

City of Cleveland

Subcontractor Disparity Analysis

Submitted to:
City of Cleveland

Submitted by:
Mason Tillman Associates, Ltd.



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SUBCONTRACTOR DISPARITY ANALYSIS

I. INTRODUCTION

Mason Tillman Associates performed a disparity analysis of the subcontracting activity of the City of Cleveland (City) to assess whether requisite factual conditions existed, pursuant to the *City of Richmond v. J.A. Croson Company*¹ decision, to justify an MBE/FBE Subcontracting Program. According to *Croson*, under a fair and equitable system of awarding contracts, the proportion of contract dollars awarded to MBE/FBEs should be equal to the proportion of MBE/FBEs in the relevant market area that are willing and able to contract with the jurisdiction. If the proportions are not equal, and a disparity exists between the proportions, the probability that the disparity is due to chance can be determined using a statistical test. If there is a low probability that the disparity is due to chance, *Croson* states that an inference of discrimination can be made.²

Mason Tillman was commissioned to perform a subcontractor disparity analysis for City construction, architecture and engineering, and professional services contracts. In order to complete the Study, Mason Tillman had to initially identify the prime contracts awarded in the three industries during the study period of January 1, 2004 through December 31, 2005.

The first step in conducting a subcontractor statistical test of disparity is to calculate the contract value that each ethnic/gender group is expected to receive, based on the group's availability in the market area. This value is referred to as the **expected contract amount**. The next step is to compute the difference between the expected contract amount for each ethnic/gender group and the **actual contract amount** received by each group. A ratio less

¹ 488 U.S. 469 (1989)

² When conducting statistical tests, a level of confidence must be established as a gauge for the level of certainty that an observed occurrence is not due to chance. It is important to note that a 100 percent confidence level or a level of absolute certainty can never be obtained in statistics. A 95 percent confidence level is considered by the Courts as an acceptable level in determining whether an inference of discrimination can be made. Thus the data analyzed here was done within the 95 percent confidence level.



than 0.80 indicates a relevant degree of disparity. Where the number of contracts is sufficiently large and the variation of the contract amount is not too large, disparity may be detected using a parametric analysis.³

In order to assess whether the difference in contract values is attributable to chance, a P-value⁴ is calculated. The P-value takes into account the number of contracts, amount of contract dollars, and variation in contract dollars. If the difference between the actual and expected number of contracts and total contract dollars has a P-value of less than 0.05, the difference is statistically significant.

There are two critical constraints in performing statistical tests of significance. First, the size of the population affects the reliability of the results. In other words, a relatively small population size, whether in terms of the total number of contracts or the total number of available businesses, decreases the reliability of the statistical results. Second, although an inference of discrimination cannot be made if statistical significance is not obtained from the test, one cannot infer from the results that there was no discrimination. Thus, the results of the statistical disparity analysis are necessarily influenced by the size of the population in each industry and ethnic/gender category. Given the *Croson* standard, there must be a finding of statistically significant disparity to implement a race-based contracting program.

II. PRIME CONTRACTOR DATA COLLECTION

The City provided Mason Tillman with information on construction, architecture and engineering, and professional services prime contracts awarded during the study period. It was necessary to identify the prime contracts in order to conduct the research for subcontractor information. The City considered the Board of Control Resolutions as the primary source for the prime contract and subcontract award data. Resolutions are prepared to present contracts to the Board of Control for approval. Staff are required to list on the resolution the prime contractor, subcontractors, and award amounts.

Mason Tillman was provided 328 prime contracts from the Board of Control Resolutions that were approved for award during the study period, January 1, 2004 through December 31, 2005. Table 1.01 summarizes the information the Board of Control Resolutions yielded regarding 328 prime contracts awarded.



³ Parametric analysis is a statistical examination based on the actual values of the variable. In this case, the parametric analysis consists of the actual dollar values of the contracts.

⁴ P-value is a measure of statistical significance.

Table 1.01 Prime Contract Data Provided

Contract Type	Number of Contracts
Total Prime Contracts:	328
Total Unique Prime Contractors:	210

Table 1.02 below presents a summary of the prime contracts that were studied. Of the 328 prime contracts awarded during the study period, 209 were in the construction, architecture and engineering, and professional services industries and were included in the study.

Table 1.02 Prime Contracts Studied

Contract Type	Number of Contracts
Total Construction Prime Contracts:	99
Total Architecture and Engineering Prime Contracts:	45
Total Professional Services Prime Contracts:	65
Total Prime Contracts Studied:	209
Total Other Industry Prime Contracts:	119

Table 1.03 depicts the City's construction, architecture and engineering, and professional services contracts within eight dollar ranges. Contracts valued at less than \$25,000 comprised 4.78 percent of contracts; those less than \$100,000 were 27.75 percent; and those less than \$500,000 were 62.68 percent.



Table 1.03 Size Distribution of the Prime Contracts Studied

Size Ranges of Prime Contract	Construction	Architecture and Engineering	Professional Services
\$1- \$24,999	3	4	3
\$25,000- \$49,999	6	7	15
\$50,000- \$99,999	2	7	11
\$100,000- \$249,000	14	6	11
\$250,000- \$499,999	20	10	12
\$500,000- \$999,999	22	2	6
\$1,000,000- \$2,999,999	10	5	4
\$3,000,000 and greater	22	4	3
Total	99	45	65

III. SUBCONTRACTOR DATA COLLECTION

The research to identify subcontractors was limited to an analysis of construction, architecture and engineering, and professional services prime contracts. A total of 209 prime contracts were researched to identify subcontracts awarded to MBE/FBEs and non-MBE/FBEs. The Board of Control Resolutions were used to obtain subcontracting information on the City’s 209 prime contracts. Additional sources were sought for subcontractor data because the Board of Control Resolutions contained a low level of subcontractor participation and a disproportionate number of MBE/FBE subcontractors. The data collection process in fact revealed a number of subcontractors that were not listed in Board of Control Resolutions. There were also businesses that were listed in the Board of Control Resolutions but did not perform work on the corresponding contracts.

Mason Tillman used City policy and legislation relating to contracting and procurement to identify other potential sources for information on the subcontractors that performed work on the City’s prime contracts during the study period. A summary of these sources is listed below in Table 1.04.



Table 1.04 Summary of City Subcontractor Data Sources

Type of Document	Responsible Department	Document Description	Document Available
Board of Control Resolutions ⁵	Board of Control	List of prime contractor and subcontractor award amounts and MBE/FBE Status	Yes
Prevailing Wage Report ⁶	Prevailing Wage Coordinator of Using Department	Prime contractor and subcontractors proof of compliance with Prevailing Wage requirements	No
Schedule 6 Report	Office of Equal Opportunity	Prime contractor report listing subcontractors with award amounts	Yes
Certified Payroll Report	Public Services and Public Utilities	Prime contractor and subcontractor employees' payroll records	No
Close-out Report	Public Services and Public Utilities	A request for final payment by the prime contractor and its subcontractors with details of work completed	Yes
General Payroll Records	Public Services and Public Utilities	Prime contractor and subcontractors employee payroll records	No

⁵ City of Cleveland Administrative Code, Title XV-Purchases and Contracts, Chapter 181-Purchases and Supplies, Section 181.37-Subcontractors and Suppliers.

⁶ Federal *Davis Bacon and Related Acts* (DBRA) requires all contractors and subcontractors performing work on federal construction contracts or federally assisted contracts in excess of \$2,000 to pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits for corresponding classes of laborers and mechanics employed on similar projects in the area. The City of Cleveland requires proof of compliance with DBRA.



Table 1.04 Summary of City Subcontractor Data Sources

Type of Document	Responsible Department	Document Description	Document Available
Project Files	Public Services and Public Utilities	Prime contractors and their subcontractors and suppliers payment information	Yes

Mason Tillman also conducted a survey of prime contractors and subcontractors. This was done in order to verify the contract information received from the City and to identify any unreported subcontractor data. In the prime survey, prime contractors were asked to report subcontract awards and payments on their specific contracts. Subcontractors reported by a prime contractor were surveyed to verify their participation, award amounts, and payments on projects.

IV. SOURCES OF SUBCONTRACTOR UTILIZATION DATA

A. City Records

1. Board of Control Resolutions

The primary source of prime contractor and subcontractor information was Board of Control Resolutions. The Office of Equal Opportunity Department of Public Services and the Department of Public Utilities also provided Mason Tillman with resolutions listing subcontractors. Many Board of Control Resolutions only listed MBEs and FBEs and did not contain information on non-MBE/FBEs.

2. Prevailing Wage/ Certified Payroll Reports

The City, in compliance with State and federal mandates, has an ordinance requiring documentation of compliance with prevailing wage requirements. Construction prime contractors and their subcontractors are required to submit to the prevailing wage coordinator of the using department a schedule of the dates on which they will pay wages to their employees. Mason Tillman was unable to secure in electronic format prevailing wage reports or any other payroll data regarding workforce payments by prime contractors or subcontractors. Paper copies were supplied by the Public Utilities department. Payroll reports may have provided the names of the subcontractors that worked on City contracts, albeit no information on their payment amounts.



3. Schedule 6

The Schedule 6 is a document submitted to the Office of Equal Opportunity, Minority and Female Business Enterprise Division. It lists all subcontractors working on a particular project and their contract amounts. Schedule 6 is required as part of the contract between the prime contractor and the using department. It should be noted that the Office of Equal Opportunity provided Schedule 6 forms that contributed significantly to the data collection effort, although there was not a form for each prime award.

4. Close-out Report

Close-out reports are documents that prime contractors complete and provide to the using agency for final payment upon completion of a project. The report details the prime contractor's total costs for the project, including subcontractor information, and serves as a final payment request.

The contract and invitation to bid language states that the completion of these documents is mandatory and that they must be submitted upon request to the using department, which is responsible for the maintenance and storage of the documents. Thus, Mason Tillman sought out these documents expecting that they would record information on all of the subcontractors that had worked on City contracts. However, upon requesting these documents, it became apparent that many of the using departments did not consistently gather or maintain these documents. There were also contracts that were still open and did not have a close-out report on file. Mason Tillman did, however, receive several close-out reports from the departments of Public Utilities and Public Service.

5. Invoices and Work Orders

Invoices and work orders detail payment transactions between the using agency and prime contractors. Mason Tillman sought these documents because they also contain information on subcontractors. The Water Division of the Department of Public Utilities provided several work orders.

B. Mason Tillman Surveys

The 210 prime contractors identified in the Board of Control Resolutions were mailed surveys requesting subcontract data for each of their contracts with the City of Cleveland. Additionally, follow-up telephone calls were made to encourage prime contractors to complete the survey. The results of the prime contractor expenditure survey, as presented below in Table 1.05, are as follows: 110 or 52.63 percent of prime contractors responded. These responses represent 177 or 53.96 percent of the prime contractors and account for \$306,285,068.58 or 76.53 percent of the total prime contract dollars.



Table 1.05 Prime Contractor Expenditure Survey Results

Survey Status	Number	Percentage
Prime Contractors Responded	110	52.63%
Prime Contracts Represented	177	53.96%
Prime Contract Dollars Represented	\$306,285,069	76.53%

For the subcontractor expenditure survey, telephone calls were made to subcontractors that were identified through either City documents or the prime contractor expenditure survey as having received a contract from a City of Cleveland prime contractor. The results of the subcontractor expenditure survey, as presented below in Table 1.06, are as follows: 121 or 17.36 percent of subcontractors responded.

Table 1.06 Subcontractor Expenditure Survey Results

Survey Status	Number	Percentage
Subcontractors Surveyed	121	17.36%

C. Subcontract Information

Table 1.07 below presents the results of the subcontractor data collection. Subcontract data was collected from the Board of Control Resolutions, Schedule 6 reports, close-out reports, invoices and work orders, and Mason Tillman surveys. As the numbers in Table 1.07 show, some subcontracts were represented in more than one prime contract data source.



Table 1.07 Summary of Subcontract Data Collection Results

Data Source	Number of Prime Contracts with Subcontract Data	Percentage of Prime Contracts with Subcontract Data
Board of Control Resolutions	79	97.53%
Schedule 6 Reports	4	4.94%
Close-out Reports	4	4.94%
Invoices and Work Orders	1	1.23%
Mason Tillman Surveys	29	35.8%

D. Subcontractor Information

From the various sources used in the data collection effort, a total of 697 unique subcontractors were identified. Some subcontractors were identified on more than one source. The list below only enumerates each subcontractor once. The order is ranked by the timing of the receipt of the data. Therefore, a subcontractor identified from a Board of Control Resolutions and a Mason Tillman survey is reported as provided by the Board of Control Resolutions.

Table 1.08 below presents a summary of subcontractor data collection results. It identifies the sources of the 697 unique subcontractors as having performed subcontracting work on the City’s construction, and architecture and engineering prime contracts during the study period. The number of professional services subcontracts was insufficient to conduct a disparity analysis. The disparity analysis was therefore limited to construction and architecture and engineering services subcontractors.



Table 1.08 Summary of Subcontractor Data Collection Results

Data Source	Number of Subcontractors Identified	Percentage of Subcontractors Identified
Board of Control Resolution	382	54.81%
Schedule 6	19	2.73%
Close-out Report	6	0.86%
Invoices and Work Orders	1	0.14%
Mason Tillman Survey	289	41.46%
Total	697	100.00%

V. SUBCONTRACTOR AVAILABILITY SOURCES

All available City prime contractors identified on the 2005 Disparity Study were included in the subcontractor availability. Additionally, subcontractors utilized in this study were another source of available firms.

VI. SUBCONTRACTOR DISPARITY FINDINGS

The subcontracts analyzed for statistical disparity were in two industries: construction and architecture and engineering. The 58 construction prime contracts were divided into vertical and horizontal contracts. Vertical construction includes construction of residential, industrial, commercial, or other buildings; building renovation; and special trades typically performed on buildings or building-related projects such as painting, electrical work, carpentry work, plumbing, heating, air-conditioning, roofing, and sheet metal work. Horizontal construction includes bridges, highways, streets, sewers, landscaping, and irrigation projects. Architecture and engineering services included construction related professional services, such as architectural, engineering and construction management services.



A. Disparity Analysis of Vertical Construction Subcontracts

The distribution of vertical construction subcontract dollars is depicted in Table 1.09 and Chart 1.01. African American businesses were underutilized at a statistically significant level. No other ethnic or gender groups were underutilized at a statistically significant level for vertical construction subcontracts.

African American Businesses represent 21.62 percent of the available vertical construction subcontractors and received 10.23 percent of the vertical construction subcontract dollars. This underutilization is statistically significant.

Asian American Businesses represent 2.27 percent of the available vertical construction subcontractors and received 2.88 percent of the vertical construction subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Hispanic American Businesses represent 2.81 percent of the available vertical construction subcontractors and received 5.31 percent of the vertical construction subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Native American Businesses represent 0.11 percent of the available vertical construction subcontractors and received none of the vertical construction subcontract dollars. While this group was underutilized, there were too few available firms to determine statistical significance.

Minority Business Enterprises represent percent of 26.81 the available vertical construction subcontractors and received 18.41 percent of the vertical construction subcontract dollars. This underutilization is not statistically significant.

Female Business Enterprises represent 10.49 percent of the available vertical construction subcontractors and received 6.58 percent of the vertical construction subcontract dollars. This underutilization is not statistically significant.

Caucasian Males represent 62.70 percent of the available vertical construction subcontractors and received 75.01 percent of the vertical construction subcontract dollars. This overutilization is not statistically significant.



Table 1.09 Vertical Construction Disparity Analysis: Subcontracts Awarded

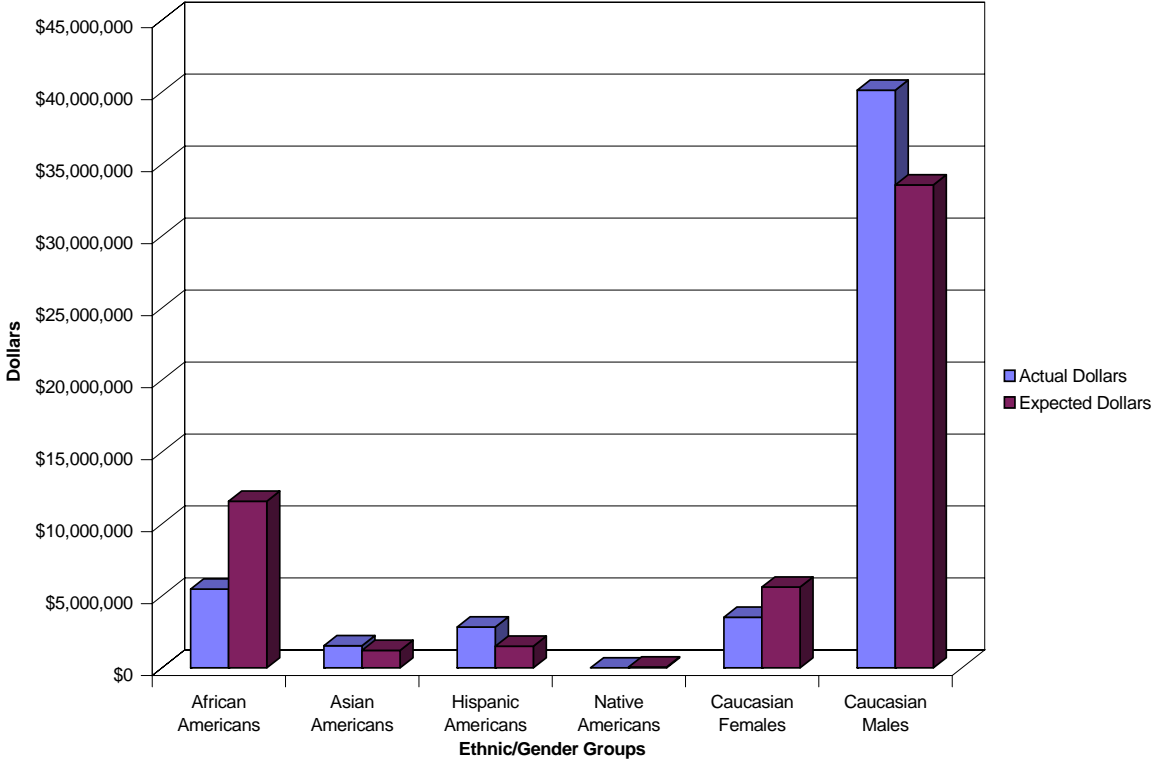
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	\$5,471,858	10.23%	21.62%	\$11,568,298	-\$6,096,440	0.47	< .05 *
Asian Americans	\$1,539,195	2.88%	2.27%	\$1,214,671	\$324,523	1.27	**
Hispanic Americans	\$2,840,235	5.31%	2.81%	\$1,503,879	\$1,336,356	1.89	**
Native Americans	\$0	0.00%	0.11%	\$57,841	-\$57,841	0.00	----
Caucasian Females	\$3,520,680	6.58%	10.49%	\$5,610,624	-\$2,089,945	0.63	not significant
Caucasian Males	\$40,131,410	75.01%	62.70%	\$33,548,063	\$6,583,347	1.20	not significant
TOTAL	\$53,503,377	100.00%	100.00%	\$53,503,377			
Ethnicity and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African American Females	\$17,657	0.03%	4.00%	\$2,140,135	-\$2,122,478	0.01	< .05 *
African American Males	\$5,454,201	10.19%	17.62%	\$9,428,163	-\$3,973,962	0.58	not significant
Asian American Females	\$164,310	0.31%	0.32%	\$173,524	-\$9,215	0.95	----
Asian American Males	\$1,374,885	2.57%	1.95%	\$1,041,147	\$333,738	1.32	**
Hispanic American Females	\$0	0.00%	0.43%	\$231,366	-\$231,366	0.00	----
Hispanic American Males	\$2,840,235	5.31%	2.38%	\$1,272,513	\$1,567,722	2.23	**
Native American Females	\$0	0.00%	0.00%	\$0	\$0	----	----
Native American Males	\$0	0.00%	0.11%	\$57,841	-\$57,841	0.00	----
Caucasian Females	\$3,520,680	6.58%	10.49%	\$5,610,624	-\$2,089,945	0.63	not significant
Caucasian Males	\$40,131,410	75.01%	62.70%	\$33,548,063	\$6,583,347	1.20	not significant
TOTAL	\$53,503,377	100.00%	100.00%	\$53,503,377			
Minority and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Females	\$181,967	0.34%	4.76%	\$2,545,025	-\$2,363,059	0.07	not significant
Minority Males	\$9,669,320	18.07%	22.05%	\$11,799,664	-\$2,130,343	0.82	not significant
Caucasian Females	\$3,520,680	6.58%	10.49%	\$5,610,624	-\$2,089,945	0.63	not significant
Caucasian Males	\$40,131,410	75.01%	62.70%	\$33,548,063	\$6,583,347	1.20	not significant
TOTAL	\$53,503,377	100.00%	100.00%	\$53,503,377			
Minority and Females	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Business Enterprises	\$9,851,287	18.41%	26.81%	\$14,344,689	-\$4,493,402	0.69	not significant
Female Business Enterprises	\$3,520,680	6.58%	10.49%	\$5,610,624	-\$2,089,945	0.63	not significant
Caucasian Males	\$40,131,410	75.01%	62.70%	\$33,548,063	\$6,583,347	1.20	not significant

(*) denotes a statistically significant underutilization.

(**) denotes that this study does not test statistically the overutilization of M/FBEs or the underutilization of Caucasian males.

(----) denotes an underutilized group with too few available firms to test statistical significance.

Chart: 1.01 Vertical Construction Disparity Analysis: Subcontracts Awarded



Mason Tilman Associates, Ltd. August 2007
 City of Cleveland Subcontractor Disparity Analysis

B. Disparity Analysis of Horizontal Construction Subcontracts

The distribution of horizontal construction subcontract dollars is depicted in Table 1.10 and Chart 1.02. No ethnic or gender groups were underutilized at a statistically significant level for horizontal construction subcontracts.

African American Businesses represent 21.62 percent of the available horizontal construction subcontractors and received 18.49 percent of the horizontal construction subcontract dollars. This underutilization is not statistically significant.

Asian American Businesses represent 2.27 percent of the available horizontal construction subcontractors and received 1.27 percent of the horizontal construction subcontract dollars. This underutilization is not statistically significant.

Hispanic American Businesses represent 2.81 percent of the available horizontal construction subcontractors and received 4.63 percent of the horizontal construction subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Native American Businesses represent 0.11 percent of the available horizontal construction subcontractors and received 1.84 percent of the horizontal construction subcontract dollars. While this group was underutilized, there were too few available firms to determine statistical significance.

Minority Business Enterprises represent 26.81 percent of the available horizontal construction subcontractors and received 26.23 percent of the horizontal construction subcontract dollars. This underutilization is not statistically significant.

Female Business Enterprises represent 10.49 percent of the available horizontal construction subcontractors and received 14.16 percent of the horizontal construction subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Caucasian Males represent 62.70 percent of the available horizontal construction subcontractors and received 59.61 percent of the horizontal construction subcontract dollars. This study does not test statistically the underutilization of Caucasian Males.



Table 1.10 Horizontal Construction Disparity Analysis: Subcontracts Awarded

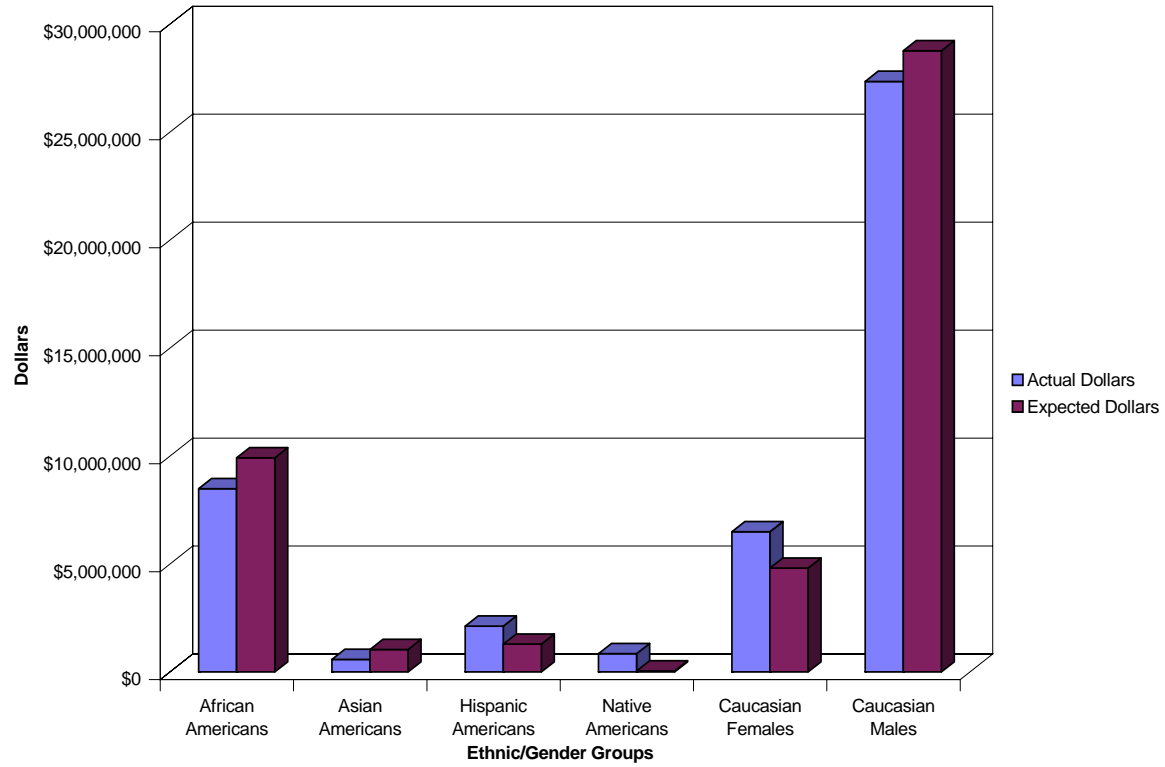
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	\$8,482,478	18.49%	21.62%	\$9,918,455	-\$1,435,976	0.86	not significant
Asian Americans	\$581,928	1.27%	2.27%	\$1,041,438	-\$459,510	0.56	not significant
Hispanic Americans	\$2,123,449	4.63%	2.81%	\$1,289,399	\$834,049	1.65	**
Native Americans	\$844,390	1.84%	0.11%	\$49,592	\$794,798	17.03	**
Caucasian Females	\$6,495,411	14.16%	10.49%	\$4,810,451	\$1,684,960	1.35	**
Caucasian Males	\$27,345,197	59.61%	62.70%	\$28,763,519	-\$1,418,322	0.95	**
TOTAL	\$45,872,853	100.00%	100.00%	\$45,872,853			
Ethnicity and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African American Females	\$728,394	1.59%	4.00%	\$1,834,914	-\$1,106,520	0.40	not significant
African American Males	\$7,754,085	16.90%	17.62%	\$8,083,541	-\$329,456	0.96	not significant
Asian American Females	\$0	0.00%	0.32%	\$148,777	-\$148,777	0.00	----
Asian American Males	\$581,928	1.27%	1.95%	\$892,661	-\$310,733	0.65	not significant
Hispanic American Females	\$0	0.00%	0.43%	\$198,369	-\$198,369	0.00	----
Hispanic American Males	\$2,123,449	4.63%	2.38%	\$1,091,030	\$1,032,419	1.95	**
Native American Females	\$0	0.00%	0.00%	\$0	\$0	----	----
Native American Males	\$844,390	1.84%	0.11%	\$49,592	\$794,798	17.03	**
Caucasian Females	\$6,495,411	14.16%	10.49%	\$4,810,451	\$1,684,960	1.35	**
Caucasian Males	\$27,345,197	59.61%	62.70%	\$28,763,519	-\$1,418,322	0.95	**
TOTAL	\$45,872,853	100.00%	100.00%	\$45,872,853			
Minority and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Females	\$728,394	1.59%	4.76%	\$2,182,060	-\$1,453,666	0.33	not significant
Minority Males	\$11,303,851	24.64%	22.05%	\$10,116,824	\$1,187,027	1.12	**
Caucasian Females	\$6,495,411	14.16%	10.49%	\$4,810,451	\$1,684,960	1.35	**
Caucasian Males	\$27,345,197	59.61%	62.70%	\$28,763,519	-\$1,418,322	0.95	**
TOTAL	\$45,872,853	100.00%	100.00%	\$45,872,853			
Minority and Females	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Business Enterprises	\$12,032,245	26.23%	26.81%	\$12,298,884	-\$266,639	0.98	not significant
Female Business Enterprises	\$6,495,411	14.16%	10.49%	\$4,810,451	\$1,684,960	1.35	**
Caucasian Males	\$27,345,197	59.61%	62.70%	\$28,763,519	-\$1,418,322	0.95	**

(*) denotes a statistically significant underutilization.

(**) denotes that this study does not test statistically the overutilization of M/WBEs or the underutilization of Caucasian males.

(----) denotes an underutilized group with too few available firms to test statistical significance.

Chart: 1.02 Horizontal Construction Disparity Analysis: Subcontracts Awarded



C. Disparity Analysis of Architecture and Engineering Subcontracts

The distribution of architecture and engineering subcontract dollars is depicted in Table 1.11 and Chart 1.03. No ethnic or gender groups were underutilized at a statistically significant level for architecture and engineering subcontracts.

African American Businesses represent 17.43 percent of the available architecture and engineering subcontractors and received 18.75 percent of the architecture and engineering subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Asian American Businesses represent 11.20 percent of the available architecture and engineering subcontractors and received 22.22 percent of the architecture and engineering subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Hispanic American Businesses represent 0.83 percent of the available architecture and engineering subcontractors and received 3.85 percent of the architecture and engineering subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Native American Businesses represent 0.41 percent of the available architecture and engineering subcontractors and received none of the architecture and engineering subcontract dollars. While this group was underutilized, there were too few available firms to determine statistical significance.

Minority Business Enterprises represent 29.88 percent of the available architecture and engineering subcontractors and received 44.81 percent of the architecture and engineering subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Female Business Enterprises represent 8.30 percent of the available architecture and engineering subcontractors and received 8.53 percent of the architecture and engineering subcontract dollars. This study does not test statistically the overutilization of MBE/FBEs.

Caucasian Males represent 61.83 percent of the available architecture and engineering subcontractors and received 46.66 percent of the architecture and engineering subcontract dollars. This study does not test statistically the underutilization of Caucasian Males.



Table 1.11 Architecture and Engineering Disparity Analysis: Subcontracts Awarded

August 1, 2004 to December 31, 2005

All Dollars

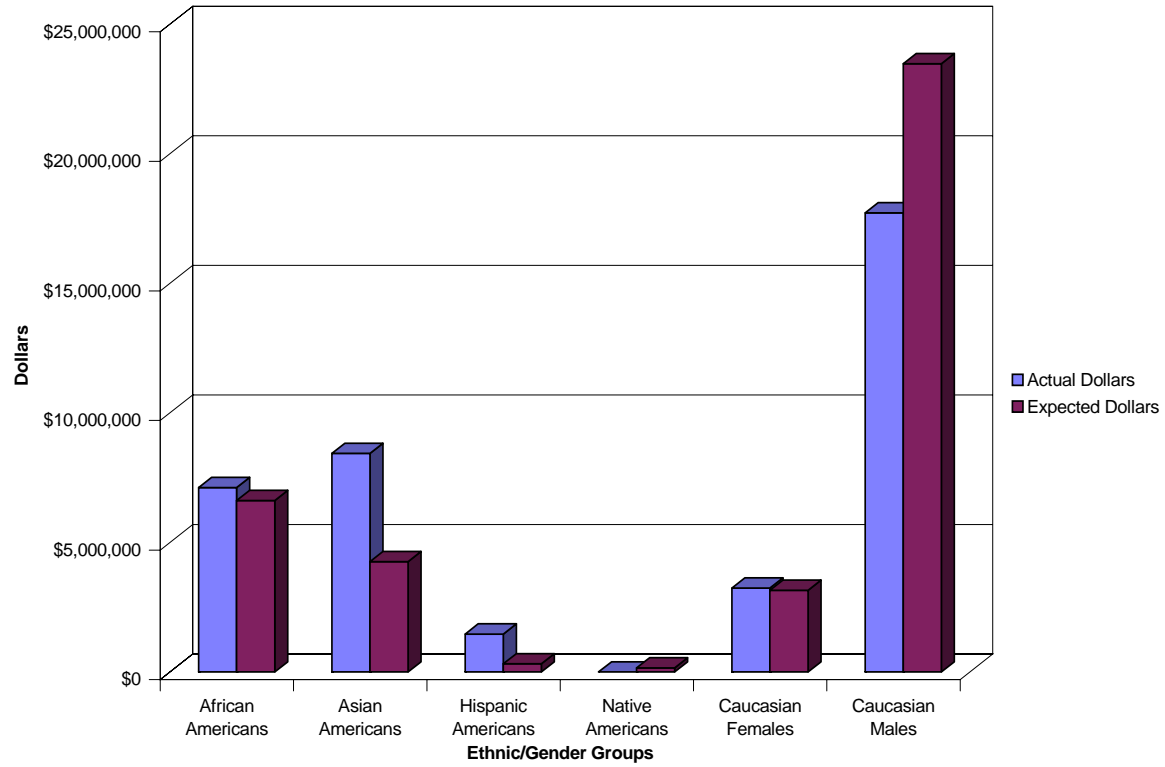
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	\$7,117,415	18.75%	17.43%	\$6,616,491	\$500,924	1.08	**
Asian Americans	\$8,434,379	22.22%	11.20%	\$4,253,458	\$4,180,920	1.98	**
Hispanic Americans	\$1,461,438	3.85%	0.83%	\$315,071	\$1,146,367	4.64	**
Native Americans	\$0	0.00%	0.41%	\$157,535	-\$157,535	0.00	----
Caucasian Females	\$3,238,185	8.53%	8.30%	\$3,150,710	\$87,475	1.03	**
Caucasian Males	\$17,714,639	46.66%	61.83%	\$23,472,789	-\$5,758,150	0.75	**
TOTAL	\$37,966,055	100.00%	100.00%	\$37,966,055			
Ethnicity and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African American Females	\$203,518	0.54%	2.49%	\$945,213	-\$741,695	0.22	not significant
African American Males	\$6,913,897	18.21%	14.94%	\$5,671,278	\$1,242,619	1.22	**
Asian American Females	\$453,854	1.20%	3.32%	\$1,260,284	-\$806,430	0.36	not significant
Asian American Males	\$7,980,524	21.02%	7.88%	\$2,993,174	\$4,987,350	2.67	**
Hispanic American Females	\$0	0.00%	0.41%	\$157,535	-\$157,535	0.00	----
Hispanic American Males	\$1,461,438	3.85%	0.41%	\$157,535	\$1,303,902	9.28	**
Native American Females	\$0	0.00%	0.00%	\$0	\$0	----	----
Native American Males	\$0	0.00%	0.41%	\$157,535	-\$157,535	0.00	----
Caucasian Females	\$3,238,185	8.53%	8.30%	\$3,150,710	\$87,475	1.03	**
Caucasian Males	\$17,714,639	46.66%	61.83%	\$23,472,789	-\$5,758,150	0.75	**
TOTAL	\$37,966,055	100.00%	100.00%	\$37,966,055			
Minority and Gender	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Females	\$657,372	1.73%	6.22%	\$2,363,032	-\$1,705,661	0.28	not significant
Minority Males	\$16,355,859	43.08%	23.65%	\$8,979,523	\$7,376,336	1.82	**
Caucasian Females	\$3,238,185	8.53%	8.30%	\$3,150,710	\$87,475	1.03	**
Caucasian Males	\$17,714,639	46.66%	61.83%	\$23,472,789	-\$5,758,150	0.75	**
TOTAL	\$37,966,055	100.00%	100.00%	\$37,966,055			
Minority and Females	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Minority Business Enterprises	\$17,013,231	44.81%	29.88%	\$11,342,556	\$5,670,675	1.50	**
Female Business Enterprises	\$3,238,185	8.53%	8.30%	\$3,150,710	\$87,475	1.03	**
Caucasian Males	\$17,714,639	46.66%	61.83%	\$23,472,789	-\$5,758,150	0.75	**

(*) denotes a statistically significant underutilization.

(**) denotes that this study does not test statistically the overutilization of M/WBEs or the underutilization of Caucasian males.

(----) denotes an underutilized group with too few available firms to test statistical significance.

Chart: 1.03 Architecture and Engineering Construction Disparity Analysis: Subcontracts Awarded



D. Summary of Subcontractor Disparity Findings

The subcontractor disparity findings are summarized in Table 1.12 below.

Table 1.12 Summary of Subcontract Disparity Findings

Ethnicity and Gender	Vertical Construction	Horizontal Construction	Architecture and Engineering
African Americans	Yes	No	No
Asian Americans	No	No	No
Hispanic Americans	No	No	No
Native Americans	Insufficient records	No	Insufficient records
Minority Business Enterprises	No	No	No
Women Business Enterprises	No	No	No

Yes = Statistically significant disparity

No = No statistically significant disparity

VII. RECOMMENDATIONS

A. Goal-Setting Recommendations

The statistically significant disparity findings provide the legal basis to support a race-conscious subcontracting program for African Americans for vertical construction subcontracts. According to the subcontractor disparity analysis, the availability of African American subcontractors was found to be 21.62 percent. The subcontract goal should reflect the documented availability of African American subcontractors.

1. Overall African American Subcontracting Goals

An overall subcontractor goal can be set on the City's contracts, considering the level of available African American firms. The overall goal should be reviewed periodically.



2. Contract-Specific MBE Subcontracting Goal

A contract-specific subcontracting goal should be set for each construction contract. The most prudent method to remedy disparity is to set a narrowly tailored goal for each advertised contract that reflects the current availability of the businesses which perform the subcontracting items of work. The contract-specific goal setting method thereby ensures that the goal is reasonably attainable by formulating the goal for each prime contract to reflect the actual availability for the project.

In setting a contract-specific goal, both the items of work in the contract and the availability of African Americans and non-African Americans to perform the items must be determined. In order to determine the availability of businesses to perform the specific items of work, the City will need to maintain a current database which identifies available African American and non-African American firms.

B. Data Collection and Tracking Recommendations

The subcontractors listed in the Board of Control Resolutions were represented as a complete record of subcontractors on prime contracts awarded by the City during January 1, 2004 through December 31, 2005. However, the subcontracting data collection process determined that the subcontractor award data obtained from the Board of Control Resolutions was incomplete. Furthermore, no systematic source existed for tracking the subcontractor payments.

1. Subcontractor Data Collection

The City's data collection process needs to be enhanced. The following recommendations are presented as strategies to enhance the City's collection and maintenance of subcontracting data.

- Modify the City's prime contractor and subcontractor tracking process to ensure subcontractor utilization records are collected and maintained throughout the duration of the contract on all construction, architecture and engineering, and professional services contracts.
- Strictly enforce Cleveland City Code 181.37, which requires all subcontractor substitutions to be approved by the Board of Control prior to the subcontractor being replaced. This will ensure that all subcontractors are listed on Board of Control Resolution amendments.



- Cleveland City Code 181.37 should be amended to establish a penalty for prime contractors that fail to list all subcontractors in their bids, proposals, and qualification statements for review and approval by the Board of Control at the time of contract award.
- Strictly enforce and monitor Cleveland City Code 188.04 to ensure that prime contractors and subcontractors submit certified payroll reports. The City should manage these documents electronically, and the prime contractors should be required to submit an electronic file.
- Cleveland City Code 187.03 should be amended to explicitly state that the bidder must submit executed agreements with MBE/FBEs listed in their bids, proposals, and statements of qualifications. The executed agreements must be received before the release of the prime contractor's first payment.
- Cleveland City Code Chapter 187 should be amended to require a signature from the Office of Economic Opportunity (OEO) before the execution of a contract. This will ensure the OEO provides the necessary review for contract compliance and receives a complete Schedule 6.
- The City's first payment to prime contractors should not be released until all required documents, such as Schedule 6 records and subcontractor contracts, have been submitted by the prime contractor.
- Board of Control Resolutions amendments should be prepared to reflect changes in listed subcontractors.
- In addition to increasing the enforcement of its codes and ordinances, the City should implement penalties for prime contractor non-compliance with its document submission requirements.
- The City should include a clear statement of the reporting requirements and payments on its website.

2. Subcontractor Data Tracking

a. Design a Utilization Tracking Database

A utilization tracking database should be designed so that prime contractor and subcontractor utilization can be tracked. Effective contract compliance will require a relational database that can track and report City contracting activity. The comprehensive utilization tracking database should be linked to the financial computer system by the unique contract number. In addition, this database will electronically track all subcontractor data recorded in Board of Control resolution letters, Schedule 6, certified payroll, and other



project documents in a centralized location. This tool will be critical in monitoring utilization and conducting contract compliance.

