

**2007
Annual Report to the
Governor and Legislature**

**Project Labor Agreement (PLA) Act
P.L. 2002, Chapter 44
(C.52:38-et seq.)**

**New Jersey Department of Labor
And Workforce Development
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EXECUTIVE SUMMARY

The Project Labor Agreement Act (P.L. 2002, Chapter 44) which was signed into law on July 25, 2002, authorized the use of Project Labor Agreements (PLAs) on public works projects in New Jersey with total building costs of \$5 million or more. The Act specifies that beginning December 31, 2003, an annual report evaluating the effectiveness of projects utilizing Project Labor Agreements be prepared by the Commissioner of Labor and Workforce Development. This report summarizes the impact of the law on public works projects which were completed from July 1, 2006 through June 30, 2007.

In contrast to previous reports which analyzed all cumulative data since 2002, this year's report primarily focuses on projects completed during Fiscal Year 2007 (July 1, 2006 through June 30, 2007), although in many cases comparisons are made with preceding years. As in the past, this report compares PLA public works projects with non-PLA projects with respect to performance indicators, such as cost, construction duration and shares of employment for minorities, females and apprentices. The comparative analysis in this report again focuses on completed school projects because of the relatively small number of PLA non-school projects (3) compared with non-PLA, non-school public building projects (87). Below are some highlights of this year's annual report:

- A total of 81 newly completed public works building projects of all types which were eligible for the use of a PLA were identified during FY 2007. These included 59 completed school projects (24 PLA and 35 non-PLA) and 22 other non-school building projects (1 PLA and 21 non-PLA).
- Of the 81 projects completed during the past year, approximately 31 percent (25) used a PLA, compared with 15 percent (33) of the projects completed between July 2002 and June 2006.
- Forty-four percent (24) of all PLA school projects completed since July 2002 (55) were completed during the past year from July 2006 through June 2007; most of this annual increase was due to a greater number of new PLA schools being completed during the past year (17) than during the four-year period from July 2002 through June 2006 (15).
- As during the four preceding years, PLA projects exceeded their goals for minority employment participation and these goals entailed higher percentages of minority employment than those for non-PLA projects. During the past year, the actual minority employment participation rate on PLA school projects was 24.1 percent, exceeding the goal obligation of 21.3 percent, while the actual minority participation rate for non-PLA school projects of 17.2 percent was slightly below the target participation rate of 17.7 percent.
- Among PLA projects completed during the past year, seven out of 18 construction trades (asbestos workers, bricklayers/masons, glaziers, laborers, operating engineers, painters and roofers) achieved a higher minority participation rate than the county goal. Among the non-PLA projects, only five construction occupations were above the county goal.
- Statewide apprentice participation rates were 11.3 percent for PLA construction projects, compared with 9.4 percent for non-PLA projects. Participation rates ranged from highs of 25.8 percent (PLA) for sprinkler fitters and 21.8 percent (non-PLA) for electricians to generally low participation rates of four percent or less for PLA and non-PLA projects for asbestos workers, laborers and iron workers.

- Average building costs for new schools for both PLA and non-PLA projects completed during fiscal year 2007 were higher based on the average indexed cost per square foot than new schools completed during the period from July 2002 through June 2006 (building costs were indexed to 2007 levels to account for annual increases in construction costs). The increase in indexed building costs can be partially explained by longer average project durations for the 21 new schools completed during FY 2007 (124 weeks), compared with the average duration for 43 new schools completed from July 2002 through June 2006 (89 weeks).
- The average construction duration for all 59 school projects completed from July 1, 2006 through June 30, 2007 was 94 weeks, compared with 83 weeks for all 152 school projects completed from July 2002 through June 2006. Of the 59 total school projects completed during fiscal year 2007 the average duration for PLA projects (24) was 129 weeks compared with 70 weeks for non-PLA projects (35).
- Since its inception in March 2002 through January 2008, the Construction Trades Training Program for Women and Minorities (CTTP-WM) has enrolled a total of 1,758 participants in training with 1,333 completions (75.8%). Of the individuals that completed the program, 486 (36.5%) obtained a union apprenticeship and 270 (20.3%) obtained non-union apprenticeships or other construction placements. To date, the program has achieved a successful 56.7 percent placement rate.

INTRODUCTION

On July 25, 2002, the "Project Labor Agreement Act" (P.L. 2002, Chapter 44) was signed into law. The law authorizes all public agencies (state, county, municipal, others) in New Jersey to include project labor agreements (PLAs) in all public works projects for the construction, reconstruction, demolition or renovation of buildings (other than pumping stations and water/sewage treatment plants) at public expense, for which the total cost of the project, exclusive of land acquisition cost, will equal or exceed \$5 million.

Project labor agreements are a form of pre-hire collective bargaining agreements permitted under federal law between public works contractors and subcontractors and labor organizations in the construction industry concerning important issues of employment, including work hours, starting times, and procedures for resolving disputes. Project labor agreements cover project terms and conditions of employment for construction trade workers, and are often used for major, multi-year construction projects. Project labor agreements typically require contractors to hire employees through the union hall referral systems. In return for this advantage, the unions agree to a no strike and no work stoppage provision. The use of PLAs in general, and the use of statewide PLAs for the original \$8.6 billion school construction program in particular, is a recent occurrence in New Jersey.

A model public works PLA between the New Jersey Schools Development Authority (SDA), formerly the Schools Construction Corporation (SCC), the New Jersey Building and Construction Trades Council and several construction trade unions was completed on February 28, 2003.

The PLA Act spells out New Jersey's compelling interest in carrying out public works projects to meet certain beneficial business and public policy performance objectives. Project labor agreement projects are expected to: advance public interests with respect to costs; efficiency; quality; timeliness of completion; the use of skilled labor; guarantees against strikes, work stoppages, or similar actions; and the effective resolution of jurisdictional and labor disputes. These projects also require contractors to have an apprenticeship program and to implement set-aside goals for women- and minority-owned businesses. The PLA Act also requires each agreement to achieve employment and apprenticeship shares for minorities and women in conformance with applicable requirements, as well as to allow the contracting agency or another State agency to monitor the amount and share of work performed by minorities and women and their progression into apprentice and journey worker positions.

The PLA Act requires the Commissioner of Labor and Workforce Development (LWD) to annually provide an analysis and comparison of PLA and non-PLA projects. The 2007 PLA Report primarily analyzes information for projects completed during the one-year period from July 1, 2006 through June 30, 2007, while the 2006 PLA report evaluated cumulative data obtained from July 25, 2002 to June 2006. While the focus of the 2007 report is on annual data, any significant differences between the periods are also discussed. To date, most of the projects completed with a PLA have been school projects; therefore, the comparative analysis focuses primarily on completed school projects. The data sources and methodology for this report are presented in Appendix I.

PRESENTATION OF AVAILABLE DATA

Use of Project Labor Agreements in Public Projects in New Jersey

In the most recent fiscal year, July 1, 2006 to June 30, 2007, a total of 81 newly completed public building projects of all types were identified. There were 59 completed school projects (24 PLAs and 35 non-PLAs) and 22 other non-school building projects (1 PLA and 21 non-PLAs).

**Table 1. Completed Projects, July 1, 2006 – June 30, 2007
By Project Type and PLA/Non-PLA Designation**

	<u>PLA Projects</u>	<u>Non-PLA Projects</u>
School Projects (59)		
New School Construction	17 ⁽¹⁾	4
New School Addition	0	3
School Renovation and Addition	6	23
School Renovation	1	5
Total Number of School Projects	24	35
Non School Projects (22)		
Municipal Building/Record Hall/Fire & Police	1 ⁽²⁾	6
University/College Academic Buildings/Student Center		5
Parking Garage/Deck		3
Library		2
Sports Arena/Gym/Ice Rink		2
Student Housing/Residence		2
Technology Center		1
Total Non-School Projects	<u>1</u>	<u>21</u>
Total School and Non-School Projects	<u>25</u>	<u>56</u>
Grand Total of Projects		81

Source: Author's analysis based on data provided by the New Jersey Department of the Treasury, Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (DCC); and the New Jersey Schools Development Authority (SDA).

Notes: (1) Includes two non-Abbott schools implemented by the SDA with a PLA.

(2) Includes one non-school building project that was not administered by the SDA.

Since the enactment of the PLA Act on July 25, 2002 to June 30, 2007, a statewide total of 301 identifiable publicly-funded building construction projects of all types, each with total building costs of \$5 million or more, have been completed. A comparison of all construction projects with a PLA agreement and those without a PLA is shown in Table 2.

**Table 2. Completed Projects by Type and PLA/Non-PLA Designation
July 25, 2002 – June 30, 2007**

<u>School Projects (211)</u>	<u>PLA Projects</u>	<u>Non-PLA Projects</u>
New School Construction	32 ⁽¹⁾	32
New School Addition	4	10
School Renovation and Addition	15 ⁽¹⁾	107
School Renovation	4	7
Total Number of School Projects	55	156
 <u>Non-School Projects (90)</u>		
University/College/Tech. Institute Research & Education	1	25
County/Municipal/Police/Public Works/Social Services	2	14
Parking Garage/Deck	-	9
Library	-	8
Student Housing (College/University)	-	8
Sports/Recreation/Community/Youth Center	-	8
Railroad/Ferry Terminal	-	4
Other ⁽²⁾	-	11
Total Non-School Projects	3	87
Total School & Non-School Projects	58	243
Grand Total of Projects	301	

Source: Author's compilation using data provided by New Jersey Department of the Treasury, Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (DCC); and New Jersey Schools Development Authority (SDA).

Notes: The above construction projects were started and completed during the period from July 25, 2002 to June 30, 2007.

(1) Each of these categories includes two non-Abbott schools implemented by the SDA with a PLA.

(2) "Other" includes: 2 Veterans Affairs/Long Term Care Facilities; 2 Court House/Justice Centers; and 1 each Theater, Children Center, Armory, Cemetery Building, River Boathouse, Technology Center and Health Care Center.

As shown in Table 2, 243 (80.7%) of the 301 projects were completed without a PLA agreement. The majority (64.2%) of the non-PLA projects were school construction projects. Of the 55 PLA school projects completed in fiscal year 2007, four were non-Abbott¹ schools implemented by the SDA.

Table 3 shows the 211 school construction projects completed since July 2002 by time period. There were 55 PLA projects compared with 156 non-PLA school projects. Of the 64 completed new schools, 32 were PLAs and 32 were non-PLAs.

Table 3. Completed Schools Projects by Time Period

Time Period	All School Projects			New Schools Only		Total New Schools Only
	PLA/SDA	Non-PLA	Total All Schools	PLA/SDA	Non-PLA	
7/02 to 9/04	12	40	52	6	6	12
10/04 to 9/05	5	29	34	3	16	19
10/05 to 6/06	14	52	66	6	6	12
Total						
7/02 to 6/06	31	121	152	15	28	43
7/06 to 6/07	24	35	59	17	4	21
Total						
7/02 - 6/07	55	156	211	32	32	64

Source: Calculations based on data provided by New Jersey Department of the Treasury, Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (DCC); and New Jersey Schools Development Authority (SDA).

Project Awards

The award amount (the term used in the DCC database²) and the construction award (the term used in the SDA database) are essentially synonymous, and can be defined as the dollar amount originally approved by the awarding agency or project owner (e.g., Board of Education, Township, College/University, SDA) at the beginning of a construction project. To put it another way, it is the originally anticipated total cost for a particular construction project and the dollar amount awarded to the prime contractor. The award amount does not include: the costs of land acquisition; architectural design; engineering; project management; change orders, deviations and upgrades from the original design and construction plan; or cost-overruns. The award amount is not the final, total or complete actual costs of a construction project.

¹ Abbott refers to the 1998 New Jersey Supreme Court decision finding the State responsible for funding school districts in special needs districts. Today there are 31 special needs districts in New Jersey. All Abbott schools are built by the New Jersey Schools Development Authority (SDA) with a PLA in effect.

² Much of the data used in this report is derived from administrative records maintained by the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts, New Jersey Department of the Treasury (DCC), the New Jersey Schools Development Authority (SDA), and the New Jersey State Department of Education (DOE). For further information, please consult Appendix I: Data Sources and Methodology.

A truly valid and fair “apple to apple” cost comparison between different school projects is not easy. For instance, projects vary in terms of type and size (early childhood center versus high school), location (inner city in the North versus rural area in the South), construction design (one-story versus multi-level), materials used, and year of construction. Labor costs also vary by geographical location. To illustrate, Table 4 presents the hourly prevailing wage rates (wages and benefits) for certain construction occupations in Hudson County (northern county) and Burlington County (southern county).

Table 4. Hourly Prevailing Wage/Benefit Rates for Selected Trades in Burlington and Hudson Counties, 2006/2007

Trades	Burlington County	Hudson County	Difference	
			Amount	Percent
Electrician	\$68.22 North/\$65.06 South	\$68.21	\$3.15	4.8
Plumber	\$62.88 North/\$60.11 South	\$64.25	\$4.14	6.9
Sheet Metal Worker	\$64.30	\$68.78	\$4.48	7.0
Structural Iron Worker	\$61.53	\$64.04	\$2.51	4.1
Roofer	\$46.10	\$57.80	\$11.70	25.4
Sprinkler Fitter	\$53.65	\$61.11	\$7.46	13.9
Tiler	\$54.35	\$63.11	\$8.76	16.1

Source: Author’s calculations using data provided by New Jersey Department of Labor and Workforce Development, Prevailing Wage Rate Determination. The contract durations vary among trades, they range from January 1, 2006 to June 30, 2007.

Building Costs

The following analysis consists of 64 new schools, of which half (32) were built using PLAs, and includes school construction projects that were started and completed between July 2002 and June 2007. All non-school construction projects were excluded from the analysis because of the small number of non-school PLA projects and because of major differences in the types of buildings constructed. Due to the limited availability of data, all projects that were not considered new construction were excluded.

LWD obtained the building size (square footage) and student capacity for all 64 completed new schools from the State of New Jersey Department of Education (DOE). This information was used to calculate the cost per square foot and the cost per student for each project. In order to compare the school construction costs of PLAs with those of non-PLAs, it was first necessary to adjust for the rising construction costs during the reference period, so that all costs could be expressed in 2007 prices. Specifically, a cost index was constructed that included both the trend in construction labor costs and the trend in materials costs between 2002 and 2007. The indexed cost was calculated using the Building Cost Index History (1915-2007) from McGraw Hill Construction. The Building Cost Index is based on a monthly 20-city average of four components: the cost of cement, the cost of 2 x 4 lumber, the cost of structural steel, and the cost of skilled labor. The indexed cost for each project is calculated by applying the monthly changes in the building cost index from each project’s completion date to June 2007. Information on cost, size and student capacity for the 64 completed new schools is listed in Appendix II.

The index-adjusted average cost per square foot and the index-adjusted average cost per student for all PLA and non-PLA schools and for all types of schools are shown in Table 5. The average indexed cost per square foot and the average indexed cost per student were both higher for all categories of PLA schools than for non-PLA schools. The indexed cost per square foot for all PLA projects was \$246.28, or

34.2 percent higher than for all non-PLA projects, which averaged \$183.50 per square foot. This analysis primarily focused on a comparison of average cost per square foot because of differences in how student capacity is defined for the various types of schools (see Appendix I).

Possible reasons for the cost differences between PLA and non-PLA projects were examined, including type of school and location. Elementary schools (including early childhood centers and primary schools) were expected to be less expensive (per square foot) since schools for the lower grades tend to be single-story buildings and consist of basic classrooms (rather than science labs, athletic facilities, etc.) which are less expensive to construct. Also, building projects in the northern region of the state were expected to be more expensive due to higher labor costs, as discussed in the previous section.

**Table 5. New School Project Construction Cost per Square Foot and per Student
July 2002 – June 2007**

	Indexed Cost Per Square Foot		Indexed Cost Per Student	
	PLA	Non-PLA	PLA	Non-PLA
Early Childhood Centers (6 PLA Projects)	\$258.70	N/A	\$37,969	N/A
Primary Schools (4 Non-PLA Projects)	N/A	\$187.30	N/A	\$25,288
Elementary Schools (14 Non-PLA/ 14 PLA Projects)	\$226.87	\$202.73	\$39,500	\$34,836
Middle Schools (8 Non-PLA/ 8 PLA Projects)	\$237.87	\$179.84	\$46,590	\$27,439
High Schools (6 Non-PLA / 4 PLA Projects)	\$306.82	\$170.82	\$59,831	\$43,695
All Schools (32 Non-PLA/ 32 PLA Projects)	\$246.28	\$183.50	\$44,377	\$34,106

Source: Author's calculations using data provided by the New Jersey State Department of Education (DOE); and McGraw Hill Construction, Building Cost Index History (1915-2007).

N/A: Not Applicable

One method for determining whether the difference in costs between PLA projects and non-PLA projects is valid and not due to the correlation between PLA projects and other factors is to use a statistical technique called regression analysis. This is a standard method for measuring the effect one factor has upon a particular outcome (e.g. project cost) while controlling for the effects of other things such as location, type of school, project size and project type. The regression analysis examined the differences in costs between PLA and non-PLA projects controlling for the effects of the type of school, size of school (in square feet) and the geographic location. (The regression results are shown in Appendix III.)

The regression analysis was able to explain approximately 35 percent of the cost difference between PLA and non-PLA projects. The effects of geographic location, size of school and type of school were all found to be statistically significant factors in explaining cost differences. School projects built in the northern region of the state on average were found to cost more, as did middle and high schools. There were economies of scale on larger projects which reduced average costs. After controlling for the effects of these factors, the average cost of PLA projects remained higher than that of non-PLA projects, and the

difference was significant at a 99-percent confidence level. These results are in contrast to a previous report which found the cost differences to be statistically insignificant. The difference in results is due to the addition of the 21 new school projects identified during fiscal year 2007 which had higher adjusted building costs for both PLA and non-PLA schools than the indexed building costs of the 43 schools previously identified. Because of the higher proportion of PLA schools completed during fiscal year 2007 (17 of 21), PLA average costs were impacted to a greater extent than non-PLA schools by the higher building costs among newly completed projects. One factor affecting building costs was that the average duration for new schools completed during fiscal year 2007 was 124 weeks compared with an average duration of 89 weeks for all new schools completed during the period from July 2002 through June 2006.

As discussed above, the regression analysis was only able to explain approximately 35 percent of the variation in project costs between PLA and non-PLA new school construction. The remaining 65 percent of the cost difference cannot be explained by this analysis and is likely due to factors which cannot be quantified or for which there are no data currently available. For example, while data can be examined by type of school (e.g. elementary vs. middle school), there could be other differences within each school category which could influence building costs for which there are no data, such as the number of floors, the types of materials used or the types of amenities included in the building. There could also be other factors which are not easily quantified or measured, such as differences in the quality of building construction, improved efficiency or societal benefits from the increased participation of minority and female workers and apprentices learning new trades (see following sections).

Employment Work Hours for Minorities, Females and Apprentices

This section discusses the total cumulative work hours and the share of the total work hours for minorities, females, and apprentices for completed projects. Appendix IV provides the details of the information for all new projects completed from July 1, 2006 through June 30, 2007. As with the other data, this information is also self-reported by the various contractors based on payroll records and other records.

The State of New Jersey has established minority³ and female employment goal obligations for public works contractors and subcontractors for each county. Both the Office of Diversity and Emerging Business Markets of the SDA and the Department of Treasury's Division of Contract Compliance & Equal Employment Opportunity in Public Contracts (DCC) use these goal obligations as guidelines.

The minority and female goals for each county are determined by the New Jersey Department of the Treasury, Affirmative Action Office. The methodology takes into account the actual availability of qualified minorities and females utilizing decennial Census data for affirmative action programs. Depending on the construction start date, the 2007 report uses the minority county goals based on either the 1990 or the 2000 Census. The year 2000 Census-based minority targets, which in some counties changed significantly, did not become available to Treasury's DCC until December 2004. The updated targets were revised in February 2005 and applied to new projects, which began in and after March 2005. Projects already underway prior to March 2005 continue to be subject to the 1990 Census-based minority targets. Table 6 shows the established minority goal obligation rates for each county based on the 1990

³ The term "minority" includes all minority males and all minority females. The category female is defined as both minority females as well as non-minority females. In other words, minority females are counted twice in the cumulative total employment statistics: once under females and a second time under minorities. The double count of minority females is inconsequential since their participation rate in the construction trades at the present time is extremely low.

and 2000 Census figures. The female employment goal obligation for all counties in New Jersey is 6.9 percent. It should be noted that these are goals, and not quotas. Therefore, these goals do not have to be strictly satisfied if the contractor attempted in good faith to reach the applicable targets.

The participation rate of minorities, females and apprentices in the construction industry is of interest to many policy makers. To evaluate the extent to which minority, female and apprentice workers are included in these construction projects, the analysis uses two different measurements. The first is the actually-achieved participation rate on a project. The second measurement considers the established minority employment goal obligation for the county in which the project is located. This is done because of the substantial differences in the racial composition of the counties.

**Table 6. Minority Goal Obligation Percentage in Public Contracts
By County Based on 1990 and 2000 Census**

County	Minority Goal		County	Minority Goal	
	1990 Census	2000 Census		1990 Census	2000 Census
(Percent)			(Percent)		
Atlantic	20	18	Mercer	19	30
Bergen	10	22	Middlesex	16	24
Burlington	16	15	Monmouth	11	15
Camden	16	19	Morris	7	16
Cape May	8	5	Ocean	6	7
Cumberland	21	27	Passaic	24	36
Essex	42	53	Salem	15	10
Gloucester	10	9	Somerset	8	20
Hudson	38	60	Sussex	5	4
Hunterdon	5	3	Union	24	45
			Warren	5	5

Source: New Jersey State Department of the Treasury, Division of Contract Compliance & EEO in Public Contracts, Affirmative Action Office, Goals for Construction Contractors and Subcontractors, Revised 02/05.

Out of the 59 total school projects completed during the past year, 25 were subject to the 1990 Census-based guidelines, while 34 took place after the 2000 Census targets were issued. Of the 24 PLA school projects, 4 were subject to the 2000 Census-based minority targets and 20 projects were still subject to goals set under the 1990 Census. For non-PLA school projects, the proportions were reversed, with 5 projects falling under the 1990 goals and 30 projects subject to the generally higher targets for minority hiring.

Table 7 shows actual participation rates for minorities, females and apprentices for PLA and non-PLA school projects completed during FY 2007. Actual PLA minority participation rates exceeded the weighted state average goal, while the minority participation rate for non-PLA projects fell slightly short of the weighted goal. This can be partially explained by the higher proportion of non-PLA projects using the revised targets based on the 2000 Census.

The female participation rates actually achieved on school construction projects are low for both PLA and non-PLA projects. However, the percentage of hours worked by females on PLA projects (2.1%) was more than five times the percentage worked on non-PLA projects (0.4%).

The table also includes apprentice participation rates for PLA and non-PLA school projects, although there are no goals set for apprentice participation. The PLA apprentice participation rate (11.7%) was a few percentage points higher than the rate for non-PLA projects (8.7%). Overall, completed PLA projects demonstrated better minority, female and apprentice participation rates compared with completed non-PLA projects.

**Table 7. Participation Rate for Minorities, Females, Apprentices
School Projects Completed July 1, 2006 – June 30, 2007**

	<u>PLA Projects (24)</u>		<u>Non-PLA Projects (35)</u>	
	<u>Achieved</u> (Percent)	<u>Goal⁽¹⁾</u>	<u>Achieved</u> (Percent)	<u>Goal⁽¹⁾</u>
Minority	24.1	21.3	17.2	17.7
Female	2.1	6.9	0.4	6.9
Apprentice	11.7	-	8.7	-

Source: Author’s calculations using data provided by the New Jersey Department of Treasury and New Jersey Schools Development Authority (SDA).

⁽¹⁾Weighted State average minority goal is determined by multiplying each county’s total work hours by the respective county minority goal percentage divided by the total statewide work hours.

Table 8 shows the minority participation rate (total hours worked by minorities as a percentage of total work hours) during Fiscal Years 2004 through 2007 for all projects. The work hours data collected by Treasury only provide an aggregate number for all minorities (Black, Hispanic, American Indian, Asian). The purpose is to determine the fluctuation of the minority work hours (participation rate) over time. Despite the efforts made to attract more minority workers into the construction trades, the 24.0 percent participation rate for 2007 PLA projects was somewhat below the 2006 results. For non-PLA projects, a small upward trend is seen in the minority participation rate from FY 2004 to FY 2007.

**Table 8. Annual Minority Participation Rates
All Projects Completed July 1, 2003 – June 30, 2007**

Fiscal Year	PLA Projects			Non-PLA Projects		
	Total Hours	Total Minority Hours	Minority Percent	Total Hours	Total Minority Hours	Minority Percent
2004 ⁽¹⁾	-	-	-	919,177	143,569	15.6
2005	1,381,827	361,172	26.1	4,359,829	745,341	17.1
2006	2,032,484 ^r	512,608 ^r	25.2 ^r	5,119,843 ^r	871,242 ^r	17.0 ^r
2007	2,380,746	571,871	24.0	2,748,322	509,177	18.5

Source: Author's calculations using data provided by the New Jersey Department of Treasury, DCC and New Jersey Schools Development Authority (SDA).

r – Two projects in FY 2006 previously classified as non-PLA were reclassified as PLA.

⁽¹⁾ Fiscal Year 2004 data for PLA projects are not shown because only one project was completed.

Employment Work Hours for Minorities and Apprentices by Construction Trade

This section of the report presents the participation rates for minorities and apprentices for the different construction trades or occupations. There are no set trade-specific minority county goal obligations, but the minority work hours for all trades combined should reach or exceed the calculated weighted minority county goal obligation percentage. Table 9 shows the achieved minority participation rate for each construction trade and compares it with the work-hour-based weighted 10 county-wide goal obligations.

The data are based on 48 school construction projects (new, addition, renovation, or addition and renovation) both for PLA (20) and non-PLA (28) school projects in the 10 counties with at least one PLA and one non-PLA project.⁴ The analysis is limited to school projects because they have a greater similarity in the occupational mix used than with non-school type projects.

The analysis includes the following 18 trades or crafts: Asbestos Worker, Bricklayer or Mason, Carpenter, Electrician, Glazier, HVAC (heating, ventilation and air conditioning) Mechanic, Iron Worker, Laborer, Operating Engineer, Painter, Plumber, Roofer, Sheet Metal Worker, Sprinkler Fitter, Steamfitter, Tiler and Truck Driver, with all residual trades reported as "Other".

For PLA projects, seven of the 18 occupations (asbestos worker, bricklayer/mason, glazier, laborer, operating engineer, painter, and roofer) achieved a minority participation rate above the goal obligation. For non-PLA projects, five trades (asbestos worker, glazier, laborer, painter, and roofer) scored above the county goal obligations.

⁴The 10 counties with at least one PLA and one non-PLA project are: Bergen, Burlington, Camden, Essex, Hudson, Mercer, Middlesex, Monmouth, Ocean and Union. Cumberland County has only PLA school projects; while the other 10 counties have no PLA school projects.

**Table 9. Minority Participation in School Projects by Construction Trade⁽¹⁾
Projects Completed July 1, 2006 – June 30, 2007**

PLA/SDA School Projects			Construction Trade	Non-PLA School Projects		
Weighted Minority County Goal Obligation ⁽²⁾ (Percent)	Actual Minority Participation (Percent)	Above/Below County Goal Obligation		Above/Below County Goal Obligation	Weighted Minority County Goal Obligation ⁽²⁾ (Percent)	Actual Minority Participation (Percent)
22.7	55.8	Above	Asbestos Worker	Above	14.5	29.9
18.4	22.1	“	Bricklayer/Mason	Below	23.0	17.5
23.2	17.5	Below	Carpenter	“	22.9	7.2
23.0	15.6	“	Electrician	“	21.3	11.9
22.8	24.0	Above	Glazier	Above	20.4	21.3
32.8	22.4	Below	HVAC	Below	17.9	6.6
17.3	11.9	“	Iron Worker	“	22.4	13.4
20.2	45.3	Above	Laborer	Above	23.3	37.7
20.4	24.6	“	Operating Engineer	Below	22.4	12.6
25.5	55.9	“	Painter	Above	20.2	21.0
20.8	16.6	Below	Plumber	Below	22.0	10.0
23.5	25.8	Above	Roofer	Above	20.9	32.2
20.0	17.3	Below	Sheet Metal	Below	18.6	6.9
22.5	17.6	“	Sprinkler	“	24.5	5.7
27.2	12.4	“	Steam Fitter	“	22.7	11.8
23.0	6.4	“	Tiler	“	20.9	15.2
31.9	20.7	“	Truck Driver	“	20.3	16.4
23.4	16.3	“	Other	“	22.7	9.0
21.4%	24.3%	7 Above 11 Below	10 counties	5 Above 13 Below	22.1%	17.6%

Source: Author’s calculations using data provided by the New Jersey Department of Treasury, DCC and New Jersey Schools Development Authority (SDA).

Notes: (1) The sample includes 20 PLA and 28 non-PLA School Projects in 10 Counties with at least 1 PLA and 1 non-PLA Project.

(2) A weighted minority goal was calculated for each construction trade for the 10 counties included in the table. First, each county’s goal for a specific trade was computed by multiplying the county’s total work hours in that trade by the respective county’s minority goal percentage. The county goals for the specific trade were then added together to get a total goal for that trade in work hours. The weighted 10-county minority goal obligation for each trade was then obtained by dividing this total by the trade’s total work hours for the 10 counties.

Overall, for the 10 counties, the actual minority work hour participation rate for all trades exceeded the weighted minority county goal for PLA projects (24.3% compared with 21.4%). For non-PLA projects, the actual minority work hour participation fell below the weighted minority county goal obligation (17.6% compared with 22.1%).

Table 10 presents data on the extent to which the different trades use apprentices on all PLA and non-PLA projects completed during Fiscal Year 2007. The apprentice participation by trade is expressed as a percentage of the actual total work hours for all workers of the same trade. As mentioned earlier, there are no goals set for the use of apprentices in New Jersey.

**Table 10. Apprentice Participation by Construction Trade
All Projects Completed July 1, 2006 – June 30, 2007**

PLA (25 Projects)		Construction Trade	Non-PLA (56 Projects)	
Actual Apprentice Participation (Percent)	Ranking ⁽¹⁾		Ranking ⁽¹⁾	Actual Apprentice Participation (Percent)
1.0	19	Asbestos Worker	18	0.0
9.9	14	Bricklayer	12	7.1
8.6	15	Carpenter	11	7.5
19.5	5	Electrician	1	21.8
12.9	11	Glazier	6	9.7
19.4	6	HVAC	2	14.3
3.3	18	Iron Worker	15	2.0
3.7	17	Laborer	14	3.9
11.5	13	Operating Engineer	16	1.0
12.6	12	Painter	10	7.7
16.1	8	Plumber	4	11.9
15.0	9	Roofer	8	9.6
20.7	4	Sheet Metal	9	9.3
25.8	1	Sprinkler Fitter	5	11.4
18.7	7	Steam Fitter	7	9.6
21.5	3	Surveyor	18	0.0
7.4	16	Tiler	3	12.5
25.5	2	Truck Driver	17	1.0
13.5	10	Other	13	6.5
11.3%	-	Statewide	-	9.4%

Source: Author's calculations using data provided by the New Jersey Department of the Treasury DCC and New Jersey Schools Development Authority (SDA).

⁽¹⁾The ranking of 1 represents the highest proportion of work hours by apprentices in a trade.

The above rankings show that the use of apprentices by many trades is quite similar for PLA and non-PLA projects. The statewide weighted average participation rates for all trades were 11.3 percent for PLAs and 9.4 percent for non-PLAs. Apprentice participation in some trades varied more between PLA and non-PLA designated projects, including truck drivers, operating engineers and surveyors. It should be noted that truck drivers and surveyors each comprise less than one percent of total work hours for both PLA and non-PLA projects.

Participation rates ranged from highs of 25.8 percent (PLA) for sprinkler fitters and 21.8 percent (non-PLA) for electricians to generally low apprentice participation rates of four percent or less for asbestos

workers, laborers, and iron workers for both PLA and non-PLA projects. Trades with generally high apprentice participation rates of more than 11 percent for both PLA and non-PLA projects included electricians, HVAC, plumbers and sprinkler fitters.

Five trades accounted for more than 70 percent of total work hours for both PLA and non-PLA projects; the trades were laborers, electricians, carpenters, bricklayers and plumbers. These same five trades also accounted for 66 percent of all PLA apprentice work hours and 78 percent of total non-PLA apprentice work hours.

Construction Duration

The final performance factor measured is the construction duration for all PLA and non-PLA projects.

The SDA and DCC databases define construction start and construction completion slightly differently. The SDA's construction start is called "Construction Notice to Proceed" (NTP) and the completion date is called "Substantial Completion." It is understood that it may take a contractor several weeks after receiving the NTP certificate before actually starting the work on the construction site. Substantial completion means that the project essentially is completed, but finishing and clean-up activities may still be ongoing. For the DCC, the "Award Date" is used as the official construction start date, even though the contractor may take several more weeks before actually beginning the work. The "Closed Date" is the official construction end date, which usually is recorded at approximately 90 percent of the actual construction completion. Thus, construction duration is the time difference in weeks between the notice to proceed and the substantial completion dates for SDA projects, and the difference between award date and closed date for DCC monitored non-PLA projects.

There are myriad factors that influence construction duration. Variables, such as project size and complexity, permitting, financing, material availability and delivery, change order requests, staffing and available resources, weather, unanticipated circumstances and more, play a crucial role in determining the projected and actual start and completion times of a construction project. Further, authorities with several school projects under construction may shift the priority from one construction site to another to accommodate the school calendar.

The length of time indicated for construction duration is an approximation based on how the start and completion dates are recorded. There are disparities and variations in how projects are recorded. As a consequence, the findings should not be rigidly interpreted.

The average construction duration for all 59 school projects completed from July 1, 2006 through June 30, 2007 was 93.9 weeks, compared with 82.9 weeks for all 152 school projects completed from July 2002 through June 2006. The average construction duration for the 24 PLA school projects was 128.7 weeks, versus an average of 70.1 weeks for the 35 non-PLA school projects. This is at least partially because 17 out of 24 of the PLA schools were new schools, compared with only 4 new schools out of 35 non-PLA projects, and construction of a new school takes longer than an addition or renovation. PLA school projects completed during the period from July 2002 to June 2006 had an average duration of 95.1 weeks, while non-PLA school projects recorded an average duration of 89.6 weeks. Average duration data for the 59 school projects completed from July 1, 2006 through June 30, 2007 are presented in Appendix V.

**THE DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT (LWD)
 APPRENTICESHIP TRAINING EFFORTS AND RESULTS**

LWD, together with its partner agencies, is actively engaged in promoting and expanding registered apprenticeships and other work-based learning initiatives. In addition, through the schools construction initiative, LWD is strongly committed to orientation and outreach activities to promote apprenticeship training for female and minority residents primarily in the Abbott districts.

The Construction Trades Training Program for Women and Minorities (CTTP-WM) is a pre-apprenticeship training program, which varies in length between 6 to 12 weeks and provides academic preparation to a targeted audience to assist them in becoming registered apprentices. The CTTP-WM Program focuses on the 31 Abbot school districts construction projects.

The goal of the CTTP-WM Program is to place program graduates into full-time registered apprenticeship programs in the building and construction trades. The program is considered a success if there is a 50 percent placement rate, among program graduates, into registered apprenticeship programs.

Since its inception in March 2002 through January 31, 2008, the CTTP-WM program (see Table 11) has enrolled a total of 1,758 participants in training with 1,333 completions (75.8%) and 425 dropouts (24.2%) . Of the 1,333 students who successfully completed the academic training, 36.5 percent (486) obtained a union apprenticeship, while 20.2 percent (270) obtained non-union construction placements. This 56.7 percent rate of new personnel entering construction occupations surpasses the 50 percent goal and can be considered a success.

**Table 11. Construction Trades Training Program for Women and Minorities (CTTP-WM)
 March 2002 to January 31, 2008
 Summary Statistics**

	Number	Percent
Participants	1,758	100.0
Completers	1,333	75.8
Drop Outs	425	24.8
<u>Outcomes for Completers</u>		
Obtained Union Apprenticeship	486	36.5
Obtained Non-Union Apprenticeship or Other Construction Placement	270	20.2
Awaiting Apprenticeship Testing, Other Career Options, or Unknown Outcome	577	43.3

Source: Author's calculations using data provided by the New Jersey Department of Labor and Workforce development, Office of the Grants Operations.

LWD continues to meet with construction trades unions and program operators to encourage their participation and commitment in the recruitment of apprentices and in the preparation of the individuals currently in the training programs.

APPENDIX I DATA SOURCES AND METHODOLOGY

DATA SOURCES

The obligation to evaluate and report on the effectiveness of the PLA Act entails, first and foremost, a considerable data collection effort and a comprehensive retrospective analysis of the many different public construction projects in New Jersey. When LWD research staff began to plan ways to compile the information needed for the annual reports, it was reasoned that it would not be in the best interest of New Jersey to create a new, costly, unfunded, computerized database if LWD could get access to appropriate existing data collection systems at other State agencies. Consequently, various State agencies were contacted to identify the availability and accessibility of suitable operational data collection systems, which could serve the needs of LWD. After careful consideration, it was concluded that the New Jersey Department of the Treasury, Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (DCC); the New Jersey Schools Development Authority (SDA), previously called the Schools Construction Corporation (SCC); and the New Jersey Department of Education (DOE) could be of valuable assistance as primary data sources. LWD believes that the use of these primary data providers is the best way to systematically, routinely, comprehensively and cost-effectively collect PLA and non-PLA project information.

Neither the DCC nor the SDA tracking system was originally designed with the objective to monitor the implementation of the PLA Act. The DCC database primarily functions as a workforce compliance and equal employment opportunity in public contracts monitoring system. The SDA tracking system mainly serves as a school construction planning and management tool. Therefore, project-specific information are not available on: safety; strikes, lockouts or other similar actions; specific contractor and subcontractor apprenticeship programs; set-aside goals for contracts which should be issued to minority- and women-owned businesses; and other project performance indicators, such as final construction costs, efficiency, quality and in, some instances, timeliness.

Division of Contract Compliance and Equal Employment Opportunity in Public Contracts, New Jersey Department of the Treasury

The Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (DCC) tracks certain information on all State construction contracts and has become a significant contributor of raw data. To formalize this critical relationship, a Memorandum of Understanding was negotiated and signed on February 11, 2004 between the New Jersey Department of the Treasury, the Office of Information Technology, and the New Jersey Department of Labor and Workforce Development. DCC agreed to modify its tracking forms to include the designation of all projects as PLA or non-PLA. The DCC database includes all non-school public projects plus school projects not administered by the SDA. Of great benefit is their information on the use of minority, female and apprentice employees in public works contracts. If the private construction contractors correctly and responsibly fill out the required reports, it should be possible to analyze this important public policy issue. Appropriate access to the DCC database has been established which gives LWD the capabilities to review the monitored projects.

LWD received electronically the most recent updated database from DCC covering all public works projects in New Jersey through June 2007, which was the cut-off date for the analysis. Several screens and hundreds of individual examinations, validations and queries were subsequently applied to obtain relevant information for the 57 Treasury-monitored projects completed from July 1, 2006 through June 30, 2007 which are included in this analysis.

**New Jersey Schools Development Authority (SDA)
(Previously named: Schools Construction Corporation (SCC))**

On July 29, 2002, Governor James E. McGreevey signed Executive Order No. 24, creating the New Jersey Schools Construction Corporation, as a subsidiary corporation of the New Jersey Economic Development Authority (EDA). Executive Order No. 24 spelled out several objectives, with the essential purpose to ensure that the State's \$8.6 billion schools construction program, required by the New Jersey Supreme Court's 1998 Abbott decision, is implemented in an efficient and timely manner. On February 7, 2006, Governor Jon S. Corzine signed Executive Order No. 3 creating a new working group to oversee a full review of the schools construction program. The group issued an initial written report on March 15, 2006, recommending various reforms.

On August 6, 2007, legislation creating the New Jersey Schools Development Authority (SDA) was signed into law by Governor Jon S. Corzine. The SDA, an independent authority in but not of the Department of Treasury, is the successor to the New Jersey Schools Construction Corporation (SCC). The SDA is no longer a subsidiary of the EDA, though the EDA retains its role to provide financing for the SDA if new bonding authorization is approved by the legislature. The legislation mandated that the Governor appoint and the Senate confirm new SDA members with backgrounds directly relevant to the Authority's mission. These members collectively function as a board. Other reforms included creating a process that will allow Abbott districts to take on the responsibility to manage and construct their own projects, if they demonstrate the eligibility and capacity, with the SDA retaining ultimate responsibility for the project.

The SDA is responsible for financing, designing, and constructing all of the school facilities projects: in the 31 Abbott districts (special needs districts); in districts which receive 55 percent or more in State funding for education; and in the districts that are in level II State monitoring (districts that failed to show sufficient educational progress and are required to develop and implement a remedial plan). In the Abbott districts, the State provides 100 percent of the funding without the need for a voter referendum and without any financial, operational or management responsibility by local stakeholders. All school projects in these districts are constructed by the SDA under a PLA. In addition, the SDA is responsible for providing grants to fund the State share of school facilities projects approved by the Department of Education in districts with a district aid percentage of less than 55 percent (Section 15 districts⁵). Those districts, which receive less than 55 percent funding may elect to have the SDA undertake construction of their school facilities projects.

In the past, the DCC tracked all public works projects including schools. The monitoring of Abbott school projects was transferred to the SDA in November 2003, and the SDA elected to develop its own data monitoring system to track all school projects under its oversight. In response to a March 10, 2004 letter from the Commissioner of Labor and Workforce Development to the SCC Chief Executive Officer, the SDA agreed to provide LWD appropriate access to its computerized database. The SDA supplied LWD with updated data for 24 completed school projects with a cut-off date of June 30, 2007 in addition to previously supplied data on 31 completed school projects.

Fifty-one of the cumulative total of SDA completed school projects were in Abbott districts, while four projects were in non-Abbott districts, which selected the SDA as their construction oversight agency, including: two school projects in Manchester Township, Ocean County, one project in Barnegat, Ocean County and one project in Fairfield, Cumberland County.

⁵Stipulated in the New Jersey Educational Facilities Construction and Financing Act which became law on July 18, 2000.

New Jersey Department of Education (DOE)

Beginning as an enhancement to the 2006 report, and continuing with the 2007 report, DOE has provided data to LWD for conducting a comparative cost analysis of PLA and non-PLA school projects. DOE provided information regarding the size (square footage) and student capacity from the identified completed new schools. The DOE data has assisted in the analysis of the building cost aspects of PLA and non-PLA schools.

The definitions used by DOE for student capacity are as follows: "Student capacity" means the ideal number of full-time equivalent students for which the school is designed in order to have sufficient space for the building to be educationally adequate for the delivery of programs and services necessary for student achievement of the Core Curriculum Content Standards. Student capacity is 100 percent of maximum capacity in the case of early childhood centers, 90 percent of maximum capacity in the case of elementary schools and middle schools, and 85 percent of maximum capacity in the case of high schools. The DOE also points out that the data are self-reported by the school districts and not necessarily validated.

METHODOLOGY

To complete the evaluation on the effectiveness of the PLA Act required the identification of the appropriate public works projects in New Jersey. Therefore, edits were applied to the DCC and SDA databases to eliminate all projects awarded prior to July 25, 2002, and all projects not completed by the cut-off date of June 30, 2007. Other screens eliminated all pumping stations and water/sewerage treatment plants, as well as all non-buildings, such as roads (improvements, re-surfacing, paving and drainage), tunnels, bridges, and golf courses. Following this, projects with less than \$5 million in estimated total costs were excluded. At the end of this process, 81 new projects were identified for FY 2007, for a cumulative total of 301 PLA and non-PLA projects for the period July 25, 2002 to June 30, 2007.

In most cases, the 2007 analysis evaluated annual data, but some statistics have been examined on a cumulative basis, including building costs. In order to inflation-adjust the cost of projects completed in different years, the analysis applied the 20-city building cost index purchased from McGraw Hill. All projects were indexed up to June 2007.

All information entered into the databases are self-reported and provided by the construction contractors themselves. The information was not audited. SDA and Treasury field representatives may occasionally catch an obvious error and question certain data, but in the end, the responsibility for and ownership of the information's accuracy and quality rests with the reporting contractors. LWD checks the records and attempts to validate the information for reasonableness.

Comparing a sufficient number of PLA and non-PLA projects with similar characteristics, such as location, type of project (elementary school, municipal building), construction mode (new, renovation or addition) and building size, was challenging. All PLA school projects except four are in Abbott districts and are implemented by only one agency, the SDA. The SDA does not execute any non-PLA projects. All Abbott and "fifty-five (55) percent plus" school district projects must be covered by PLAs. Because districts differ with respect to population and occupational characteristics and workforce readiness, geographic location, cost (urban vs. suburban, North versus South Jersey) and construction work site environment/logistics (congested inner city versus open suburban space), differences between projects with and without PLAs could certainly be due to factors other than the use of PLAs.

**Appendix II. Cost Information for 64 Completed New School Projects
July 2002 – June 2007**

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
Early Childhood Centers										
Y	Union	Elizabeth	Early Childhood Center #44	9/1/04	47,355	300	\$11,377,736	\$12,632,390	\$266.76	\$42,108
Y	Union	Elizabeth	Early Childhood Center #45	9/28/05	46,675	300	\$11,064,000	\$11,661,456	\$249.84	\$38,872
Y	Bergen	Garfield	Early Childhood Center	7/15/04	37,057	316	\$8,875,000	\$9,888,046	\$266.83	\$31,291
Y	Middlesex	Perth Amboy	Ignacio Cruz Early Childhood Center	8/1/04	68,396	540	\$11,922,535	\$13,283,445	\$194.21	\$24,599
Y	Warren	Phillipsburg	Phillipsburg Early Childhood Center	12/23/05	89,829	524	\$19,340,000	\$20,972,703	\$233.47	\$40,024
Y	Union	Elizabeth	<i>Monsignor Antao School #31</i>	8/15/06	110,194	742	\$34,038,500	\$34,913,084	\$316.83	\$47,053
					399,506	2,722		\$103,351,124	\$258.70	\$37,969
Primary Schools										
N	Cape May	Dennis	Primary School	9/28/05	45,321	340	\$7,513,814	\$7,919,559	\$174.74	\$23,293
N	Ocean	Plumstead	New Egypt Primary School	9/26/03	39,382	261	\$6,873,300	\$8,267,687	\$209.94	\$31,677
N	Middlesex	South River	South River Primary School	2/4/05	53,026	445	\$11,053,456	\$12,018,666	\$226.66	\$27,008

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
N	Ocean	Stafford	The Primary Learning Center	12/1/05	49,263	339	\$6,575,705	\$6,818,280	\$138.41	\$20,113
					186,992	1,385		\$35,024,192	\$187.30	\$25,288
Elementary Schools										
N	Ocean	Berkeley	5-6 Elementary School	10/7/04	75,300	567	\$15,443,753	\$16,833,269	\$223.55	\$29,688
N	Passaic	Clifton	K-5 Elementary School	6/7/04	82,010	420	\$12,139,881	\$13,720,484	\$167.30	\$32,668
N	Monmouth	Freehold	West Freehold Elementary School	7/27/04	82,025	622	\$15,506,203	\$17,276,175	\$210.62	\$27,775
N	Burlington	Medford	Kirby's Mill - North 70 Elementary School	12/30/04	57,963	423	\$11,584,956	\$12,562,971	\$216.74	\$29,700
N	Burlington	Medford	Chairville - South 70 Elementary School	7/30/04	59,766	451	\$10,443,037	\$11,635,068	\$194.68	\$25,798
N	Mercer	West Windsor C. Special Services	Elementary School	6/6/05	88,421	333	\$25,303,940	\$27,007,791	\$305.45	\$81,104
N	Essex	Newark	Belmont Runyon Elementary School	5/20/04	112,001	536	\$19,989,000	\$22,591,551	\$201.71	\$42,148
N	Burlington	North Hanover	Upper Elementary School	4/27/06	124,934	472	\$24,376,432	\$25,141,565	\$201.24	\$53,266
N	Hunterdon	Tewksbury	Tewksbury Elementary School	1/1/05	63,662	375	\$12,361,777	\$13,405,371	\$210.57	\$35,748
N	Morris	Washington	B. Cucinella Elementary School	9/19/05	86,640	683	\$18,427,557	\$19,422,645	\$224.18	\$28,437

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
N	Gloucester	Woolwich	Elementary School	9/25/03	98,000	618	\$6,609,675	\$7,950,580	\$81.13	\$12,865
N	Bergen	Carlstadt	Elementary/Middle School	12/18/06	111,350	573	\$21,293,039	\$21,436,878	\$192.52	\$37,412
N	Hunterdon	Union Twp	Union Township Elementary School	9/8/06	52,005	337	\$12,500,000	\$12,821,175	\$246.54	\$38,045
					1,094,077	6,410		\$221,805,524	\$202.73	\$34,603
Y	Union	Elizabeth	Dr. Albert Einstein Academy, PreK-8	11/25/05	124,572	722	\$31,250,000	\$32,402,800	\$260.11	\$44,879
Y	Union	Elizabeth	Ronald Reagan Academy	6/15/06	125,380	722	\$27,987,000	\$28,832,207	\$229.96	\$39,934
Y	Hudson	Jersey City	PS3 Elementary School	12/30/05	117,939	490	\$25,100,000	\$25,923,725	\$219.81	\$52,906
Y	Monmouth	Neptune	Summerfield Elementary School	4/15/06	106,750	432	\$21,804,700	\$22,489,111	\$210.67	\$52,058
Y	Passaic	Paterson	Roberto Clemente School	4/6/05	117,820	591	\$26,598,000	\$28,815,475	\$244.57	\$48,757
Y	Mercer	Trenton	Mott Elementary School	6/14/05	64,944	315	\$7,056,000	\$7,520,347	\$115.80	\$23,874
Y	Mercer	Trenton	Columbus Elementary School	8/1/06	59,655	279	\$17,077,177	\$17,528,021	\$293.82	\$62,824
Y	Mercer	Trenton	Joyce Kilmer Elementary School	8/1/06	97,803	732	\$20,498,000	\$21,039,155	\$215.12	\$28,742
Y	Essex	East Orange	New Langston Hughes Replacement	8/19/06	101,805	559	\$17,966,900	\$18,428,541	\$181.02	\$32,967
Y	Cumberland	Fairfield	Fairfield New Elementary School	8/30/06	73,546	427	\$13,136,000	\$13,473,516	\$183.20	\$31,554

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
Y	Middlesex	Perth Amboy	Dr. Herbert N. Richardson Elementary School #10	8/31/06	95,887	691	\$22,374,000	\$22,948,877	\$239.33	\$33,211
Y	Hudson	West New York	Elementary School #4	5/1/07	110,413	708	\$25,400,000	\$25,716,350	\$232.91	\$36,323
Y	Cumberland	Vineland City	Pauline J. Petway Elementary School	6/1/07	68,813	500	\$15,602,904	\$15,588,957	\$226.54	\$31,178
Y	Monmouth	Long Branch	Gregory Elementary School	6/27/07	79,216	537	\$24,331,000	\$24,331,000	\$307.15	\$45,309
					1,344,543	7,705		\$305,038,082	\$226.87	\$39,590
Middle Schools										
N	Burlington	Burlington	Burlington Middle School	4/27/06	181,700	1,293	\$16,342,850	\$16,855,823	\$92.77	\$13,036
N	Hunterdon	Flemington	Flemington - Raritan Middle School	8/16/05	155,165	848	\$30,028,912	\$33,340,280	\$214.87	\$39,316
N	Atlantic	Hamilton	William Davies Middle School	9/6/05	162,533	1,071	\$21,013,160	\$22,316,215	\$137.30	\$20,837
N	Gloucester	Kingsway	Kingsway Middle School	2/2/06	96,196	921	\$18,780,398	\$19,369,881	\$201.36	\$21,031
N	Ocean	Toms River	Intermediate School South	7/8/05	161,557	1,167	\$27,524,160	\$29,335,492	\$181.58	\$25,138
N	Passaic	Wayne	Anthony Wayne Middle School	9/15/05	95,808	588	\$22,015,300	\$23,204,126	\$242.19	\$39,463
N	Essex	West Orange	Liberty Middle School	9/13/05	106,880	540	\$21,935,000	\$23,295,220	\$217.96	\$43,139
N	Hunterdon	Clinton Twp	Clinton Township Middle School	9/8/06	125,000	682	\$26,690,000	\$27,375,772	\$219.01	\$40,140

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
					1,084,839	7,110		\$195,092,810	\$179.84	\$27,439
Y	Hudson	Jersey City	Middle School #4	12/30/05	169,678	810	\$37,644,000	\$38,879,391	\$229.14	\$47,999
Y	Hudson	Union City	Jose Marti Middle School	7/30/04	132,318	602	\$24,749,000	\$27,574,000	\$208.39	\$45,804
Y	Hudson	West New York	Middle School	7/30/04	171,281	872	\$29,794,000	\$33,194,866	\$193.80	\$38,068
Y	Cumberland	Vineland City	Thomas W. Wallace Jr. Middle School	8/1/06	102,662	555	\$26,243,100	\$26,935,927	\$262.37	\$48,533
Y	Monmouth	Long Branch	New Middle School	11/1/06	224,218	935	\$50,739,000	\$51,197,037	\$228.34	\$54,756
Y	Burlington	Burlington City	Wilbur Watts Intermediate School	5/1/07	92,637	499	\$29,239,500	\$29,603,669	\$319.57	\$59,326
Y	Bergen	Garfield	New Middle School	5/1/07	144,078	1,018	\$37,413,746	\$37,879,723	\$262.91	\$37,210
Y	Hudson	Jersey City	Heights Middle School #03	5/1/07	158,096	810	\$38,500,000	\$38,979,506	\$246.56	\$48,123
					1,194,968	6,101		\$284,244,121	\$237.87	\$46,590
High Schools										
N	Burlington	Bordentown	Bordentown High School	4/27/06	175,619	714	\$31,170,900	\$35,662,030	\$203.06	\$49,947
N	Burlington	Florence	Florence High School *	4/27/06	120,791	714	\$29,676,500	\$33,437,231	\$276.82	\$46,831
N	Somerset	Franklin	Franklin High School	3/8/05	319,083	1,316	\$50,585,800	\$54,949,600	\$172.21	\$41,755

PLA	County	Location	Project Description	End Date	Square Footage	Student Capacity	Award Amount	Index Award Amount	Index Cost per Square Foot	Index Cost per Student
N	Ocean	Jackson	Jackson High School	9/30/05	299,805	1,033	\$48,003,581	\$50,595,775	\$168.76	\$48,979
N	Somerset	Montgomery	Montgomery High School	6/10/05	321,932	796	\$57,464,805	\$61,334,221	\$190.52	\$77,053
N	Mercer	Washington	Washington High School	5/13/05	224,681	1,142	\$12,808,478	\$13,739,822	\$61.15	\$12,031
					1,461,911	5,715		\$249,718,678	\$170.82	\$43,695
Y	Passaic	Paterson	PANTHER Academy	8/1/04	26,666	149	\$8,461,200	\$9,427,012	\$353.52	\$63,269
Y	Essex	Newark	Science Park High School	9/30/06	221,769	1,033	\$64,499,000	\$65,914,292	\$297.22	\$63,809
Y	Ocean	Barnegat	Barnegat High School	5/8/07	106,769	560	\$26,252,560	\$26,579,528	\$248.94	\$47,463
Y	Hudson	Harrison	Harrison High School	6/1/07	160,000	900	\$56,202,300	\$56,152,063	\$350.95	\$62,391
					515,204	2,642		\$158,072,896	\$306.82	\$59,831
		Gloucester Special Services	Bankbridge Development Center	5/4/2007	40,375	192	\$8,080,161	\$8,180,797	\$202.62	\$42,608

Y: Constructed with a PLA

N: Not constructed with a PLA

New projects completed July 1, 2006 – June 30, 2007 shown in italics.

*Award amount for Florence High School revised.

Appendix III – Project Cost Regression
July 2002 – June 2007

Dependent Variable: Indexed cost per square foot
 Dependent Mean: 220.28

<u>Independent Variable</u>	<u>Estimated Coefficient</u>	<u>t-Statistic</u>	<u>p-value</u> ¹
Constant	730.64*	4.25	<.0001
PLA	43.84*	3.42	0.0011
Northern ²	26.40***	1.89	0.0642
Elementary ³	-39.37**	-2.51	0.0148
Log Square Feet ⁴	-45.77*	-3.15	0.0025
Model R ²	.3466		
Sample Size	64		

*Statistically significant at the 99 percent confidence level.

**Statistically significant at the 95 percent confidence level.

***Statistically significant at the 90 percent confidence level.

¹p-value: probability that the observed relationship between project cost and the independent variable occurred by chance.

²Location dummy variable: 1=Northern. 0=Other. Northern includes Mercer, Monmouth and all counties north of them (for a total of 13).

³Dummy variable representing type of school. 1=Elementary, early childhood centers, primary and special education. 0=Middle and high school.

⁴The logarithm of building square feet is a variable representing the size of the school. The logarithm is used to diminish the effect of additional size as projects become larger.

APPENDIX IV
Minority, Female and Apprentice Construction Employment Participation by Project
All 81 Projects Completed July 1, 2006 - June 30, 2007

District/Board of Education	Project Name	Total Project Work Hours	Minority Participation	Minority Obligation	Female Participation	Apprentice Participation
<i>Bergen County</i>						
Bergen County College	West Hall Communication Building	46,168	5.1%	22.0%	0.0%	10.2%
Carlstadt	Elementary/Middle School	100,851	14.8%	22.0%	0.1%	15.4%
Dumont	Dumont High School	8,590	0.7%	22.0%	0.0%	20.5%
Elmwood Park	16th Avenue Elementary	9,015	25.3%	22.0%	0.0%	10.6%
Elmwood Park	Gilbert Avenue Elementary School	15,840	4.1%	22.0%	0.0%	3.7%
Elmwood Park	Memorial Middle/High School	89,568	30.4%	22.0%	0.3%	9.3%
Fair Lawn	Fair Lawn High School	51,470	9.4%	10.0%	0.7%	4.0%
*Garfield	New Middle School	56,626	9.8%	10.0%	1.1%	13.9%
Pascack Valley Regional	Pascack Hills High School	42,404	18.1%	22.0%	0.1%	7.8%
Pascack Valley Regional	Pascack Valley High School	56,485	32.3%	22.0%	0.0%	5.6%
South Hackensack	Memorial Elementary School	27,173	16.5%	22.0%	0.3%	17.7%
<i>Burlington County</i>						
*Burlington City	Wilbur Watts Intermediate School	102,435	17.9%	16.0%	1.3%	12.3%
Delanco Township	M. Joan Pearson Elementary School	28,013	15.7%	15.0%	0.0%	8.9%
Evesham Township	Frances B. DeMasi Middle School	46,065	15.3%	15.0%	0.1%	11.0%
Florence Township	Florence High School	160,825	21.4%	15.0%	2.0%	10.0%
Lenape Regional	Cherokee High School	19,871	31.7%	15.0%	0.0%	13.3%
<i>Camden County</i>						
Camden Cnty Community College	Madison Hall and Connector	84,743	18.9%	19.0%	1.1%	10.5%
Camden Cnty Improvement Auth.	Parking Garage	21,760	25.9%	19.0%	3.9%	0.6%
*Gloucester City	Gloucester City Jr. Sr. High School	9,721	20.3%	19.0%	0.6%	18.0%
Haddon Heights	Jr. Sr. High School	30,731	12.8%	19.0%	2.3%	18.3%
UMDNJ	Deck Expansion/ Student Housing	40,598	29.6%	16.0%	2.6%	5.4%
<i>Cumberland County</i>						
*Fairfield Township	Fairfield Township Elementary School	41,617	18.5%	21.0%	1.4%	9.4%
*Vineland City	Pauline J. Petway Elementary School	9,124	21.0%	21.0%	0.0%	11.5%
*Vineland City	Thomas W. Wallace Jr. Middle School	8,486	15.1%	21.0%	1.9%	7.2%
*Vineland City	Veterans Memorial Intermediate School	9,605	17.6%	21.0%	2.6%	16.2%

*Indicates PLA Project

**APPENDIX IV
Minority, Female and Apprentice Construction Employment Participation by Project
(Continued)**

District/Board of Education	Project Name	Total Project Work Hours	Minority Participation	Minority Obligation	Female Participation	Apprentice Participation
<i>Essex County</i>						
*East Orange	Langston Hughes Replacement	27,200	27.4%	42.0%	1.8%	12.1%
*Irvington Township	Augusta Elementary School	448	11.8%	53.0%	0.0%	0.0%
*Irvington Township	University Six School	124,491	35.1%	53.0%	2.0%	8.1%
*Newark	New Science Park High School	143,318	31.4%	42.0%	1.7%	10.5%
Newark City	City Hall Building	2,054	52.4%	53.0%	0.0%	4.2%
Newark City	Newark Police Precincts	416	10.3%	53.0%	0.0%	0.0%
Nutley	John H. Walker Middle School	63,482	18.5%	53.0%	0.8%	9.3%
UMDNJ	Bergen Street Parking Deck	26,731	33.9%	42.0%	0.3%	13.8%
<i>Gloucester County</i>						
Gloucester County Special Services	Bankbridge Development Center	37,171	16.5%	9.0%	0.3%	9.8%
<i>Hudson County</i>						
Bayonne	Walter F. Robinson Elementary School	15,038	8.0%	38.0%	0.4%	0.7%
Bayonne	Woodrow Wilson Elementary School	13,470	11.0%	38.0%	0.0%	0.2%
*Harrison	New Harrison High School	62,704	26.4%	38.0%	1.8%	8.9%
*Jersey City	Heights Middle School	123,143	20.3%	38.0%	1.5%	16.3%
New Jersey City University	Michael B. Gilligan Student Union	48,505	19.0%	60.0%	0.3%	6.3%
*West New York	Number 4 Elementary School	23,470	33.0%	38.0%	1.3%	6.9%
<i>Hunterdon County</i>						
Clinton Township	Middle School	136,310	6.3%	3.0%	0.0%	7.3%
Hunterdon Central Regional	Hunterdon Regional High School	93,801	17.8%	3.0%	0.0%	14.9%
Union Township	Union Twp Elementary School	59,721	9.6%	3.0%	0.3%	10.9%
<i>Mercer County</i>						
*Div of Property Mgmt & Construction	NJ State Police Operations Center	140,829	22.3%	19.0%	2.7%	4.6%
Hopewell Valley Regional	Timberlane Middle School	36,725	9.8%	30.0%	1.4%	4.6%
NJ Economic Development Authority	Waterfront Technology Center	14,673	30.1%	19.0%	0.0%	11.0%
The College of New Jersey	TCNJ Library	128,295	18.1%	19.0%	1.7%	9.6%
*Trenton	Columbus Elementary School	57,879	27.3%	19.0%	0.7%	15.9%
*Trenton	Joyce Kilmer Elementary School	68,417	17.0%	19.0%	0.1%	11.2%
*Trenton	Parker Elementary School	75,732	25.6%	19.0%	0.8%	11.1%
<i>Middlesex County</i>						
East Brunswick Township	Central Elementary School	90,371	15.3%	24.0%	0.0%	3.7%
East Brunswick Township	Lawrence Brook Elementary School	73,166	15.2%	24.0%	0.4%	5.3%
Highland Park	Highland Park Middle/High School	34,231	13.0%	24.0%	0.2%	6.6%

***Indicates PLA Project**

APPENDIX IV
Minority, Female and Apprentice Construction Employment Participation by Project
(Continued)

District/Board of Education	Project Name	Total Project Work Hours	Minority Participation	Minority Obligation	Female Participation	Apprentice Participation
Highland Park	Irving Primary School	34,231	13.0%	24.0%	0.2%	6.6%
*Perth Amboy	Richardson Elementary School	209,942	18.0%	16.0%	1.1%	11.0%
Piscataway Township	Piscataway High School	33,998	15.7%	24.0%	0.4%	12.9%
South Brunswick Township	Constable Elementary School	45,474	13.3%	24.0%	0.0%	5.6%
Woodbridge Township	Lafayette Estates Elementary School	36,541	20.9%	24.0%	0.1%	9.7%
<i>Monmouth County</i>						
*Asbury Park	T. Marshall Primary School	6,722	14.3%	11.0%	3.9%	6.5%
Brookdale Community College	Natural Applied Sciences Building	39,571	4.9%	15.0%	0.0%	16.8%
County of Monmouth	County Library	44,536	35.1%	11.0%	0.5%	2.8%
County of Monmouth	Hall of Records	38,191	10.9%	11.0%	0.0%	12.1%
*Long Branch	Gregory Elementary School	87,448	17.3%	15.0%	1.3%	17.9%
*Long Branch	New Middle School No 01	280,404	23.9%	11.0%	3.2%	11.7%
*Neptune Township	Neptune Senior High School	291,341	27.8%	11.0%	3.5%	11.9%
Rumson Borough	Regional High School	67,420	20.6%	11.0%	0.0%	3.2%
Tinton Falls Borough	Municipal Complex	39,048	9.7%	15.0%	0.0%	13.0%
<i>Morris County</i>						
Borough of Chatham	Chatham Middle School/Field house	47,595	30.0%	16.0%	0.1%	14.8%
Denville Township	Municipal Building	8,852	10.3%	16.0%	0.9%	0.2%
Madison Borough	Fire/Police Facility	52,969	27.7%	16.0%	0.8%	13.7%
Morris Hills Regional	Morris Knolls High School	104,300	25.5%	16.0%	0.7%	1.5%
<i>Ocean County</i>						
*Barnegat Township	New Barnegat High School	152,891	28.2%	6.0%	1.3%	9.1%
Point Pleasant Beach	G. Harold Antrim Elementary School	41,527	5.9%	7.0%	0.0%	7.5%
Township of Toms River	Winding River Ice Rink	17,679	9.6%	7.0%	0.0%	14.3%
<i>Passaic County</i>						
Paterson City Parking Authority	Public Safety Complex Parking Garage	41,775	28.1%	36.0%	0.2%	8.4%
William Paterson University	Student Center/Wayne Hall	11,844	13.8%	36.0%	0.4%	13.2%
William Paterson University	Student Residence Hall	114,416	25.3%	36.0%	1.1%	11.5%
<i>Sussex County</i>						
Andover Regional	Florence M. Burd Elementary School	10,924	14.8%	4.0%	0.8%	19.9%

*Indicates PLA Project

APPENDIX IV
Minority, Female and Apprentice Construction Employment Participation by Project
(Continued)

District/Board of Education	Project Name	Total Project Work Hours	Minority Participation	Minority Obligation	Female Participation	Apprentice Participation
<i>Union County</i> *Elizabeth Kean University Springfield Township	Monsignor Joao S. Antao School No. 31 Arena & D'Angelo Gym Walton Elementary School	266,753 157,797 5,304	24.4% 23.5% 13.7%	24.0% 24.0% 24.0%	3.3% 0.8% 0.0%	12.0% 14.0% 9.6%

*Indicates PLA Project

Appendix V. Project Construction Durations
Includes All 59 School Projects Completed from July 1, 2006 – June 30, 2007
PLA Projects are Marked with an Asterisk (*)

<u>District/Board of Education</u>	<u>Project Name</u>	<u>Construction Duration (Weeks)</u>
<i>Bergen County</i>		
Carlstadt	Elementary/Middle School	86
Dumont	Dumont High School	83
Elmwood Park	16th Avenue Elementary	83
Elmwood Park	Gilbert Ave Elementary School	83
Elmwood Park	Memorial Middle/High School	83
Fair Lawn	Fair Lawn High School	83
*Garfield	New Middle School	135
Pascack Valley Regional	Pascack Hills High School	87
Pascack Valley Regional	Pascack Valley High School	92
South Hackensack	Memorial Elementary School	71
<i>Burlington County</i>		
*Burlington City	Wilbur Watts Intermediate	162
Delanco Township	M. Joan Pearson Elementary	55
Evesham Township	Frances DeMasi Middle School	48
Florence Township	Florence High School	90
Lenape Regional	Cherokee High School	35
<i>Camden County</i>		
*Gloucester City	Gloucester City Jr. Sr. High	35
Haddon Heights	Jr. Sr. High School	60
<i>Cumberland County</i>		
*Fairfield Township	Fairfield Township Elementary	111
*Vineland City	Pauline J. Petway Elementary	130
*Vineland City	T W. Wallace Jr. Middle School	82
*Vineland City	Veterans Memorial Intermediate	119
<i>Essex County</i>		
*East Orange	Langston Hughes Replacement	80
*Irvington Township	Augusta Elementary School	90
*Irvington Township	University Six School	104
*Newark	New Science Park High School	137
Nutley	John H. Walker Middle School	
<i>Gloucester County</i>		
Gloucester County Special Services	Bankbridge Development Center	59
<i>Hudson County</i>		
Bayonne	Walter F. Robinson Elementary	96
Bayonne	Woodrow Wilson Elementary	90
*Harrison	New Harrison High School	133
*Jersey City	Heights Middle School	179
*West New York	Number 4 Elementary School	121

Appendix V. Project Construction Durations
Includes All 59 School Projects Completed July 1, 2006 – June 30, 2007
PLA Projects are Marked with an Asterisk (*)
(Continued)

<u>District/Board of Education</u>	<u>Project Name</u>	<u>Construction Duration (Weeks)</u>
<i>Hunterdon County</i>		
Clinton Township	Middle School	66
Hunterdon Central Regional	Hunterdon Regional High	79
Union Township	Union Twp Elementary School	74
<i>Mercer County</i>		
Hopewell Valley Regional	Timberlane Middle School	48
*Trenton	Columbus Elementary School	128
*Trenton	Joyce Kilmer Elementary School	134
*Trenton	Parker Elementary School	174
<i>Middlesex County</i>		
East Brunswick Township	Central Elementary School	41
East Brunswick Township	Lawrence Brook Elementary	52
Highland Park	Highland Park Middle/High	40
Highland Park	Irving Primary School	40
*Perth Amboy	Richardson Elementary School	167
Piscataway Township	Piscataway High School	52
South Brunswick Township	Constable Elementary School	66
Woodbridge Township	Lafayette Estates Elementary	60
<i>Monmouth County</i>		
*Asbury Park	T. Marshall Primary School	91
*Long Branch	Gregory Elementary School	107
*Long Branch	New Middle School No 01	166
*Neptune Township	Neptune Senior High School	166
Rumson Borough	Regional High School	122
<i>Morris County</i>		
Borough of Chatham	Chatham Middle School	63
Morris Hills Regional	Morris Knolls High School	77
<i>Ocean County</i>		
*Barnegat Township	New Barnegat High School	232
Point Pleasant Beach	G. H. Antrim Elementary School	47
<i>Sussex County</i>		
Andover Regional	Florence M. Burd Elementary	57
<i>Union County</i>		
*Elizabeth	Mnsr. J. S. Antao School No. 31	109
Springfield Township	Walton Elementary School	108