



NAC Executive Insights

Case Study of a Successful Megaproject Delivery

Key Points

- Megaproject success can result from leadership and early decisions.
- An approach that includes “one team,” common vision and commitment, honest communications, timely decisions, and shared risks is key to promoting project success.
- Paramount to achieving project success is early alignment of all design, construction, commissioning, and activation activities with the project’s end goals.
- Early alignment helps establish clarity and creates efficiencies.
- Risk sharing, another key driver for success, can lead all parties to engage with one another in making necessary decisions to achieve project goals.

Introduction

In November 2005, the Environmental Protection Agency enacted the Base Realignment and Closure (BRAC) Program in part to reshape the Department of Defense’s infrastructure. DOD facilities encompass hundreds of acres of buildings, roads, and other infrastructure.

The construction projects involved in the BRAC Program were required to be open and operational by September 15, 2011. This imposed date caused considerable concern to the industry as many BRAC projects were nowhere near full design nor ready for traditional bid-build or design-build procurement, even though the facility “operational” date was a fixed requirement. This dilemma resulted in the need for innovative forms of procurement and contracting, which was allowed by the Federal Acquisition Regulation (FAR), although such innovation had not often been used in FAR efforts in the engineering and construction industry. One effort to use innovative contracting and procurement was put into use by the U.S. Army Corps of Engineers (USACE) for the New Campus East project for the National Geospatial-Intelligence Agency (NGA) at its headquarters at Ft. Belvoir, VA.

This greenfield project was complex. This facility also was built under significant security measures because of its intended use. The project involved a new campus consisting of major program elements, including 2.4 million square feet of new office space, a central energy plant, a data and technical center, a parking garage, and a visitor center. It also included approximately 11 miles of new roads as well as

new bridges over existing creeks. The approximate target cost of the winning bid was \$1.5B. The ceiling price was \$1.8B.

The innovative form of contracting and procurement USACE adopted for the NGA project was a form of early contractor involvement called integrated design bid build (IDBB). The contract solicitation was a best value procurement, which included a target and ceiling price based on the owner's design. That design was approximately 20 percent complete at bid time and the required ceiling price bid represented a total all-in, all-done projected construction cost. After award and 80 percent completion of the owner's facility design was achieved, the final cost (federal Cost Accounting Standards applied) was then to be projected by the contractor. That final cost had to show any scope changes from the original bid in an open book, transparent review (cost redetermination) with total cost risk transferred to the contractor. If the final cost projected for the project (based on the 80 percent complete documents) exceeded the target price (set from the 20 percent documents), then the contractor was required to give back its bid fee. The Corps, however, was responsible for the cost overrun up to the ceiling price, over which the contractor became responsible for costs in excess.

Stakeholder Risks

As a foundation to the success of the New Campus East project, each of the major stakeholders truly carried significant risks and thus were dependent on all the other stakeholders. What this interdependency led to was the creation of a "one team" atmosphere, where each party remained accountable to the others for the overall success of the project. Problems were resolved at the lowest level. Communications were timely, frank, and open. Also, complex issues were resolved in a manner considered to be fair by all.

The New Campus East project represented significant risks to all parties involved. Those risks are described below.

General Contractor

The general contractor carried considerable risk. If the 80 percent design completion resulted in projected final costs in excess of the target price, then the total contractor bid fee could be lost. If the projected final cost exceeded the ceiling price, then all costs were to be borne by the contractor. This risk encouraged an accurate upfront cost projection for the target price bid, which was based on consideration of all elements necessary for a complete facility of the type desired. Care was taken to accurately describe the scope covered by this target price so that there was full alignment with the designer, the Corps, and the NGA, the end user. Also, all had to have a mutual understanding of the cost and scope at project award, which occurred at approximately 20 percent complete design and stood as the basis for a fair adjustment at design completion. Given the design completion schedule outlined in the bid, the contractor's schedule was six months longer than necessary to achieve the mandated "operational" date. The contractor also submitted an acceleration plan with the bid.

Designer

The designer also carried risks. Design changes required to align final design with the target price scope considerations were the responsibility of the designer at no additional cost to the owner. The design team therefore had early and active discussions and were able to achieve a mutual understanding with the owner of the initial target price scope inclusions. Equally important, the owner's design team actively engaged with the contractor as the design progressed. The contractor was engaged as well and pointed out areas of potential misalignment *before* the final construction documents were issued. The contractor also was able to reprioritize the design schedule, which allowed the construction schedule to align with the intended move-in sequence of NGA personnel. This design realignment was a change to the designer and was paid for by the owner, but it did enable the six-month construction and move-in acceleration to occur.

U.S. Army Corps of Engineers (the Contracting Agency)

The Corps' risks included its appropriation from the U.S. Congress. The ability to pay for the New East Campus project was limited to that Congressional appropriation. Thus, USACE was bound by law to complete the project by the stipulated date, which represented a significant six-month acceleration to the schedule bid by the contractor. If cost overruns were not realized until the point of final design and cost redetermination, then the project would halt, followed by the Corps seeking additional budget authorization from Congress. In all likelihood, the project would not meet the September 15 completion date intended by the BRAC Program and by law. If timely decisions were not made as the project progressed, the six-month acceleration goal would not be realized and, again, the project would not achieve the completion date mandated by Congress. Failure to complete by the imposed date would likely have been an embarrassment to the Corps and its leadership.

National Geospatial-Intelligence Agency (the User)

Risks were also carried by the end user, the NGA. If the project were unable to be built for the target price, the NGA may have been responsible for cost overruns if those costs resulted from scope added by the agency. It was unclear if the NGA had sufficient funds to cover its cost-initiated overruns. Also, if the project were unable to accelerate by six months, the NGA would experience immense mission move-in issues and costs because its planning was based on the six-month acceleration agreed to by all parties at award. In addition, the NGA was scheduled to move over 6,000 people out of multiple buildings in and around the Washington, D.C., area.

An Unusual Megaproject

Unlike most fixed price megaprojects that are contracted based on a fixed appropriation from Congress, the New Campus East project for the NGA did not simply transfer all cost and schedule risks at award time to the contractor. All parties lived with real and substantial risks. This common bond to project success was the foundation that allowed for the success that the project achieved.

Leadership

From pre-award, an executive leadership team including senior level and project level individuals from each of the stakeholders was formed to understand the bid, its clarifications, and pricing. Further, significant time was taken to explore in great detail the process and stakeholder actions necessary to achieve both the six-month schedule acceleration and the bid target price (set at only 20 percent design complete).

Following award, leadership teams also were established from each of the building elements in the project. In addition, the executive leadership team from project and board levels met weekly and monthly for each project element and at the overall project leadership level. A board meeting of principals was conducted monthly. The meetings collectively served to hold all parties accountable for decisions and to resolve issues in a timely fashion. The board met to solve problems to continue the progress of the project and to remove unsolvable problems from the project team so they did not become roadblocks. Key to this success was that no problems were allowed to fester for later debate, for claims, or for requests for equitable adjustment. All issues were resolved in real time. Leadership team energy therefore focused on achieving desired project outcomes instead of preparing for later arguments.

From a series of in-depth meetings of principals from all parties, comfort and confidence were established so that each principal understood the shared risks, the project success goals, and the commitment to be accountable to each other. All believed the goals were attainable, even though those goals represented a substantial reach.

Conclusion

The New Campus East project at the National Geospatial-Intelligence Agency Headquarters was noteworthy for its many significant accomplishments. First and starting with a target price based on 20 percent complete documents, the project goals of facility completion and agency operation by the September 15, 2011, were achieved. These were accomplished within the required six-month design and construction acceleration. Second, New Campus East was completed for its original target price without major cost overruns, a rare result in the industry today. This is especially noteworthy given that the project was contracted at 20 percent design completion.

The project was vigilant about safety. It also achieved its stated minority and women business participation goals. One significant reward was the project receiving the national Marvin Black Partnering Award from the Associated General Contractors of America (AGC) for its breakthrough performance, characterized by leadership commitment and a communications process involving all stakeholders.

The key differentiators, in addition to leadership commitment, staying involved, and making tough and timely decisions, were risk sharing and trust. This project had *true* risk sharing, a significant factor that led all parties to be continuously engaged to make those decisions necessary to achieve all project goals. Equally important, trust—developed among the stakeholders from the beginning of the project—never

wavered. Without senior level stakeholder commitment including that of the designer, the NGA, USACE, the general contractor, and the major subcontractors—and the perception and belief that real risk was shared by all—this success may not have been attainable.

There are limited other examples of similar contracting strategies in the industry that failed. When examined, they do not contain all of the necessary ingredients described above. In contrast, the most severe and complex problems can best be overcome or solved in a “one team” atmosphere that is characterized by an approach where all are committed to one another, trust each other, and exhibit a willingness to make the tough decisions to resolve all issues as the project progresses.

About the Author

Bill Calhoun was elected to the National Academy of Construction in 2017. He is a senior executive with Clark Construction Group, responsible for driving the company’s strategic direction. Bill is a national leader fully engaged in partnering with his clients, mentoring the next generation, and fulfilling civic responsibility. He has provided leadership on numerous award-winning projects, including the National Geospatial-Intelligence Agency New Campus East project.

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