Current Situation and Development Trend of Urban Traffic Engineering Management

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Abstract. With the continuous progress of social civilization and the development of the times, the industrial economy and people's living conditions in various regions of China have changed with each passing day in recent years. Relevant state departments have also paid more attention to the transportation industry. As the core of economic development, urban transportation projects are more complex than those in township areas and have higher requirements for managers. With the improvement of people's quality of life, the modes of transportation have become diverse. To ensure that all parts of the city can be carried out in an orderly manner and provide people with more unobstructed transportation facilities, we should constantly keep up with the pace of development of the times and improve the urban traffic engineering management. In this paper, the author mainly analyzes the current situation of urban traffic engineering management, and puts forward a series of effective measures to promote the development of urban traffic management.

Keywords: Urban Traffic; Engineering Management; Development Trend.

1. Introduction

As we all know, economically prosperous cities also have more developed transportation equipment, and the management efficiency and quality of transportation system are higher. In this case, efficient traffic management has brought great help to people's daily travel and social and economic progress. The continuous expansion of urban scale and the increasing complexity of urban structure put forward higher requirements for traffic engineering management, and also brought great challenges to relevant staff. If we want to build a developed city, we must strengthen the continuous optimization of urban traffic engineering management quality. This paper mainly focuses on this point. Only with a clearer understanding of the problems of urban traffic engineering management can we make a certain contribution to urban development.

2. Analysis on the Significance of Promoting the Development of Urban Traffic Engineering Management

Looking at the continuous changes of transportation in the historical process of China, we can see the enhancement of national economic power, the progress of science and technology, and the overall improvement of people's comprehensive ability. In the current civilized society, cities are an important place for national economy, civilized development, industry and scientific and technological innovation. High quality and smooth traffic engineering management provides a guarantee for the effective connection between more industries. At the same time, the full application of various complex means of transportation also makes the social and economic benefits advance by leaps and bounds. With the improvement of people's economic ability, vehicles are used more and more frequently, which also brings a great test to the quality of traffic engineering. If there are some obstacles in traffic engineering that have not been solved in time, the traffic industry will not only affect the economic development of the city and society, but also pose a threat to people's safety in travel. It can be seen that only by strengthening the effective management of urban traffic engineering, doing a variety of security measures from a more comprehensive direction, and timely analyzing various hidden dangers, can we provide a reliable guarantee for the sustainable development of urban traffic industry in all regions of China and the safety of people in the process of travel.

At present, China is experiencing a rapid process of urbanization. It is expected that China's urban population will reach 50% by 2020. The urban traffic demand in Xianzhuang is growing continuously,

and the economic growth and income increase will stimulate the urban traffic demand in the future, resulting in the deterioration of environmental pollution, the increase of land consumption and urban traffic congestion. The development of urban social economy needs a safe, efficient, clean and economic urban transportation system; The improvement of urban residents' quality of life needs safe, convenient, comfortable, fast and low-cost public transport services; The improvement of urban environment needs traffic policies conducive to environmental improvement. Compared with its competitive mode, rail transit based transportation system has great technical advantages: large traffic volume, effective land use, low energy consumption per kilometer and environmental pollution. In addition, the development axis of rail transit can guide the change of urban form and help to realize the agglomeration benefits of Commerce and trade. It is an inevitable choice for the traffic development of mega cities.

Through the comparative analysis of rail transit and several other common travel modes, we find that compared with buses, private cars, bicycles and other public transport tools, rapid rail transit has unique advantages such as large traffic volume, low pollution, low noise, low energy consumption, high speed, low cost, less land occupation, comfort and all-weather, It is irreplaceable by other modes of transportation. In big cities, especially mega cities, we should build an integrated urban transportation system with rail transit as the backbone, so as to solve the problem of urban traffic congestion and provide guarantee for the sustainable development of the city. Rail transit not only provides efficient and high-quality bus travel services, but also is an intensive mode of transportation, saving energy and land resources. The motorization process of big cities is accelerating, and the simple method of widening roads can no longer solve the urban traffic problems. After all, the utilization capacity of bus lanes is limited. The ground traffic supply available from the land resources in the central business district is gradually being exhausted. Use and develop valuable underground space resources to provide new traffic supply, so as to alleviate the shortage of ground space resources Support the development of the city.

Subway, light rail, suburban railway and other rail transit modes have obvious advantages over ordinary means of transportation in terms of single channel width, capacity, transportation speed, unit dynamic floor area and other indicators. Environment is a problem of great concern in modern society. Because urban rail transit generally adopts electric traction and large volume and centralized transportation, the pollution generated by each passenger is much lower than that of other transportation modes.

Because the rail transit system is fast, punctual and comfortable, passengers will be more willing to take it, and will attract the original cars, bicycles and pedestrians, so as to improve the passenger volume. In particular, if we can strive for passengers taking private cars, it will alleviate the pressure on the environment caused by road traffic, such as noise, exhaust emission and road land, improve road safety, and help reduce the traffic pressure in the city center without damaging the flow of people. Vigorously developing rail transit is of great significance for improving urban structure, solving economic and social contradictions faced in urban development and realizing sustainable development strategy. Compared with the transportation mode, the advantages of rail transit system are mainly reflected in the following aspects:

(1) Improve the urban environment. Replacing public electric vehicles with rail transit has become the first choice for public commuting tools. Reducing the number of cars and buses running in the city center will greatly reduce the emission of automobile exhaust in urban areas and improve air quality. Foreign studies show that the carbon dioxide emission per unit transportation volume of rail transit is only 10% of that of cars and 25% of that of buses;

(2) Greatly alleviate traffic congestion. Rail transit is also a means of transportation with large traffic volume. The passenger volume undertaken by rail transit in many large foreign cities accounts for - half or even more than 80% of the total passenger volume. The one-way transportation capacity of subway is 30000-60000 person times per hour, that of light rail is 20000-25000 person times, and that of public electric vehicles is 2000-5000 person times.

- (3) The safety of rail transit is several times higher than that of cars and buses;
- (4) Convenient and fast rail transit system will improve the mobility and mobility of citizens;
- (5) The improvement of traffic accessibility will inevitably increase the land price of cities along the line and improve the development value of properties and real estate along the line;
- (6) Drive the transformation of old cities and the development of new urban areas along the rail transit. Because rail transit can provide fast and low-cost tools for medium and long-distance commuting, urban residents will spread to the suburbs along the rail line;
- (7) The construction, operation and maintenance of rail transit system will stimulate domestic demand and create new jobs;
- (8) The development axis of rail transit helps to realize the aggregation effect of Commerce and trade, change the urban form, rationalize the distribution of resources, and promote the upgrading of industrial structure and consumption structure.

The benefits of urban rail transit system are mainly reflected in its huge social benefits, which can be estimated from both direct and indirect aspects.

(1) Direct benefits. The direct benefit can be measured by the factor of time value. Citizens save time by taking fast and punctual urban rail transit vehicles. Time is valuable, and saving time is equal to increasing income; Its direct economic benefit is Σ (number of users, income, time saved / standard labor time)

(2) Indirect benefits. This is the part where it is difficult to calculate the social benefits generated by rail transit. Because rail transit has the characteristics of convenience, large passenger flow and environmental protection, for example, the real estate in the stations of urban rail transit system and the surrounding areas along the line will inevitably increase in value. A considerable proportion of the real estate value-added, such as 1 / 4, should be regarded as the indirect benefits of urban rail transit system; For another example, the reduced environmental protection cost due to the environmental protection characteristics of the rail transit system should also be regarded as the indirect economic effect of the rail transit system.

3. Public Transport

Urban traffic problem is a worldwide problem perplexing modern big cities. At present, with the rapid development of China's automobile industry and the surging wave of automobile, urban traffic is facing unprecedented pressure and contradictions. All sessions of society strongly call for improving urban traffic conditions. Building a smooth and efficient modern transportation system has become an important task of the city government.

The area of the main urban areas of many cities is developing rapidly, and the urban traffic flow is highly concentrated in a highly intensive area. In addition, the number of urban motor vehicles has maintained a growth rate of about 20% in recent years, and the road construction lacks systematic and scientific planning. These problems make the structural contradiction of urban traffic increasingly prominent, and the traffic congestion in the central area is serious. During the rush hour, nearly 80% of the intersections of the main roads in the central area of the city are congested, and the driving speed is only about 10 kilometers per hour.

Cities can never provide road space to meet the needs of car traffic. Excessive car traffic not only leads to traffic congestion, but also encroaches on sidewalks, bicycle lanes and even public space, which seriously affects the environment and human settlement quality. The overall goal of urban transportation is people-oriented and realize the flow of people and things at the least cost and in a convenient way. At the same time, the adverse impact of transportation on the social environment and public health should be minimized. Therefore, priority should be given to the development of public transportation. The suggestions of experts and scholars coincide with the basic principle of "people-oriented and bus priority" in Kunming traffic planning. The importance of public transport in urban transport: the scarce urban transport space-time resources can be allocated more reasonably and fairly; The efficiency and service level of public transport have been significantly improved, and

the operating cost of public transport has been reduced; The traffic volume along the special road has been reduced, and the traffic pollution has been reduced; It has improved the traffic quality of the public, especially the low-income people, and reflected the respect and care for people; The government's public transport priority policy has been widely accepted in all aspects. The roads taken by most developed countries have proved this. The growth rate of roads cannot keep up with the growth rate of cars. The United States is a typical "city on wheels", and now New York has changed to bus (60% by bus) after this detour. Urban traffic has entered a period of rapid motorization, which has experienced and is undergoing this process.

Developed countries and developing countries have shown us their experiences and lessons, failures and successes, and also put forward useful suggestions for traffic development, which is undoubtedly worthy of serious consideration and reference for urban traffic in confusion. Public transportation is an intensive transportation mode, which can provide the maximum effective transportation efficiency with the least space resources. If BRT (Urban Rapid Transit System) or rail transit is adopted for the space of the same scale, its transportation efficiency is 10-50 times that of the small bus lane. In other words, the construction of BRT or rail transit is equivalent to the construction of 10-50 motorways. On the other hand, with the development of public transport technology, the quality of modern public transport has been able to meet the modern living standard, and the surrounding of large-capacity bus stops often become the focus of real estate development, gathering rich, colorful and high-quality urban activities.

BRT (Bus Rapid Transit) is a new operation system between rail transit and conventional public transport. It uses modern public transport technology to cooperate with the operation and management of intelligent transportation to make the traditional public transport system basically reach the service level of rail transit. Its investment and operation cost are lower than rail transit and close to conventional public transport. As an advanced technology to effectively solve urban transportation contradictions in the world, BRT has not only economic rationality better than rail transit, but also sufficient capacity and efficiency. It is especially suitable for big cities in developing countries. A dedicated bus road network is planned, which can provide public transport services for more than 75% of the urban central area.

In the mixed traffic environment, China has the technology and means to realize public transport priority and create a bus lane mode with Chinese characteristics. However, compared with the internationally advanced BRT system, other components of modern BRT, such as network structure, vehicle quality and selection, stations and yards, operation dispatching, bus ticket system, passenger service system, etc., are still at a low technical level. It is precisely for the above reasons that the service level, efficiency and role of bus lanes in China in urban transportation system have not reached the expected goals of the government and the public. In addition, some social groups have begun to question the government's "bus priority" strategy due to the great pressure of rapid prototyping on urban transportation in recent years. Therefore, whether a real BRT can be built and the service level and travel proportion of public transport can be raised to the level recognized by the society will have a strategic impact on the urban traffic development of Kunming.

4. Analysis on the Main Problems Existing in China's Urban Traffic Engineering Management

Nowadays, there are all kinds of public transportation in most cities. These means of transportation provide guarantee for people's daily travel, including but not limited to buses, taxis, shared bicycles, etc. Although these public transportation tools can save material and energy, they also make people's travel more convenient at some times. However, as the main place of economic development, cities have more and more people living with the development of social times, and the use frequency of public transportation equipment increases, which will lead to some problems of transportation equipment. This kind of public transport equipment is not innovated in time, and various problems lag behind. It is the biggest influencing factor in urban traffic engineering management.

Due to the complex structure of various buildings and necessary facilities in the city, there are many kinds of traffic forms, which brings great difficulty to the traffic engineering management. The management planning made by the staff when strengthening the management of traffic engineering is generally difficult to take into account all-round influencing factors, which makes the management measures unscientific and the management effect unsatisfactory. For example, due to the intricate traffic roads in the city, it is difficult for managers to ensure that all residents strictly abide by traffic rules. Illegal parking of vehicles emerges one after another, increasing the probability of traffic accidents, but this phenomenon is difficult to stop. Under the provisions of relevant policies, combined with the lack of foresight management planning, people will not be able to improve the current situation of urban traffic engineering management while consuming a lot of human, material and financial resources. With the rapid development of new science and technology, the application of intelligent management mode has become a development direction, but this part has not been widely used and promoted in China's urban traffic engineering management.

In recent years, the traffic form of most cities in China has developed rapidly. The rise of quality of life has led to a sharp increase in the number of private cars, which brings great difficulties to traffic engineering management. At the same time, this phenomenon makes the urban traffic development lose the original balance, and more and more problems appear in the management, which brings more workload to the traffic managers. However, the work arrangement and post division of managers make it difficult for them to deal with this traffic situation temporarily, which restricts the sustainable development of urban traffic.

The completion of any work must depend on policy executors, but it is also inseparable from policy makers. For the management of urban traffic engineering, due to the complex types of staff and diverse sources, some staff will practice favoritism and fraud, resulting in omissions in traffic management and causing harm to the traffic industry in the future. The formation of this problem is attributed to the imperfect supervision mechanism of urban traffic engineering management. When formulating relevant supervision mechanisms and policies, it may not be considered comprehensively enough to give some illegal people a trace, which seriously endangers the long-term development of traffic engineering management and runs counter to the principle of "fairness and justice" advocated by the state. Therefore, for these problems mentioned above, on the basis of full understanding and timely analysis, only scientific and effective measures can be taken to prepare for the innovation of China's urban transportation industry.

5. Strengthen the Quality Management of Urban Traffic Engineering

Research on efficiency strategy in the internal and external development of the city, traffic engineering and traffic equipment have brought a great driving force to enhance its economic benefits. People's daily travel, work and tourism are inseparable from transportation. With the development of the times, the problem of urban traffic engineering management is becoming more and more obvious. Therefore, only after clarifying these problems, combined with the current needs of people and the rational use of innovative technology, can we formulate perfect and scientific strategies to better improve the quality of urban traffic engineering management.

Innovative public transport is a form of transport with large consumption and great demand for quality and quantity in the city. In strengthening urban traffic engineering management, the most important thing is to start with the innovation and optimization of public transport equipment. The vigorous promotion of the concept of green environmental protection requires us to replace the existing public transport equipment with high energy consumption in combination with the characteristics of "environmental protection". At the same time, the limitation of urban land area makes the storage of public transport equipment a big problem. On the basis of not affecting people's life and work and the development of other industries, we should make rational use of urban land to store such public transport equipment. In addition, various problems that may occur during storage and normal driving shall be considered, and modern science and technology shall be introduced to

provide safe and efficient guarantee for the normal travel of public transport. In addition, we should also actively encourage citizens to travel by public transport, so as to lay a good foundation for improving the efficiency of traffic engineering management.

The complexity of urban traffic is the fundamental factor causing various traffic problems. Due to people's different ideas, interests and habits, daily travel has a variety of requirements for the choice of vehicles and roads. It is precisely because of this that a variety of new problems will be constantly triggered in the urban traffic engineering management. Therefore, we must follow the changes of the times and the development and innovation of transportation tools, and constantly standardize the urban traffic engineering management. For example, we should "reform" the original traffic management system in combination with the existing main traffic problems. At the same time, the vertical and horizontal distribution of roads should be designed scientifically to ensure the improvement of urban traffic safety performance. In addition, a reward and punishment system should be formulated to require and encourage people to supervise each other. Once illegal driving is found, the violators must be strictly dealt with in accordance with the regulations. When the urban traffic engineering management is paid more attention by the local relevant departments, people will start from themselves and contribute to the traffic engineering management, so that the management effect can develop in the direction we expect.

With the rapid development of Internet Science and technology and the R & D and innovation of various new equipment, China's urban traffic engineering management can also keep up with the development pace of the times and science and technology and make reasonable application of these technical equipment. Effectively integrate it with urban traffic management, making the management mode closer to intellectualization and modernization. In this way, it can not only save human, material and financial resources, but also make the effect of management more accurate and efficient. The rational application of technology and network can greatly promote the progress of traffic engineering management, so as to help build a civilized city and develop urban economy.

6. Conclusion

To sum up, transportation is an important driving force for the development of cities and even the country. In the development process of our country, the change of transportation form also symbolizes the strength of the country's comprehensive national strength to a certain extent. Therefore, only by strengthening the continuous improvement and optimization of urban traffic engineering management, timely analyzing various problems, making full use of modern technology and equipment, can we promote the improvement of urban traffic engineering management quality from a more comprehensive direction.

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