

TECHNICAL SUMMARY

Trends in Highway Construction Costs in Louisiana

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INTRODUCTION

One of the most important tasks facing a state Department of Transportation (DOT) is the planning and programming of future activities. It provides the public and legislators with a picture of how public funds are to be applied and the time scale in which it will occur. If the goals are not achieved, faith in the public agency is reduced and dissatisfaction is generated. On the other hand, if a state DOT can develop programs that it consistently meets, trust is established, leading to greater cooperation and even enhanced funding.

In Louisiana, construction costs have varied considerably in the past. In the last 10 years, construction costs have increased at a rate approximately 60 percent higher than general rate inflation. Clearly, the general rate of inflation is not a good indicator of construction costs. To anticipate future construction costs it is necessary to identify all the factors that contribute to price change. The study documented in this report was launched to identify as many of these factors as possible and quantify them where feasible so that future construction costs can be estimated.

OBJECTIVES

The objectives of this study are to:

- observe trends in highway construction costs in Louisiana,
- identify factors that influence the price of highway construction,
- quantify the influence these factors have on highway construction costs, and,
- use the above information to establish a model to estimate future highway construction costs.

RESEARCH APPROACH

The objectives of this study are to observe past trends in

construction costs in Louisiana, identify factors that determine these costs, quantify their impact, and establish a model that can be used to predict future construction costs in Louisiana. Past studies have shown that the inflationary increase in input costs describe only a portion of the increase in construction costs. Recent research on bid prices show that even subjective factors such as the relationship between a contractor and client, or the contractors' attraction for a particular contract, can influence bid prices. However, while a large number of factors may affect construction costs, they must be quantifiable and their impact on bid prices must be capable of estimation, to feature in a model that is to be used to predict future construction costs.

DISCUSSION OF RESULTS

Analyzing the district differences shows some interesting trends. First, asphalt concrete is shown to be marginally more expensive in the southern and western districts of the state. One possible explanation for this is that they are further removed from the production points of asphalt at the refineries on the Mississippi river and less accessible to the sources of aggregate. Another interesting trend is that embankment is considerably cheaper in the northwestern districts of Shreveport and Alexandria than in the other districts. These districts have less wetlands than other districts and are likely to be able to use more in-situ material, on average, for embankments than is the case in other districts. Other differences between districts are more difficult to rationalize including the lower cost of Portland Cement Concrete pavement in Baton Rouge and Monroe districts.

CONCLUSION

Highway construction costs in Louisiana rose very slowly in the period 1978-1988 and then very rapidly during the

next decade. The main reason for this phenomenon is that petroleum product prices and construction worker wages decreased significantly during the first decade and then stabilized, while the price of construction equipment, concrete, and reinforcement rose substantially in the second. Introduction of new contract specifications and contract practices increased highway construction costs in Louisiana by an estimated 5.9 percent from 1992 onwards, adding to the escalation caused by other factors. From projections of future wage, equipment, and material costs, the growth rate in construction costs in Louisiana evidenced in the last ten years (i.e. 1988-1998) will continue more or less unaltered for the next 15 years.

RECOMMENDATIONS

It is recommended that:

1. LA DOTD use the projected increase in highway construction costs in this report to plan long-term construction programs.
2. LA DOTD estimate Louisiana Highway Construction Index values each year from contracts let to determine whether the projections made in this study are correct.
3. LA DOTD track the costs of construction labor, equipment, and materials to determine whether the forecast values of these items are correct.
4. LA DOTD institute measures to increase contract size and reduce contract duration where feasible, reduce the number of contracts let in the 4th quarter, stabilize bid volumes, and reduce the number of plan changes.

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