METODA PROCJENE UTJECAJA RASKRIŽJA S KRUŽNIM TOKOM PROMETA NA OKOLIŠ I GOSPODARSTVO

THE METHOD FOR ASSESSING THE IMPACT OF ROUNDABOUTS ON THE ENVIRONMENT AND THE ECONOMY

SAŽETAK

Dosadašnja planiranja, projektiranja i rekonstrukcije postojećih tipova raskrižja u jednoj razini (kružna, semaforizirana i nesemaforizirana) vrlo su malu ili gotovo nikakvu pozornost posvećivala održivom prometnom sustavu, odnosno negativnom utjecaju prometa na okoliš i gospodarstvo. Zasnivala su se isključivo na tehničkim rješenjima koja zadovoljavaju kriterije propusne moći i sigurnosti raskrižja. Danas je izražen interes za odabir tipa raskrižja u jednoj razini koje bi u danom okruženju djelovanja bilo optimalno rješenje za održivi prometni sustav. Nova raskrižja s kružnim tokom prometa koja su zamijenila raskrižja u razini nisu bila podvrgnuta znanstvenim istraživanjima utjecaja na okoliš i gospodarstvo sa svrhom provjere opravdanosti njihove izvedbe uvažavajući ekološke i gospodarske kriterije.

S obzirom na navedeno, ovaj istraživački rad posvetio je pažnju upravo razvoju metode za procjenu utjecaja raskrižja s kružnim tokom prometa na okoliš i gospodarstvo, sa svrhom provjere opravdanosti izgradnje različitih oblika raskrižja u razini uvažavajući ekološke i gospodarske kriterije. Za razvoj metode bilo je potrebno prikupiti dosadašnje teorijske spoznaje o utjecaju raskrižja s kružnim tokom prometa na okoliš i gospodarstvo te prikupiti potrebne ulazne podatke na odabranim raskrižjima s kružnim tokom prometa u urbanim sredinama gradskih područja. Uz navedeno, bilo je potrebno provesti analizu prethodnog i sadašnjeg stanja preko simulacijskih programskih paketa na odabranim raskrižjima. Nakon provedenih analiza uslijedio je razvoj statističkog modela na temelju statističkih metoda, provedenih analiza i prikupljenih podataka. Primjenom statističkog modela razvijena je metoda kojom se procjenjuje utjecaj raskrižja s kružnim tokom prometa na okoliš i gospodarstvo. Predložena metoda u konačnici je verificirana u stvarnom prostornom okruženju.

Ključne riječi: raskrižje s kružnim tokom prometa, ekološki i gospodarski kriteriji, opravdanost izgradnje, simulacijski programski paketi, statistički model, metoda za procjenu utjecaja kružnih raskrižja na okoliš i gospodarstvo, verifikacija

SUMMARY

Former planning, design, and reconstruction of the existing types of single-level intersections (circular, traffic light signalized, and un-signalized) paid very little or no attention to sustainable transport systems and the negative impact of transport on the environment and economy. Attention was mainly paid to technical solutions that meet the criteria of capacity and intersection security. Today, there is an increasing need for commitment towards a single-level type of intersection, which would be an optimal solution for a sustainable transport system in a given environment. The newly-built roundabouts which have replaced levelled intersections, to this date have not been subjected to scientific studies of their impact on the environment and the economy for the purpose of verifying the feasibility of their performance while taking into account environmental and economic criteria.

In view of the above, this research paper devoted attention to the development of methods for assessing the impact of roundabouts on the environment and the economy, with the purpose of verifying the justification of building different forms of intersections at ground level, while respecting ecological and economic criteria. To develop the method, it was necessary to collect theoretical knowledge about the impact of roundabouts on the environment and the economy and to collect the necessary input data at the selected roundabout intersections in urban areas of the city. In addition, it was necessary to carry out an analysis of the past and present state through a simulation software package on selected intersections. After the analyses were performed, a statistical model based on statistical methods, conducted analyses, and data collected was developed. A statistical model was used to develop a method for assessing the impact of roundabouts on the environment and the economy. The proposed method was ultimately verified in a real-world spatial environment.

Key words: roundabouts, ecological and economic criteria, justification for construction, simulation software packages, statistical model, method for assessing the impact of roundabouts on the environment and the economy, verification