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MATHEMATICAL MODELING OF THE LAYOUT, ENGINEERING PLANS AND STRUCTURAL SOLUTIONS OF BRIDGE CROSSINGS WITHIN NETWORKS OF URBAN STREETS AND ROADS

Modeling of operation of cities and their transportation systems is a multi-component challenge composed of various data and decision options. Improvement of this analytical mechanism will make it possible to save the resources invested into development and operation of transportation and urban planning solutions.

The mathematical modeling solution proposed by the author helps identify both predictable and accidental features of composite engineering and transport solutions. Assessments of the intensity of traffic, road capacity, speeds, parameters of geometrical elements, cost of construction and operation are also possible.

Any thorough analysis requires specialized algorithms. Modeling of traffic streams in terms of the safety of the road motion reveals bottlenecks and dangerous areas to improve the traffic arrangements, or organization of the road motion.

Cities and urban bridge crossings and their environment represent complex systems of interaction and mutual influence. Therefore, the mathematical model designed and developed by the author is based on the most relevant urban planning theories.

Key words: transport hub, network of roads, engineering plan, structural solution, road capacity; public transport, traffic safety, traffic intensity, traffic organization, bridge crossing.

References


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