



BON VIEW PUBLISHING

Journal of Global Humanities and Social Sciences

Journal homepage: <http://www.bonviewpress.com/journals/5.html>



Correlation Analysis between Rail Transit Network Planning and Urban Development

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Abstract: At present, the economy of most cities in China is developing continuously, the total population of cities and the number of cars are rising rapidly, and the travel tools show a diversified trend. The formation of urban rail transit has created convenient conditions for most people to travel daily. The overall design and planning of rail transit network are closely related to the development of the city. If we want to promote the development of the city, we should make full use of the planning work of rail transit network to enhance the rationality of rail transit network planning. Promote the development and progress of the city. In this regard This paper first analyzes the main points of rail transit network planning, then introduces the construction of rail transit network, and finally explains the correlation between rail transit network planning and urban development.

Key words: rail transit network planning; urban development; relevance

In recent years, the problem of urban traffic congestion in China has gradually become serious. Rail transit has some advantages, such as fast speed and large capacity. At present, rail transit has become the key content of most urban infrastructure construction. It can effectively solve some traffic

<https://doi.org/10.47852/bonviewGHSS2021010107>

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problems in cities and use urban land resources more reasonably. However, rail transit network is a kind of transportation infrastructure that needs permanent use and can not be changed at will after construction. Therefore, in the process of planning rail transit network, we should fully understand the surrounding land development form. According to the actual land development form, carry out scientific and reasonable rail transit network planning.

I. Analysis on the Main Points of Rail Transit Network Planning

A. Principles of planning

In order to create conditions for the arrangement of various modes of transportation and the rational and scientific division of labor, the objectives of regional economic and social development should be promoted. The planning rail transit network should make full use of the connection with the main urban areas in a certain area, and then meet the various passenger transport requirements and needs along the surrounding line. Focusing on people-oriented planning work to better meet the traffic requirements of people living in urban areas, urban rail transit and other transportation modes should strengthen the connection to meet the travel needs of people travelling far or near, Provide it with rich travel plan ^[1].

B. Network layout

The Beijing area, Tianjin area and Bohai Rim area are located in the center of our country, and a relatively high level urban traffic network is established around Beijing area. According to the different development strategies of the urban area, the Beijing area and Tianjin area mainly carry out railway transportation around Beijing area, while Shijiazhuang area and Qinhuangdao area assist Beijing area, Tianjin area and some surrounding areas to carry out railway transportation. The Yangtze River Delta region around Hangzhou, Shanghai and Hangzhou and other areas to establish urban traffic network. According to the various development strategies of the urban area, the urban rail transit network is carried out around the Shanghai area, and the Huning Expressway is used as the auxiliary construction, which involves most of the key cities in the region. At present, the Pearl River Delta region is in the internal development trend, the population is relatively large, the land resources are relatively small, the environmental pressure is increasing, and the transportation infrastructure is very backward. According to the various development strategies of urban areas, long-distance rail transit is mainly built around the Guangzhou area, which involves most of the key cities in the region, and connects Hong Kong and

Macao together. Established the Guangzhou circle with hours as the basis.

C. Equipment level

In the process of building urban rail transit, the relevant staff should actively use all kinds of advanced technology and actively innovate all kinds of technology, with the help of these technologies to promote the continuous progress of intercity rail transit equipment in China. Generally speaking, mobile reserves and locomotives should be based on EMU and speed greater than or equal to 200 kilometers. In this process to achieve independent innovation, promote production research and development level and production level progress. In order to better meet the goal of long-distance railway safe and fast transportation, it is necessary to continuously improve the level of bridge lines and other technologies^[2].

II. Information on the construction of rail transit network

Referring to the construction process of urban rail transit network, it is necessary to analyze the development of the city. Specifically, urban rail transit has experienced three different stages:

A. Initial phase

In the early stage of urban development, people's daily travel is mainly by means of buses, bicycles and other means of transportation. In the early stage of urban development, rail transit has not been built, mainly due to the lack of advanced construction technology, and the relatively small scale of the city, the population is not large, and the number of population movements is relatively small. Bicycles and other existing means of transportation can meet people's daily travel needs. In addition, it can also meet the requirements of travel comfort, lack of a certain understanding of the novel rail transit network, do not establish the corresponding concept, it is generally believed that there is no need to build rail transit in the process of urban development.

B. Medium-term phase

In the middle stage of urban development, some of the big cities gradually realize the importance of building rail transit network. Some cities, such as Beijing, where the economy is developing faster, the population is more mobile and the population is more dense, the number of foreign people is increasing, and the number of private cars is rising greatly. These phenomena have increased traffic pressure and made traffic congestion more serious. In the early planning work, many cities did not take a longer-term view, lack of long-term planning, so that many roads can not be widened or widened to

take a lot of time and energy. At the same time, the concept of rail transit provides a new solution to the problem of urban traffic congestion. Because rail transit mainly occupies underground space, on the one hand, it can save the cost and time of widening urban roads. On the other hand, it can make full use of underground space^[3].

C. Late stage

In the later stage, most cities began to imitate the construction of rail transit network, but in the construction of urban rail transit network needs to consider how to plan rail transit network. Because the planning situation of each different city is different at the present stage, and their subsequent development scale is also quite different, in the face of this characteristic, in the process of planning the rail transit network, We should complete the design work more carefully and promote the future development of the city.

III. Correlation between rail transit network planning and urban development

It is very important and complex to carry out the planning work of rail transit network. According to the actual situation at the present stage, it is necessary to help the city to relieve the greater traffic pressure and to take into account the relationship between network planning and urban planning. It can be said that if there are unreasonable places in the network planning, it will bring some adverse effects to the urban development. Therefore, it is very important to carry out the planning work of rail transit network reasonably. Urban rail transit planning types can be divided into four types. The first is radial, this type of rail network is mainly to select the central or important position in the city and the residential area as the origin, in this area through the form of ray diffusion rail network, Ensure that the network can reach every corner of the city. The second is ring type, this type of rail transit network is mainly around the center of the city, through a circle of ring diffusion, each ring can become a whole, strictly control the traffic situation in each ring itself, And each ring does not affect each other. The third is grid type, this type of rail transit network is interlaced, the network will extend in four different directions at the same time, and there is an intersection between each existing line, like a chessboard, so it is called grid type. Fourth is mixed type, this type of rail transit network is to combine the above types of^[4].

A. Rail transit network planning will have a direct impact on the development of urban traffic

The most direct impact of rail transit network planning on urban development is the impact of

traffic. Although planning urban rail transit network requires the use of underground space, a large number of stations will be established in the rail transit network system. There are stations can not be separated from the exit and entrance. For example, the city center of a city has a large flow of people and serious traffic congestion, because the urban central road can not be expanded, it is necessary to carry out rail transit network planning and construction, and the first form of network planning is radioactive. This form of network planning can, on the surface, quickly transport people from the central area of the city to various locations, but because the radiation network form needs to start at a fixed point, This will suddenly increase the number of people in a certain location, bring serious traffic congestion to a certain location, and seriously lead to traffic paralysis. From a long-term point of view, the circular line or grid network planning form can be used for the city. Even if the reconstruction of the urban center is carried out in the future, it can also effectively promote the of urban development ^[5].

B. Urban rail transit network planning will have an impact on the subsequent urban planning model

At present, most cities begin to build rail transit, rail transit network as a long time in the underground space of this city transportation mode, need to ensure the rationality of rail transit network planning. Because the rail transit network planning work is a large amount of engineering, time and energy of the project type, once it is actually built, if the subsequent need to change the rail transit network, then it will be more difficult. Therefore, in the process of planning for rail transit network, we should consider the long-term development plan of the city. If the long-term development of the city is ignored in the process of planning, it will lead to the development of the city away from the planned track. For example, a regional follow-up may become a commercial center of the city, but in the process of planning the rail transit network, the bypass is chosen, and the follow-up can not be solved by adding lines. The future development space of the region will be limited and even the suitability of the region as a commercial center will be studied, which will adversely affect the subsequent development of the city to some extent.

C. Urban traffic network planning will have a direct impact on urban economy

Rail transit has gradually become a preferred tool in people's daily travel, mainly because it has various advantages, such as fast, so rail transit line planning and station planning work is particularly important. For most people, the main purpose of travel is to work, in addition, people will also travel for shopping. If the traffic track can be built directly to large supermarkets, shopping centers and

other places, then people can choose to shop closer to themselves. The existence of this situation can effectively promote the ^[6] of urban economic progress.

IV. Conclusion

According to the actual situation of most cities at present, many cities have gradually begun to attach importance to rail transit, which also occupies a very important position in urban development, especially the rational and scientific planning of rail transit network. It plays a very important role in the long-term development of the city. Therefore, in the process of planning the urban rail transit network, the relevant staff should take into account the correlation between it and urban development, and promote the subsequent development of the city with the help of the planning work of the urban rail transit network.

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