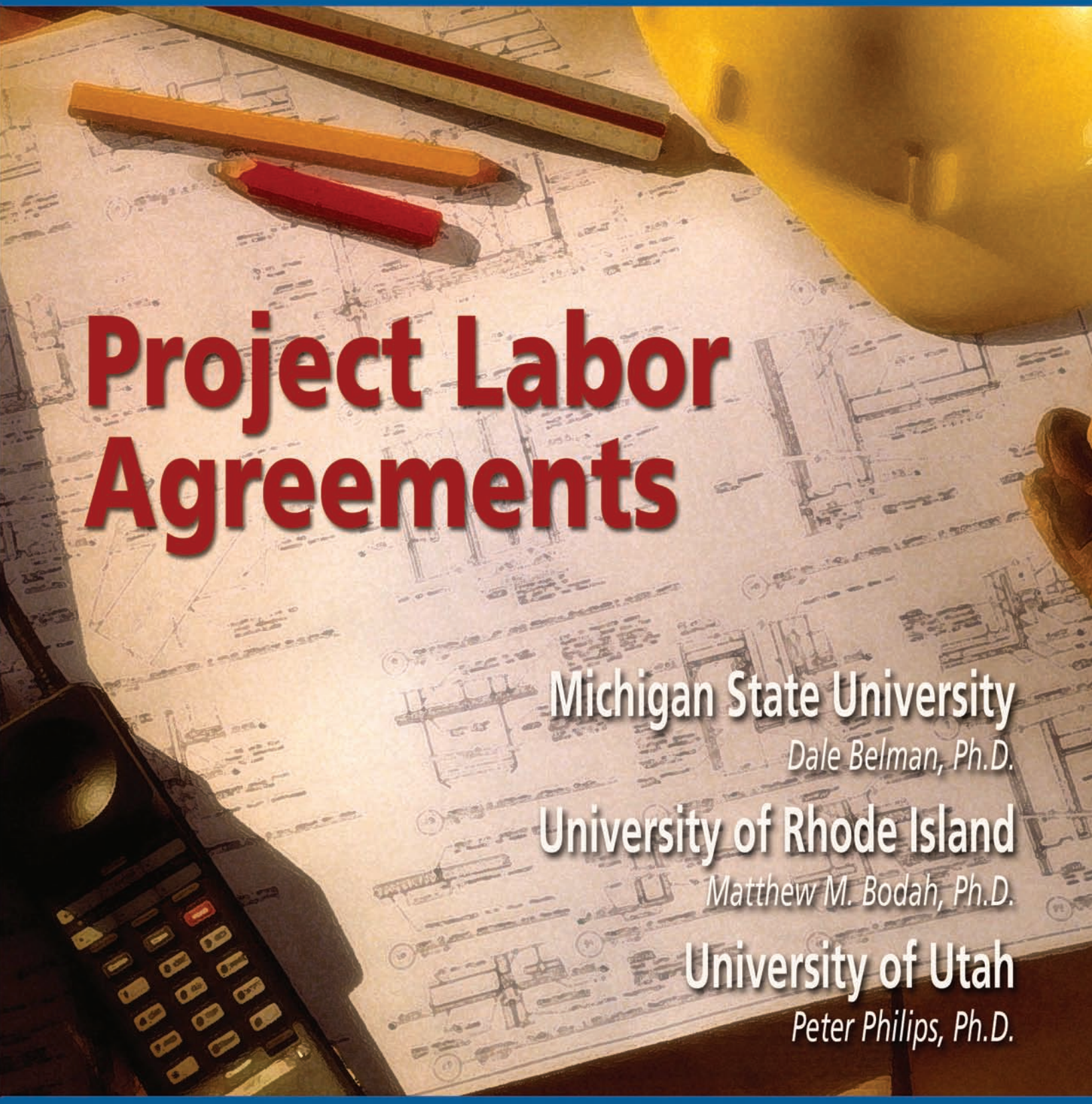
PRODUCTIVITY ENHANCEMENT



Project Labor Agreements

Michigan State University
Dale Belman, Ph.D.

University of Rhode Island
Matthew M. Bodah, Ph.D.

University of Utah
Peter Philips, Ph.D.

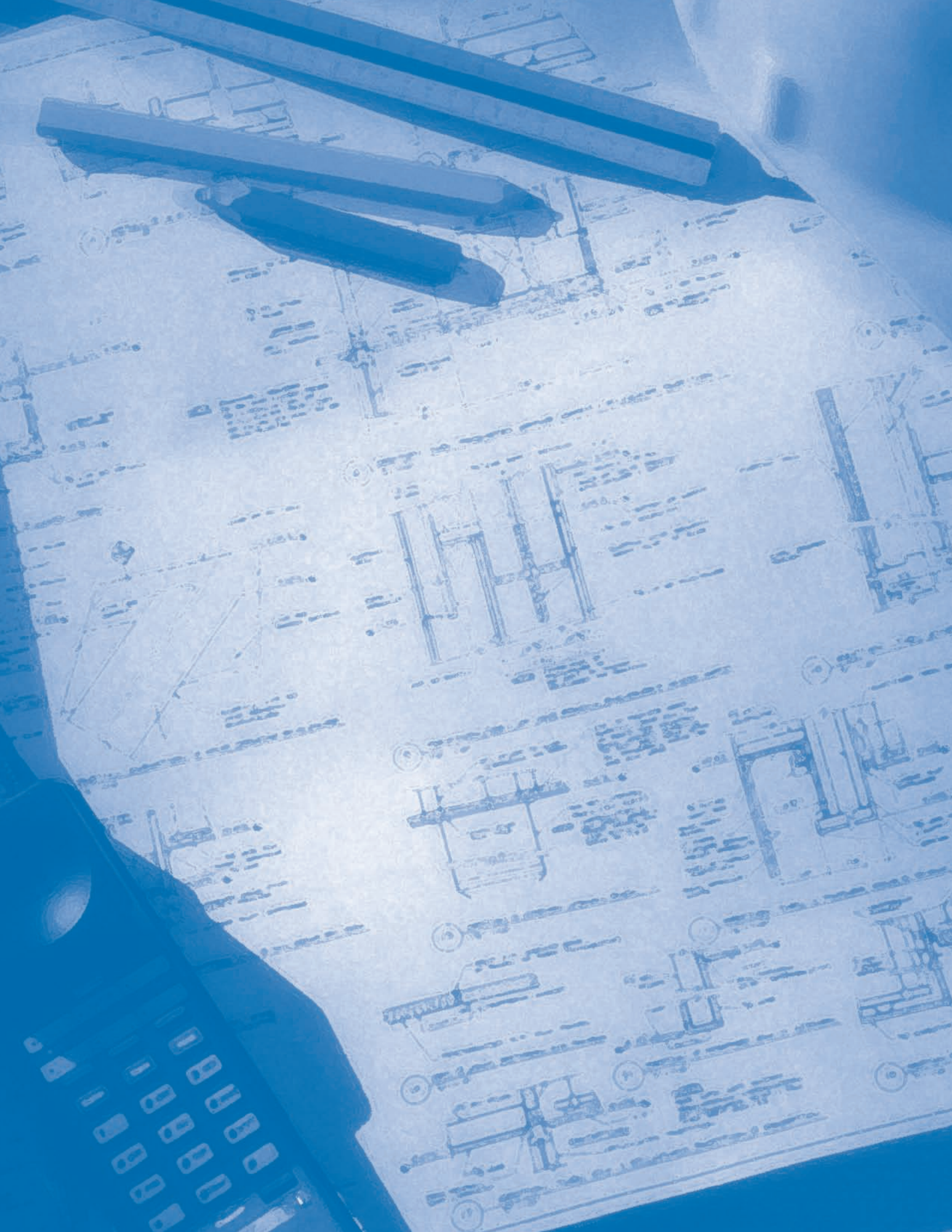
ELECTRI International
The Foundation for Electrical Construction, Inc.

Project Labor Agreements

Michigan State University
Dale Belman, Ph.D.

University of Rhode Island
Matthew M. Bodah, Ph.D.

University of Utah
Peter Philips, Ph.D.



ELECTRI Council

ELECTRI International—The Foundation for Electrical Construction, Inc.

As of January 15, 2007

PRESIDENT'S COUNSEL

$1,000,000 or more

Albert G. Wendt*
Cannon & Wendt Electric Co., Arizona

Richard W. McBride*
Southern Contracting Co., California

National Electrical Contractors Association*

Square D/Schneider Electric

PROGRAM GUARANTOR

$500,000 or more

The Okonite Company

DIPLOMAT

$350,000 or more

Electrical Contractors Trust of Alameda County

REGENTS

$250,000 or more

Contractors

H.E. "Buck" Autrey*
Ron Autrey
Miller Electric Co., Florida

John R. Colson
Houston, Texas

Robert E. Doran III*
Capital Electric Construction, Kansas,
In memory of Robert E. Doran, Jr.

Nicholas Dutto
Metropolitan Electrical Construction, California

Jerrold H. Nixon
Eric F. Nixon
Maron Electric Co., Illinois

Chapters and Affiliates

Northeastern Illinois Chapter, NECA

Northern Indiana Chapter, NECA

San Diego County Chapter, NECA

Southeastern Michigan Chapter, NECA*

Manufacturers

ACCUBID

Eaton Electrical

Estimation

McCormick Systems

GOVERNORS

$150,000 or more

Contractors

Arthur Ashley
Ferndale Electric Co., Michigan

Clyde Jones
Center Line Electric, Inc., Michigan

Michael Lindheim*
Schwartz & Lindheim, California

Richard R. Pieper, Sr.*
PPC Partners, Inc., Wisconsin

James A. Ranck
J. Ranck Electric, Inc., Michigan

Dan Walsh
United Electric Co., Inc., Kentucky

Chapters

Illinois Chapter, NECA*

Kansas City Chapter, NECA

Los Angeles County Chapter, NECA

Northern New Jersey Chapter, NECA

Manufacturers and Distributors

Thomas & Betts Corporation

Panduit Corporation

****denotes founding member of ELECTRI'21 COUNCIL (1989–1990)***

FOUNDERS

$100,000 or more

Manufacturers and Distributors

Advance Transformer/Philips Lighting

Crescent Electric Supply Company

Graybar

Greenlee Textron

Ruud Lighting

Thomas Industries

Utility

San Diego Gas & Electric

Contractors

Ted C. Anton
Newkirk Electric Associates, Inc., Michigan

Ted N. Baker
Baker Electric, Inc., California

D. R. "Rod" Borden, Jr.*
Tri-City Electric Co., Inc., Florida

Daniel Bozick
Daniel's Electrical Construction Company, Inc., California

Larry Brookshire*
Fisk Acquisition, Inc., Texas

Jay Bruce
Bruce & Merrilees Electric Co., Pennsylvania

Richard L. Burns*
Burns Electric Company, Inc., New York

Brian Christopher
Oregon City, Oregon

Larry Cogburn
Cogburn Bros. Electric, Inc., Florida

Michael Curran
Red Top Electric Company Emeryville, Inc., California, In honor of George T. and Mary K. Curran

Ben D'Alessandro
L.K. Comstock & Co., Inc., New York

Frank DiFazio
DiFazio Electric, Inc., New York

Gene W. Dennis
Universal Systems, Michigan

William T. Divane, Jr.
Divane Bros. Electric Co., Illinois, In memory of William T. Divane, Sr. and Daniel J. Divane III

FOUNDERS, CONTINUED

Contractors

Robert Egizii
EEI Holding Corporation, Illinois

Randy Fehlman*
Gregg Electric, Inc., California

Rex A. Ferry
Valley Electrical Consolidated, Inc., Ohio

Brad Giles
Giles Electric Company, Inc., Florida

Darrell Gossett
ERMCO, Indiana

John F. Hahn, Jr.*
Peter D. Furness Electric Co., Delaware

Michael Hanson
Hunt Electric Corporation, Minnesota

Eddie E. Horton
Dallas, Texas

Mark A. Huston
Lone Star Electric, Texas

Thomas G. Ispas
Daniel's Electrical Construction Company, Inc., California

Donald W. Leslie, Sr.
Johnson Electrical Construction Corporation, New York

Richard J. Martin*
Motor City Electric Co., Michigan

Roy C. Martin, Jr.
Triangle Electric, Michigan

Edward C. Mattox
Inland Electric Corporation, Illinois

Michael Mazzeo
Michael Mazzeo Electric Corp., New York

Michael McAlister
MRM Electrical/Communications, California

James C. Mc Atee
Electric Power Equipment Company, Ohio

Timothy McBride*
Southern Contracting Co., California

Edward T. McPhee, Jr.
McPhee, Ltd., Connecticut

James B. Morgan, Sr.
Harrington Electric Co., Ohio

Harvey Morrison
Pritchard Electric Co., West Virginia

FOUNDERS, CONTINUED

Contractors

Joel Moryn
Parsons Electric Company, Minnesota

Walter T. Parkes*
O'Connell Electric Co., New York

Skip Perley
TEC-Corp/Thompson Electric Co., Iowa
In memory of Alfred C. Thompson

Robert L. Pfeil
South Bend, Indiana

David Pinter
Zwicker Electric Company, Inc., New York

Carl J. Privitera, Sr.
Mark One Electric Company, Inc., Missouri

Dennis Quebe
Chapel Electric Company, Ohio

Stephen J. Reiten*
M. J. Electric, Inc., Michigan

Frank Russell
Bagby & Russell Electric Co., Alabama In memory of
Robert L. Russell

Tim Russell
R.W. Leet Electric, Inc., Michigan

Frederic B. Sargent
Sargent Electric Co., Pennsylvania

Rocky Sharp
Carl T. Madsen, Inc., Washington

Turner Smith*
Dillard Smith Construction Co., Tennessee

Herbert Spiegel
A tribute in memory of Flora Spiegel,
Corona Industrial Electric, California

Greg E. Stewart
Superior Group, A Division of
Electrical Specialists Ohio

Jeff Thiede
Oregon Electric Construction, Oregon

Ronald J. Toomer
Toomer Electrical Co., Inc., Louisiana

Robert W. Truland
Truland Systems Corporation, Virginia

Robert J. Turner II
Turner Electric Service, Inc., Michigan

Angelo Veanes
Ferguson Electric Construction Co., New York

FOUNDERS, CONTINUED

Contractors

Michael H. Walker
Walker Seal Companies, Virginia, In honor of
Michael H. Walker and Frank W. Seal

Mark Walter
Christenson Electric Company, Oregon

Brad Weir
Kelso-Burnett Company, Illinois

Jack W. Welborn
Electrical Corporation of America, Missouri

David A. Witz
Continental Electrical Construction Co., Illinois

NECA Chapters and Affiliates

ACEN NECA Monterrey (Mexico)
AMERIC Foundation (Mexico)
American Line Builders
Arizona
Atlanta
Boston
Canadian Electrtical Contractors Association
Central Indiana
Central Ohio
Chicago & Cook County
Greater Cleveland
Greater Sacramento
Greater Toronto Electrical Contractors Association
Michigan
Milwaukee
Minneapolis
NECA ACOEO Guadalajara (Mexico)
New York City*
North Central Ohio
Northeastern Line Constructors
North Florida
North Texas
Northern California
Oregon-Columbia
Oregon Pacific-Cascade
Penn-Del-Jersey
San Francisco
Santa Clara Valley
Southeastern Line Constructors
South Florida
South Texas
Washington, D.C.
Western Pennsylvania

Acknowledgements

The research team would like to acknowledge the contributions of the ELECTRI Council members and staff who contributed to this project, and ELECTRI International for providing the financial support. Significant guidance was provided by the project's Task Force, made up of the following individuals:

Mr. Tom Barrow, Chapter Manager
Santa Clara Valley Chapter NECA

Mr. Steve Boyd, Chapter Manager
Alaska Chapter NECA

Mr. Thomas Chabot, Chapter Manager
Rhode Island & Southeast Massachusetts Chapter NECA

Mr. Ron Cooper, Executive Manager
San Diego Chapter NECA

Mr. Thomas Curran, Vice President of Sales & Marketing
Red Top Electric Co., Emeryville Inc.

Mr. Salvatore DiFede, Manager
Hudson Valley Chapter NECA

Mr. Glenn Kingsbury, Chapter Manager
Boston Chapter NECA

Mr. David Manderson, Executive Director
Northeast Texas Chapter NECA

Mr. Francis Mazza, Chapter Manager
Dakotas Chapter NECA

Mr. Michael Moconyi, Chapter Manager
Connecticut Chapter NECA

Mr. Walter Parkes, President
O'Connell Electric Co., Victor, NY

Mr. Charles Ramsey, School Board President
West Contra Costa Unified School District

Mr. Robert Rayburn, Executive Vice President
Milwaukee Chapter NECA

Mr. Eric Sivertsen, Assistant Chapter Manager
Northern New Jersey Chapter NECA

Mr. Robert Gasperow, Construction Labor Research Council
Washington, DC

Mr. Andy Berg, Director of Local Government Relations
San Diego Chapter NECA

Mr. Don Campbell, Executive Director
Northern California Chapter NECA

Mr. William Collins
Collins Electric Company, Chicopee, MA

Mr. Mike Crawford
Surnbrock ECS, Diamondale, MI

Mr. Donald Dawson, Manager
Kansas City Chapter NECA

Mr. Michael Geller, Secretary
Contra Costa Electrical Industry Trust

Mr. Terry Hatch, Chapter Manager
Oregon-Pacific-Cascade Chapter NECA

Mr. Douglas Martin, Executive Vice President
St. Louis Chapter NECA

Mr. Todd Michaelsen, Chapter Manager
Ohio/Michigan Chapter NECA

Ms. Marilyn Oppedisano, Chapter Manager
Finger Lakes, NY Chapter NECA

Mr. Skip Perley
Thompson Electric Company, Sioux City, IA

Mr. David Raspolich
Dynalectric Company, San Diego, CA

Mr. Roy Richey, Chapter Manager
Long Island Chapter NECA

Mr. Don Surnbrock, President
Surnbrock ECS, Diamondale, MI

This ELECTRI International research project has been conducted under the auspices of the Research Center.

Table of Contents

Executive Summary

Project labor agreements (PLAs) are prehire collective bargaining agreements that establish the terms and conditions of employment on one or more construction projects. PLAs are typically the product of negotiations between a group of unions, usually represented by a building, construction trades' council and the representative of a construction user, most often a construction management firm. Unlike local construction collective bargaining, contractors and contractor associations have little or no role in such negotiations. PLAs require all contractors working on a project to adhere to collectively bargained terms and conditions of employment, whether they are normally union or nonunion contractors. PLAs have undergone considerable evolution over the years. Once used almost exclusively on very large projects that were either extremely isolated or that overwhelmed the capacity of the local construction labor market, PLAs are now used on a variety of private and public projects.

The use of PLAs in the public sector has raised questions about possible conflicts with state or local bidding regulations. As a result, all branches and levels of government have become involved in the controversy, which, in turn, has drawn both media attention and spurred a fair amount of research. However, as our review shows, most of the research is of low quality and little use in determining whether PLAs actually affect bidding behavior, wages, construction costs, etc.

The current report is possibly the broadest ranging and most detailed study of PLAs conducted to date. While prior studies have focused on a particular PLA project and addressed one or two narrowly defined issues, in this study we examine a large number of projects using a variety of techniques, including archival research, interviews, case studies and the statistical analysis of original data.

We ask a number of questions, including the following: What is a PLA? How do PLAs differ? What does prior research tell us about the effects of PLAs on construction projects? How do individuals with experience with PLAs view these agreements? How do PLAs affect the outcomes of construction projects? In what ways can PLAs be used to address the strategic needs of a project?

There are several central findings of this study. Perhaps most important, we find that there is no substantial evidence that PLAs decrease the number of bidders or change the costs of construction projects. Although our findings run contrary to prior research, we believe that most previous studies failed to account for important influences on construction costs. Therefore, effects were falsely attributed to PLAs that actually belonged to unobserved variables.

We arrived at our conclusions on bidding behavior by studying two adjacent school districts in San Jose, California. Both began extensive school construction in 2002. In 2004, one school district

signed a PLA, while the other did not. While the number of bids per bid opening decreased after the PLA in the former district, they also decreased in the district that did not sign a PLA. The decrease in bids was better predicted by an increasingly busy construction market than the existence of the PLA.

To examine cost effects, we studied 108 school projects in New England. We found that such variables as the building's size, the need for a new boiler, the construction of an auditorium, the construction of library and where the school was located had positive effects on construction costs. There is no evidence that a PLA either raised or lowered the costs of the projects studied.

We argue that if PLAs are cost neutral, then other reasons for using or not using PLAs must be examined. Through interviews and case studies, we found that users favored PLAs to reduce some of the uncertainty inherent in large scale construction projects. Obviously, no one can control the weather, and material shortages are always a concern. But construction users felt a PLA would ensured a steady flow of highly qualified labor. The flow of labor was guaranteed by the nationwide referral systems maintained by unions; the steadiness of the flow was buttressed by no-strike agreements, which are a nearly universal item in PLAs. Construction users told us that PLAs were particularly attractive on large projects that needed to be completed on a tight schedule. PLAs can be used to harmonize hours and holidays across the trades and to modify shifts and work schedules to meet the needs of construction users.

Although we lack good data on safety outcomes, interview evidence suggests that safety inputs are greater on PLA projects. Often PLAs include language establishing labor/management committees that deal specifically with safety and health issues.

PLAs may also be crafted to achieve wider social ends, such as increasing minority employment and participation on projects by minority business enterprises. As in a case study of the East Side Union High School district in San Jose, PLAs may also be used to create highly developed structures for training and recruiting young workers into the building trades, a critical need in light of the reported looming skills shortage in the industry.

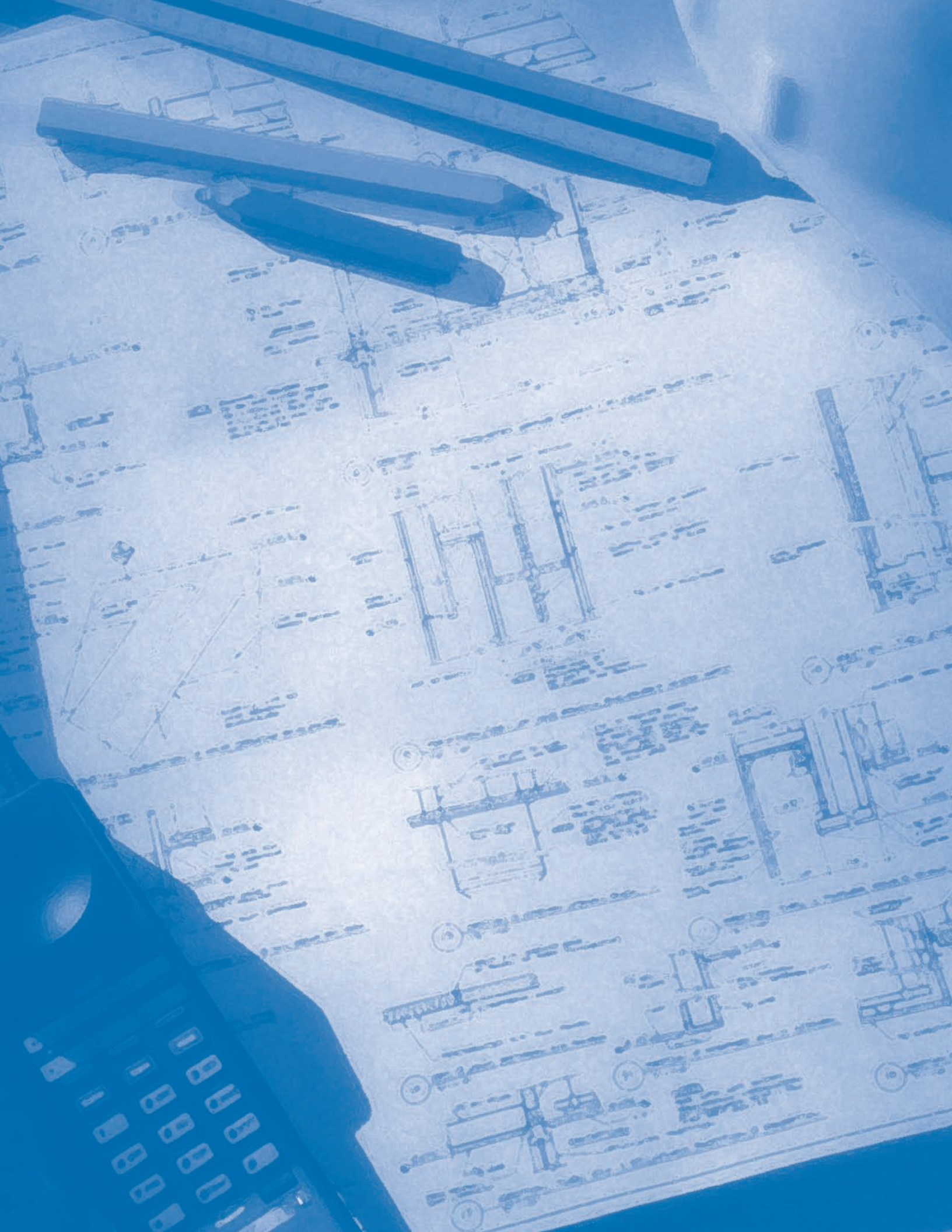
A possible downside of PLAs is their effect on local labor relations. Some interviewees told us that power relations at the bargaining table may be skewed when too much work is covered by PLAs and their accompanying no-strike/no-lockout clauses. With workers protected from job actions, compromises in local bargaining may be harder to affect, leading to unusual settlements and protracted negotiations.

Another problem with PLAs is the general lack of contractor participation in bargaining. This sometimes leads to the needs of an industry not being addressed in an agreement. One complaint of local electrical industry representatives is that most PLAs do not allow them to use their longstanding, bipartite system of dispute resolution.

A possible solution to the problem, and one that is used in many areas, is to develop model PLA language through standing labor/management committees, which can be established as Taft-Hartley trusts and supported through per capita assessments on work. Typically, contractor organizations have high levels of participation on such committees.

Most interviewees agreed that PLAs are not suited to every project in every location. In considering whether to use a PLA, owners usually consider the importance of scheduling, the size of the project, the need for skilled labor, whether there are a sufficient number of union contractors in the major trades needed for the project to support competitive bidding and whether the work is likely to be done by union contractors with or without the PLA. In general, larger and more complex projects, for which scheduling is important, are good candidates for the use of a PLA.

PLAs are valuable tools for the construction industry because they can be used to create the conditions needed for a superior construction project. More than one hundred PLAs were reviewed for this study. The provisions of those agreements varied widely. The most sophisticated agreements had been crafted to address project specific issues such as local hiring, scheduling, work rules, employment of minorities, or the staffing of projects. We also found many bare bones PLAs that were little more than no strike/no lockout agreements. Based on our review of these agreements, and the findings of this research, we believe that there is great potential, much of it unrealized, for using PLAs to improve construction projects and promote union construction. Realizing this potential will require the education of contractors, construction users, and union officials on how PLAs can be crafted to promote the interests of all parties and provide better construction outcomes.



Introduction

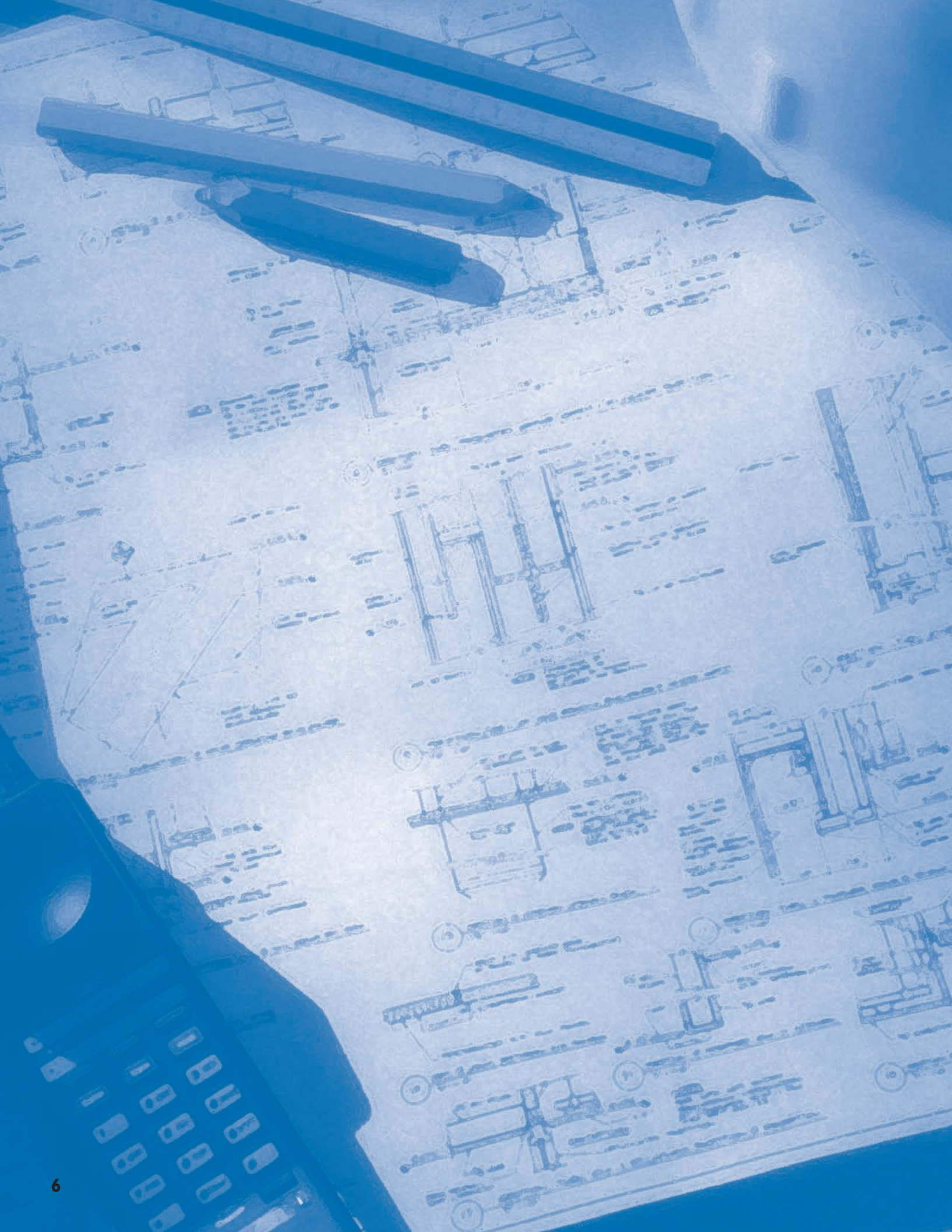
PLAs are nothing new. McCartin[1] noted that something like a modern PLA was used during WWI when the War Department worked out a compromise between the American Federation of Labor (AFL) and defense contractors who were building cantonments. All workers would be paid union scale in exchange for dropping a demand for a closed shop.

The use of PLAs increased during WWII. Dunlop[2] writes of the stabilization agreement between the Office of Production Management and the Building and Construction Trades Department (BCTD) of the AFL. The agreement provided for uniform overtime rates of time-and-one-half, standard shifts at regular rates and declared that there shall be "no stoppage of work on account of jurisdictional disputes or for any other cause."

Until the 1980s, PLAs were used in both the private and public sectors with little notice. So why have PLAs become so controversial? Why have virtually all branches and levels of government been dragged into the fight over PLAs? We explore these questions in this study. Moreover, we examine the contents of PLAs, present comments from interviews with stakeholders concerning PLAs, assess the economics of PLAs and provide details of the strategic use of PLAs from several case studies of actual projects.

Using archival sources, interviews and both qualitative and quantitative methods, we try to determine how Project Labor Agreements affect construction costs, scheduling, safety, training and minority employment.

- **Chapter One** of this report defines PLAs, discusses the reasons for the controversy over PLAs and gives an overview of previous PLA research.
- **Chapter Two** presents and analyzes the contents of PLAs. The results are based on a review of nearly one hundred agreements from all parts of the country.
- **Chapter Three** discusses the comments of several dozen stakeholders concerning PLAs. Interviews were conducted with, among others, construction users (both public and private), contractors, construction managers and union officials. Interviews were held in southern New England, the sorthern Midwest and the West.
- **Chapter Four** examines the economics of PLAs through original research. It presents findings of bidding behavior based on evidence from two adjacent California school districts and research on PLAs and school construction costs in New England.
- **Chapter Five** presents several case studies of PLAs, including a highway project in Utah, an automobile plant in Texas, an airport terminal in Rhode Island and a set of school projects in California. Chapter five tells how PLAs can be used to address specific needs on a project.
- The end of this report contains a list of principal findings.



1. Background

What is a PLA?

Project labor agreements are primarily agreements, so we need to know what is being considered and agreed upon and by whom. PLAs are project-specific, collectively-bargained labor agreements regarding wages, benefits, hours of work and other terms and conditions of employment. On the one side of the agreement is a collection of construction unions perhaps under the leadership of a local construction labor council or some other form of multicraft organization. On the other side of the agreement is usually a project or construction manager representing the interests of the construction user. This contrasts with typical collectively bargained labor agreements in construction where separate craft unions bargain with their corresponding contractor associations about wages and working conditions. Traditional collective bargaining has no specific construction project in mind, and no one at the table controls upcoming work. In PLA bargaining, unions bargain as a group with someone who controls upcoming work.

In typical construction collective bargaining, the electricians might look over their shoulders to see the outcome of the plumbers' negotiations, and the laborers are going to keep in mind what the carpenters are getting. But there is no formal structure or binding agreement in traditional, craft-separated collective bargaining to ensure that the various contracts signed in a local area by the various crafts and contractor groups will have similar holidays, similar hours of work, similar drug testing provisions, etc. or even similar contract expiration dates. A PLA provides the legal structure whereby everyone can (if they so choose) get on the same page regarding all of the issues.

The fact that through the project manager the construction user is on the other side of the table also makes PLAs different. In traditional collective bargaining in construction, contractors are on the other side of the table. Users have something to bargain with that contractors do not have. Users have the work: they have the project under consideration. Individual contractors have to bid to win work. Contractors as a group have a higher prospect of someone in their group winning the project, but if the economy turns sour, chances of getting the job diminish. As long as the project goes forward, the construction user has the work, and on large projects that work could last for years. Through traditional collective bargaining, users bring something of value to the table, something worth bargaining over.

With PLAs, construction users can (and often do) bargain their control of work in exchange for union concessions relative to the existing set of local labor agreements. Rarely do these concessions involve lower wages and benefits. More commonly, in an effort to harmonize the terms and conditions of work across trades, some trades have to make concessions to mirror terms and conditions in another trade's contract. The fact that the user has the work and is willing to provide it in exchange for such concessions may motivate a trade's willingness to compromise on working conditions. Sometimes a user may convince all the trades to make an across-the-board concession in exchange for the job. In one

case, a bridge contractor signed a PLA with the various relevant trades for long term work on a major bridge reconstruction project in exchange for altering all the unions' overtime provisions, so the project could proceed without overtime pay in off hours to avoid backing up traffic. Under traditional collective bargaining with no specific consideration to a specific project, such a concession would not make much sense to any union and to obtain this concession across all unions would be impossible. A PLA made it happen.

In one sense, all PLAs are across-the-board concessionary contracts because, universally, all PLAs have no-strike clauses in effect through the entire duration of the project. For long-lasting projects, these no-strike clauses are meaningful because inevitably in a two or three year period, one or more traditional union contracts will expire, leading to the possibility of a negotiation stalemate and a strike. PLAs take the user's work off the traditional collective bargaining table and insulate it from strikes. This can be very important to the user who has a vital completion date. So the construction user comes to the PLA bargaining table ready to exchange work for harmonized working conditions, occasional project-tailored terms and conditions, and a guaranteed uninterrupted labor supply through the duration of the project. Only PLAs can get all of this done with multiple craft unions, multiple contractor associations and differing contract expiration dates. In short, PLAs bring new players to the table and thus create the possibility of bargaining to new win-win solutions.

What is in a PLA for unions besides various possible concessions? In a word: work. PLA projects tend to be large and long-lasting. In private sector PLAs, the work is what the unions bargain for, and that is what they get because private sector PLAs typically restrict bidding to union contractors. On public sector work, restricting bidders to union contractors usually violates public procurement rules. Nonunion contractors are allowed to bid on public PLA jobs. Nonetheless, when working on a covered project, all contractors (including nonunion contractors) agree to abide by the terms of the PLA as well as any provisions of local agreements that are specifically referred to in the PLA or not limited by the PLA. The means of assuring this compliance by all contractors is a letter of assent the PLA requires.

The following letter of assent comes from a Missouri PLA and is typical:

Pursuant to Article II, Section 1, Paragraph 3, of the above-referenced Agreement, the undersigned contractor hereby agrees that it will be bound by and comply with all terms and conditions of said Project Labor Agreement, and any amendment thereto for this Project only.

This Letter of Assent will remain in effect for the duration of the Agreement, and any extensions, after which this understanding will automatically terminate, except as provided in Article II, Section 6 [concerning repairs and rework] of the Agreement.

As a practical matter this means that all contractors usually agree to use union referral mechanisms (e.g. hiring halls), pay union scale, contribute to jointly administered (i.e. union sector) benefit programs and, in general, operate as union contractors while on a project—whether or not they are usually union contractors. Sometimes PLAs have key worker provisions that allow nonunion contractors to use a limited number of key nonunion workers. Occasionally, nonunion

workers are permitted to apply to the project manager for work rather than go through the union hall. But the basic point is this: through PLAs, unions exchange concessions for work. If the PLA cannot deliver at least most of the work, the construction user has nothing to bargain with.

There are two players not at the PLA bargaining table—the union contractor and the nonunion contractor, both of whom might end up working on a public PLA project. From the perspective of traditional collective bargaining, PLAs are a topsy-turvy world. Usually the union agrees with the contractor, and then the contractor goes out and finds the work. Under a PLA, the unions, as a group, go out and find the work. Wages and benefits are set. Then, on private jobs, union contractors bid for the project and, on public jobs, all contractors willing to abide by the terms of the PLA bid on the project. Union contractors get a level playing field, but that is all.

The other absent player is the nonunion contractor willing to pay the PLA wage rates and abide by the terms and conditions of the PLA. These participating nonunion contractors stand on the sidelines along with the union contractors until the project is let out for bid. Technically, PLAs are prehire agreements because the terms and conditions of work are agreed upon prior to the hiring of workers. But, effectively, PLAs are usually also prebid agreements because the terms and conditions are set prior to any bidding on the project.

And, of course, there is one absent non-player—contractors unwilling to bid on the project because of the terms and conditions of the PLA. These, typically nonunion contractors, may not be able to compete with the higher labor productivity called forth by the PLA wages. They may not wish to expose their key workers to union workers. They may not wish to have their non-key workers go through the hiring hall to get work. They may philosophically object to PLAs. They may have other reasons for not participating. In any case, nonunion contractors' nonparticipation may lower the number of contractors who bid on a PLA project. Alternatively, the presence of a PLA may attract contractors who otherwise might not bid on the project. The effect of PLAs on the number of bidders is an open empirical question that chapter four addresses.

Because PLAs set wages and benefits close to or at the local union rates, PLAs probably encourage contractors to shift towards capital intensive and high skill construction strategies. PLAs may also alter the composition of contractors shifting towards more heavily capitalized firms. Some public entities, restricted in their ability to pre-qualify contractors by public procurement regulations, may be attracted to PLAs, in part, due to the way PLAs probably sort through potential bidders shifting the mix towards more established, capital intensive and skill oriented contractors.

Thus, PLAs are first of all agreements where unions, as a group, bargain for work from construction users in exchange for concessions on strikes and working conditions. Until the PLA is signed, contractors sit on the sideline. Once signed, union contractors know that even their nonunion competitors will have to pay the same wages and benefits. Nonunion contractors may be excluded entirely from private projects but on public works they are still players. Some, however, will withdraw not wanting to agree to the terms of the PLA. Both union and nonunion high-wage/high-skill contractors are likely to be attracted. Whether ultimately PLAs discourage more bidders than they attract is an empirical issue, but some public construction users may be partially attracted to PLAs based on what type of contractor is attracted and what type of contractor is repelled by PLAs.

How are today's PLAs different?

Old-School PLAs

From the first major use of PLAs to around 1980, PLAs were generally restricted to a particular

and relatively unusual type of construction project—the large, long-lasting, typically complex and often rural construction project. Construction users bringing these projects to market faced three problems. First, if the project was rural (such as a hydroelectric dam located where the water was or a coal-fired power plant located where the coal was), the size of the project was likely to overwhelm the capacity of the local construction industry and labor market. By having a PLA, the construction user could create regular and known wages and working conditions needed to attract workers from far away.

Second, if the project was specialized and complex (such as a nuclear facility), the skill requirements of the job might overwhelm the local labor market even in a non-isolated area. A PLA would provide ready access to distant union workers again by establishing appropriate wages and conditions and by invoking the union system of using skilled traveling workers.

Third, if the project was long-lasting (say three or more years), and schedule and completion were important to the user, a no-strike provision in a PLA would insulate the project from labor/management conflict during the bargaining between local craft unions and their corresponding contractor organizations. Whatever work stoppage or lockout might occur through the normal operations of collective bargaining would not affect a PLA project. In short, bargaining impasse would not interrupt the PLA project.

So PLAs for many years were a specialized and relatively rare construction contract designed to obtain a ready and qualified supply of labor to large, complex and long-lasting projects.

Stop-Loss PLAs

In the 1980s, PLAs took on a new role. The downturn in construction in the 1980s was very sharp. Price competition (as opposed to quality or scheduling competition) is most intense when an economy slows and customers are more price-conscious and less concerned about timeliness or even quality. This environment favored nonunion contractors. But in order to keep some of the union sector's biggest and best industrial customers and stop the loss of jobs, PLAs were written that contained wage and benefit concessions. American manufacturers facing severe overseas competition on both price and quality terms needed quality infrastructure built at the lowest price possible. PLAs became a way of delivering quality work at low prices to demanding customers. These PLA-based wage cuts were partially offset by the promise of steady work for an extended period of time during a period when construction work was anything but steady. The PLAs in the 1980s traded lower wages for longer work. Thus, it was possible, in part, because the agreement was with a user who had work to exchange for concessions in wages and conditions.

Market-Share PLAs

In the 1990s, however, the construction economy improved, leading to a decade long boom that has recently slowed but not collapsed. Union workers were working; local union unemployment rates were low, and the attractiveness of trading hourly wages for more assured work faded. But PLAs did not fade. In fact, they proliferated primarily in areas where construction unions were relatively strong but even in areas where union coverage was low. And the new PLAs were often used on more modest projects, such as schools and court houses, and cover renovations as well as new construction.

Two economic conditions (other reasons will be discussed below) converged to lead to the proliferation of PLAs. First, construction labor markets were becoming increasingly tight. Not only was unemployment down, but also apprenticeship training was down. As the nonunion sector proliferated in the 1980s, union apprenticeship programs reduced their enrollments or even in a few

instances shut down. The nonunion sector did not fill the gap, in part, because they were happily harvesting union-trained workers in need of jobs, and because the nonunion sector had not been able to find a viable alternative to collective bargaining to finance apprenticeship training. So construction users were hungry for available and qualified craft construction workers. The Business Roundtable, a group of large construction users, stated in an analysis of skill shortages in construction, "The union sector has always excelled in craft training through the joint labor/management apprenticeship programs…the open shop, as a whole, has not supported formal craft training to the extent necessary." [3]

Second, while the construction economy had recovered and construction union membership was growing, the union share of the construction labor market was either still declining or merely stabilizing, depending on the area. PLAs emerged as a new key instrument for both providing users with an uninterrupted supply of qualified workers and in helping unions to stabilize or expand their share of the construction market.

But why the controversy?

Old-school PLAs were used with little controversy in both the private and public sectors throughout the postwar period—a period during which much of the construction sector was highly unionized. With strong unions, there was a great desire on the part of construction users and contractors to avoid labor disputes and to gain the best economic deal possible relative to local agreements. The climate changed, however, when union market share dropped and construction users and the nonunion sector became better organized.[4] In the new environment, with large nonunion contractors able to compete for all types of work in virtually every state and with the growing strength of a nonunion contractors' association, Associated Builders and Contractors (ABC), challenges to

Two state court cases

To give two examples of state court decisions, in the consolidated case of New York State Chapter, Associate General Contractors v. New York State Thruway Authority (666 NE 2d 185, 151 LRRM 2891, N.Y. Court of Appeals, March 28,1996) the New York Court of Appeals upheld the use of a PLA on the renovation of the Tappan Zee Bridge, but overturned the one attached to the construction of dormitories at the Roswell Park Cancer Institute. In Associated Builders and Contractors of Rhode Island v. Department of Administration (787 A2d 1179, 170 LRRM 2054, R.I. Supreme Court, January 4, 2002) the Rhode Island State Supreme Court overturned a PLA for a new sports facility at the University of Rhode Island.

In the former case, the court held that New York law does not prohibit nor absolutely permit PLAs but does require that there be an adequate reason to apply a PLA to a project and further requires that sufficient analysis be done to determine whether a PLA advances the purposes of the state's competitive bidding statute. For the Tappan Zee Bridge, the Thruway Authority had determined that the need for quick completion and labor peace supported the use of a PLA. The authority also found that it would save over $6 million by using a project agreement (as opposed to operating under local contracts). However, in the dormitory case, the state agency had already begun the project without a PLA. Later, it attached one to the project without doing any serious analysis of

the benefits. The court voided that PLA stating that the agency had failed to "consider the goals of the competitive bidding statute."

The facts of the Rhode Island case are somewhat similar to those of the New York dormitory case. The University of Rhode Island had already begun construction of a $73 million basketball and ice hockey facility. Work on the project involved 34 separate bid packages. Six bids had been awarded with no mention of a PLA. But in the fall of 2000, more than one year into the project, a PLA was signed. Immediately thereafter, fourteen additional packages went out to bid requiring adherence to the new agreement. The Rhode Island Supreme Court found that the PLA violated state law. The court wrote (170 LRRM at 2060):

[We] are of the opinion that an awarding authority may include a PLA as a bid specification in a public contract, but the awarding authority may do so only after it has established that (1) the size and complexity of the project are such that a PLA supports the goals and objectives of the state purchases act, and (2) the record demonstrates that the awarding authority has conducted an objective, reasoned study using reviewable criteria in determining that the adoption of a PLA helps achieve the goals of the state purchases act.

Since the sports facilities were nearly complete, the court let the project go forward and did not award any damages to the plaintiffs.

PLAs became more common. In the past decade, all branches and levels of government have been dragged into the PLA debate.[5] It is probably not an exaggeration to say that ABC has challenged nearly every large public sector PLA that has been proposed during the past ten or twelve years.

However, not all challenges have resulted in the outcome sought by PLA opponents. A watershed event was the 1993 United States Supreme Court decision in the so-called Boston Harbor case.[6] Although the case dealt with the narrow question of whether local public sector PLAs should be preempted by the National Labor Relations Act, the unanimous court decision allowing a Massachusetts water resources board to go ahead with its PLA bolstered the efforts of proponents to seek agreements on a wide range of public projects.

Viewing market-share PLAs as a threat to their members' market position, the ABC and its state affiliates have mounted intensive national and local campaigns to oppose the use of PLAs. This effort has included numerous court cases, media campaigns and lobbying efforts.[7] Most of the legal action since Boston Harbor has concerned bidding statutes and ordinances and if PLAs, since they place conditions on successful bidders and arguably limit the number of bidders, violate either the letter or the spirit of such laws. Court decisions have been mixed.[8] In a number of cases, state courts have refused to overturn PLAs, while in other cases they have found that a particular PLA did violate a bidding statute.

The situation at the federal level, however, is different. One of President George W. Bush's first actions in office was to reverse altogether a Clinton administration's policy encouraging PLAs. On February 21, 2001, the President issued Executive Order 13208 prohibiting the federal government or a construction manager acting on its behalf from placing in its bid specifications any language that denotes the following:

(a) Require or prohibit bidders, offerors, contractors, or subcontractors to enter into or adhere to agreements with one or more labor organiza-

tions on the same or related projects

(b) Otherwise discriminate against bidders, offerors, contractors or subcontractors for becoming or refusing to become or remain signatories or otherwise to adhere to agreements with one or more labor organizations, on the same or related construction projects

The President amended the order on April 6, 2001 to exempt agreements that had already been entered into. And Executive Order 13208 allows successful bidders to enter into PLAs voluntarily, but it prohibits the mandatory acceptance of a PLA as a condition of bidding. The result is that PLAs are not currently being applied to most federally funded projects. This has not, however, slowed their use in the private sector nor on public projects that use only state or local funds. It is not possible to determine precisely how many PLAs are in effect at any time, nor how many are public sector and how many are private sector. However, based on findings in previous research, it is likely that at least three-quarters of PLAs are private sector.[9] Therefore, Executive Order 13208 may have only a small effect on the overall use of such agreements. Nevertheless, market-share PLAs are controversial because they involve a struggle between union contractors, high-wage nonunion contractors and low-wage nonunion contractors over market share in the public sector.

What do we know about the effects of PLAs?

The controversy over PLAs has spurred research on the effects of PLAs on a variety of issues, including the number of bidders on a project, labor costs and final bid price. Unfortunately, much of the research is of low quality and has originated from organizations or individuals with a clear prior position. This research typically relies on anecdotes and spurious comparisons. For example, ABC's Union Only Project Agreements: The Public Record of Poor Performance discusses eighteen projects on which there were cost overruns. Of these, six are described as union only projects but are not PLAs. No attempt is made to compare a sample of PLA and non-PLA projects.[10]

Some of the research, however, is a bit more sophisticated. Two important topics that have been examined by researchers are the effects of PLAs on the number of bidders on a project and the ultimate effect of a PLA on project cost.

PLAs and bidding

The research on bidding can be divided into three categories: studies that compare the number of bidders on PLA and non-PLA projects, those that look at the union/nonunion mix of contractors on PLA projects and those, based on survey research, that gauge the likelihood of nonunion contractors bidding on PLA projects.

The Empire State Chapter of ABC, in studying construction at the Roswell Park Cancer Institute in New York concluded that packages put out to bid without a PLA stipulation received 21% more bids than projects with a PLA attached.[11] Andrews, the General Accounting Office (GAO); and Opfer, Son and Gambatese all examined participation by nonunion contractors on PLAs.[12] Andrews studied the Boston Harbor project and found that nonunion participation was lower than reported by the construction manager. He also found that less than half of the nonunion contractors were supplying construction services, with the remainder involved in material supply or professional services. A study of a project run by the South Nevada Water Authority, Opfer, Son and Gambetese concluded that between 16% and 33% of contractors were nonunion and one percent to 27% of the volume work was done by nonunion contractors. The authors interviewed representatives of two nonunion firms that had worked on the SNWA project but indicated that they would not work on

PLA projects again. Among the problems cited by the firms were jurisdictional disputes among unions, poor performance by union workers and obligations to support union sector benefits funds. The GAO's study found that 86 of 286 contracts on the Idaho National Engineering Laboratory were awarded to nonunion contractors, despite eight of eleven nonunion contractors telling the GAO that they would not bid on the project because of the PLA provisions.

All of the studies cited above have problems. For example, the ABC study failed to account for differences in the types work covered and not covered by PLAs at the Roswell facility, and Andrews's sample is much too small to produce valid, statistically significant results. However, a more important question is the relationship between the number of bidders and project cost. In two studies in New York State, Carr found that project costs fall between 3.2% and 3.8% for each additional bidder.[13] However, Carr's statistics show that his model accounts for only 11% of the variance in project costs, suggesting that a number of possibly critical variables are not included in his analysis. If important variables are excluded, effects may incorrectly be attributed to the number of bidders that when, in fact, other causes are at play.

PLAs affect on bid price

One stream of research simply looks at the direct effects of PLAs on bid price regardless of the number of bidders. Research conducted by the Beacon Hill Institute (BHI) at Suffolk University in Boston has been widely reported. In 2003, BHI conducted two studies of school construction projects in the Boston area. In 2004, it replicated its research in Connecticut. In all of the studies, BHI reported substantial cost premiums associated with PLAs. In the original Boston study, the researchers found that PLAs increased school construction costs by 17.3% or about $31.74 per square foot. A follow-up study on a larger sample pegged the estimate at 14% or $18.83 per square foot. The Connecticut study estimated that PLAs added about thirty dollars per square foot to costs.[14]

More detail resides in later sections; however, in brief, the BHI team did an insufficient job at controlling for variables that affect construction costs. Hence, much of what was attributed of the presence of a PLA is actually explained by other variables, such as project location (e.g. the inner city) and building amenities (heating systems, swimming pools, etc.).

PLAs and human resource outcomes: compensation, strikes, safety and minority employment

Two studies examine the impact of PLAs on wages. In the GAO paper on the INEL project, researchers found that wages on the project were 17% to 21% higher than the Davis-Bacon prevailing wage rates for the area. In a 1997 article, Lyons argued that the executive memorandum issued by President Clinton to encourage the use of PLAs on federal construction projects would raise federal construction costs between 2.3% and 7.2%.[15] In the GAO piece, however, most of the difference was accounted for by the travel allowances included in the agreement, and the critical problem with Lyons's calculation is that he used the national average construction wage as a proxy for the Davis-Bacon rate.

Several studies have addressed the complaint by nonunion contractors that PLAs force them to pay into the union sector benefits funds while maintaining their own pension and health care plans.[16] Lund and Oswald point out, however, that this argument may be more theoretical than actual, since many nonunion workers lack any benefit coverage.[17] Either their employers do not offer coverage, or the short tenure of nonunion workers precludes their participation in benefits' programs. It is also the case that participation would be gov-

erned by the PLA and could vary from agreement to agreement (see, for example, the Toyota agreement discussed in Chapter Five).

A central feature of PLAs is the inclusion of a no-strike/no-lockout clause. In research done by Johnston-Dodds in California, 26 of 59 reviewed PLAs contained blanket no-strike provisions, while the remaining 33 allowed strikes only in the event of contractor delinquency in payments to joint funds.[18] PLA proponents champion such provisions as an important element in raising certainty on construction projects.

Opponents discount such provisions on several grounds. First, they note that no-strike provisions have been violated (though proponents counter that dispute settlement procedures have been highly effective in quickly resolving problems). Second, PLA opponents point to the generally low strike rates in construction today. And, finally, they note that such disruptions are rare on nonunion worksites.

Available research on safety is, for most part, restricted to two case studies: work done by Dunlop on the Boston Harbor project and Opfer, Son and Gambatese's work on the SNWA project.[19] Dunlop found that lost time incident rate on the Boston Harbor Project was 4.1 while the national average for heavy construction was 6.2. Further, the lost workday incident rate was 134.7 for Boston Harbor versus a national heavy construction rate of 150.4. Opfer, Son and Gambatese, however, found contrary evidence when examining the SNWA project.

Finally, the research on minority (including female) employment is also sketchy and primarily anecdotal. PLAs have been opposed by a number of minority contractor associations. However, membership in such associations is likely dominated by nonunion firms. In additiong, ABC argues that the emphasis placed on minority employment by PLA proponents is designed to "deflect criticism of unionized construction emanating from minority and women's groups."[20] Johnston-Dodds provides perhaps the most interesting description of a minority employment program in her description of the Port of Oakland, California PLA.[21] The agreement included a small/local business utilization program and a local hiring program, which provided for set-asides and targets for minority contractor and worker participation. The PLA also called for a social justice committee to oversee implementation of the minority hiring provisions. The social justice components of the PLA were supported by a contribution of up to $1.15 per hour for all work done under the PLA. Although some difficulties were mentioned in meeting some of the PLA's goals, the report does not contain an analysis of the overall effectiveness of the program.

Conclusions

A PLA is an agreement between a multicraft set of labor unions and a construction user represented by the project manager or some other agent qualified to sign a labor agreement. Bringing new parties to the table—a user who controls work and a combination of unions who can collectively harmonize their local labor agreements—creates new bargaining possibilities, and new win-win solutions become possible. PLAs fall into three historical categories.

Old School PLAs were dominant from WWII to around 1980. They were large, long-lasting, often technical or rural projects that needed to draw workers from long distances and proceed uninterrupted by strikes in an environment with widespread unionization. PLAs set the wages, conditions, traveling arrangements and no-strike clauses that made these goals possible.

Stop-Loss PLAs emerged in the 1980s in response to stagnation in the construction labor market and loss of work to the nonunion sector. These concessionary PLAs granted primarily to large industrial owners discounted local union wages and benefits to preserve work. Neither PLA was particularly controversial for its time except for

those union members who objected to the concessions embedded in Stop-Loss PLAs.

Modern Market-Share PLAs are applied to a wide range of private and public projects attracting owners based on new win-win possibilities associated with a new bargaining table. Market-Share PLAs are controversial because these contracts serve as weapons in the struggle between union and some nonunion contractors (those who cannot or will not compete for PLA work) over market share.

While most PLAs are on private work, the controversy over PLAs is focused on public work: if a private owner wishes to sign a PLA, there is no public policy that would stop the owner doing so. Consequently, the debate is over whether PLAs are good for the public sector. Thus far, most of the debate has been on whether PLAs raise public construction costs. Analytically, this is a delicate argument to make because most Market-Share PLAs exist where unions are strong and public works require prevailing wages and those wages (and benefits) tend to correspond to the wages and benefits required by PLAs. So the argument must be that PLAs restrict bidders, thus reducing competition and raising prices. The problem with this argument is one need only about half a dozen bidders to get the full effect of bidding competition on prices. Furthermore, research to date only looks at whether nonunion contractors are discouraged and not whether union or high wage nonunion contractors are attracted by PLAs. In short, we do not know whether or to what extent PLAs discourage bidding. Nonetheless, some research has argued that PLAs raise total costs on prevailing wage jobs by around 15%. This is not only a surprising result because it cannot be derived from increased wages, but also because labor costs as a percent of total costs typically is around 30% in construction.

Readers should not be dismayed at the preliminary, incomplete, and often inadequate results of research on PLAs. This field of research is young, and from the heat of current controversy there may yet emerge information. Some of the problems with prior work simply reflect the inherent difficulties with this type or research (e.g. getting adequate data, comparing very different projects). In other cases, results are compromised by low quality research, including poor statistical modeling. Perhaps the most disheartening weakness is that some studies simply attempt to support a previously held position, with findings merely leading to a foregone conclusion. Nonetheless, this research literature will mature, become more sophisticated and solve some of its methodological problems, and thoughtful conclusions will drive out preconceived notions. This study is an attempt to contribute to that maturation process.

2. The Content of PLAs

Before analyzing the effects of PLAs, the contents require explanation. There are two model agreements adopted by the AFL-CIO's Building and Construction Trades epartment and approximately one hundred actual PLAs covering projects in 17 states.

Two categories of PLA provisions are clearly designed to promote cost savings on projects. The first category primarily includes compensation concessions on wages, benefits, premium pay and pay for time not worked (e.g. breaks). The second type of provision seeks to contain cost by enhancing productivity by relaxing work rules, minimizing crew sizes and restricting the introduction of new technology, among other things.

Cost containment provisions

Wages

Direct wage concessions in PLAs are rare. Most PLAs simply incorporate the wage schedules from local collective bargaining agreements. These are usually called Schedule A agreements, with Schedule A being the first contract appendix. However, a PLA occasionally will call for a trades' more favorable wage schedule to be used (e.g. residential rates on a commercial project). Less common is a separate wage schedule with different pay rates and different timings for pay increases.

Though rare, across-the-board wage concessions are possible and were more common during the recession of the early 1990s. A PLA for a building project at a private college in Rhode Island, for example, stated that "All employees covered by this agreement shall be classified in accordance with work performed and paid at the rate of eighty percent (80%) of the base hourly wage rates for those classifications…"

A more common concession is a wage freeze for the life of a project. A Connecticut PLA read, "The wage rates will be frozen as of September 1, 1998 for the remainder of the project. Fringe benefits shall not be frozen during this period."

Premium pay

PLAs often limit the types of premium pay available on a project. A New Jersey PLA allowed for reporting and call back pay but otherwise held "there shall be no premiums, bonuses, hazardous duty, high time or other special payments of any kind." Similarly, overtime may be limited. A Connecticut PLA called for time-and-one-half to be paid after "ten hours worked in a day or forty hours worked in a week." Area agreements required premium pay after eight hours of work.

Benefits

We discovered two approaches in PLAs to limiting benefits' costs. Most common, PLAs restrict the payments required of contractors to those funds that directly benefit employees. An Oregon agreement stated that "The employer shall pay only fringe benefit funds for employees (such as pension, health and welfare, vacation, apprenticeship and the like) that have been legally negotiated and established by the applicable collective bargaining agreement…This expressly excludes any and all Industry Promotion Funds, Contract Administration Funds, Contractor-Union Management Funds, Craft of

Industry Alliance of Associations."

A clause in a New England PLA limited premium contributions (for most trades) to the straight time rate, regardless of whether work was being performed at straight time or premium rates.

Pay for time not worked

A clause from a New York PLA stating, "There will be no rest periods, organized coffee breaks or other non-working time established during working hours" is typical. Some PLAs specifically allow workers to bring beverage containers to their workplace for brief individual pauses. Except for lunch breaks, pay for time not worked is often limited by PLAs.

Work rules

PLAs generally include broad proscriptions on practices that would, in any way limit productivity. Consider the following two sections from an Indiana PLA:

Section 1: There shall be no limit on production by workers nor restrictions on the full use of tools and equipment. There shall be no restriction, other than may be required by safety regulations, on the number of employees assigned to any crew or to any service. …

Section 7: The Union will not impose conditions which limit or restrict production or limit or restrict the joint or individual working efforts of employees. The Construction Contractor may utilize any method or technique of construction, and there shall be no limitation or restriction regardless of source or location of machinery, precast tools, or other labor-saving devices, nor shall there be any limitation upon choice of materials and design.

Provisions effecting scheduling

As the interview portion of this research reveals, one of the primary reasons that construction users agree to PLAs is their effect on scheduling. It is particularly significant when a project has a tight deadline, such as completion before the start of a school year or sports' season. Nearly all PLAs include in the preamble some mention of the need for timely completion. This mention may be general or very specific.

As well, PLAs usually reconcile the often disparate work schedules of the trades. PLAs specify standard start, quit and break times, and most PLAs note a uniform set of holidays. The following language is from a Minnesota PLA and addresses a number of scheduling issues.

Article VIII
Hours of Work, Overtime, Shifts and Holidays

8.1 The regular forty (40) hour work week will start on Monday and conclude on Friday. Eight (8) consecutive hours, exclusive of a one-half (1/2) hour lunch period, between 7:00 a.m. and 5:00 p.m. shall normally constitute a work day. The starting time of the Work may be changed within these hours by the Employer upon notification to the Union to take advantage of daylight hours, weather conditions, shift, or traffic conditions. It is understood that all work performed in excess of eight (8) hours per day shall be considered overtime. Starting time may be adjusted up to one (1) hour prior to 7:00 a.m. with mutual consent of the Union and Employer.

8.2 At the scheduled starting time, all employees will be at the place where they pick up

their tools or receive instructions from their foreman. They shall remain at their place of work under the supervision of the Employer until the scheduled quitting time. There shall be no practices that result in starting work late in the morning or after lunch or in stopping work early at lunch time or prior to the scheduled quitting time. Coffee breaks will be limited to ten (10) minutes and shall be taken in close proximity to the Employee's Work Station. The parties are in accord that the intent of the Agreement is a "fair day's work for a fair day's pay" and Work should be managed in such a manner to enable the Employer to maintain and increase efficiency consistent with fair labor standards.

8.3 When employees leave the Work on their own accord at other than normal quitting time, it is their responsibility to notify the Employer. Employees will be paid only for actual hours worked.

8.4 The Employer shall determine the recording devices, checking systems, brassing or other methods of keeping time records on the Work.

8.5 An effort will be made to keep overtime work to a minimum but when such is judged necessary it will be worked at the direction and discretion of the Employer.

8.6 All overtime to be paid at time and one-half except on Sunday and Holidays which will be paid as specified in Local Union Bargaining Agreements

8.7 All employees shall be paid for actual time worked. The Employer shall have sole responsibility to determine availability of work due to weather conditions.

8.8 Shift work may be performed at the option of the Employer. In the event the second or third shift of any regular work day shall extend into a holiday, employees shall be paid at regular shift rates. Shift work shall be paid as specified in local collective bargaining agreements. When so elected by the Employer, multiple shifts of a temporary basis, shall be worked the number of consecutive days required by the Local Union Bargaining Agreement.

8.9 Uniform holidays for the Agreement are as follows: New Year's Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, the Friday after Thanksgiving, Christmas Eve Day and Christmas Day. If any of these holidays fall on a Saturday or Sunday, the preceding day, Friday, or the following day, Monday, shall be considered to be a legal holiday. A holiday shall be a 24-hour period commencing with the established starting time of the day shift on the date of the holiday.

8.10 When work is to be performed in controlled areas, the Employer may elect to have the employees take two (2) one-half hour breaks instead of two (2) ten minute coffee breaks and a one-half hour lunch period.

No-strike/no-lockout and dispute settlement provisions

Perhaps most importantly, PLAs insulate work on a project from disruptions that might occur because of labor relations issues or grievances.

Some no-strike/no-lockout provisions are very broad and preclude all types of actions. Others provide a narrow exception that allows striking if a contractor is delinquent in its payments to benefits' funds. The BCTD model PLA allows for disciplinary action—including ineligibility for rehire for ninety days—for any individual who violates the no-strike provision.

To ensure that disruptions do not occur or are dealt with swiftly, PLAs often contain several types of dispute settlement mechanisms. First, many PLAs, following the BCTD model, have a three step grievance procedure ending in binding, neutral third-party arbitration. This procedure handles typical complaints of contract violations. Second, PLAs often have some method of resolving jurisdictional disputes. Most PLAs simply refer matters to the BCTD's plan for the settlement of jurisdictional disputes in the construction industry. Some, however, contain their own procedures for resolving such disputes, particularly for cases where a non-BCTD union or employer who does not agree to use the plan is involved. Clear language in the scope of work provision and requirements for pre-bid or pre-job conferences are also ways of avoiding jurisdictional problems.

Many PLAs also have expedited procedures to handle job actions if they do occur. Typically, an arbitration hearing is held quickly with an immediate finding as to whether a job action has taken place. If one has, injunctions are authorized and penalties may be handed out to the offending individuals, unions or employers.

Safety, training and minority employment

All of the PLAs reviewed for this research mention the need to adhere to safe work practices. In some cases, these are fairly brief statements calling for adherence to contractor's safety rules and OSHA or state safety regulations. Drug testing policies are also a nearly universal item.

It is not uncommon, however, for safety clauses to be much more highly-developed and include, among other things, labor/management committees and mandatory testing on safety protocols. Rather than being included in the PLA itself, a project safety plan is often a separate document altogether.

Since PLAs typically cover large projects that last for several years, they provide excellent opportunities for training initiatives. Changes in the journeyman/apprentice ratio, the inclusion of pre-apprenticeship programs and even programs to set aside a portion of worksite for training are possibilities. An Indiana PLA, for example, stated that apprentices and non-journeymen may be "up to forty percent (40%) of a craft's workforce…unless the local collective bargaining agreement establishes a higher percentage."

A New York PLA provides a good example of a pre-apprenticeship program. In this case, pre-apprentice opportunities were provided to "students of the City of Buffalo's Vocational High Schools." The PLA stated that students "shall perform 'hands-on' work in the following trades: carpentry/drywall, taping, interior finishes/painting, electrical, plumbing, communication and low voltage cabling, masonry, HVAC, finish carpentry work and fire protection.

An extraordinary training program was part of the PLA for British Columbia's Island Highway. The centerpiece of the effort was the Hindoo Creek project, a section of highway built by trainees. As reported by Cohen and Braid, "Time spent on the job was strictly on actual production. 'I wasn't just pushing barrels around from one side of a training yard to another,' one trainee explained, 'I was doing real work.'" [22]

The Hindoo Creek project was part of an effort to recruit women and minorities into construction.

Targets and local hiring initiatives are also means of increasing minority participation under PLAs. A Connecticut PLA, for example, required that local residents be given first hiring preference, followed by those in neighboring communities. A New Jersey PLA stated that "up to 50% of the apprentices placed on this project shall be first year, minority, women or economically disadvantaged apprentices as shall be 60% of the of the apprentice equivalents…"

Critical miscellaneous provisions

Several other distinctive aspects of PLAs deserve mention. The Scope of Agreement provisions are highly detailed in PLAs. In order to avoid conflicts over what work the PLA covers and does not cover, the PLA project must be well defined. The following is an example from the Boston Harbor project.

The Management Rights clause in nearly all PLAs includes the rights to "hire, promote, transfer, layoff or discharge for just cause." The latter part of the provision bears special notice, since many local agreements in the construction industry do not include a just cause provision. However, these are typical in PLAs and balance with the dispute settlement procedures as a means of resolving just cause issues.

PLAs generally require all contractors on a project to use the referral system that is specified in the PLA or those included in local agreements. Some PLA referral mechanisms allow nonunion contractors to bring some of their own workers onto a project. These are called core personnel, key man or drag along provisions. For example, a western New York State PLA provides an illustration. It read, "In addition, the Contractor may hire, per craft, five (5) journeypersons referred by the affected trade or craft and may the hire one (1) core employee as a journeyperson who has been regularly employed by that Contractor for a reasonable time."

Such Project is generally described as the construction of the following:

1) Primary, secondary and residual wastewater treatment facilities on Deer Island
2) Head works on Nut Island
3) A tunnel under Boston Harbor from Nut Island to Deer Island
4) An outflow tunnel eastward in the Atlantic Ocean from Deer Island, including the installation of diffusers
5) Related facilities, which include, as necessary the following:
a. Site preparation, demolition and/or rehabilitation of facilities now located on the site
b. Designated materials and personnel loading and unloading and staging sites dedicated to the Project
c. Transportation systems in and around the Harbor for personnel and materials
d. Installation of materials necessary for the Authority's Deer Island facilities, not otherwise undertaken by public or private utility organizations, in the town of Winthrop
6) The interim and permanent sludge treatment plants at FSRA
7) New construction/rehabilitation work for the Authority's current operating facilities on Deer Island and Nut Island awarded after the effective date of this agreement

Finally, the term of agreement or duration clause is critical. Such clauses are much more complex in PLAs than in local agreements. Rather than the typical three or four year termination dates, PLAs must have detailed language concerning a project's completion. Without such language, disputes may arise as whether subsequent work is covered by the PLA. The following illustration comes from a Nevada PLA and shows the detail of such clauses:

ARTICLE XVIII
DURATION OF AGREEMENT

The Project Labor Agreement shall be effective on the date approved by the [owner], the Union and the General Contractor and shall continue until final acceptance, as defined in Section 1(b) of this Article, of the Project construction work described in Article II hereof.

Section 1:
(a) Turnover. Construction of any phase, portion, section or segment of the Project shall be deemed complete when such phase, portion, section or segment has been turned over to the Owner by the Contractor and the Owner has accepted such phase, portion, section or segment. As areas and systems of the Project are inspected and construction tested and/or approved by the Construction Manager and accepted by the Owner or third parties with approval of the Owner, the Agreement shall have no further force or effect on such items or areas, except when the Contractor is directed by the Construction Manager or Owner to engage in repairs or modifications required by its contract(s) with the Owner or Construction Manager.

(b) Notice. Notice of each final acceptance received by the General Contractor and/or Contractor will be provided to the Union with a description of what portion, segment, etc. has been accepted. Final acceptance may be subject to a 'punch list', and in such case, the Agreement will continue to apply to each such item on the list until it is completed to the satisfaction of the Owner and Notice of Acceptance is given by the Owner to the General Contractor and/or Contractor.

(c) Termination. Final Termination of all obligations, rights and liabilities and disagreements shall occur upon receipt by the Union of a notice from the General Contractor or the Owner saying that no work remains within the scope of the Agreement for the General Contractor or its successor.

(d) Releases/Waivers. Any and all releases and/or waivers shall be provided to the Owner.

A PLA checklist

The following table provides a comprehensive checklist of items for negotiators of PLAs. However, the list should not be a substitute for the important needs on a specific project. As chapter five states, the strength of PLAs is the ability to address these needs. The initial questions negotiators should ask are: What are the important issues on this project (e.g. cost, scheduling, safety, etc.)? How can the PLA be structured to handle these issues?

Table 1: A PLA Item Checklist

1. Purpose

- If there is a specific date by which the project must be completed, is it included?
- Is the need for harmonization of hours and the stabilization of wages mentioned?
- Is the need for the maintenance of labor peace mentioned along with a dedication to the mutual resolution of disputes?
- Does the clause contain a no-strike/no-lockout statement?

2. Scope of agreement

- Is it clear that the PLA is intended only to cover construction work?
- Is work that is not included clearly stated?
- Are the various projects and geographic parameters of the site well-defined?
- Does language address site preparation and/or dedicated off-site work?
- Does the clause clearly state that all contractors, of whatever tier, must accept and be bound by the agreement through a letter of assent?
- Does the agreement clearly state that the property owner's employees are not covered and the PLA does not create joint-employer status?
- Is there a supremacy clause stating that the PLA supersedes all other agreements?

3. Union recognition

- Are the signatory unions recognized as the sole and exclusive representatives of all craft employees?

4. Management's rights

- Is management specifically given the right to hire, promote, transfer, lay off or discharge employees, subject only to the provisions of the Agreement?
- Is just cause protection granted?
- Are restrictions of output, crew size or the introduction of technology prohibited?

5. Referral of employees

- Do signatories agree to use the referral procedures maintained by the unions?
- Is there a provision for unions that do not have an established referral system?
- Is there a non-discrimination clause in the agreement?
- Is there a period (e.g. 48 hours) after which contractors may seek labor from other sources if the

union is unable to fulfill a request?

- Is there language relating to the appointment of foremen?
- Does the agreement allow for testing or evaluation for those who require special skills?
- Is there a "key man" or core personnel provision?
- Is there a clause that prohibits the union from reassigning project employees to another site?
- Is there a provision for the reemployment of individuals who quit or are terminated for cause (e.g. ineligibility to return to the site for 90 days)?

6. Apprentices and trainees

- Is there language about the employment of apprentices?
- Does the PLA allow for a uniform journeyman/apprentice ratio?
- Are helpers, trainees, or other subjourneymen allowed on the project?
- Is the ratio of these other trainees defined?
- Are apprentice or trainee wages defined in the PLA?
- Does the PLA establish any special program for the recruitment or training of apprentices or other trainees (such as minority or female targeting, a school-to-work program, etc.)?

7. Wages and benefits

- Does the PLA contain any direct concessions on wages?
- Does the PLA contain any direct concession on overtime pay?
- Does the PLA limit forms premium pay, such as travel time, high time, etc?
- Does the agreement limit the joint funds to which contractors must contribute?
- Does the agreement limit amounts to be contributed to straight time wages?

8. Work rules

- These are unique to each project, but may include such matters as rules on the use of equipment, smoking, absenteeism, etc. Often this section is used as a residual category for items that do not fit easily into other sections.

9. Work stoppages and lockouts

- Is there strong language prohibiting strikes and lockouts, as well as other types of job actions (e.g. slowdowns)?
- Is striking allowed over certain matters, such as delinquency in payments to joint funds?
- If striking is allowed, is it limited in any way (e.g. must not be accompanied by picketing, handbilling, etc.)?
- Is notice required for striking?
- Is there a procedure for determining if a proscribed job action has occurred and for enforcing the no-strike/no-lockout clause?

10. Grievances and arbitration

- Does the agreement contain a grievance and arbitration procedure?
- Are arbitrators named in the PLA?

- If not, is the source of arbitrators (e.g. AAA, FMCS) defined?
- Does the agreement define the types of disputes or grievance that are subject to the procedure?
- Are exceptions made to the grievance/arbitration procedure for industries that have their own settlement procedures?
- Is the procedure, including the number of steps and individuals involved, clearly defined?
- Is the employer allowed access to the grievance procedure?
- Are limits to the arbitrator's authority defined?

11. Jurisdictional disputes

- Does the PLA reference the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry?
- Is a provision made for parties that are not stipulated to the Plan?
- Are pre-job conferences required to work out jurisdictional issues?

12. Union security

- Is there a requirement to join the appropriate union within the statutorily defined period of time?
- Is there a maintenance of membership provision?
- Is an exception made if the project is in a "right-to-work" state?

13. Union representation

- Is provision made for access to the project by union officials?
- Are the rules for union access defined?
- Are rules governing stewards defined?

14. Hours of work

- Is the workday defined?
- Are hours of work standardized across crafts?
- Are break times defined?
- Are any statements about overtime or overtime distribution included?
- Are there provisions for shift work and/or flex time?
- Are uniform holidays specified?
- Are rules concerning the celebration of holidays that fall on weekend defined?
- Is there a provision for make-up time?

15. Subcontracting

- Is subcontracting restricted to those willing to sign a letter of assent?

16. Safety and health

- Are any special safety programs or safety committees specified in the agreement?
- Are employees required to receive special safety training or be certified in particular safety procedures?
- Is a drug and alcohol abuse monitoring or prevention program specified?
- Is immediate dismissal allowed for safety violations?

17. Saving clause

- Does the clause preserve the contract if any particular provision is voided by a court of law?
- Does the clause require the parties to negotiate a substitute agreement for any provision voided under law?

18. Term of agreement

- Are the start and end dates of the project clearly defined?
- Is there a provision for rework or a contractor's subsequent involvement with the project?

3. Interviews

It was essential to hear from individuals with experience with PLAs. The research team interviewed approximately forty people who shared a variety of thoughts. It spoke with both public and private construction users, contractors, contractor association representatives, labor union officials and two labor/management committee executive directors. Interviews were conducted in southern New England, the northern Midwest, and the West (mainly California). To comply with rules for research including human subjects, the names of the interviewees are not revealed. Below we discuss positive and negative comments about PLAs, suggestions for when a PLA should or should not be used and ideas for improving PLAs.

Positive comments

Favorable comments about PLAs came mainly through questions about how PLAs affect costs, scheduling, safety, training and minority employment.

Scheduling

Interviewees seemed most convinced that the greatest benefit of a PLA was in assuring timely completion of a project. Foremost, PLAs nearly guarantee a steady flow of qualified labor. A New England contractors' association representative (who was generally ambivalent about PLAs) said, *"If a nonunion contractor needs labor, he will have to put an ad in the paper and hope he gets people to apply. But the unions have a national network of referral and hiring halls, and a contractor can nearly always get qualified labor."*

"Anything above five to eight million dollars we will go to a project labor agreement because we find it a more effective management tool…Basically it's the labor pool, the supply of labor, the quality of the workmanship. In my experience we have had some jobs that had both union and nonunion contractors on them and from the point of view of the lump sum delivery of the job it was tough to manage. So from an owner's perspective it's a more effective management tool."

The construction manager of an Ivy League university

Similarly, the construction manager for an Ivy League university stated:

Anything above five to eight million dollars we will go to a project labor agreement because we find it a more effective management tool…Basically it's the labor pool, the supply of labor, the quality of the workmanship. In my experience we have had some jobs that had both union and nonunion contractors on them and from the point of view of the lump sum delivery of the job it was tough to manage. So from an owner's perspective it's a more effective management tool.

In my experience, on our union (i.e. PLA) jobs we have never missed an opening date, and it is all driven by the academic schedule…We need to deliver this building by May 2006, and I get a better level of assurance building with a PLA.

The manager also noted that scheduling depended not only on getting qualified workers, but on keeping them working. Hence, the dispute settlement provisions of PLAs are also important. He added, *"The only [job] action we had*

where we had a problem was on an open shop job. Generally PLAs will protect us from that type of action."

The director of a hospital in the Midwest also noted the advantages of getting a quality workforce and being free from work disruptions:

> *Having an IMPACT agreement [i.e. a PLA] gave us peace-of-mind throughout all phases of the project. A new facility was a dream of our volunteers, board members and staff for many years. The planning phase was lengthy and thorough. Once we entered the construction phase, time was a crucial issue. The IMPACT agreement assured us of the full cooperation of the building trades. There were no work stoppages, and job harmony made for a project completed in a timely manner.*

In the West, a public sector owner also commented on the scheduling advantages of a PLA, while noting the cost advantages of assuring quality:

> *With the PLA, we finish on time, no interruptions or delays associated with disputes. It isn't just the dollar figure. When I put up a building, I stand back and take pride in it. When I see lousy work, I get angry. It isn't a question of it costing us five dollars an hour more. My community wants their school buildings put up properly, and they want them to last and not to have to come back and fix things because somebody was not properly trained. The PLA saves us money on the final cost, which matters more than the bid price.*

"The PLA saves us money on the final cost, which matters more than the bid price."

A Western public sector construction user

Adding some detail to concerns about scheduling, a public sector construction user in New England talked about assuring a proper flow of work on a project:

> *Delays in the project are what cause some of the most significant issues because it put trades out of schedule. They may have to go to another job. Then when you throw them off, you throw off the others…So in order to have the right order and to have people in the different trades, when they look across, say 'we know they do good work. If somebody is falling a little bit behind, let's work with them. Let's figure out a way we can move on, and let's resolve any issues.' That aspect of PLAs was very appealing to the building committee.*

"The biggest advantage is knowing that once a job starts it's going to stay working. It's not going to be affected by these external things that, for example, could affect you in local negotiations."

"You can't have delays [on school projects], and one of the things that PLAs give you is the ability to get the workforce."

The thoughts of two New England union officials

Training and minority employment

Several interviewees remarked that PLAs enhanced training and fostered minority participation in the trades. A Boston area union official told us:

> *We have made provisions for intake of certain people from communities into our programs to give them a direct access. It could be a project where the school committee says, 'any chance our young people might have a shot of getting into the training programs?' and we will write something in…One thing we talk about in the PLA is getting the kids and actually putting them in our training program, so in three or four or five years they're actually a journeyperson, as opposed to just throwing them on the job site for a few months, and then they're gone, and*

they don't learn anything…We give them more of a committed career path as opposed to just giving them a part-time job for the summer.

[On one project] there was an agreement in order to take in minority, women, disadvantaged kids into the industry, the building trades set up a pre-apprentice program…They put 200 or 300 kids through the program every year. It's a six month program, so they do two a year. Those kids are then moved into the apprentice program if they want…The six month program is really to give them a sense of what construction is as a career. But those that want to pursue it, they go into the apprentice programs, and they're off and running from there.

A New Haven area union official added:

[The city] had done a lot of projects without PLAs, but the PLA projects invariably came in on time and on budget and, two, they demonstrated, as contrasted with the non-PLA jobs, a clear superiority in numbers in terms of [city] residents and minorities…and they still came in few cents per square foot cheaper than the other jobs.

For the larger cities, it's important to them that they get local residents and minorities and women, and we demonstrate to them the successful programs that we've implemented within PLAs in other areas. The state projects, and even a lot of the local projects, it's important for them to understand that the PLA is the only way you can really guarantee a local workforce. In the public sector any person can bid, and the successful bidder can bring his workforce from wherever he so chooses, and we've seen people coming in from Arkansas, Texas and Maine. The PLA doesn't prevent anyone from bidding the project. All it says is that the successful low bidder is going to employ local building trades people. And we've done things in those agreements to give local residents a first off the bench hiring preference. We guaranteed one community ten apprentices into the trades during the building project.

Safety

Even some of the skeptics we interviewed said that PLA covered jobs were marked by a heavy emphasis on safety. Some, like the following interviewee, linked safety performance to the labor/management committees found in many PLAs:

Under the PLAs, more so than absent a PLA, there is usually more emphasis on safety and more so, there is more emphasis on joint participation around safety. On almost all the agreements, we insist there be a joint safety committee formed for this project so that on a regular basis, once a month, the agents get together with the stewards and contractor and talk about safety related issues. Now, on the private side, something like this is very demanded, and it is starting to come more and more from the owners, even if we had [started] it initially. On the public side it's asked for less often by the construction manager, but we think it is an advantage.

A contractor's representative stated: *"A contractor can't say 'I can't afford to buy a harness' or lanyard or whatever on a PLA project. The costs are built into the bid process, since they are required on the PLA."*

"Under the PLAs, more so than absent a PLA, there is usually more emphasis on safety, and more so, there is more emphasis on joint participation around safety."

A Boston area labor official

Costs

Since concessions on compensation are rare in today's PLAs, few interviewees made mention of direct cost savings. Rather, savings were implied through better scheduling, higher quality, etc. One interviewee, a union official, commented:

You know time is money, too. I think the PLA jobs—at least the one hundred percent union jobs—are better scheduled and usually come out ahead of schedule, and I think because of that there is a lot of value added.

An interviewee in the West offered an interesting take on PLAs and costs:

When the union brought the PLA to me, I didn't like it. I don't like anybody dictating what the terms of my project should be. But after I stepped back and talked with other people and after re-reading the PLA, I saw the pony in the coral. Low ball bids are not necessarily a great deal. A way-low bid probably means somebody missed something. With the PLA we now have in place, we have a more experienced group of bidders providing a much closer range of bids compared to the mom and pop organizations that were bidding on our projects previously. By law, we have to accept the lowest responsive and responsible bid. [The] mom and pop organizations come in thinking they can take on a major project, and they lose their shirts. Contractors have left. Contractors have been fired. Contractors have gone broke on our projects. Those are things we don't want to get into.

The traditional low-bid approach to awarding public school jobs rewards stupidity. Let's say a project entails three parts—A, B and C. Everybody bids on A, B and C except Stupid. Stupid is stupid, so he doesn't see the third part. So Stupid bids only thinking about A and B. Guess who's the lowest bidder? Stupid! Now Stupid starts the work. The summer goes along. School's coming and the project has got to be completed. Now Stupid sees the third part of the project, but Stupid doesn't have the money to get it done. So Stupid comes to me and asks for change orders. Now he has no business asking for change orders. We could fire him; we could sue him; we could go after his bond. But like I said, school's coming. The kids have to have somewhere to go. So we bite the bullet and pay Stupid his change order. We reward Stupid for being stupid. It's stupid! PLAs cut through this crap by either chasing Stupid out of the game or getting him to pay attention.

"The traditional low-bid approach to awarding public school jobs rewards stupidity…PLAs cut through this crap by either chasing Stupid out of the game or getting him to pay attention."

A Western public sector construction user.

General comments

Construction users in a Midwest city offer a couple of comments that do not easily fit in a category are offered by construction users in a Midwestern city. In the area, a labor/management committee developed a model PLA known as an IMPACT agreement. A hospital and museum official offered us the following comments on the advantages of using the agreement:

Having an IMPACT agreement facilitated a positive partnership between [the medical center] and the subcontractors who worked on our 7th Street campus project. It gave us the assurance of quality workmanship with stringent safety and production standards. We had confidence in a stable, reliable workforce that completed the project on schedule. We were very pleased with the teamwork on our campus and with the benefits gained from our IMPACT agreement.

At [this organization], we know that success is found in uniting the talents of many and building strong relationships. Our IMPACT agreement has been a critical relationship in our effort to build the institute and advance the cardiovascular health of our community. We take pride in being the Quad City's very own health system. Relying on the talents of local people who share a stake in the Quad Cities

only makes sense and has always brought us tremendous results.

The $14 million construction of the museum's IMAX Theater created numerous challenges as we nestled a 38,000 square foot addition between two existing facilities, while continuing to invite the public to participate in a full range of educational programs and exhibitions on Museum Hill. There is no question in my mind that the IMPACT agreement enabled us to achieve our construction time line.

The successful presentation of IMAX films requires a high degree of precision and attention to detail in the construction process. The complex includes a 270 seat auditorium with its centerpiece of a five story-high, seven story-wide flat screen. The talents and dedication of the highly competent workers employed through the IMPACT agreement enabled us to prepare the building to accept the highly technical IMAX equipment. We are assured that the Quad Cities will have one of the finest large format theaters in the nation.

The men and women who worked on this project took pride in their work and shared the excitement of bringing this spectacular new attraction to the region. We look forward to seeing them come back to enjoy the product they created for all of us to enjoy for many years to come. The IMAX Experience will be another point of pride for everyone in the Quad Cities.

Negative comments

Not all comments about PLAs were positive. And, in fact, nearly all interviewees had some criticisms of their use or overuse.

The effect of PLAs on local labor relations

The strongest negative comments about PLAs were not about their impact on construction outcomes, but rather on how PLAs affect local labor relations. Three respondents from a large Midwestern city told a similar of how PLAs had emboldened building trades unions to seek larger than normal bargaining settlements. Since a majority of workers in the area were covered by the no-strike/no-lockout provisions of various PLAs, they did not fear the consequences of a job action and were not, therefore, as willing to compromise their bargaining position. The result was, in the opinions of our interviewees, an overgenerous settlement with electricians that then spread to other trades.

Subsequent negotiations with the plumbers and pipefitters resulted in strike, under local agreements, of seven weeks. Although work continued on PLA projects, it slowed as traveling workers—at the first hint of labor troubles—left the area, making it difficult for the union to staff PLA jobs. Although the owner and employers were able to find sufficient labor, in part by shifting labor from less urgent work, the situation was viewed as burdensome and not in keeping with the commitments made by labor in the PLA.

The interviewees believed PLAs covered too much work in one area. This, in turn, led to greater worker militancy arising from a lowering of the consequences of such militancy. More expensive and more difficult local area settlements resulted.

It should be noted that interviewees mentioned a considerable evolution in labor relations in the area since that problem. The plumbers and pipefitters and Mechanical Contractors Association agreed to use a dispute resolution procedure in place of a strike in future negotiations, and there has been a general mending of relations.

A New England contractors' association representative also noted problems in local labor relations caused by PLAs. His particular complaint was with unions using the grievance/arbitration mechanisms in the PLAs to make gains that might not have been possible at the bargaining table.

An example he gave was of shacks provided to

workers on worksites. A practice had developed in the area of contractors providing such shacks in which workers would take breaks, change clothes, etc. However, the shacks were not guaranteed by the local collective bargaining agreements. When contractors balked at providing a shack on a particular PLA project, a grievance was filed and, an arbitrator determined that the contractors must provide a shack in accordance with established past practice. Our interviewee was convinced that this decision would be used as precedent on future projects.

Since his industry relies on a bipartite employer/union panel, not neutral, third-party arbitration, he feared the imposition of an outside voice on industry practices. The problem would be most pronounced when a majority of work in an area was covered by PLAs.

We've got a lot of nonunion shops that do really good work. I wouldn't be doing the community a service if I excluded the nonunion contractors. Sixty percent of our contractors tend to be union contractors. We don't have any problem with unions; we're happier with their work but not with the price. We have to get through our scope of work with very limited funds."

A Western construction user

The effect of PLAs on bidding and costs

A few respondents indicated that they did believe that PLAs raised the costs of projects, particularly by limiting the number of bidders.

A public sector construction user in Connecticut, though generally happy with his PLA-covered project, noted that only one bid had been received on drywall contract and that the job had to be put out to bid a second time.

Two Western respondents seemed most concerned about the effects of PLAs on bid activity and costs. A public sector user stated:

We've got a lot of nonunion shops that do really good work. I wouldn't be doing the community a service if I excluded the nonunion contractors. Sixty percent of our contractors tend to be union contractors. We don't have any problem with unions; we're happier with their work but not with the price. We have to get through our scope of work with very limited funds.

A traditionally nonunion general contractor in a western state, who had just become a signatory contractor, agreed that PLAs reduce or at least change the number of bidders on a project; although, he was more optimistic about their ultimate effects:

Any conditions or restrictions you place on a

Table 2: Positive and Negative Aspects of PLAs

Positives	Negatives
Ensure a steady flow of highly qualified labor	May interfere with local labor relations
Promote on-time completion	May interfere with established methods of dispute resolution
Enhance safety	May result in fewer bidders under certain circumstances
Aid targeted hiring	
Promote training	
Address a range of project needs	

bid will decrease the number of bidders. If you prequalify your contractors, that will reduce the number of bidders. If you go design-build, that will reduce the number of bidders. If you require a certain [workers compensation] experience modification rate to influence safety on the job, that will reduce the number of bidders on your job. And a PLA will reduce the number of bidders on your job. Anytime you reduce the number of bidders on your job, you will increase the [accepted] bid price. But in the absence of a PLA, prequalification, etc. you increase the possibility that you'll get an irresponsible contractor. That means excessive change orders, litigation as the architect and the contractor fight, scheduling problems, inferior work, and increased construction management costs. PLAs are like insurance. An increased bid price is buying insurance against downstream costs.

When is a PLA appropriate?

Most interviewees agreed that PLAs are not appropriate for all types of work. The regional vice president for construction operations for a large, northeast-based, construction management firm, who often counsels clients in PLA use, said that size and scheduling were the two main factors he urged clients to consider when contemplating a PLA. Moreover, he implied that considering the nature of the work was important. In parts of the Northeast, for example, it is difficult to find nonunion contractors capable of doing certain types of work (e.g. site excavation and iron work). When, on a large project, it is inevitable that much of the basic work would go union, this construction manager advises clients that a PLA makes sense.

Although a PLA would require all contractors to operate in accordance with collective agreements, problems that might arise by having both union and nonunion contractors on a site will be forestalled, and the construction user might, along the way, gain some important concessions. A contractor's association representative also offered that there is "too much conflict on hybrid jobs" to make them worthwhile on large projects where most of the work will go union anyway.

A midwestern respondent offered that PLAs are not a good idea when there are not a sufficient number of union contractors capable of performing the required work in an area. The danger of receiving too few bids under such circumstances is too great.

Although different interviewees suggested different parameters, generally PLAs start to make sense when projects are at least in the five to ten million dollar range. Further factors include the complexity of the work, how tight a schedule the construction user is on and how high the likelihood of essential work going union anyway. According to our interviewees, when such conditions exist, PLAs make sense. Otherwise, the recommend open bidding and construction under area agreements.

Improving PLAs

Now that PLAs have reached a level of maturity and, to an extent, standardization, interviewees did not offer many comments on how PLAs could be improved. But not surprisingly, contractors and contractors' association representatives saw the most room for improvement. The improvements they sought were principally in the ways most PLAs are negotiated. Currently, contractors usually have no formal role in negotiations, which are conducted between the building trades unions and a representative of the construction user, generally a construction manager. As mentioned, the construction manager must be a construction employer under the definitions of the National Labor Relations Act, but most prime and subcontractors, as well as their associations, have no role at the table.

Occasionally, it is clear that the contractors have had input into the process. A Michigan PLA, for example, excluded grievances arising in the electrical and sheet metal industries from the PLA's grievance/arbitration machinery in deference to the bipartite arbitration panels in those industries.

The improvements interviewees sought were principally in the ways most PLAs are negotiated. Currently, contractors usually have no formal role in negotiations, which are conducted between the building trades unions and a representative of the construction user, generally a construction manager.

Where such exclusions do not exist, however, contractors and particularly association representatives are put in a bind. First, their members are clearly bound by the provisions of PLAs. However, since the contractors' associations are not signatory to the PLA, they do not have standing in the grievance/arbitration process and cannot offer full representation to member contractors as a party to the agreement. A further problem is that some PLAs exclude per capita payment to the types of administrative funds that support the involvement of associations in the process.

One possible solution is the development of PLAs through multicraft, multiemployer labor/management associations similar to the National Maintenance Agreements and the IMPACT agreement mentioned above. In fact, in a number of areas, labor/management committees are the main vehicle for developing and promoting PLAs. In such cases, the contractors have a forum to make sure that their concerns are brought into any PLA negotiations.

4. Bidding and Costs

The bidding research compares projects in the East Side Union High School district of San Jose, California with the San Jose Unified School district. The former used a PLA on a series of school construction projects while the latter did not. The research on costs examines 108 school construction projects in New England.

We find that the use of a PLA neither lowers the number of bidders nor increases costs when other important variables are taken into account.

The results show the use of a PLA neither lowers the number of bidders nor increases costs when other important variables are taken into account.

Bidding behavior

The East Side Union High School district in San Jose is responsible for the education of 24,000 high school students. A neighboring district, the San Jose Unified School district, enrolls 32,000 students ranging from kindergarten through high school. In March 2002, voters in both districts approved bond issues for school construction, repair and renovation. The East Side vote allowed the district to borrow up to $300 million. In San Jose, the vote capped borrowing at $429 million. In 2004, the East Side district entered into a PLA with the Santa Clara and San Benito Building and Construction Trades Council. The San Jose district chose to build without a PLA.

The different decisions of the districts with regard to a PLA provided the perfect ingredients for a naturally occurring experiment. We can compare bidding behavior with the East Side district before and after the implementation of the PLA, and we can compare across districts.

There were 21 projects in the East Side district bid under the PLA and 35 projects bid during the same period without a PLA in the San Jose district. Also, there were 12 projects bid prior to the PLA agreement in the East Side district and 96 projects in the San Jose district during the same period. In sum, there were 164 projects, 21 of which were built under a PLA.

The East Side and San Jose districts are adjacent and, therefore, within the same construction market. The time is also the same. However, there are two potentially important differences. The East Side projects were, in dollar value, approximately two to three times larger than the San Jose projects both before and after the use of PLAs. Also, the two districts employ different bidding procedures. The East Side district favors hiring a single prime contractor, who then seeks its own subcontractors, while the San Jose district treats specialty contractors as individual prime contractors.

Statistics indicate that the East Side district received, on average, fewer bidders per bid opening than the San Jose district (approximately 4.5 versus approximately 4.0). This result would be consistent with the findings of those who argue that PLAs reduce the number of bids on a project, except that the result holds for both before and after the implementation of the PLA. In fact, the difference between the two districts decreases after the acceptance of the PLA. Further, there was a drop in the number of bidders across both districts over the

time period. This decrease may be associated with an increase in construction activity in the area at the time. Bureau of the Labor Statistics data for the San Jose-Sunnyvale-Santa Clare area show more employment in construction during 2004 than in 2003. Assuming that this statistic reflects more construction activity, fewer contractors would be willing to bid the projects than if they were experiencing a slack period.

The small difference in the number of bidders both before and after the PLA across districts is likely tied to the differing methods of construction management. The San Jose district favors separate prime contracts on specialty work. Since there are more specialty than general contractors in most construction markets, that fact alone may account for more bidding activity.

One way to find out what the effects of all these possibilities are is to place a number of variables in a multiple regression model.[23] In doing so, the only statistically significant variable that predicts bidding behavior is business cycle. In the period that construction activity increased, the number of bidders per bid opening decreased. Most notably, the results of the study indicate that the presence of a PLA has no statistically significant effect on the number of bidders per bid opening.

Costs

Whether PLAs increase or decrease the number of bidders is probably of little interest to those who ultimately pay for construction projects. What is of keen interest is whether PLAs increase, reduce or have no effect on project costs. In examining 108 school projects in New England, ten of which were built with PLAs, the presence of a PLA does not have a statistically significant effect on the final cost of a project. The research on costs is modeled closely after several studies done by the Beacon Hill Institute (BHI) at Suffolk University in Boston. In 2003 and 2004, BHI produced reports on the effects of PLAs on school construction costs in the Greater Boston area and in Connecticut. Their original study found that PLAs increased construction costs by 17.3% (or $31.74 per square foot) in the Boston area. A subsequent study, which corrected several problems in the first, lowered the estimate to about 12% (or $16.51). In extending the research to Connecticut, the researchers found a PLA premium of $30.00 per square foot.[24]

Similarly, the research includes a model, predicting costs on 108 school projects in New England. Studying schools has several advantages. First, there are more schools than, say, power plant projects in an area, which allows us to have enough observations within a relatively homogenous construction market. Further, while by no means identical, schools are enough alike to provide a basis for meaningful comparison. Finally, there are both public and private schools, which allows us to examine both private and public construction.

Returning to the BHI studies, there were a number of problems with the research. But the main complaint is with the presumption stated in the following paragraph:

> Clearly, other factors also influence the cost of construction—the exact nature of the site, the materials used for flooring and roofing, the outside finish, and the like. As a practical matter, collecting viable information at this level of detail for all 126 projects, would be impossible. Thus, our equation necessarily excludes these unobservable variables. However, this does not undermine our finding of a substantial PLA effect. For the PLA effect shown here to be overstated, it would have to be the case that PLA projects systematically use more expensive materials or add more enhancements and "bells and whistles" than non-PLA projects. Our conversations with builders, town officials and architects suggest that PLA projects are not systematically more upscale.[25]

The BHI researchers dismiss the possibility that PLA projects have more amenities or are more complex than non-PLA projects. Such factors, however, determine why projects are built with PLAs in the first place. To hold otherwise is to ignore prevailing public policy. In many states—particularly in New England—court decisions require public owners to establish the need for a PLA before using one. The size of a project, its complexity and the need for timely completion are all variables that must be considered.

Since the BHI researchers do not believe that PLA projects are "systematically more upscale" they included very few variables in their models that could affect construction costs. Other than whether a PLA had been used, they controlled for little more than the size of the project in square feet, whether a project was new construction or a renovation and, in the Connecticut study, the number of stories and if the project involved an elementary or high school. The methodological problem with such a lean specification is that effects are attributed to the presence of a PLA when they actually result from some unobserved variable or variables.

Finding detailed information for a large number of construction projects is very difficult work. However, we were able to find information—through speaking with architects, construction managers, school department officials, etc.—on thirty variables across the 108 projects in New England.

The descriptive statistics alone tell us that PLA-covered projects are inherently different than non-PLA projects. For example, the average square footage for a PLA school is approximately 157,000 while a non-PLA school is close to 118,000. PLA schools average more than three stories while non-PLA schools average fewer than three. All the PLA projects required prior demolition work, while less than half of the non-PLA schools required such work.

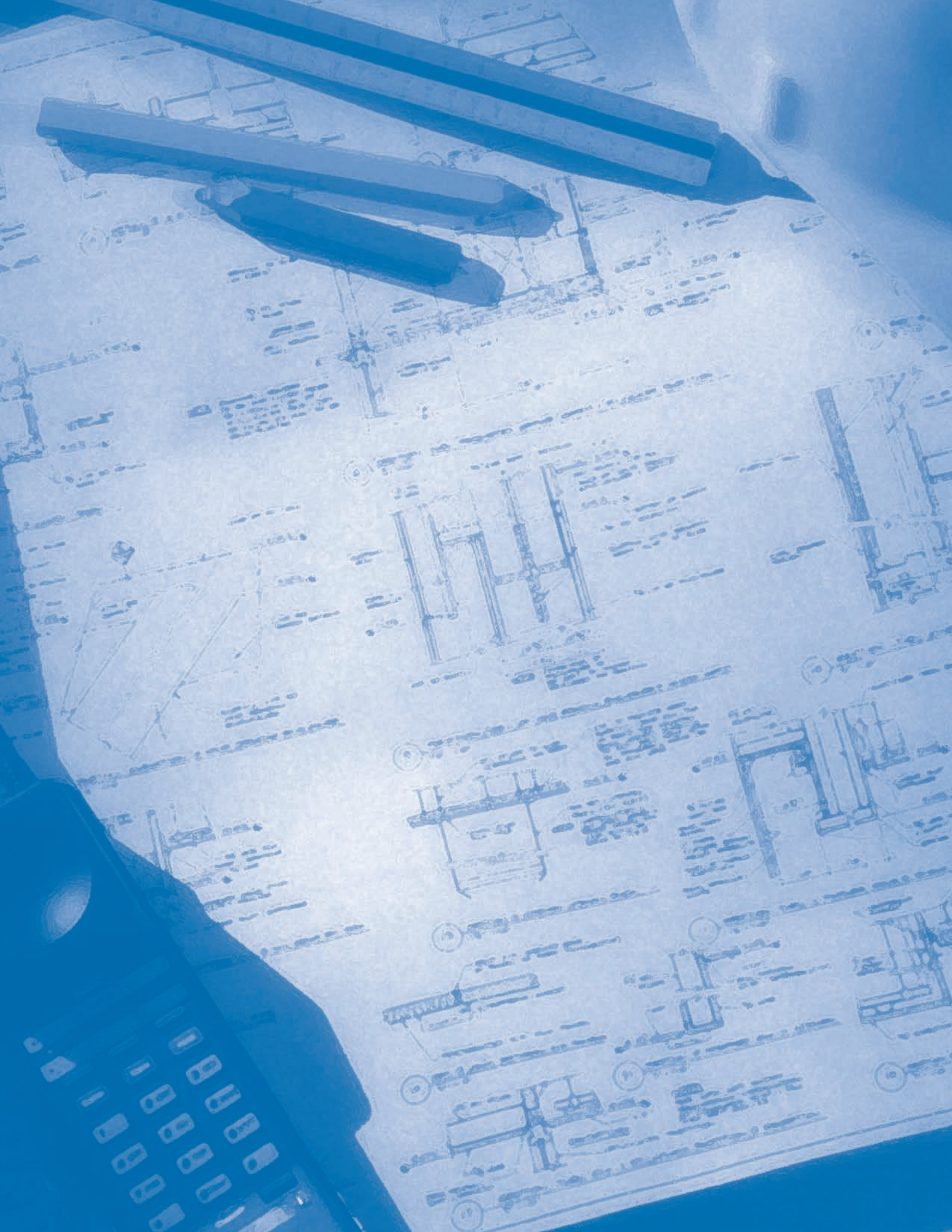
Using the data we assembled, we created a multiple regression model.[26] The dependent variable is the logarithm of the final cost of a project. Using the logarithm of final cost rather than final cost itself allows us to interpret the effects of the independent variables in percentage terms.

When we enter all the variables in a regression equation, we find that significant positive effects are associated with the size of a project (i.e. square footage), whether the building is an elementary school, the construction of an auditorium, cafeteria or kitchen, whether the roof includes both low and steep pitches, and whether the project was located in an urban area. While our model suggests that a PLA adds 7.8% to project costs, the result is not statistically significant. In fact, the PLA variable is so weakly predictive, that the actual effect could range anywhere from -14.4% to 29.9%.

The inherent difficulties in this type of research—identifying the labor relations practices on projects, gathering information on building amenities, materials and aspects of design, etc.—make it unlikely that large samples can ever be used. But small samples, such as the ones by BHI and this one, have a number of problems. Perhaps the main problem is that they can be very sensitive to outlying values. One or two projects that are very different from the majority can skew results. Therefore, results need to be interpreted with caution.

Nonetheless, our conclusion is that the additional costs observed on PLA projects by previous researchers likely have little to do with the PLA itself, but result from the additional amenities or requirements that are inherent in large, complex jobs, which are more likely to be covered by PLAs. We find no strong evidence that PLAs affect final costs either positively or negatively.

To conclude, if PLAs are, in fact, cost neutral, then more attention must be paid for other outcomes that can be achieved with PLAs, such as timely completion, better safety outcomes, training opportunities and industry recruitment. The next chapter investigates some of these issues through case studies of four projects, each of which had distinctive requirements.



5. Case Studies

The following case studies demonstrate how PLAs can be used to address different essential needs. Here, four projects take focus: Route I-15 in Salt Lake City, the Toyota plant in San Antonio, an airport terminal in Rhode Island, and a series of high school projects in San Jose. As we will see, each project was distinctive, with the PLA used in a creative way to address a specific need.

- The Route I-15 project was a critical highway reconstruction needed to support the 2002 Winter Olympics in Salt Lake City. The challenges included getting the project done on time in an area with a very tight labor market. Political concerns over the use of a PLA also had to be addressed.
- Although nonunion at nearly all of its American parts' and assembly plants, Toyota uses PLAs for its construction. This fact, however, proved controversial in San Antonio, where construction is so lightly unionized. Extremely unusual for a private sector PLA, the Toyota San Antonio PLA includes strong accommodations for nonunion contractors and workers.
- In the mid-1990s, the State of Rhode Island replaced the outdated terminal at T.F. Green Airport, which services Providence. A key challenge was completing the project while keeping the airport in full operation. With the help of creative scheduling options in the PLA, the terminal was completed ahead of schedule.
- The East Side Union High School District in San Jose features many specialized vocational academies and programs. With the approval of the $300 million school construction bond issue, the district saw an opportunity for experiential learning and, through a PLA, created the Construction Technology Academy.

Route I-15 in Utah

On Friday, June 16, 1995, Salt Lake City was selected to be the site of the 2002 Winter Olympics.[27] For the games to begin, much had to be done, not the least of which was the complete reconstruction of a seventeen mile freeway bisecting the Salt Lake Valley.[28] Olympic organizers and state officials agonized over the traffic tie-ups associated with a reconstruction project that would rebuild 130 freeway bridges, demolish and rebuild the main freeway interchange in the city connecting I-15 with I-80 and "chop up and replace every cubic inch of asphalt and concrete" for seventeen miles in the heart of the urban Salt Lake area.[29] Worse than a traffic nightmare, many

Worse than a traffic nightmare, many feared not being done in time. The Utah Department of Transportation (UDOT) estimated that the reconstruction of I-15 could not be completed until after the Olympics in 2002 and probably would not be done until 2004. Then-Governor Mike Leavitt later recalled: "I told [Tom Warne, Executive Director of UDOT], 'Tom, we've got to find a way to do this faster. We cannot have this community torn up for nine years.'"

feared not being done in time. The Utah Department of Transportation (UDOT) estimated that the reconstruction of I-15 could not be completed until after the Olympics in 2002 and probably would not be done until 2004.[30] Then Utah Governor Mike Leavitt later said, "I told [Tom Warne, Executive Director of UDOT], 'Tom, we've got to find a way to do this faster. We cannot have this community torn up for nine years.'"[31]

UDOT's solution to this dilemma was to invoke an innovative form of construction—design build—which would hopefully allow the reconstruction project to be completed prior to the 2002 Olympics without completely shutting the I-15 corridor for years. Using design-build meant that construction could begin prior to a complete and detailed design and specification of the overall project. UDOT engineers would provide general guidance, but competing contractors would be free to develop their bids using innovative materials and procedures aimed at speeding construction and reducing costs.[32] At the time, estimates of the cost of the I-15 reconstruction project were at one billion dollars indicating that UDOT thought the design-build approach would save about ten percent on total costs along with cutting construction time by about two years.[33]

Under design-build, construction could be scheduled to begin in early 1997. Contractors would be expected to work around the clock, six or seven days per week. There would be limits on how many lanes could be closed at any given time as well as how many interchanges could be closed.[34] Design-build was particularly cost-effective on large projects but some felt that inevitably out-of-state contractors would be awarded the project. Local contractors were not equipped to handle the scope of work proposed, particularly the engineering required of contractors on a design-build project. However, Warne said that contract language for the I-15 project would stipulate that Utah construction companies would be named as subcontractors.[35]

In September 1996, UDOT prequalified three contractors from a field of ninety that responded to the announcements in March. By September, the project had expanded to include an additional interchange at the north end of the reconstruction project and the relocation of some railroad tracks near the project. The official cost estimate had risen to $1.36 billion due to these additions and other considerations. On March 26, 1997 UDOT announced that Wasatch Constructors (a consortium led by Kiewit Constructors of Omaha and which included several Utah companies) had won the bid.

With design-build, the lowest bidder does not always win the project. UDOT was using a "best-value" approach that combined cost considerations with technical and quality considerations to receive the best bang for the Utah taxpayer's buck.[36] Warne later said that the "I-15 design-build contract was given to the best overall proposal, not the lowest bid."[37] However, Wasatch Constructors had coincidentally come in with the lowest bid.

Wasatch officials indicated they planned to begin immediately. "You have to remember this job isn't even designed yet," said Conway Narby, principal on site for the winning consortium.[38]

With groundbreaking coming within a month of the bid opening and a project-completion deadline of August 2001, this 17 mile reconstruction was a fast-track project. If Wasatch could complete its work on-time and complete it to UDOT's satisfaction, Wasatch stood to win up to $50 million in bonuses. If Wasatch exceeded UDOT's deadline of November 2001, just before the 2002 Winter Olympics, the company risked paying UDOT up to $100 million in fines. Also, Wasatch had to guarantee its work. According to the contract, UDOT could take a default one-year warranty on the project or force Wasatch to cover all road maintenance for ten years for a fee of $27 million. UDOT reasoned that this potential warranty at UDOT's option would focus Wasatch Constructors on qual-

ity as well as speed. In short, Wasatch had won because it had the experience to do what it said it would do including designing on the fly while building on time and within budget.

Ed Mayne, president of the Utah AFL-CIO, was very pleased that Wasatch had won the bid. He felt that Wasatch was the most union-friendly of the three pre-qualified bidders. Indeed, prior to bidding the project, Wasatch had secretly signed a PLA with six local unions agreeing to a uniform set of wages, benefits and work rules that largely corresponded to local union collective bargaining agreements. This agreement was not made public prior to the bid opening because the PLA was part of Wasatch's bidding strategy. Building a fast-track project under design-build, in a tight labor market, with substantial performance awards and penalties in play, involved considerable risks for Wasatch. The PLA was one means of controlling some of those risks—the ones associated with the supply and quality of labor.

Mayne felt the PLA provided another advantage. Just as it was politically wise to require outside general contractors to partner with local subcontractors, it was also politically sensible to encourage local employment on the biggest public project ever financed by Utah tax dollars. Mayne anticipated that the consortium would hire seventy to eighty percent of its workforce locally despite Utah's 3.1% state unemployment rate at the time of the bid award. Narby, the person who signed the PLA for Wasatch, agreed that eighty percent local hire was possible particularly if participating nonunion contractors hired locally.[39] The PLA did not prohibit nonunion contractors, and ten percent of the value of the work was exempt from the provisions of the PLA. But if nonunion contractors from out of state brought in their traveling labor force, the amount of local hiring would go down. Union contractors both in-state and out-of-state were required by the local collective bargaining agreement to give preference to local workers over travelers. However, local labor shortages loomed as a problem for all contractors.

By early 1997 when the project was to begin, the Utah construction industry had been booming for seven years (since 1990). While construction accounted for just under four percent of total Utah state employment in 1990, by 1996 construction accounted for 6.5% of all state civilian, nonagricultural employment. Furthermore, construction employment had been growing in absolute terms at over ten percent per year for each year from 1990 to 1996. While Utah's construction's growth rates peaked in 1994, its share of total state employment would not peak until 1999. I-15 was going to be rebuilt during a period of labor shortages and Wasatch Constructors saw that coming.

The *Salt Lake Tribune* reported at the beginning of the I-15 project that:

> *[Wasatch Constructors] has to find some 1,000 to 1,500 skilled highway construction workers in a state where the unemployment rate is so low that even unskilled jobs in hamburger joints go begging to be filled. "It is hard to say where they are going to find the workers," says Ken Jensen, chief economist for Utah Job Service. "I am not aware of any bunch of workers out there standing in line waiting to climb up on earth movers."*[40]

Estimates of the needed workforce varied. The *Deseret Morning News* estimated 600-1,000 hourly craft workers and 100-150 salaried employees. The *Salt Lake Tribune* estimated 1,000 to 1,500 workers.[41] Several other road construction projects were underway at the time or scheduled to begin, including a light rail project running along the same corridor as I-15. Local highway contractor Richard Clyde, whose firm W.W. Clyde was part of the losing consortium, Salt Lake Constructors, noted that heavy construction workers were already in high demand and stated, "I still do not see where [Wasatch] are going to get all the workers they need without bringing in a lot from out of state."[42]

Having won the contract, Wasatch Constructors announced its PLA with the six key trade unions that were going to complete the project. These unions were the operating engineers (heavy equipment operators), laborers, plasterers-cement finishers, carpenters, iron workers and teamsters (truck drivers). The contract these unions signed with Wasatch was a variant of the heavy-highway construction project agreement used around the country by various highway contractors in conjunction with (typically) these unions—namely the unions that do most of the heavy and highway work. The contract stated in part:

> It is the intent of the parties to set out uniformly standard working conditions for the efficient prosecution of the new construction herein; to establish and maintain harmonious relations between all parties to the Agreement; to secure optimum productivity, and to eliminate strikes, lockouts or delays in the prosecution of the work undertaken by the employer…
>
> The greatest advantage in working with the Unions is the ability of the Employer to acquire an immediate and continuous source of skilled applicants. Within the Unions there exists the capability to activate a recruiting network throughout the United States to ensure a steady flow of skilled applicants to meet project schedules.
>
> The Employer may name hire any individual who has previously worked for the Employer (or any of the individual joint venturers thereof)…[as long as] those hired from "other lists" shall not exceed forty percent of each craft's work force.

This last provision meant that contractors (union or nonunion) could bring onto the project up to forty percent of their own workers (either union or nonunion). In practice, the percentage would likely be smaller because this forty percent limit was applied craft by craft and contractor by contractor. Thus, while one out-of-state nonunion contractor might bring in forty percent outside workers for each craft, an in-state union contractor might name hire few, if any, workers simply taking workers in order from the union hiring hall. Another out-of-state union or nonunion contractor might bring in his skilled crew but take lesser skilled workers from the hall. So the forty percent rule gave contractors flexibility to respond to particular cases but also made it likely that, on average, less than twenty percent of the workers would come from out of state. The unions, in turn, agreed not to discriminate against nonunion workers seeking to be sent out from the hiring hall in this right-to-work state.

> The Unions represent that their local unions administer and control their referrals in a nondiscriminatory manner and in full compliance with Federal, state and local laws and regulations which require equal employment opportunities and non-discrimination.
>
> The Unions agree to engage in active recruitment of minority and female applicants…

The unions also agreed to cooperate jointly with management in enhancing productivity on the job and to forswear any work stoppage:

> The Employer and the Unions recognize the need to continually explore ways and means to increase productivity to enhance the competitive position of the signatory contractors and thereby increase job opportunities for members of the Unions. To this end, signatory contractors and local unions are encouraged to establish Project Productivity Committees to deal with problems affecting job schedules, construction technology, recruitment and similar matters…There shall be a labor-management committee whose purposes are to foster labor-relations communications and to explore ways and means to improve safety, quality and productivity at the jobsite.

> The Parties agree that there is an absolute prohibition against any and all strikes, work stoppages, slowdowns, picketing, sympathy strikes, handbilling or any other forms or types of interference of any kind…There shall be no lockout by the contractor.

An expedited grievance procedure was established for any violation of the no-strike, no-lockout clause. The contract also established uniform work rules, hours, shifts, overtime pay and holidays, including time off for July 24th, a local Utah holiday. Pay scales, including wages and benefits, were set for all craft classifications and these were to be reviewed yearly in July. A section on apprentices stated:

> Recognizing the need to maintain continuing support of programs designed to develop adequate numbers of competent workers in the construction industry, the Employer will employ registered apprentices in the respective Unions. The combined employment of apprentices shall not exceed thirty-three and one-third percent of the individual Union work force…

This meant that the local tax dollars financing the I-15 rebuild would also finance a rebuilding of the skills of the local construction labor force. Finally, subcontractors also were to be covered by this agreement except "the Employer may subcontract up to but not exceeding ten percent cumulative of the final Prime Contract amount to subcontractors…[not] signatory to this agreement or local labor agreements…" Also women and minority subcontractors need not be signatory to the agreement. Thus, the PLA was designed to provide contractors with flexibility permitting contractors to bring in up to forty percent of their own worker while at the same time creating a structure that would likely generate around eighty percent local hiring. The contract required most subcontractors to adhere to its provisions but allowed ten percent of the work to go on outside the requirements of the PLA.

Wastach's Greg Brooks explained part of the rationale for Wasatch signing this agreement: "What we are basically doing is taking Mayne at his word [that he can provide the qualified local labor]. Mayne said, "There is no doubt that we are going to be scrambling, but the seventy to eighty percent [local hire] figure is certainly doable. Each of the major craft unions in the state probably have 100 to 200 apprentices in training as we speak. [Out-of-state skilled workers] are part of the equation. But we are committed that most of these Utah jobs will go to Utah workers."[43] Brooks indicated that Wasatch's policy was: "We'll hire locally and buy our supplies locally. Any time we can't, we'll bring whatever we need in from other sources in the region. If that's not enough, we'll go further out."[44]

Ground broke on the I-15 project on April 15, 1997, but the political ground began to break out from under the PLA almost immediately thereafter. On May 2, under the headline "Does the I-15 Union Deal Violate Utah Law?" the *Deseret Morning News* reported that Republican Governor Mike Leavitt was asking his Democratic Attorney General Jan Graham for a legal opinion on whether the PLA violated Utah's right-to-work law.[45] The *Deseret Morning News* reported:

> Nonunion workers can apply and get Wasatch jobs, and they can do so without dealing with any union. But the reality is most applicants will go through union hall doors to get those jobs, and they will certainly be solicited to join the union in the process. And that is what worries some conservative lawmakers who don't want any Utahns pressured to join a union in order to get an I-15 job.[46]

In actuality, there were several avenues besides union hiring halls for obtaining work on I-15. Anyone who had worked for any contractor working on the project could work for that contractor again by applying to that contractor directly, assuming the forty percent threshold of workers

not coming from hiring halls had not been breached. Nonunion contractors were exempt from the provisions of the contract for ten percent of the work while additional nonunion workers could come with their nonunion contractor under the provisions of the PLA. However, Utah legislators were deeply concerned.

State Transportation Commission chairman, Glen Brown, brother of Utah House speaker, Mel Brown, stated, "We're hearing people saying 'We can't live with [the hiring aspects of the PLA].'" Speaker Brown, himself, stated that if the attorney general's opinion found conflict between the PLA and Utah's right-to-work law, "there is significant support to renegotiate the [labor hiring] part of the contract." But the Deseret News reported that several Republicans worried that the attorney general would side with the unions rather than interpret the right-to-work law as prohibiting the agreement.[47] Senate Majority Leader Craig Peterson indicated that it might be necessary to call a special legislative session to revise state law to prohibit this type of contract. Legislative Attorney Gay Taylor said lawmakers could refine existing law to prohibit unions from having a monopoly in specified situations perhaps forcing Wasatch to renegotiate its contract. Governor Leavitt, stating that "Two heads are better than one," sought legal opinion from lawyers not in the attorney general's office.[48] Senate President Lane Beattie argued:

> *We may not be able to change [the current agreement]. But we can act to make sure this will never happen again. Unions may think they have manipulated the system and made a great step forward. But we are not a union state and won't become one, and they may have just ended up taking a great step backward.*[49]

Wasatch defended itself by restating its belief that the agreement was the best way to ensure the project was completed on time and done well, while focusing hiring on local construction workers. Narby said:

> We work in other right-to-work states like Arizona and Florida under these same kind [of agreements]. Perhaps it was naive of us, but we wanted to ensure enough quality, skilled craftsmen to build this job. And in (other states) working through the unions provided that. Also, we wanted Utahns on this job, and this is a way to do that.[50]

In a clarification of the contract, Wasatch and the six unions agreed that workers could apply directly to Wasatch for employment or to Utah Job Services, the state labor market agency. The state directed UDOT to audit hiring practices specifically monitoring local hiring policies. Furthermore, UDOT would appoint ombudsmen to handle complaints associated with hiring on the I-15 reconstruction.

Senate President Beattie said he was satisfied with this arrangement and would not try to have the legislature called into special session:[51] "You can go through the [union] halls to get a job, but you won't have to. There will be another way," Beattie declared.[52]

At this point, the attorney general's office bowed out of the dispute: "It looks like they've settled all disputes," said Reed Richards, chief deputy attorney general. "If both sides are happy, and my understanding is that they are, then there's no point for us to continue."[53]

With daunting logistical and engineering tasks in front of it and significant economic carrots and sticks at stake, Wasatch Constructors began the demanding task of operating and rebuilding I-15 at the same time, with the design of the project being a work in progress, and with the clock running. Almost immediately labor shortages loomed. "Utah is a tight labor market, no doubt about it," Brooks said. He said, however, that the I-15 project was attractive because it had plenty of work, and it paid union wages to union and non-union workers alike.[54]

Wasatch Project Manager, Bill Murphy, said, "The magnitude [of the project] does get to me sometimes, [but] I-15 will be built, on time and on budget. I have no doubt." Narby, the top Wasatch executive on the I-15 site, said "I know people, and I know what they can do. I only worry about what I cannot control: the weather, for example. Please give me three mild winters."[55] The fact that the PLA required both union and nonunion contractors to pay union wages gave Narby and Wasatch a degree of control over their labor challenges in a tight construction labor market. Scheduling might be pushed back by weather or other factors Wasatch could not control, but the PLA made labor a more reliable and controllable construction input.

Wasatch's PLA labor strategy and UDOT's design-build strategy began to pay off for the contractor and the state within six months of ground breaking. UDOT's first project evaluation covering essentially the first six months of work, April 15 to October 31, 1997, led to the decision to grant Wasatch $2,490,133 of the possible $2,500,000 in bonuses for this stage of the project. The *Deseret Morning News* reported:

> In announcing the award amount Friday morning, UDOT officials had nothing but good things to say about the contractor. And Wasatch officials were obviously pleased that they had earned the bulk of the money they were shooting for.[56]

UDOT inspected the I-15 project on a daily basis, using dozens of UDOT employees and consultants as monitors. Each month, UDOT and Wasatch jointly reviewed the daily inspections and a score was assigned to each category of evaluation. UDOT's Warne said:" This is a lot of money, and because of that, there is a very rigorous process in place [for evaluating Wasatch's work] that we've developed over the last six to eight months. The process was reviewed by a task force established by Governor Leavitt, [Senate President] Lane Beattie and [House Speaker] Mel Brown."[57]

As the reconstruction progressed, Wasatch continued to score well in UDOT's semi-annual evaluations. At the end of the next six month review period, Wasatch received the full $5 million bonus possible for that period. Warne said: "The full award fee for Wasatch during this period is a reflection of what we've been saying all along—that they are ahead of schedule, they are on budget, the quality is good and they have the management system in place to deliver the project…I certainly think that the first couple of periods are the most challenging, while they're getting up and running and putting their organization together. I think this is a good indication they might just win or earn all or most of the award fee [of $50 million for the entire project]."[58]

UDOT, however, was careful to point out that these bonuses were actually Wasatch's possible profit on the project. Essentially, Wasatch won the bid by not including any (or much) profit in their bid price anticipating that by doing the project right they would earn UDOT's bonuses and that would be most, if not all, of their profit.[59]

Wasatch continued to meet UDOT's goals and continued to receive almost all of the potential bonuses available under the contract. In May 2000, the *Salt Lake Tribune* reported:

> Wasatch Constructors continued breezing through its Interstate 15 construction schedule last year and lost only $14,000 of a possible $5 million profit for the six month period ending in October [1999]…The contractor lost money for overlooking incorrectly placed beams that needed to be replaced on a 400 South bridge abutment in Salt Lake City, and for an incident last August when a drainage grate on the road popped loose and caused a multi-car accident. The award means that in its first 2? years on the job, Wasatch took home roughly $22.4 million of a possible $22.5 million [in awards]."[60]

With I-15 very close to completion in April of 2001, ahead of schedule and well ahead of the

Winter 2002 Olympics, John Bourne, UDOT project director said, "We believe we've got very good quality. We'll see some little dings and nicks that will be replaced," but he expected these problems to be resolved by the completion of the project. With seven of the nine award-fee evaluations completed, Wasatch had received from UDOT 99.6% of the possible bonuses from the timely completion and successful inspection of its work.

According to the original contract Wasatch had to guarantee the quality of its work for up to ten years after completion with the state paying $27 million for this insurance.[61] But UDOT had the option of declining the insurance if it thought the quality of the project was sufficiently solid that the anticipated ten-year maintenance costs would be less that $27 million. That was the dilemma UDOT managers faced in the Spring of 2001 as the project came to completion.[62]

In April of 2002, the I-15 reconstruction was declared the top civil engineering achievement of the year by the American Society of Civil Engineers (ASCE). "The I-15 project contributed greatly to Salt Lake City's ability to stage a successful 2002 Winter Olympic Games and will continue to serve the area for years to come," said ASCE President H. Gerald Schwartz, Jr. "The Interstate exemplifies the ideals of innovation, technical excellence and community benefit."

Warne concluded, "We've been out there day in and day out. We've inspected all their work and felt very good about the quality." He predicted that some work would need to be redone, but there were none of the classic signs of poor quality. UDOT therefore decided to decline paying $27 million for 10 years of maintenance guarantees because Warne concluded, "We anticipate spending perhaps half that much on maintenance."[63] Kay Lin Hermansen, Wasatch spokesperson, said, "It's kind of a compliment to us because the [guarantee] provision was put into the contract to protect the state and the people, and we've obviously delivered a very quality project."[64]

In April of 2002, the I-15 reconstruction was declared the top civil engineering achievement of the year by the American Society of Civil Engineers (ASCE): "The I-15 project contributed greatly to Salt Lake City's ability to stage a successful 2002 Winter Olympic Games and will continue to serve the area for years to come," said ASCE President H. Gerald Schwartz, Jr. "The Interstate exemplifies the ideals of innovation, technical excellence and community benefit."[65]

The primary reason I-15 was completed on time was because the project was bid design-build. This allowed the reconstruction to begin prior to the completion of a full set of engineered specification for the work. The greatest threats to the timely completion of the project were factors that could not be brought under the contractor's control. Weather, therefore, was a major concern. Labor supply in tight labor markets was also a concern. But Wasatch brought that factor under control through the implementation of a PLA. This meant that all work on the project whether by Wasatch on any of its many subcontractors would be relatively attractive to workers within a growing and tightening construction labor market. I-15 construction contractors and subcontractors would have their pick of the labor market. It was a labor market version of guaranteeing three mild winters.

Also, the PLA meant that the majority of workers would be local hires so that the benefit of the higher wages would primarily redound to Utah citizens. Given that Utah tax payers were paying for most of the bill for the project, this local hire component had a feeling of fairness about it. Also, there was a certain symmetry with the explicit requirement that the general contractor partner with local construction companies. Significantly, these benefits clearly did not come at additional costs to Utah taxpayers.

The fact remains that Wasatch Constructors was the low bidder on the project. The alternative

two construction consortiums were not intending to use PLAs. They, therefore, may have been intending to pay their workers less than local union rates, and their bids may have reflected that. Wasatch calculated that even though they might have higher hourly wage rates than their competitors, the ability to lure the cream of the crop out of a competitive labor market would facilitate on-time scheduling at a lower (or at least equivalent) cost and with fewer construction defects. Salt Lake Constructors came in only one percent above Wasatch, so it is difficult to claim that the I-15 PLA substantially lowered the project's cost. But the PLA clearly did not raise the cost.

Many studies attempting to assess the effects of PLAs on construction costs compare project costs on two or more different projects. While informative, these studies always must confront the problem of comparing apples to oranges. Very few construction projects are exactly alike. Cost differences might easily be due to something other than whether or not the project has a PLA. But in the case of I-15, we have a true apples-to-apple comparison. Wasatch was going to use a PLA. In fact, prior to bidding on the project, Wasatch had signed a preliminary agreement with the local unions. Salt Lake Constructors and Lake Bonneville Constructors bid on the project without having arranged for a PLA. All three companies were bidding on the same project, and the PLA contractor came in lowest. Wasatch's lower bid may in part have been due to superior engineers, better previous experience or other factors. But implementing a PLA was part of their game plan—namely controlling the supply and quality of labor in order to enhance the contractor's ability to deliver a quality product on time.

Toyota assembly plant in San Antonio

Much of the current controversy over PLAs concerns the public sector. PLA use in the private sector goes largely unnoticed because there are far fewer legal issues and usually less politics than with public projects. For the most part, private construction users can attached whatever stipulation they chose to their projects. However, the fact that so many large private firms, which exist in competitive business environments and are, therefore, very cost conscious, choose to build with PLAs perhaps says something about their benefits.

Toyota is among the leading worldwide automotive manufacturers. During the past forty years, it has moved from being a domestic Japanese firm to a global producer of automobiles and trucks with a substantial presence in North America. In 2004 it produced almost 2.3 million autos and trucks in North America and had a cumulative North American investment of $16.6 billion.

Much of its success has come from its development and implementation of the Toyota manufacturing system.[66] This method, the original lean production model, has become the standard for producing high quality products at low unit costs. Now nearly all successful manufacturers emulate the kanban (pulled production) and kaizen (continuous improvement) methods pioneered at Toyota. The success of the system is reflected in the high consumer satisfaction with Toyota products and a pattern of repeat purchases. The rising demand for Toyota products in North America has lead the company to build four assembly and six parts plants in the United States, Canada and Mexico since 1986. The assembly plants are located in Kentucky, Indiana, Ontario and Texas. The parts plants are in West Virginia, Alabama, British Columbia, Missouri, California and Baja California. There is a joint venture assembly operation between Toyota and General Motors in Fremont, California, the so-called NUMMI (New United Motor Manufacturing, Inc.) plant. With the exception of the NUMMI plant, Toyota production employees are not represented by unions.

Despite the lack of union presence within the firm, all of the Toyota manufacturing facilities in

the United States have been built under PLAs between Toyota, the AFL-CIO's Building and Construction Trades Department and the local unions within whose jurisdictions the projects have taken place. In all, 36 million work hours have been done under the Toyota PLAs. The success of the relationship between Toyota and the building trades unions, and the utility of the PLAs, is reflected in the completion of numerous green field projects and expansions of those projects on time, without interruption and without even a single arbitration decision in the nineteen years in which Toyota has used the agreements.

The success of the relationship between Toyota and the building trades unions, and the utility of the PLAs, is reflected in the completion of numerous green field projects and expansions of those projects on time, without interruption and without even a single arbitration decision in the 19 years in which Toyota has used the agreements.

A closer look at the dynamics of the Toyota PLA illustrates how it has developed and been adapted to the needs of various projects. We focus on the most recent green field Toyota plant in San Antonio. This plant, which is scheduled to begin yearly production of 150,000 Tundra pickup trucks in 2006, has a projected cost of $800 million and has been the highest valued construction project in Texas for the past two years. The project will require 2,100 construction workers at its peak. The project has six prime contractors and as many as 300 subcontractors. Project management is being provided by a joint venture between Waldbridge-Aldinger, a Detroit firm with considerable experience in the construction of automotive facilities and Bartlett Cocke General Constructors, a San Antonio company.[67]

The San Antonio project presented a number of issues in adapting the PLA to local conditions. First, Texas's right-to-work law is particularly unfavorable to organized labor. The law prohibits both union membership and agency fee payment as a condition of employment, and it also disallows maintenance of membership clauses, which prohibit resignation from a union during the life of a contract. Texas law holds that union members may resign at any time.

A second issue was a requirement to employ a substantial number of individuals from the San Antonio metropolitan area, Bexar County and the surrounding ten counties. Although Toyota's $133 million public subsidy was smaller than that provided for other recent automotive manufacturing plants in the South, a substantial share came from the City of San Antonio and regional bodies. The local subsidies included $15 million for a rail spur to the plant, $27 million for job training and $24 million for site purchase and preparation. In exchange for the subsidies, Toyota agreed to employ local residents on the construction project. As the San Antonio area has relatively low union density in construction—by some estimates 95 percent of construction workers are nonunion—the use of a PLA required balancing the need to use local workers with the use of union labor (not unlike the Utah project described above).[68]

Finally, and also related to the modest union presence in San Antonio, the local construction industry actively lobbied against the PLA. For example, Doug McMurty, the executive vice president of the San Antonio chapter of the Associated General Contractors (AGC), said:

> It's very early and there have been a lot of rumors circulating. But what we're most concerned about is that Toyota will discriminate against nonunion firms. Our concern comes from the fact that 95 percent of the workforce here has chosen to be nonunion. I don't know that Toyota fully understands that yet, and I can't believe it would be their intention to discriminate against 95 percent of the workforce in San Antonio.[69]

The AGC and individual construction firms requested that city and county authorities broker meetings between Toyota and area general contractors to discuss the use of a project agreement. At various times it appeared that Toyota had decided against using a PLA for the project.[70] But despite such rumors, Toyota negotiated a PLA adapted to the conditions in San Antonio, and the agreement was signed on June 18, 2003. Jim Wiseman, vice president of external affairs for Toyota Motor Manufacturing North America stated:

> Toyota has been using this type of agreement on all its U.S. construction projects since the late 1980s. Those projects have been very successful, been completed on time and within budget, and we wanted to do it in Texas.[71]

The Toyota PLA was adapted to the needs of the Texas project with modifications that favored the employment of San Antonio residents by making it easier for nonunion firms to bring their core workers onto the project and by altering the benefits payments language to eliminate the possibility of double obligations.

A major issue for the project was the promotion of local hiring. Under the Toyota PLA, local unions are given 48 hours to refer a qualified resident of the San Antonio area. If they are unsuccessful, a contractor may hire its own local resident, who would then register with the union hiring hall. If the contractor is unsuccessful in locating an area resident within 48 hours, the union could refer any qualified worker without regard to the residency requirements. If the union were unsuccessful in referring a worker within 48 hours, the contractor could hire from any source.

A second issue was providing conditions, which made the project attractive to nonunion contractors. A frequent complaint by nonunion contractors is that they must use the union referral system and cannot bring their own workers to a PLA-covered project. This disrupts their organization and reduces their efficiency. To address this concern, the Toyota PLA specifically allows nonunion employers to use core employees who are San Antonio area residents without referral by a union. Core employees must possess necessary state or federal licenses for their work, have been on the contractor's payroll for sixty of the one hundred working days prior to the contract date for the Toyota project and have the ability to safely perform the basic functions of their trade. Employers are required to provide a Toyota representative satisfactory evidence of qualifications of core employees at the request of the union having jurisdiction over the work. Additional employees used by nonunion employers are hired in accordance with the referral process outlined above. This type of arrangement, sometimes referred to as a drag-along clause, allows nonunion employers to retain their core workforce while protecting the unions' interests in seeing their own members hired.

A further complaint about PLAs by nonunion contractors is that they require double payments of benefits: The nonunion contractors must support their own healthcare and pension plans while, at the same time paying into the union sector's joint funds for work on PLA-covered projects. The Toyota PLA allows nonunion contractors to divert the benefit payments required under the PLA into their own firms' pension, retirement, annuity, health and welfare, vacation or apprenticeship programs. To qualify, the employee for whom deductions are being made must be a core employee and must elect this option. Also, the plan must be a bone fide benefits plan that has been in effect for the preceding twelve months. Finally, the employee contribution must be the actual cost of the benefit, and the employee must have been a participant in the plan at the time of initial employment on the project. To ensure that nonunion employers do not realize a competitive advantage from this arrangement, any difference between the costs of the nonunion employer's plan and the benefit payments under the PLA go to a funds established by

the parties to benefit directly covered workers on whose behalf the benefit is paid. Again, this arrangement addresses the double payment issue while maintaining equality in labor costs between union and nonunion contractors and assuring that the diverted payments benefit the nonunion employees.

Discussions with individuals involved in the Toyota project suggest that, although there was more nonunion participation in the San Antonio project than most Toyota PLAs, participation was generally limited to site and concrete work. This is not surprising as a central purpose of a PLA is to obtain ready access to a skilled union labor force.

Although not intended to address any issues specific to the San Antonio project, the Toyota PLA includes an unusual arrangement with regard to wage increases. The agreement adopts the applicable local wage rates (which is typical for PLAs), but it also allows for negotiated increases so long as rates do not exceed the average percentage increase in journeymen's rates for in the South Central region. This limitation is referred to as the cap.

The cap acts to mitigate any effects of the Toyota project, which is an unusually large project drawing large numbers of workers, on regional wage increases, while allowing for the effects of labor market conditions in a region which is sufficiently large that the Toyota project will have only a modest effect on settlements.

The Toyota PLA is an example of how PLAs can be successfully adapted to specific conditions. As with the other Toyota projects, the San Antonio plant is headed for on-time completion and has gone forward without significant disputes or disruptions. Further, the working out of the alternative arrangements appears to have been accomplished without substantial difficulties, reflecting the long-standing good relationship between Toyota and the Building and Construction Trades Department (BCTD).

T.F. Green Airport terminal

T.F. Green Airport, which serves Providence, Rhode Island, was for many years a very small operation. It is the nation's first state-owned airport, and it opened in 1931. It did not break the two million passengers per year mark until 1990, and it stayed approximately at that level until 1996. However, in 2004, the airport experienced the second busiest year in its history (2001 was the busiest), serving approximately 5.5 million travelers.[72] As the consulting firm of Landrum & Brown noted in a report on the airport, "Since [1996], the airport has become a low fare gateway to southern New England, and offers a congestion-free alternative to [Boston's Logan Airport] for many travelers."[73]

The recent success of T.F. Green is very good news for the State of Rhode Island, which invested $208 million in the construction of a new airport terminal in the early 1990s.

Prior to the construction of what is now called the Governor Bruce G. Sundlun Terminal, the last major renovation of T.F. Green's facilities was in 1981. The small building, which opened in 1960, had only nine gates and one baggage carousel and resembled an old bus terminal more than a modern American airport. Understanding the need to improve the facilities, the state's voters approved a $29 million transportation bond issue in 1988, which called for upgrading the existing terminal building.[74]

However, in 1990, with the state mired in a deep recession, businessman Bruce Sundlun won the governor's office, defeating a Republican incumbent. Sundlun was a WWII pilot who eluded capture after being shot down over Belgium; a businessman who made a fortune in broadcasting (among other ventures), a member of JFK's administration; and socialite with connections to the rich and mighty (he once flew planes with Jordan's King Hussein). He was not one for small projects. After becoming governor, Sundlun managed to circum-

vent both the legislature and the state's voters, and by executive action convert his predecessor's less ambitious renovation proposal into an approximately $200 million total reconstruction project. His plan was to use the earlier approved $29 million as seed money, get the airlines to agree to tripling their rents at the airport and receive most of the balance in federal funds.[75]

The governor's ambitious plan engendered immediate opposition. Residents of the City of Warwick (where the airport is located) and their elected officials opposed the terminal plan, as they do every project that might increase airport traffic. But so did many other legislators, politicians and ordinary citizens. Some of the sniping was purely political, but much of it was motivated by a genuine concern about the state's ability to pay for such a project. After all, this plan was being discussed during one of the deepest economic recessions in recent memory. Consider that the governor's first official act, on the day of his inauguration, was to order the state's credit unions closed to head off a banking collapse; that public employees faced involuntary furloughs because state government could not meet its payroll; and that the transportation department was turning off street lights to save money. In addition, at least one consultant's report found even the more modest plans proposed by Sundlun's predecessor were probably not worth the money at such a small airport.[76] Needless to say, in this environment, an expensive new airport terminal was not an easy sell.

However, by the time the terminal officially opened on the first day of autumn 1996—after Sundlun had lost his bid for a third (two-year) term—all the arguing and acrimony seemed forgotten. As the Providence Journal reported:

> During the [opening] ceremonies, speaker after speaker praised the terminal project and former Governor Bruce Sundlun for envisioning it.
>
> Warwick Mayor [later U.S. Senator] Lincoln Chafee said 'What stands before us is a near-miracle, a government project that came in on time and on budget. For that we congratulate all the many men and women who accomplished this while also maintaining the highest quality workmanship.'[77]

What stands before us is a near miracle, a government project that came in on time and on budget. For that we congratulate all the many men and women who accomplished this while also maintaining the highest quality workmanship.

Mayor (later U.S. Senator) Lincoln Chafee

Unlike the projects in Utah and Texas described above, the PLA at T.F. Green Airport was, in itself, not controversial and received no major press coverage at all. In fact, the only large controversy during the construction phase was a proposal to spend close to $800,000 on what derisively became known as a cloud machine, a terrarium-like art installation that was to have emitted a vapor sending clouds around the terminal's ceiling. The installation had been recommended by a committee in charge of spending the mandated set aside for public art but became fodder for many of the terminal's critics. The idea was scrapped in favor of cheaper and more conventional sculptures and the like.[78]

The lack of debate over the PLA no doubt reflects the reality of construction in Rhode Island, where nearly all large, transportation-related construction is done by union contractors. The agreement was, however, not a typical PLA but had a number of distinctive features.

No doubt, Gilbane Building Company, the construction manager, felt enormous pressure to contain costs. In 1991, Governor Sundlun complained about the price tag of the project, which, at the time, was $135 million. His concern arose from a comparison he made with a similarly styled and recently built terminal at the Rochester, New York

airport. The governor noted that the Rochester project cost $41 million less than the projected costs for T.F. Green. In a memo to his transportation director, the governor wrote:

> *We need to get a very detailed cost breakdown on the T.F. Green project, and I can tell you ahead of time that I am not going to accept a $41 million difference between T.F. Green and the Rochester project. Would we not do much better to go forward on a strictly competitive bid basis? What does it take to review and terminate the construction management contract?*[79]

The Gilbane Building Company is headquartered in Providence, but is one of the larger construction companies in the country. During the past ten years, it has carried out airport projects at O'Hare, Logan and the El Paso International Airport.[80] Over the years, Gilbane has done many jobs in Rhode Island and was awarded the construction management contract for T.F. Green on a no-bid basis by Sundlun's predecessor. Despite the governor's concern, Gilbane's contract was not terminated. By July 1993, the projected cost of the facility had risen to $200 million, but most of the funding puzzle had been put together, including the airlines' agreement—after the creation of an independent airport corporation—to pay increased rents and the Federal Aviation Administration's pledge to cover about half of the project's cost. Gilbane also agreed to take a substantial risk: for an additional $3.8 million fee, it guaranteed the bottom line cost of the project.[81] That fact was, no doubt, on everyone's mind when the PLA was negotiated in the fall of 1993.

The PLA covered construction of the new terminal, demolition of the old terminal, construction of a temporary terminal, improvements to the airfield (particularly taxiways and drainage), the construction of roadways and parking facilities, and the building of a system to capture and isolate ethylene glycol (used in deicing) before it enters the storm drains.

A very unusual aspect of the agreement was a wage and benefit schedule unique to the project. While most PLAs simply state that wages and benefits shall be paid in accordance with Schedule A (i.e. local) agreements, the T.F. Green PLA included its own wage and benefit rates for 21 different occupations from Asbestos Workers to Tile Finishers/Helpers. Where applicable, differentials were provided for building and road work. The length of the wage/benefit agreements varied across trades, from approximately one to four years, with an agreement to reopen negotiations for wages and benefits after dates specified in the PLA. An expedited interest arbitration clause was included to handle impasses that might occur over the negotiations of new wage and benefit rates.

But perhaps the most important provisions of the agreement concerned scheduling and premium pay. As a prominent Rhode Island labor official said:

> *We couldn't get on the airport at certain times. We were able to get on at times that on other jobs...say after 4:30 pm or after normal quitting time…you would be looking at a time-and-a-half situation or maybe a double time situation if it was a weekend. We took that into account knowing that if we were looking for that [premium pay] on that job it would blow the budget there, and you wouldn't end up with any agreement.*

The PLA contained several relatively standard sections on work time and premium pay. One section calls for an eight hour workday, with time and one-half paid for the first two hours of overtime, and double time paid for ten or more hours of work. Double time was also to be paid for Sundays or holidays.

The agreement also allowed Gilbane to schedule "all or part" of the workforce to work second or third shifts. Second shift workers would work seven

hours for eight hours of pay, and third shift workers 6 ? hours for eight hours pay. The agreement also stated that "the parties…recognize that construction work covered by the terms of this Agreement shall be performed in a manner that will cause the least disruption of the continuing operation of the airport, and therefore to achieve that goal a second (2nd) and/or third (3rd) shift may be established without the scheduling of any previous shifts…"

However, the centerpiece of the scheduling provisions was a Flex Time clause, which the parties agreed to with the understanding that the airport needed to maintain "efficient operations…while complying with…noise mitigation requirements, all federal and state requirements, and…[attending to] the needs of the traveling public." The Flex Time arrangements allowed for several possibilities: a staggered work week of seven days on and two days off; four ten hour days; and eight hour days with adjusted start and quit times. The PLA also allowed for "any other mutually agreed upon alternative work schedule."

The project was completed several months ahead of schedule and, in 1997, received an award for construction management from the Associated General Contractors. Simultaneous with the new terminal's opening, Southwest Airlines selected T.F. Green as its access point to the Southeastern New England/Boston market. Southwest is now the airport's leading airline and the main reason for the airport's current success. Certainly, factors other than the PLA—not least a mild winter in 1995—contributed to the early and within-budget delivery of the terminal. But the project remains a source of pride for all those involved in its construction and is frequently cited as an example of the ability of PLAs to accommodate the specific needs of a construction user and produce a favorable outcome on a public project.

East Side Union High School District

In March 2002, voters in San Jose's East Side Union High School District approved a $300 million bond issue to be used for school construction and renovation. Virtually every high school in the district was to undergo comprehensive renovations, and several new facilities—such as adult learning centers, a gymnasium, and even a cable television and radio studio—were to be built at some of the schools. Although some work had already taken place, in 2004, the district entered into a PLA with the Santa Clara and San Benito Counties Building and Construction Trades Council. The district decided on the PLA, in large part, for a rather distinctive reason: it saw it as a mechanism to expand its vocational education programs into both the blue collar and white collar construction occupations. The district has a well-established vocational education program that is part of its overall career services approach to education.

East Side already had up and running several vocational academies and other programs, including the Oracle Internet Academy, an electronics academy, a teaching academy and specialized programs in biotechnology, computer-assisted design and health care. The district viewed a PLA as a means to establish a program in construction occupations.

Hence, the novelty of the East Side PLA and the sweetener that led to its signing was a provision connecting work under the PLA with establishment of a Construction Technology Academy. The Academy would offer pre-apprenticeship training, summer internships, and jobs in both the trades and white collar construction occupations.

An appendix of the PLA contains the essential elements of the plan:

> *The Parties have agreed to create a Construction Technology Academy ("Academy"), funded by the District, to carry out the*

> *training and employment objectives of Appendix B. The overall objectives are to (a) offer opportunities and skills necessary to enter post-secondary study [including construction apprenticeship programs as well as college education] and to pursue lifelong learning within the broader context of the building trades industry; and (b) develop and reinforce academic course content standards in order to maximize career opportunities and technical competency.*

East Side already had up-and-running several vocational academies and other programs, including the Oracle Internet Academy, an electronics academy, a teaching academy, and specialized programs in biotech, computer-assisted design, and health care. The district viewed a PLA as a means to establish a program in construction occupations.

This point (b) recognized that schools would do a better job if the school curricula were tied more closely to industry needs and directions. In construction, unions as well as contractors, pay close attention to technological trends and customer demands. Thus, connecting the school's curricula to the knowledge held by contractors, unions, and joint apprenticeship boards was seen as an effective method of tying industry directions to school curricula in the case of construction.

A sixteen member steering committee was created by the PLA that would oversee the Academy. Membership on the committee included representatives of the joint apprentice training councils, the building trades council and the school district.

One task of the steering committee was to oversee a summer internship program. described in the PLA.

In addition to the foregoing, which bound the school district, the unions and the joint apprenticeship training councils together, the PLA required contractors on East Side's work to provide jobs for graduates of the district's Construction Technology Academy. The PLA's goal was for students to actually obtain jobs as interns, apprentices or in other unskilled positions.

This novel approach to project labor agreements remains experimental. Nonetheless, those involved with East Side's vocational education program are, thus far, very happy with the PLA. One East Side official familiar with the PLA and its internship program stated:

> The PLA says that contractors working on projects will provide thirty internships of five weeks duration every summer. In the first two weeks our students are introduced to construction and rotated through the trades. They also spend five hours a day at the various apprenticeship training facilities with exposure to classroom and benchwork training. Also our students can intern with the contractors with exposure to estimation, engineering and the legal aspects of construction. We have a four year construction and construction engineering program, and the PLA allows us to connect our vocational education to the world of work. It's a perfect fit. We want our contractors working on our schools in the summer when we are out of session and that's just when the students are available for summer internships. This way the district gets double use out of its construction dollars. We have fifteen vocational education programs from aerospace to office clerical. This construction program connected to the PLA is our most exciting effort because it's not just a partnership with an individual or a company. It's a partnership with a whole industry. Our program is considered a pre-apprenticeship program, and its graduates have priority entering into union apprenticeship programs. And it makes sense for the unions too because first of all, a lot of our students are minority students, and the unions are always trying to recruit minorities.

And second of all, our students have exposure to construction. They know what they're getting into. So the unions know these applicants to their apprenticeship programs are serious.

Because the PLA is new and the Construction Technology Academy program takes four years to

PLA language on the East Side district's construction academy

In order to facilitate the goals of the Academy, the [School] District and [Building Trades] Council agree to create a steering committee, which will conduct meetings at least once a month during the district academic year to develop the goals of the Academy; plan for the presentation and content of training lectures to facilitate employable skills in the construction trades; develop a summer schedule for training; organize and develop summer internship positions; assist in planning curriculum scope and sequencing; design co-curricular activities; identify sources for educational and financial support; and otherwise initiate steps to carry out the goals of the Academy. The committee shall consist of sixteen (16) members, of whom five members shall represent the trade JATC's [Joint Apprenticeship Training Councils], three members of the Building Trades Council, six members from the district, including one member who shall be from district management and one member from a community college district. The district management representative shall be the presiding officer of the steering committee. The steering committee shall make recommendations to the district administration. The Academy Steering Committee, in coordination with the district's career services representative, shall develop and implement a plan for annual assessment of the goals and objectives of Appendix B in order to maximize the employability of the summer interns described below.

1) Annual Training Summer Sessions. Annual summer intern training sessions developed by the Academy Steering Committee shall be made available for qualified district students nominated by the district.

a) Purpose of Summer Training Sessions. The purpose of the summer intern training sessions is to teach the interns employable skills in the construction trades. The skill sets to be taught by the District shall, in part, include materials taken from a curriculum known as "SCANS," which identifies and teaches such general employability skills as dependability, responsibility, working with other people, active listening (i.e., receiving and responding to instruction), organizing work tasks and utilizing technology. The other skill sets shall include the proper use of tools of the construction trades in addition to practical application of skills in the construction trades. The sessions shall include classroom and job visit components.

b) Number of Interns. The goal for the summer program of 2003 shall be twenty (20) internships available for students nominated by the district. For the second year of the contract, the goal for internships available shall not exceed thirty (30) per calendar year.

c) Number and Scope of Training Sessions. For the first year, the number of summer training sessions shall not be less than eight (8) in number. The scope of the training sessions, and the presenters, shall be developed by the Academy Steering Committee. For subsequent years, the scope

and presenters of the training sessions shall be as developed by the Academy Steering Committee. All training sessions shall be hosted by the Trade JATC's according to the scope developed by the Academy Steering Committee.

2) Employment of Interns. Beginning July, 2003, the Building Trades Council shall make arrangements for contractors working under the Project Labor Agreement to employ up to twenty (20) interns selected by the Academy Steering Committee. The interns shall be paid no less than $10.00 per hour for on-the-job training but not for periods of time attending the classroom training sessions. The sessions shall occur over a minimum of four and a maximum of five weeks for summer internship positions beginning in July 2004, the Program Manager agrees to endeavor to employ or make arrangements for the employment of up to thirty (30) paid intern positions of students selected by the district for the same time and rate of pay as for July, 2003. Each year thereafter, the goal shall be to employ up to thirty (30) interns at the same rate and for the same duration unless otherwise agreed to by the district and the council. The employment shall be practical and relevant to the apprenticeship requirements for the building trades, with emphasis on at least five major crafts selected by the Academy Steering Committee for each year of the contract. Due to safety, prevailing wage and related issues, the interns shall not be employed directly on the public works projects that are the subject of the Project Labor Agreement and this Appendix B.

3) Intern Program and Priority on California Apprenticeship Council Approved Program Apprenticeship Lists.

a) Establishment of an Intern Program through the Academy and Program Manager. An intern program for construction trades careers shall be developed by the Academy Steering Committee to help facilitate placement into a California approved apprenticeship program upon successful completion of the classroom coursework and the summer intern sessions.

b) Priority on Apprenticeship List. The training and employment program of the interns shall be developed by the Academy Steering Committee such that graduating interns shall possess the skills, training, and educational background to help the graduate achieve priority on the lists of the Building Trades Apprenticeship Programs for those which maintain a list and direct entry for those programs where direct entry is possible. It is recognized that the Apprenticeship Programs operate according to existing Standards approved by the Division of Apprenticeship Standards of the State of California Department of Industrial Relations and the standards set forth in the collective bargaining agreements for each building trade. Therefore, in order to maximize the opportunity that graduates may achieve a priority standing on an apprenticeship list or direct entry to an apprenticeship program, the Academy Steering Committee shall develop a plan for an annual assessment of the goals and objectives set out in this appendix B and in so doing, shall coordinate with the District's Career Services representative. The annual program assessment by the Academy Steering Committee shall follow the completion of each summer internship program.

complete, the success of this program in eventually landing these students in apprenticeships or in white collar occupations with contractors has yet to be tested. The unions cannot guarantee entry into apprenticeship programs. All they can do is help create a solid pre-apprenticeship program that will enhance the student's ability to qualify for these post-high-school apprenticeships.

The language of the PLA also establishes a limit on the number of interns at thirty per summer. This reflects the unions' concern that they not promise more downstream work than will be available. The PLA is silent on the number of interns after the second year of the contract. This reflects a reality of this innovative contract—the parties are feeling their way along a new path, and they are not sure whether the program can grow, will remain steady or will have to shrink over time.

Another possible issue is how evenly students get spread across the different trades involved on East Side projects. If all thirty students decided they were interested in only electrical work, the electricians' apprenticeship program might feel unduly burdened. These sorts of potential problems underscore that using PLAs to create journeys from school to work in construction is a work in progress.

On the other hand, there is considerable evidence that the construction labor force is aging. The baby-boom generation is retiring, and the need to adequately train and replace the existing skilled construction labor force is unusually problematic in this period. A recent report by the Construction Labor Research Council concluded:

> Labor shortages during the boom period of the late 1990's and early 2000's, as well as greater focus on the aging work force in the United States, have increased awareness in the construction industry of the importance of attracting new entrants…The years 2005 through 2015 will require large numbers of new entrants into the construction trades. Annual new entrants of craft workers into the construction industry are estimated to be 185,000 persons. Needs will be almost evenly divided between growth and replacement. Like other industries, construction will be significantly affected by an increasing number of older workers leaving the labor force. Available to replace them will be young workers whose numbers will be little changed throughout the period. As this, too, affects all industries, the construction industry will be challenged in attracting an adequate supply of qualified new entrants.[82]

This view of the future is shared by the Santa Clara Building Trades. In a report prepared for the U.S. Department of Labor by the Silicon Valley Workforce Investment Network and the Santa Clara Building Trades, entitled Extending the Ladder, the unions and local construction users state:

> We have seen the average age of an apprentice in the Trades rise to almost 30 years of age. At the same time, we have seen the average age of a journeyperson rise to almost 40 years of age, and last but most significant is the fact the average retirement age is now closer to 50 than 60. These statistics represent two very significant realities: (1) the construction industry is on the precipice of a crisis in the availability of skilled trades people, and (2) an enormous opportunity for youth wishing to pursue a skilled career currently exists.[83]

This concept paper—pitched to the U.S. Department of Labor in the hope of receiving a federal grant—grew out of the experience of the Santa Clara Building Trades with the East Side PLA and proposed to extend this model to other school districts:

> At the core of this proposal is a partnership led by employers, labor, high school and community college districts, and the Silicon Valley Workforce Investment Network (SVWIN) Board. These parties have come together to pur-

> sue a unique and creative way to address the needs of the construction industry and youth through a partnership that leverages State and local construction bond dollars to place graduating high school seniors and community college students into full-time, high-wage jobs in the Construction Trades.

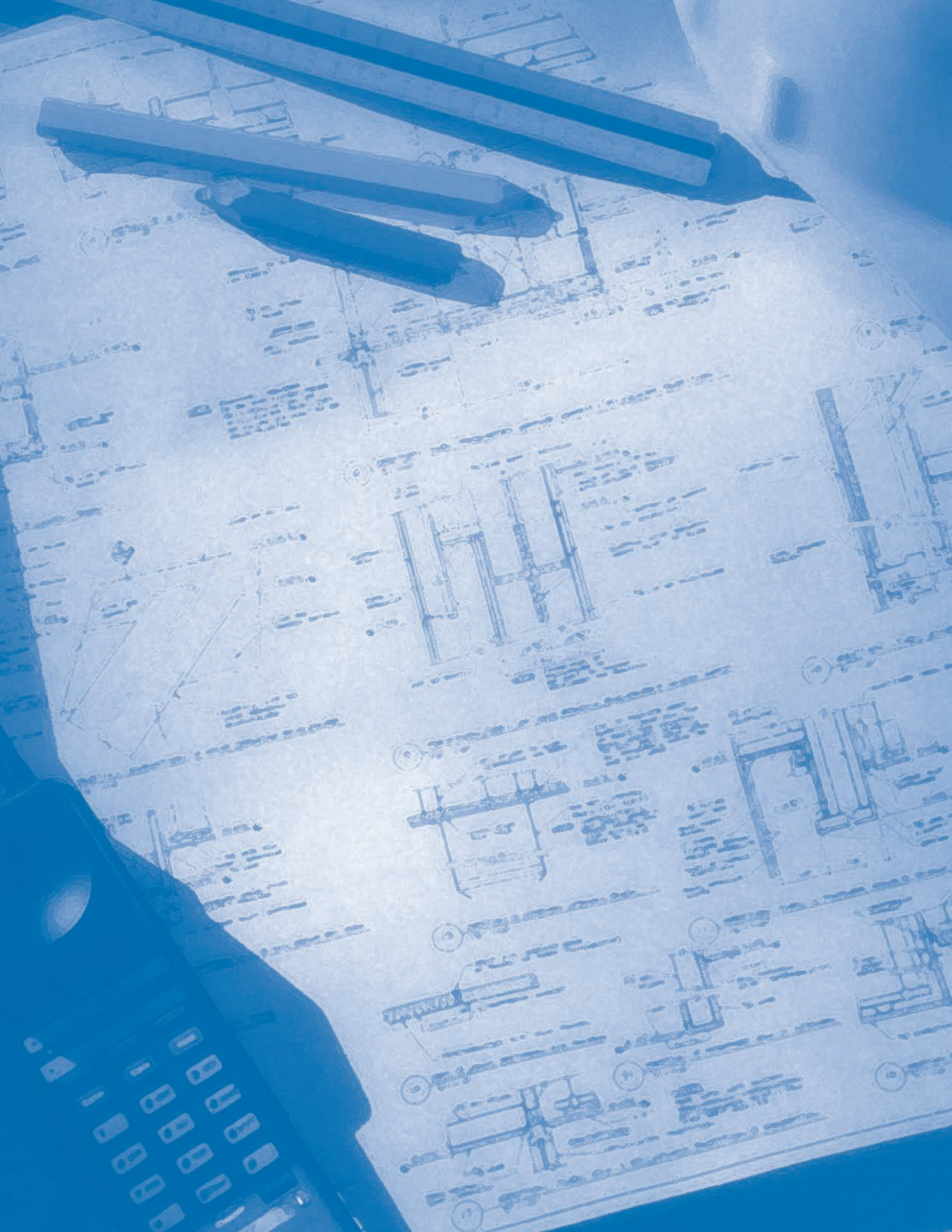
A local union leader involved in the creation of the East Side PLA and the establishment of the East Side Construction Academy explained the key unique provision of the PLA was its requirement for internships combined with language that ensured graduating students would actually get jobs either as apprentices or as material handlers. He argued that the unions were motivated by the need to "get back into the high schools" in order to recruit a qualified pool of younger workers to replace an experienced but aging union work force. The key problem, in his view, was to facilitate effectively the movement of younger workers into the union workforce in the face of apprenticeship admissions regulations that require nondiscrimination and equal and fair access to these programs. He indicated the solution was in the PLA proviso that required participating contractors to provide graduating students with jobs either as apprentices or material handlers. This requirement meant that students would at least transition to non-craft material handling jobs from which their additional experience would give them a leg up on admissions to apprenticeship programs. He stated:

> We all recognized the need to get back into the high schools and the current practice of begging the districts to allow us to talk to students for an hour or hold a career fair was not going to turn the tide. We needed to get back into the schools in an institutional manner.
>
> We realized that previous programs that were providing training/assistance to youth and others in the community to gain them knowledge and experience that would hopefully get them into an apprenticeship were not always successful. In fact some were creating unrealistic expectations on behalf of both the applicants and the programs. Upon graduation/completion there was no job available and they became just another name on the out-of-work list.
>
> We saw the opportunity that this PLA could serve in getting back into the schools in a meaningful way that could also solve the problem created by economic uncertainty we had previously experienced with other programs. By contractually binding, through the PLA, contractors to participate in the academy by requiring them to hire individuals that had graduated from the program, we could overcome the downfall of other programs.
>
> However we knew that we faced some traditional hurdles if we were thinking of circumventing long-established and heavily-regulated apprenticeship placement policies/criteria. So we proceeded to sit down with all the [Joint Apprenticeship Training Councils] to find out what they believed would work to make this happen. With their help, we crafted language that met the needs of the program and yet did not ask JATCs to violate their own selection criteria or placement policies. We achieved this by understanding that most graduates of the academy would do well on the entrance exams and interviews, but some may not score at the very top, which would be needed if they were to seamlessly enter into the apprentice program of their choice. So we worded the agreement to accommodate this by requiring contractors to provide jobs that although not apprentice positions were jobs that the student could easily transition into an apprenticeship with that same employer. It is common, for example, for a material handler which is not an apprenticable occupation, to receive an apprenticeship by virtue of their experience and work history.
>
> The important thing was that we were breaching the obstacle that all other programs could

not. We were putting people into jobs and not onto lists. And by putting people directly to work in the industry of their choice upon graduation, we have achieved something that to the best of our knowledge has not yet been previously done.

Thus, the East Side PLA is innovative in several ways. First, it is an example of a new form of PLAs, which attempts to find new areas of win-win in construction collective bargaining by bringing a new player to the table—the construction user. Second, it is an effort to solve a union problem—getting back into the high schools in an established, institutionalized fashion in order to better compete with other industries for talented students in the context of the worker replacement difficulties posed by the retirement of the baby boom generation. Third, it is an effort to solve a school district's problem of creating meaningful education for the non-college bound, an education that provides the student with an awareness of possibilities, prepares the student appropriately for the demands of the labor market, gives the student experiences that will qualify the student for advancement and allows the student in this case to test drive a full range of blue and white collar opportunities within an entire industry. This is what the East Side vocational education official meant when saying that the advantage of the Construction Technology Academy was that it created a relationship not with an individual or a company but "a partnership with a whole industry." Finally, by requiring participating contractors to provide employment, through the auspices of the PLA, this particular institutionalization of a journey from school to job seeks to overcome the weakness of previous similar experiments by putting students to work rather than putting them simply on job lists. Certainly, this PLA, like other PLAs, was motivated by traditional concerns for work and the conditions of work on the part of unions and an effective supply of skilled and qualified labor on the part of owners. But in the case of this PLA, these traditional motivations were not paramount. The novel and experimental motivations listed above were the fundamental reasons for the signing of this PLA.

A local union leader involved in the creation of the East Side PLA and the establishment of the East Side Construction Academy explained the key unique provision of the PLA was its requirement for internships combined with language that insured graduating students would actually get jobs either as apprentices or as material handlers.



Principal Findings

- Project Labor Agreements (PLAs) have been used for many years, perhaps as early as World War I. However, the use of PLAs has changed over the years. Once reserved for very large, isolated or specialized projects, today PLAs are used on a wide range of projects.

- PLAs are prehire collective bargaining agreements that cover the terms and conditions of employment on a specified construction project or set of projects. PLAs require that all contractors on a project, whether typically union or not, abide by collectively-bargained terms and conditions of employment, including paying union scale, using union referral systems, etc.

- An essential difference between PLAs and area agreements is that the principal parties in most negotiations are the building trades' unions and representatives of construction users, rather than unions and contractors.

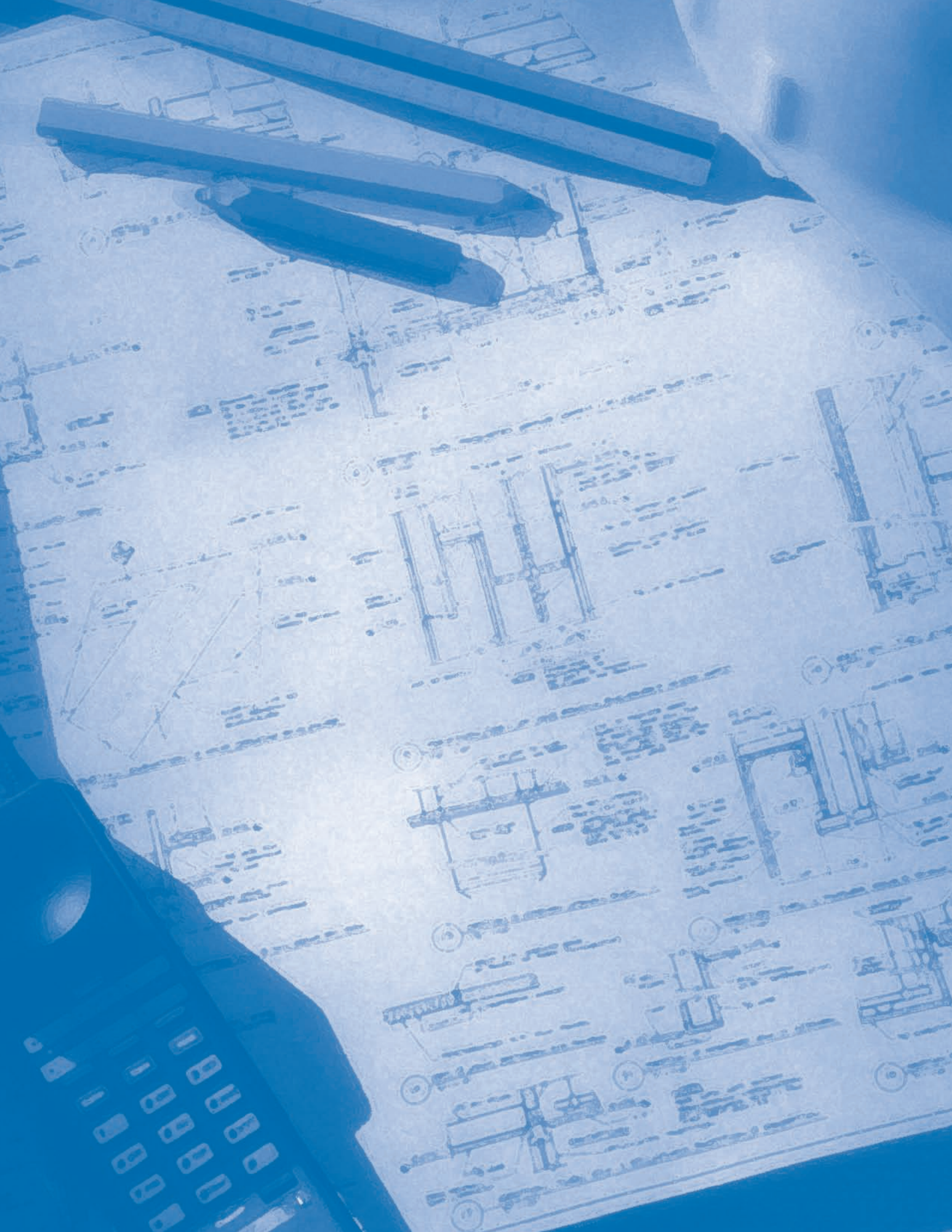
- The use of PLAs on public sector projects has become increasingly controversial over the past 15 years. All levels and branches of government have been brought into the PLA dispute. Court cases during the period have generally been over the issue of whether a PLA violates state or local bidding laws or regulations.

- The controversy over PLAs has spawned a number of studies on the effects of PLAs on the bidding behavior of contractors, construction costs, construction wages and several other issues. However, much of this research is flawed because of inherent difficulties in conducting such research, poor methodology or predetermined conclusions.

- Our research on bidding behavior and costs finds that PLA neither decrease the number of bidders on a project nor increase or decrease a project's cost when other important variables are taken into account. However, previous studies that have found a strong positive effect of PLAs on project cost failed to account for other important variables and, as a result, inflated the presumed impact of a PLA.

- Assuming cost neutrality, other aspects of PLAs should be considered. Interview and case study evidence finds high satisfaction with PLAs by stakeholders and suggests that PLAs can be used to improve scheduling, safety, training and minority employment.

- A problem with PLAs in many areas is a lack of contractor participation in negotiations, which can lead to the needs of a specific industry being ignored. One solution, which is used in a number of jurisdictions, is the development of a model PLA through a standing labor/management committee.



Footnotes

[1] McCartin, Joseph. 1997. Labor's Great War: The Struggle for Industrial Democracy and the Origins of Modern Labor Relations, 1912-1921. Chapel Hill, NC: The University of North Carolina Press, p. 73.

[2] Dunlop, John T. 2002. Project Labor Agreements. Harvard University Joint Center for Housing Studies Working Paper Series, W02-7, p. 1.

[3] Business Roundtable. 1997. Confronting the Skilled Construction Work Force Shortage.

[4] Linder, Marc. 1999. Wars of Attrition: Vietnam, the Business Roundtable, and the Decline of Construction Unions. Iowa City, IA: Fanpihua Press.

[5] Cockshaw, Peter. 2003. The intense battle over PLAs. Cockshaw's Construction Labor News+Opinion 33(4), p.1; United States Senate. 2002. Project Labor Agreements Examined. Hearing before the Subcommittee on Employment, Safety, and Training of the Committee on Health, Education, Labor and Pensions. One Hundred and Sixth Congress, Second Session. June 5, Irvine, California. Washington, DC: Government Printing Office.

[6] *Building & Construction Trades Council of the Metropolitan District v. Associated Builders & Contractors of Massachusetts/Rhode Island, Inc.* (507 US 218, 142 LRRM 2649, U.S. Supreme Court, March 8, 1993).

[7] Cockshaws 2000. ABC's new anti-PLA strategy. Cockshaw's Construction Labor News+Opinion 30(4), p. 1

[8] Siegal, Jolie M. 2001. Project labor agreements and competitive bidding statutes. University of Pennsylvania Journal of Labor & Employment Law 3, pp. 295-328.

[9] Johnston-Dodds, Kimberly. 2001. Constructing California : A Review of Project Labor Agreements. State Report CRB 01-010, p. 13

[10] Associated Builders and Contractors, Inc. 2001. Union-Only Project Labor Agreements: The Public Record of Poor Performance. Report of the Associated Builders and Contractors, Inc.

[11] Associated Builders and Contractors, Inc. 1995. Analysis of Bids and Costs to the Taxpayer for the Roswell Park Cancer Institute, New York State Dormitory Authority Construction Project.

[12] General Accounting Office. 1991. Construction Agreement at DOE's Idaho Laboratory Needs Reassessing, Washington, DC: GAO, GGD-91-80BR; Andrews, James. 1999. Boston Harbor Cleanup Project Labor Agreement: Recently Adopted Policy on Public Works Projects. Report of the author for ABC; Opfer, Neil, Son, Jaeho and John A. Gambatese. 2000. Project Labor Agreements Research Study: Focus on Southern Nevada Water Authority. Report of the authors for ABC.

[13] Carr, Paul G. 2000. Analysis of the Impacts on the Jefferson County Courthouse Complex through Project Labor Considerations. For the Jefferson County Board of Legislators. Jefferson, New York; Carr. 2004. An Investigation of the Bid Price Competition Measured through Pre-Bid Project Estimates, Actual Bid Prices and Number of Bidders. Unpublished.

[14] Bachman, Paul, Chisholm, Diane C., Haughton, Jonathan and David G. Tuerck. 2003. Project Labor Agreements and the Cost of School Construction in Massachusetts. Boston: Beacon Hill Institute; Bachman, Paul; Haughton, Jonathan and David G. Tuerck. 2004. Project Labor Agreements and the Cost of Public School Construction Projects in Connecticut. Boston: Beacon Hill Insitute.

[15] Lyons, Max. 1998. The estimated cost of project labor agreements on federal construction. Journal of Labor Research XIX(1), pp. 73-88.

[16] General Accounting Office. 1998. Project Labor Agreements: The Extent of Their Use and Related Information. Washington, DC: GAO. Report GAO/GGD-98-82; Northrup, Herbert R. and Linda E. Alario. 2002. Government-mandated project labor agreements in construction, the institutional facts and issues and key litigation: moving toward union monopoly on federal and state financed projects. Government Union Review 19(3), pp. 1-159; Opfer, Son, Gambatese, 2000.

[17] Lund, John and Joe Oswald. 2001. Public project labor agreements: lessons learned, new directions, Labor Studies Journal 26(3), pp. 1-23.

[18] Johnston Dodds, 2001

[19] Dunlop, 2002; Opfer Son and Gambatese, 2000.

[20] Associated Builders and Contractors, Inc. 2001.

[21] Johnston-Dodds, 2001.

[22] Cohen, Majorie Griffin and Kate Braid. 1999. Training & Equity Initiatives on the British Columbia Island Highway Project: A Model for Large-Scale Construction Projects. Working Paper Series, Centre for Research on Work and Society, York University, p. 15.

[23] The results are available from the authors.

[24] Bachman, et.al.,2003; Bachman, et.al., 2004.

[25] Bachman, et.al.,2003, p.8.

[26] The results are available from the authors.

[27] Keaheyj John. 1995. Utah to welcome the world in 2002 Utah chosen as 2002 winter site, *The Salt Lake Tribune,* June 17, p. A1.

[28] Baltezore, Jay and Patty Henetz.1995. Road to Olympics to be bumpy, *The Salt Lake Tribune,* June 25, p. B1.

[29] Keahey, John. 1996. Welcome to your worst traffic nightmare, *The Salt Lake Tribune,* August 29, p. B1.

[30] Baltezore, Jay. 1996. UDOT says I-15 cannot be redone by 2001, *The Salt Lake Tribune,* March 21, p. D1.

[31] Van Eyck, Zack. 2001. UDOT chief stepping down, *Deseret Morning News* (Salt Lake City), May 17, p. A1.

[32] Cates, Karl. 1996. UDOT puts plans for I-15 in fast lane, *Deseret Morning News* (Salt Lake City), January 15, p.1. 1996, SECTION News, p. 1; Baltezore, March 21, 1996, p. D1..

[33] Cates, Karl. 1996. Lawmakers stall on I-15 amid other legislation, *Deseret Morning News* (Salt Lake City), February 14, p. 3.

[34] Van Eyck, Zack. 1996 Eye on 15, *Deseret Morning News* (Salt Lake City), December 26, p. 13.

[35] Cates, Karl. February 14, 1996, p.1.

[36] Keahey, John. 1997. Let the construction begin, *The Salt Lake Tribune,* March 27, p.1; Van Eyck, Zack and Alan Edwards. 1997. Contractor gets green light for I-15 job, *Deseret Morning News* (Salt Lake City), March 26, p. A1.

[37] Van Eyck, Zack. 1998. Road industry taking note of design-build on I-15, *Deseret Morning News* (Salt Lake City), August 2, p. B3.

[38] Van Eyck, Zack and Alan Edwards. 1997. I-15 build for speed, *Deseret Morning News* (Salt Lake City), March 27, p. A23.

[39] Keahey, John. March 27, 1997, A1.

[40] Oberbeck, Steven. 1997. Does Utah have crews to do I-15? *The Salt Lake Tribune,* March 28, p. D7.

[41] Knudson, Max. 1997. Where will all the workers come from? *Deseret Morning News* (Salt Lake City), April 5, p. A1; Oberbeck, Steven. March 28, 1997. p. D7.

[42] Oberbeck, Steven. 1997. March 28. p. D7.

[43] Oberbeck, Steven. 1997. March 28, p. D7

[44] Knudson, Max. April 5, 1997, p. A1.

[45] Bernick, Bob Jr. 1997. Does the I-15 union deal violate Utah law?" *Deseret Morning News* (Salt Lake City), May 2, p.B1.

[46] Bernick, Bob Jr. May 2, 1997, p. B1.

[47] Bernick, Bob Jr. May 2, 1997, p. B1.

[48] Bernick, Bob Jr. and Jerry Spangler. 1997. Graham to rule I-15 Pact OK, but will GOP agree? *Deseret Morning News* (Salt Lake City), May, 23, p. B1.

[49] Bernick, Bob Jr. and Jerry Spangler. May, 23, 1997, p. B1.

[50] Bernick, Bob Jr. May 2, 1997, p. B1.

[51] Anonymous. 1997 Hiring rules for I-15 are amended, *Deseret Morning News* (Salt Lake City), June 6, p.B2.

[52] Anonymous. 1997. Draft accord reached on unions and applicants for I-15 jobs, *Deseret Morning News* (Salt Lake City), June 5, p. B2.

[53] Miller, Phil. 1997. I-15 hiring procedures scrutinized, *The Salt Lake Tribune,* June 7, p. B2.

[54] Mitchell, Leslie. 1997. I-15 project; jobs galore: but builders face a worker shortages, *The Salt Lake Tribune,* July 16, p. A1.

[55] Keahey, John. 1997. I-15 project planners travel bumpy road; pressure builds with sleeves up—and heads down, *The Salt Lake Tribune,* August 10, p. B1.

[56] Van Eyck, Zack. 1998. I-15 contractor reaps reward, *Deseret Morning News* (Salt Lake City), January 9, p. B1.

[57] Van Eyck, Zack. January 9, 1998, p. B1.

[58] Van Eyck, Zack. 1998. I-15 Contractor Gets $5 Million Bonus, *Deseret Morning News* (Salt Lake City), July 11,p. B3.

[59] Warchol, Glen. 1998. I-15 milestones and missteps, *The Salt Lake Tribune,* December 27, p. A1.

[60] Loomis, Brandon. 2000. I-15 contractors keep rolling close to schedule, *The Salt Lake Tribune,* May 3, p. B5.

[61] Keahey, John. 1999. Wasatch Constructors offers state a maintenance plan for refurbished I-15, *The Salt Lake Tribune,* January 11, p. B1.

[62] Romboy, Dennis. 2001. A warranty on I-15? *Deseret Morning News* (Salt Lake City), April 12, p.B1.

[63] Loomis, Brandon. 2001. UDOT trusts I-15 project quality, passes on $27M, 10-year warranty, *The Salt Lake Tribune,* April 28, p. B1.

[64] Zack Van Eyck, 2001. UDOT rejects I-15 warranty, *Deseret Morning News* (Salt Lake City), April 18, p. B2 SECTION: LOCAL; Pg. B2.

[65] Anonymous. 2002. I-15 reconstruction named top civil engineering project, *The Salt Lake Tribune,* April 27,p. B1.

[66] Womack, James; Jones, Daniel and Daniel Roos. 1990. The Machine that Changed the World. New York: Rawson Associates.

[67] Powell, Barbara. 2004. A new Toyota truck plant to send wider ripples through San Antonio job market. *San Antonio Express-News,* June 26.

[68] Rea, Mark. 2003. Most American of pastimes helped lead Toyota to San Antonio. Texas Construction. 11(4): 55.

[69] Ibid.

[70] Anonymous. 2003. Toyota drops PLA plan for San Antonio plant. Texas Construction 11(9): 78.

[71] Rea, 55

[72] T.F. Green Airport website: www.pvdairport.com

[73] Landrum & Brown. 2001. T.F. Green Airport Master Plan Update. June 15, p. 1.

[74] Rowland, Christopher. 1990. Green terminal renovation ok'd. Providence Journal, December 27, p. A1.

[75] Lord, Peter. 1992. FAA approves airport terminal. Providence Journal, August 5, p. A3.

[76] DePaul, Tony. 1991. Report opposed new air terminal. Providence Journal, July 21, p. C1.

[77] DePaul, Tony 1996. Former Gov. Sundlun praised. Providence Journal, September 22, p. A1

[78] McPhillips, Jody. 1996. Public art for Green Airport no longer a cloudy affair. Providence Journal, May 21, p. A1.

[79] DePaul Tony. 1991. Sundlun assails cost of Green expansion. Providence Journal, December 12, p.A1

[80] Gilbane building company website: www.gilbaneco.com.

[81] DePaul, Tony. 1993. Cost rises for work at Green Airport. Providence Journal, July 19, p. C5

[82] Construction Labor Research Council. 2005. Craft Labor Supply Outlook 2005 – 2015 pp. 3-5.

[83] The Silicon Valley Workforce Investment Network and the Santa Clara and San Benito Counties Building and Construction Trades Council. 2004. Extending the Ladder –Workforce Education for Careers in Construction," a concept paper prepared for the [U.S.] Department of Labor, p. 1.

ELECTRI International
3 Bethesda Metro Center
Suite 1100
Bethesda, Maryland 20814-5372
Tel: 301-215-4538
Fax: 301-215-4536
Web: www.electri.org

Index No. F2702