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Elizabeth Kraft
Dye Management Group, Inc.

Heedae Park
Iowa State University

Douglas D. Gransberg
Iowa State University, dgran@iastate.edu

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by

Elizabeth Kraft, PhD
Senior Consultant
Dye Management Group, Inc.
10900 NE 4th Street, Suite 1910
Bellevue, WA 98004-8366
PH (720) 352-4216
E-mail: ekraft@dyemanagement.com

Heedae Park, PhD
(Corresponding Author)
Postdoctoral Research Associate
Iowa State University,
Department of Civil, Construction, and Environmental Engineering
326 Town Engineering Building
Ames, Iowa 50010
PH (515) 708-7026
E-mail: hpark@iastate.edu

Douglas D. Gransberg, **PhD, PE**
Donald and Sharon Greenwood Chair of Construction Engineering
Professor
Iowa State University,
Department of Civil, Construction, and Environmental Engineering
494 Town Engineering Building
Ames, Iowa 50010
PH (515) 294-4148
E-mail: dgran@iastate.edu

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ABSTRACT

In the highway industry, one of the main methods to prequalify a contractor is whether or not a performance bond can be secured from a commercial surety. The current performance bonding system does not differentiate between high-performing and marginal contractors. So if two companies have the same level of financial assets, they have the same ability to furnish performance bonds. This paper details the analysis of the benefits and costs of performance bonds. This paper reports the results of a study based on case studies in five State Departments of Transportation (DOTs): Iowa, Oklahoma, Utah, Virginia, and Washington. Structured interviews were also conducted with members of the construction contracting sector and the surety industry. The paper finds that while average default rates are less than 1.0% and a performance bond adds an average of 1.5% to the cost of every construction project, both DOTs and contractors would be reluctant to eliminate performance bonds from the industry. Therein, lays the paradox: construction project owners are willing to pay an additional 1.5% to protect itself from an event that happens less that 1.0% of the time.

INTRODUCTION

State highway agencies (SHAs) are under pressure to provide improved transportation infrastructure in the satisfactory quality, time, and lifecycle cost as the public expectation increases (*1*). SHAs rely on construction contractors to build, rehabilitate, and replace their infrastructure assets. The Federal Highway Administration (FHWA) and the SHAs want to ensure that the contractors who will be awarded construction contracts are both technically competent and financially capable of completing projects without risking bankruptcy. One risk mitigation tool that is nearly ubiquitous is the performance bond, which essentially assures the owner that the project will be completed even if the contractor defaults. Performance bond is an easy and efficient contractor screening method for SHAs' large qualification process and is important especially for large or complex transportation projects which may bring over a huge losses to SHAs when a default occurs. However, this protection is not free and to require it forces the contractor to add the cost of the bonding fee to the bid cost of construction, which is passed on to the agencies. Accordingly, adjustment of the portion of a project value that requires a performance bond is a research topic worth investigating.

This paper reports an evaluation of the benefits and costs of using performance bonds and identifies the rationale for retaining the current performance bond system. The paper also relates the outcome of the research and furnishes recommendations for restructuring the current system from its present form to better balance the benefits of continued use of bonds with their actual quantitative and qualitative costs in the context of highway construction contracting in the 21st century.

BACKGROUND

A performance bond is a promise from a surety that monetary compensation or contract completion services will be provided to the owner if the contractor fails to complete all the services required under the construction contract. Its primary function is to insulate the project's owner from potential damages due to contractor default. Sureties' performance bonds hold State Departments of Transportation (DOT) harmless in the event that a contractor fails to complete a bridge or highway construction contract and then is unable to provide a remedy for the failure. Experience has shown that the problem almost always arises from the contractor's deteriorated financial condition (*2*). DOTs generally use one of three approaches for performance bonding:

1. Bond the entire contract value,
2. Bond a portion of the contract value, or
3. No performance bond requirement.

The Miller Act of 1935 made performance bonds a requirement for federal construction work, and thus required any states that accepted federal funds for construction work to create their own legal requirements for performance bonds (*3*). However, the percent of the contract value to be bonded and the minimum contract value that requires a bond vary with the states. Each individual state created its own specific Miller Act, known as ″little miller acts″ which define the requirements for performance bonds. The amount of bond required also varies across the nation, from 25 percent to 100 percent of the contract value. The vast majority of the states require a performance bond for 100 percent of the value of the contract. The minimum contract size that requires a performance bond also varies from state to state, and ranges from $0 to $300,000.

Most states require that performance bonds be secured for contracts over a specific dollar amount, typically $25,000, although the minimum contract amount ranges from any dollar value (in California) to a much higher values (in Indiana, where the minimum is $200,000). The required

performance bond coverage also varies by state, ranging from a portion of the contract amount to the full contract amount. Performance bonding requirements may also extend to subcontractors (*4*). For example, the Florida DOT (FDOT) requires that the secured performance bond value be equal to the contract price, except for contracts greater than $250 million (an amount in excess of which is generally too great for a single performance bond to be issued), or if the state otherwise finds that a bond in the amount of the contract is not reasonably available, in which case the bond amount will be set at the largest amount reasonably available. For contracts greater than $250 million, FDOT can use a combination of bonds equal to a portion of the contract amount, along with an alternative means of security applied to the remaining portion, such as letters of credit, U.S. bonds and notes, parent company guarantees, and/or cash collateral to replace bond requirements (*4*).

According to a survey completed by the Dye Management (*4*), most states (28 of the 41 surveyed) require a 100 percent performance bond on projects. A review of state procurement laws found that only five states, Arkansas, Connecticut, Oregon, Vermont, and Wisconsin, do not always require some type of performance bond on projects. In each case, a performance bond may be waived or the contractor may provide a substitute type of security, such as a cashier's check for 100 percent of the contract amount.

Meanwhile, there is some dispute about whether a performance bond works well as a contractor prequalification system. Performance bonds protect against only the financial losses of the agency and using performance bonds alone could not guarantee that a contractor can complete a project (*2)*. The majority of U.S. and Canadian DOT survey respondents to the *NCHRP Synthesis 390* survey (*5*) stated that a performance bond is not sufficient evidence of contractor prequalification. The Ontario Ministry of Transportation's program eliminated performance bonding (*6*) and replaced it with a rigorous performance-based prequalification program. Most U.S. states require that performance bonds be used in conjunction with other contractor eligibility evaluation methods.

METHODOLOGY

For the purpose of reviewing multi-faceted benefit and cost of performance bonds, this study relied on four independent sources of information as follows:

1. Literature review.
2. Focused survey of DOTs and construction contractors.
3. Structured interviews with construction contractors and the surety industry.
4. Case studies of five DOT bonding programs.

The first was a comprehensive review of the literature. An effort was made to seek not only the most current information but also historical information so that the change, if any, over time in performance bonding practices could be mapped and related to the current state-of-the-practice.

The second line of information came from focused survey responses from seven state DOTs: Alabama, California, Florida, Georgia, Missouri, South Carolina, and Vermont. These participants represented small, medium, and large transportation agencies and reflected a reasonable geographical cross-section for data collection. Because of recent comprehensive surveys of DOTs and contractors completed in studies completed by the authors for the Michigan and NCHRP 390 studies *(4, 5)*, the survey approach for this study was atypical of those usually found in quantitative academic research. This study needed to not only learn what was happening in each respondent organization but also why it was being done in the given fashion. Therefore, the questionnaire was quite open-ended and the team relied on follow-up calls to ensure that the

survey information was properly portrayed. The same approach was used for the survey of eleven contractors. Their responses reflected a wide range of organization sizes, types, and degrees of participation in the DOT-specific work. At the time of the survey, national firms employed six of the participants, while regional firms employed two of them. Of the remaining participants, one was employed by a firm that does international work, one worked in a single state, and the final contractor's market was completely local transportation agencies.

Finally, the case study candidates were drawn from two sources: the literature and survey responses indicating an agency's willingness to contribute a case study. The analysis occurred on the following three levels:

1. General agency performance bonding and contractor evaluation policy
2. Specific agency constraints and preferences
3. Individual respondent perceptions and opinions

The authors used the case study method described by Yin (*7*) to furnish a rigorous methodology for collecting the data from the case study projects, which maintains that planning the process of accessing and collecting data is essential preparation for efficiently and accurately collecting cogent information. Additionally, it is equally important to carefully select cases that can be compared directly with one another and also offer cross-sectional diversity. The selected sample fulfills this requirement in that there are a diverse set of agency statute, regulation and policy constraints that were sampled as part of the case study.

While the collection of cases needs to cover the performance bonding spectrum in this research, it is "important that the participant pool remain relatively small" (*8*). Although fewer cases can sometimes lead to unsubstantiated research conclusions based on the probability of atypical case selections, it provides a better opportunity to examine each case in detail without becoming too cumbersome. Therefore, the information gleaned from the case studies is coupled with information collected in the survey and the literature review to validate any conclusion drawn from the case studies. Note the case study information was gathered by both face-to-face and telephonic interviews.

To summarize, four outreach efforts were conducted to obtain feedback from the major parties that are involved in the use of construction contract performance bonds. Representative DOTs, DOT contractors, and sureties all participated in this outreach effort. The representative DOTs completed surveys on their use of performance bonds, contractor evaluation methods, and views on performance-based prequalification. Contractors also completed surveys to provide input on the use of performance bonds and performance-based prequalification methods. The Surety and Fidelity Association of America (SFAA) provided overall surety industry data, summarized industry practices, and participated in interviews. The final step of the outreach effort was the completion of case studies for five DOTs.

COSTS AND BENEFITS OF PERFORMANCE BOND

The costs and benefits of performance bonds include both quantitative and qualitative aspects. Objectively, one can determine the actual cost of bond premiums paid by an agency over a given period and compare it to the estimated cost to the agency of defaulted contracts. In theory, those numbers should be roughly equal as the agency is spending money for a financial instrument that will protect it from exposure to defaults. Qualitatively, some authors argue that the requirement to furnish a performance bond filters out most, if not all, of the default risk (*3*). Others also argue that the threat of an owner contacting a contractor's surety to warn them of a potential termination through default due to poor quality work or untimely execution creates incentivizes marginal

contractors to correct their behavior for fear that they will not be able to bid on future work because their surety has decided to cease furnishing the requisite bonds (*9*). The surety industry also argues that owners are the recipient of a benefit accrued when the surety recognizes that a contractor is failing and steps in and corrects the issue, preventing default (*10*). This action is typically called a "near miss." Therefore, the following analysis was done keeping both quantitative and qualitative aspects in mind. Where it was impossible to accurately calculate a possible cost or a benefit, the authors turned to the case study interviews to seek validation that the given factor actually occurred in the highway construction sector and whether the DOT and contractor practitioners perceived the factor as a real cost or benefit.

Performance Bond Costs

The costs of performance bonds for which the DOT is ultimately responsible are the performance bond premium, passed through by the contractor in the bid, and DOT administrative costs associated with the management of performance bonds. In addition, the surety industry rates each contractor individually, in the context of a specific contract, and develops a separate premium for each individual project performance bond. Accordingly, the determination of a generalized cost of performance bonds is not a particularly straightforward task and it is nearly impossible to generalize or infer a specific cost for the bonding of a given project. A work written by two eminent construction researchers, Peurifoy and Oberlender (*11*), provides the following guidance:

> All government agencies and many private owners require a contractor to furnish a performance bond to last for the period of construction of a project. The bond is furnished by an acceptable surety to ensure the owner that the work will be performed by the contractor in accordance with the contract documents. In the event a contractor fails to complete a project, it is the responsibility of the surety to secure completion. Although the penalty under a performance bond is specified as 25, 50, or 100 percent of the amount of the contract, the cost of the bond is usually based on the amount of the contract and duration of the project (*11*).

The cost of a performance bond varies based on a number of factors, but is primarily based on the capacity of the contractor to perform the work and the financial stability of the contractor. Table 1 lists the average performance bond costs in 2002 (*11*) and shows bond costs as a range in cost in terms of dollars per $1,000 of project value. When these costs are translated to percentages of project value, the bond costs range from 0.48% to 1.20% for heavy civil projects.

Table 1 Representative costs of performance bonds per $1,000 (*11*)

Project Size	Building Projects ($/$1,000 of project value)	Heavy Civil Projects ($/$1,000 of project value)
First $500,000	$14.40	$12.00
Next $2 million	$8.70	$7.50
Next $2,500,000	$6.90	$5.75
Next $2,500,000	$6.90	$5.25
> $7,500,000	$5.75	$4.80

RSMeans is a well-recognized source of construction costs for project estimation. It also provides percentage values for performance bond costs. In the RSMeans cost data book for heavy

construction (*12*), the cost of bonds for highways and bridges is listed as a range from 0.4 to 0.93 percent of total contract value. According to the SFAA (*10*), the cost of performance bond premiums on projects typically ranged from 2 percent of total contract cost for small projects (i.e., those valued at less than $100,000) to 0.5 percent for very sizable projects (i.e., those valued at more than $50 million). Table 2 shows one-time performance bond premiums for different ranges of contract amounts, as reported by the SFAA.

Table 2 DOT construction performance bond rates (*10*)

Contract Amount	Performance Bond Premium	Bond Premium Rate
$100,000	$1,200–$2,500	1.20%-2.50%
$1 million	$7,700–$13,500	0.77%-1.35%
$10 million	$56,950–$81,000	0.57%-0.81%
$50 million	$206,475–$341,000	0.41%-0.68%

Meanwhile, the administrative costs of performance bonds are the costs associated with the DOTs' additional staffing required to manage the performance bond process. From the case studies, the authors found that the required staff ranges between 0.5 and 1 full-time employee. Then, the annual cost to administer the performance bonding process is estimated at $104,000 using the most costly option, regarding the required staffs, payroll cost, and work hours. Due to the minimal cost compared to the premium cost of performance bonds, the annual cost to administer the process is not included in the analysis of this paper.

Benefits of Performance Bonds

The benefits a DOT realizes from a performance bond are derived from three different phases of the project: before the contract, during the contract, and after a claim is filed. The benefits received by the DOT before the contract begins result from the typical long-term relationship between the surety and the contractor and the surety's use of enterprise risk management to underwrite the performance bond (*10*). The long-term relationship between a surety and a contractor allows the surety to understand the contractor's business plan and assess the contractor's managerial capacity to execute that plan. When a surety, as a creditor, uses the enterprise risk management approach to underwrite a contractor, it gives the contractor the incentive to adopt the enterprise risk management discipline in its own management and governance. The cost of each of these benefits is included in the cost of the premium for the performance bond.

Sureties state that the benefits a DOT receives during the contract result from the surety's effort to sustain a contractor during the project and the ability of the DOT to use the threat of calling the surety to improve contractor performance. The surety can intervene to prevent failures and losses in ways that the DOT cannot. The validity of this benefit is disputed in the industry. During the case studies performed for this investigation, none of the DOTs had experienced a surety proactively working with an at-risk contractor before the DOT reported a problem. On the other hand, all five case study DOTs reported that the biggest benefit of a performance bond is the ability to threaten to call the surety if the contractor's project performance does not improve.

After a claim is filed, the benefit the DOT receives depends on the option taken by the surety to remedy the default. Once a project defaults, the surety can pay damages to the DOT, assume the role of the contractor and complete the project, or hire a new contractor to complete the project. The benefits of each option have a financial value, and the costs associated with these benefits are included in the premium cost of the performance bond.

However, the DOT receives financial benefits from a performance bond only after a claim is filed. A nationwide study on the cost effectiveness of performance bonds across 30 states (*13*) provided data for 19,135 projects (see Table 3), and found that the 2007 to 2009 U.S. national average of bond premiums was 1.139 percent. Surprisingly, only six states reported contractor defaults in that period. For these states, there were a total of 11 defaulted contractors over 37 projects, while the rate of default was zero for all other States. In other words, 24 DOTs received no direct financial benefit from the bonds included in the contract costs of their projects.

Table 3 Defaulted Projects by States during 2007 – 2009 (*13*)

State	Number of Defaults	Total Projects	State	Number of Defaults	Total Projects
Alabama	7	631	Michigan	0	1,303
Alaska	0	187	Minnesota	0	447
Arizona	0	205	Mississippi	2	392
Arkansas	0	408	Montana	0	231
California	0	1,237	New Jersey	0	256
Colorado	0	326	New Mexico	0	126
Connecticut	0	134	New York	0	559
Delaware	0	170	Ohio	0	1,393
Georgia	19	513	South Carolina	6	681
Hawaii	0	129	South Dakota	0	292
Idaho	2	188	Texas	1	1,333
Illinois	0	2,682	Washington	0	650
Iowa	0	1,424	West Virginia	0	945
Kansas	0	643	Wisconsin	0	901
Maine	0	545	Wyoming	0	204
Subtotal	28	9,422	Subtotal	9	9,713

Table 4 shows the results from the current research case studies of five states between 2007 and 2011. Only one reported a default. Again, the average default rate was less than one percent, and the financial benefits realized by DOTs were very little although they routinely spent millions of dollars annually for the performance bonds.

Table 4 Performance Bonds and Defaulted Projects of Case Study Data (2007 – 2011)

State	Number of Defaults	Total Projects	Annual Average Total Contract Value	Percent Project Value Bonded	Estimated Annual Average Cost of Performance Bond*
Iowa	0	3,980	$636,196,168	100%	$4,453,373
Oklahoma	0	974	$757,314,976	100%	$5,301,205
Utah	0	912	$637,271,320	100%	$4,460,899
Virginia	0	1,811	$527,702,787	100%	$3,693,920
Washington	1	481	$217,543,476	100%	$1,522,804

* Estimate based on a 0.8% performance bond premium rate

PERFORMANCE BOND PARADOX

Herein lays the paradox. All five case studies of DOTs were reluctant to eliminate the performance bonding requirement in the face of objective information that shows that they are paying a substantial amount of money to avoid exposure to a risk that rarely occurs. In Table 4, it happened once in over 8,000 projects and in Table 3, the risk was realized 37 times in over 19,000 projects. The disparity in the numbers combined with the amount of money willingly spent on bonding leads one to the conclusion that since the tangible benefits do not exceed the actual costs, that performance bonds must be furnishing intangible benefits not shown in the numbers to justify the expenditure of scarce public funding.

DOT and Contractor Perspective on Performance Bond

The default rate for the industry is less than one percent, which indicates that it is a statistically random and infrequent event. DOTs protect themselves against potential financial losses from a default by requiring contractors to purchase performance bonds, though performance bonds have not been shown to have a causal relationship in default prevention. The SFAA reported that nationally, DOTs spent $300 million to $350 million in 2010 on performance bonds just for resurfacing projects to cover the less than 1 percent chance of a default. Additionally, the case study states spent $114,159,432 between 2007 and 2011 on performance bonds to be able to handle the financial burden of one default.

However, when asked about abandoning the use of performance bonds during the focused survey to the industry, DOTs were very hesitant to do so. The Vermont and Alabama DOTs noted that they would be very uncomfortable if performance bonds were eliminated. The Vermont DOT does not use risk management professionals because its projects are too small to justify their use, and no projects defaulted between 2008 and 2010 (out of approximately 350 total projects). The survey respondent from the Alabama DOT was not sure whether the DOT had a risk management professional, nor could the respondent provide project default information for the Alabama DOT. The South Carolina DOT respondent stated that it would be somewhat uncomfortable if performance bonds were eliminated. The South Carolina respondent did not know if the DOT had a risk management professional and reported 14 defaults on more than 1,000 projects from 2008 to 2010.

Even when the rate of default was considerably lower, two DOTs still noted the same level of discomfort. The California DOT (Caltrans) and the Florida DOT reported that they are both somewhat uncomfortable eliminating performance bonds, despite the fact that both have risk management professionals on staff and that each only experienced six defaults between 2008 and 2010 (Caltrans completed over 1,800 projects and Florida completed over 1,300 during this period.). The five DOT case studies also found that none of the DOTs were willing to totally eliminate performance bonds from the prequalification process at this time.

In NCHRP Synthesis 390 (*5*), the 24 DOTs surveyed mostly expressed satisfaction with the current bonding system's ability to identify competent construction contractors, as shown in Table 5. In fact, only the Florida, New Mexico, and Oklahoma DOTs noted that they were dissatisfied with the current bond system. Florida has an extensive performance-based contractor prequalification system and has been using it for a number of years.

Meanwhile, the survey to the contractors found that the most contractors did not believe that the ability to furnish performance bonds provided a guarantee of competence (see Table 6). A minority felt that performance bonds guaranteed that a DOT would award its work to qualified contractors, while most felt that a well-qualified contractor and a marginally qualified contractor who have the same bonding capacity did not compete on a level playing field. Responding

contractors believed that well-qualified contractors are typically penalized when performance bonds are the primary (non-price-related) qualification for making a bid award.

Table 5 DOTs' Satisfaction with Current Bond System (*5*)

State	Level of Satisfaction	State	Level of Satisfaction
Arizona	Satisfied	New Hampshire	Satisfied
Arkansas	Satisfied	New Mexico	Dissatisfied
California	Satisfied	North Carolina	Satisfied
Colorado	Satisfied	Oklahoma	Dissatisfied
Connecticut	Satisfied	Pennsylvania	Neutral
Florida	Dissatisfied	South Carolina	Satisfied
Louisiana	Satisfied	Texas	Very satisfied
Maine	Very satisfied	Utah	Satisfied
Maryland	Satisfied	Vermont	Satisfied
Massachusetts	Satisfied	Virginia	Satisfied
Nevada	Satisfied	Washington	Satisfied

Table 6 Contractors' View on Performance Bond

Statement about Performance Bond	Agreement Level*
Performance bonds guarantee the DOT will award its work to be a qualified contractor.	2.75
A well-qualified contractor cannot compete on a level playing field with a marginally qualified contractor with the same bonding capacity.	4.38
If eligibility to bid was based on satisfactory past project performance, some of competitors would not be eligible to bid.	4.38

* Averaged value of respondent contractors (5: strongly agree, 3: neutral, and 1: strongly disagree)

Recommendation for Floor of Bond Requirement

While most states do not advocate abandoning performance bonds, several did suggest that raising the minimum project value requiring a bond needed to be raised. Currently, the minimum value that requires a bond varies between $0 and $300,000. The Iowa case study found that the DOT's current floor of $25,000 has been in place since 1934. Using the consumer price index to account for the time value of money (*14*), $25,000 in 1934 would buy roughly $436,000 worth of road construction 2013. Based on the previous benefit-cost analysis, projects with a contract value of less than $10 million tend to experience a net cost from performance bonds. Also, more than half of the state construction projects, by value and by number, are worth less than $10 million, as shown in Figure 1 and Figure 2.

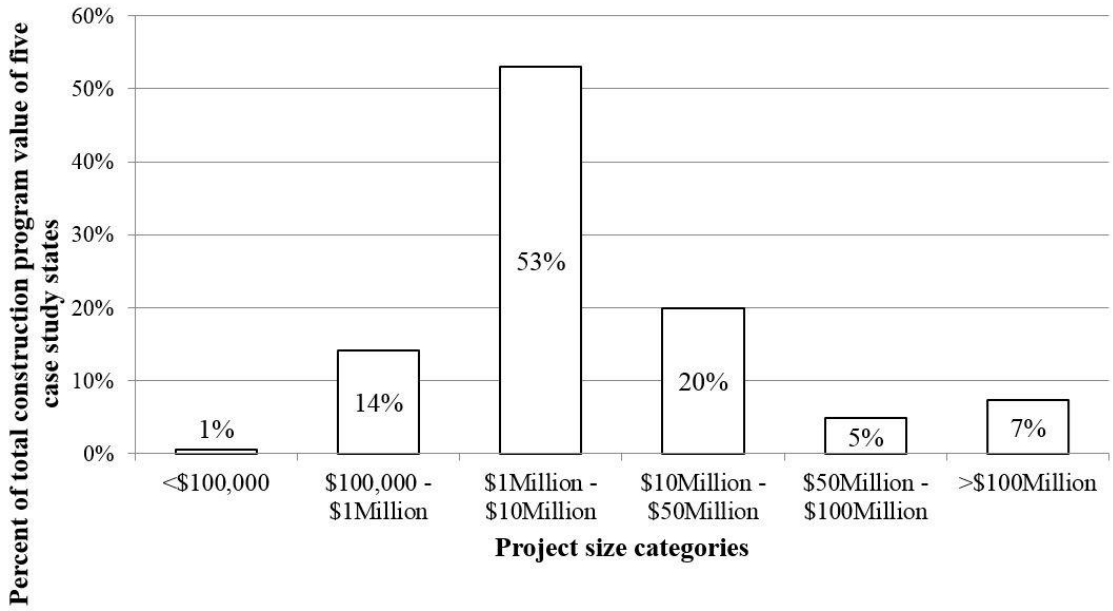

Figure 1 Construction Program of Case Study States by the Total Value

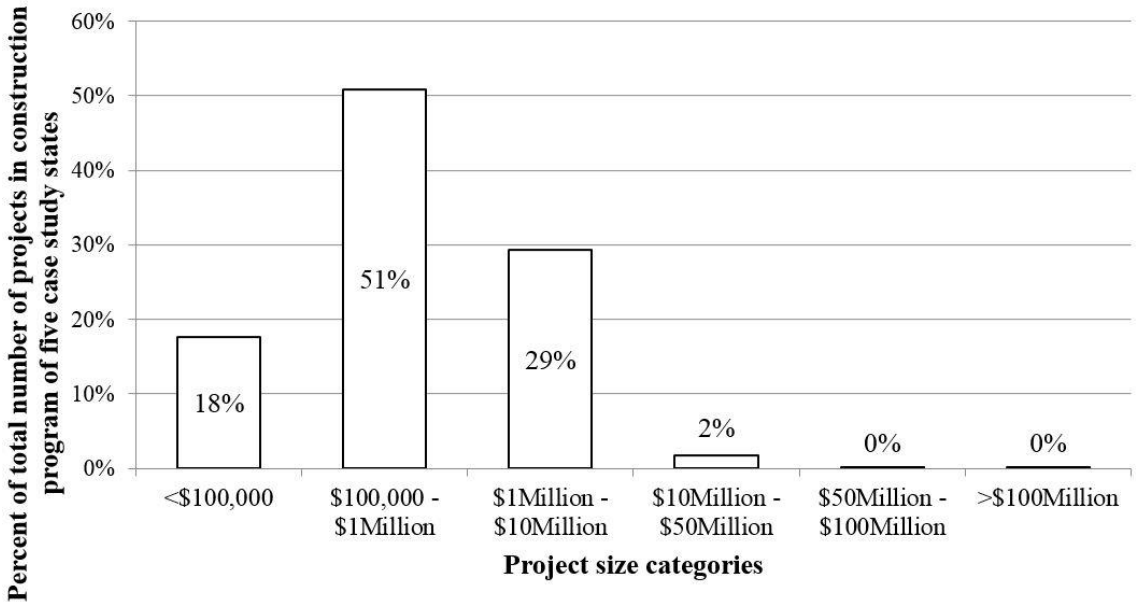

Figure 2 Construction Program of Case Study States by the Number of Projects

The potential default risk would increase if the bond floor is raised. Thus, a recommendation that the minimum value be at least $1 million and no more than $10 million is made. At $1 million, 85% of current project value would still be bonded and a majority of projects by number would not. At $10 million, the majority of projects would not require bonds. This analysis shows, DOTs will be able to free up considerable amounts of money without incurring significant added risk.

The potential savings from raising the floor was calculated for each case study DOT. The total cost savings values were calculated by multiplying the total dollar amount for projects

awarded in each category shown in Figure 1 by the associated SFAA average performance bond premium percentage from Table 2, 1.06 percent, 0.99 percent, and 0.93 percent, respectively and then accumulating the totals as appropriate for each value range. Table 6 illustrates the amount of money each of the case study states could have saved between 2007 and 2011 if the minimum contract value that requires a bond was raised to between $1 million and $10 million.

Table 7 Cost Savings due to Increase of Minimum Contract Value that requires a Performance Bond

State	Savings if Performance Bond Minimum Raised to $1 Million	Savings if Performance Bond Minimum Raised to $10 Million
Iowa	$7,860,376	$26,361,418
Oklahoma	$2,418,408	$12,673,639
Utah	$1,986,490	$13,118,597
Virginia	$4,843,811	$21,415,938
Washington	$1,182,681	$6,517,335

Impact of Raising the Floor on Small Contractors

As previously stated, one of the contractors interviewed restricted its market to local projects. This company was a recently created small business enterprise and the interview uncovered an impact that has not been previously reported in the literature. This contractor stated that because company assets were low, the bond premium it was quoted was more than three times the highest rate shown in Table 2. Therefore, even though the bond cost is a pass-through cost to the DOT, this small business could not compete against marginally performing contractors whose balance sheet contained sufficient assets to qualify for highest premiums in Table 2 on a project awarded to the low bidder. This particular contractor had been in business for three years and had successfully completed a number of paving projects over $1.0 million for agencies that did not require performance bonds as well as a number of private developers.

The literature shows that while each individual surety has its own proprietary formula for determining the total amount of bonding capacity for a given contractor on a specific bid day, the amount is usually in the range of five to ten times contractor's net working capital (NWC) *(15).* NWC is the difference between a contractor's current assets and minus its capital modifier, which is an accounting factor derived from the net cash on hand at the time the bond is required. It might range from zero if the contractor has a large amount of cash on hand to a large number if the contractor has a low amount on hand. A high net cash position indicates a healthy current financial condition and the ability to readily pay bills for labor, materials, and subcontractors, and thus forms a metric to measure the potential for default due to inability to pay the bills when due. Thus, a new business is doubly disadvantaged by the current performance bonding system because both its net assets and net cash are typically low (*2*). Hence despite well publicized federal and state mandates to stimulate the growth of new small business enterprises (*16*), requiring performance bonds on the small projects that these new contractors typically can complete actually retards the growth of the kinds of contractors the laws are trying to promote, and furnishes a sound social reason for raising the floor on bonded construction projects.

While there is the ability to achieve considerable premium savings by raising the performance bond threshold, there remains a risk, albeit small, that a DOT will still experience a default. A DOT can further reduce the likelihood of default through the implementation of other advanced contractor eligibility evaluation methods such as performance assessment system to help

screen out poorer performing contractors. If a default does occur, the DOT still can recover funds from the contractor to offset the cost of default. Any unrecovered costs would be borne by the DOT, but as the above analysis indicates, large savings in bond premiums can significantly offset these costs.

CONCLUSIONS

This study has shown that while the quantitative benefits of the current performance bonding system do not appear to exceed the costs that both owners and industry see intangible value in the financial discipline the system imposes on contractors who want to compete for and build public highway projects. It also proposed a rationale for improving the cost effectiveness of performance bonding by raising the minimum project size where a performance bond must be furnished upon award. Finally, the study identified a heretofore unrecognized impact on the growth of new small construction contractors of the current system. Combining the quantitative, qualitative and social findings of the research leads to the overarching conclusion that the performance bonding system does add value to public works construction projects but it needs to be updated to bring statutory constraints in line with 21st Century conditions.

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