# Public Benefits from Public Subsidies:

## Advantages and Disadvantages of Alternative Ways to Build the Marlins Stadium at the Orange Bowl Site


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## Overview of the Research Project and Reports

The five research reports that immediately follow this introductory overview address the ways Miami-Dade County and the City of Miami might undertake the construction of a new, approximately $490 million stadium for the Florida Marlins at the Orange Bowl site in Little Havana. The public will cover the vast majority of the up-front costs of building the new stadium as well as improving the traffic and pedestrian infrastructure in the area around the site. The new, retractable roof stadium will be built with $445 million in up-front, public financing raised through city and county bond sales, including $50 million from the "Building Better Communities General Obligation Bond" (GOB), which was previously slated for the renovation of the Orange Bowl. Present plans call for the Marlins to pay back $162 million of the up-front bond subsidy by making rent payments over the term of their lease at the new stadium. The baseball team is also expected to cover some share of the overall cost although they recently retracted their offer to contribute $45 million. Despite the ever-changing plans, it seems clear that taxpayers will pay at least $445 million up-front.

The purpose of the reports is to determine the best way for the public to maximize the benefits it will receive from this half a billion dollar investment. In particular, we examine the different employment and contracting options facing the city and county, and the consequences of different choices between these options. The goal is to obtain a good value for the taxpayer's investment, obtain stable and well-paying employment for county residents, sustain healthy communities, ensure fair and equitable treatment of all in providing employment, maximize incomes within the county, and enhance the skills and long-term career prospects for Miami-Dade workers.

To further these goals, the five research reports immediately following this introductory overview examine the five following issues concerning these two construction projects:

(1) The costs and the benefits of hiring permanent local residents versus hiring out-of-area workers;
(2) The consequences of not providing health insurance coverage to all workers employed on these projects;
(3) The benefits of using small and minority contractors for some of the work on the two projects;
(4) The advantages or disadvantages of using registered apprenticeship programs to supply a portion of the workers on these projects; and
(5) The comparative advantages or disadvantages of utilizing a "lowest-cost" contracting method versus use of a "best-value" contracting method of procurement.

Some of these issues are relatively easy to quantify, and some are not. In all cases, we have attempted to "stay as close to the facts" as is possible, and to make our investigation and recommendations as "fact-based" as possible. Nevertheless, some of the issues are not strictly quantifiable, and we have done our best to adhere to the evidence of a qualitative nature as well as the quantifiable data in those cases. Of course, in the end some issues require a "judgment call" as well as facts to make a decisive conclusion.

The general results of these studies indicate that the county would be wise to hire locally whenever possible, provide health care insurance to all workers on the construction projects, utilize small and minority contractors for some of the work to the extent possible, make use of registered apprenticeship programs to supply a portion of the construction labor force, and employ a "best-value" rather than "lowest bid" method of procurement on this project.

We hope that the authorities in charge of procuring construction services for the Marlins Stadium will consider our recommendations and implement them, because in doing so the county and its residents will reap the maximum benefit from this project. Beyond the individual recommendations of each report, if the city and county would adopt them all as a package, benefits would be amplified. In a sense, the different recommended measures augment each other, and would help the city and the county to stay on the "high road" of optimal benefits for its residents while also wisely shepherding the taxpayer's money.

Each report is written to be intelligible as a "stand-alone" product, however, and those with an interest in any one of the topics can read it without reading the others.

We wish to thank the South Florida Jobs with Justice chapter for commissioning these reports. We hope the resulting product justifies their investment in gaining knowledge about best practices in publicly-funded projects such as the Florida Marlins Stadium at the Orange Bowl site.

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# Who Gets the Jobs?

## Economic impacts of local vs. non-local hiring in a proposed Marlins Stadium at the Orange Bowl site

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# Who Gets the Jobs? Economic impacts of local vs. non-local hiring in a proposed Marlins Stadium at the Orange Bowl Site

## Executive Summary

Plans have been announced for construction of a new stadium for the Florida Marlins at the site of the Orange Bowl. While numbers have changed continuously as this possible project was discussed, one set of figures gave the total public subsidy up-front to the project at **$445 million dollars** in bonds floated by the County and the City. While reports indicate that the Marlins would be paying back $162 million in rent over the coming decades, and also promised $45 million up front (a promise later retracted), none of this changes the fact that construction costs would be born up-front with $445 million in public money.

This report analyzes the impact on Miami-Dade County if the public subsidy of $445 million for this project were to be spent on local construction labor or on labor from out of the area. The purpose is to see which practice is more desirable for the county.

**Payroll, employment, local spending, and sales tax revenue impacts**

If non-local labor was hired with the public's $445 million expenditure, this would mean:

- **Loss of payroll** to local residents of **between $150 plus million and $165.5 million**, depending on the spending patterns of non-local workers employed on these two projects;

- **Loss in local employment** of **between 3,773 and 4,191 jobs**, depending on the spending patterns of non-local workers employed on these two projects;

- **Loss of local spending between almost $38 million to over $68 million**, depending on the spending patterns of non-local workers employed on these two projects; and

- **Loss of tax revenue for Miami-Dade County** of **between $408,000 and over $734,000**, depending on the spending patterns of non-local workers employed on these two projects.

**Given these impacts, the county would do well to attempt to ensure that all (or as much as is possible) of the hiring on these projects should be of local workers. This would maximize benefits to the county and its taxpayers.**

The positive impact of local hiring could be magnified enormously if efforts were made to concentrate the local hiring in communities most in need of stable, well-paying jobs. A modest county impact could be translated into a major low-income community impact. In this way, the benefits of the general obligations bond to the county could be multiplied through wise implementation of project work.

# Who Gets the Jobs? Economic impacts of local vs. non-local hiring in a proposed Marlins Stadium at the Orange Bowl Site

## Introduction

Over a number of years, there have been discussions and negotiations between the Florida Marlins baseball team and various governments (city, county, state) about the possible construction of a new baseball stadium for the team. Earlier discussions came to naught, but in 2007 it appeared that the funding needed to build the stadium could be raised.

As of October 2007, news accounts indicated that plans were for a Marlins Stadium at the Orange Bowl site, with **the city and the county together raising $445 million in up-front costs through bonds for a $490 million stadium.** Initial plans had the Marlins putting up $45 million up-front, and repaying a portion ($162 million) of the public money over the coming decades in rent, although subsequent reports indicated that the team had later lowered the amount it was willing to commit up front to something less than $45 million.

Wherever the negotiations may lead, it appears likely that the public's up-front contribution will be at least $445 million, because added road and traffic modifications and other costs will add considerably to the final overall cost. Therefore, we use the $445 million public up-front cost as a conservative estimate of what the public's initial contribution to construction costs is likely to be.

Raising and spending almost half a billion dollars is clearly a major undertaking utilizing the taxpayer's money. It is important that the money be spent wisely and that the maximum benefits accrue to county residents from any money spent.

RISEP was asked by the South Florida Jobs with Justice chapter to update research we had conducted earlier on the impact of alternate ways of employing labor in projects such as this.[1] In this report we look at the impacts on the county if the public money spent on construction labor of a Marlins stadium hires local labor or labor from outside the area.

## Jobs and Local Spending Impacts of Hiring Local or Out-of-Area Workers

According to press reports the Marlins stadium is to be an approximately $490 million project, with $445 million of that to come from the county and city bonds. The following analysis will calculate the job, income, and spending impacts of the county's $445 million portion of the construction.

[1] This report relies on work done in that previous research report, *Hiring Our Own? The impact of local vs. non-local hiring in two county GOB projects*, and portions of it are adapted from that report.

*How many jobs?*
The first task is to determine how many jobs are likely to be generated by $445 million in construction in Miami-Dade County. According to the federal government's Economic Census report (http://www.census.gov/prod/ec02/ec0223afl.pdf ), the payroll of total Florida workers in "Commercial and institutional building construction" amounts to 23.7% of the net value of such work done in the state. For "Specialty trade contractors," payroll equals 31.0% of net value. Since tearing down the Orange Bowl and constructing a Marlins stadium will require both types of contractors, we use the weighted average[2] of these two, which indicates that approximately 29.8% of the total cost of the project will be labor costs.[3]

Using that percentage, a $445 million construction project will have a total **payroll of approximately $132.53 million.** How many workers will be required with a payroll that size? Because of the nature of construction, the number of workers on a project will fluctuate greatly over the course of the project. For the purpose of this study, we convert the jobs into yearly "average construction jobs," meaning the jobs that support a worker for a year at the average yearly wage earned by construction workers (whatever number of hours of work per year that may be, which is not relevant here).

According to state data (available on the state Agency for Workforce Innovation web site, QCEW data), an average yearly wage for a construction worker in Florida in 2006 was $40,768. At this wage, the almost $133 million payroll will support approximately **3251 workers** over the course of a year.

*Difference if jobs go to local residents or not*
What difference does it make if these 3251 workers are hired from among local residents, or are hired from out of the area?[4] As it turns out, using workers whose primary residence is not local makes a difference in the economic impact of a project like this.

For the sake of simplicity, and to illustrate most clearly the difference, we consider the difference if all of the workers were local or if all of them are not local (beyond being here temporarily just for the job). There are at least three measurable negative impacts from the hiring of non-local workers to do this construction work. First, it directly denies jobs to local construction workers, and hence to permanent local residents. Second, because of differences in the amount of local spending by local and non-local workers, less money circulates in the local economy and less secondary jobs are thus created.

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[2] A weighted average gives proportionally more weight according to the size of a larger set of data, and thus is more accurate than a simple average between the two figures would be.
[3] Percentages and numbers given here and later in the report are rounded off. For example, the 29.8% shown here is actually 29.7814629340888. For calculations we use actual percentages and numbers, not the rounded off percentages or numbers shown in the text.
[4] For the purposes of this analysis, we are considering the local area to be Miami-Dade County, although we recognize that many residents of immediately adjacent counties, especially Broward, also work in Miami-Dade, and vice versa. In many ways the economies of Miami-Dade County and Broward County are seamlessly interwoven with each other. The primary interest is in measuring the impact of "out of area" workers who come from out of the state or from distant parts of the state whereby a daily commute to work in Miami-Dade County is not possible.

Third, because of less spending locally, a smaller amount of local sales tax revenue is collected.

DIRECT JOB LOSS. Regarding direct job loss to local residents, the **loss of 3251 annual average construction jobs** would mean the **loss of $132.53 million in income to permanent local residents**.

DIFFERENCE IN LOCAL SPENDING AND INDIRECT JOB CREATION. Hiring out-of-area workers also causes job loss because of the different spending patterns of local residents and non-locals. The amount of "disposable spending income" used to make purchases in the local economy will be different. To determine "disposable spending income" available to spend locally, we must first subtract taxes from gross payrolls, as well as any money saved.

According to the Congressional Budget Office, the total federal tax burden on U.S. citizens for the middle 20% of income earners (which these jobs fall within) was 14.5% in 2002 and 13.6% in 2003.[5] According to the Institute on Taxation and Economic Policy, for middle income earners in the year 2000, the state tax burden (after adjusting for a federal tax offset for state taxes deducted from income in federal tax returns) in Florida was 9.8%.[6] Although the years are different, we can thus roughly estimate that the **total (federal and state) tax burden on residents of Florida is thus approximately 14% plus 10%, or 24%.** This percentage may be slightly too high because both federal and state taxes have been lowered in the past few years, but it is likely that Miami-Dade property taxes are higher than the state's average. So the two possible sources of bias probably cancel each other out, and we consider 24% a good approximation of total tax burden that we use here to calculate "after tax" income.

We also want to subtract savings from earned income before we derive the percentage of that income that is spent. According to the U.S. Bureau of Economic Analysis, in 2004, 2005, and 2006, Americans saved 2.1%, 0.5%, and 0.4% of their income. The average of those three years is 1.0%. Thus, for this analysis we assume that the **employees on this project will save 1.0% of their paychecks**.

So the combined tax and savings deduction from the overall payroll amounts to 24% plus 1.0%, or 25%. Multiplying this percentage times the entire payroll of 132.53 million results in approximately $33.132 million being deducted from the paycheck for taxes and savings. That leaves approximately **$99.396 million to be spent on consumer goods and services.**

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[5] "Historical Effective Federal Tax Rates: 1979 to 2003," dated December 2005. Available on the web at: http://www.cbo.gov/ftpdocs/70xx/doc7000/12-29-FedTaxRates.pdf . This includes all federal taxes, including social security and the like.

[6] "Florida Tax System is Nation's Second Most Regressive," dated January 2003. Available on the web at: http://www.itepnet.org/wp2000/fl%20pr.pdf . Because Florida does not have a state income tax, the state "tax burden" consists of property taxes and sales taxes paid.

However, **permanent local residents and out-of-area workers will spend that money differently**. Out-of-area workers are likely to have families (both nuclear and extended) elsewhere to whom they will be remitting a large part of their paychecks. If a spouse and one or more children reside elsewhere, much of the paycheck will be sent to them to support a residence. On the other hand, a permanent local resident will be spending virtually all of the housing, food, and other family living expenses locally.

For the purposes of this analysis, **we assume that permanent local residents will be spending 95% of their paycheck locally**. In doing so, we follow the example of the only other out-of-area economic impact study of which we are aware.[7]

Estimating the percentage of the paycheck spent locally by an out-of-area worker is more difficult. An average construction income spread throughout a year means $784 per week in gross pay, or $588 after taxes and savings. A previous out-of-area study assumed that half of this will be sent back to the worker's family at the permanent home or place of origin, with the other half spent locally.[8] For a worker seeking inexpensive temporary local lodging and economizing on local living expenses while supporting a family elsewhere, this is a reasonable estimate (approximately $294/week spent locally, with the same amount sent back home). However, to make an additional and more conservative estimate, we will also calculate the impact if out-of-area workers send back home only 30% of their take home pay. In this way we are able to estimate a "high" and "low" range for the likely impact of utilizing out-of-area workers.

An **entirely local workforce** spending 95% of take-home pay after savings locally would thus be making approximately **$94.426 million in purchases locally** (95% times $99.396 million). An **entirely out-of-area workforce** spending either 50% or 70% of the same money would be purchasing approximately **$49.698 million or $69.577 million locally**. This means the **loss of local purchasing power of either $44.728 million or $24.849 million**, depending on assumptions about local/non-local spending patterns.

These differences in local purchasing power translate into different impacts on the local economy and local job creation. Once it is spent, money circulates in the local economy through secondary purchases and economic transactions by those being paid. This creates additional jobs, making for the well known "employment (job) multiplier effect" and "earnings multiplier effect" of spending, which of course will be diminished with diminished spending.

Economists use formulas to calculate the amount of extra earnings and the amount of extra jobs (employment) created by spending in a sector of the economy. These formulas are known as "multipliers." For this study, we utilize the standard multipliers used to

[7] See Carlos Davidson, "The Impact of Out-of-Area Workers in Non-Residential Construction on Contra Costa County: A Case Study of the USS-POSCO modernization," July 1989. Prepared for the Out-of-Area Worker Task Force of the Contra Costa County Board of Supervisors. (A copy is in the authors' possession.)

[8] See the study referenced in footnote 6.

calculate economic impact in Miami-Dade County for construction spending.[9] For new construction such as the construction of a Marlins stadium, the earnings multiplier is 1.7377, meaning that every dollar spent in this type of economic activity will result in 73.77 cents in additional earnings, beyond the earnings of those employed in doing the original work. (The additional earnings come because the money circulates repeatedly in the local economy, creating additional employment and earnings.)

The $94.426 million spent locally by local workers thus creates an additional $69.658 million in local earnings, on top of the original payroll of $132.61 million. Thus **local income totals $202.185 million if all the workers are local.** But if out-of-area workers are used, and they spend either 50% or 70% of their disposable income locally, the additional local earnings shrink from $69.658 million to either $36.662 million or $51.327 million, causing a comparative loss of local income of $33.0 million or $18.33 million.

The **total loss in local income from out-of-area hiring is thus either $165.52 million or $150.86 million**, depending on assumptions about out of-area worker spending patterns. These differences are shown in Table 1 (see bottom right of table).

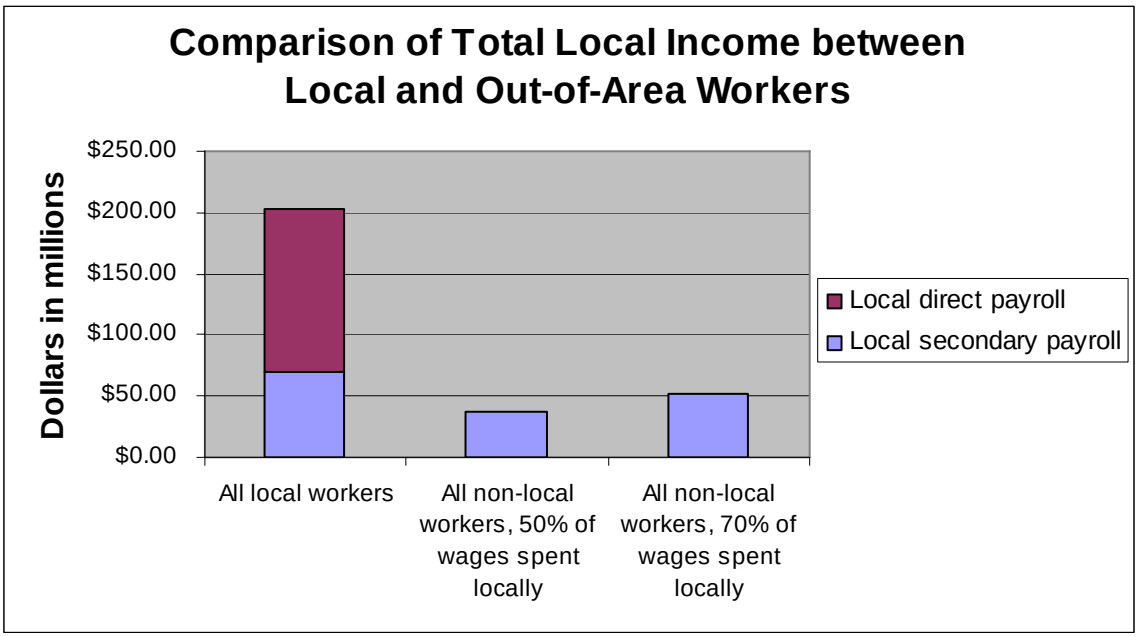
**Table 1**
**Loss of local income if out-of-area workers are employed with the $445 million of public money put into the Marlins stadium** (in millions of dollars)

| Dollars in millions | All local workers | All non-local workers, 50% of wages spent locally | All non-local workers, 70% of wages spent locally | Difference in local income if out-of-area workers spend 50% locally | Difference in local income if out-of-area workers spend 70% locally |
|---|---|---|---|---|---|
| Local direct payroll | $132.53 | - | - | ($132.53) | ($132.53) |
| Local secondary payroll | $69.66 | $36.66 | $51.33 | ($33.00) | ($18.33) |
| Total local payroll (income) | $202.19 | $36.66 | $51.33 | **($165.52)** | **($150.86)** |

The numbers in bold at the bottom right of Table 1 are the ultimate income result of hiring out-of-area workers with the $445 million raised by the county and the city for construction of a Marlins stadium. They show a **loss of between $150 million plus to over $165 million in local income (meaning income to permanent local residents) if out-of-area workers are used in this work.** Chart 1 shows the same loss graphically.

[9] Both the "earnings multiplier" and the "jobs multiplier" used in the following analysis were obtained from Jaap Donath, chief economist at the Beacon Council, which uses them for various estimates of economic impacts. They are taken from the RIM II regional economic model for the state of Florida, and adjusted to Miami-Dade County by the Beacon Council. We are grateful to the Beacon Council for supplying these multipliers

Chart 1




A second way to determine losses to the local community from out-of-area hiring is to calculate the total loss of **jobs**, not simply income. To determine additional jobs created, we employ a standard "jobs multiplier" or "employment multiplier" for this type of construction work, which is 1.6106. This means that, for every job created in this industrial segment, .6106 additional jobs in the local economy will be created because of the spending from the paycheck of that original job. Thus, if **all the 3251 construction jobs** are given to **local workers**, it would result in an additional .6106 X 3251 jobs, or approximately **1985 new secondary jobs**.[10] But, if **out-of-area workers are hired, only 1045 or 1463 additional jobs** will be created, depending on assumptions about spending patterns of those non-local workers. This means a **loss of 940 or 522 new secondary jobs** for local employees.

Thus, if we combine the loss of direct jobs and secondary jobs for local residents that results from hiring out-of-area workers on the county's $50 million share of the Orange Bowl renovation, the job loss is considerable. Table 2 shows the difference.

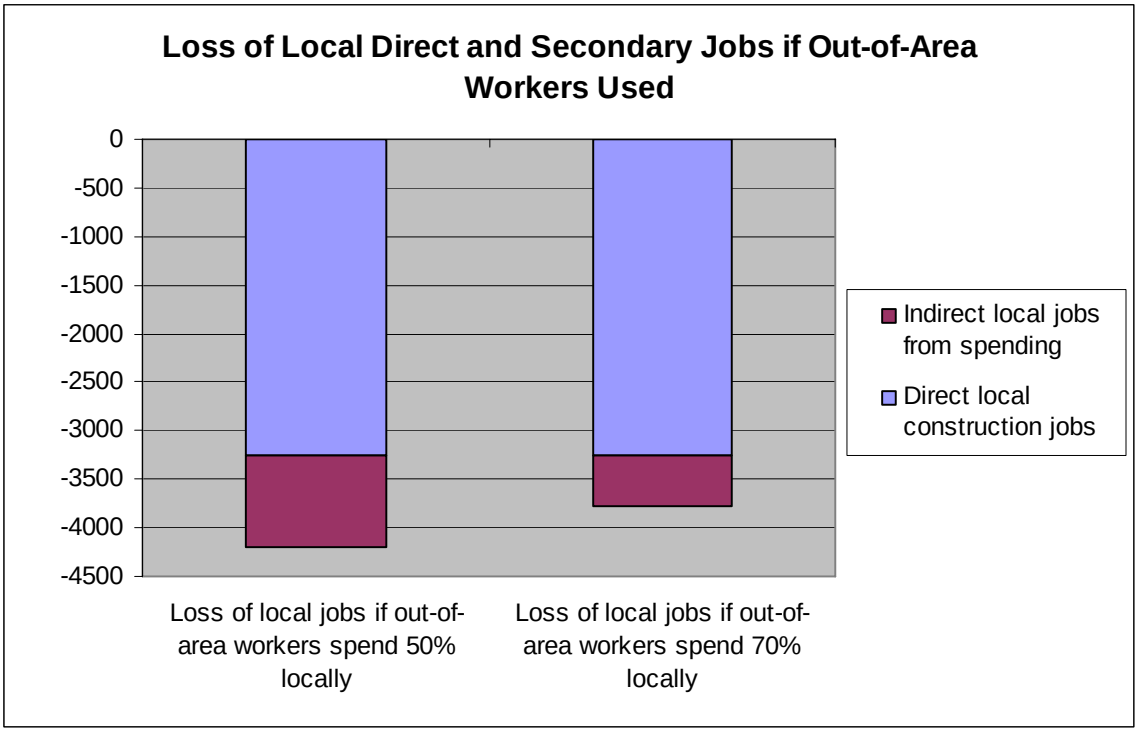
[10] In this and subsequent calculations, the number given may be rounded one up or down from a straight calculation from the numbers in the text, because text numbers are themselves rounded, and for greater precision we calculate using numbers with original decimal points. The difference is trivial, but may be noticeable to anyone attempting to replicate our calculations.

**Table 2**
**Loss of local direct and secondary jobs if out-of-area workers are employed using the $445 million in public money for a Marlins stadium** (millions of dollars)

| Number of local jobs | All local workers | All non-local workers, 50% of wages spent locally | All non-local workers, 70% of wages spent locally | Difference in local jobs if out-of-area workers spend 50% locally | Difference in local jobs if out-of-area workers spend 70% locally |
|---|---|---|---|---|---|
| Direct local construction jobs | 3251 | - | - | (3251) | (3251) |
| Indirect local jobs from spending | 1985 | 1045 | 1463 | (940) | (522) |
| Total local jobs | 5236 | 1045 | 1463 | **(4191)** | **(3773)** |

The numbers in bold at the bottom right of Table 2 are the **ultimate "jobs impact" of hiring out-of-area workers with the public expenditure of $445 million** in a Marlins stadium. They show a **loss of between 3773 and 4191 jobs to local residents if out-of-area workers are used in this work.** Chart 2 shows the same results graphically.

Chart 2



A third way to determine losses to the local community from hiring out-of-area workers is to calculate the local loss of sales tax revenue because less of the paycheck is being spent locally. This loss can take two forms: direct loss of the 1% local sales tax collected by the county ( ½ of 1% for the Public Health Trust and ½ of 1% for local transit needs), and the loss of the county's share of the 6% state sales tax rebated to the county. We consider both the direct loss of the 1% collected for local health and transit needs and the loss of the county's share of state sales taxes collected. According to state figures, the state returned 13.23% of the taxes it collected from Miami-Dade County sales to the county in the fiscal year ended June 30, 2006.[11]

We assume that approximately 60% of local spending is taxable, following the example of the only other out-of-area study of which we are aware.[12]

In the last row of the following table we add the lost revenue shared with the county from the state 6% sales tax to the money lost directly through the county "special use" 1% sales tax.

Table 3 shows the differences in sales taxes collected, depending on the hiring of local or non-local workers.

**Table 3**
**Loss of sales tax revenue from the 1% Miami-Dade County local sales tax if out-of-area workers hired with the $445 million public money to construct a Marlins stadium ($ thousands)**

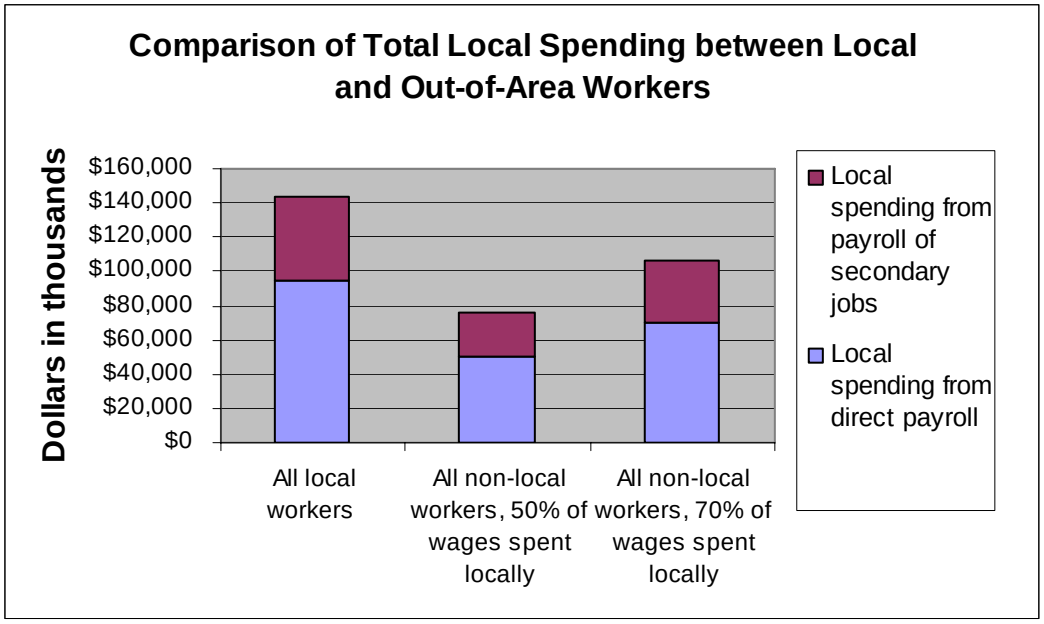
| Dollars in thousands | All local workers doing renovation | All non-local workers, 50% of wages spent locally | All non-local workers, 70% of wages spent locally | Difference if out-of-area workers spend 50% locally | Difference if out-of-area workers spend 70% locally |
|---|---|---|---|---|---|
| Local spending from direct payroll | $94,426 | $49,698 | $69,577 | ($44,728.04) | ($24,848.91) |
| Local spending from payroll of secondary jobs | $49,631 | $26,122 | $36,570 | ($23,509.56) | ($13,060.87) |
| Total local spending | $144,057 | $75,820 | $106,147 | **($68,237.59)** | **($37,909.77)** |
| 1% Sales tax revenue | $864.34 | $454.92 | $636.89 | **($409.43)** | **($227.46)** |
| Tax revenue, including state sales tax share | $1,550.46 | $816.03 | $1142.44 | **($734.43)** | **($408.01)** |

[11] Data obtained from public tax records, state of Florida.
[12] See Carlos Davidson, "The Impact of Out-of-Area Workers in Non-Residential Construction on Contra Costa County: A Case Study of the USS-POSCO modernization," July 1989. Prepared for the Out-of-Area Worker Task Force of the Contra Costa County Board of Supervisors. (A copy is in the authors' possession.)

The numbers in bold at the bottom right of Table 3 show the losses to Miami-Dade County in local spending and local sales tax from the 1% Miami-Dade sales tax if out-of-area workers are hired with the public expenditures of $445 million on a new Marlins stadium. They show a **loss of between almost $38 million and over $68 million in local spending, and between $408,000 and $735,000 collected for local public health and transit needs and other county expenditures.**

Chart 3 shows the differences in local spending graphically.

Chart 3




## Conclusion

This report has demonstrated that it is highly desirable for the construction work funded by public expenditures on the building of a Marlins stadium to be done with local labor. The use of entirely non-local labor would mean:

- **Loss of payroll** to local residents of **between $150 plus million and $165.5 million**, depending on the spending patterns of non-local workers employed on these two projects;
- **Loss in local employment** of **between 3,773 and 4,191 jobs**, depending on the spending patterns of non-local workers employed on these two projects;
- **Loss of local spending between almost $38 million to over $68 million**, depending on the spending patterns of non-local workers employed on these two projects; and

- **Loss of tax revenue for Miami-Dade County** of **between $408,000 and over $734,000**, depending on the spending patterns of non-local workers employed on these two projects.

The above figures assume that all of the construction employment on these projects would be either local workers or out-of-area workers. If a percentage less than 100% of the workers should come from out of the local area, the numbers would have to be adjusted accordingly. For example, if only 50% of the workers were non-local, the above losses would be cut in half.

Given these impacts, the county and the city would do well to attempt to ensure that all (or as much as is possible) of the hiring on these projects should be of local workers. This would maximize benefits to the city and the county and their taxpayers.

The positive impact of hiring locally could be magnified enormously if efforts were made to concentrate the local hiring in communities most in need of stable, well-paying jobs. Thus, a modest impact on the county as a whole could be translated into a major impact for a community (or communities) with low incomes and higher unemployment. In this way, the benefits of the bonds raised by the city and the county could be multiplied through wise implementation of stadium construction work.

# Health Care and Public Projects:

## The consequences of not providing health insurance to workers on the proposed Marlins Stadium at the Orange Bowl Site

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# Health Care and Public Projects: The consequences of not providing health insurance to workers on the proposed Marlins Stadium at the Orange Bowl Site

## Executive Summary

Building a stadium for the Florida Marlins at the Orange Bowl site would create thousands of jobs in Miami-Dade County. But in order for these jobs to truly be a benefit to the community, all workers must be provided with health insurance. Only about 50% of construction industry workers in Miami-Dade County have health insurance, and without insurance it is difficult to access proper health care. The uninsured have shorter life-spans than the insured because they are less likely to receive regular screenings for diseases, more likely to be diagnosed in the late stages of disease, and face more difficulties monitoring chronic conditions such as diabetes. Uninsurance also creates stress and financial crises for families, and community clinics cannot serve all those in need. The disparity in care between the insured and uninsured violates principles of democracy and equality and should not be financed by public dollars.

Lack of health insurance also generates substantial costs for society. Unhealthy workers are less productive, and the shorter life spans of the uninsured mean tens of billions in lost health capital every year. In addition the health system experiences increased costs due to emergency room visits for non-emergency conditions. **In 2004 almost 72 percent of Miami-Dade emergency room visits by the uninsured were for minor, low or moderate acuity conditions, compared with 60.6 percent of visits by the commercially insured, a difference of over $17 million per year in charges that could be avoided if the uninsured had reliable access to care for non-emergency conditions.** The Jackson Memorial health care system spent $508 million dollars in charity care in 2005, or $798 per uninsured Miami-Dade county resident. We estimate that if only half of the workers on the proposed Marlins Stadium are provided with health coverage, the estimated cost in charity care will be nearly $1.3 million for workers, and almost $3.9 million for workers and their families.

Providing construction industry workers with continuous, affordable coverage is difficult because of the cyclical and seasonal nature of the jobs. However collective bargaining units have largely solved this problem by assuming the responsibility for providing coverage to members while collecting benefits payments from employers. The low rate of insurance and lack of adequate care received by the uninsured means that spending is artificially low. Requiring that all workers be enrolled in a standard commercial health care plan would likely increase project costs substantially. However by using a best value contracting method and awarding points to companies that provide health insurance to their workers the county would ensure the selection of an experienced contractor capable of producing quality work on time and on budget, which is only possible with a highly productive workforce. This is a win-win-win strategy for the community: high quality, cost control, and a healthy workforce.

## Introduction

Miami-Dade County and the City of Miami have proposed to contribute $445 million through bonds to a Marlins Stadium at the Orange Bowl site. Often the rationale for using taxpayer dollars to fund such projects is that they bring needed jobs to a community. But will these jobs provide a good living for local workers? What kind of benefits will workers and their communities reap from these projects?

Health insurance is important to the well-being of all workers and their families, and employer based health insurance is fundamental to the U.S. healthcare system. Moreover, uninsurance contradicts American values of democracy and equality of opportunity, as noted by the Institute of Medicine: "disparities in access to and the quality of health care of the kind that prevail between insured and uninsured Americans contravene widely accepted, democratic cultural and political norms of equal consideration and equal opportunity" (Committee on the Consequences of Uninsurance 2003). Local governments with vested interests in the community have a special obligation to provide living wages and benefits to workers. Many now believe that "public money… should be used to maintain or elevate living standards in the community," not to subsidize working poverty (Nissen 1998). Furthermore, insisting on the lowest possible project cost, if it means denying workers health care coverage, is ultimately not in the best interests of tax payers, as this paper will show.

Rates of uninsurance vary by industry, and the construction industry has proven to be one of the worst, due to the high percentage of low-wage workers, part-time workers, and seasonal workers. A recent study by the Research Institute for Social and Economic Policy found that about 42 percent of employees in the construction industry in Florida have no health insurance (Nissen et al. 2006), making it one of the worst industries in the state for healthcare coverage. According to the author's calculations from the Current Population Survey,[13] for Miami-Dade County close to 50 percent of workers in the construction industry lack health insurance, and only about 35.7 percent are covered through their own employer. About 6 percent are covered by Medicaid and 8 percent are covered as a dependent under a family member's employer-based health insurance. This shifting of costs to the state and to other employers is a growing problem in the health care system, as noted in a 2004 report by the Commonwealth Fund, a private foundation which supports health care policy research. That report finds that employers spend an estimated $31 billion per year insuring workers employed elsewhere, and that $8 billion is spent annually on public health insurance for "full-year workers not covered by their own employer"(Collins, Davis and Ho 2004, 12).

[13] Figures on the uninsured in Miami-Dade County are two-year averages calculated from 2003 and 2004 CPS March Supplement data. Because of the small sample size, standard errors are large, and the percentages given can only be taken as approximations. Margins of error are as follows: uninsured construction workers 16.6%, coverage from own employer 13.9%, covered by Medicaid 5.2%, covered as a dependent 6.0%.

## The Cost of Treating Uninsured Workers

The likely cost to the Jackson Health System of providing health care to uninsured workers from two major construction projects supported by County dollars is substantial. Jackson estimates it provided 577,054 patient days of "charity care" in 2005, at a cost of $508 million[14]. Charity care is defined as uncompensated care provided to those living below 200 percent of the federal poverty line. These costs are ultimately footed by state and county taxpayers through the Public Health Trust. Based on these numbers, the approximate rate for charity care at Jackson comes to $880 per patient day.[15] From an estimated 636,771[16] uninsured residents of Miami-Dade County, we calculate a rate of .9 patient days in the Jackson system per uninsured Miami-Dade County resident, or $798 of charity care cost per year at Jackson per Miami-Dade County resident. However, due to the fact that workers in the construction industry use charity care at a higher rate than the general population, 67.9 percent more according to a study of a major safety-net hospital in Nevada (Waddoups 2004), $798 per year per uninsured construction industry worker represents a conservative estimate.

The projected investment in the Marlins Stadium is estimated at $445 million and of this we estimate labor costs to be about $132.5 million[17]. From the average annual construction industry wage of $40,768[18] in Florida, we estimate 3,251 full-time workers.[19] If we assume that an average percentage of project workers have health insurance, about 50 percent for the construction industry in Miami, the cost to Jackson for treating uninsured workers on the project will be nearly $1.3 million for workers only, or $3.9 million for workers and their families[20]. **If none of the workers on the Orange Bowl renovation or Jackson expansion are provided health coverage, the estimated cost in charity care will be over $2.6 million for workers, and over $7.8 million for workers and their families.**

[14] Figures supplied by the budget office at Jackson Memorial Hospital.
[15] This figure is lower than that arrived at by the Institute of Medicine in the study *Hidden Costs, Value Lost: Uninsurance in America* of $923 per capita spending per year on health care for the uninsured.
[16] Number is based on 26.8% uninsured rate in Miami-Dade County (Nissen 2006) and U.S. Census Bureau 2005 population estimate for Miami-Dade County of 2,376,014.
[17] For the estimation method for labor costs and jobs created see the previous report in this series *Who Gets the Jobs?*
[18] Quarterly Census of Employment and Wages 2006.
[19] Since much construction industry work is part-time and of limited duration on any one project, this estimate of the number of workers does not reflect the number of unique workers associated with each project, but rather the number of full-time equivalent workers.
[20] The average family size in Miami-Dade County is 3.18 persons according to the 2006 American Community Survey. For construction workers, the average family size for Miami-Dade County is 3.1 according to the Current Population Survey.

**Table 1**

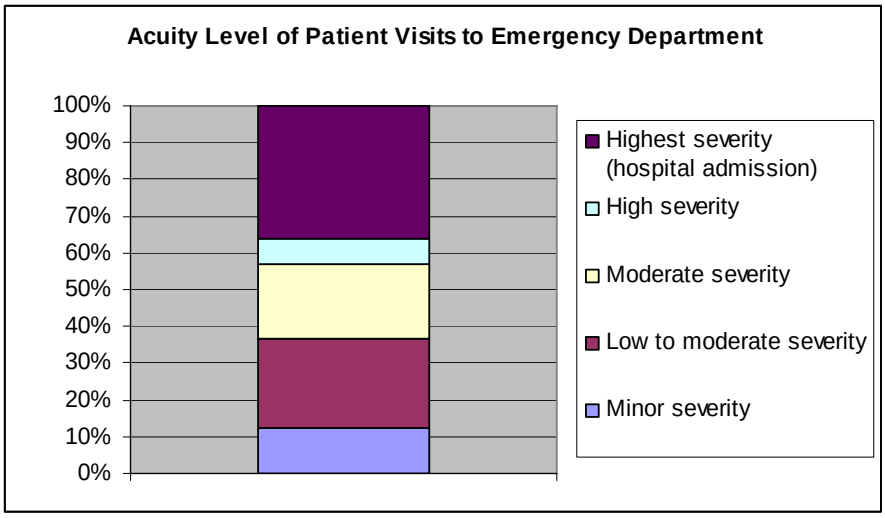
**Estimated Costs of Charity Care to Jackson Health System for Uninsured Workers on the proposed Marlins Stadium at the Orange Bowl site.**

| | **Cost** |
|---|---|
| *If 50 percent of workers have health coverage* | |
| Total Cost, Individual | $1,296,995 |
| Total Cost, Family | $3,890,984 |
| | |
| *If no workers have health coverage* | |
| Total Cost, Individual | $2,593,989 |
| Total Cost, Family | $7,781,968 |

## The Emergency Room: Source of Routine Care?

One reason why the cost of treating the uninsured is so high is because those without health insurance tend to forgo routine care and resort to expensive emergency room treatment when problems arise, or to seek routine care in the emergency room because they do not have access to or are not aware of other routine care options. A study of New York City emergency rooms found that 42 percent of emergency room visits in 1998 were for non-emergency conditions, and that the uninsured and those on Medicaid were much more likely than those with commercial insurance to visit the emergency room for a non-emergency or for a condition that was an emergency but could have been prevented with routine care (Billings et al. 2000). Analysis of Miami-Dade hospital data from the first quarter of 2005 shows that 57.2 percent of emergency room visits were by minor, low, or moderate acuity patients. (Figure 1). In addition, the average acuity level for self-pay, underinsured, or charity care patients was moderate, while the average acuity level for the privately insured was high, indicating that the underinsured are more likely to visit the emergency room for non-emergency conditions. (Table 2).

**Figure 1**




Source: Author's analysis of 2005 AHCA Emergency Department and Hospital Inpatient Data for Miami-Dade facilities.

**Table 2**

| Average Acuity Level of Patient Upon Arrival by Insurance Type | |
|---|---|
| Medicare | 4.44 |
| Commercial | 3.98 |
| Other | 3.53 |
| Medicaid/public | 3.43 |
| Self-pay/uninsured/charity | 3.23 |

Acuity level: 1=minor, 2=low, 3=moderate, 4=high, and 5=highest.
Source: Author's analysis of 2005 AHCA Emergency Department and Hospital Inpatient Data for Miami-Dade facilities.

The high cost of medical care is prohibitive for the uninsured, and more affordable community clinics are often overcrowded and understaffed, making routine care unfeasible. A Kaiser Commission on Medicaid and the Uninsured survey found that over 40 percent of the uninsured do not have a regular source of care and about 20 percent, compared with 3 percent of those who have coverage, use the emergency room as their usual source of care (Kaiser Commission on Medicaid and the Uninsured 2003). Persons with regular access to health care services and affordable prescription medication are better able to receive preventive care and to manage chronic conditions such as diabetes and hypertension, which can become quite serious and costly if left untreated. The American College of Physicians reports that Americans without health insurance were 3.6 times more likely to delay seeking care than the insured, and 66 percent less likely to have had a recent physician visit (American College of Physicians 2000).

The excess of non-emergency patients impedes the ability of emergency rooms to function efficiently, and to serve those truly in need of immediate care. Moreover, the cost of emergency room care is much higher than in primary care settings, even for minor conditions. In Miami-Dade County, the average charge for a visit to the emergency room

for a minor acuity condition was $539.93 in the first quarter of 2005, according to Florida Agency for Health Care Administration data, and $1170.38 for a low-to-moderate acuity condition. (Table 3)

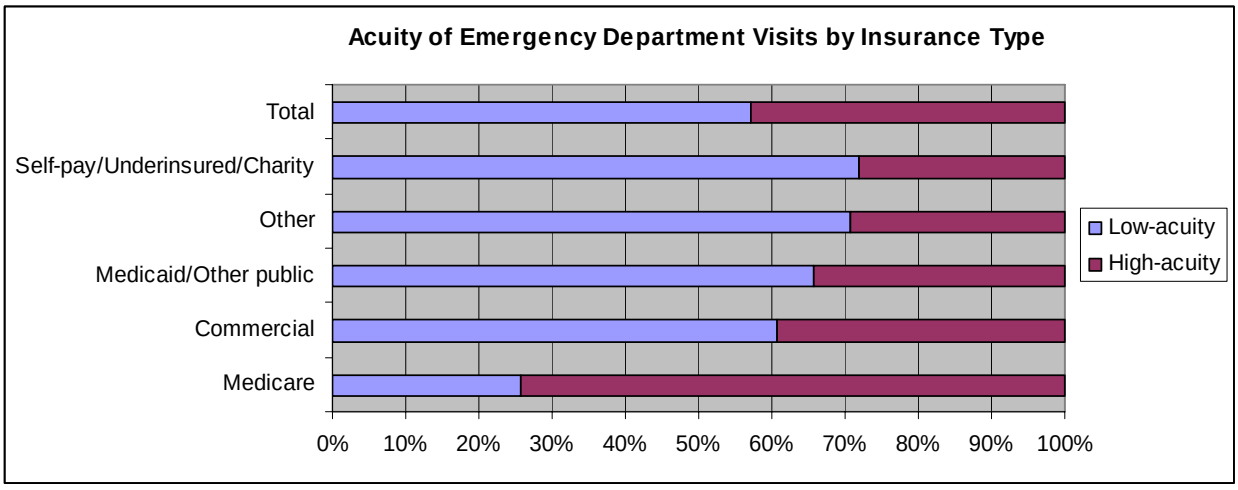
**Table 3**

| Average Charge for Emergency Department Visit by Patient Acuity Level | |
|---|---|
| Minor severity | $539.93 |
| Low to moderate severity | $1,170.38 |
| Moderate severity | $1,870.42 |
| High severity | $3,503.67 |
| Highest severity | $31,541.89 |

Source: Author's analysis of 2005 AHCA Emergency Department and Hospital Inpatient Data for Miami-Dade facilities.

**Almost 72 percent of emergency room visits by the uninsured were for minor, low or moderate acuity conditions**, compared with 60.6 percent of visits by the commercially insured, (Figure 2) a difference of over $17 million per year in charges that could be avoided if the uninsured had reliable access to care for non-emergency conditions.[21] Medicare, the plan that most resembles universal coverage (although it is not directly comparable because of age restrictions) appears to be the best at keeping away unnecessary visits to the emergency room – only 25.7 percent of visits by Medicare recipients were for minor, low, or moderate acuity conditions, a yearly difference of over $70 million compared with the uninsured.

**Figure 2**




[21] The mean charge for a low-acuity visit to the emergency room for a self-pay/uninsured/charity patient was $1369.42 in the first quarter of 2005. If the rate of low-acuity visits by the uninsured matched that of the commercially insured the total spending on low-acuity visits by the uninsured would be $23,325,114.49, a difference of $4,312,474.51 per quarter, or $17,249,898.03 per year. For a rate comparable to that of Medicare patients, spending would be $9,892,004, a difference of $17,745,585 per quarter, or $70,982,340 per year.

**Table 4**

**Acuity of Emergency Department Visits by Insurance Type**

| | *Low-acuity* | *High-acuity* |
|---|---|---|
| Medicare | **25.7%** | 74.3% |
| Commercial | 60.6% | 39.4% |
| Medicaid/Other public | 65.8% | 34.2% |
| Other | 70.7% | 29.3% |
| Self-pay/Underinsured/Charity | **71.8%** | 28.2% |
| Total | 57.2% | 42.8% |

Source: Author's analysis of 2005 AHCA Emergency Department and Hospital Inpatient Data for Miami-Dade facilities.

## Negative consequences for families and society

Lack of insurance leads to reduced economic resources for a family and society. **The uninsured have a 25 percent higher mortality rate** according to the Institute of Medicine, which estimates that the value of "health capital" lost each year due to decreased life spans of the uninsured with chronic diseases amounts to between $65 and $130 billion (Committee on the Consequences of Uninsurance 2003). The Committee performed a cost-benefit analysis of "the economic value of the healthier and longer life that an uninsured child or adult forgoes because he or she lacks health insurance" (Committee 2003, 3) versus the cost of additional years of health insurance, and found that **the benefits to society of having more healthy individuals did indeed outweigh the costs of providing health insurance, both public and private.**

Lack of health insurance places strains on families in a number of ways. Out-of-pocket spending on health care services can consume a substantial portion of a low-income family's resources, leading to financial insecurity and stress. Thirty six percent of the uninsured report having problems paying a medical bill, compared with 16 percent of those with coverage, and 23 percent have changed their way of life significantly to pay medical bills, compared with 9 percent of the insured (Kaiser 2003). The Kaiser Commission on Medicaid and the Uninsured notes that "Insurance helps reduce the financial uncertainty associated with health care, as illness and health care needs are not always predictable and care can be very expensive. Therefore, those lacking coverage are more financially vulnerable to the high cost of care, are exposed to higher out-of-pocket costs compared to the insured, and are more often burdened by medical bills" (Kaiser 2006, 1).

Also, the uninsured are less likely to receive preventive screenings; left untreated or undetected, serious medical conditions can develop which present a huge burden to a family when one or more members must leave a paying job to care for the sick member. The uninsured are 50 percent more likely to be hospitalized for a preventable condition, and "up to two and a half times more likely to be diagnosed in the late stages of cancer than those with health insurance" (Kaiser 2003, 7).

Finally, workers who do not have access to health insurance for their families risk negatively impacting the growth and development of their children. Poor health leads to excesses of missed school days and diminished academic performance, which decreases later earning potential and quality of life.

A health crisis intensifies the variety of hardships faced by the uninsured, and can be enough to push a family that has been squeezing by with minimal health care over the edge. Anibal Mendoza, his wife and their four children have been U.S. residents for six years. They own their home in North Miami-Dade, which Anibal bought with workers' compensation money he received after suffering an injury on the job at a construction site. Since they arrived in the U.S. he has been looking for health insurance, but because he has diabetes, he is either denied coverage or offered only extremely expensive coverage. After his injury he could no longer find construction work, and instead finished his studies in theology and became pastor of a small evangelical church. He teaches religion classes and ministers to alcoholics, domestic abusers, and youth gangs, but has no steady salary.

Not yet forty years old, Anibal's health began to worsen eight months ago, and was interfering with his work. He went to a community clinic to see the doctor, but was prescribed medicines that cost almost $400 per month. He tried to have medicine sent from Nicaragua, but felt that taking medicine without a doctor's care was unwise. Unable to continue buying his prescribed medicine, he suffered a heart attack in March and spent three weeks at Jackson Memorial Hospital. He praises the care he received, but is worried about his bill – over $100,000. As a pastor, he says, he must be an upstanding member of the community, and his inability to pay his bills weighs on his conscience. He has been repeatedly told he is ineligible for Medicaid because of the value of his house. He could apply for disability, he says, but he is not willing to lie by claiming that he is completely unable to work. "A person like me has to be right with society because this is what I teach, but with the circumstances how do you do it? If I had had medical insurance, I wouldn't have had all these problems. It's not that I didn't want it, but I couldn't get it. I would have to dedicate two weeks of work a month to pay for medical insurance just for me."

After his stay in the hospital, Anibal received a Public Health Trust card that allows him to buy his medicines at a lower cost, but it expires in August and he is not sure if he will be able to renew it. He receives bills from many different doctors, but if he offers to pay each one $50 per month, he would spend at least $500. The difficulty of juggling bills and the sacrificing causes more stress for the family, and Anibal is worried about his family's health as well – his wife has a family history of breast cancer, and his children are growing up without regular check-ups, but without employer based health insurance and being ineligible for public insurance, he does not know where to turn for affordable health care.

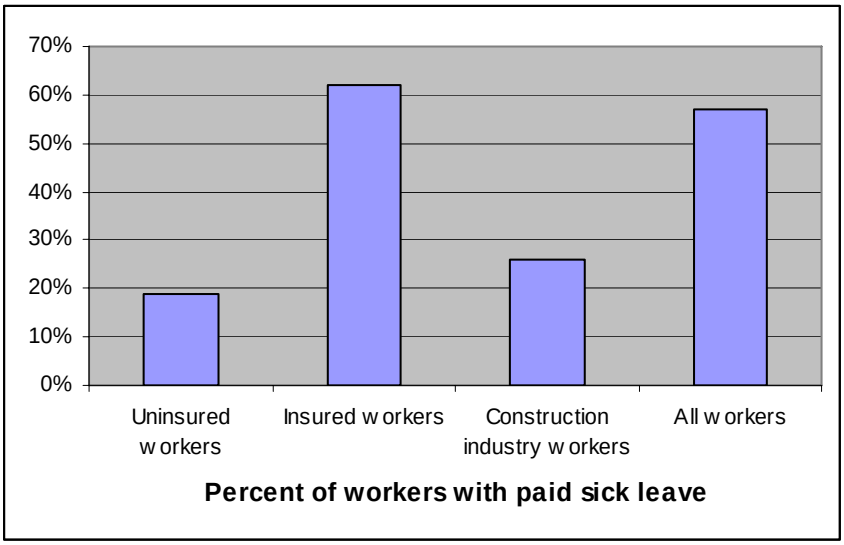
## Decreased productivity on the job

It is now widely understood that uninsurance causes significant economic losses due to decreased productivity of unhealthy employees. Lack of health insurance is related to reduced access to health care and poorer health, and unhealthy workers have lower productivity. The American College of Physicians (2000) reports that a review of 1987 National Medical Expenditure Survey data found that "Uninsured individuals had significantly lower levels of self-reported health status than did the insured. These results held even when adjustments were made for the effects of age, sex, race, income, attitude toward the value of medical care and health insurance, and medical conditions" (9). The uninsured are less likely to receive regular screenings for diseases such as colon and breast cancer, and hence are more likely to be diagnosed in the late stages of these diseases and to die from them. Such disparities in health care are increasingly an issue of national concern and present a strong moral argument for universal health coverage.

The disparity in health status between the insured and uninsured also presents an economic argument about the value to be gained by offering health insurance to employees. Researchers from the Commonwealth Fund found that **the sicker the worker, the more likely the worker was to report reduced productivity**, defined as inability to concentrate at work due to health problems. The report argues that "ensuring that all workers have health insurance coverage would also improve health and productivity by increasing the use of preventive care and helping to ensure early treatment of acute illnesses as well as ongoing management of chronic conditions"(Davis et al. 2005).

A variety of evidence also points to the vicious cycle comprising low-wage jobs with no benefits, poor health, and low productivity. Data from the National Health Insurance Survey indicate that uninsured workers may not miss more days of work due to illness or injury than insured workers. But the uninsured are much less likely to have paid sick leave. Only 19 percent of the uninsured have paid sick leave, versus 62 percent of the insured. Construction workers are also less likely than workers in other industries to have paid sick leave. Only 26 percent of construction industry workers have paid sick leave, compared with 57 percent of the general population (Figure 3).

**Figure 3**




Source: National Health Interview Survey, 2003

Jobs without paid sick leave are typically low-wage jobs, as are some construction industry jobs, and low-wage workers are reluctant to miss work even if sick. Workers with lower hourly wages of $10 to $15 dollars per hour are more likely to have low-productivity days than workers with higher hourly wages of above $15 dollars per hour, even after adjusting for health status, sick leave benefits, and other factors (Davis et al. 2005, 3). To improve the health of workers however, simply offering coverage is not enough. Many low-wage workers, especially part-time workers, are offered employer based coverage but at extremely high rates that are simply unaffordable. Low-wage workers squeezed by health must often forgo certain treatments or medications, at the expense of their health, as Anibal Mendez's story above illustrates.

## The Cost of Covering Uninsured Workers

Providing workers with health insurance would increase accessibility to routine care, reducing emergency room costs and more importantly increasing health and life for workers and their families. Two barriers to extending coverage to all workers on the Marlins Stadium at the Orange Bowl site are logistics and cost. One of the difficulties with insuring the construction workforce is the fluidity and the cyclical nature of the jobs. Workers can be employed by several different construction firms in a year working on different projects, which makes obtaining continuous employer-based health coverage difficult if not impossible. The seasonal and cyclical nature of construction work often means spells of unemployment. Even if a worker managed to stay employed with a firm long enough to qualify for coverage, if the worker became sick or was injured while on one employer's health plan, the worker might not be eligible for coverage from another employer. However collective bargaining associations such as unions have largely solved

this problem by offering continuous health coverage to members according to trade, while the employer pays the union for the cost of benefits for each worker. Members must have a certain amount of work hours per year, and then are eligible for continuous coverage even if unemployed for a period of time. The larger risk-pool lowers risk and administrative costs, making the plans affordable (Waddoups 2004).

What would be the cost of insuring all workers? Since the uninsured do not receive adequate care, current spending is artificially low and extending health insurance coverage to all would likely result in some cost increase. How much costs would increase is a matter of debate and depends on many factors such as whether the uninsured are provided with public or private health insurance, and how much more care they will consume. Health care usage is impacted by demographics, lifestyle, and personal history, and is therefore difficult to quantify. But even though decreased emergency room spending and increased efficiency in the system as well as improved worker productivity would offset cost increases, it is fairly certain that requiring that uninsured workers be enrolled in a standard commercial health insurance plan would add significant costs to a project.

However using a best value contracting method[22] that awards points to bidders that provide health insurance to their workers would ensure that the county is getting a good deal. The best value contracting method saves money by ensuring the selection of a contractor who has a proven record of producing quality work on time and on budget. Many such contractors already offer health insurance to their workers because they understand the positive effect this has on the turnover of their workforce.[23] With the current shortage of workers, a contractor who does not offer health insurance is unlikely to retain the best workers and therefore will have more difficulty producing the highest quality product. Using a performance based method of selecting contractors and awarding points for provision of health care coverage would meet the county's goals of high quality, reasonable cost and good jobs for local workers.

## Conclusion

Health insurance coverage is extremely important for promoting the health of our community and workers. Those with health insurance have more access to care, are more likely to get care, and have longer life spans. **Those without health insurance are less likely to receive routine care, more likely to seek non-urgent care in the emergency room, and often face heavy financial burdens when serious health problems arise.** The disparities in care between the insured and the uninsured are unacceptable for a society that professes equality of opportunity.

The high cost of medical care places an enormous burden on families without health insurance. Many of the uninsured with chronic conditions such as diabetes are unable to

[22] See the companion report by Marcos Feldman, *Best value in publicly funded projects: Contractor selection in two county GOB projects*, July 2006.
[23] Boodhoo, Niala. 2006. "See jobs grow; See care shrink," The Miami Herald, June 14, 2006.

afford needed medicine and supplies, and must make choices between buying medication and other life necessities. Even when a worker has health insurance from an employer, the cost of buying coverage for dependents is often prohibitively high, especially for low-wage workers. Public programs, including Medicaid, do not cover all of those in need, and community clinics that cannot provide low-cost prescription medication are not the whole solution.

For this major investment of public funds, we estimated the cost to the Jackson system that would be accrued by uninsured workers. Those costs approach $8 million if none of the workers and their families have health insurance, and $2.6 million if only half of the workers have health insurance, the average rate in Miami-Dade County. Providing workers with health insurance would eliminate these costs and result in additional savings through improved efficiency in the health care system as well as increased worker productivity. It would also provide enormous benefit for workers and their families in terms of increased life, health, and financial security.

The logistical difficulty of providing continuous, affordable health insurance for workers is a significant barrier in the non-union sector, and the additional cost of requiring all uninsured workers to be enrolled in standard commercial health insurance would likely increase project costs substantially. However if the county used a best value contracting method and awarded points to companies that provide health coverage to workers, the county would get a higher quality of work at a lower cost and the community would benefit from a healthy and productive workforce.

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# Opportunities for all:

## The benefits of using minority contractors in the construction of the Marlins Stadium at the Orange Bowl site

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# Opportunities for All: The benefits of using minority contractors in the construction of the Marlins Stadium at the Orange Bowl site

## Executive Summary

Building a new stadium for the Florida Marlins on the Orange Bowl site is a large, visible, project with the potential to have a large economic impact on the area. But it is imperative that all sections of our community have an equal opportunity to participate in this project and to receive the benefits of this investment. That the nature of the construction industry tends towards exclusionary networks and unequal hiring practices is all the more incentive for local governments to make sure that minority businesses are getting their fair share. By using minority contractors on the new stadium Miami-Dade County and the City of Miami show a commitment to a diverse workforce and to helping needy communities to develop and prosper.

There are several good reasons for encouraging the awarding of contracts from the Marlins Stadium to minority contractors and sub-contractors:

- Minorities have traditionally faced discrimination in the construction industry, and therefore have had difficulty establishing a strong foothold in the industry. But the construction industry is an important source of good jobs in the local economy, and therefore the under representation of African Americans in the industry is an injustice. It is the County's duty to ensure that taxpayer dollars are not used in a way that directly or indirectly causes discrimination.

- Minority firms also face obstacles due to the fact that many are small businesses. Issues with securing bonding and financing, and receiving timely payment for work completed are problems that are a special burden to small firms. The County currently has several programs that address these problems but needs to continue to work to find creative solutions.

- Minority-owned firms tend to hire a higher percentage of minority employees and employees from disadvantaged areas than do non-minority owned firms. Thus using minority contractors provides an important source of employment and workforce training for minority and disadvantaged communities.

Hiring minority contractors shows the local government's commitment to economic development and workforce development by promoting the creation of decent jobs in minority neighborhoods. These jobs circulate tax dollars through local neighborhoods and provide a sense of pride in being a part of public improvements. Encouraging the participation of small minority contractors on County projects will provide needed opportunities for growth of the minority business sector and increase their contribution to their communities.

## Opportunities for All: The benefits of using minority contractors in the construction of the Marlins Stadium at the Orange Bowl site

Miami-Dade County and the City of Miami have proposed to spend $445 million on constructing a new stadium for the Florida Marlins. The project will have a high profile in the community because of the importance of the site and the thousands of jobs the project will provide. But it is important to ask *who* will get the jobs created by such a large public works project, and whether the benefits of the project will go to the *communities that need them the most*.

How many jobs will be created? The total proposed investment of County and City money is $445 million, out of which $132.6 million is estimated to be labor costs. This works out to 3,253 full-time equivalent jobs. It is important that this project employs a diverse workforce, with representatives from all local communities, and in particular it is important that disadvantaged communities benefit from this project. This serves an important public purpose, and indeed public works projects are often used to provide employment and a boost to the local economy. The creation of good jobs supports the growth of healthy communities, which is vitally in the public interest.

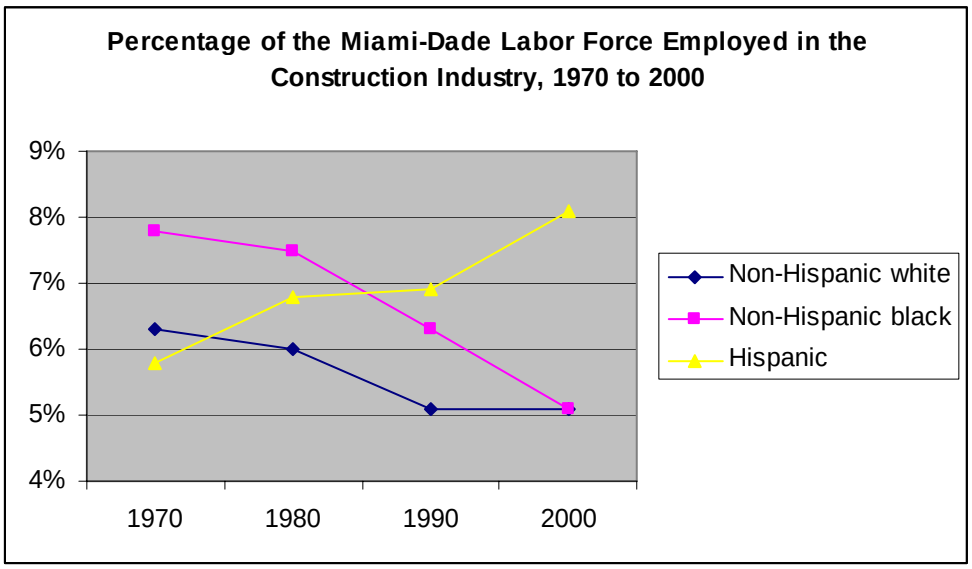
*Why award construction contracts to minority contractors?*

There are several good reasons for encouraging the awarding of contracts from the Marlins Stadium to minority contractors and sub-contractors. First of all, minorities have traditionally faced discrimination in the construction industry, and therefore have had difficulty establishing a strong foothold in the industry. But it is the County's duty to ensure that taxpayer dollars are not used in a way that directly or indirectly causes discrimination. Secondly, minority firms often face additional obstacles due to the fact that most are small businesses. Encouraging the participation of small minority contractors on public projects will provide needed opportunities for growth of the minority business sector and increase their contribution to their communities. Thirdly, minority-owned firms tend to hire a higher percentage of minority employees and employees from disadvantaged areas than do non-minority owned firms. Thus using minority contractors provides an important source of employment and workforce training for minority and disadvantaged communities.

## Remedying discrimination in the construction industry

The Marlins Stadium is a large, visible public project and it is imperative that all sectors of the community feel they are receiving a share of the benefits. In particular, this project potentially represents important opportunities for employment for local residents. The unemployment rate in Miami-Dade is higher than statewide or nationally, and for disadvantaged communities is even higher. The overall unemployment rate in Miami-Dade was 5.7 percent in 2006, and for African Americans, South Florida's most disadvantaged community, the rate was 10.4 percent.[24] Often, high unemployment in minority communities has been blamed on lack of education or skills. However, most construction industry jobs do not require a high degree of education, and skills can be gained through apprenticeship programs. With the shift in the economy towards technology based jobs over the past several decades and the decreasing number of low-skill jobs available, one would expect to see the percentage of disadvantaged community members in the construction industry increase. Construction has not always been an industry where diversity was welcomed, however. Since 1970 the percentage of African Americans employed in the construction industry in Miami-Dade has actually decreased. In 1970 7.8 percent of African Americans in Miami-Dade were employed in construction, but in 2000 only 5.1 percent were.

**Figure 1**




Source: U.S. Decennial Census (IPUMS-USA)

Likewise, the percentage of construction industry employees who are African American has also decreased slightly, especially since 1990, after climbing in the 1970s and 1980s. African Americans, who made up 18.2 percent of the population 16 to 64 years old in Miami-Dade County in 2000, remain underrepresented in the construction industry.

[24] U.S. Bureau of the Census. 2006. American Community Survey.

**Table 1**

**Miami-Dade Construction Industry Employment by Race and Ethnicity, 1970 to 2000**

| | 1970 | 1980 | 1990 | 2000 |
|---|---|---|---|---|
| Non-Hispanic white | 55.0% | 40.9% | 24.4% | 15.7% |
| **Non-Hispanic black** | **13.7%** | **18.5%** | **17.6%** | **13.0%** |
| Hispanic | 31.4% | 40.2% | 57.5% | 69.3% |
| Total | 100% | 100% | 100% | 98%* |

Source: U.S. Decennial Census (IPUMS-USA)

* 2000 total does not sum to 100 percent because of the increased presence of other minority groups such as Asian and multi-racial.

In the construction industry, sub-contracts and job opportunities are found through personal contacts and social networks, which tends to exclude outsiders, especially minorities. General contractors prefer to hire sub-contractors that they know or worked with before, and it is difficult to break into this circle. This informal structure, combined with the reality of racism such as the "feeling that blacks do not belong in the industry" (Feagin and Imani 1994) makes advancement by blacks in the construction industry difficult. A 1994 study of black contractors noted that blacks face discrimination in many areas of the business: difficulty in getting work from white general contractors, receiving project notices too late to prepare a bid, racism on the job-site, exclusion from unions and training programs, and denial of bonding, loans, or credit from suppliers (Feagin and Imani 1994).

This problem is certainly not unique to Miami-Dade County. The decreasing employment status of blacks in construction was the subject of a study that found that despite a 1980's boom in the construction industry in New York City the employment status of blacks in the construction industry in New York City decreased (Bates and Howell 1998). Although many blacks attempted to pursue self-employment by starting their own small construction companies, black owned construction businesses in New York City during the 1980's had higher failure rates than white-owned businesses, despite the fact that black owners had higher education levels and more financial capital than white owners. In New York City in the 1980's, education level could not explain the difficulties blacks experienced in the construction industry, and instead the authors attribute the problem to "old-boy networks, where work is parceled out to in-group members--few of whom are minorities" (Bates and Howell 1998).

**In the construction industry, sub-contracts and job opportunities are found through personal contacts and social networks, which tends to exclude outsiders, especially minorities.**

Clearly there is a need to explore diversity issues in construction and ways that the County can address them so that the benefits of projects such as the Marlins Stadium are both fairly distributed and go to the communities that need them the most. During the 1980's and 90's, the County had affirmative action programs which set aside certain contracts for bidding among minority firms or enforced participation goals for minority subcontracting firms. The first program was enacted by a 1981 resolution that declared

that "the favorable economic status and future growth prospects of Dade County are integrally linked to the economic and social conditions of the County's Black communities, residents and businesses."[25] However the program was beset with problems of fraud, and it angered local white contractors, who repeatedly challenged the various set aside programs throughout the 1980s and 90s. Eventually in 1996 all set asides were halted by a federal judge who ruled them unconstitutional on the basis that "the evidence does not constitute an adequate showing of discrimination."[26]

The County continued to look for ways to support minority contractors and in 1997 created the race and gender neutral Community Small Business Enterprise program. CSBE firms are small, local construction firms with not more than $5 million annually in receipts for general building contractors and $2.5 million for specialty trade contractors.[27] The County established the objective that "not less than 10 percent of the County's total annual expenditures for construction are expended with CSBEs"[28] and also allowed projects of less than $3 million to be set aside for CSBE firms. In addition, in 1998 the commission required that all firms with annual gross revenues in excess of $5,000,000 must have an affirmative action plan on file with the County prior to any contract award, as well as a "written procurement policy which sets forth the procedures utilized to assure it does not discriminate against minority and women-owned businesses in its own procurement of goods, supplies & services."[29]

Despite the efforts of the CSBE program however, the number of black construction firms has decreased since the end of the set-aside program in 1996. By 1997, just after the program was declared unconstitutional, black owned firms accounted for 3.6 percent of all firms. However 5 years later, in 2002, the number of black-owned construction firms in Miami-Dade County had actually decreased, while the total number of firms continued to increase.

**Table 5**

| **Miami-Dade Construction Firms with Paid Employees** | | | | |
|---|---|---|---|---|
| | 1982 | 1992 | 1997 | 2002 |
| All firms | 3544 | 3911 | 3,684 | 3,840 |
| Black owned firms | 30 | 76 | **131** | **125** |
| Hispanic owned firms | 230 | 950 | 2,228 | 3,468 |

Source: U.S. Economic Census and Survey of Minority Owned Business Enterprise

[25] Metropolitan Dade County, Florida. 1981. Resolution R-1672-81.

[26] Pugh, Tony, and David Lyons. 1996. Minority contractors suffer blow judge: Breaks offered by Dade illegal. *Miami Herald*, September 20, 1A.

[27] CSBE firms must: 1) Be located and performing a commercially useful function in Miami-Dade County; 2) Not exceed 3 year average gross receipts of $5 million for general building (NAICS 233/SIC 15), $3 million for heavy construction contractors (NAICS 234/SIC 16), and $2.5 million for specialty trade contractors (NAICS 235,SIC 17); 3) Be qualified by an owner with at least 10% of the firm's issued stock; and 4) Be owned by person(s) whose combined Personal Net Worth does not exceed $750,000

[28] Miami-Dade County Code of Ordinances. 2006. Community Small Business Enterprise Program, Sec. 10-33.02.

[29] Miami-Dade County, Florida. 1998. Ordinance 98-31.

The decrease in the number of black-owned construction firms in Miami-Dade is a cause for concern, as it indicates there are still obstacles that black firms face in this industry that others do not face. As the owner of a variety of large and small construction projects, the County has a duty to ensure that African American contractors and workers receive their fair share of County business dollars, and to ensure that public dollars are not being used in a way that discriminates.[30]

## Helping minority contractors overcome special obstacles

Though its minority preference programs were struck down by the courts in 1996, Miami-Dade County continues to provide support to businesses that are struggling to establish themselves in the local construction industry through the race and gender neutral Community Small Business Enterprise program. Programs and services include mentoring of small contractors by larger contractors, management training classes, financial and bonding assistance and expedited payment of invoices. These services are designed to encourage small contractors to bid on County projects and to provide opportunities for these businesses to grow and prosper in the local economy. The Marlins Stadium project will provide opportunities for many types and sizes of contractors, and as much as possible small minority contractors should be given the chance to participate on the projects which will help their businesses to grow and diversify the construction industry.

A series of informal interviews was conducted with local small minority contractors to see what obstacles these firms face. The most common responses had to do with financing and bonding. Cash flow is particularly problematic for small contractors who do not have the financial resources to cover payroll and suppliers without being paid promptly for work completed. One contractor noted,

[30] Data on the participation rates of minorities in County construction contracts are not available since the preference program was struck down in 1996. Such information is available for Broward County however, which conducted a procurement disparity study in 2001 to provide a sound evidentiary basis for their race conscious program in case of a court challenge. The study found that all categories of minority owned businesses, including African American, Hispanic, Asian, Native American and non-minority women were underutilized as both prime contractors and sub-contractors in County construction contracts and that black owned businesses were underutilized in private contracting. The findings also indicated that minority owned firms "earn significantly less revenue than do firms owned by non-minority males" (MGT of America, Inc. 2001. Final report: Broward County small disadvantaged business enterprise (SDBE) disparity study. Ft. Lauderdale. 7-21) even after adjusting for capacity. The authors conclude that "the level of [Minority/Women Business Enterprise] participation that has been achieved would not have been possible without the County's [Small and Disadvantaged Business Enterprise] program that counters the business practices perceived to be discriminatory by minority and women business owners in the County's relevant market area" and that "the statistical disparities found in the study and the supporting anecdotal testimony still compel an inference of discrimination sufficient to support the continuation of this program" (7-30). The practice of setting SDBE participation goals on contracts was found to increase utilization of these firms.

> "Businesses fail because they don't get paid in a timely manner. It used to be suppliers gave you 90 days, now you're lucky to get 30. And taxes have to be paid immediately."

Another stated,

> "Subs [contractors] are the building blocks of the industry. The GC [general contractor] is paid in 30 to 45 days, but doesn't pay the sub. They should hold the GC responsible for paying the subs."

Bonding requirements also cause problems for small contractors. The County requires that a contractor be bonded for the amount of the contract they are bidding on in order to ensure completion of the project. Bonding is a complicated process however, and many small minority contractors find difficulties in getting bonding.

> "It is often a catch-22 situation. You have to have a proven track record with "big" projects to get a bond & you have to get a bond to get a large project. It's difficult for small company to get started."

But even companies who are bonded face problems:

> "If my bonding capacity is 1 million and I'm working on an $800,000 project there's only $200,000 left and I have no margin to bid on the next project. I have to let guys go."

One interviewee mentioned a practice that he found helpful – when the general contractor covers the bond for the whole project, including all the subs:

> "Big GC's doing a sub bond for all subs is a big help. We can show an increase in sales for the next bonding application."

Some felt that bonding requirements should be waved for certain smaller projects. Several also mentioned that they found the classes offered by the DBD to help contractors learn about bonding useful.

Another activity of the DBD that supports small contractors is to divide large projects into parts that are more manageable for small contractors.

> "Now they're reaching out to smaller companies—it used to be only large companies got jobs. Now they slice them to smaller sizes. For example, instead of doing 5 traffic signals at a time, now it's 1 at a time. The City of Miami is not doing this."

In fact, no one interviewed had done any work with the City of Miami, even though the City has established procurement goals for black, Hispanic, and woman owned businesses. One commented that "there are no assistance programs like the County."

All small contractors face heavy competition, and several interviewed felt there was too much competition from larger contractors, even for CSBE set-aside contracts—that some CSBE certified contractors are in fact fairly large.

With stiff competition, trouble meeting bonding and financing requirements, and dependence on timely payment of invoices, small contractors face significant obstacles to establishing themselves in the industry. Small minority contractors face these issues plus the obstacle of being an outsider, of not sharing the personal connections and social networks through which work is distributed in the industry.

## Ensuring the benefits of public works for disadvantaged communities

Small minority contractors make an important contribution to our community: they provide jobs for many minority residents and often low-income residents as well, and they circulate money through these communities. The training and skills building that construction work provides can be the path to a well paying job and a more stable future for persons who because of a disadvantaged background or the lack of a decent education do not have many other employment options. A healthy community must have a variety of employment options for persons at all levels so that each person can contribute to the community instead of becoming a burden to it. The employment opportunities that the Marlins Stadium projects will bring must be available to those who need them the most.

**Small minority contractors provide jobs and skills training for minorities in the community. Among the contractors interviewed, 89 percent of regular employees were also minorities.**

The interviews with local small minority contractors revealed that most are conscious of the role their businesses play in the community. Among the contractors interviewed, 89 percent of regular employees were also minorities. Several even cooperate with social service agencies to employ the hard-to-hire, such as those coming out of the prison system. While white-owned companies typically reject the role of social service provider, arguing that it is the government's job to take care of people, minority contractors are often more willing to shoulder extra cost to help the community.

One contractor who hires workers from low-income areas pays for his employees to go through apprentice programs, even though sometimes the workers will leave the company after finishing the program to work for companies that pay more.

> "We hire low-income. We pay for electrical apprentice programs. Some workers finish school then sell their services to the highest bidder. But I don't have the volume of large companies to pay more."

Several interviewed felt that for the extra costs of providing social benefits they are entitled to more help from local government, and said that the former preference program should be reinstated and that the present CSBE program was not working well for minority contractors. One talked of loss of business since the end of the set-aside program in 1996, which had caused him to drastically scale back his work force. He tells of seeing the arrest of a former employee on television, and says "As long as he was working for me, he was no problem." He argues that spending more on contractors who provide jobs for the less fortunate is better than spending on social services or the prison system.

Employing the disadvantaged can also be a morale booster for the community. Working on public improvement projects was cited by many contractors as a source of pride. They enjoyed seeing how the results of their work improved the community and were proud of the fact that others could see as well.

> "We go out into different neighborhoods and find younger people willing to pass the criteria and be drug free. We give workforce experience. People feel they can be involved in their tax dollars at work. There's a sense of pride that they're out there and others can see that this is what your taxes do – parks, homes, airports… it's not for nothing."

By using minority contractors, the County is ensuring that dollars from public works projects are being distributed to minority communities and to disadvantaged communities that sorely need these dollars. In addition to dollars, public works projects provide critical job training and a path to steady employment in a growing industry to residents who are at a disadvantage in the job market. Finally, the experience of working on projects for the improvement of the community is a source of pride for residents who feel that they are a part of their tax dollars at work.

**Conclusion**

Hiring minority contractors shows the local government's commitment to economic development and workforce development by promoting the creation of decent jobs in minority neighborhoods. These jobs circulate tax dollars through local neighborhoods and provide a sense of pride in being a part of public improvements. The Marlins Stadium project is a large, visible project that has the potential for great economic impact in the area. But it is imperative that all parts of our community receive the benefits of this project and feel they have an equal opportunity to participate. That the nature of the construction industry tends towards exclusionary networks and unequal hiring practices is all the more incentive for local governments to make sure that minority businesses are getting their fair share.

The County should also continue to work to find creative solutions to the problems faced by small contractors trying to establish themselves in the industry. The words of small minority contractors suggest there is still need for improvement in payment of invoices

and bonding requirements. The more progress that can be made in growing small firms to become important contributors to the local economy, the more we increase the power of minority neighborhoods to enhance their quality of life. Despite struggling with financing, bonding, payment and strong competition, most contractors interviewed said they had had good experiences in working on County contracts, and that they see the value in working on public projects. However the seeming lack of connection of these minority contractors with the City of Miami suggests that much more outreach is needed by the City to ensure that minority contractors are getting the chance to work on City projects as well.

By using minority contractors on building the Marlins Stadium at the Orange Bowl site, Miami-Dade County and the City of Miami show a commitment to a diverse workforce and to helping needy communities to develop and prosper.

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# Workforce Training and the Marlins Stadium

## Advantages or disadvantages of using registered apprentices in construction of a Marlins Stadium

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# Workforce Training and the Marlins Stadium: Advantages or Disadvantages of Using Registered Apprentices in construction of a Marlins Stadium

## Executive Summary

There has been a great deal of publicity concerning the potential construction of a stadium for the Florida Marlins at the site of the Orange Bowl. Media reports indicate that $445 million in public money raised through bond offerings by the city of Miami and Miami-Dade County will be put into this project.

This report analyzes the advantages and disadvantages to the city and the county in using registered apprenticeship programs for a portion of the work on this project. The purpose is to see whether apprentice usage is a desirable practice for the public.

This study establishes the following:

(1) There is a skilled labor shortage in the construction industry, and this shortage is even more acute in south Florida than it is nationwide. The shortage is not a lack of bodies, but a lack of trained and skilled people.

(2) This shortage hurts the industry and also harms end-users or customers (through delays, re-work of work originally done wrongly, an unstable workforce, possibly inferior final product, etc.), to such a degree that the Construction Users Roundtable recommends that users insist on training as part of the procurement process.

(3) Apprenticeships in general are the most successful job training programs in the United States today. This is widely acknowledged, from the federal government down.

(4) Although the evidence is not definitive, the studies that have been done indicate that use of apprentices on construction projects is efficient, and that there is a positive return-on-investment (ROI) for employers as a group and for end users in their use. Scientific studies on this question are expensive and hard to design, but the few studies we have are positive. A Canadian study found that on average, for each $1 invested in an apprentice, the employer derived a benefit of $1.38.

This positive return does not mean that individual employers will adopt apprenticeship, however, unless they belong to a contractor's association bargaining the program with a labor organization that guarantees a supply of skilled workers for the apprenticeship investment, or are required to by the end user. Absent one or both of these conditions, most employers avoid apprenticeship for fear that their investment will be lost through other employers "stealing" their trained employee.

(5) Use of apprentices is a good way to ensure that the work goes to local employees, since apprentice programs are by their very nature local.

(6) Apprenticeships bring higher wages to the trained employee than does any alternative form of training, thus maximizing incomes in the local community. A December 2004 study for the state of Florida found that apprenticeship outperformed public school system or community training significantly, raising apprentices' wages upon completion over $10,000 in all but one of the trades that were studied.

(7) Use of apprentices can be a tool for diversity in the workforce, thus granting a steady and well-paying career to disadvantaged communities, if the end user requires or encourages through incentives that a number of the apprentices come from disadvantaged and/or discriminated-against populations.

(8) The evidence is strong that construction workers trained through an apprenticeship program work safer, and thus apprenticeships further a public interest in safe work.

(9) Construction apprenticeship programs are highly successful forms of workforce development. They exhibit superior outcomes to most forms of training, and they are extremely cost-efficient compared to most forms of training. A Florida study found that between 81% and 90% of apprentices were employed upon completion, an astoundingly successful placement rate for a job training program. The federal government estimates that it receives $50 back for every $1 it spends on apprenticeship programs.

(10) Even among construction apprenticeship programs that are registered with the government, there are differences in quality, and the county might want to use a "best value" form of contracting that rewards the ones with better outcomes (higher graduation rates, higher "value added" for the apprentice through higher wages), by giving them more points in a point-based bidding system.

(11) In general, the evidence leads to the conclusion that the county would be wise to either require or encourage by means of incentives in the procurement process the use of apprentices in the construction of a Marlins Stadium.

# Workforce Training and the Marlins Stadium: Advantages or Disadvantages of Using Registered Apprentices in construction of a Marlins Stadium

## Introduction

There has been a great deal of publicity concerning the potential construction of a stadium for the Florida Marlins at the site of the Orange Bowl. As of October 2007, news accounts indicated that plans were for a Marlins Stadium at the Orange Bowl site, with the city and the county together raising $445 million in up-front costs through bonds for a $490 million stadium**.** Initial plans had the Marlins putting up $45 million up-front, and repaying a portion ($162 million) of the public money over the coming decades in rent, although subsequent reports indicated that the team had later lowered the amount it was willing to commit up front to something less than $45 million.

Wherever the negotiations may lead, it appears likely that the public's up-front contribution will be at least $445 million, because added road and traffic modifications and other costs will add considerably to the final overall cost. Therefore, we use the $445 million public up-front cost as a conservative estimate of what the public's initial contribution to construction costs is likely to be.

Raising and spending almost half a billion dollars is clearly a major undertaking utilizing the taxpayer's money. It is important that the money be spent wisely and that the maximum benefits accrue to county residents from any money spent.

RISEP was asked by the South Florida Jobs with Justice chapter to update research we had conducted earlier on the advantages and disadvantages of using registered apprenticeship programs in the construction labor of projects such as this.[31] In this report we look at the impacts on the city and the county if such apprenticeship programs were, or were not, used in the construction of a Marlins Stadium.

First we must examine the state of the construction industry, the role of apprenticeships within it, existing research on apprenticeship impacts and the "return on investment" in such programs, the city's and the county's stake in workforce development and training, and the local context.

## Context: the shortage of skilled labor in the construction industry

The construction industry has been experiencing a shortage of skilled labor, according to a wide variety of knowledgeable sources. Furthermore, all reports indicate that the shortage is getting worse and is projected to worsen even more in the immediate future.

[31] This report relies on work done in that previous research report, *Training for the Workforce of the Future*, and portions of it are adapted from that report.

In the past decade, The Business Roundtable first raised the alarm with a report entitled *Confronting the Skilled Construction Work Force Shortage, a blueprint for the future* in 1997.[32] This report indicated that crisis would ensue if strategies were not implemented to assure an adequate work supply. Projecting needs and likely supply in the years 2000 – 2010, the Construction Labor Research Council found the same result a year later.[33] Studies in 1999 from the Center for Construction Industry Studies at the University of Texas at Austin noted the same problem, and outlined a research and action agenda that may help address it.[34]

The shortage of the needed workers has several aspects to it. The workforce is aging; government statistics show that from 1980 to 2000, the proportion of construction workers aged 40-49 increased 65% while the proportion aged 20-29 decreased by 34%.[35] As the "baby boomer" generation now in their 50s and early 60s retire, there is an ever-increasing need for replacements. A study by the Construction Labor Research Council estimates that between 2005 and 2015, construction craft employment is projected to increase by 90,000 persons annually, but due to the aging of the workforce, an additional 95,000 new entrants will be needed to replace those who retire or leave for other employment.[36] Thus, at least 185,000 new skilled construction workers will be needed each year. (Other publications from the U.S. government and the Construction Users Roundtable put the need even higher: between 200,000 and 250,000.)

In reality, **the "labor shortage" that is growing more acute is not an actual shortage of people – it is a shortage of <u>qualified</u> and <u>trained</u> people.** As the Construction Labor Research Council puts it, in the coming 2005 – 2015 period, "An actual shortage of bodies is highly unlikely. A shortage of labor in construction means a shortage of adequately trained, skilled, productive persons."[37]

Yet, the industry has had a hard time attracting the new recruits needed to supply the manpower needed. Uniformly, those in the industry claim that a major problem is the "image" of the industry to young people. A *Wall Street Journal* poll of high school-aged

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[32] See Business Roundtable, *Confronting the Skilled Construction Work Force Shortage, a blueprint for the future*, October 1997.

[33] Construction Labor Research Council, *Craft Labor Supply Outlook, 2000-2010*; Washington, D.C. , 1998.

[34] Richard L. Tucker, Carl Haas, Robert Glover, Christine Alemany, Lynn Ann Carley, Ana Maria Rodriguez, and David Shields, *Key Workforce Challenges Facing the American Construction Industry: an Interim Assessment*, March 1999; and Robert Glover, Donald Long, Carol Haas, and Christine Alemany, *Return-on-Investment (ROI) Analysis of Education and Training in the Construction Industry*, March 1999. Both studies were done at the Center for Construction Industry Studies, the University of Texas at Austin, Austin, Texas.

[35] Center to Protect Workers' Rights, *The Construction Chart Book*, Chapter 14, "Worker Age in Construction and Other Industries."

[36] Construction Labor Research Council, *Craft Labor Supply Outlook 2005-2015*, Washington, D.C., 2005, p. 14.

[37] Construction Labor Research Council, *Craft Labor Supply Outlook 2005-2015*, Washington, D.C., 2005, p. 16.

vocational technology students found that they ranked "construction worker" 248th out of 250 occupations they could choose.[38]

A recent study by the Construction Industry Institute found that a majority of craft workers responding to a survey indicated that they would not recommend that their own children enter a construction trade as a career. The reasons given for high turnover and inability to retain workers were insufficient wages and benefits, impermanency of employment, unsafe job sites, poor working conditions, and unfair treatment of employees.[39]

However, it is not the case that all construction workers are dissatisfied or contemplating leaving the industry. A second study by the Construction Industry Institute found that the workforce is divided into two quite distinct segments, one a stable group seeing construction as a career and the other much more unstable and transient:

> The construction work force can be characterized as two divergent work forces: one that is satisfied with the work and is willing to participate and improve skill levels; and a second that is transient, unsatisfied, and will quickly leave the industry when other opportunities arise.[40]

The shrinkage of the first segment of the workforce, and the growth of the second, is a cause for major concern of all those involved in the construction industry. Increasingly, end users of constructed buildings are involving themselves in these matters as an interested party, because cost overruns, shoddy workmanship, and delays in completion resulting from the shortage of skilled workers make it in their interest to attempt to correct the problem.

**All of the problems noted above are present in Miami-Dade County, and are even accentuated.** The construction labor force in the county has lower pay, lower unionization levels, higher accident rates, and greater instability than the construction workforce nationally. **Therefore, end users of constructed buildings and products, and in particular the county, need to pay attention to the same issues as those discussed above.**

## The role of apprenticeship programs in the construction industry

Apprenticeship plays a very important role in the construction industry, because this industry is based on craft-based skilled labor. Many young people enter the industry through apprenticeship programs, which include both classroom training and on-the-job

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[38] Cited in the U.S. Department of Labor, Employment and Training Administration, *America's Construction Industry: Identifying and Addressing Workforce Challenges*, December 2004, p. 11.

[39] See Construction Industry Institute, "Attracting and Maintaining a Skilled Workforce," the executive summary of a research project. This executive summary is available on the web at: http://construction-institute.org/scriptcontent/more/rr135_11_more.cfm. Accessed June 25, 2006.

[40] Construction Industry Institute, "The Shortage of Skilled Craft Workers in the U.S.", executive summary of a research project. On the web at: http://construction-institute.org/scriptcontent/more/182_1_more.cfm. Accessed June 25, 2006.

experience under the close supervision of a trained craftsperson. The U.S. Department of Labor sets quality standards for those apprenticeship programs registered and recognized by the federal government. For example, they require that the program last at least a year or 2,000 hours of on-the-job training and recommend at least 144 hours of formal instruction.[41] Most apprenticeship programs last between 3 and 5 years, 3-4 years being the average.

Alternative ways for construction workers to learn the skills needed to become a craftsman include initial training through a high school or vocational school, but it is widely acknowledged that such programs generally provide only beginning or rudimentary skills that only partially fulfill the needed training. The most common way outside of apprenticeship is simply "learning by doing" while on the job, picking up the skills much more slowly and less systematically than would happen under an apprenticeship. This method of learning results in haphazard learning, more mistakes in workmanship along the learning path, less safety training and probably more accidents, but over time a number of workers who entered the industry without formal training do become skilled craftspersons simply by learning on the job.

The advantages of apprenticeship to employers include consistent skills, more permanent workforce, a more safety-conscious worker, and a given supply of workers at a given level of skill. For workers, apprenticeships provide advanced skills and a widely recognized credential in the industry, greater awareness and tools to work safely, training valued at an estimated $40,000 to $150,000, and a future career.

Apprenticeship programs are of two types. Joint programs are run jointly by a construction union and employers who have signed a collective bargaining agreement with that union, and are financed by a negotiated fund based on a funding formula of a certain number of cents for every hour worked under the collective bargaining agreement. Individual apprenticeship programs funded by a single employer also exist on the non-union side, sometimes set up by non-union associations such as Associated Builders and Contractors (ABC). It is widely acknowledged that the union programs have been more extensive – a 2003 study found that 61% of all apprentices were trained in joint apprenticeship programs.[42] They also have a better track record for completions, a point to which we will return later.

## Why Should the City or the County Care? Apprenticeship Impacts on City and County Interests

Whatever the overall role of apprenticeship is in the construction industry as a whole, the question remains as to why the city and the county, as "end users" of a new Marlins Stadium, should concern themselves with whether apprentices are used on this project or

[41] "Apprenticeships in Construction and Other Industries," Chapter 31 in The Center to Protect Workers' Rights, *Construction Chart Book*, Washington, D.C.
[42] Cihan Bilginlsoy, "The Hazards of Training: Attrition and Retention in Construciton Industry Apprenticeship Programs," *Industrial and Labor Relations Review*, Vol. 57, Issue 1, 2003, p. 58.

not. There are six possible reasons why the city and the county may find it advantageous to use apprentices on these projects:

**(1) First, it may be the case that a workforce that includes apprentices is more economical and efficient than an alternative workforce without them. In other words, apprentices may provide a good "return on investment" (ROI);**

**(2) Second, use of apprentices from local apprenticeship programs ensures that the work is being done by local people, which is demonstrably advantageous to the city and the county;**[43]

**(3) Third, if use of apprentices would lead to higher incomes for Miami-Dade County construction workers, employing them could further city and county goals of increasing local living standards;**

**(4) Fourth, if the use of apprentices was coupled with a requirement that the apprenticeship programs enroll residents of the lowest income or disadvantaged communities, apprenticeship could be a mechanism to provide stable and well-paying jobs (i.e., real careers) to the city's and the county's neediest residents;**

**(5) Fifth, if apprentices work more safely than those without equally formalized training, the construction could be performed in a safer manner; and**

**(6) Sixth, use of apprentices could fulfill city and county goals completely independent of their roles as end users of the buildings by fulfilling a workforce development function. Local governments spend a great deal of money on training; utilizing apprentices could be a very inexpensive or perhaps even cost-free way to support a very successful form of job training, which is a clear local government goal for local residents.**

Of course, each of these potential advantages could also be a potential disadvantage if the evidence shows that apprenticeship programs accomplish the opposite of the hoped-for results listed above. In other words, if they are less efficient than alternatives, move the work away from local people, minimize earnings, steer jobs away from low income communities, make the work less safe, or are unsuccessful as a form of training, they clearly would be inappropriate vehicles for providing some of the workforce on these projects. So, what is the evidence on each of these six issues? Do apprenticeship programs provide advantageous or disadvantageous results in each area? In the following sections, we will examine the available evidence in each area.

Prior to examining each of the six questions above, we briefly survey the general attitudes of the U.S. government and of the only organization of construction customers of which we are aware about apprenticeships in construction.

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[43] See Bruce Nissen, *Hiring Our Own? The Impact of Local verses Non-Local Hiring Practices in the Orange Bowl Renovation and Jackson Memorial Hospital South Expansion Work*, July 2006.

The federal government has an extremely favorable attitude toward apprenticeship programs. Its office of apprenticeship has registered programs since 1938. In its brochure "Registered Apprenticeship: a Solution to the Skills Shortage," it claims that apprenticeships lead to reduced turnover, reduced worker compensation costs due to safety training, quality results and skilled workers trained to employer specifications, generally higher wages, and the like. In a personal email to RISEP personnel in response to questions, Mr. James Conley of the U.S. Department of Labor Office of Apprenticeship stated that these aspects of apprenticeship were known based on the "feedback and continuous participation by apprenticeship sponsors over our 65+ years of having a national apprenticeship system."

In general, the argument is that these facts are so well established by now that they can be taken for granted because of the long success of apprentice programs. The federal government claims that it gets back over $50 for every $1 it lays out for apprenticeship programs.[44] It claims that this "return on investment in registered apprenticeship clearly outperforms other types of government-sponsored job training programs."[45]

Indeed, we have been unable to find any significant criticism of apprenticeship programs from within the construction industry. Apprentice programs in construction are widely considered the most successful job training programs in the country. Among employers, both the union and the non-union sectors of the construction industry praise apprenticeships highly, with the former touting their long and successful apprenticeship tradition and the latter lamenting past difficulties and claiming some progress in establishing quality apprenticeship programs of their own. No one within the industry seems to have any doubts about the value of apprenticeship programs.

[44] "Registered Apprenticeship: a Solution to the Skills Shortage," p. 2.
[45] Ibid.

**ONE VIEW FROM WITHIN THE INDUSTRY: CHRIS BLACK, PRESIDENT AND CEO OF NEW BEACH CONSTRUCTION COMPANY**

Chris Black is an African-American contractor whose company does inside finish carpentry and drywall work in the Miami-Dade County area. We asked him his opinion of apprenticeships. Below are excerpts from the interview.

"I think it builds character. I myself went through an apprenticeship program, and it was very helpful for my entire life. Actually, it changed my life. . . I was one of the kids who had ambitions to learn something, and I didn't want to go to college. I wanted to get a trade background experience. (Carpentry)."

"So, I think it's a very positive thing for the community, and it also brings the younger guys up under the older guys. So, when the older guys retire, you have a background of younger guys taking the baton and taking it to the next level. I think it (apprenticeship) will be very successful for a lot of the city youth that are out there."

"(With apprenticeship) you're now building a workforce. You might pay a little bit more, but you're building a mind. . . I think that the end result is that you'll have a very competent, capable workforce out there that's well trained, that can be very productive, which can be very productive for all of the owners out there. And you'll have a pool of resources and manpower that we all can pull from, because everyone will be educated.

(Apprentices work) not only safer, but more productively. Yeah, safer is one of the aspects. More productive. More production is what we as owners all strive for. Safer, and more productive is what makes my life a lot easier. When you can estimate on a job and you can put in a certain productivity factor in there, and you can achieve that productivity factor, then that means we are profitable at the end of the job."

"We now employ between 200 and 250 men under our umbrella. I would say a good 25, maybe 30 percent of that is apprentices. It is a little bit tedious at times because you have to, you know, you have to bring that young fellow or young lady under your arms and pretty much nurture them. But once you nurture them and teach them . . the right way, then that person is going to be ultimately the most productive person.

"We have to look at our community as a whole. The people that are going to put back into the community, that are going to be productive, that are going to stay and leave a mark or make a difference for other kids, and stuff like that – those are the people that I think we should invest our dollars in. I will swear up and down that that's the way to go, because that's what I know. I started at the lowest end of the ladder, and that's been very successful for me. So I think that if it can happen to me, it can happen to anyone.

We're only as good as the people that do the work for us. Owners are not the ones out there that are making things happen. The guys on the front line are the ones that are making us all profitable, and you have to be able to put into the people that are doing that for you . I'm a firm believer that apprentices should be – how can I put it? – they should have a value. I feel you should reward your guys."

Among users, the most organized voice is the Construction Users Roundtable (CURT). CURT is composed of many of the largest users of construction services in the country, including Boeing, Caterpillar, Dow Chemical, Dupont, Eastman Kodak, General Electric, General Mills, General Motors, Honda, Intel, Johnson and Johnson, IBM, Intel, McGraw-Hill, Merck, Owens Corning, Pfizer, Procter & Gamble, Southern Companies, Sunoco, Toyota, the U.S. Army Corps of Engineers, etc. CURT is very concerned about the shortage of skilled construction workers, and argues that "owners should require contractors to invest in training and maintain the skills of their workforce as a condition of employment. That approach could ensure that contractors make training a priority."[46] In particular, regarding apprenticeships, CURT states that it "encourages the increased use of apprentice craftspeople on jobsites."[47]

CURT goes further, and argues that end users or owners should require training commitments from contractors doing work for them. Specifically, owners must:

- Only do business with contractors who invest in training and maintain the skills of their workforce.
- Make contractor commitment to craft training a factor in the prequalification process. Owners should require the following in contract documents:
    - A description of the contractor's overall company training program.
    - Details on investments made on training.
    - Information on any specific training planned for the proposed project.
    - Specific methods used to evaluate skill proficiencies, such as skills assessment testing, rework measurement, repairs, weld rejection rate, etc.
    - Evidence of support for the continued updating and improvement of apprenticeship training and journeyman upgrade training in the union sector.[48]

Thus, a very general overview of the advantages and disadvantages of apprentice programs shows a very positive picture. In fact, the organization of large construction users argues that end users or owners should require apprenticeship or similar training from the contractors doing the building. This alone does not prove that the city and the county would be wise to require the use of apprentices in a Marlins Stadium construction project, but it does point in that direction. We turn now to the available evidence on the six issues listed above for further guidance.

**Question 1: Would use of apprentices be more economical and efficient than use of an alternative workforce? Would there be a good "return on investment" (ROI)?**

Empirical studies addressing this question are quite rare. In a study titled *Return-on-Investment (ROI) Analysis of Education and Training in the Construction Industry* the Center for Construction Industry Studies at the University of Texas surveys the state of

[46] Construction Users Roundtable, *Confronting the Skilled Construction Workforce Shortage* (June 2004), p. 8.
[47] Ibid.
[48] Ibid., p. 9.

the research and the many reasons that definitive research on this topic is so rare.[49] Truly rigorous research would require an accurate measure of full costs of alternatives, which are hard to pin down. It would also attempt to minimize the almost inevitable reliance on subjective estimates to measure benefits. Finally, it would have to attempt to isolate the impact of the apprenticeship or training, again a difficult proposition.

The cost of doing research that is sufficiently reliable and generalizable to satisfy academic standards is very high, which explains the scarcity of studies. Anecdotal evidence and practitioner testimonials are valuable, but not definitive. (In a sidebar, we produce the testimony of one contractor on the value of the apprenticeship to his very successful business operation in south Florida, which is useful and valuable but by itself insufficient to generalize to the entire industry.)

The only empirical research we have been able to find on this topic comes from Canada. In Alberta province, a sophisticated engineering report employing on-the-job observation supplemented by survey data resulted in a 2002 research report on apprentices in the pipefitter and construction electrician trades.[50] This research gathers productivity data for various individual tasks performed in these trades, and from the results derives productivity data and unit labor costs. It then examines different ratios of apprentices and journeymen that could be used on jobs, with an eye to seeing which combination would be most productive. Weather data and task-specific delays are also measured to eliminate the effects of extraneous impacts on productivity. Finally, the data are supplemented by survey questionnaire data to derive additional information on what makes for effective or ineffective use of apprentices.

The particulars of all of the tasks measured for each trade, and the results for each, are too detailed and complicated to reproduce here. (For detailed descriptions, tables, and charts, the reader is referred to the original, accessible through the website cited in footnote 19.) Small sample size limits our ability to be sure that results can be generalized widely, but overall the findings are that apprentices can perform a number of (although not all) tasks at about the same efficiency as that of a journeyman. The integration of apprentices into the workforce was found to be quite efficient, according to this preliminary study. Many of the study's recommendations concern the proper ratio of apprentices to journeymen, given the demonstrated proficiency of apprentices at certain tasks and the need for journeymen in proper numbers to continue the training of the apprentice in further tasks.

A second study is more recent. The Canadian Apprenticeship Forum has completed two phases of a three-phase research program on the return on investment (ROI) of apprenticeships in that country. Almost 2,000 employers using apprenticeships were

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[49] See Robert Glover, Donald Long, Carl Haas, and Christine Alemany, *Return-on-Investment (ROI) Analysis of Education and Training in the Construction Industry*, University of Texas Center for Construction Industry Studies, March 1999. Available on the worldwide web at: http://www.ce.utexas.edu/org/ccis/a_ccis_report_06.pdf.

[50] To see this preliminary study, go to the website http://workforcedev.coaa.ab.ca/apprentices/library.asp. This is the apprenticeship part of the website of the Construction Owners Association of Alberta. The findings in the following paragraph come from this study.

surveyed, as were their apprentices and training providers. A cost-benefit model employing all conceivable costs (wages and benefits, "opportunity costs" of not investing the money elsewhere, wastage, disbursements, and administrative costs) and employer benefit (revenue gathered from the apprentice's work) was employed, subtracting total costs from total benefits.[51]

The research design of this study is sound, and to a great degree it relies on "hard" data rather than simple subjective assessments for its results. (Assessments supplement the main results, but are auxiliary to the main findings, which rely on monetary data collected from large numbers of employers.) Research results follow:

**(1) On average, for each $1 invested in an apprentice, a benefit of $1.38 accrues to the employer.**
(2) All 15 trades studied show an overall net benefit of apprenticeship training.
(3) 66.1% of employers **perceive** that apprentices' productive value exceeds training costs by the end of the second year; in **reality**, apprentices for all 15 trades generate net benefits for employers within a short period of time. Twelve of 15 trades show a net benefit after year one, all but one after year 2.
(4) Employers perceive that there is a benefit of employing a journeyperson (full trained skilled craft worker) who is trained as an apprentice.
(5) A majority of employers across all business sizes and regions perceive a "homegrown" journeyperson as more productive than an externally trained journeyperson.

The 38% payoff for the employer in all trades varies from one trade to another. Table 1 shows the ratio of benefits to costs (the benefit/cost ratio) for employers in a variety of building trades employers in Canada.

**Table 1**
**Ratio of Benefits to Costs of Apprentices for Employers in Canada, Different Crafts**

| TRADE | Apprenticeship Length (years) | Benefit/Cost Ratio* |
|---|---|---|
| Bricklayer | 4 | 1.34 |
| Carpenter | 4 | 1.12 |
| Construction Electrician | 5 | 1.23 |
| Air Conditioning Mechanic | 4 | 1.31 |
| Sheet Metal Worker | 4 | 1.19 |
| Sprinkler System Installer | 4 | 1.64 |

*Ratios do not average to 1.38 (either as a weighted or unweighted average), because the entire study included other trades not in the construction industry, such as auto mechanic, cook, etc.

[51] Results have only been disseminated via a power point presentation, "Return on Apprenticeship Training Investment. Conference Presentation", Canadian Apprenticeship Forum. A copy of this power point is in the author's possession. Thanks for Professor Paul M. Goodrum, Department of Civil Engineering at the University of Kentucky, Lexington, KY for sharing this power point with me. All the results and data in the following few paragraphs are from this power point.

These results were brought to "roundtables" of employers in different parts of the country. Employers in general confirmed the cost-benefit results, although there were regional variations. Employers agreed that apprentices generate a net return for their organization. A roundtable of economists validated the methodology of the research, and noted that it exceeds the breadth of any previous study.

These results from Canada all point to the conclusion that apprentices are a wise resource in which to invest: the "return on investment" in apprentices is positive. A couple of cautions are in order, however. First, results from Canada may not apply in south Florida due to differences in existing apprentice programs, industry wage structures, and the like. Second, the results are somewhat preliminary because this type of research on the return-on-investment of apprenticeship is relatively new. Despite these cautionary notes, **all the existing evidence we have is unanimous: apprenticeships pay off and are a good investment for both the employer and the end user or owner.**

Given this evidence, why don't all construction employers utilize an apprenticeship program? The answer lies in what economists call the "moral hazard problem." Simply put, the problem is this: many employers know that investment in an apprenticeship would pay of <u>if they could be assured that the trained apprentice would remain employed with them rather than move to a competitor employer</u>. Because apprenticeships cost money, it is more convenient, from an individual employer's perspective, to allow someone else pay for the training or apprenticeship, and then hire away the newly trained worker. For the individual employer, benefits from training and apprentice programs are thus maximized and costs are borne by someone else. This opportunistic and parasitic behavior (the "moral hazard" in the market) works best from the individual employer's point of view, but creates a sub-optimal situation for the industry as a whole, which is stuck with an inadequately trained workforce and perpetual shortages of skilled workers.

A solution to the moral hazard problem in a craft-based industry like construction could take several forms. One answer would lie in aligning the individual interests of the individual employer with those of employers as a whole by ensuring that the individual employer is guaranteed a trained worker in exchange for an investment in training. The unionized side of the construction industry ensures this by making all apprentices available to all contractors who sign the collective bargaining agreement and pay into the apprenticeship training fund. Thus, an individual contractor has pretty strong assurances that paying into the training fund will result in trained workers available when needed. Thus, in the union sector, apprenticeships are virtually universal because the "moral hazard" problem has been solved by joint organizations such as contractor associations and worker organizations (unions). The non-union side of the industry has had a much harder time solving the moral hazard problem; despite efforts by non-union associations such as Associated Builders and Contractors (ABC) to create viable apprenticeship programs, these have been only partially successful. This is an issue we return to later in this report.

However, putting aside any union vs. non-union issues, **a second way to solve the moral hazard problem is for end users (owners) to either require or encourage through**

**some type of "point system" that work be done utilizing apprentices.** This second way of aligning the employer's individual self-interest with the collective interest of the industry's employers and its end users (owners) is the subject of this report. **The evidence available indicates that the "return on investment" (ROI) of such encouragement or requirement would be positive, although the evidence is not definitive.**

**Question 2: Would use of apprentices ensure that work is being done by local people, thus maximizing public return from the investment in these projects?**

The answer to this question is simple. Since the apprentice programs are all local in nature, they ensure that at least the apprentice proportion of the workforce would consist of local people. Since apprentices usually are relatively recent entrants to the construction labor force, the alternative workforce to using them may include a higher-than-usual proportion of out-of-area workers drawn to south Florida by the building boom currently occurring. These are more likely to be the type of "transient, unsatisfied" worker with little attachment to construction as a career referred to earlier by the Construction Industry Institute. Extensive use of such workers is not desirable for the industry, for the end user (owner), or for the local economy.[52]

**Question 3: Would use of apprentices lead to higher incomes for local construction workers, thereby furthering a county goal of increasing living standards?**

The data from Florida on this question are clear: apprenticeship is an extremely effective way to raise earnings. For this reason, apprentice programs are considered among the very best, most successful training programs in the state.

A memo a decade ago from the then-administrator for apprenticeship of the Florida Department of Labor and Employment Security starkly shows the earnings value of apprenticeship. This memo reveals that a report (known as the FETPIP report) on over 2,000 apprentices who had completed their training showed the following:

- Apprenticeship completers earn twice as much as high school graduates;
- Apprenticeship completers earn more than higher education graduates with Associate in Arts and Bachelor degrees;
- Apprenticeship completers earn about the same as graduates with Associate in Science degrees, but less than graduates with Masters and Doctorate degrees.

The same memo notes that apprenticeship completers have the highest rate of retained, continuous employment when compared to high school graduates, and those receiving AA, AS, MA, and Ph.D degrees. Also found: that apprenticeship completers show

[52] For evidence based on data that hiring local workers is much more beneficial than hiring out-of-area workers, see Bruce Nissen, *Hiring Our Own: The impact of local vs. non-local hiring practices in two county GOB projects*. July 2006.

extremely low rates of incidence in receiving public assistance or criminal justice system involvement.[53]

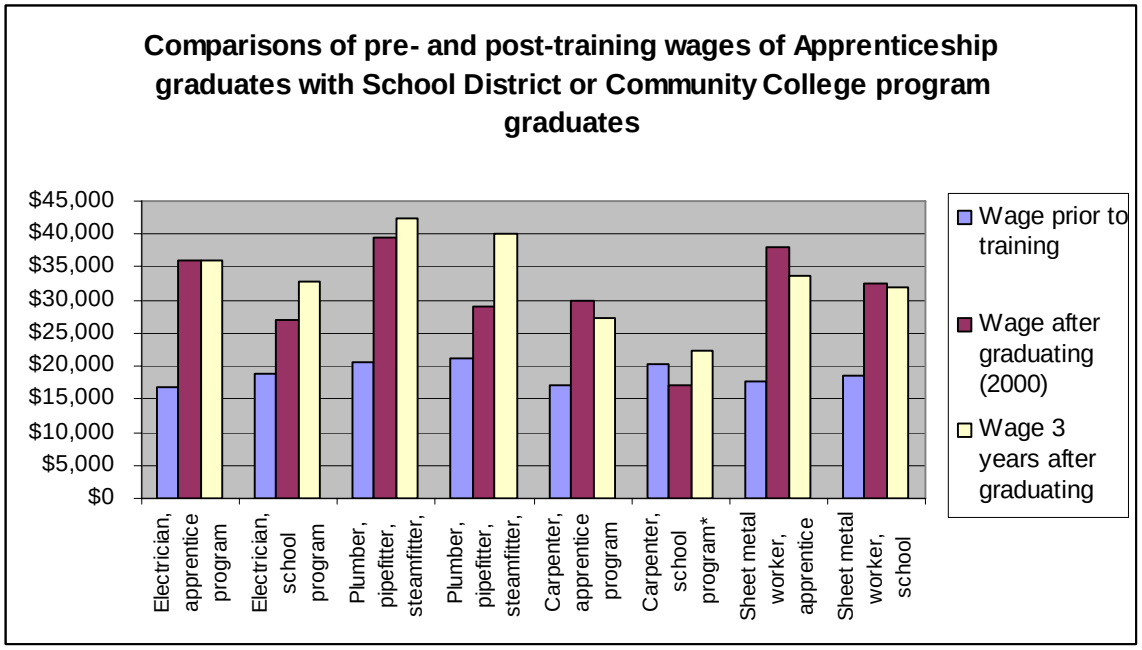
This success continues up to the present. A December 2004 report issued jointly by the state's Agency for Workforce Innovation (AWI) and the Council for Education Policy, Research and Improvement (CEPRI) employs a more sophisticated methodology and looks at much more recent data, but arrives at similar conclusions.[54] In fact, it demonstrates that apprenticeships "add more value" to the program participant than does training in the same field provided by a school district or community college. Table 2 compares the pre-training and post-training yearly wages of apprenticeship graduates with school district or community college program graduates for four construction trades that have widespread apprenticeship programs.

**Table 2**
**Comparisons of pre- and post-training wages of Apprenticeship graduates with School District or Community College program graduates, four construction trades**

| OCCUPATION | Wage prior to training | Wage after graduating (2000) | Wage 3 years after graduating | Wage growth to graduation | Wage growth to 3 years after graduating |
|---|---|---|---|---|---|
| Electrician, 4-yr. apprentice program | $16,884 | $35,912 | $36,088 | **$19,028** | $19,204 |
| Electrician, school program* | $18,972 | $26,864 | $32,664 | **$7,892** | $13,692 |
| Plumber, pipefitter, steamfitter, 4-yr apprentice program | $20,720 | $39,524 | $42,344 | **$18,804** | $21,624 |
| Plumber, pipefitter, steamfitter, school program* | $21,236 | $29,052 | $39,976 | **$7,816** | $14,740 |
| Carpenter, 4-yr. apprentice program | $17,200 | $29,996 | $27,420 | **$12,796** | $10,220 |
| Carpenter, school program* | $20,444 | $17,180 | $22,328 | **-$3,264** | $1,884 |
| Sheet metal worker, 4-yr. apprentice program | $17,792 | $38,068 | $33,640 | **$20,276** | $15,848 |
| Sheet metal worker, school program* | $18,632 | $32,492 | $31,980 | **$13,860** | $13,348 |

Source: Author's computations on data from Table 8, p. 14 of publication cited in footnote 23.
Dollars adjusted for inflation, so wage changes reflect real changes in purchasing power.
*School programs are 3 years in length, unlike the 4-year apprenticeship program.

[53] Memorandum dated November 19, 1996 from Joseph M. Stephens, Administrator, Apprenticeship, of the FDLES to State Apprenticeship Council Members, 2 pages. (Copy in the author's possession.)
[54] See *An Analysis of the Need for New or Expanded Apprenticeship and Workforce Education Programs*, December 2004. On the web at: http://www.cepri.state.fl.us/pdf/Complete%20CEPRI-AWI.pdf .




The next-to-last column in Table 2 (in **bold)** shows how much wages grew after completion of apprentice programs and after completion of school district/community college programs. **For every trade (electrician, plumber or pipefitter, carpenter, or sheet metal worker) the wage gains from apprenticeship were much larger than those from the alternative form of training, by over $10,000 per year for every trade except sheet metal worker.** The final column shows that the "apprenticeship advantage" remains even after 3 years post-graduation, although the advantage has lessened somewhat. (The likely reason for the diminution of the advantage is that apprentice graduates are already full-fledged "journeymen" with all skills needed in the trade, while their less fully-trained counterparts from other training programs continue to pick up additional skills in the following three years, thus lessening the gap but never closing it or reaching the status of an all-rounded skilled journeyman.)

If apprenticeships increase wages this much compared to workers formally trained by other means, it is obvious that they would do so even more compared to workers who have **no** formal training – a worker "hired off the street" who must slowly pick up skills informally in a "hit-and-miss" manner while working. In summary the **evidence is overwhelming that apprenticeships in construction are an extremely effective way to maximize earnings of construction employees, an important part of the county's workforce.**

**Question 4: Could the use of apprentices be coupled with a requirement or encouragement for the apprenticeship programs to enroll residents of the lowest income or disadvantaged communities in the county, thus using the apprentice programs as a mechanism to provide stable and well-paying jobs (i.e., real careers) to the county's neediest residents?**

In principle, there is no reason that an apprenticeship requirement or encouragement for work on these two projects could not be "coupled" with a requirement or encouragement that apprenticeships enroll residents from low income and disadvantaged communities.[55] If this was done, apprenticeship could be an instrument for accomplishing a goal of county government: improving the livelihoods of those residing in the county's lowest income neighborhoods.

**Question 5: Do apprentices work more safely than those without equally formalized training, thus providing an advantage if the county wants the work done safely?**

Construction work is dangerous. It consistently ranks as one of the industries whose workers are most likely to be injured or killed on the job. In 2005, construction nationally accounted for over 1 in 5 on-the-job fatalities and over 1 in 10 nonfatal workplace injuries and illnesses in the entire workforce. That places the industry fourth highest in fatalities that year. Florida had the second highest number of fatalities of any state in the union (111). It also was one of three states (Texas and California were the other two) that accounted for 29% of all fatal injuries.[56] In addition to the human tragedies embodied in such statistics, the industry widely acknowledges that unsafe work also is ultimately expensive and unproductive. For these and a host of other reasons, the county has an interest in attempting to ensure that work done under its auspices is done safely. Will the use of apprentices likely make the work safer?

To the best of our knowledge, no study directly investigating this question has been done. However, a variety of types of evidence can be brought to bear on the topic. First is the fact that every officially recognized apprenticeship program includes safety and health training, beginning with the standard OSHA 10-hour training program. In addition, in particular trades, further training is mandatory and is built into the apprenticeship. There is strong evidence that safety and health training leads to less accidents and injuries: recent research on over 8000 construction laborers found that laborers who received safety and health training during the period of the study were 12% less likely than untrained laborers to file for workers compensation. Among workers 16 to 24 years old, training was associated with a 42% reduction in claims.[57] And apprentices are among the most highly trained workers on safety matters in the field.

Second, the opinion of many in the industry supports the same conclusion. We have not conducted a formal survey, but it is hard to find any industry practitioners who do not believe that more and better safety and health training leads to safer work. As one

[55] For the purposes of this report, we do not enter into legal questions about exactly how any requirements would be constructed or enforced, which are questions beyond our purview here. We do note that certain types of "set asides" with hard-and-fast quotas for minority communities have been found to be illegal, but also note that many programs and methods are perfectly legal, a number of them already pursued by the county.

[56] All data in this paragraph are taken from Bureau of Labor Statistics, Injuries, Illnesses, and Fatalities (IIF) program. On the web at: http://www.bls.gov/iif/home.htm

[57] Xiuwen Dong, Pamela Entzel, Yuron Men, Risana Chowhury, and Scott Schneider, "Effects of Safety and Health Training on Work-Related Injury Among Construction Laborers," *Journal of Occupational and Environmental Medicine*, Vol. 46, No. 12 (December 2004), pp. 1222-1228.

construction supervisor in south Florida told us, the apprentices have safety so "drilled into them" in their apprenticeship school that they definitely work in a safer manner.[58] Such sentiments would not be unanimous, of course, but we have yet to hear from anyone who would argue the opposite: that those without formal apprentice training work safer.

Third, even though no direct study exists on the question, indirect but persuasive evidence does exist. Unfortunately, virtually no government data bases include apprenticeship training as a variable, so we have to rely on a "proxy," or close approximation, to stand in for those who have received apprenticeship training. The closest proxy that exists in government statistics is union membership. This is not a perfect measure, because a number of union members have not gone through an apprenticeship program, and some non-union workers went through an apprenticeship program, either union-sponsored or not. However, it will work as a close proxy, because the pool of union workers has a much higher proportion of apprentice-trained members than does the non-union pool.

Therefore, if we compare safety statistics for very highly unionized states with those for very minimally unionized states, we have a rough approximation of whether apprenticeship programs are associated with better or worse safety outcomes. We compared the number of construction fatalities per 100,000 workers for the 10 most unionized states in the construction industry with the same ratio for the 10 least unionized states in the construction industry. Those states are presented in Table 3.

**Table 3**
**Ten most and ten least unionized states in the construction industry, 2006**

| 10 most unionized states in construction | % unionized (construction) | 10 least unionized states in construction | % unionized (construction) |
|---|---|---|---|
| Illinois | 40.7% | North Carolina | 0.9% |
| Hawaii | 38.2% | Tennessee | 1.5% |
| Alaska | 33.8% | Arkansas | 1.5% |
| Missouri | 32.2% | South Dakota | 1.7% |
| Wisconsin | 29.5% | Texas | 2.0% |
| New Jersey | 29.4% | South Carolina | 2.7% |
| Washington | 25.5% | Mississippi | 3.2% |
| New York | 25.0% | Florida | 3.5% |
| Minnesota | 25.0% | Vermont | 3.7% |
| Indiana | 23.4% | Utah | 4.2% |

Source: Website http://www.unionstats.com .

Because of the extreme differences in unionization rates (23% - 41% for one column and 0.9% - 4.5% in the other), we are extremely confident that we have captured a major difference in the rate of workers who have gone through an apprenticeship program in the above two samples. Even if it is not a perfect proxy measure, unionization differences of

[58] Interview with Bob Blanchette, construction supervisor for New Beach Construction, a firm doing carpentry work, June 29, 2006.

such an extreme nature are virtually guaranteed to capture major differences in apprenticeship rates also.

Table 4 compares the most unionized and the least unionized in the number of workplace fatalities per 100,000 workers.

**Table 4**
**Number of construction workplace fatalities per 100,000 workers in 2006 in the 10 most unionized and 10 least unionized states**

| Category of states | Construction workforce | Number of workplace fatalities | Fatalities per 100,000 workers |
|---|---|---|---|
| 10 most unionized | 1,696,394 | 223 | **13.15** |
| 10 least unionized | 2,365,775 | 379 | **16.02** |

Source: Website http://stats.bls.gov/iif/oshwc/cfoi/tgs/2006/iiffi06.htm.

What these tables show is that, given a specific workforce size, states with higher construction unionization rates are associated with less fatal worksite accidents than are states with low unionization rates. In fact, the latter have fatal accident rates almost 22% higher than the former. For our purposes, this strongly implies that **a construction workforce trained through apprenticeship is much more likely to work safely than is one trained either informally or by alternative means.**

A study of immigrant construction workers in south Florida arrives at similar conclusions: safety outcomes (measured by amount of training, use of personal protective equipment, and employer safety policies and practices) tend to be better in general if the worker is a union member.[59] The "safety value" of apprenticeship is again reconfirmed.

In sum, **apprenticeships guarantee extensive safety training, and the available evidence points to the conclusion that the use of apprentices on construction projects is likely to lead to work being done more safely.** If the city and the county value having work being done under their auspices performed safely, the use of apprentices in its construction work is likely to be a plus.

**Question 6: Independent of its role as an end user of the buildings, does the county have an interest in using apprentices on these projects? Might use of apprentices fulfill a workforce development function? Since the county spends a great deal of money on training, could the use of apprentices be an inexpensive or perhaps cost-free way to provide high quality training and secure careers for county residents?**

Much of the answer to this question is contained in the material presented earlier in this report. We have already noted the superiority of construction apprenticeships over other forms of training in terms of wages: apprentice graduates out-earned graduates of school district or community college programs by an average of over $10,000 in the four most

[59] See Bruce Nissen, *Immigrant Construction Workers and Safety and Health in South Florida*, July 2007. On the web at: http://www.risep-fiu.org/reports/Immigrant_Construction_Workers_and_S_%20H.pdf .

apprenticed trades (electrician, plumber/pipefitter/steamfitter, carpenter, sheet metal worker) upon completion of the program (see Table 2, above).

Beyond simply wages, apprentice graduates also have very high job placement rates. A December 2004 study of Florida apprenticeship and training programs finds that between 81% and 90% of construction apprentice graduates were employed after completion of the program.[60] This was higher than for school district or community college trained counterparts, and is an incredibly successful placement rate for a training program.[61]

We also noted earlier the federal government's estimate that it receives $50 back for every $1 spent on apprenticeship programs. Industry insiders tell us that the county already spends approximately $250,000 per year on pre-apprenticeship training. This, combined with the aforementioned benefits of apprenticeship, indicate that the county has a clear interest in promoting apprenticeship training in the construction industry, completely independent of its interests as an end user of certain construction projects.

Requiring or encouraging the use of apprentices on the construction of a Marlins Stadium could thus further an independent city and county interest: workforce development. At apparently no cost, the city and the county could ensure successful and value-added training for workers in an important local industry.

One additional measure would also be advisable: tying any existing pre-apprenticeship training in to registered apprenticeship programs. This would maximize the benefits of the pre-apprenticeship training already being undertaken, ensuring a smooth progression of the young students on a proven path toward a well-paying productive career.

## Quality of Apprenticeship Program also a Factor to be Considered

The preceding evidence has pointed to the conclusion that use of apprentices in registered apprenticeship programs is likely a very desirable option for these construction projects. However, to maximize the benefits of apprentice use, the city and the county might want to also consider the quality of the apprenticeship program being utilized, for it turns out that there are some major differences, even if the choice is restricted to only programs that are registered by the government. Some programs are superior to others in completion rates and in their ability to raise skills (and therefore wages). So, if the city and the county were to use some form of "best value contracting"[62] that awards extra points in the bidding process to firms having a recognized apprentice program, it might

[60] See the report by the Council for Education Policy, Research and Improvement and the Agency for Workforce Innovation, *An Analysis of the Need for New or Expanded Apprenticeship and Workforce Education Programs*, December 2004, Table 7 on p. 13. On the web at: http://www.cepri.state.fl.us/pdf/Complete%20CEPRI-AWI.pdf .

[61] For a review of the dismal record of most training programs in this regard, see Gordon Lafer, *The Job Training Charade*, ILR Press, 2004.

[62] For a discussion of the advantages or disadvantages of using a "best value contracting" method, see the companion report to this one: Marcos Feldman, *Best Value in Publicly Funded Projects: Contractor selection in two county GOB projects* (August 2006), Research Institute on Social and Economic Policy, FIU.

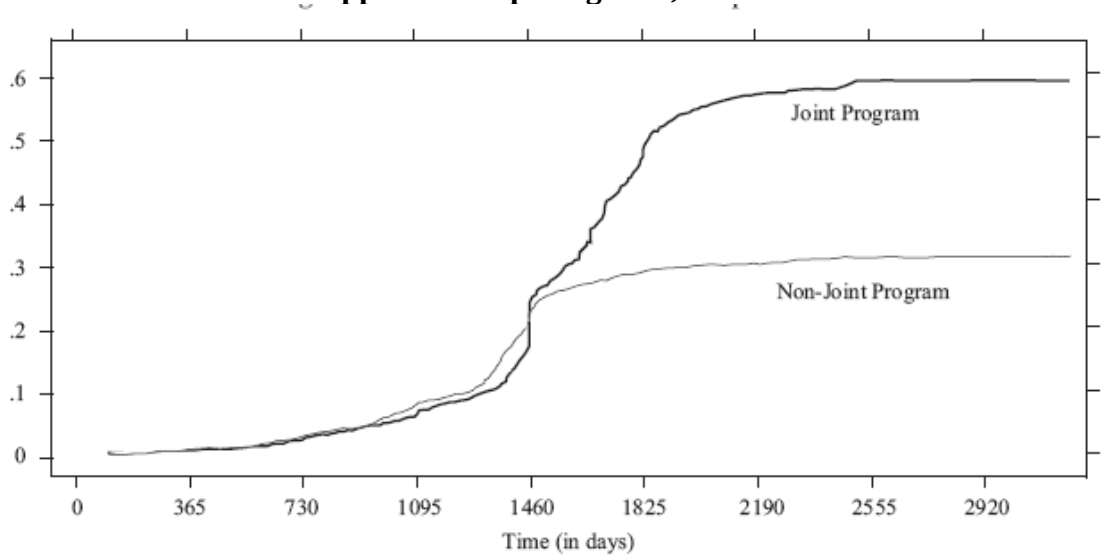
also wish to give more points to the more successful programs (grater completion, higher "value added," etc.)

Several studies have examined and compared construction apprenticeship programs. In a 2003 study that compared completion rates by 1995 for those enrolling in 1989, economist Cihan Bilginsoy found that apprenticeship programs that were jointly negotiated and operated by a union and an employer's association (i.e., "joint programs") had a much higher completion rate than those operated by a single employer:

> The percentage of completion is higher by a substantial margin in the joint programs than in the non-joint programs (58% versus 30%.) Symmetrically, relative to the non-joint program apprentices, a smaller fraction of joint program apprentices canceled.[63]

He also found that joint programs enroll a significantly higher percentage of minorities and women than do non-joint programs (for women by 4.5% vs. 1.8%, and for minorities (15.8% vs. 12.7%).[64] The differences in completion rates over time are shown in Table 5.

**Table 5**
**Cumulative Incidence of Completion, Joint and Non-Joint Construction Apprenticeship Programs, 1989-1995**




*Source:* BAT/AIMS.

(Table 5 reproduced from source cited in footnotes 32 and 33.)

A 2005 study conducted by the U.S. Government Accountability Office (GAO) found a similar pattern, although completion rates had slipped somewhat. It also found that

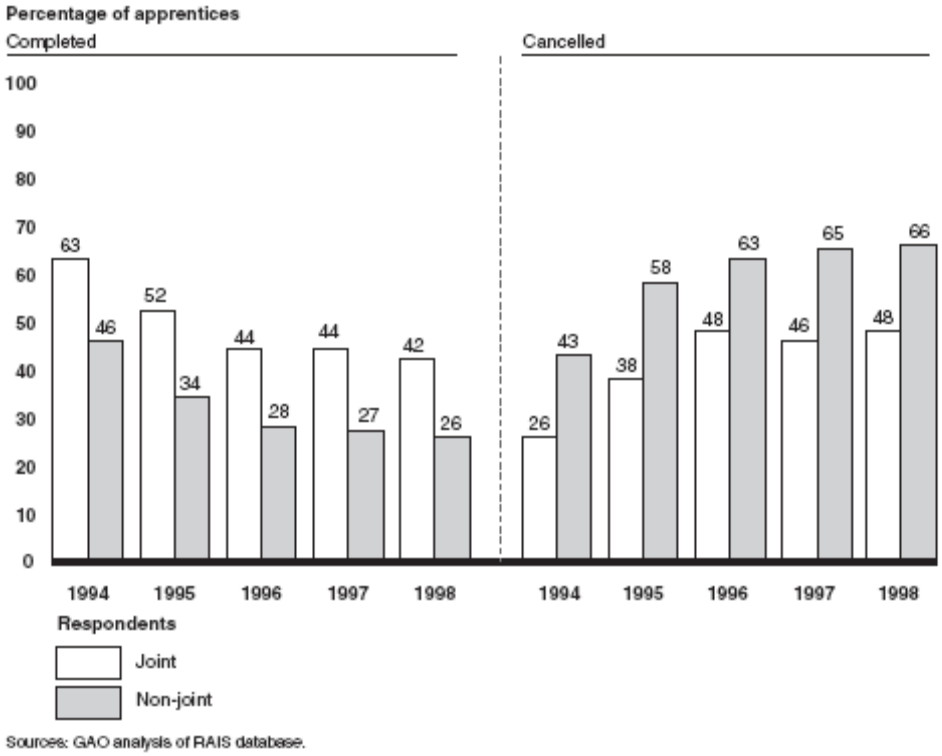
[63] Cihan Bilginsoy, "The Hazards of Training: Attrition and Retention in Construction Industry Apprenticeship Programs," *Industrial & Labor Relations Review*, Vol. 57, Issue 1 (2003), p. 58.
[64] Ibid., pp. 59, 61.

wages upon completion were significantly higher for graduates of joint programs than those graduating from non-joint ones:

> Completion rates and wages for construction apprentices in programs sponsored jointly by employers and unions were higher than those for programs sponsored by employers alone. Of apprentices beginning training between 1994 and 1998 (and completing by 2004), on average, 47 percent of those in programs sponsored jointly with union completed compared with 30 percent in programs sponsored solely by employers, a 17 percent difference. . . Construction wages were generally higher for apprentices in joint programs than for those in non-joint programs – being more than $2.00 per hour higher on average at the start and $6.00 per hour higher on average a completion of training in 2004, the first full year Labor (U.S. Dept. of Labor - BN) began collecting wage data.[65]

Table 6 shows the differences in completion rates for the years 1994 through 1998.

**Table 6**
**Completion Rates after 6 Years for Apprentices Entering Construction Programs in FY 1994 through 1998**




(Table 6 reproduced from the publication cited in footnote 34.)

In south Florida, by far the biggest construction apprenticeship program that is not a joint one is run by the Florida East Coast Associated Builders and Contractors (ABC), the

[65] United States Government Accountability Office (GAO), *Registered Apprenticeship Programs: Labor Can Better Use Data to Target Oversight*, August 2005 (GAO report # GAO-05-886), p. 4.

association of non-union construction employers and associated suppliers and service providers. A recent study shows that its 5 year completion rates are also relatively low, at 34%.[66] Table 7 shows the figures for enrollees during the 1995-1999 period, as of 2004.

**Table 7**
**Florida East Coast ABC Apprenticeship Program Completion Rates, 1995-1999 Enrollees as of 2004.**

| Status | Number | Percent |
|---|---|---|
| Cancelled | 921 | 64% |
| Completed | 495 | 34% |
| Still listed as registered, 2004 | 21 | 1% |
| TOTAL | 1437 | 100% |

Source: Study referenced in footnote 35.

We do not have South Florida figures for any non-joint apprenticeship programs that may be run independently of the ABC, if any exist. However, it is unlikely that many exist, and if they do they would not be likely to differ from patterns established above.

The point of these comparisons is not to argue that all non-joint apprenticeship programs should be penalized simply because they belong to a type of apprenticeship that is less likely to actually produce graduates. That would constitute "guilt by association." However, it does show that the quality of apprenticeships does vary considerably, and that the county would be well advised to individually favor the programs with highest completion rates and the most "value added" to participants, irrespective of their "joint" or "non-joint" status. This could be done rather simply in a "best value contracting" method of procurement, simply by giving more points to those programs that perform more successfully on these measures.

## Conclusion

This study establishes the following:

(1) There is a skilled labor shortage in the construction industry, and this shortage is even more acute in south Florida than it is nationwide.

(2) This shortage hurts the industry greatly, and it also harms end-users or customers (through delays, an unstable workforce, possibly inferior construction, etc.), to such a degree that the Construction Users Roundtable recommends that users insist on training as part of the procurement process.

[66] Building and Construction Trades Department, AFL-CIO, *A Final Report on Associated Builders and Contractors Apprenticeship Training: Flawed and Failing Programs*, April 2005. Because this report is issued by a union group, it may be questioned whether it is biased against non-union apprenticeship programs. However, all the data in the report cited come from government sources, not subjective estimates. The numbers and percentages given also are consistent with others in reports from the U.S. government and an independent academic.

(3) Apprenticeships in general are the most successful job training programs in the United States today.

(4) Although the evidence is not definitive, the studies that have been done indicate that use of apprentices on construction projects is efficient, and that there is a positive return-on-investment (ROI) for employers as a group and for end users in their use. (This does not mean that individual employers will adopt apprenticeship, however, unless they belong to a contractor's association bargaining the program with a labor organization that guarantees a supply of skilled workers for the apprenticeship investment, or are forced to by end user requirement. Absent one or both of these conditions, most employers avoid apprenticeship for fear that their investment will be lost by other employers "stealing" their trained employee.)

(5) Use of apprentices is a good way to ensure that the work goes to local employees, since apprentice programs are by their very nature local.

(6) Apprenticeships bring higher wages to the trained employee than does any alternative form of training, thus maximizing incomes in the local community.

(7) Use of apprentices can be a tool for diversity in the workforce, thus granting a steady and well-paying career to disadvantaged communities, if the end user requires or encourages through incentives that a number of the apprentices come from disadvantaged and/or discriminated-against populations.

(8) The evidence is strong that construction workers trained through an apprenticeship program work safer, and thus apprenticeships further a public interest in safe work.

(9) Construction apprenticeship programs are highly successful forms of workforce development. They exhibit superior outcomes to most forms of training, and they are extremely cost-efficient compared to most forms of training.

(10) Even within the construction apprenticeship programs that are registered with the government, there are differences in quality. The city and the county might want to use a "best value" form of contracting that rewards the ones with better outcomes (higher graduation rates, higher "value added" for the apprentice through higher wages), by giving them more points in a point-based bidding system.

(11) In general, the evidence leads to the conclusion that the city and the county would be wise to either require or encourage by means of incentives in the procurement process the use of apprentices in any construction of a Marlins Stadium.

# Getting Our Money's Worth:

## The importance of Best Value Contracting for building a new Marlins Stadium at the Orange Bowl Site

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## Executive Summary

The latest plan for the grounds where the Orange Bowl sits is a proposal to build a new, retractable roof stadium for the Florida Marlins. Estimates of the overall project costs are hovering around $500 million, with $445 million in up-front costs to be covered by publicly financed (city and county) loans. Although the details of the plan continue to change, the Marlins are expected to pitch in some (small) share of the total cost and to pay back $162 million of the publicly-financed loans. Nevertheless, the total up-front public subsidy is $445 million. For this large and important public investment the county should get the best value possible. The choice of contractor makes a big difference in the overall value of the project and this report draws on scientific evidence to argue that the county should use a performance-based contractor selection process, such as Best Value Contracting, to obtain the best value possible from the proposed Marlins Stadium project.

**Why is Procurement Reform Needed?** Our construction industry is plagued with construction delays and cost overruns, shoddy workmanship, and unsafe work-sites leading to injuries and death.

1. **Construction Delays and Cost Overruns:** Several key public construction projects throughout Miami-Dade County have been delayed for years, including the North Terminal at Miami International Airport, almost $1 billion over budget, years past due, and still adding layers of management; and the Performing Arts Center, reported to be at least $102.1 million over budget, years behind schedule, and lacking adequate quality control. Construction-related change orders are the most frequent reason for construction delays, and these are typically caused by contractors.

2. **Shoddy Workmanship:** Miami-Dade's school district wasted more than $288 million on delayed and substandard construction work, paid almost $8 million fixing leaks, mold and other problems in new schools, and charged contractors $2.9 million for the problems they created. The cost growth above the original price for many of these (counting litigation and repairs) is estimated to be at least 30%. In 2003, 77 recently built schools in Miami-Dade County had water leaks, and almost 40 had mold and mildew. County engineers had determined that in at least 14 cases sloppy construction was at fault and were still trying to figure out what happened in the rest.

3. **Worker Health and Safety:** Florida's construction industry is the most dangerous in the country for workers; we lead the nation in work-related deaths in the construction industry. In Miami-Dade County there have been calls for more regulation and inspections over large construction projects, where recently several workers have been critically injured or killed.

**These Problems are Largely the Result of Low-Bid Contracting.** Low-bid contracting is *false economy* as the initial savings from price-based competition are erased over the long-term because of inferior performance leading to additional costs. Low-bid contracting makes flawed assumptions, encourages cost-cutting and underperformance, and does nothing to screen out unscrupulous contractors.

**Low-Bid's Flawed Assumptions**

1. Low-bid contracting assumes that project plans and designs are perfect and unambiguous. But design plans are often riddled with errors and omissions.
2. Low-bid assumes that given perfect plans all that remains is to find the contractor that will build the project for the least amount money; all contractors yield similar performance. But contractor performance varies widely AND given *imperfect* plans it is especially prudent to get the best contractor possible.
3. Low-bid assumes that contractor performance can be controlled by project manager management and inspection. But research shows that government management and inspection of construction is inefficient and results in poor performance.

**Low-Bid Encourages Underperformance**

1. Price-based competition forces down the initial agreed price of a construction project as firms underbid to win the contract award, regardless of how poorly crafted the design plans are. Because they underbid, contractors seek to recuperate losses in various ways.
2. Because of imperfect design plans, contractors must later put in for change orders which add time and costs to the project.
3. Contractors also cut corners to ensure greater profits, which means using cheaper, lower quality materials, using insufficient materials, incorrectly applying materials, and taking serious health and safety risks on the job.
4. It would be irrational for contractors to perform and high levels in a price-based competition where cutting costs is the key to survival.

**Low-Bid Fails to Filter Out Underperforming and Unscrupulous Contractors**

1. Public agencies are reluctant to eliminate bidders due to past underperformance because of the fear of being sued by the disqualified firm.
2. The standard of "responsibility" that firms must meet is weak and firms can usually enter the bidding pool if they are at least bonded and insured, and certified to work.
3. Important factors that affect contractor performance, such as worker training, past safety record, and past work quality and timeliness, are not considered in selection.

## Best Value Contracting gives the owner what it wants: the highest quality for the lowest cost.

1. In BVC contractors are chosen on the basis of technical merit, past performance, safety practices, local experience, worker training, *and price*, among others.
2. BVC's cooperative structure forces the early development of realistic overall project costs, dramatically reducing change orders and litigation.
3. Shifting the point of competition from price to quality ensures a top quality product as builders realize underperformance hurts their chances of winning future contracts.
4. In addition, best value contributes to the county's broader goals by improving the skills of the workforce and enhancing employment opportunities for local residents and/or racial and ethnic minorities.
5. Studies that have compared low-bid to best value contracting overwhelmingly find that BVC reduces cost growth, schedule growth, and increases customer satisfaction.

## Introduction

The latest plans for the grounds where the Orange Bowl sits, which will soon be demolished in light of the departure of the Miami Hurricanes to Dolphins Stadium, is a proposal to build a new, retractable roof stadium for the Florida Marlins. Although the details of the plan continue to change, the latest estimates report the total construction cost to be around $500 million with at least $445 million in up-front costs to be covered by publicly financed (city and county) bond sales. The plans call for the Marlins to pitch in a small share of the costs and to pay back $162 million of the publicly-financed loans; but $445 million must be financed up-front by taxpayers for the plans to get under way. The $50 million in Building Better Communities, General Obligation Bonds (GOB) funds that were slated for the orange bowl renovation have been approved for use on the proposed Marlins Stadium project and are part of the public subsidy.

For this large and important public investment the county should get the best value possible from the proposed Marlins Stadium project. The choice of construction company makes a large difference in the overall, long-term value of public works projects. Traditionally (and commonly) in Miami-Dade County, public contracts are awarded to the lowest bidder in a competitive process. Although the County saves money initially by obtaining construction services at the lowest price, this process frequently fails to select the best contractor for the job. By choosing the lowest bid the County's initial savings are soon erased by construction delays, cost overruns, and a greater need for maintenance and repairs because of shoddy workmanship. These outcomes are built into the low-bid contractor selection method itself since it encourages cost-cutting and provides minimal and ineffective incentives for achieving quality and safety standards.

By contrast, Best Value Contracting (BVC) is a contractor selection method that shifts the point of competition among bidders from price to quality standards in addition to price. Under the BVC system, bidders compete on the basis of technical merit, past performance and safety practices, local experience, worker training, *and price*, among other possible factors. BVC ensures that the construction of publicly funded projects achieves the best value for Miami-Dade County taxpayers and BVC should be the method of choice for awarding contracts on the proposed Marlins Stadium project.

This report examines the need for a Best Value Contracting policy in Miami-Dade County and the benefits of such a process compared to traditional low-bid contracting. The first section briefly examines some of the most serious problems in South Florida's construction industry: construction delays, shoddy workmanship, and unsafe work environments. The second section compares low-bid to best value contracting, and reviews the empirical evidence on the cost outcomes of both methods. Finally, some general selection criteria are suggested for implementing BVC on the Marlins Stadium project at the former Orange Bowl site.

## Context: Serious Problems in South Florida's Construction Industry

> The word on the street is that the quality [of construction work in South Florida] is under par… When a guy spends [a lot] of money he doesn't want to see waves in the wall.
>
> — Chris Black, President and CEO, New Beach Construction

> [My clients] see that the market is just going downhill. They've been unhappy with the level of performance they've been receiving [in the low-bid system].
>
> — Sarah Goodridge, Coordinator of the Performance Information Procurement System (PIPS) program at Florida International University, speaking about her first two clients, the City of Miami Beach and Baptist Health South Florida

> The bar is so low that anybody gets through. If you breathe you can work in the construction industry here.
>
> — Carlos Hevia, Director of Project Management for Miami-Dade Public Schools, speaking about the need for more formally trained construction workers

The timeliness and quality of construction work, and the health and safety of workers in our construction industry—factors that significantly impact the overall cost of public projects—have been very poor in South Florida.

### Timeliness and Work Quality

In 2002 researchers at Florida International University surveyed 35 general contractors throughout the state to learn about the prevalence of different types of construction delays.[67] The researchers asked contractors about the likelihood of encountering different types of problems. Table 1 shows the construction-related delays identified through Amhad and his colleagues' research.[68]

Of the six construction-related delays identified as having a greater than 50% chance of occurring, only one (subsurface soil conditions) is not the sole responsibility of the contractor. The contractor is responsible for the other five, including lack of inspections, material/fabrication delays, material procurement, lack of qualified craftsmen and poor subcontractor performance. This research suggests that the greatest opportunity for preventing time and cost overruns rests with contractor performance.

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[67] Ahmad, Syed M., and Salman Azhar, M., Mauricio Castillo, Pragnya Kappagantula, (2002). *Construction Delays in Florida: An Empirical Study,* State of Florida Department of Community Affairs and Florida International University. It should be noted that the response rate for the survey was only 9.2%; they obtained responses from 35 out of 300 potential respondents.

[68] According to Amhad and his colleagues at Florida International University, the majority of "inexcusable, non-compensable" delays leading to cost and time overruns on construction projects in the state of Florida were caused by contractors. While there are more design- and code-related delays than construction-related delays, many of these are considered unavoidable and therefore "compensable," while contractor-related delays are usually considered to be avoidable and therefore not compensable.

**Table 1**
**Construction Related Delays by Chance of Occurrence**
**According to Survey Respondents**

| Type of Construction-Related Delay | Likelihood of Occurrence[1] | | | | | Total[1] |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| Inspections | 0 | 4 | 12 | 4 | 5 | 3.4 |
| Subsurface Soil Conditions | 1 | 7 | 14 | 3 | 2 | 2.93 |
| Material/Fabrication Delays | 2 | 9 | 8 | 5 | 2 | 2.85 |
| Material Procurement | 1 | 13 | 6 | 5 | 1 | 2.69 |
| Lack of Qualified Craftsmen | 4 | 8 | 9 | 3 | 2 | 2.65 |
| Poor Subcontractor Performance | 5 | 9 | 6 | 2 | 3 | 2.56 |
| Defective Work | 5 | 8 | 9 | 4 | 0 | 2.46 |
| Different Site Conditions | 4 | 10 | 10 | 3 | 0 | 2.44 |
| Labor Injuries | 5 | 9 | 8 | 2 | 1 | 2.4 |
| Damage to Structure | 5 | 11 | 6 | 3 | 1 | 2.38 |
| Construction Mistakes | 7 | 9 | 7 | 2 | 1 | 2.27 |
| Poor Supervision | 9 | 8 | 6 | 2 | 0 | 2.04 |
| Equipment Availability | 14 | 8 | 3 | 0 | 0 | 1.56 |

[1] Chance of occurring out of five opportunities, i.e., 1 = 1 in 5 chances. The numbers in columns report the number of contractors indicating a given response regarding the likelihood of an event occurring.

Source: Adopted from Ahmed, Syed M., and Salman Azhar, M., Mr. Mauricio Castillo, Ms. Pragnya Kappagantula. (2002). Construction Delays in Florida: An Empirical Study, State of Florida Department of Community Affairs and the Departments of Construction Management and Civil Engineering, Florida International University.

Miami-Dade County has not fared well with regard to keeping publicly funded construction projects on budget and on schedule. A special report by researchers at the Campbell Public Affairs Institute at Syracuse University and reporters at Governing Magazine graded the performance of U.S. County governments in 2002.[69] The study focused on five areas of governance: Financial Management, Human Resource Management, Information Technology, Capital Management, and Managing for Results.[70]

**Miami-Dade** received an overall grade of C+, mostly due to poor performance found in the areas of information technology (D+) and capital management (C). Capital

[69] *Grading the Counties: Report Card, Miami-Dade County*, Governing Magazine and the Campbell Public Affairs Institute, Syracuse University, February, 2002. Accessed online July 10, 2006, at http://www.governing.com/gpp/2002/gp2miam.htm. For more on the data behind the research see the Government Performance Project at http://www.maxwell.syr.edu/gpp/grade/county_2002/index.asp?id=1.

[70] The study "triangulated" or combined various research methods to achieve reliable and consistent results across geographic areas and governance focus areas. Information was gathered from original survey research, public documents, and interviews, and both qualitative and quantitative methods were used to analyze the data.

management is the area of governance that deals with spending public money on capital improvement projects. Among various problems noted in this area, the study cited a **"checkered history in keeping projects on budget and on schedule" and a "slow selection and construction contracting process."**[71] Only 14 counties were graded C or worse for capital management while 26 were found to have performed better than this.

The most notorious examples of poor contractor performance in Miami-Dade County are found in the construction of new schools. According to the investigative reporting of Debbie Cenziper and Jason Grotto, the **Miami-Dade County Public School district** (MDCPS) failed to evaluate contractors before they were hired, and awarded construction projects to contractors who had botched previous jobs.[72] MDCPS **gave "more than $228 million in repeat business to at least 21 contractors who delayed jobs, turned in bad work or failed to finish projects.**"[73]

The school system then **had to pay more than $7.8 million to finish abandoned projects** where many contractors had been paid in full.[74] In addition, by 2003 MDCPS had charged contractors a total of $2.9 million for delays or incomplete work on projects completed since 1988.[75] Carlos Hevia, Director of Project Management at Miami-Dade County Public Schools since 1993, recalls that "**we would end with a claim, almost on every job… I would say [on] 90% of the jobs. Generally, the contractor is suing the school system.**"[76]

In the end, however, those who lost the most were the school personnel and students. In 2003, **seventy seven recently built schools had water leaks, and almost forty had developed mold and mildew (a serious respiratory health risk for students and school staff)**. At the time County engineers had determined that in at least 14 cases sloppy construction was at fault and were still trying to figure out what happened in the rest of the leaky or moldy schools.[77]

The school district is not the only Miami-Dade County agency that has had difficulties keeping capital construction on schedule and within budget. Other well-known examples include the North Terminal at Miami International Airport, almost $1 billion over budget, years past due, and still adding layers of management,[78] and the Performing Arts Center,

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[71] *Grading the Counties, 2002.*
[72] See Cenziper, Debbie, and Jason Grotto, *Builders Of Shoddy Schools Still Ok'd For Bids*, Miami Herald, June 23, 2003; Cenziper, Debbie, and Jason Grotto, *New Schools Eat Up Funds for Repairs*, Miami Herald, June 22, 2003; and Monroe, William O., CPA. 2002. *Operational Audit Of Capital Construction Activities For Miami-Dade County District School Board, July 1, 2000, Through April 30, 2002*: State of Florida, Auditor General. Accessible online at www.state.fl.us/audgen.
[73] Cenziper, Debbie, *Water Leaks Plague Schools*, The Miami Herald, April 13, 2003, p. 1B.
[74] Savage, Charles. 2002. *State Audit Shreds Dade Schools*. Miami Herald, June 29, 1a.
[75] Cenziper, Debbie, and Jason Grotto, *Crumbling Schools*, The Miami Herald, February 9, 2003, p. 1A.
[76] Interview with Carlos Hevia, Director of Project Management, Miami-Dade County Public Schools, Wednesday, July 19, 2006.
[77] Cenziper, *Water Leaks Plague Schools*, 2003, 1b.
[78] See Harrison, Steve. 2006. Mia Bids Are Budget Busters. Miami Herald, May 17, 1a; and Harrison, Steve. 2006. Second Contractor Hired To Finish Mia Job. Miami Herald, July 22.

reported to be at least $102.1 million over budget, also years behind schedule, and lacking adequate quality control.[79]

**Safety**

In addition to timeliness and work quality, the health and safety of construction workers has been a major problem in Miami-Dade County and the state of Florida. An unsafe workplace is ultimately an expensive and unproductive one, as work-related safety and health problems translate into higher worker turnover, higher workers' compensation costs, and construction delays. However, the problem of poor safety practices on construction sites directly threatens the lives of workers and their families as well, and therefore extends its impact beyond issues of cost and schedule which are of concern to project owners and builders.

Florida is one of the most (if not the most) dangerous areas for construction workers in the United States. In 2000 occupational fatalities in the construction industry were on the rise in Florida, and the state had the third highest rate of work-related deaths in the country (trailing Texas and California).[80] **By 2004 the State of Florida**, with 115 occupational fatalities in the construction industry, had surpassed Texas and California to **become number one in construction work related deaths**.

In 2000 the new director of the South Florida office of the Occupational Health and Safety Administration (OSHA) warned contractors to improve their safety practices[81] and in recent years the escalating number of crane accidents has prompted calls from County Commissioners to reform safety standards and enforcement.[82]

**These problems—time and cost overruns, and unsafe work environments—are largely the result of a flawed contactor selection process.** As Carlos Hevia explains, "it's not the school system… it's the low-bid system. Wherever you use the low-bid system you have these problems, whether it's a grocery store, a private residence… or a school."[83]

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[79] See Chang, Daniel. 2006. Performing arts center gets millions -- and a new name. Miami Herald, July 19; and Weinstein, A.C. 2006. The Performing Arts Center. Miami SunPost, July 21.
[80] U.S. Department of Labor, Bureau of Labor Statistics, *Fatal Occupational Injuries in Florida by Selected Occupations and Major Events or Exposures*. Accessed July 10, 2006 at http://stats.bls.gov/iif/oshwc/cfoi/tgs/2004/iiffi12.htm#occ
[81] De Lollis, Barbara. *New OSHA Chief Warns Contractors*. Miami Herald, September 13, 2000, p. 1C.
[82] D'Oench, Peter. Crane Accidents Prompt Call for Action: Miami-Dade Commissioner Wants Safety Policy. Local10.com News, July 7, 2006. Accessed July 13, 2006, at www.local10news.com.
[83] Interview with Carlos Hevia.

## The Role of Contractor Selection: Low-Bid versus Best Value Contracting

While many factors that affect the cost and quality of construction work are outside of our control (e.g., natural disasters or other environmental conditions), the problems mentioned above—safety, timeliness, and work quality—can be significantly improved through policy interventions, particularly the methods by which construction contracts are awarded. The traditional and commonly used "low-bid" contractor selection process is not effective in addressing these problems and its limitations lie in the inherent flaws of the low-bid system itself.

**Low-bid Contracting** uses price as the sole consideration for choosing construction companies,[84] at the expense of measures of competency and past performance. According to Gransberg and Ellicott, **the low-bid contracting system is based on flawed assumptions.**

> Awarding contracts to the lowest responsive, responsible bidder.... assumes that by carefully crafting a complete, unambiguous set of project plans and specifications, price remains the sole competitive factor… It makes a selection based solely on price, not quality or timeliness; it assumes perfect… plans and specifications; [and] it assumes that minimum requirements meet the customer's needs and that exceeding minimum standards does not enhance the project.[85]

In other words, as long as competent architects and engineers have crafted "perfect" plans and specifications for the project, it only remains to be built by the contractor that can do it for the lowest price. However, not only are project plans usually riddled with errors and omissions, not every contractor will carry out those plans in the same way.

Another assumption that can be inferred from the low-bid system is that (given perfect plans) the quality of construction can be controlled through adequate oversight and inspections. Under the low-bid system quality control is the responsibility of the project owner who hires managers and inspectors to reduce the risk of nonperformance. However, previous research has shown that these functions are inefficient and often result in poor performance.[86] Experienced project managers like Mr. Hevia of the Miami-Dade County Public School district know that the aforementioned performance problems are frequent and widespread, and impossible to eliminate through inspections alone. "There is so much to inspect, so many things to inspect, that it is impossible to review and adequately catch all the errors."[87]

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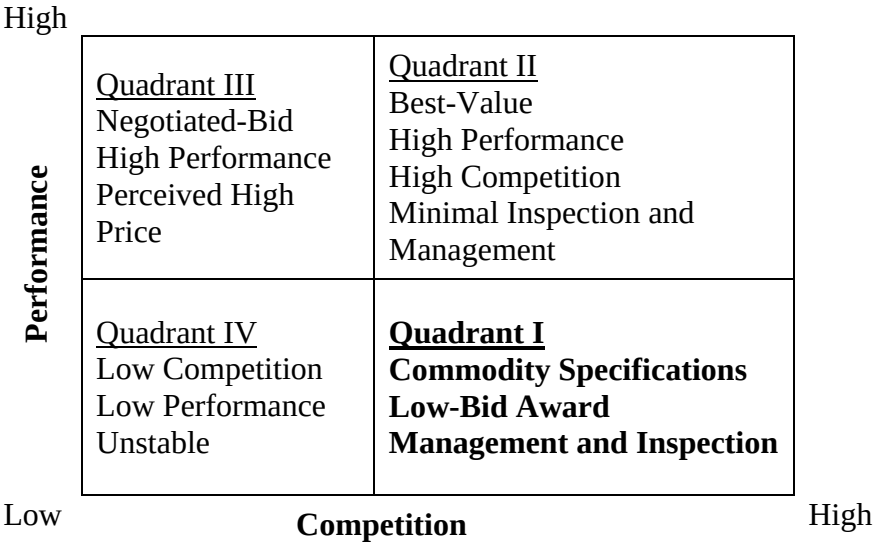
[84] Other factors are considered during the selection of architectural and engineering services.
[85] Gransberg, Douglas D, and Michael A Ellicott. (1996). Best value contracting: Breaking the low-bid paradigm. Transactions of AACE International: VEC51, p. 1.
[86] See, for example, Deming, Edwards W. (1982). *Out Of The Crisis*. Massachusetts: Massachusetts Institute of Technology; and Luffy, M. (2004). *Micromanagement: Necessary evil or just plain evil?* Business Know-How, Accessed March 8, 2006 at www.business.knowhow.com/growth/micromanage.htm.
[87] Interview with Carlos Hevia.

To better understand the differences between contractor selection methods it is useful to visualize their contrasting characteristics. Figure 1 below illustrates the characteristics of different contractor selection methods in terms of the presence of competition and the presence of performance in each system. Quadrant I depicts low-bid contracting. This scenario is much like the market of simple commodities; that is, like shopping for items where you are fairly certain that the lowest price yields the best value, such as gasoline for your car.

**Figure 1**
**Construction Industry Stability**




Source: Kashiwagi, Dean., John Savicky, Kenneth Sullivan, Jacob Kovel, David Greenwood, and Charles Egbu. (2005). Is Performance-Based Procurement A Solution to Construction Performance? 11th Joint Symposium: Combining Forces -Advancing Facilities Management and Construction through Innovation (pp. 172-182). Helsinki, Finland.

However, building a complicated structure suitable for people to live and work in is not the same as fueling your car. Competition for such services should not be reduced to the initial price paid if obtaining the overall best value is the aim of the purchaser. As the diagram shows, low-bid contracting is highly competitive but yields low performance levels despite requiring considerable management and inspection. Beyond the flawed assumptions mentioned above, **there are specific ways in which the low-bid system encourages cost-cutting and underperformance.**

When contractors prepare competitive bids they factor in only the bare minimum of necessary expenses. There is no incentive to work beyond the minimum level of quality. In fact, exceeding this would be irrational. Any work done beyond the bare minimum standards represents losses for the contractor or subcontractor and must be recuperated through legal disputes. Although owners and clients perceive the project plans as a bare minimum "floor" of quality standards, contractors see project plans as a maximum "ceiling" of quality.[88] It would be irrational for contractors to perform beyond the minimum required level which forms the basis for their budget.

[88] Kashiwagi, 2005, p. 4.

However, because project plans are imperfect, contractors are forced to perform beyond the minimum required level to accommodate for design flaws and omissions, and other unforeseen obstacles (or abandon the project). In fact, as Carlos Hevia explains, contractors recognize that designs and specifications are imperfect or incomplete but in order to win the project contractors routinely underbid projects or prepare their bid according to what the project plans specify. They hope or expect to be compensated later through change orders and legal disputes.

> These competitive contractors look at [the project plans] and they say, 'oh man, they made some mistakes in this thing. [But] I'm going to bid exactly what's there,' knowing full well that it can't be built that way.[89]

In the case of public school construction in Miami-Dade County, the adversarial nature of the low-bid system was so extreme that "contractors began to go to schools [to learn] how to milk this process, how to do better change orders. I had to go myself. We had all sorts of seminars—the opposite, how to prevent change orders."[90] Project managers like Mr. Hevia may in some cases skillfully and successfully defeat change orders but such victories are a double-edged sword for project owners. Blocking change orders means temporarily avoiding more costs, but those costs are passed on in the form of lower quality.

> So suppose they bid the project low and put all their eggs in a change order which we defeat… they're left with a problem that ultimately becomes ours because now they're going to be looking to cheat as much as they can to survive. They'll cut corners… Now the problem is we have to become even more vigilant.[91]

Mr. Hevia's statements clearly illustrate the adversarial nature of the low-bid contracting environment as well as the pressure on contractors and owners to keep costs low. Cutting corners ranges from using cheaper and lower quality materials than required to failing to apply materials properly to the practice of unsafe work habits in order to work faster.[92]

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[89] Interview with Carlos Hevia.
[90] Ibid.
[91] Ibid.
[92] Some anecdotal examples of cost-cutting provided by Mr. Hevia: "I had a project where we specified solid stainless steel drinking fountain heads. Instead of solid stainless steel like our specifications [we got] plastic painted with aluminum and it looked just like it. So how many of that was there?" "We say you have to have American steel made in the United States, they'll get Venezuelan steel or Japanese steel. We say you have to have a certain thickness of sheet rock, 5'8, two layers, for an egress corridor. They might put [in] instead a half inch, hoping nobody catches it." "You're [roof] fasteners are supposed to be in a certain pattern. Well they'll give you half as many." "The contractor puts certain demands on the schedule and budget of his own personnel, all the time talking quality, all the time talking first class. But the reality is that the business side of his operation is forcing the lowest guy who's keeping track of the time, say your job supervisor, superintendent, foreman, he's got pressure… that guy tells his worker, 'that's enough let's go to the next one.'" "The individuals performing the work take unnecessary risks and expose themselves to great risk… their appreciation of the risk is diminished [because they are not properly trained]." "We require a certificate… saying you'll do what you have to [do] to prevent suffocation and collapse-related

In addition to the pressure to cut costs that is imposed by price-based competition, the low-bid system enhances the likelihood of these behaviors by failing to select a project workforce that is highly trained and therefore less likely to engage in cutting corners.[93]

The low-bid system has no effective way of selecting higher quality contractors or screening out unscrupulous and incompetent contractors. The only built-in safeguard against awarding contracts to underperforming and/or unscrupulous contractors is the standard of "responsibility" used to pre-qualify prospective bidders. Contracts are awarded to the lowest responsive and responsible bidder. Responsiveness entails fully complying with the specifications and documentation requirements in the request for proposals. A responsible firm theoretically possesses "the business judgment, experience, facilities and capability in all respects to perform fully the contract requirements, and the integrity and reliability that will assure good faith performance."[94]

However, the typical interpretation of responsibility results in standards being set relatively low.[95] Standards of responsibility are set low and the enforcement of such standards (e.g., through prequalification) is weak in public sector contracting because public agencies are often reluctant to deny pre-qualification or issue findings of "non-responsibility" out of fear of being sued by the contractor.[96] It appears that this is also the case in Miami-Dade County. When asked about this, the Chief of Project Scheduling and Compliance for General Obligation Bonds projects admitted that denying certain firms the right to bid because of past performance is "difficult to do" because of the risk of being sued by a disqualified firm.[97]

Even where pre-qualification processes are most effective, they only succeed in filtering out the worst contractors. Marginally performing firms will "get in the door" if they are bonded, insured and at least have some experience.[98] Once a firm is approved to bid it must be awarded the contract *as a matter of law* if its bid is the lowest. As one legal analyst laments, "hiring low-grade or marginal contractors under the low-bid approach is unavoidable."[99]

These flawed assumptions and problems with the low-bid system have disastrous results for owners and end users. Low-bid contracting often yields "sub-standard or non-

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deaths in the trenches. But what happens is they lose in their bid for a change order later on… and then they're looking where they can cut corners. Dig the trench and don't put the sheet piling [in] and you just hope the dirt stays up and you put your guys in there and luckily nobody gets crushed."

[93] For research on the relationship between worker training and safety practices see the report by Bruce Nissen, *Workforce Training and the Marlins Stadium: Advantages or disadvantages of using registered apprentices in construction of a Marlins Stadium*, available at www.risep-fiu.org.

[94] City of Miami Procurement Ordinance, Ord. No. 12271, adopted August 22, 2002.

[95] Waites, Gerard M. (2004). *White Paper on Best Value Contracting: Contracting & Procurement Reforms To Improve Cost-Efficiency*. Washington, DC: O'Donoghue & O'Donoghue, LLP, p. 7.

[96] Ibid, p. 7.

[97] Interview with George Navarette, Chief of Project Scheduling and Compliance, General Obligations Bonds Program, Miami-Dade County Office of Capital Improvements.

[98] Mr. Navarette and Mr. Hevia confirmed that these basic requirements allow firms to bid in the low-bid contracting system. Factors such as worker training and safety record are typically not considered.

[99] Waites, 2004, p. 6.

performing facilit[ies]" and "higher life-cycle cost and risk."[100] Awarding contracts to the lowest bidder is *false economy* since those initial savings result in more money being wasted than saved over a longer period of time.

**Best Value Contracting** (BVC) is a method of awarding construction contracts in which bidders compete on the basis of technical and managerial merit, past safety and performance records, qualification of craftsmen, technical innovation, financial health, or other factors, in addition to price. To understand the benefits of BVC compared to the low-bid system it is useful to consider again the four quadrants drawn by Dean Kashiwagi (see Figure 1 above). Quadrant II shows that BVC maximizes competition and performance, and reduces the administrative burden on the public sector of quality control and management by delegating such tasks to the appropriate authority—the builder.

BVC acknowledges that price is not the same as value. Price only accounts for the initial cost of construction services. Best value is based on an evaluation of the long-term or life-cycle costs of a project. As Doug Gransberg and Michael Ellicott point out, "best value procurements force the early development of detailed project and procurement plans and create solicitations containing *accurate* source selection criteria."[101] A substantial investment of time and resources is made at the beginning to evaluate all of the potential problems and the long-term costs, and come up with a *realistic* estimate of a project's cost. With a realistic cost estimate in hand, contractors can focus on quality and timeliness (i.e., getting the job done right) and not worry about fighting for every penny through change orders and cutting corners in order to make a profit.

According to Dean Kashiwagi, Director of the Performance Based Research Group at Arizona State University, the use of a performance-based contractor selection process—such as BVC—for awarding construction contracts is more efficient and yields higher quality work.[102] But despite the overwhelming evidence in favor of BVC, there are many who argue against it.

**A common argument made against BVC is that it is too subjective and can be biased in favor of certain bidders.** Unfortunately, bias may be involved in any selection process. One would expect that under the low-bid system, which focuses narrowly on price, favoritism and bias would be absent since the choice of contractor is straight-forward. But history shows that this is not the case. Miami-Dade County is a good example of the existence of favoritism and outright corruption in the contractor selection process despite operating within the low-bid framework. Public officials often use their discretion to choose someone other than the lowest bidder, sometimes recognizing the

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[100] Kashiwagi, D. and Al-Sharnnani, A., *Performance-Based Procurement System Used by the State of Wyoming*, Cost Engineering, Vol. 39, No. 12, Dec. 1997, p. 37.
[101] Gransberg and Ellicott, p. 12. Emphasis added.
[102] Kashiwagi, Dean., John Savicky, Kenneth Sullivan, Jacob Kovel, David Greenwood, and Charles Egbu. (2005). *Is Performance-Based Procurement A Solution to Construction Performance?* Paper in 11th Joint Symposium: Combining Forces -Advancing Facilities Management and Construction through Innovation (pp. 172-182), Helsinki, Finland.

inherent fallacy of the low-bid system and trying to choose the higher performing contractor, but other times it is nepotism pure and simple. As a result of the preferential treatment shown to politically well-connected contractors in the past, there have been several recent calls for reform of the county's procurement policies.[103]

The contractor selection method itself will not eliminate bias and favoritism since these problems are the result of poor choices made by people. However, the BVC structure goes farther in combating this problem than the low-bid framework.

First, since BVC selects for quality and performance, it is likely to screen out unscrupulous companies that were previously involved in unethical business practices. As explained by Gerard Waites, "since past performance plays a central role [in winning contract awards], the level of quality and customer satisfaction on one job impacts a contractor's ability to win the next job, thereby strongly promoting accountability and overcoming one of the critical shortcomings of the low-bid method."[104]

Second, contractor selection is made using a carefully designed point/scoring system where performance and price factors are weighted according to their importance for the project. The point system turns qualitative performance characteristics (past experience, worker training, strength of management system, etc.) into quantifiable measures and scores them, thus reducing the role of discretion in the selection process. None of this is possible without carefully designed selection criteria and selection process.[105]

**The most popular argument made against BVC is that it stifles competition and drives up the price of construction services.** This is simply not true; not in theory and not in practice. Theoretically, BVC shifts the basis of competition from price to measures of performance in addition to price. With properly developed selection criteria—of which there are many examples—the BVC process is highly competitive. Moreover, competition on the basis of quality and performance encourages innovations leading to higher quality rather than innovation for the purpose of cutting costs. As explained by the Office of Federal Procurement Policy (OFPP), "[w]hen the government demands high quality service as a requirement for future business opportunities as does the private sector, competition will intensify and result in higher quality service."[106]

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[103] See Herald Staff. 1998. *Take Manager's Advice*. Miami Herald, Editorial, May 19, 6A; Herald Staff. 1998. *Where Was Public's Interest*? Miami Herald, Editorial, September 18, 24A; and Herald Staff. 2005. *Reform Slips Away*. Miami Herald, Editorial, June 8, 20A.

[104] Waites, 2004, p. 11.

[105] For examples of BVC methods and practices see Gransberg, Douglas D. 1997. *Evaluating Best Value Contract Proposals*. AACE International Transactions: p. 60.; Palaneeswaran, Ekambaram, and Mohan Kumaraswamy. 2001. *Recent advances and proposed improvements in contractor prequalification methodologies*. Building and Environment, Vol. 36, p. 73-87; Request for Proposals: Joint Development of Railroad Square Property. 2006. Sonoma-Marin Area Rail Transit District. Retrieved June 2006 at http://www.sonomamarintrain.org/documents/SMART-Railroad-Square-RFP-1-24-06.pdf.

[106] OFPP Guide to Best Practices for Past Performance, May 1995, p. 7. Retrieved June, 2006, from http://www.whitehouse.gov/omb/procurement/pbsa/guide_pbsc.html.

In practice, the evidence from case histories of BVC projects speaks for itself. According to a 1997 study by the National Association of State Purchasing Officials (NASPO) that compared state practices between 1996 and 1991, "lifecycle costing" (a critical component of BVC) was used more frequently by 19 states and less frequently by only two.[107] The NASPO survey also found that 28 states reported giving more consideration to criteria other than initial price.[108] By 2001 Best Value Contracting was being applied to 70% of U.S. federal construction dollars[109] and as of 2004 nine states in the union had adopted legislation to authorize this contractor selection method for various types of public works.[110] Thus it appears that some degree of best-value contracting is present in almost all states, and its use is increasing.

The U.S. Military[111]

In 1992 the U.S. Army Corps of Engineers Europe District (EUD) were struggling with cost growth ranging from 10 to 30 percent in several different projects. The EUD took the opportunity of these setbacks to solicit bids to address remaining construction work using a best value contracting process. In 1992 EUD issued an RFP containing best value criteria for a $3.5 million military grocery store in Belgium and received 5 proposals in less than a month. The project was completed on schedule, and experienced negligible overall cost growth.

In Turkey the U.S. Air Force authorized the construction of a dormitory in a location experiencing civil unrest and severe weather. Although the maximum construction time allotted in the design specifications was 18 months, the successful bidder gained an edge by proposing to complete the work in 9 months, while also meeting other performance and capacity standards. The project was completed in 9 months as promised with less than a one percent cost growth. A second U.S. Air Force project in Turkey—the construction of a water treatment plan—had to be completed very rapidly to restore potable water to the surrounding population. The request for proposals emphasized project schedule and construction quality and did not consider price. The Air Force selected one of fourteen initial bidders and the project was completed on schedule at 60% of the originally estimated budget.

A 2003 report by the U.S. Navy compared low-bid and BVC project outcomes. BVC was found to have delivered quality facilities faster and reduced cost growth from 5.7% to 2.5%, and produced $81 million in project savings over a five-year period. Construction claims were also reduced by 86%, further reducing costs and the administrative burden

[107] National Association of State Purchasing Officials (NASPO). 1997. *Survey of State & Local Government Principles & Practices* (5th edition), Lexington KY: NASPO, vol. 1, p. 51.
[108] Ibid, p. 53.
[109] See Mechanical Contractors Association of America Reporter. *Best Value Contracting: A Growing Federal Trend*, July/August 2001.
[110] Waites, 2004, p. 2.
[111] U.S. Army Corps of Engineers cases studies from Gransberg & Ellicott, 1996.

on agencies. [112] The data in the Navy's report considered projects built before and after it switched almost all of its facilities construction to BVC in the late 1990's.

Waites analyzed data from the U.S. General Accounting Office (GAO) and found that bid protests decreased in the federal sector by over 60% in the 1990's, which is consistent with the Navy's 2003 report. The 1990's was also when BVC became predominant in federal construction.[113] The GAO data reported by Waites also infers that "the federal contracting community has easily adapted to BVC procurement since bid protests, which are the primary legal vehicle for challenging unfair contract awards, have fallen dramatically."[114]

State of Texas

A 1995 court decision allowed school construction in Texas to be procured using BVC and this led to the rapid expansion of the method after school boards were able to cut a year or more off project schedules.[115] By 1997 Texas authorized BVC for education, cities, counties, and the Texas Legislature, among others. Steve Nelson, author of a law journal report on BVC, concluded that:

> Public procurement in Texas is likely never to be the same again . . . . Never before have safety, quality and minority outreach experience been given the weight they are given now. Never before have government agencies had not only the choice, but also the responsibility, to make informed and intelligent choices about how their construction projects will be procured.[116]

Performance Information Procurement System (PIPS)

A form of BVC that was developed by the Performance Based Studies Research Group (PBSRG) at Arizona State University, known as the Performance Information Procurement System or PIPS, has proven superior to low-bid contracting. PIPS awards projects based on merit, emphasizing past performance, risk management and pre-planning in the contractor selection process, in addition to price. Dean Kashiwagi, Director of the PBRG, has analyzed the results of PIPS in different states and the case by case results for four owners are provided in the appendix in tables 1 through 5.

The overall outcome of PIPS thus far has been outstanding. In over 380 tests and $230 million worth of construction projects developed through the PIPS system there is no

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[112] See Naval Facilities Engineering Command, *NAVFAC Capital Improvements Program, Acquisition Strategy Overview*, July 17 2003, pp. 6, 9-10, cited in Waites, 2004, p. 15.
[113] See Waites, 2004, p. 15, and footnote 33, where he writes: This data is reflected in correspondence from GAO to Congressional Representatives dated January 31, 1994 (Doc. No. 158766) and December 21, 2000 (Doc. No. 158766), which shows that bid protests dropped from 3,109 in 1994 to 1,152 in 2000, amounting to a reduction of approximately 63%. Additional information available upon request.
[114] Waites, 2004, p. 15.
[115] Nelson, Steve. 2002. *A Legal Perspective: "Best Value" Procurement For Cities And Counties*. Texas State Bar Journal, January. Available at http://www.texasbar.com/globals/tbj/jan02/construction.asp.
[116] Ibid.

evidence that the initial cost (accepted bid price) of the performance-based awards were more than that of low-bid awards.[117] Moreover, PBSRG researchers found that PIPS projects showed a 98% rate of performance (meaning that projects were delivered on time, with no contractor generated change orders after the pre-award phase, and high customer satisfaction), and that the performance of contractors under the PIPS system increased over time compared to the low-bid system.[118] Dr. Kashiwagi concludes that "the process-based approach of PIPS… seems to be far more effective in minimizing construction performance issues than the project specific, low-bid approach."[119]

PIPS is now beginning to be implemented in Miami-Dade County through Sarah Goodridge, Coordinator of the PIPS program based at Florida International University's Department of Construction Management, and the clients she assists, Baptist Health of South Florida and the City of Miami Beach. Although still only in the preliminary stages, Goodridge has begun analyzing the outcomes of Miami's first PIPS projects. She found that one project that is scheduled to be completed in 113 days would have taken at least 196 days to complete under the low-bid system. The difference is mainly accounted for by the extra time consumed in filing and contesting change orders. The extent of the delays under the low-bid system would have been 73% more than under the PIPS program. These results are for a very small project but nevertheless are indicative of the time and cost savings achieved through PIPS.[120]

Miami-Dade County Public Schools

As a result of the failure of low-bid contracting for the Miami-Dade County Public School (MDCPS) construction program, the school system eventually reformed their procurement policies and adopted Construction Manager At-Risk (CM at-risk), an alternative project delivery method. CM at-risk selects contractors according to an examination of past performance by obtaining references from previous projects, and changes the bid preparation process by allowing the construction manager to work closely with architects to ensure that accurate cost estimates are developed before construction starts. The accepted bid is then considered a "guaranteed maximum price" to which the construction manager must adhere. CM at-risk is like BVC in that it is cooperative instead of adversarial, forces the early development of long-term project costs, and measures the competency and integrity of bidders in addition to price considerations. In addition, under CM at-risk the school district examines the methods

[117] Kashiwagi, Dean., John Savicky, Kenneth Sullivan, Jacob Kovel, David Greenwood, and Charles Egbu. (2005). *Is Performance-Based Procurement A Solution to Construction Performance?* Paper in 11th Joint Symposium: Combining Forces -Advancing Facilities Management and Construction through Innovation (pp. 172-182), Helsinki, Finland, p. 6.
[118] Ibid, p. 6.
[119] Ibid, p. 9.
[120] Interview with Sarah Goodridge, PhD candidate in construction management and coordinator of the PIPS program at Florida International University, Department of Construction Management, July 18, 2006.

that will be used to select subcontractors and a list of prospective contractors, thus allowing them to eliminate those with poor performance records or other problems.[121]

A MDCPS cost analysis prepared in 2001 found that CM at-risk significantly reduced the average cost and schedule growth of school construction projects compared to conventionally low-bid projects.[122] The average cost growth from 13 low-bid projects was 6.5% over the initial contract price while **the average ultimate cost of 7 CM at-risk projects decreased by 1.71%.** In addition, the average construction delay on low-bid projects was about 373 days while that of CM at-risk projects was only about 274 days. A greater number of change orders per project apparently accounts for the difference in costs and schedule, as low-bid projects average nearly $100,000 more per project worth of change orders ($126,112 versus $27,887).

These figures do not include the **costs of any litigation or maintenance and repairs** that may have occurred during or after a project's construction. Carlos Hevia estimates that factoring in these extras **could "easily" add 30% to the cost growth of low-bid projects, while CM at-risk projects have had no claims thus far**. Since under the CM at-risk system past performance weighs heavily on present and future success, contractors are unlikely to cut corners and produce low quality work. If they do it will be reflected in performance records and they will be eliminated from future bidding pools.

The evidence from the above examples shows that BVC is superior to low-bid contracting in cost and schedule growth, and the quality of workmanship. Future research should examine the differences in worker health and safety outcomes, as BVC is likely to be superior in this area as well.

Given the different strategies used in the above examples:

***What selection criteria should Miami-Dade County agencies use to acquire construction services for the proposed Marlins Stadium at the Orange Bowl site?***

Although exact criteria used in selection and the relative weight given to each factor may vary among different projects, owners or agencies, there are some key factors that should always be considered to truly obtain a best value purchase. The following gives an example of key criteria that should be used for evaluating competitors.[123] The factors listed here should be considered in addition to price, and the relative weight each carries must be developed through a careful examination of the priority goals and needs in a given project.

[121] In 1999 the State of Florida required school districts to pre-qualify contractors, thereby also giving them the statutory authority to eliminate non-responsible bidders and reducing the chances of subsequent litigation.
[122] Contract analysis data, dated 8/22/01, provided by Carlos Hevia on July 26, 2006.
[123] Adopted from Waites, 2004, p. 9, and Table 3 in Palaneeswaran, 2001 (reproduced in appendix).

1. **Past Performance**
   This may be evaluated through consultation with past project owners or project managers, like professional references. Past performance is a good indicator of future performance and including this in selection encourages contractors to produce high quality work in order to win future projects.
2. **Human Resources/Training**
   Points may be given to reward companies with a more highly educated workforce, and who will also select subcontractors according to the skills and training of their workers. The only way to be sure a firms' workforce is highly skilled is if they were trained through a registered apprenticeship program. Rewarding firms that have a registered apprenticeship training program helps to increase worker skill levels and ensure top quality workmanship.[124]
3. **Local Hiring**
   Rewarding local hiring efforts helps to develop and sustain a future workforce with superior skills and training, it supports the broader community development goals of local government, and provides an economic boost as money from workers wages circulates through the local economy, boosting local business and generating sales tax revenue.[125]
4. **Safety Plan and History**
   The state of Florida has more work-related deaths in the construction industry than any other state in the union. Rewarding those contractors that have practiced good safety habits is sorely needed to improve health and safety outcomes in the industry, which also reduces construction costs and delays.
5. **Schedule**
   Points may be given to bidders who demonstrate an ability to complete work faster, if schedule is an important outcome for the particular project.
6. **Management Plan and Organization**
   Evaluation of the overall management plan and the organizational structure and style will shed light on the company's ability to deliver on their promises, such as schedule, maximum price, local hiring, etc.
7. **Additional Criteria May Be Added** if they enhance the overall value of public projects for Miami-Dade County. Examples of other criteria that may help meet the county's goals and priorities include rewarding the hiring of racial and ethnic minorities,[126] rewarding firms that provide healthcare,[127] or other practices and policies that benefit the county. These additional criteria are not directly related to the

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[124] Fore more on the importance of training for work in the construction industry see the report by Bruce Nissen, *Workforce Training and the Marlins Stadium: Advantages or disadvantages of using registered apprentices in construction of a Marlins Stadium*, at www.risep-fiu.org.

[125] For more on the impacts of local hiring see Bruce Nissen and Yue Zhang, *Who Gets the Jobs? Economic impacts of local vs. non-local hiring in a proposed Marlins Stadium at the Orange Bowl site*, at www.risep-fiu.org.

[126] For an analysis of the importance of minority contracting for Miami-Dade County see the report by Emily Eisenhauer, *Promoting Diverse Work: The benefits of using minority contractors in the construction of the Marlins stadium at the Orange Bowl site*, at www.risep-fiu.org.

[127] For an analysis of the importance of providing insurance for construction workers on public projects see the report by Emily Eisenhauer, *Healthy Work: The consequences of not providing health insurance to workers on the proposed Marlins stadium at the Orange Bowl Site*, at www.risep-fiu.org.

county's interest in obtaining the best value from public investments. However, if used wisely, these additional criteria can lead to "best value" outcomes for Miami-Dade County Building Better Communities program given its stated goals of investing in the quality of life of present and future residents and making the county "a better place to live, work and play."[128]

## Conclusion

Miami-Dade County and the City of Miami is investing about $445 million in up-front costs to build a new retractable roof stadium for the Florida Marlins on the grounds of the Orange Bowl, which is soon to be demolished. Given this substantial investment it is important that taxpayers get the best value possible. More important than the initial price of these projects is their overall value or long-term cost. The best overall value is achieved by minimizing the presence of several serious problems that have plagued South Florida's construction industry.

Problems with timeliness and performance, and worker health and safety in our construction industry are largely the result of a flawed contractor selection process. Low-bid projects acquire construction services on the basis of price at the expense of schedule, workmanship, and worker safety. By contrast, in Best Value Contracting bidders compete on the basis of technical merit, past performance and safety practices, local experience, worker training, *and price*, among other possible factors. This results in not only a better overall value for taxpayers but other positive outcomes for the community, such as training residents for careers in construction and good paying jobs with benefits. BVC is a "win" for all parties involved and should be the contractor selection method of choice for the new Marlins Stadium.

[128] See Miami-Dade County Building Better Communities home page www.miamidade.gov/build/

# APPENDIX

**Table 1**
**United Airlines Performance Based (PIPS) Results**

| | |
|---|---|
| Total number of projects | 32 |
| Total award cost | $12,750,000 |
| Total budget cost | N/A |
| Percent +/- budget | N/A |
| **Percent of projects that finished on time** | **100%** |
| **Percent of projects that finished within budget** | **100%** |
| **Number of contractor-caused change orders** | **0** |
| Percent satisfied with PIPS /PBPS | 98% |
| Percent that would hire the contractor again | 98% |
| Number of companies that were surveyed on Past Performance | 70 |
| Low-bid system of contracting (1-10) | 3 |
| Performance Based system of contracting (1-10) | 9 |
| Performance Based system of contracting (1-10) | 9 |

Source: Reproduced from *Past Users: Performance Information Procurement System (PIPS)*, Performance Based Studies Research Group, Arizona State University. Accessed online at www.eas.asu.edu/pbsrg/pips, July 20, 2006.

**Table 2**
**State of Utah (PIPS) Project Results**

| | |
|---|---|
| Total number of projects | 5 |
| Total award cost | $80,506,376 |
| Total budget cost | $85,770,000 |
| **Percent +/- budget** | **-7%** |
| **Percent of projects that finished on time** | **80%** |
| **Percent of projects that finished within budget** | **80%** |
| **Number of contractor-caused change orders** | **0** |
| Percent satisfied with PIPS /PBPS | 90% |
| Percent that would hire the contractor again | 100% |
| Average post project evaluation (1-10) | N/A |
| Number of companies that were surveyed on Past Performance | 357 |
| Low-bid system of contracting (1-10) | 4 |
| Performance Based system of contracting (1-10) | 9 |

Source: Reproduced from *Past Users: Performance Information Procurement System (PIPS)*, Performance Based Studies Research Group, Arizona State University. Accessed online at www.eas.asu.edu/pbsrg/pips, July 20, 2006.

**Table 3**
**Dallas Independent School District (PIPS) Project Results**

| | |
|---|---|
| Total number of projects | 9 |
| Total award cost | $4,205,208 |
| Total budget cost | $4,824,357 |
| **Percent +/- budget** | **-13%** |
| **Percent of projects that finished on time** | **100%** |
| **Percent of projects that finished within budget** | **100%** |
| **Number of contractor-caused change orders** | **0** |
| Percent satisfied with PIPS /PBPS | 100% |
| Percent that would hire the contractor again | 100% |
| Average post project evaluation (1-10) | 9.57 |
| Number of companies that were surveyed on Past Performance | 36 |
| Low-bid system of contracting (1-10) | 1 |
| Performance Based system of contracting (1-10) | 10 |

Source: Reproduced from *Past Users: Performance Information Procurement System (PIPS)*, Performance Based Studies Research Group, Arizona State University. Accessed online at www.eas.asu.edu/pbsrg/pips, July 20, 2006.

**Table 4**
**State of Hawaii (PIPS) Results**

| | |
|---|---|
| Total number of projects | 9 |
| Total award cost | $12,954,392 |
| Total budget cost | $12,382,518 |
| **Percent +/- budget** | **5%** |
| **Percent of projects that finished on time** | **100%** |
| **Percent of projects that finished within budget** | **100%** |
| **Number of contractor-caused change orders** | **0** |
| Percent satisfied with PIPS /PBPS | 100% |
| Percent that would hire the contractor again | 100% |
| Average post project evaluation (1-10) | N/A |
| Number of companies that were surveyed On Past Performance | 372 |
| Low-bid system of contracting (1-10) | 1 |
| Performance Based system of contracting (1-10) | 10 |

Source: Reproduced from *Past Users: Performance Information Procurement System (PIPS)*, Performance Based Studies Research Group, Arizona State University. Accessed online at www.eas.asu.edu/pbsrg/pips, July 20, 2006.

**Table 5**
**University of Hawaii (PIPS) Results**

| | |
|---|---|
| Total number of projects | 12 |
| Total award cost | $2,222,942 |
| Total budget cost | $2,860,000 |
| **Percent +/- budget** | **-22%** |
| **Percent of projects that finished on time** | **100%** |
| **Percent of projects that finished within budget** | **100%** |
| **Number of contractor-caused change orders** | **0** |
| Percent satisfied with PIPS /PBPS | 100% |
| Percent that would hire the contractor again | 100% |
| Average post project evaluation (1-10) | 9.89 |
| Number of companies that were surveyed on Past Performance | 372 |
| Low-bid system of contracting (1-10) | 1 |
| Performance Based system of contracting (1-10) | 10 |

Source: Reproduced from *Past Users: Performance Information Procurement System (PIPS)*, Performance Based Studies Research Group, Arizona State University. Accessed online at www.eas.asu.edu/pbsrg/pips, July 20, 2006.

**Table 6**
**Construction Contractor Prequalification Criteria**

| Grouping | Criteria | Indicators |
|---|---|---|
| **Responsiveness** | Promptness | Meeting deadlines. |
| | Realism | Correctness and valid information. |
| | Completeness | Totality in providing information. |
| **Responsibility** | Conformance | Complying with local government regulations, standards and bylaws, such as enforcement on employment of illegal immigrants by the Works Bureau, Hong Kong. |
| | Performance | Past performance (in the frameworks of time, finance and quality), performance in the ongoing contracts, history of punishments/penalties for poor performance, performance ratings. |
| | Other | Quality system (such as ISO 9000, TQM, quality policy, quality control, quality audit); safety system (such as safety policy, safety audit, occupational health); environmental concerns (such as past history, present approach); partnering (such as past history, willingness for partnering arrangement); specific requirements (in cases of project specific prequalification such as prequalification for design-build projects). |
| **Competency** | Resources | Finance (in the frameworks of stability and capacity Ð measuring indicators such as net worth, turnover, liquidity, solvency, gearing, credit rating, bonds and bank guarantees/warrantees); human resources (managerial, supervisory and operational-indicators such as experience, qualifications, track record); machinery, plant and equipment (indicators such as numbers available for the work, leased/hired/owned, working condition). |
| | Experience | Past experience; project specific knowledge. |
| | Constraints | Resources; current workloads; subcontracting; joint ventures. |
| | Management & Organization | Management (indicators such as policy, system, recording, communication, information technology); organization (such as structure, style). |

Source: Adopted from Table 3 in Palaneeswaran, Ekambaram., and Mohan Kumaraswamy. (2001). *Recent advances and proposed improvements in contractor prequalification methodologies*. Building and Environment, Vol. 36, p. 73-87.