

市域轨道交通姓什么

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当前,我国城镇化正进入到都市圈、城市群建设发展的新阶段。打造轨道上的都市圈,建设“1小时都市圈”,都要求干线铁路、城际铁路、市域轨道交通、城市轨道交通实现“四网融合”。“四网融合”将有力带动市域轨道交通的发展。从制式结构看,我国铁路运营线路已超过15万km,城市轨道交通也超过1万km,两个网之间,给城际铁路,特别是对市域轨道交通留出了广阔的发展空间。因此,无论从发展大环境看还是从发展空间看,发展市域轨道交通如同水到渠成。

据中国城市轨道交通协会统计,到2022年底,我国有13个城市正在建设市域轨道交通,其线路总长达984km;规划的市域轨道交通线路约为1892km,相较于铁路和地铁,我国的市域轨道交通正处在起步阶段。一个新生事物的出现和发展必然会伴随这样那样的争论和争议,这也是事物发展的客观规律。因此,在发展初期,研究探索并解决好“市域轨道交通姓什么”的问题,对于统筹谋划、科学建设市域轨道交通具有重要的现实意义。

市域轨道交通一头与干线铁路或城际铁路连接,一头与地铁等城市轨道交通连接,在“四网融合”中发挥了两头衔接的作用。市域轨道交通介于二者之间,但又别于二者;也正是由于其介于二者之间,并刚刚起步,常常有上靠铁路、下仿地铁之嫌,还存在着简单套用铁路或地铁标准来规划建设市域轨道交通的现象。市域轨道交通到底该姓什么?我们认为,应该从需求出发准确定位,要明确它既不是铁路,也不是地铁,而是在城镇化新发展阶段出现的新需求和新型式,它是综合运输体系中“四网融合”的重要组成部分,有其自身独有的特点。

市域轨道交通不同于铁路和城市轨道交通,这是由需求决定的,市域轨道交通兼具二者的优势,这是由其定位决定的。具体说有以下几个特点:一是旅行速度要快过地铁。现在地铁最高时速80km,由于其平均站间距在1km左右,平均旅行速度只有35km/h,而市域轨道交通的站间距远大于1km,其最高速度可以接近普速铁路,因此要突出市域轨道交通的速度优势,只有速度提上去了才能与私家车竞争。二是运行方式要向铁路靠拢。市域轨道交通因为发车间隔比地铁大,站间距比地铁长,加上大部分敷设在地面和高架上,线路上更有条件实现跨线和越站运行,行车组织方式上也更有条件开行快慢车,这将大大方便乘客,提高市域轨道交通的竞争力。三是要公交化运营。目前,铁路运营是实名制,预售票;城市轨道交通则采用公交化运营。市域轨道交通主要承接新城或县城与中心城之间的通勤需求,要保证必要的公交化运营服务,以吸引客流,方便乘客。相应市域轨道交通的运营主体也要独立或由城市轨道交通企业担任。四是要有效降低造价。市域轨道交通线路地处城市郊区,敷设方式要减少地下,或者利用既有铁路改造也是很好的方案,以降低造价。市域线路经由待开发地区,可以加密车站,一方面可以促进沿线土地的开发,一方面也可以增加客流。五是要做好衔接。“四网融合”是一个客运体系,发挥体系中每个部分的作用尤为重要,关键是要做好各部分之间的衔接,以最大程度提高便捷性和效率,方便乘客。因此在市域轨道交通规划设计过程中一定要有融合的理念,方便市域轨道交通与铁路和地铁的换乘,强化站点周边的公交配套。

老百姓出行不关心某一段路程的最高速度,最关心的是出行需花费的全程时间,全程距离与全程时间之比,我们称之为“旅行速度”。所以,市域轨道交通的旅行速度一定要快。而旅行速度是由多个环节共同决定的,比如减少停站时间、提高发车密度、开行快慢车等,这是一项系统工程,其总体目标就是我们常说的“提高综合运输效率”。因此,要把缩短乘客出行的全程时间、提高综合运输效率作为我们的终极目标和衡量标准,所有的规划设计、建设运营,以及智能智慧发展、科技创新应用都应该围绕这个目标展开。

总之,我国市域轨道交通正处于发展初期,实践过程中还会出现诸如票价、客流、造价等方面的问题。解决这些问题也只能在实践中去完成,需要我们本着实事求是的态度,以科学的精神,根据每条线路的具体情况和在线网中的地位与作用统筹考虑,综合施策。我相信,随着市域轨道交通的探索和实践,各地一定会通过实践拿出好的解决办法,从而实现市域轨道交通的高质量发展。



What Characterizes City Rail Transit

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Currently, China's urbanization is entering the new stage of constructing and developing metropolitan circles and urban clusters. Building metropolitan circles on rail and the '1-hour metropolitan circle' demand the integration of trunk railways, intercity railways, city rail transit, and urban rail transit to forge the 'four-network integration', which is expected to significantly boost the development of city rail transit. From a structural perspective of formats, China's operating railway lines have exceeded 150 000 km, and urban rail transit has surpassed 10 000 km, in-between the two networks of which, extensive space for development potential is reserved for intercity railway and for city rail transit especially. As a result, whether in the light of overall development environment or available development space, the advancement of city rail transit progresses in a natural fashion.

According to statistics from the China Association of Metros, by the end of 2022, 13 cities in China are constructing city rail transit with a total length of 984 km. The planned city rail transit routes are approximately 1 892 km in total. In comparison to railways and metros, China's city rail transit is still in its early stages. The emergence and development of a new entity inevitably accompany various debates and controversies, which is an objective law when it comes to the evolution of matters. Therefore, during these initial stages, researching, exploring, and addressing the question of 'what characterizes city rail transit' holds significant practical implications for the comprehensive planning and scientific construction of city rail transit.

City rail transit connects at one end with trunk railways or intercity railways and at the other end with urban rail transit systems like metros, playing a crucial role in the 'four-network integration.' Positioned between these two systems, city rail transit is distinct from both. Due to its intermediate nature and recent emergence, it is often criticized for resembling a railway on the upper end and imitating a metro on the lower end. There is also a tendency to simplify the planning and construction of city rail transit by directly applying railway or metro standards. What should the true identity of city rail transit be? It shall be acknowledged that stemming from demands is essential for accurate positioning, with clarification that city rail transit is neither a railway nor a metro; instead, it represents a new demand and form emerging in the new development stage of urbanization. It is an integral part of the 'four-network integration' in comprehensive transportation system, possessing unique features.

City rail transit differs from both railways and urban rail transit, a distinction driven by specific demands. City rail transit combines the advantages of both, a characteristic rooted in its designated role. Specifically speaking, the notable features include: First, higher operating speeds than metro. Currently, metro speeds cap at around 80 km/h, however, due to the average station intervals of approximately 1 km, the average operating speed is only 35 km/h; while city rail transit has station intervals extensively exceeding 1 km, which allows for the highest speeds to approach those of normal speed railways. As a matter of fact, only by elevating speed can city rail transit outcompete private cars, therefore this speed advantage must be emphasized. Second, alignment of operating practices with railways. With longer intervals between train departures and stations than metro, coupled with a significant portion of the infrastructure at ground level or elevated, city rail transit has the conditions to facilitate cross-line and station-overtaking operation, and the operation organization method provides sufficient conditions for express/local services, which significantly enhances passenger convenience and city rail transit competitiveness. Third, public transport-oriented operation. At the moment, railway operation adopts ID-based pre-sale ticket system while urban rail transit adopts public transport-oriented operation. City rail transit is mainly catering to the commuting demands between new towns or suburban areas and central cities. Implementing necessary public transport-oriented services is essential to attract passenger flows and ensure passenger convenience. The operational entity for city rail transit should be independent or managed by urban rail transit enterprises. Fourth, cost-effective construction. As city rail transit lines are situated in suburban areas, construction methods should minimize underground work. Leveraging existing railways for transformation is also a viable solution to reduce costs. By routing through developing areas, station density can be increased, fostering local land development and boosting passenger volume. Fifth, seamless interchange. The 'four-network integration' is a passenger transportation system, and exerting the effectiveness of each systematic compositional part is particularly important, the key to which is the interchange in-between to maximize convenience, efficiency and experience for passengers. Therefore, planning and designing city rail transit should prioritize the concept of integration, facilitating the smooth interchange between city rail transit and railways or metros, while strengthening public transport auxiliary facilities around stations.

Passengers are not concerned with the maximum speed on a specific segment, but the time spent for the entire distance. The ratio of the total distance to the total time is termed 'operating speed.' Consequently, the operating speed of city rail transit must be fast. Operating speed is jointly decided by various links along the journey, including station dwell time reduction, train frequency increase, and express/local service availability. This constitutes a systematic engineering with the overall goal of the so-called 'enhancing comprehensive transportation efficiency'. Hence, shortening the total travel time for passengers and improving comprehensive transportation efficiency should be our ultimate goal and benchmark for standards. All planning, design, construction, operation, as well as the intelligent and innovative development and technological applications, should revolve around this objective.

In summary, city rail transit in China is in its early stages of development, and challenges related to aspects such as ticket prices, passenger flow, and construction costs may keep emerging in the practical process, simultaneously, only practical experience can take them on and offer the solutions. It requires a pragmatic attitude and a scientific mindset, through considering the specific circumstances of each line and its role in the overall network, to implement strategies holistically. I believe that with continued exploration and practice in city rail transit, regions will find effective solutions through practical experience, ultimately achieving high-quality development for city rail transit.

(Translated by ZHANG Liman)