

## **Section 8: Analysis #3 – Adversarial Project Team Relationships on Design-Bid-Build Projects and other Delivery Methods for Public Projects (MAE Focus Topic)**

### **8 – 1 Problem:**

Projects utilizing the traditional Design-Bid-Build delivery method tend to result in adversarial relationships between project team members. As Pearland Recreation Center and Natatorium approaches completion, it seems that the project is unique in that the project team is still working together effectively and the project is setup for an on-schedule, on-budget completion. It appears that this is a great opportunity to analyze some attributes of a successful project team using this delivery method. Design and construction of the project has been seamless. Throughout the design phase there was beneficial owner-designer interaction that resulted in many features of the building being modified to more effectively meet the owner's needs. During construction there were few problems encountered and the project is currently scheduled to be completed well ahead of schedule.

### **8 – 2 Goal:**

The goal of this research is to determine the factors that contributed to the project's apparent success, including factors such as project team selection and contracting method. Conclusions obtained from this research will be targeted at helping owners select successful teams for their upcoming projects. Additionally, this research will potentially identify an ideal delivery method for public projects.

### **8 – 3 Analysis Method:**

- 1) Issue questionnaires to project team members to collect their opinions of why the project was successful, as well as to determine if there were any aspects of the project that could have been improved.
- 2) Compare questionnaire responses to identify commonalities.
- 3) Interview select project team members to identify specific attributes that have contributed to the project's success.
- 4) Study the contract documents in order to locate language that contributed to the project's success.
- 5) Identify aspects of the project team selection process that led to the successful outcome.
- 6) Interview other public project teams using various delivery methods to potentially identify an ideal project delivery method for public projects.

**8 – 4 Resources:**

- 1) Project team surveys
- 2) Project team interviews
- 3) Project contract documents
- 4) Project team selection method
- 5) Case studies – Other Public Projects
- 6) AE – 572 Project Development and Delivery Planning course materials

**8 – 5 Project Team Analysis:**

Analyzing the Pearland Recreation Center and Natatorium’s project team began by sending out a survey to the general contractor, EMJ Corporation; owner, City of Pearland; and architect, PBK. Responses were obtained from the general contractor and owner, however after numerous attempts an answer was never received from the architect. These surveys are attached in **Appendix 8**. Upon receipt of the survey responses it became apparent that the project team was working very well together and that all members had a cordial relationship. Additionally, the traditional design-bid-build delivery method was working very well. The City of Pearland was very satisfied with EMJ’s work. They were impressed with the management of the company and their effort to achieve a successful project.

After digesting the results from the surveys, phone interviews were executed with the general contractor and architect. These phone interviews developed the concept of ‘the ideal delivery method for public projects’ - the final result of this research topic. During the phone interviews both the general contractor and owner were strong advocates for the design-bid-build delivery method for public projects such as this. The City of Pearland said they use this delivery method on almost all their projects. This delivery method allocates the risk away from the owner to the other project team members. As a steward of the tax payers, they prefer to do whatever it takes to ensure the community receives a quality project. Consequently on their projects the City prioritizes stewardship of taxpayer funds by valuing quality over an earlier completion schedule

**8 – 6 Analysis of Other Delivery Methods on Public Projects:**

The City of Pearland is currently also constructing a public service building that will house the police department and other city services. This project is using a design-build delivery method, one of the city’s first projects to take this route. City council constrained the project to use this delivery method. The project manager expressed extreme dissatisfaction with the delivery method, citing a lack of checks and balances that normally occur between the general contractor and designer. Since these parties are from the same firm, the owner is no longer the connecting link between these parties and there is much less transparency in the project team’s actions.

Another problem that the project manager identified on the project was that there were still design omissions - one of the problems the design-build delivery method is claimed to eliminate. Additionally, construction tends to catch-up to the design and at times has to be put on hold, resulting in schedule extensions and additional costs.

**8 – 7 Applications of MAE Concepts:**

Analyzing the design-bid-build and design-build delivery methods applied concepts that were learned in a number of graduate level engineering courses, namely AE 572 – Project Development and Delivery Planning, AE 597I – CII Best Practice, and CE 531 – Legal Aspects of Engineering and Construction.

Project Development and Delivery Planning provided knowledge that was critical to understanding how design-bid-build and design-build delivery methods work. Understanding the benefits and drawbacks of these delivery methods allowed for a more effective analysis of the ideal delivery method given the circumstances faced in a public project.

Understanding the legal aspects of construction and engineering was paramount to identifying an ideal delivery method for a public project. Shifting the liability of a public works project away from the owner is a critical legal strategy to consider when selecting the appropriate delivery method.

The Construction Industry Institute’s Best Practices course offered an overview of pre-project planning, change management, and equitable risk allocation. These topics enhanced a better understanding of the issues that needed to be considered when selecting a delivery method. Pre-project planning is one of the most important phases of a project as it lays the framework for how a project will be run. This phase can vary greatly based on the delivery method. Change management is also a very important topic, as the number of changes required on a project can have large cost implications. Understanding how a delivery method would affect these changes is important to understand. Again, allocation of risk is a primary concern, particularly for an owner on a public project so it is important to understand how to efficiently shift this risk away from the owner.

**8 – 8 Conclusions and Remarks:**

Projects using the design-bid-build delivery method are notorious for ending with adversarial relationships between project team members. Pearland Recreation Center and Natatorium has been an exception. Project team members have, in fact, attributed the success of their project to the design-bid-build delivery method. A reason for the project’s success using the design-bid-build delivery method has been the City of Pearland’s project goal: “Build a quality project on budget”. They are not as concerned with completing the project by a specific deadline as they are with controlling costs and producing a project that will serve the community for many years to come.

For complex public projects such as this one, the owner is better served using a design-bid-build delivery method over a design-build delivery method because it effectively allocates liability away from the owner and maintains the beneficial checks and balances between the designer and general contractor.