

# Research of Highway Engineering Construction Site Management and Optimization Measures

Hui Lin<sup>1</sup>, Yufeng Zhang<sup>1</sup>, and Ju Zhao<sup>2</sup>

<sup>1</sup>Shandong Jiaotong University, Jinan, Shandong, 250357, China

<sup>2</sup>Construction Safety Engineering Quality Service Center of Shandong Linyi, Linyi, Shandong, China

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**Abstract:** In recent years, with the development and progress of China's economy, the development of China's transportation field has also ushered in unprecedented opportunities, but at the same time, many challenges have emerged, which has raised a higher level for the management of highway engineering in the new period. Requirements, the analysis of the current situation of the development of the transportation industry in China in the new period, we must pay attention to the problem of fine management of the construction site of highway engineering, professionalize and scientifically reform and optimize all aspects of management, and promote the sustainability of the transportation industry at this stage.

## 1. Introduction

The continuous development of the economy and society has promoted the development of highway technology. Therefore, to actively adapt to the law of market development, highway engineering must be continuously optimized, attach importance to the management work at all stages from design to construction, and establish a systematic construction management system. Further promote the effective implementation of highway construction management. Starting from the actual development of highway enterprises, optimizing construction management is related to the improvement of the core competitiveness of the transportation industry. With the development of the times and the progress of urbanization, the status of highway construction in the development of the country is becoming more and more important. On the one hand, it is closely related to people's lives, affecting the quality of people's travel, and on the other hand, it is also related to the country's Economic promotion has an important relationship and has become an important carrier of economic development. In order to better carry out highway engineering construction, it is especially necessary to pay attention to on-site construction management. Only by ensuring the feasibility and standardization of on-site construction management can the road construction be carried out in a healthy manner and can the road construction be sustainable and orderly. development of. Highway construction in particular needs to be done on-site construction management, which plays an extremely important role in controlling construction quality, saving construction costs, and improving highway construction safety. According to relevant investigations and studies, the number of engineering accidents on the road construction site in 2016 increased by 27.15% compared with 2011; although the quality of highway engineering has improved significantly, there is still a certain gap compared with developed countries; This is an increase of 46.79% compared to ten years ago. Therefore, exploring the construction site management is extremely important for highway construction. It not only determines the construction level of the highway itself, but also determines the quality of life of people, and is related to the national economic lifeline.

## 2. Existing Problems in Highway Construction Site Management

The impact of unsound management mechanisms is very serious. According to the highway engineering management experience of many developed countries, we can find that there is still

much room for development in my country's experience in management, which is reflected in the further improvement of the construction site management mechanism. Secondly, because the management of the construction site of the project is not a simple management, its content is actually more abundant. Such as cost management, duration management and quality management are all important components. Secondly, because the construction site management content is very complicated, during this process, if the management staff does not find an effective way to deal with it, it will have a relatively negative impact.

Too simple a management model will significantly reduce the efficiency of management. As we all know, the characteristics of the more common project management model are concentrated in a strong unity. Therefore, in order to deal with this situation, construction companies should change a single model, and then gradually transform it into a diversified management method on this basis. Secondly, construction enterprises should properly introduce some management companies to implement professional management on the basis of a single management mode, so as to effectively improve the quality of project management on this basis. At the same time, because many management companies in my country have a very rich management model, this means that they can carry out different management according to the different characteristics of the construction, so as to be able to more firmly guarantee the improvement of project quality on this basis.

The lack of early preparation support will affect the follow-up of subsequent management. Lack of sufficient pre-preparation will lead to lack of sufficient analysis and demonstration on site management. For example, if managers do not analyze the investigation report in detail, they cannot execute the construction plan efficiently. Secondly, the lack of support for preparatory work will make it difficult to control the cost during the construction of the project site, and it is also difficult to effectively encrypt and protect and record all control points. Therefore, under this premise, the construction enterprise should do corresponding business training and technical training, so that on this basis, relevant personnel can have a more thorough understanding of the technical standards, operating procedures, and quality control of the project.

There are serious common problems in the on-site construction quality management of many highway projects. Common quality problems will lead to the appearance of a large number of weak roadbeds, which undoubtedly have a very adverse effect on the overall stability of the roadbed. Secondly, the reduction of roadbed quality and uneven settlement will inevitably lead to the occurrence of road surface cracking and roadbed instability, which will ultimately seriously affect the safety of driving. At the same time, the common problems of quality management will also lead to the emergence of a large number of bridge head culvert jumps, which will ultimately affect the construction quality of highway engineering.

### **3. Effective Ways to Solve the Problems of Construction Site Management**

In construction engineering, road construction is different from other buildings. Its particularity directly determines whether the input of related workers, construction materials or related equipment is completely larger than ordinary construction projects. Therefore, before the project is officially started, it is necessary to make a preparatory plan in advance according to the previous construction experience, and carry out unified management of the on-site staff, building materials and related equipment. For those different contractors, they should also divide the responsibilities and powers before the construction and cooperate with the relevant departments. When problems or accidents occur, they must be planned in advance. Only by making sufficient preparations before construction can we achieve smooth development and effectively improve the management level. At the same time, we can achieve a certain degree of cost savings for the project, and while promoting enterprise development, we can also ensure that the project can be delivered on time, and ensure the quality of the project as a whole.

In the process of highway engineering construction, a construction management criterion that meets various management standards should be worked out according to the specific conditions of the construction, and this criterion should be detailed until every problem is refined. When encountering some special situations in the construction process, we must find the corresponding

solutions in the first time, work out corresponding solutions, and deal with the problems in a timely manner to ensure that the project can proceed smoothly. At the same time, no matter what strict standards and meticulous systems are formulated, the final executor must be specifically implemented to each staff member. Therefore, in the process of preparing for the project and starting the construction, the relevant management personnel on the construction site should be As well as the training and supervision of construction personnel, such training and supervision should not be too formal, and the responsibility must be effectively placed on each worker. For example, we are calling for safety issues at all times. No matter who enters the construction site, we must strictly follow the relevant regulations on the construction site, and must have a very eye-catching warning sign on the site, which can be seen at a glance. Seeing the existence of danger can prevent accidents effectively.

In the process of highway construction management, certain rewards should be given to those construction personnel and teams that abide by the relevant rules and regulations. At the same time, those who completely forget the rules and regulations and completely do not follow the rules or regulations or cut corners during the construction process the construction personnel or teams must carry out severe punishment measures. In the process of management, only the clear rewards and penalties can be clearly managed in order to manage them correctly. If there is no clear reward and punishment, the staff will also have a certain fox mentality in the process of work, they will try their best to reduce the burden for themselves, and over time will cause certain safety risks to the construction, so, in the highway In the process of construction management, formulating a reasonable system of rewards and penalties is also a crucial link.

Fundamentally reduce the loss of manpower and material resources in the process of highway construction management, we must also pay attention to the construction technology and related process flow. If we can improve the construction technology and process flow, we can effectively reduce the loss of manpower and material resources. Can effectively save costs, but also can improve the quality of the entire project. Ensure that the project can be implemented smoothly. The so-called management actually does not refer to those simple, one-by-one management regulations and related management system documents. If you want to fundamentally strengthen the level of management, then you need to start with management personnel to build, that is, in In the process of highway construction management, it is necessary to select relevant talents who are relatively advanced in this industry to join the enterprise, and to do true word and example in the enterprise. Let the employees in the enterprise find their own shortcomings and shortcomings and the misunderstandings in their usual work through comparison with others, after correct guidance and correction. It is not the kind of naturalistic doctrine that buys other people's things and puts them on the back, and it is not the kind of copying. First of all, we must combine our own actual situation, and then find the management concept and method suitable for ourselves. Fundamentally improve your work ability and level.

#### **4. Conclusion**

Highway development can promote the development of China's economic level to a certain extent. Therefore, the precise management of highway engineering sites plays an increasingly important role. However, as far as the current situation is concerned, there are still certain problems in the refined management of highway construction in China. The most important thing is that the management content is not perfect. Relevant departments should continuously improve the management content of the road construction site, update the management technology, and do a good job in this regard based on the current state of highway management in China and based on the actual situation. development of. The management of the construction site during the construction of highway projects can promote the smoother progress of the project. Therefore, construction enterprises and on-site management personnel should do a good job in the formulation and implementation of management systems, so as to promote the continuous improvement of the overall quality of highway engineering on this basis.

## References

- [1] Chen Sib0. Highway construction site management and optimization measures. *Transportation World*, vol. 9, no. 7, pp. 146-147, 2019.
- [2] Pan Shenghua. Analysis of the construction site management and optimization of highway engineering. *China New Technology & New Products*, vol. 13, no. 3, pp.176-177, 2013.
- [3] Li Lei. Analysis on the construction site management and optimization of highway engineering. *Engineering Technology*, vol. 1, no. 6, pp.100-101, 2011.
- [4] Gao Zhanyong. Brief analysis of construction site management and optimization of highway engineering. *Engineering Technology: Citation Edition*, vol. 6, no. 13, pp. 40-41, 2016.
- [5] Chen Zhongxiang. Construction site management and optimization of highway engineering. *Construction Engineering Technology and Design*, vol. 12, no. 6, pp. 37-52, 2018.