

Choosing the Right Express Services for Bus Corridor with Capacity Restrictions

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In public transit systems with high demand levels, the use of express bus services that serve only a subset of stops along certain routes appears to be a promising alternative given the benefits that they offer to both users and operators. In practice, express services in systems such as Transmilenio (Bogota, Colombia), Transantiago (Santiago, Chile), and Metro Rapid (Los Angeles, California) have proved highly appealing. To determine what types of express services would be attractive on a bus corridor given the characteristics of its demand, four parameters are defined for identifying corridor demand profiles: the base load profile shape, the scale of demand, the demand imbalance between the outbound and inbound directions, and the average trip length. A series of indicators was also defined to measure the potential benefits of express services in the scenarios studied. The results of the experimental simulations show that a crucial parameter for determining the potential benefits of express services is the average trip length along the corridor. The incorporation of express services is particularly attractive in corridors with demand profiles that increase or decrease monotonically. In addition, the results suggest that in other cases, the complexity of the demand shape could allow for more complex express service patterns.

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