

Control and Management Measures of Highway Project Cost under the PPP Model

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Abstract: In recent years, China's society and economy has been developing very rapidly, and various industries are showing a trend of vigorous development. The importance of control and management of project cost in highway project management is becoming more and more prominent. PPP model has been widely used in the control and management of highway project cost with its own unique advantages. The author analyzes the important advantages of the PPP model and the existing problems in the cost control and management of highway projects, and puts forward effective measures for the cost control and management of highway projects using the PPP model, in hope of helping with the smooth implementation of the work.

Keywords: PPP model; Highway project; Cost; Control and management

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1 Introduction

There are many drawbacks in the traditional model of highway project cost control and management work, and it has been difficult to apply to the current highway project construction. The effective development of highway project cost control and management under the PPP model can implement comprehensive control and management of highway project costs. For this reason, highway project construction corporates must conduct in-depth research on the PPP model to better implement highway project cost control and management.

2 Important Advantages of PPP Model

PPP refers to public-private partnership. The PPP model is an operation and investment model often used in the construction of public infrastructure in modern society. The important advantages of the PPP model are shown in Table 1.

Table 1. Important Advantages of PPP Model

Advantages of PPP Model	Main Manifestations
Easing financial pressure	Social capital effectively participates in the construction of highway projects, and the financial pressure on government departments has been significantly diverted, which can prevent highway construction from having to be interrupted or postponed due to problems such as construction costs exceeding budgets or broken capital chains.
Promote the stable development of social capital	Various actions in highway project construction are very transparent, and are supported by national policies and the society. Social capital will not have risks such as information asymmetry, information crisis, and accountability. Government investment actions are more service-oriented and constructive, not taking the acquisition of economic benefits as the main purpose. It can provide a strong guarantee for the improvement of the quality of highway projects. For the social capital side, it can also dilute its investment risks and help the steady development of social capital.
Improve the quality of highway projects	The relationship between government and social capital in highway construction is mutually complementary, and most social capital parties not only have rich experience, but also high industry skills, which can provide a high level of control and management guarantee for the operation of highway engineering project capital, and also help the government to exert the function of public supervision fully ^[1] . There is a mutually restraining relationship between government and social capital. There is a close relationship between the profit of social capital and the quality of highway projects. Only when the overall quality of highway projects is improved can the investors' profit increase significantly.

3 Problems in Highway Project Cost Control and Management

Although the PPP model has unique application advantages, there are still some problems in its

application in the cost control and management of various stages of highway engineering, as shown in Table 2.

Table 2. Problems in Highway Project Cost Control and Management

Main Problems	Specific Manifestations
Problems in the preparation stage	The highway has a large amount of engineering and a long construction period. During this period, various uncertainties may be encountered, such as policy and climate factors. However, when applying the PPP model in the project preparation stage, make sure to fully consider these factors. The construction area of highway project is relatively large, project cost control and management is more difficult, and prone to various risks.
Problems in the design stage	Failure to fully grasp the overall management indicators of highway project cost and lack of cost control and management awareness in the design stage. The setting of goals in the design stage of highway project deviates from the goals of project cost control and management, which leads to a large discrepancy between the actual cost of the project and the cost target in the design stage.
Problems in the construction stage	The relevant internal management department of the enterprise has not received the project construction plan, project cost list, etc.
Problems in the settlement stage	In order to obtain greater profits, some enterprises adopt some inappropriate methods to obtain construction qualifications, such as falsely reporting project costs and prices, which will have a great impact on the normal settlement of the project.

4 Effective Measures for Developing Highway Engineering Cost Control and Management under the PPP Model

4.1 Application of the PPP Model to Project Cost Control and Management in the Planning Stage of Highway Projects

Under the PPP model, the government and social capital share the economic benefits of highway projects, and at the same time, both parties share various risks. Therefore, in the planning stage of highway projects, the government should conduct a comprehensive analysis according to the interests of all parties when setting the highway project cost control and management goals^[2]. When applying the

PPP model, government departments should actively get rid of the traditional control and management concepts dominated by themselves in the past. They should not consider their own profits too much, but should clarify the importance of their partners and participants in the construction of highway project and clearly protect the interests of all parties in black-and-white in the bidding contract and the project cost estimation plan. In addition, while clarifying the plan and objectives of highway project cost control and management during the planning stage, the important functions of government departments should be fully utilized to formulate reasonable project cost standards.

4.2 Application of PPP Model in Project Cost Control and Management during the Design Stage of Highway Project

When applying the PPP model in the design stage

of highway projects, the engineering cost should be scientifically controlled and managed from the following four aspects.

Table 3. Application of PPP Model in Project Cost Control and Management during the Design Stage of Highway Project

Control and Management Measures	Specific Methods
Make project budget reasonably	On the premise of ensuring the quality and functions of highway projects, strictly control various factors that affect the project cost at the project design stage to ensure that the project cost budget is in line with China's quota standards.
Give some flexibility to the project budget	Through the estimation and consideration of various influencing factors such as policies, infrastructure, culture, market and society, it provides an appropriate flexible space for the project budget and strengthens the implementation of the PPP model in project cost control and management during the project design stage.
Strengthen the prevention of various risks	The process of highway construction is laden with various risks. In order to respond to these risks in a timely and effective manner, when applying the PPP model to project cost control and management in the project design stage, sufficient reserve funds should be added to the project costing system.
Acknowledge project cost scientifically	Clarify the important value of applying PPP model to project cost control and management, reasonably adjust the cost control and management plan based on the fluctuation of material market prices and policy changes

4.3 Application of PPP Model in the Project Cost Control and Management in the Construction Phase of Highway Projects

To apply the PPP model to the control and management of project cost during the construction phase of highway projects, it is necessary to conduct a comprehensive analysis of the construction contract, financing requirements, and financial status, as these factors will have a great impact on the smooth construction of the highway projects^[3]. To this end, the relevant staff must have an accurate and in-depth understanding of the contents of the contract, so as to find out the traps in the contract in time, and avoid various risks due to the contract as much as possible. In the process of implementing financial management, relevant staff must strictly follow the corresponding procedures and regulations when performing their work. In order to apply the PPP model more reasonably to control and manage project costs, it is necessary to carry out financial management and financing simultaneously to achieve a high degree of unity between the two. In addition, under the PPP model, highway project investors have diverse characteristics. In order to guarantee the cost of highway projects, it is necessary to strengthen the comprehensive development of highway project financing, and strengthen the supervision of various financings. On the basis of ensuring that all funds are well-prepared, strengthen the analysis of market price fluctuations in conjunction with the actual usage of various funds, and make reasonable adjustments to the project cost budget to ensure the reasonable use

of the funds for the highway construction.

4.4 Application of PPP Model in the Project Cost Control and Management in the Settlement Phase of Highway Projects

When the PPP model is applied to project cost control and management in the settlement stage of highway projects, the relationship between government departments and private enterprises should be clarified, and the interests of each party should be allocated reasonably^[4]. Under normal circumstances, it is necessary to clarify the benefit distribution and acceptance criteria when the project is completed in the preparation stage of highway construction. When formulating project benefit distribution standards, it is not only necessary to comply with the pursuit of project interests by private enterprises, but also to protect the rights and interests of Chinese government departments and give full play to the cost control and management of the PPP model in the project settlement stage.

5 Conclusions

To sum up, the application of PPP model in highway project cost control and management has great advantages. For this reason, highway project construction corporates must strengthen the research on PPP model to carry out project cost and management work better.

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