

Analysis of Urban Road Engineering Design

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Abstract: The urban road engineering design of the system is strong, difficult, technical details and complicated, and directly affect the project cost, so it is one of the key links in road construction. But in view of the current situation, China's urban road engineering design work still exist design unreasonable, do not pay attention to traffic analysis, horizontal and vertical section design is not perfect, and some shortcomings, if not very good solve the, is bound to the urban road and landscape function is affected by a certain degree of. This paper briefly introduces the design points of urban road engineering, and the problems in the design work and the corresponding countermeasures are discussed.

Keywords: Road engineering; Road engineering design; Road design; Highway engineering

1. Introduction

Road is the city's blood vessels, road engineering design is not only related to the quality of transportation can be carried out smoothly, also reflects the level and level of a city. With the continuous deepening of reform and opening up, China's urbanization level is getting higher and higher, and the construction of road engineering is also in the process of instability. As a kind of work with strong system, road engineering design involves many contents of transportation, public facilities laying, greening and urban landscape construction, so before the start of the design, design personnel in addition to exploration on construction sites, but also pay attention to the combined with the actual situation of city, in order to select the most reasonable design scheme.

With the acceleration of urbanization process, most of the cities in China have entered the stage of rapid development, as the blood vessels of the city - way, to support the normal operation of the city and promote the rapid development of the city plays a more and more important role. Because of the increasing traffic volume, many cities in the active construction of new roads are also at the same time to carry out the transformation of the existing road, which is the old and new roads, new and old road network convergence put forward higher requirements. Therefore, design personnel to establish a striving for excellence concept, in the work of in-depth study, actively explore, bold innovation, better to complete the road design to urban development to make its own contribution.

2. Design Points of Road Engineering

2.1. To reflect the functional characteristics of the road

In the modern city, the road is not only a means of transport, in addition to traffic, it also both living and touring, so designers must pay attention to reflect the functional characteristics of the road in the design, so that the road can play a greater role in the use of the road.

2.2. Highlight the characteristics of the city

With the accelerated pace of economic globalization, all countries in the world have a crisis of urban characteristics, most of the city is gradually lose their own characteristics and tend to be consistent, which also brings a global cultural issues. The level of living is not improved so that the people's demand for spiritual life has gradually developed to the direction of diversification, which also includes the individual needs of the image of the city. Therefore the design personnel in road engineering design should respect the city's history, culture and natural terrain conditions, pay attention to shaping the image of the city as a whole. It can not only highlight the local characteristics, but also in a certain extent to reduce the cost of the project.

3. Problems and Countermeasures in the Road Engineering Design at the Present Stage

3.1. Design ideas is not reasonable

At this stage, many cities in China for reasonable planning of road network did not give enough attention, the blind pursuit of road construction to meet the needs of the future development of the city and not from the point of view of the urban road network equilibrium to consider Comrade Road grade, density and width of the standard, in the form of a cross section of the road is also mainly three boards and four boards, so that a lot of cities in the

10 lane, 150m wide road. This design from the surface, pedestrians, motor vehicles, non motor vehicle prevails, both to ensure the smooth traffic and also improves the security, but it also means pedestrians, motor vehicles, non motor vehicles are no longer have priority and congestion often occurs in many big cities of our country of the central area and the business district is the design to bring the consequences. For a long time, most of the cities in China in road construction will funds to focus on the main road and overpass, and through the branches often because of the shortage of funds and other reasons unable to form and improve the network system, in this way, the main road to withstand the pressure doubled, not only increased the mutual interference between the intersection of vehicles, but also to ensure traffic safety. In view of this situation, designers in the design must starting from a macro point of view, pay attention to the road network planning, the actual demand of driving safety and urban, as a prerequisite for design, over the pursuit of meet in the city the future development of the road, so that there is the main road, and ultimately the formation of a scientific and perfect road traffic system. With the acceleration of urbanization process, most of the cities in China have entered the stage of rapid development, as the blood vessels of the city - way, to support the normal operation of the city and promote the rapid development of the city plays a more and more important role. Because of the increasing traffic volume, many cities in the active construction of new roads are also at the same time to carry out the transformation of the existing road, which is the old and new roads, new and old road network convergence put forward higher requirements. Therefore, design personnel to establish a striving for excellence concept, in the work of in-depth study, actively explore, bold innovation, better to complete the road design to urban development to make its own contribution.

3.2. Do not pay attention to traffic analysis

Traffic analysis mainly includes the systematic planning of flow, flow direction, vehicle speed, vehicle composition, road network and so on, is an important part of road engineering design. But in practical work, there are a lot of design are lack of scientific and normative, design personnel for various reasons did not in accordance with the owners of units in the serious and detailed of analysis of traffic, or is at the end of the engineering design to refer to previous engineering survey data written investigation report, this phenomenon occurs both in the construction of the low grade road, also exists in the design of urban roads.

3.3. Cross sectional design is not perfect

First is the width of the motor vehicle lane width. Motor vehicle lanes occupy a large cross-section of the road

Part of the width of the selection is the main content of cross section design. But in most cities of our country road engineering design specifications for road width is much higher than the limit of the level, some areas even exceed the design requirements of the highway. Followed by a total of pedestrians and non motor vehicle. Pedestrian and non motorized vehicle means that the sidewalk and non motorized vehicle lane will be in the same plane, because the design reflects the concept of ecological design, so it is widely used in urban road engineering design. This will not only reduce the cost of the project, but also to achieve the rational use of urban space, but also conducive to traffic safety.

3.4. Longitudinal section design is not perfect

The design of longitudinal section of road engineering has a direct impact on the beauty of the road, road comfort and drainage effect. In practical work, because many cities flat terrain can not meet the drainage requirements of the road, so a lot of designers to ensure the smooth drainage of the road can be designed by the slope of the longitudinal slope, which will certainly play a certain effect, but it is a serious violation of the relevant provisions of the "urban road design code". So designers in this part of the design, by setting zigzag Street gutter, encryption gully and increase the road arch transverse slope of the measures to solve the problem of road drainage, and in violation of the relevant provisions of the state and to ensure the coordination of the roads and the surrounding buildings.

3.5. Did not take into account the landscape design

In most urban road design, designers are concerned about the safety of the road, durability and how to meet the requirements of the development of urban traffic in the future, but ignored the road landscape design. With the continuous improvement of people's living standards, people's living environment requirements are constantly improving, the road project is an important part of the city. In the road engineering landscape design, the first is to respect the history of the city. Second is to pay attention to sustainable development. The last is to pay attention to the integrity of the landscape design.

With the acceleration of urbanization process, most of the cities in China have entered the stage of rapid development, as the blood vessels of the city - way, to support the normal operation of the city and promote the rapid development of the city plays a more and more important role. Because of the increasing traffic volume, many cities in the active construction of new roads are also at the same time to carry out the transformation of the existing road, which is the old and new roads, new and old road network convergence put forward higher requirements. Therefore, design personnel to establish a striving for excellence concept, in the work of in-depth study, active-

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3.6. Did not do a good job in the pipeline comprehensive planning

With the continuous improvement of economic level, government departments for urban infrastructure investment increases gradually, all kinds of pipeline of urban road pavement increasing, but due to the influence of various factors, the design of urban road often do not can be synchronized with the design of municipal pipelines, which led to a wide range of urban roads two excavation phenomenon, not only a waste of national resources, but also to the people's daily lives to bring a lot of inconvenience. Therefore, it has become the main content of the daily work of the relevant departments to strengthen the comprehensive planning of urban roads and pipelines. First of all, is to strengthen urban road design units and municipal infrastructure construction units of communication and contact, regardless of which side is the new construction or design task, to get in touch with each other to in future design work can try to be avoided. Followed by business training and other ways to change the concept of urban road design personnel, so that they really establish the concept of comprehensive planning, to avoid the past that only know how to design practice. The last is to complete the layout of the municipal pipeline through new methods, new ways to maximize the reduction of the new laying pipeline may cause damage to the road.

4. Conclusion

With the acceleration of urbanization process, most of the cities in China have entered the stage of rapid development, as the blood vessels of the city - way, to support the normal operation of the city and promote the rapid development of the city plays a more and more important role. Because of the increasing traffic volume, many cities in the active construction of new roads are also at the same time to carry out the transformation of the existing road, which is the old and new roads, new and old road network convergence put forward higher requirements. Therefore, design personnel to establish a striving for excellence concept, in the work of in-depth study, actively explore, bold innovation, better to complete the road design to urban development to make its own contribution.

References

- [1] Xiong Xiong. On road aesthetics[M]. Beijing: People's Communications Press, 2009,8.
- [2] Su Su. An introduction to the road and Bridge Engineering[M]. Beijing: People's communication press, 2009,4.
- [3] Zhang Road. Road survey and design[M]. Shanghai: Tongji University press, 2009,4.
- [4] You Xiaowei, Zhang Enjie, Zhang Zhang. Modern road traffic engineering[M]. Beijing: Tsinghua University Press LimitedCompany, 2008,9.
- [5] Wu Huai Huai. Road engineering[M]. Beijing: China Building Industry Press. 2008,9.