

Ji–yang et al. (2020) investigate the "many–to–many" pattern, focusing on the key challenge of determining multi–target station allocation. To ensure sufficient buffer time for gathering transit demand (Ma et al., 2013), the time resolution can vary from days to seconds, depending on the system's computational efficiency in re– optimizing bus scheduling. For instance, Liu et al. (2019) propose a bus ride–sharing service where customers use an online hailing app to upload transit demand, and buses are assigned to customers after sufficient matched requests are integrated. The pioneering work by Flusberg (1976) saw the successful operation of a point deviation bus system in Merrill, Wisconsin, proving the feasibility of on–demand service in lower–density areas. Zhang et al. Transportation Research Part E 181 (2024) 103372 service in urban bus system operators rely on historical and survey data to simulate future demand (Zhang et al., 2011). Subsequently, public transit services with similar concepts, such as customized buses (Cao and Wang, 2017) and personal rapid transit systems, have demonstrated steady growth. The time resolution refers to the length of each time interval in the scheduling plan, indicating the time horizon for collecting passenger demand in on–demand bus services. In this context, customers specify their desired origin and destination stations along with their alighting deadlines beforehand. A comprehensive survey on on–demand bus services conducted by Vansteenwegen et al. (2022) explores systems with different time resolutions. Literature review 2.1