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The Application Of Preventive Highway Maintenance Technology In Modern Highway

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Abstract: ***With the continuous improvement of social and economic level, people's quality of life is obviously improved, while people's travel demand is also significantly increasing, which plays a promoting role in the construction of the expressway in our country, making the expressway construction constantly expand its scale, and the traffic mileage is also gradually increasing [1]. However, due to the large number of Chinese population, there is too much traffic flow on the highway, which makes the highway face corresponding pressure, especially those highways with a long operation time, it is easy to face some common diseases, which lead to the reduction of the comfort of vehicles when driving, and even threaten the safety of vehicles. Therefore, it is necessary to carry out highway maintenance work in a planned way, apply the preventive highway maintenance technology rationally, and take timely measures to repair the problems once found in the maintenance process, so as to provide effective guarantee for the safety of vehicles.***

Keywords: Preventive highway maintenance technology; Modern highway maintenance; application.

1. INTRODUCTION

In our transportation network, the highway is a very important part, the highway directly affects the stability of the entire transportation system, has a greater relationship with our economic development, and close contact with the normal life of the people[2]. Therefore, relevant departments need to strengthen the importance of highway maintenance work, Once the highway damage is found, it is necessary to timely repair and maintenance work, to avoid the deep damage of the highway, so that the service life of the highway can be effectively extended. In the maintenance of highway, preventive highway maintenance technology belongs to a kind of modern maintenance technology. Effective application of this technology can improve the maintenance quality significantly and shorten the maintenance cycle of highway effectively. Its technology has good application benefits. Therefore, it is necessary to study the preventive highway maintenance technology deeply, apply its technology scientifically, and further promote the steady development of our traffic industry.

2. APPLICATION SIGNIFICANCE OF PREVENTIVE HIGHWAY MAINTENANCE TECHNOLOGY IN THE PROCESS OF MODERN HIGHWAY MAINTENANCE

2.1 Effectively shorten the maintenance cycle of highways

For the highway pavement problem, if not timely maintenance, it will lead to serious damage to the highway pavement. In the maintenance work, a large range of highway repair work is needed, so it is necessary to block the highway, such construction operation will lead to a certain impact on vehicle traffic. Thus, related problems arise [3]. However, the reasonable application of preventive highway maintenance technology can effectively avoid the long time construction problems, and then significantly reduce the maintenance and construction time, further shorten the construction period, and significantly reduce the impact on highway operation.

2.2 Extend the service life of highways

In the application process of preventive highway maintenance technology, it is mainly in the operation process of highway, to carry out effective management, and then in-depth understanding and analysis of the potential dangers in the highway, so as to give full play to the role of preventive maintenance work, while the highway pavement damage problem can be avoided from the root, so as to prevent the quality problems of the highway. Make the expressway have a longer service life [4]. In the process of highway maintenance, preventive highway maintenance The efficiency of the technology is higher. When the technology is applied, there is a short construction period, which can effectively reduce the maintenance cost of the highway.

2.3 Further reduce the maintenance cost of highways

In the traditional highway maintenance work, it is mainly to block the highway first, and then carry out maintenance work, and repair the damage of the highway. Such a highway maintenance method is easy to affect the highway fluency, and the maintenance cost will be increased. The scientific application of preventive highway maintenance technology can effectively avoid the high cost input. In the preventive highway maintenance, the quality of the highway is mainly tested by professionals, and the road surface is evaluated accurately at the same time. The problems in the road surface are accurately located, and then the road surface is maintained with professional technology to eliminate the potential dangers in the road surface. In expressway maintenance, the application of preventive highway maintenance technology can not only avoid the obstruction of highway

fluency, but also significantly reduce maintenance input cost and improve the economic benefit of expressway.

3. APPLICATION OF PREVENTIVE HIGHWAY MAINTENANCE TECHNOLOGY IN MODERN HIGHWAY MAINTENANCE

In the preventive maintenance of the highway, it is generally necessary for the staff to do the corresponding preparatory work before the start of work, take corresponding measures to effectively protect the surrounding facilities. In the deployment of protective agent, it is necessary to combine the actual situation, the mix design, usually need 20% water, silica sand 50%, but also add fast drying agent, after the configuration is completed, you can be evenly sprayed on the asphalt surface layer, usually, the amount of spraying to control in 0.75%-0.85kg/m^2, After three hours of curing, the highway can be opened. Based on relevant experience at home and abroad.

3.1 Asphalt regeneration and curing

In the actual operation process of modern expressway, it needs to bear higher load, in order to make the expressway have a longer service life, it is necessary to carry out preventive maintenance work on the expressway. In the highway maintenance measures, asphalt regeneration maintenance belongs to a new type of maintenance, in general, in the highway. When the road damage is small and there is no structural damage, the asphalt regeneration maintenance can be applied, which is mainly applied to the regeneration agent, petroleum distilled water and coal asphalt, so as to effectively prevent the corresponding damage. On the highway pavement, the evenly spread of raw materials can be used to partially block the highway during construction and maintain the highway maintenance work for a period of time, so that the performance of the highway can be improved as a whole. In the process of highway maintenance, the asphalt regeneration maintenance process has a short time, which will not affect the normal operation of the highway, and can reduce the loss caused by maintenance.

3.2 Slurry sealing technology

Slurry sealing technology has good preventive maintenance, so it is widely used in our country. This technology is mainly for the configuration of new mixed materials, in the configuration process of the application of raw materials such as asphalt, emulsifier and aggregate. In the application of slurry sealing technology, it is necessary to ensure the uniform mixing and mixing of raw materials. When spreading the mixed materials, it is also necessary to ensure the uniformity of the spreading. When spreading, it is necessary to combine with the relevant regulations to spread the mixture of 3~10mm, so that the application effect of the curing technology is relatively high. The scientific application of slurry sealing technology can make the maintenance of expressway

At the same time, when the technology is applied, it can be combined with different needs for corresponding maintenance work. If the pavement cracks are relatively small, the fine sealing layer technology can be applied, but if there is serious damage on the pavement, the middle sealing layer technology needs to be applied. In order to maintain the asphalt surface, the coarse sealing layer technology can be applied to the application of different maintenance technologies, which can significantly improve the maintenance effect and further improve the quality of preventive maintenance of the highway.

3.3 Maintenance at microsurface

In the preventive maintenance technology of expressway, the slurry sealing technology belongs to the development basis of micro-surface maintenance technology. Micro-surface maintenance technology not only has the advantages of slurry sealing technology, but also further improves its application advantages. In the application of micro-surface maintenance technology, it is necessary to mix water, additives, polymer modified benign emulsified asphalt and crushed aggregate gravel. The mixture has higher bonding property, and can prolong the service life of the highway in general 3 to 5 years. The micro-surface maintenance technology can also quickly repair the damaged pavement, effectively reduce the input cost in the maintenance process, and significantly shorten the construction period in maintenance.

3.4 Fog sealing layer maintenance

Cracks often appear on the modern highway pavement. If corresponding measures are taken to repair the cracks at the initial stage, the safety of the highway pavement can be effectively guaranteed, and the highway can have a long service life. The application of fog seal maintenance technology is mainly to spray emulsified asphalt directly, and then form a protective layer with high tightness on the road surface, prevent the highway pavement crack into water, resulting in damage to the highway structure, but also can make the highway pavement aggregate has a high degree of adhesion, and then make the overall quality of the highway significantly improved.

4. CONCLUSION

In the actual operation process of modern highway, the road surface needs to face great pressure. At the same time, due to the

influence of traffic and other factors, the highway pavement often cracks and other problems. Therefore, it is necessary to strengthen the rational application of preventive highway maintenance technology, combine with the actual situation of the highway, choose different maintenance technology, effectively extend the service life of the highway.

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