

Problems and Countermeasures of Expressway Maintenance Management

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ABSTRACT

With the epoch-making progress and prosperity of Highway Engineering in China, the development route of highway industry seems to be changing. This change tends to be technical and intelligent. To be sure, the construction of Expressway provides great convenience for the traffic of our society. It speeds up the pace of our traffic engineering progress^[1]. It also improves people's lives and work. However, everything has two sides. The construction of expressway has provided great help for our life. Its maintenance management is becoming an obstacle to its own progress. This situation requires the management department to find a highway maintenance system that adapts to the prosperity of the highway and meets the market demand as soon as possible.

Keywords: *Expressway, Maintenance, Management, Problems*

1. INTRODUCTION

Today, the prosperity and prosperity of road engineering has gradually affected the economic development of countries around the world. We can think that the economic situation of the country with relatively perfect road engineering construction is also considerable. As the second large-scale economic country with world-class economy, the progress of highway in China is advancing by leaps and bounds. In addition, China's land area is also very huge. On this basis, China is also the country with the longest total kilometers of expressways in the world. The prosperity of highway has also promoted the economic level of our country to a great level^[2].

To be sure, the progress of highway also drives the improvement of China's economic level and people's living standard. However, everything is a double-edged sword. There is no specific thing that has only advantages and no disadvantages. This is not a common-sense thing. For the highway, with the extension of the running time of vehicles on the road and the frequent occurrence of overloading phenomenon, many expressways have been destroyed. At present, the management of highway maintenance has become the main concern of highway engineering experts.

2. THE IMPORTANCE OF EXPRESSWAY MAINTENANCE MANAGEMENT

The relationship between highway construction and people's travel safety is very close. Nowadays, the

number of private cars is increasing gradually. Many people like to travel by car. Every legal holiday, the phenomenon of highway congestion appears frequently. On this basis, the phenomenon of highway damage will become more and more serious (see figure 1).



Figure 1. The smoothness of Expressway Pavement

2.1. Road maintenance can increase the smoothness of road maintenance

According to the explanation of the term, we can find that the highway refers to a kind of highway that can provide fast driving of vehicles^[3]. People can drive

very fast by telling the highway. It can shorten the time for people to get to their destination. However, because people are not familiar with the traffic rules, the phenomenon of vehicle overloading appears frequently. Heavy vehicles can crush the road. This situation will cause the uneven road surface of the highway. If people carry on the proper maintenance management to the highway, this kind of behavior will increase its traffic smooth operation.

2.2. Maintenance behavior can reduce the frequency of traffic accidents

According to incomplete statistics, the number of deaths due to traffic accidents is far higher than that due to diseases. This is a very terrible phenomenon. In the high-speed road section, people's traffic environment is very dangerous. According to the above description, we can know that the surface of the road without maintenance is uneven. If the vehicle passes this kind of road surface at super high speed, the frequency of traffic accidents will increase. Therefore, I think that proper maintenance of the highway can reduce the probability of traffic accidents.

2.3. Maintenance behavior can reduce the cost of highway construction

We know that the construction cost of highway engineering is very high. Although China's economic progress in recent years is considerable, we still need to avoid the waste of resources and funds. The vitality of each highway is limited. The bad behavior of vehicles will also cause the rapid damage of the highway. Through low-cost maintenance, we can make up for some road damage. If this kind of damage is allowed to happen without limit, the road cannot be repaired but can only be rebuilt. The money needed to rebuild the road is huge. Therefore, appropriate maintenance behavior can reduce the cost of highway construction.

3. THE EXISTING PROBLEMS OF HIGHWAY MAINTENANCE MANAGEMENT

The total kilometers of expressways in China are the most in the world. We are also proud and proud of it. Although this situation is a good start, its disadvantages are also reflected incisively and vividly. How to do a good job in the management of highway maintenance has become the main problem of current transportation. At present, we still have a lot of problems.

3.1. Drivers don't pay attention to traffic laws and regulations

The original intention of traffic regulations is to help people drive better on the highway. At the same time, it can also let the vehicle on the road in order to run. However, there are always some people who ignore the traffic laws of the highway. The phenomenon of overloading and wantonly rolling the repaired pavement occurs frequently. These phenomena make the implementation of highway maintenance management of traffic workers unable to achieve.

Table 1. Comparison between ordinary Expressway and expressway with maintenance

Option	Smoothness of road	Traffic accident rate	Maintenance cost
Ordinary Expressway	Bad	2%	Increased
Expressway with maintenance	Nice	1.1%	Gentle

3.2. Lack of highway maintenance concept of traffic managers

Everything needs maintenance. Flowers need maintenance to bloom more beautiful. Trees need maintenance to grow into millennium old trees. In the same way, highways need some maintenance. Through daily learning and a lot of reading, we can easily understand these ideas. However, many traffic managers can not understand the emergence of the concept of maintenance. They think the road is very strong. Some small losses can't destroy the road. In fact, there is no problem with this theory. However, the cumulative loss can also damage an entire highway. Therefore, I suggest that the road maintenance concept of traffic managers should be improved.

3.3. The lack of highway maintenance system

The management system of highway maintenance was first proposed by foreign scholars. Many years later, this concept was introduced by some experts in China. However, until now, the concept of conservation is still lacking in our cognition. This requires the relevant departments to set up a highway maintenance system. If people can follow the establishment of this system, the content of highway maintenance management can be improved.

4. ANALYSIS ON THE COUNTERMEASURES OF EXPRESSWAY MAINTENANCE MANAGEMENT

According to the above description, we can know that highway maintenance is very important. It will affect people's life and travel. Even it can determine the future direction of China's national economy.

4.1. The construction of complete Expressway Maintenance System

As we all know, system is a kind of criterion that can regulate people's behavior. A number of rules and regulations can make people of different classes abide by the common rules. A country without a system cannot be called a country with a national soul. The management system without system cannot be called scientific management. Therefore, in order to better maintain the highway, we need to establish a perfect maintenance system for people to comply with and adapt to. This system can set up the corresponding reward mechanism and punishment mechanism. These two mechanisms can help people better comply with the provisions of highway maintenance.

4.2. The behavior of mechanized maintenance is inevitable

China is a country with a large land area. The length of our highway ranks first in the world. This also means that it is impossible to maintain the expressway by human maintenance. We can use high-end mechanical equipment to help us complete the maintenance of the road.

4.3. We should improve the ability of highway maintenance and management

Through a lot of practice, we can find that the concept of highway maintenance is far from enough. The experience found through practice is often higher than that obtained through theory. In order to ensure the effect of highway maintenance, the use and introduction of advanced highway maintenance technology is essential^[4].

5. THE IMPORTANCE OF HIGHWAY MAINTENANCE MANAGEMENT TO PEOPLE

When it comes to the occurrence of road traffic accidents, people often feel very scared. To be sure,

the lack of maintenance of the highway operation can prolong the length of this fear.

5.1. It can reduce the psychological barriers of new drivers

In fact, the new drivers who have just finished the driver's license have great psychological barriers to the highway. They are afraid that traffic accidents will happen to them. This is a very normal phenomenon. According to reasoning, highway maintenance can reduce the occurrence of traffic accidents. This situation can alleviate the new driver's instinctive fear of the highway to a certain extent.

5.2. It can ensure the safety of people's travel

Every holiday, the number of vehicles on the highway is a lot. At this stage, the speed of the vehicle is also very fast^[5]. High speed vehicles passing through uneven road will also cause traffic accidents. Highway maintenance behavior can reduce the probability of accidents. It can indirectly protect people's travel safety.

6. CONCLUSION

In fact, the management of highway maintenance is not achieved overnight. It needs time to polish and practical experience^[6]. On this basis, we should also take different road maintenance measures according to the actual situation. On the basis of ensuring the value and function of expressway, we should try our best to reform the management of highway maintenance.

REFERENCES

- [1] Xi-Lan Z, Wei-Na W, Chao Z, et al. Research on Preventive Maintenance Countermeasures of Expressway Asphalt Concret Pavement[J]. Highway, 2009.
- [2] Long L Z, Jun D X, Zeng Z S. Discussion About Expressway Maintenance Management System and Countermeasures[J]. Highway, 2002.
- [3] Zhenggang L I, Yulu L, Wanxin H U. Analysis and Countermeasures on Expressway Maintenance Costs Problem[J]. Journal of Chongqing College of Electronic Engineering, 2013.
- [4] LU Yuan-jun. Countermeasures to the Expressway Maintenance and Management[J]. Journal of Anhui Vocational & Technical College, 2011.

[5] Yong-Bei J. Discussion and Analysis on Safe Production Management Problems and Countermeasures for Expressway Maintenance in Zhejiang Province[J]. Northern Communications, 2013.

[6] Jian-Jun C. Study on the problems and countermeasures of the emergency mechanism in the expressway in china[J]. Journal of Sichuan Police College, 2011.