



INDOT Research

TECHNICAL *Summary*

Technology Transfer and Project Implementation Information

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Final Report

An Initial Evaluation of Design-Build Highway Projects Performed by the Indiana Department of Transportation

Introduction

The Indiana Department of Transportation (INDOT) has used the Design-Build contract delivery method on a few projects and received mixed responses from those involved in the process. Because of these differing reactions, INDOT felt that an evaluation of its Design-

Build program was appropriate to determine its future use in Indiana. This project therefore conducted this analysis and evaluation, which included an examination of the Design-Build programs and practices of other DOTs.

Findings

The Design-Build process has been successful with other organizations, both private and public. Its proven benefits are: 1) a shorter time to bring the project on-line by reducing design time; 2) improved cooperation and sharing between the

designer and the contractor, which in turn creates a more effective effort; 3) less uncertainty in final construction costs; and 4) reduced supervisory needs from the DOT.

Implementation

The continued use of Design-Build by INDOT can be supported. However, to improve its acceptance and use, the following recommendations are made.

1. The Design-Build program should include smaller projects because the larger projects have excluded many Indiana contractors due to the financial risks that are involved with large projects. Even though several states, like Arizona, have only experimented with large-scale projects and have been quite satisfied with their performance, smaller projects will be more appealing to the majority of Indiana contractors. States like Ohio and Florida have used Design-Build for projects that range from one million to several hundred million dollars. Experiences from these states indicate that Design-Build

can be a successful approach regardless of the job size.

2. Because Design-Build is a fast paced method of construction, it is desirable to have a large part of the design ready before the contractor starts any site work. To achieve this, the Design-Build projects should be awarded during late fall so that during the dead construction period in winter, the consultant can prepare a substantial amount of the design, thus eliminating possible errors that might arise due to rushing to completion and lack of proper plan review. This will also help subcontractors involved in the early activities. Also, only projects that are free of utility problems should be considered for Design-Build.

3. The level of design required of INDOT and its consultants should be determined before letting. Information from other states indicates the following. In signals and lighting, most of the DOTs perform a large portion of the design, which sometimes can reach 80% to 90%. In roads and bridges, most of the agencies performed 15% to 25% of the design.
4. Requirements for the submission of the technical proposal need to be evaluated in order to minimize costs and maximize the participation of consulting firms. The costs associated with the preparation of technical proposals are often so large that many firms shy away from participating. A concern mentioned by the consultants and the contractors alike is that the stipend given to the unsuccessful bidders is too low and covered only approximately 20% of their costs. INDOT should consider either increasing the stipend amount or reducing the submittal requirements. For instance, if innovation is not used in selecting a contractor, then this requirement should be removed. If cost alone is the only selection criterion, then all other submittal requirements need to be evaluated for elimination. If proposal requirements were closer to those expended for a traditional Design-Bid-Build contract, more firms would be interested and would participate in the program.
5. A number of participating firms indicated that there were changes made in the scope during the technical proposal development, hindering some firms from completing their necessary documents in time. It has been suggested that time extensions be granted with any change in scope. Also, both contractors and consultants recommended improving the scope of work they receive.
6. Due to the accelerated pace of Design-Build, INDOT needs to evaluate the personnel needed to adequately supervise. Some projects have used a 24-hour schedule, which has created problems for INDOT supervisory personnel and quality concerns.
7. In order to improve the understanding of the Design-Build process among contractors and consultants in Indiana, information sessions should be conducted. Similar sessions have been used in other states in order to eliminate concerns and worries that prospective participants might have and to explain the program procedures. At the same time, INDOT should have a continual training process to inform its personnel of their responsibilities. INDOT personnel from the districts, as well as from the Central Office, should meet to share concerns and experiences from Design-Build projects and gain knowledge and insight from each project. It would be beneficial to develop a correspondence/communication flowchart. This can effectively eliminate misunderstandings that might occur due to miscommunications between project participants. Also, it would be beneficial to develop project management guidelines.

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