Optimization Method of the Number of Berth at Bus Rapid Transit Stations Based on Passenger Flow Demand

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Abstract : The reasonable design of bus parking spaces can improve the traffic capacity of the station and reduce traffic congestion. In order to reasonably determine the number of berths at BRT (Bus Rapid Transit) stops, it is based on the actual bus rapid transit station observation data, scheduling data, and passenger flow data. Optimize the number of station berths from the perspective of optimizing the balance of supply and demand at the site. Combined with the classical capacity calculation model, this paper first analyzes the important factors affecting the traffic capacity of BRT stops by using SPSS PRO and MATLAB programming software, namely the distribution of BRT stops and the distribution of BRT stop time. Secondly, the method of calculating the number of the classic human capital management (HCM) model is optimized based on the actual passenger demand of the station, and the method applicable to the actual number of station berths is proposed. Taking Gangding Station of Zhongshan Avenue Bus Rapid Transit Corridor in Guangzhou as an example, based on the calculation method proposed in this paper, the number of berths of sub-station 1, sub-station 2 and sub-station 3 is 2, which reduces the road space of the station by 33.3% compared with the previous berth 3 of each sub-station, and returns to social vehicles. Therefore, under the condition of ensuring the passenger flow demand of BRT stations, the road space of the station is reduced, and the road is returned to social vehicles, the traffic capacity of social vehicles is improved, and the traffic capacity and efficiency of the BRT corridor system are improved as a whole.

Keywords : urban transportation, bus rapid transit station, HCM model, capacity, number of berths

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