Sources of Changes in Design–Build Contracts for a Governmental Owner

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Abstract: In recent years, many U.S. federal, state, and local governments have been authorized to use the design–build method of project delivery instead of the traditional design–bid–build method. Recent studies have not been definitive on the cost advantage of design–build for governmental owners. There are fewer change orders in design–build due to design errors because the designer (architect/engineer) and contractor are one entity, but there are other causes of change orders. Some literature suggests that changes requested by the owner of the facility are greater with the design–build method. This research examines the causes for construction-phase changes in 14 design–build and 20 design–bid–build projects. Total changes, expressed as number per contract, cost per contract, or percentage of original contract, were significantly lower in design–build. Fewer design errors in design–build accounted for this advantage. The number of owner-requested changes was significantly greater in design–build. The cost of owner-requested changes, averaged over all the projects, was significantly less for design–bid–build. The differences in changes due to differing site conditions were not significant. The concept that there are more owner-requested changes in design–build projects is supported by this research.

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CE Database subject headings: Construction management; Project delivery; Design/build; Contracts.

Introduction

The procurement of public goods is subject to restraints not found in private procurements. These restraints often limit the governmental project manager’s choice of project delivery systems. Although both public and private procurement processes strive for efficiency and effectiveness, public procurement must maintain public confidence by displaying the virtues of accountability, transparency, equity, and fair dealing in relation to procurement processes and by assuring that procurement conforms to the public welfare objectives of the government (Schapper et al. 2006). In keeping with public confidence and policy outcomes objectives, governments must procure public works by fair and open processes. Because of the large sums of money spent on public construction and the history of corruption associated with these works, governments have specific laws and often comprehensive regulations that define procedures to be followed when procuring construction. For most of the 20th Century, public construction was procured via competitive sealed-bid procurements. The project delivery system known as design–bid–build (DBB) effectively formed from this type of procurement. For DBB the public owner first procure an architect/engineer (A/E) to design the project, often using a qualifications-based procedure. The A/E’s design forms the basis for documents used in a request for bid (RFB) that is open to all qualified contractors. Contractors submit sealed bids, and the lowest bidder is awarded the job (ABA 1982). This system assures that the construction contract is procured by an open and fair system. Contractors’ work is insured, as they are required to submit a bond with their bid. Later, the winning contractor must supply other bonds. [See U.S. Code, Title 40, Sections 3131–3134, regarding federal bonding requirements, and Atlynx Surety Brokers (2006) regarding state requirements.]

There are several disadvantages to the DBB project delivery system. The greatest disadvantage involves changes to the contract. Most construction contracts will have changes; some will have many changes. Although the boilerplate contract will have mechanisms for pricing such changes, the negotiation for pricing the change is fundamentally asymmetric, as the costs are the contractor’s, and thus the contractor defines the costs. Changes and their pricing often force an adversarial relationship between three parties: the owner, the A/E, and the contractor. Communication between A/E’s and contractors is often not good to begin with, and their relations may be worsened if an A/E error is the putative cause of change. Relations between the owner and the contractor are made more difficult because the fairness and openness virtues of public procurement are antithetical to the “good will” requirements of private business. Absent patent criminal behavior, the public entity often must let the contractor bid on future projects if the contractor can produce the necessary bonding. The adversarial nature of DBB diminishes interactive learning between A/E’s and contractors.

Of course other project delivery systems also have problems with changes. This research reports on the causes of changes in the most prevalent alternative to DBB, namely design–build (DB). It resolves some conflicts in current literature regarding the putative cost advantage of DB over DBB by examining the causes of changes in the two systems. It provides information that managers of public construction projects may use to support their decision making regarding which delivery system to use on particular projects.
Background

The DB project delivery system is the original method of building public works and other construction, predating DBB by centuries. In DB the owner hires a contractor to provide both design and construction. DB is currently used to deliver approximately half of the nonresidential construction in the United States. (Design-Build Institute of America 2007). There are two significant advantages in DB for all owners: one is that design errors are essentially eliminated as a source of change to the construction contract; and another is that the A/E and contractor, by working together, can use their skills to reduce project cost and reduce construction time. For public owners, there is a third important advantage in that the contractor’s qualifications can be considered in the selection process.

A typical public DB selection will start with the owner developing a request for proposal (RFP) package. The owner will use in-house staff or an outside A/E to develop the “design criteria” that are the basis for the RFP. (Sometimes this requires a partial design, and this is referred to as the “bridging design.”) These criteria explain the outcomes the owner expects from the project and what the owner will provide. For example, if the project were an office building, the RFP would describe the site and the number of office compartments, common areas, kitchens, parking spaces, etc. Next, the project is publicly advertised and contractors consider the RFP. Similar to DBB, the proposals are delivered to the owner at a certain time. The proposals will have two sections: one section has the DB contractor’s qualifications and preliminary design, and the second section will have a sealed price proposal. The DB contractor’s qualifications will have lists of recent jobs and financial data. The proposal may include qualifications of the A/E, either in-house or subcontracted, and the A/E’s necessary professional licenses and qualifications. The owner will then have a selection committee that evaluates both parts of each proposal and decides which proposal offers the “best value” to the owner. There are many variations to this basic algorithm; for example, a prequalification phase is useful in discouraging all but the highest qualified proposers. Sometimes there are oral presentations and conferences after the initial RFP is reviewed. It is feasible to bid DB projects in a one-step process with prequalified bidders if the design is standardized. Certain road and transportation DB projects are let with low-price bidding.

Although the laws that govern public procurement are different for local, state, and federal government jurisdictions, until relatively recently almost all those governments specified DBB as the default method of construction project delivery. Most government procurement laws had provisions for using DB and other “nontraditional” or “innovative” project delivery systems and procurement methods, but using these methods required special approvals and often required a finding that DBB “was not practical” (ABA 1986). That began to change rapidly in the 1990s. In 1990 the Federal Highway Administration introduced a program known as “SEP-14” to enable local transportation agencies to test and evaluate alternative contracting methods (USDOT 2006). In 1996 the federal Clinger-Cohen Act (U.S. Code, Title 10, Section 2304), put DB on equal footing with DBB for federal projects. Today about half the states have laws that allow some sort of “best value” procurement (Heisse 2002) and DB delivery. The 2000 revision of the Model Procurement Code (ABA 2000), which is not the law itself but is an expert opinion of what the law should be, also put DB as well as other nontraditional project delivery systems on equal footing with DBB. DB is allowed in many states now, and others are striving to change their laws to permit DB.

Even in jurisdictions where DB is permitted by law, more effort by project managers who might want to use it may still be required. There is substantial inertia in some agencies because of their unfamiliarity with DB and agency managers’ anticipation of problems inherent with new procedures (Laedre et al. 2006). In some localities there is occasionally some negative reaction by individual A/E’s and contractors, although most A/E and contractor organizations endorse use of DB (National Society of Professional Engineers 2007). For agencies that are new to DB project delivery, the public project manager would need some basis other than novelty for recommending DB over DBB. This recommendation would hinge on anticipated advantages in quality, cost, and time.

There have been studies published comparing the DB and DBB systems. Some of these studies are comprehensive, but most do not treat public construction separately from private. Most studies seem to indicate little difference in quality, with “owner satisfaction” of DB projects meeting or exceeding expectations (Molenaar et al. 1999). The majority of published studies indicate some advantage in time. Logic would indicate that there should be a substantial time savings for public projects, as there is a single procurement cycle for DB, whereas for DBB there are two procurement cycles—one for the A/E and one for the contractor. In addition, DB construction can start before the design is complete (see Fig. 1). As for cost, there seems to be some question as to the advantage of DB over DBB, and that is discussed in the following.

There are two methods of looking at construction-cost growth. One method, termed construction-phase cost growth, is to start with an initial predicted cost, usually the planning-phase estimate of the construction cost, and compare this with the final cost of construction. A second method, termed construction-contract cost growth, is to examine the total cost of the changes to the construction contract. (In DB the term delivery cost is sometimes used to indicate that design costs are included with construction. In this research the DB design costs are included within the term construction.)

Changes during construction almost always are a source of consternation for construction project managers. But not all changes are deleterious to the project. For example, in a “value engineering” change, a contractor recognizes a method of changing the design that will increase value. If the owner approves the change, the contractor will charge the price somewhat, and both the contractor and owner will profit from the change. Changes might be categorized as “controllable” or “uncontrollable” from the owner’s project manager’s point of view. Controllable changes include design errors, lack of site access (perhaps due to permitting problems), or deficiencies in owner-furnished materials or equipment. It is possible to have “design errors” in DB if there are discrepancies between the design criteria and the realities of the project. Examples of uncontrollable changes might be changes requested by the using group (often the user and project construction manager are divisions within the same owner entity) or differing site conditions—ones that would not have been discovered during reasonable preconstruction investigation. It might be assumed that an owner-requested addition to the contract might cost more if it is negotiated during construction rather than if it were included in the RFB or RFP; however, there is usually an increase in value of the project to the owner from the change. On the other hand, rectifying design errors or compensating for poor soils are often costly, but do not add to the utility of the
finished project. Consequently, when evaluating reports of cost growth or changes in DB versus DBB contracts, it is important to distinguish the sources of the change, insofar as they may be different between the systems.

Previous literature was generally quite positive on the cost benefit of DB. [A good summary of that literature is found in the Design-Build Effectiveness Study (USDOT 2006).] For example, a 1997 study by the Construction Industry Institute (CII) indicated that for combined public and private construction the median cost growth of DBB was twice that of DB: 4.83 versus 2.17%. Also, 49% of the DBB projects had design and construction cost growth greater than 5%, whereas only 34% of the DB projects did (CII 1997). When CII isolated public construction, they found no significant difference in cost growth. That study did not distinguish causes of cost growth or changes.

Similarly, more recent literature has not indicated a clear cost advantage for DB over DBB. A 2002 study by the National Institute of Standards and Technology and CII (Thomas et al. 2002) analyzed a large database of projects. The database distinguished projects submitted by owners from projects submitted by contractors. That study showed that for projects submitted by owners, the cost growth was slightly less for DBB than DB, although the results were not statistically significant. For projects submitted by contractors, the result was opposite, but again not statistically significant. In projects submitted both by owners and contractors, there was a significant difference in number of changes, there being far fewer for DB than DBB, and the results were significant. However, when the results were compared for public-versus-private projects, there were not enough public projects to present the public-project data separately. Again, the causes of cost growth or changes were not discussed.

A 2003 study of 67 projects, mostly domestic but some overseas, and generally costing between $25 and $75 million, confirmed the schedule advantage of DB over DBB, but indicated that the cost advantage was not clear (Ibbs et al. 2003). Considering the cost growth for the project, DBB had less cost growth than DB. Considering the construction phase, the growth was almost equal: 8% for DB versus 9% for DBB. This study was of mixed public and private projects, and the average size of the DB projects was $455 million versus $63 million for DBB projects. It did not distinguish the types of change.

A 2005 study of the 120 mechanical construction projects of one mechanical contractor did contrast owner-directed changes from “unforeseen” or “field” changes, which presumably included both design errors and differing site conditions (Riley et al. 2005). This study indicated a substantial advantage of DB over DBB in unforeseen changes and an advantage in owner-directed changes as well. The study included both public and private projects.

The 2006 “Design-Build Effectiveness Study” (USDOT 2006) paired 11 similar DB and DBB transportation-related projects—the average project size being about $50 million—and compared the cost growth and changes. The study indicates that the contract cost growth was 6.0% for DB and 4.3% for DBB. For changes, the study reported DB projects averaged 16 change orders with a total average cost of $837,000 per project, whereas DBB had 22 change orders that had an average of $588,000 per project. Hence DB had fewer change orders but they cost more. Note that the wide variation in the data made none of the results statistically significant.

Are the causes of changes different between the two systems; for example, are there more owner-directed changes in DB? As reported in a recent study of transportation-related DB and DBB projects (USDOT 2006), the project managers felt that owner-requested additions or subtractions were twice as important a source of cost changes than poor design. There are several reasons to suspect that there would be more owner-requested changes in DB than DBB.

Fig. 1. Typical bar chart schedules of DB and DBB (after USDOT 2006), indicating the generally accepted schedule advantage of DB over DBB. The heavy arrow indicates a time region where DB is more sensitive to owner-requested changes to scope, when measured as construction-contract cost growth or amount of contract changes.
respect to the contract. If a change is needed during the design phase of a DBB project, the A/E incorporates the changed item into the RFB upon which the contractor bids. The changed item may even be incorporated into the RFB via an addendum up until just before the bids are due. This type of change may appear as construction-phase cost growth, but not as construction-contract cost growth or as a change. In DB, however, as the contractor is the designer and the construction or delivery contract includes the design, there is opportunity at the beginning of the contract for an owner-directed change to result in a change to the contract (see Fig. 1). Presumably the change to the total project cost would be similar for both DB and DBB, except that in DB the changed situation identified during design would be bid competitively, whereas in DB it would be negotiated.

Second, in DBB the A/E and owner work together, and there are several presentations which provide opportunity for the A/E to discuss design features with the users. If the owner does not agree to a feature, the A/E can change the design. For DB, the owner agrees to a contract based on a preliminary design. Although typically there are meetings and presentations during the design process, the contractor’s A/E is trying to follow the preliminary design and contract documents, not the proclivities of the owner’s representatives.

Lastly, there may be a difference in how changes are recorded. When a user in a DB project notices a deficiency in the design and asks for it to be changed, a determination must be made about whether or not the design conforms to the original design criteria documents and the proposal. If the design conforms to the design criteria, the DB contractor will ask for more money to change the design. This could then be reported as an owner-requested change or as a design error in the initial design criteria documents. The owner’s construction project management staff may feel responsible for the initial design criteria if they did it in-house or if they hired the A/E and reviewed the documents. Hence they would have a bias toward reporting such changes as owner-requested.

The research reported here examines a set of government projects that were built using either DB or DBB, and determines the amount of change and construction-contract cost growth and also the causes of change. It tests the hypothesis that there is less construction cost growth and fewer change orders in DB than DBB for governmental projects. It also examines the causes of change orders and explores if they are different in DB versus DBB. Finally, this study examines if changes, especially owner-requested changes, are more prevalent in DB.

**Methods**

Records of projects recently completed in the state of Alaska were obtained from both the Northern and Southern Alaska Area Offices of the Pacific Ocean Division of the U.S. Army Corps of Engineers. The projects were built between 2000 and 2006. The projects were mostly military construction (MiCon) for the Air Force at Elmendorf, Eielson, or Clear Air Force Bases or for the Army at Fort Wainwright or Fort Richardson. This study characterized the projects as belonging to one of five classes: family housing, barracks/dormitories, utilidors, industrial, or other. The family housing projects were usually wooden multifamily dwellings of one or two stories. The dormitory/barracks were concrete and masonry buildings of three or four stories. Utilidors (combined from the words utility and corridors) are concrete underground structures that hold water, wastewater, steam, and often electricity and communications lines. The military bases have programs for replacing the 50-year-old utilities within these structures and correcting structural deficiencies. The industrial projects were either hydrant (underground) aircraft fueling systems projects or renovations to the coal-fired power plants. The classification of other included ordinance ranges, animal kennels, a flight simulator, and a physical fitness center. The hydrant aircraft fueling projects and a hangar project incorporated large areas of paving, and there was road and paving work incidental to the housing and utilidor projects. Table 1 has the breakdown of the projects by type and other project demographics.

The principal source of data was the 2004 U.S. Army Corps of Engineers Resident Management System (RMS), which tracks each change to each contract managed by the Corps. The Corps project manager assigns a code to each change. Important codes include Type 1, engineering changes, which includes design errors; Type 4, user changes; and Type 7, differing site conditions. Both Types 4 and 7 are considered “uncontrollable” changes, whereas Type 1 is the principal uncontrollable change (USACE 2004). The user changes are owner-requested changes that are uncontrollable from the construction manager’s point of view. The data were input into a spreadsheet as it appeared in RMS with the exception of a few cases where there was an option negotiated at the beginning of a contract. Such an option would appear as a change line in RMS, but was more appropriately added to the original contract price. Two projects were considered anomalies and were removed from the database. These are discussed in the following.

There are other types of change in RMS besides Types 1, 4, and 7, some considered controllable and some uncontrollable. Controllable changes include value engineering, government-furnished property, suspensions and terminations of work, and construction changes. Uncontrollable changes include miscellaneous changes, variations in estimated quantities, and excusable delays (USACE 2004).

The comparisons were made using a t-test with one tail, the hypothesis being that DB was superior to DBB in the characteristic examined. The level of significance was chosen as $p = 0.05$ or a 95% confidence level.

Parallel to RMS, there is a project management plan (PMP) for each project that discusses the project delivery system and acquisition strategy, and a programs and projects delivery system (PPDS) system that tracks the project schedule. The PMP was used to determine if the project was DB or DBB. The PPDS schedule was used together with RMS to determine at what stage of a DB contract the changes took place, i.e., early in the contract when design was predominant, or later in the contract when construction had started.

This study reports construction contract growth, which is based on the original contract price and its changes. Of course, for
DB contracts, the construction contract includes costs for design. In comparing the different classes of projects that comprised the writer’s limited database, the writer grouped family housing with dormitory/barracks, calling that group housing, and grouped industrial, utilidor, and other projects, calling that group industrial.

### Results

Tables 2–4 report the average number of changes for projects constructed with DB versus DBB project-delivery systems and the average cost per project. Table 2 indicates that the construction-contract cost growth, average number of changes per project, and average cost of those changes per project were significantly less for DB projects.

Table 3 indicates that there is a significant difference between DB and DBB in the causes of changes when they are grouped into controllable and uncontrollable categories, DB having fewer and less costly controllable changes.

Table 4 indicates the causes of changes and shows that there are significantly fewer Type-1 (engineering) changes in DB, and they cost less. There were significantly more Type-4 (user) changes, and these are more expensive. For Type-7 (differing site conditions) changes, DB and DBB have similar numbers and costs. Type 1 is included under controllable changes, whereas Types 4 and 7 are considered uncontrollable.

### Discussion

It is important to realize that all construction projects are different. The outcome of projects depends on their individual project characteristics, the people managing them, and occasionally, the events beyond the practical control of any project participants. By considering a large number of projects in appropriate classes, some generalities may emerge, but their applicability to a particular future project will always be in question. Although the writer’s report on the differences of 34 projects (14 DB and 20 DBB), the researchers did not attempt statistical treatment of all the other variables, such as Air Force or Army, new construction versus renovation, year of design, years of construction, and designer (in-house or contracted).

The data clearly indicate that there are fewer and less costly changes in DB and that this advantage is prominent in the controllable changes, especially the lower number and cost of engineering changes. This is to be expected, because in DB the contractor is responsible for the design. However, it is still possible to have design errors in DB if there are discrepancies in the original design criteria documents. The data indicate that there are significantly fewer Type-1 changes in DB, and those that do occur are more controllable and relatively less costly. Type-4 changes, for example, are more frequent and costlier in DBB.

The other types of change in RMS besides Types 1, 4, and 7 made up almost 20% of the total dollar value of the changes. However, 11% of the total changes were due to two large change orders, a suspension of work due to contaminated soils and a defect in government-supplied property. The other 9% of the changes were scattered between such causes as value engineering, miscellaneous changes, administrative changes, and construction changes. These changes are included under controllable and uncontrollable changes. Excluding them would not have changed the result.

The two projects that were removed from the database had very large Type-4 changes. One DB project had a significant differing site condition (contaminated soils) that resulted in a lengthy shutdown and a large reduction in the scope of work. The other, a DBB power plant project, had a change in owner requirements that increased the scope of work by 15%. These changes resulted in a large positive Type-4 change (and cost savings) for the DB project and in a large negative Type-4 change for the DBB project. Including these in the database would have altered the conclusions regarding the costs of Type-4 changes, making the costs of DBB Type-4 changes appear larger and those of DB projects, smaller.

There were no significant differences between housing and industrial groups within DB, or were there differences between them within DBB.

There were no incidences of Type-4 changes in the first few months of DB contracts.

### Table 2. Cost Growth and Changes for DB versus DBB Projects

<table>
<thead>
<tr>
<th>Project delivery system</th>
<th>Construction-contract cost growth (%)</th>
<th>Average number of changes per contract</th>
<th>Average growth cost per contract ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBB</td>
<td>6.6</td>
<td>25</td>
<td>1,069,882</td>
</tr>
<tr>
<td>DB</td>
<td>3.1</td>
<td>14</td>
<td>480,046</td>
</tr>
<tr>
<td>p value</td>
<td>1.7</td>
<td>1.5%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

Note: Bold type indicates all were significant with \( p < 0.05 \).

### Table 3. Comparison of the Number and Cost of Changes for DB and DBB, Separated into Controllable and Uncontrollable Changes

<table>
<thead>
<tr>
<th>Project delivery system</th>
<th>Controllable changes</th>
<th>Uncontrollable changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number/average contract</td>
<td>$/average contract</td>
</tr>
<tr>
<td>DBB</td>
<td>17</td>
<td>739,667</td>
</tr>
<tr>
<td>DB</td>
<td>6</td>
<td>190,791</td>
</tr>
<tr>
<td>p value</td>
<td>0.1%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Note: Bold type indicates significance with \( p < 0.05 \).

### Table 4. Comparison of the Number and Costs of Changes for Each of Three Change Types

<table>
<thead>
<tr>
<th>Project delivery system</th>
<th>Type 1, engineering changes</th>
<th>Type 4, user changes</th>
<th>Type 7, differing site conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number/average contract</td>
<td>$/average contract</td>
<td>Number/average contract</td>
</tr>
<tr>
<td>DBB</td>
<td>15</td>
<td>482,513</td>
<td>1</td>
</tr>
<tr>
<td>DB</td>
<td>4</td>
<td>195,714</td>
<td>5</td>
</tr>
<tr>
<td>p value</td>
<td>0.1%</td>
<td>5.1%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Note: Bold type indicates significance with \( p < 0.05 \).
were indeed design errors in DB, but that they were smaller and less frequent than DBB.

The difference between DB and DBB in Type-1 changes is large, as would be expected; in DBB they are almost 21/2-fold more costly. The small difference in cost of the Type-7 changes is expected.

Earlier, the paper presented several putative reasons why there may be more owner-requested changes in DB. In fact, there were significantly more Type-4 changes in the average DB contract than in the average DBB contract, and the cost was significantly greater. Almost all DB projects—12 out of 14—had Type-4 changes, whereas DBB projects had only 9 out of 20 Type-4 changes. Although the Type-4 changes over all the DBB projects averaged $5,000, that average includes the many projects that had no changes. Considering the typical change size, there was a significant difference between DB and DBB—DB was 48,070, whereas DBB was negative 32,034—that is, DBB had more and larger user deletions than DB. Looking at the absolute value of the Type-4 changes, DB was 52,779, whereas DBB was 59,538, and the differences were not significant.

Contrasting the present findings with SEP-14 projects reported (USDOT 2006), it is noted that those were mostly larger projects and none were housing. Also, transportation-related projects more often experience delays from third parties, such as utilities and permitting agencies, whereas the projects reported here were all on military bases, and the utilities were supplied by the base.

Some subtleties regarding project scope were avoided by focusing on construction-contract cost growth and changes. Consider two cases: with the first case, in DBB the A/E prepares cost estimates at various design stages. If these are over the initial programming estimate, the A/E may scale back the scope of work. Hence the final constructed product will be closer to the programming estimate and therefore have limited project cost growth, but the work may have a smaller scope or less expensive components. With the second case, in DB the owner will have both the DB’s cost proposal and the DB’s preliminary design. If the cost proposal is over the initial programming estimate but within the total project budget, and the owner is pleased with the design or the design includes special features, the owner may be willing to give up some of the owner’s contingency. This would be more likely if the qualifications portion of the proposal increased the owner’s confidence that changes would be minimal. Hence the DB would exhibit construction-phase cost growth, but not scope contraction.

Conclusions

For this group of projects, DB had less construction-contract cost growth and fewer and less costly changes. The reduction in design errors accounts for this advantage. DB had significantly more owner-requested changes. There was no significant difference in differing site-condition changes. The difference in cost of owner-requested changes is not clear. Most DB projects had Type-4 changes, whereas the majority of DBB projects did not have any. More DBB projects had Type-4 changes that reduced costs. The absolute value of the typical contract change was not different between DB and DBB. It is clear that the costs of Type-4 changes did not obviate the advantage of DB in Type-1 changes, hence the overall cost growth was 21/2-fold greater in DBB. Future work should explore details of owner/user changes in DB as an area where improvement is possible.

Acknowledgments

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U.S. Code, Title 40, Sections 3131 to 3134 (referred to as the “Miller Act”).