

Review of RLB| Rider Levett Bucknall Report  
Project Labor Agreements ó Denver Update

For the Department of Veterans Affairs  
Washington, DC

Review Submitted to:

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By

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This review reflects the views of the author and not those of the Healy Center,  
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## Executive Summary

The RLB report estimates that a project labor agreement (PLA) will add approximately 5.8 percent to the cost of a project in Denver. This estimate implies that a PLA would add significantly to the cost of the construction of the Veterans Affairs facility. However, there are several shortcomings of the research methodologies employed by RLB. Consequently, the conclusions of the study should be interpreted with caution. The deficiencies are summarized below:

**The RLB report is opinion-based research:** The results of the study are based on a review of the literature and interviews with industry representatives and trade unions. The benefit of this approach is that information on local construction market conditions can be collected quickly and easily. However, the obvious limitation of this subjective approach is that a respondent's answer to an interview question may differ significantly from the action that the respondent takes. Additionally, all the parties interviewed have vested interests regarding PLAs that may influence their responses. The study does not employ the usual statistical methods that provide a rigorous empirical test of the costs of PLA versus non-PLA projects. Consequently, the results of the RLB study should be interpreted with caution.

**The RLB study is based on a small sample size:** The opinion-based issues of the RLB report are further compounded because the study relies on interviews of only 22 organizations. Four labor unions were interviewed along with the Colorado Building and Construction Trades Council. Officials from the City of Denver were interviewed along with representatives from 16 construction contractor companies and organizations. The obvious problem with basing results on a small number of interviews is that the responses may not be representative of the overall local construction industry.

**Problems related to RLB labor cost estimates:** There are several instances in the RLB report where it is not clear if the labor cost impact of a PLA project is based on a comparison to a Davis-Bacon project, or to a typical project completed by a nonunion contractor (without Davis-Bacon requirements). For example, in a discussion of the impact of PLA requirements on the masonry trade, RLB states that;

*“A PLA also limits composite crews so that a crew may consist of a number of helpers to load material, prepare mortar etc for masons. We see this division would incur a 20% labor cost premium under a PLA.”*

It is not a PLA that would place limits on the crew mix or use of helpers on the VA project; rather it is the Davis-Bacon Act that determines job classifications for federally funded projects. The appropriate cost impact of the VA facility should be based on a comparison of labor costs under Davis-Bacon and a PLA. Since the job classifications are the same for these projects, limits on the use of helpers does not affect relative costs.

The RLB labor cost estimates are based on the assumption that non-labor costs remain constant when wage rates increase. This assumption is inconsistent with basic economic theory and the reality of the construction industry where contractors substitute less expensive inputs for more expensive labor (as in the use of equipment to move material when handler labor costs increase).

The effect of this RLB method is to provide an estimate of the labor cost impact of a PLA that is too high.

RLB also estimates potential risks and attendant costs associated with strike interruptions, inter-trade jurisdiction disputes, and bidding effects. RLB presents data indicating that there have been 2 strikes in the Colorado construction industry since 1995, but assigns a strike risk for a PLA project between 5 and 10 percent. This strike risk estimate does not seem to account for one of the main motivations of PLAs (to reduce work interruptions). Trade jurisdictions are a characteristic of both Davis-Bacon and PLA projects and do not affect relative costs. Finally, RLB concludes that PLAs reduce the number of bidders and increase construction costs. These findings are based on interviews and contrast with other quantitative-based studies.

**About the Author:**

Kevin Duncan, Ph.D. is Professor of Economics and Senior Economists for the Healy Center for Business and Economic Research at Colorado State University-Pueblo. He is a nationally recognized expert on prevailing wage laws, has published in the leading international journal on construction economics and management, and has provided expert testimony to the Colorado and Hawaii state legislatures on policy related to construction labor markets. He has also provided data and analysis to the Legislative Auditors Office during the review of Minnesota's prevailing wage law. In addition to research on construction labor markets, Professor Duncan has conducted numerous local economic impact studies including studies of the Colorado State Fair, CSU-Pueblo, Pueblo Nonprofits, and the proposed Amendment 61. Professor Duncan has been the recipient of numerous excellence awards at CSU-Pueblo including the Provost's Award for Excellence in Teaching, the Provost's Award for Excellence in Research, the Outstanding Faculty Member Award for the Hasan School of Business, as well as the Enterprise Rent -A-Car Student Choice Award for Excellence in Teaching.

## **Introduction**

In April of 2010, Rider Levett Bucknall (RLB) submitted a report to the Department of Veterans Affairs regarding the construction cost implications associated with the use of Project Labor Agreements (PLAs) in Denver. RLB is a global property and construction practice that provides cost management, project management, and advisory services. The focus of the project is:

*“to investigate potential premiums associated with entering into PLAs as compared to prevailing wages”<sup>1</sup>*

Based on a review of the literature and interviews with industry representatives and trade unions, RLB concludes that:

*“At this point in time, in Denver, we see that project costs are likely to be increased if a PLA is implemented. We see a range of 4.7% to 6.5% for the 16 Division Analysis and 4.4% to 7.4% cost risk premium based on our Project Level Analysis. This average of 5.8% potential cost premium for a theoretical \$500mil project value will equate to a significant cost impact.”<sup>2</sup>*

There are numerous shortcomings in the research methods employed by RLB. These deficiencies are of sufficient magnitude that the conclusions of the RLB report regarding the cost impact of Denver PLAs should be interpreted with caution. The significant problems with the RLB study are described in the following sections of this report.

## **Problems Associated with the Opinion-Based Research Method and Sample Size**

The RLB report relies on interviews with 22 organizations. Four labor unions were interviewed along with the Colorado Building and Construction Trades Council. Officials from the City of Denver we interviewed along with representatives from 16 construction contractor

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<sup>1</sup> See RLB 2010 Report, page i.

<sup>2</sup> Ibid., page i.

companies and organizations. RLB acknowledges that this is an opinion-based study in the Executive Summary of the report:

*“This report has been prepared for the Department of Veterans Affairs (VA), Office of Construction & Facilities Management, to provide the VA with an opinion on the potential cost, schedule and other impacts associated with the potential use of a Project Labor Agreements (PLAs) in Denver.” (bold added)<sup>3</sup>*

The benefit of this research approach is that information about the Denver area construction market can be gathered relatively quickly. However, one limitation of this type of research is that a respondent’s answer to an interview question may differ significantly from the action that respondent takes. For example, a contractor may state in an interview that the work rules of a PLA may add 20% to their labor costs. But, even in a bid environment characterized by limited completion, these anticipated costs may not be passed on to the final bid. A more obvious limitation is that all of the parties interviewed have vested interests concerning PLAs that may influence their responses. The RLB study is also limited because the results are based a small sample size (22 interviews). The obvious problem with basing results on a small number of interviews is that the responses, despite the presence of other biases, may not be representative of the overall local construction industry. In sum, the RLB report does not employ the usual statistical methods and empirical data that allow for a rigorous test of the hypothesis concerning the relative costs of PLA projects.

## **Issues Related to RLB Labor Cost Estimates**

While the opinion-based method employed by RLB is problematic, there are other significant methodological issues related to the estimation and comparison of labor costs between a non-PLA project and a PLA project. The method used by RLB is described below along with a presentation of the shortcomings of this method.

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<sup>3</sup> RLB Report, page i.

RLB uses 2 forms of quantitative analysis to estimate labor costs for a non-PLA project and for a PLA project. The first is a 16 Division Analysis that estimates the effect of a PLA on the labor costs of 16 construction divisions. The second is a Project Level Analysis that estimates the potential cost risks of a PLA project versus a non-PLA project. There are serious limitations to both of the cost estimation methods used by RLB. The 16 Division Analysis and its limitations are discussed in this section while the problems associated with the Project Level Analysis is described in a following section.

RLB conducts a labor cost analysis of 16 construction divisions including general conditions, site work, concrete, electrical, etc. for a hypothetical \$500 million project. Labor cost estimates for this project are estimated under a non-PLA budget and with labor cost increases due to a PLA. RLB estimates that labor costs in these divisions will increase from 5 to 20 percent for the PLA project. After adjusting anticipated labor cost increases for the overall percent labor costs for each division, results suggest that the total costs of a project built under a PLA will be from 4.7% to 6.5% more than the non-PLA project. The presentation in the report of each of the 16 divisions does not include an explanation, or illustration of the quantitative method used to derive the cost impact of building that division under a PLA. However, the written explanations imply that cost estimates for the particular divisions are based on the percent of a division that is unionized in Colorado, taking into account the effect of local labor supply conditions, the number of bidders, and union work rule jurisdictions.

It is important to keep in mind that the VA project in Denver is federally funded and subject to Davis-Bacon prevailing (minimum) wage regulations. So, the appropriate labor cost comparison is between a Davis-Bacon project (with minimum wage rates) and a PLA project (based on union wage rates). Average union wage data for Colorado and current Davis-Bacon

wage rates for Denver are presented in the RLB report and indicate rough equality between union and Davis-Bacon wage rates for most trades. For example, of the 8 trades examined, the union bricklayer wage and benefit rate prevails and equals the Davis-Bacon prevailing wage rate for this trade (\$32.02 for hourly wages and benefits). Average union wage rates for carpenters are \$0.07 below the prevailing wage rate, while union electricians earn, on average, \$0.27 more than the Davis-Bacon minimum rate. The exception is union equipment operators who earn on average \$42.46 in Colorado while the Denver Davis-Bacon rate is \$34.10. So, for most trades there is not a significant difference between wage rates for a Davis-Bacon project versus a PLA project. Also, job classifications and work rules (jurisdictions) are the same for either a Davis-Bacon or PLA project. In spite of these similarities, the RLB report estimates that labor costs within the 16 examined construction divisions will increase from 5 to 20 percent for a PLA project. These cost estimates are unrealistically too high, given the similarities between Davis-Bacon and PLA wages and work rules described above. The problem with the RLB labor cost estimates seem to be rooted in confusion over Davis-Bacon-PLA labor cost differences and nonunion-PLA labor cost differences. The RLB study of labor costs is also based on the assumption that the technique of construction and the use of other, non-labor construction inputs remains constant when wage rates change. This assumption is associated with labor cost estimates that are too high. The implications of these issues are described below.

Several passages in the 16 Division Analysis suggest that the labor cost estimates are not consistently based on a comparison of Davis-Bacon and PLA wage rates, work rules, and job classifications. For example:

*“Division 4 Masonry – similar to concrete, masons have a lower union representation in the state. A PLA also limits composite crews so that a crew may consist of a number of helpers to*

*load material, prepare mortar etc for masons. We see this division would incur a 20% labor cost premium under a PLA.* (bold added)<sup>4</sup>

The problem with the estimate of PLA labor costs for this division has to do with the limitation of composite crews and helpers that are commonly used in the non-union sector. This is not a limitation imposed by PLAs. Rather it is a requirement of the Davis-Bacon Act that limits/prohibits the use of helpers on federally funded projects. Yet, RLB includes discussion of this limitation in their estimate that with a PLA, labor costs in this division will increase by 20%. An appropriate method would involve a comparison of labor costs under Davis-Bacon and a PLA. Since the data described previously indicate similar Davis-Bacon and union wage rates, job classifications, and work rules, the cost comparison would likely be much smaller between these two types of projects.

A similar confusion is exhibited in the RLB cost estimate of division 7:

*“Division 7 Thermal and Moisture – primarily covered by the insulation and roofing unions that have low coverage in Colorado. A PLA may require local sub-contractor to pay double benefits to their non-union employees (sic), or unions will need to source out of town labor. We see a 15% labor cost effect in this division.”*<sup>5</sup> (bold added)

It is not the PLA that requires the payment of benefits by nonunion contractors; it is the Davis-Bacon Act that requires this payment on federal projects where applicable benefit rates prevail. Also, it is not clear whether the comparison of double benefits is between the PLA and the usual nonunion benefit rate for this class of worker, or if RLB means to compare benefit rates between Davis-Bacon and a PLA. If the latter is the case, it is questionable whether PLA benefit rates would be double those required under Davis-Bacon.

As mentioned previously, RLB bases labor cost comparisons for non-PLA projects and PLA projects on differences in unionization rates, local labor supply conditions, the number of

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<sup>4</sup> Ibid, page 8.

<sup>5</sup> Ibid, page 9.

bidders, and union work rule jurisdictions across the divisions. The appropriate comparison is to clearly compare labor costs between a Davis-Bacon project and a PLA. Since work rules and jurisdictions are the same for these projects, they do not play a role in labor cost differences. Yet, these factors are considered by RLB. Additionally, the number of bidders would affect the profit margin of a bid, not labor costs. For example, if there are few competitors for a project (less competition), companies do not increase the labor cost estimate of the bid, but increase their profit margin. In sum, RLB includes factors in their labor cost estimates that are not relevant.

### **Other Issues Related to RLB Labor Cost Estimates**

RLB uses the estimated percent increase in labor costs from each of the divisions to derive an overall cost estimate of building the hypothetical project under a PLA. The previous section described the methodological shortcomings of the RLB estimation of percent labor costs. This section describes the limitations in the RLB method of deriving the budget for a PLA project, or the overall cost increase for this type of project. The basic flaw in this section of the RLB report has to do with the assumption that non-labor costs remain constant when labor costs increase. For example, RLB illustrates the low-range cost differences between a non-PLA budget and a budget including a PLA in Figure 4, page 10. The data for Division 1 (General Conditions) from Figure 4 can be used to illustrate the RLB method. The estimated non-PLA budget for this division is \$61,400,000 with 60% of this budget in non-labor expenses (or, \$36,840,000 = 0.6 x \$61,400,000) and 40% in labor costs (or, \$24,560,000 = 0.4 x \$61,400,000). RLB estimates that building this project under a PLA will add 10% to the labor costs of this division. So, labor costs would increase by \$2,456,000 (0.1 x \$24,560,000). The increase in total costs for this division is the increase in labor cost (\$2,456,000) added to the budget for a non-PLA Project, or \$2,456,000 + \$61,400,000 = \$63,856,000.

While this estimate is easy to understand and simple, it is also limited because of the underlying assumption that non-labor construction costs remain constant when labor costs increase. This is an unrealistic assumption. The basic economic theory of production suggests that when labor costs increase (or if the cost of any input increases), companies will switch to other inputs, or find substitutes for expensive inputs. This means that the use of all inputs, both labor and non-labor, will change, when wage rates change. It is not necessary to be an economist to understand this basic principle. Over time the automobile industry has adjusted to high labor costs by using more robots to assemble their product. So, as wage rates have increased, so has the use and costs of other non-labor inputs. Contractors make similar adjustments by substituting equipment for material handlers when wage rates rise. The point is that with this type of substitution, non-labor costs will change in an attempt to offset, to some extent, the increase in labor costs. But, these types of changes are not reflected in the RLB labor cost estimates of PLA budgets. As a consequence, the labor cost method used by RLB results in estimates that are too high.

Early studies on the cost impact of prevailing wage laws employ a labor cost approach similar to that used in the RLB report. However, this literature has evolved to examine directly total cost effects since a change in wage rates may affect the utilization of all inputs and all input costs. As a point of illustration between the two methods in the prevailing wage literature, the cost estimates based on the labor cost approach range from 1.5 to 3 percent.<sup>6</sup> On the other hand, the preponderance of recent total costs studies fail to find a prevailing wage cost impact that is

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<sup>6</sup> For a review of these studies see Bilginsoy, C. and Philips, P. (2000) Prevailing Wage Regulations and School Construction Costs: Evidence from British Columbia. *Journal of Education Finance* 24, 415-432.

statistically different from zero.<sup>7</sup> This example from the prevailing wage literature illustrates how the labor cost technique employed by RLB can lead to estimates of total cost impacts that are too high. These latter studies also provide evidence that contractors make adjustments to non-labor inputs that are associated with improved efficiency when wage rates increase.<sup>8</sup>

The RLB method of estimating the impact of a change in labor costs on project total costs implies that contractors pass cost increases straight through to bids. Again, this is an unrealistic assumption as even in a mildly competitive bid environment, contractors are motivated to make changes to offset the labor cost increase through input substitution, or by absorbing some of the costs to win the contract.

### **Problems with RLB Project Level Analysis**

In their project level analysis, RLB estimates the potential risks and attendant costs associated with a PLA project. RLB assesses the risks and costs associated with strike interruptions, insufficient labor supply, inter-trade jurisdiction disputes, wage rate stability, and PLA-related bid effects. These combined risks are estimated to add from 4.4% to 7.4 percent to the cost of a PLA project relative to a non-PLA project.<sup>9</sup> The basic problem with this section of the report is that much of the analysis is based on the subjective assessment of risks. For example, RLB ascribes a strike risk of up to 10 percent for a PLA project with an anticipated cost of up to \$1.4 million added to the cost of this project (the strike risk for a nonunion project is 5 percent with an expected cost of \$700,000). This estimate seems quite high in light of the RLB presentation of data indicating that since 1995 there have been only 2 construction strikes

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<sup>7</sup> For a review of these studies see Duncan, K., Philips, P., and Prus, M. (2006). Prevailing Wage Legislation and Public School Construction Efficiency: A Stochastic Frontier Approach. *Construction Management and Economics*, 24, 625-634.

<sup>8</sup> See Duncan, K. Philips, P. and Prus, M. (2009). The Effect of Prevailing Wage Regulations on Construction Efficiency in British Columbia. *International Journal of Construction Education and Research*, 5, 63-70.

<sup>9</sup> See RLB report, page 19.

in Colorado.<sup>10</sup> Given the hundreds of construction projects in the state that have involved union workers since 1995, a strike risk of up to 10 percent seems unrealistically high. These data are based on strikes in all construction activity in the state. RLB does not appear to adjust their strike risk estimate for PLA projects where emphasis is placed on preventing work disruptions. So, the strike risk associated with a PLA project should be even lower.

The RLB report identifies jurisdictional disputes as a potential risk and cost factor. For example, RLB concludes that:

*“If jurisdictional dispute issues occur, we estimate a 1% to 2% cost risk, at 10% probability for non-PLA projects and 10% to 20% for a PLA project where in the current slower market we see common intertrade disputes arising among less dominant union trades.”<sup>11</sup>*

Once again, it is important to keep in mind that the non-PLA project in this case is a Davis-Bacon project, not the typical nonunion project. PLAs and Davis-Bacon projects have the same jurisdictional boundaries that must be addressed before construction. There is no disparity between these two types of projects in terms of jurisdictional matters and no impact on relative costs.

With respect to the effect of PLAs and the number of bids and construction costs, RLB concludes that:

*“Given the reduced competition among the medium sized, predominantly non union commercial subcontractors in the Denver area, this report has allowed a 5% to 10% PLA Bid-Effect cost with an 80% probability, given the feedback that this cost increase would be highly probable to occur.”<sup>12</sup>*

Again, this is based on subjective analysis and it at variance with other quantitative studies that address the impact of PLAs on the number of bidders and construction costs. For example, in examinations of school construction in San Jose, California and in New England, professors

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<sup>10</sup> Ibid., page 12.

<sup>11</sup> Ibid., page 14.

<sup>12</sup> Ibid. page 16.

Bellman, Bodah, and Philips find that the use of PLAs neither reduces the number of bidders, nor increases costs when other important variables are taken into account.<sup>13</sup>

In sum, there is little objective empirical content within the RLB study. Nor, does the study employ the usual quantitative or statistical methods that allow for rigorous testing of the varied economic factors that determine the costs of PLA versus non-PLA projects. A more comprehensive, scientific study should be implemented if the VA wishes to discern the difference in costs between a PLA and non-PLA project.

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<sup>13</sup> See Project Labor Agreements by Dale Bellman, Mathew Bodah, and Peter Philips;  
[http://massbuildingtrades.org/sites/massbuildingtrades.org/files/PLA\\_NECA\\_Report.pdf](http://massbuildingtrades.org/sites/massbuildingtrades.org/files/PLA_NECA_Report.pdf)