowed=y). – Date of access: 07.07.2023.
3. Towards Safe System Infrastructure A Compendium of Current Knowledge. Research Report AP-R560-18 [Electronic resource] – Mode of access: [https://austroads.com.au/publications/road-safety/ap-r560-18/media/AP-R560-18-Towards\\_Safe\\_System\\_Infrastructure\\_A\\_Compndium\\_of\\_Current\\_Knowledge.pdf](https://austroads.com.au/publications/road-safety/ap-r560-18/media/AP-R560-18-Towards_Safe_System_Infrastructure_A_Compndium_of_Current_Knowledge.pdf). – Date of access: 07.07.2023.
4. Bogdanovich S. V. Road infrastructure safety management in the Republic of Belarus. Directions of development // Scientific and technical journal «Roads and bridges». No. 1 (23). – Minsk, 2019. – p. 37–43 (in Russian)
5. Danish Road Traffic Accident Investigation Board (2014), Why do road traffic accidents happen?, 66 p. – Retrieved from: [http://www.hvu.dk/SiteCollectionDocuments/HVUdec14\\_UK\\_HvorforSkerUlykkerne.pdf](http://www.hvu.dk/SiteCollectionDocuments/HVUdec14_UK_HvorforSkerUlykkerne.pdf).
6. Alberti, S., & Fiori, F. (2019). Integrating Risk Assessment into Pavement Management Systems. Journal of Infrastructure Systems, 25(1), 05019001.
7. Tighe, Susan; Li, Ningyuan; Falls, Lynne; Haas, Ralph (2000). Incorporating Road Safety into Pavement Management. Transportation Research Record: Journal of the Transportation Research Board, 1699(), 1–10.
8. Podinovsky V. V., Potapov M.A. The method of the weighted sum of criteria in the analysis of multi-criteria decisions: pro et contra. Business informatics № 3 (25). – 2013. – p. 41–48 (in Russian)
9. Gaber M, Wahaballa A. M., Othman A. M., Diab A. Traffic accidents prediction model using fuzzy logic: aswan desert road case study//Journal of Engineering Sciences Assiut University Vol. 45 No. 1 (2017) – pp. 28–44.
10. Leonowicz I., Bohdanowicz S. Pavement maintenance. New rules for the development of systems for managing their condition. Highway Magazine 2007 no. 12. – pp. 36–41. (in Polish)
11. Bogdanovich S. V. Calculation of a generalized indicator of the state of the road surface using linguistic variables // Scientific and technical journal "Roads and Bridges". No. 1. – Minsk, 2008. – p. 113–119. (in Russian)
12. D'Andrea, A. and Pellegrino, O. Application of Fuzzy Techniques for Determining the Operating Speed Based on Road Geometry // Promet – Traffic&Transportation, 24(3), pp. 203–214.
13. M. Driss, K. Benabdeli, T. Saint-Gerand & M. A. Hamadouche (2015) Traffic safety prediction model for identifying spatial degrees of exposure to the risk of road accidents based on fuzzy logic approach, Geocarto International, 30:3, 243–257.
14. Examination of road accidents: textbook. allowance / S. V. Skirkovsky, D. V. Cape.; Min. transp. and communications Rep. Belarus, Belarus. state transp. – Gomel: BelSUT, 2018. – 173 p. (in Russian)