

非常规突发事件中面向目标能力的路网调整及车流组织模型

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Model of road network adjustment and traffic organization planning for target capacity under unconventional emergencies

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摘要 在突发事件的背景下, 事件影响区域的交通路网是重要的生命线, 能否基于交通管制手段优化路网结构, 有效协调救援、疏散等任务于路网上的时空干扰, 是决定应急响应成功与否的重要因素。首先从宏观上设计了该背景下的多层加载式的路网调整框架; 然后, 基于元胞传输模型(CTM)分析了各层交通需求加载时路网调整的目标函数及相应的系统约束、交通特性约束和优先级约束等, 最终构成了系统的路网调整模型; 最后, 通过算例对模型进行了验证分析。

关键词: 非常规突发事件 路网调整 交通组织 元胞传输模型 目标能力

Abstract: In the context of unconventional emergencies, road network is an important lifeline. Whether to resolve the interference among different tasks on road network by traffic control strategy is the key factor for emergency response's success. First, the framework of road network's adjustment method is proposed for multi-layer traffic demand. Second, the objective function and constraints of network's adjustment is analyzed based on CTM, and the adjustment model for every single-layer traffic demand is proposed. Lastly, a numerical example illustrates the simplicity and applicability of the proposed model.

Key words: unconventional emergencies road network's adjustment traffic organization cell transmission model target capacity



收稿日期: 2011-09-26;

基金资助:国家自然科学基金(91024031, 70833006, 90924303, 71103162, 71173198); 中国博士后科学基金(20100470382)

引用本文:

王永明,刘铁民. 非常规突发事件中面向目标能力的路网调整及车流组织模型[J]. 系统工程理论实践, 2012, (5): 993-1002.

WANG Yong-ming,LIU Tie-min. Model of road network adjustment and traffic organization planning for target capacity under unconventional emergencies[J]. Systems Engineering - Theory & Practice, 2012, (5): 993-1002.





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