Washington Suburban Sanitary Commission

2010 DISPARITY STUDY

TRANSPARENCY • COOPERATION • ACCOUNTABILITY

FINAL REPORT

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Submitted by Mason Tillman Associates, Ltd.

ACKNOWLEDGMENT

In 2010, the Washington Suburban Sanitary Commission (WSSC) commissioned a Disparity Study. Mason Tillman Associates, Ltd. of Oakland, California was selected to perform the Study. The Disparity Study focused on four industries: construction, architectural and engineering, professional services, and goods and other services. The Study reviewed the award of prime contracts during the July 1, 2003 to June 30, 2009 study period.

The Maryland Washington Minority Contractors Association, Douglas & Boykin, SRB Communications, and V Paul & Associates were Mason Tillman's subconsultants. The subconsultants performed outreach and data collection, marketing, anecdotal interviews, and legal analysis services.

Jerry N. Johnson, General Manager/CEO of WSSC, provided the overall leadership and guidance for the Study. Mr. Johnson and his staff, as well as Towanda R. Livingston, Director of the Small, Local and Minority Business Enterprise Office and Lynda Dorman, Consultant Project Study Manager, facilitated Mason Tillman's access to the resources needed to complete the Disparity Study.

Additionally, the Study could not have been conducted without the cooperation of the WSSC Disparity Study Oversight Committee and the Disparity Study Leadership Team. These staff played a critical role in the data collection process by encouraging their membership to provide the contract records and documents needed to perform the Disparity Study. The successful completion of this Study required the participation of the local business community. The extraordinary effort of WSSC and its business community should be applauded.

Table of Contents

EXECUTIVE SUMMARY 1

I. STUDY OVERVIEW 1

A. Study Team 1
B. Study Purpose 1
C. Industries Studied 1
D. Definition of Ethnic and Gender Groups Studied 2
E. Prime Contract Data 3
F. Subcontractor Data 4

II. METHODOLOGY 5

A. Legal Framework 5
B. Structure of the Report 5

III. NOTABLE FINDINGS 6

A. Prime Contractor Utilization Analysis 6
B. Subcontractor Utilization Analysis 7
C. Market Area Analysis 7
D. Contract Size Analysis 7

IV. DISPARITY ANALYSIS STANDARD 8

V. STATISTICALLY SIGNIFICANT FINDINGS 8

A. Prime Contract Findings 9
B. Subcontract Findings 12

VI. ANECDOTAL FINDINGS 13

A. Summary of In-depth Interviews 14
B. Anecdotal Interview Findings 14

Table of Contents Continued

VII. RACE AND GENDER-CONSCIOUS RECOMMENDATIONS 16

A. Prime Contracting Remedies 16
B. Subcontractor Remedies 17

VIII. RACE AND GENDER-NEUTRAL RECOMMENDATIONS 18

A. Pre-Award Recommendations 18
B. Post-Award Recommendations 21

IX. CONTRACTING AND ACQUISITION PROCESS RECOMMENDATIONS 23

A. Procurement Process Enhancements 23
B. SLMBE Program Enhancements 24
C. Website Enhancements 24
D. CBR Enhancements 26

X. APPENDICES 28

List of Tables

Table 1	Business Ethnic and Gender Groups	2
Table 2	Disparity Summary: Construction Prime Contract Dollars, July 1, 2003 to June 30, 2009	9
Table 3	Disparity Summary: Architectural and Engineering Prime Contract Dollars, July 1, 2003 to June 30, 2009	10
Table 4	Disparity Summary: Professional Services Prime Contract Dollars, July 1, 2003 to June 30, 2009	11
Table 5	Disparity Summary: Goods and Other Services Prime Contract Dollars, July 1, 2003 to June 30, 2009	12
Table 6	Subcontract Disparity Summary, July 1, 2003 to June 30, 2009	13
Table 7	Summary of Findings Concerning Current Barriers Against Ethnic/Gender Groups	15

EXECUTIVE SUMMARY

I. STUDY OVERVIEW

A. Study Team

Mason Tillman Associates, Ltd., a public policy consulting firm based in Oakland, California, was selected in 2010 to perform the Disparity Study. Mason Tillman subcontracted with the Maryland Washington Minority Contractors Association, Douglas & Boykin, SRB Communications, and V Paul & Associates to perform data collection, outreach, anecdotal interviews, marketing, and legal assistance services.

B. Study Purpose

The Washington Suburban Sanitary Commission (WSSC) commissioned Mason Tillman to determine whether or not a statistically significant disparity existed between the number of minority-owned and women-owned business enterprises (M/WBEs) that were ready, willing, and able to provide construction, architectural and engineering, professional services, and goods and other services to WSSC and the number of M/WBEs that were actually providing the services to WSSC. The Disparity Study focused on four industries and reviewed the award of prime contracts during the July 1, 2003 to June 30, 2009 study period.

C. Industries Studied

The Disparity Study included a statistical analysis and an evaluation of prime contracts and subcontracts. The four industries were construction, architectural and engineering, professional services, and goods and other services.

Construction included new construction, remodeling, renovation, maintenance, demolition and repair of any public structure or building, pipeline construction, and other public improvements.

Architectural and engineering included construction management, landscape architecture, surveying, mapping services, and architectural and engineering services.

Professional services included attorneys, accountants, medical professionals, technical services, research planning, and consultant services.

Goods and other services included materials, supplies, equipment, maintenance, and other services which could be performed without a professional license, special education, or training.

D. Definition of Ethnic and Gender Groups Studied

The data in the Study is disaggregated into nine ethnic and gender groups. The nine groups are listed below in Table 1.

Table 1 Business Ethnic and Gender Groups

Ethnicity and Gender Category	Definition
African American Business Enterprises	Businesses owned by male and female African Americans
Asian American Business Enterprises	Businesses owned by male and female Asian-Pacific and Subcontinent Asian Americans
Hispanic American Business Enterprises	Businesses owned by male and female Hispanic Americans
Native American Business Enterprises	Businesses owned by male and female Native Americans
Caucasian Female Business Enterprises[1]	Businesses owned by Caucasian females
Minority Business Enterprises	Businesses owned by African American, Asian American, Hispanic American, and Native American males and females
Women Business Enterprises[2]	Businesses owned by Caucasian females

[1] The Caucasian Female Business Enterprises and Women Business Enterprises terms are used interchangeably in the Study.

[2] I d.

Ethnicity and Gender Category	Definition
Minority and Women Business Enterprises	Businesses owned by Minority males, Minority females, and Caucasian females
Non-Minority Male Business Enterprises	Businesses owned by Caucasian males and businesses that did not declare their ethnicity or could not be identified as minority or female-owned[3]

E. Prime Contract Data

The dataset analyzed for the prime contractor utilization analysis includes purchase orders (POs) and direct payments WSSC extracted from the Materials, Account Payable, Purchasing System (MAPS). Data WSSC provided to Mason Tillman was limited to purchase orders that were open and direct payments issued during the July 1, 2003 to June 30, 2009 study period.

To create a unique list of transactions, the purchase orders were grouped by the PO number. The direct payments were grouped by job number, when the information was available, or by check number when the job number was not populated in MAPS. The purchase orders and direct payments are referred to as a contract. Each WSSC contract was classified into one of the four industries. Mason Tillman worked closely with WSSC to classify the contracts into the appropriate industries given the limited information available in each contract record. The final classification of the prime contracts was reviewed and approved by WSSC.

When the industry classifications were approved by WSSC, the ethnicity and gender of the prime contractors were verified. Mason Tillman found that the ethnicity and gender information WSSC maintained for prime contractors was incomplete. Therefore, the ethnicity and gender information for most prime contractors had to be reconstructed.

The prime contractor names were cross-referenced with WSSC's SymTrac™ database, other governmental agency certification lists, and business organization membership lists compiled for this Study. The business websites were reviewed for the ethnicity and gender of the business owners. Prime contractors, whose ethnicity and gender could not be verified through published sources, were surveyed. In addition, Mason Tillman submitted the utilized vendor list to WSSC to review for ethnicity and gender classifications known to WSSC.

[3] See Section II: Prime Contract Data Sources for the methodology employed to identify the ethnicity and gender of WSSC's utilized prime contractors.

F. Subcontractor Data

The dataset analyzed for the subcontract utilization analysis was reconstructed from various sources. Extensive research was undertaken to compile the subcontracts issued by WSSC's prime contractors during the study period. Mason Tillman worked closely with WSSC's staff to reconstruct the subcontractor data for construction, architectural and engineering, professional services, and goods and other services prime contracts.

SymTrac™ WSSC's subcontractor tracking database was the primary data source. SymTrac™ tracked some payments made to subcontractors during the July 2005 to June 2009 study period. Nearly 81 percent of the subcontracts analyzed for this Study were not recorded in SymTrac™ during the January 2008 to June 2009 study period when WSSC was verifying the SymTrac™ entries. Mason Tillman also found that 89 percent of the payments recorded in the SymTrac™ subcontractor tracking database during the study period were paid to M/WBEs.

Data compiled by WSSC's Departments of Acquisition and Engineering and Construction were used by Mason Tillman as the second source of subcontractor data. The third source was a survey of the subcontract expenditures by prime contractors that received a contract valued at $100,000 or greater. This survey yielded a response rate of 10 percent. Mason Tillman conducted a second mailing to the prime contractors who had not responded to the survey using a letter from WSSC's General Manager soliciting the contractor's cooperation. The overall response rate to the prime contractor expenditure survey was 42 percent.

Concurrent with the mail survey, Mason Tillman reviewed WSSC's project files of contracts over $100,000. Hard copy subcontractor records were collected from WSSC's project files made available in the Laurel, Maryland office. Subcontractor data extracted from the hard copy files were entered into Mason Tillman's database. In addition, WSSC's internal auditing team assisted in collecting data from prime contractors who received the larger contracts and had not responded to the prime contractor expenditure survey. All subcontractors identified from WSSC's records and the prime contractor survey were contacted to verify their participation and payment on each prime contract.

The extraordinary effort of the project team and WSSC staff members made it possible to reconstruct the subcontracts for many construction, architectural and engineering, and goods and other services prime contracts. However, despite the extensive research, subcontractor information for professional services contracts was difficult to reconstruct. There were no reported subcontracts on 80 percent of the professional services prime contracts over $100,000.

II. METHODOLOGY

A. Legal Framework

The review of *Croson* and related case law provided the legal framework for conducting the disparity study.

A legal review was the **first step** in the disparity study. Case law sets the standard for the methodology employed in a disparity study. **Step two** was to collect utilization records and determine the extent to which WSSC had used minority, women-owned, and other businesses to secure its needed construction, architectural and engineering, professional services, and goods and other services. Utilization records were also used to determine the geographical area in which companies that had received WSSC contracts were located. In **step three**, WSSC's market area was identified. Once the market area was defined, the **fourth step**, the availability analysis, identified businesses willing and able to provide construction, architectural and engineering, professional services, and goods and other services needed by WSSC. In the **fifth step**, a disparity analysis was performed to determine whether there was a statistically significant underutilization within the four industries. In **step six**, the anecdotal analysis, the contemporary experiences of 56 business owners in WSSC's market area were collected. In addition to the anecdotal interviews with the business owners, 16 representatives from trade organizations were also interviewed. In **step seven**, the statistical and anecdotal analyses were reviewed and recommendations were written to enhance WSSC's efforts in contracting with M/WBEs in its market area. Additionally, a regression analysis was conducted to determine if factors other than discrimination could account for any statistically significant disparity.

Disparity Study:
Critical Components

1. **Legal Framework**
2. **Utilization Analysis**
3. **Market Area Analysis**
4. **Availability Analysis**
5. **Disparity Analysis**
6. **Anecdotal Analysis**
7. **Recommendations**

B. Structure of the Report

The Disparity Study findings are presented in eight chapters. The contents of each chapter are briefly described below:

Disparity Study Report

- *Chapter 1: Prime Contractor Utilization Analysis* presents the distribution of prime contracts by industry, ethnicity, and gender.

- *Chapter 2: Subcontractor Utilization Analysis* presents the distribution of subcontracts by industry, ethnicity, and gender.

- *Chapter 3: Market Area Analysis* presents the legal basis for the geographical market area determination and defines WSSC's market area.

- *Chapter 4: Prime Contractor and Subcontractor Availability Analysis* presents the distribution of available businesses in WSSC's market area.

- *Chapter 5: Prime Contractor Disparity Analysis* presents prime contractor utilization compared to prime contractor availability by industry, ethnicity, and gender and determines whether the comparison is statistically significant.

- *Chapter 6: Subcontractor Disparity Analysis* presents subcontractor utilization compared to subcontractor availability by industry, ethnicity, and gender and determines whether the comparison is statistically significant.

- *Chapter 7: Anecdotal Analysis* presents the business community's experiences and perceptions of barriers encountered in contracting or attempting to contract with WSSC.

- *Chapter 8: Recommendations* presents best management practices to enhance WSSC's contracting and procurement activities with M/WBEs and other small businesses.

- *Appendix A*: *Prime Contractor Disparity Analysis - Contracts under $1,000,000* presents an additional analysis of prime contractor utilization compared to prime contractor availability by industry, ethnicity, and gender and determines whether the comparison is statistically significant.

- *Appendix B*: *Regression Analysis* presents an examination of whether there are private sector economic indicators of discrimination in WSSC's market area that could impact the formation and development of businesses by minorities and females.

III. NOTABLE FINDINGS

A. Prime Contractor Utilization Analysis

WSSC issued 55,927 contracts to M/WBEs and non-M/WBEs for all industries during the July 1, 2003 to June 30, 2009 study period. The 55,927 contracts included 2,055 for construction, 668 for architectural and engineering, 2,414 for professional services, and 50,790 for goods and other services.

The payments made by WSSC during the study period totaled $1,302,098,374 for all 55,927 contracts. These expenditures included $532,657,942 for construction, $186,875,887 for architectural and engineering, $83,114,533 for professional services, and $499,450,013 for goods and other services.

B. Subcontractor Utilization Analysis

Mason Tillman analyzed 2,277 subcontracts, which included 1,346 construction subcontracts, 403 architectural and engineering subcontracts, 47 professional services subcontracts, and 481 goods and other services subcontracts for the July 1, 2003 to June 30, 2009 study period.

Of the subcontracts analyzed, there were $229,792,797 total dollars expended during the July 1, 2003 to June 30, 2009 study period, which included $86,165,169 for construction subcontracts; $62,440,402 for architectural and engineering subcontracts; $8,833,601 for professional services subcontracts; and $72,353,625 for goods and other services subcontracts.

C. Market Area Analysis

Given the distribution of the contracts awarded by WSSC and the requirements set forth in the applicable case law, the Study's market area was determined to be the District of Columbia and specific counties and independent cities in the states of Maryland and Virginia.

WSSC issued 55,927 contracts valued at $1,302,098,374 during the July 1, 2003 to June 30, 2009 study period. Businesses based in WSSC's market areas received 82.96 percent of these contracts and 83.22 percent of the dollars.

D. Contract Size Analysis

A size analysis of prime contracts was undertaken to determine the capacity required to perform on WSSC's prime contracts. The size distribution illustrates the fact that limited capacity is needed to perform the overwhelming majority of WSSC's contracts. For the size analysis, WSSC's contracts were grouped into eight dollar ranges.[4] Each industry was analyzed to determine the number and percentage of contracts that fell within the eight size categories. The size distribution of contracts issued to Non-Minority Males was then compared to the size distribution of contracts issued to Caucasian Females, Minority Females, and Minority Males.

[4] The eight dollar ranges are $1 to $24,999; $25,000 to $49,999; $50,000 to $99,999; $100,000 to $249,999; $250,000 to $499,999; $500,000 to $999,999; $1,000,000 to $2,999,999; and $3,000,000 and greater.

The contract size analysis demonstrated that 92.53 percent of WSSC's contracts were less than $25,000; 95.43 percent were less than $50,000; 97.27 percent were less than $100,000; and 99.36 percent were less than $500,000. Only 0.63 percent of WSSC's contracts were valued at $500,000 or more.

The percentage of construction contracts valued at less than $25,000 were 53.28 percent; architectural and engineering contracts valued at less than $25,000 were 31.14 percent; professional services contracts valued at less than $25,000 were 79.12 percent; goods and other services contracts valued at less than $25,000 were 95.56 percent.

IV. DISPARITY ANALYSIS STANDARD

The objective of the disparity analysis is to determine the levels at which minority and woman-owned business enterprises (M/WBEs) are utilized on Washington Suburban Sanitary Commission (WSSC) contracts. Under a fair and equitable system of awarding contracts, the proportion of contract dollars awarded to M/WBEs should be relatively close to the corresponding proportion of available M/WBEs[5] in the relevant market area. If the available M/WBE prime contractors are underutilized, a statistical test is conducted to calculate the probability of observing the empirical disparity ratio or any event which is less probable. This analysis assumes a fair and equitable system.[6] *Croson* states that an inference of discrimination can be made prima facie if the disparity is statistically significant. This analysis was applied to M/WBEs by ethnicity and gender within the four industries.

V. STATISTICALLY SIGNIFICANT FINDINGS

There was a finding of statistically significant underutilization of M/WBEs in the award of formal and informal prime contracts, in all four industries, and in the award of subcontracts in all industries except professional services.

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[5] Availability is defined as the number of ready, willing and able firms. The methodology for determining willing and able firms is detailed in Chapter 4.

[6] When conducting statistical tests, a confidence level 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 to be 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.

A. Prime Contract Findings

1. Construction Prime Contractor Disparity Summary

As indicated in Table 2, African American, Asian American, and Native American construction prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at the formal contract level.

Table 2 Disparity Summary: Construction Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	No
Hispanic Americans	No	No
Native Americans	Yes	No
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	No
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

2. Architectural and Engineering Prime Contractor Disparity Summary

As indicated in Table 3, African American, Asian American, and Hispanic American architectural and engineering prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at both the formal and informal contract levels.

Table 3 Disparity Summary: Architectural and Engineering Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Architectural and Engineering	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	No	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

3. Professional Services Prime Contractor Disparity Summary

As indicated in Table 4, African American, Asian American, and Hispanic American professional services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels. Women Business Enterprise professional services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels.

Table 4 Disparity Summary: Professional Services Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Professional Services	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

4. Goods and Other Services Prime Contractor Disparity Summary

As indicated in Table 5, African American, Asian American, and Hispanic American goods and other services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels. Women Business Enterprise goods and other services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels.

Table 5 Disparity Summary: Goods and Other Services Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Goods and Other Services	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	---	---
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

B. Subcontract Findings

1. Subcontract Disparity Summary

As indicated in Table 6, African American, Asian American, and Native American construction subcontractors were determined to be underutilized at a statistically significant level. Hispanic American architectural and engineering subcontractors were determined to be underutilized at a statistically significant level. Women Business Enterprises were also underutilized on architectural and engineering subcontracts, but not at a statistically significant level.

African American, Asian American, Hispanic American, and Women Business Enterprise professional services subcontractors were determined to be underutilized, but there were too few contracts to test the statistical significance of the underutilization. African American and Asian American goods and other services subcontractors were determined to be underutilized

at a statistically significant level. Hispanic Americans were also underutilized on goods and other services contracts but not at a statistically significant level.

Table 6 Subcontract Disparity Summary, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction Services	Architectural and Engineering	Professional Services	Goods and Other Services
African Americans	Yes	No	----	Yes
Asian Americans	Yes	No	----	Yes
Hispanic Americans	No	Yes	----	No
Native Americans	Yes	----	No	----
Minority Business Enterprises	Yes	No	----	Yes
Women Business Enterprises	No	No	----	No
Minority and Women Business Enterprises	Yes	No	----	No

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
---- = There were insufficient records to determine statistical disparity.

VI. ANECDOTAL FINDINGS

In addition to requiring a statistical analysis, the United States Supreme Court in *Croson* stated that anecdotal findings, "if supported by appropriate statistical proofs, lend support to a [local entity's] determination that broader remedial relief [be] justified."[7] *Croson* authorizes anecdotal inquiries along two lines. The first approach examines barriers attributed to the local entity. Such action is defined as the active participation of the government entity. The second approach examines passive participation, which are the barriers created by the contractors that are awarded public funds.

[7] *Id.*

A. Summary of In-depth Interviews

A total of 72 business owners and trade representatives were interviewed about their experiences doing business with WSSC. Members of all ethnic groups were interviewed, and their anecdotes provided accounts of active and passive barriers M/WBEs encountered in dealings with WSSC officials and the business community. The anecdotal data also presents examples of exemplary practices of WSSC.

The business owners and trade organization representatives were domiciled in the District of Columbia and the states of Maryland and Virginia. The interviewees were identified from community meetings, media outreach, SymTrac™, and trade and professional business organizations' membership rosters.

The interviewees reported on their personal knowledge of barriers they believed prevented M/WBE contractors from successfully competing for public contracts. Exemplary practices were recounted, and recommendations for enhancements were offered. Representatives from the trade associations provided their knowledge regarding the public contracting obstacles faced by members of their organizations.

B. Anecdotal Interview Findings

Interviewees reported on several explicit references to discriminatory acts of racial and gender barriers. Reports that minorities' work performance is held to higher standards than their non-minority competitors were also recounted as a barrier to contracting.

An overwhelming majority of the interviewees described their frustration in trying to obtain contracting opportunities with WSSC, and there were several reports that WSSC prefers to work with the same contractors on their projects. As a result of the inability of the interviewees to obtain work, many have become discouraged from continuing to bid on WSSC contracts.

Unfair tactics by WSSC managers and inspectors were also reported by several interviewees. Furthermore, there was a report that large majority-owned firms were able to convince or coerce WSSC selection panels to select them because the panel members would most likely work for such Caucasian prime contractors after leaving WSSC.

Most of the interviewees favored the SLMBE Program, although some considered it ineffectual because the enforcement regulations or penalties for non-compliance were lacking. Recommendations offered to improve the SLMBE Program included initiating race-specific requirements, unbundling of large contracts, minority distributorship opportunities, and assistance with bonding requirements.

It should also be noted that some business owners described positive relationships that they had with WSSC managers. Some WSSC managers were given accolades by the business owners for the guidance they received.

Table 7 presents a summary of findings from the anecdotal analysis regarding barriers reported by M/WBEs in their efforts to obtain contracts with WSSC.

Table 7 Summary of Findings Concerning Current Barriers Against Ethnic/Gender Groups

Type of Evidence	Minority Business Enterprises	Women Business Enterprises
BUSINESS BARRIERS		
Barriers Based on Race	✔	
Barriers Based on Gender	✔	✔
Barriers Created by WSSC Managers	✔	
BARRIERS CREATED BY THE CONTRACTOR COMMUNITY		
Difficulty Breaking into Contracting Network	✔	✔
DIFFICULTIES IN BID PROCESS		
Difficulty Obtaining Bid Information	✔	
Inadequate Lead Time to Respond to Solicitations	✔	
FINANCIAL BARRIERS		
Difficulty Obtaining Financing or Credit	✔	
Difficulty Obtaining Bonding	✔	
Late Payment by Prime Contractors	✔	

Type of Evidence	Minority Business Enterprises	Women Business Enterprises
CERTIFICATION ISSUES		
Difficulty with SLMBE Certification and Prequalification Requirements	✔	

VII. RACE AND GENDER-CONSCIOUS RECOMMENDATIONS

The race and gender-conscious recommendations result from the disparity analysis findings of statistically significant underutilization in the four industries, at both the formal and informal prime contracting levels. The subcontracting remedies apply to the three industries where there was statistically significant underutilization.

A. Prime Contracting Remedies

1. Incentive Credits for Architectural and Engineering and Professional Services Contracts

Incentive credits should be incorporated in the evaluation process for the award of architectural and engineering and professional services prime contracts. The credits would be given to African American, Asian American, Hispanic American, and Women Business Enterprise prime contractors because these groups were determined to have a statistically significant underutilization. Fifteen to twenty percent of the evaluation credits could be comprised of such incentive credits when the selection process includes a proposal or statement of qualifications.

2. Bid Discounts for Low Bid Contracts

Bid discounts could be incorporated into the evaluation process for the award of prime contracts for construction and goods and other services when low bid is a criterion. A ten percent bid discount should be given to the underutilized groups and applied in determining the lowest bidder. The discount would be applied in the evaluation process in each industry where cost is an evaluation criterion.

3. Small Contracts Rotation Program

A Small Contracts Rotation Program could be employed for the award of construction, architectural and engineering, professional services, and goods and other services formal and

informal contracts. The groups with statistically significant underutilization in the four industries would be eligible to participate in the Program.

A Small Contracts Rotation Program could be established for prime contracts valued at less than $100,000. Contracts under $100,000 can be awarded with the General Manager's signature. A rotational program would limit competition to businesses from the statistically significant underutilized groups and small businesses that meet the eligibility criteria. The existence of a Small Contracts Rotation Program should be widely advertised to the businesses in the ethnic and gender groups with a statistically significant underutilization and all other certified businesses.

In addition, financial support and technical assistance should be available to businesses from statistically significant underutilized groups that participate in the Program.

4. Quantified Good Faith Effort Criteria

WSSC should quantify the good faith effort criteria in its policy in order to measure a prime contractor's efforts to secure the participation of M/WBEs to meet the contract goal. For example, a prime contractor would earn five points for advertising at least twice in the general circulation media, minority focused media, or trade-related publications, ten days prior to submission. There would be a minimum overall score for the prime contractor to demonstrate sufficient good faith efforts in lieu of meeting the contract goal.

B. Subcontractor Remedies

1. Set Overall M/WBE Subcontracting Goal

An overall M/WBE subcontracting goal should be established to eliminate the documented disparity for African American, Asian American, Hispanic American, and Native American subcontractors for construction, architectural and engineering, and goods and other services contracts. The overall subcontracting goal should reflect the availability of the statistically significant underutilized groups documented in the disparity study.

2. Set a SLMBE Program Goal

A SLMBE Program goal should be set for the award of subcontracts in the three industries where there was a finding of statistically significant underutilization. The goal should be derived from the availability numbers calculated for each group.

3. Set Contract-Specific M/WBE Subcontracting Goals

Contract-specific M/WBE subcontracting goals should be set on prime contracts as a strategy to eliminate the documented disparity. The subcontracting goals should be set on

all prime contracts over $100,000 for the ethnic and gender groups that had statistically significant underutilization. The subcontracting goal should reflect the availability of the statistically significant underutilized groups at the time the prime contract is advertised.

4. Re-evaluate Professional Services Disparity in Six Months

Within six months there should be a re-examination of the professional services subcontract records to measure the statistically significant disparity. M/WBEs were underutilized on professional services contracts; however, there were too few records to test the statistical significance of the disparity ratio.

VIII. RACE AND GENDER-NEUTRAL RECOMMENDATIONS

Race and gender-neutral program recommendations are offered to ensure equity in the contracting process. These recommendations are applicable to all types and sizes of contracts which WSSC may award. They incorporate a number of best management practices gleaned from the anecdotal interviews, innovations used in other governmental entities and corporate organizations, and the analysis of WSSC's Procurement Manual and web page.

A. Pre-Award Recommendations

1. Expand Unbundling Policy

WSSC should unbundle its contracts to increase the number of businesses participating at both the prime contracting and subcontracting levels. WSSC could also consider separating landscaping, trucking, and site preparation jobs from its construction projects to create smaller contracts for M/WBEs.

2. Adhere to the Standard Procedure for Direct Payments

WSSC should adhere to the Standard Procedure limiting the use of direct payments to purchases where the purchase order is not practical and/or feasible. The direct payment should not be used to circumvent the purchase order system's competitive bidding process. When direct payments are used for unauthorized purchases the opportunity for a M/WBE contract is limited. Examples of the expenditures allowed by WSSC's Standard Procedure are corporate membership dues, benefit payments, utility charges, and subscriptions.

3. Develop a Mentor-Protégé Program

WSSC's website should include information on whether the voluntary Mentor-Protégé Program was implemented or if there is a projected future implementation date.

4. Establish a Direct Purchase Program for Construction Contracts

A Direct Purchase Program would allow WSSC to order project materials and supplies directly from the supplier. This program can be beneficial and offer savings for construction contractors, especially M/WBEs, because costs subject to a bond are reduced by the material costs included in the direct purchase.

5. Maintain Virtual Plan Room

WSSC should consider purchasing software that would allow bidders to obtain digitized plans and specifications on the Centralized Bidder Registration System (CBR) web page.

6. Form Partnerships with Lending Institutions

WSSC's relationships with financial institutions that currently provide services to the agency should be leveraged to assist M/WBEs with project financing and operating capital.

7. Remove Brand Name Requirements from Solicitations

WSSC should refrain from specifying brand names in their solicitations in order to avoid restricting competition since the named brands may not be available to M/WBEs or offered to them at a competitive rate.

8. Review Non-Competitive Procurement Requirements

Procurement of materials or services by noncompetitive solicitations should only be used when the award of a contract is not feasible under the small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies: (a) the item is available only from a single source; (b) the public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation; (c) after solicitation of a number of sources, competition is determined inadequate; (d) repairs or maintenance by the manufacturer are needed; (e) service or item based on an existing public or governmental agency contract is being procured; (e) procurement is for of professional services for medical or legal services and purchases and contracts negotiated with a university, hospital, college or other educational institution; and (g) formal notice is provided to the M/WBEs certified in CBR with the relevant NAICS codes and the opportunity is published on the WSSC website

9. Promote Direct Supplier Requirement

WSSC should require manufacturers doing business with WSSC to document that they have M/WBE distributors authorized to sell their product line at the regional or the national level. This should be a minimum requirement to get prequalified with WSSC.

10. Revise Bonding Requirements

WSSC should consider implementing a Surety Assistance Program to attract more bidders and thereby increase competition and reduce costs. Any revisions to the bonding provisions must comply with statutory requirements.

11. Revise Insurance Requirements

Insurance requirements should be evaluated to ensure that smaller contracts do not carry a disproportionately high level of coverage. Criteria should be developed for insurance waivers for small contracts under $100,000.

12. Publish Informal Contracts

The SLMBE Office should receive timely notice of informal contracts to enable the Office to identify M/WBEs and small businesses capable of providing the required goods or services. Each opportunity should be published on the WSSC website under the "View Bid Opportunities" tab.

13. Publish Bid Award Protest Procedures

WSSC should implement written protest procedures to handle and resolve disputes relating to its bid awards.

14. Enhance SLMBE Outreach Campaign

WSSC's existing outreach campaign should be enhanced to promote the SLMBE Program's objectives and policy goals. In addition to the SLMBE Connection Quarterly Newsletter and Weekly E-Blast, the outreach campaign should communicate the goals and objectives of the Program to CBR-registered businesses and other market area businesses via these outreach mediums.

15. Enhance Internet Presence and Online Marketing

WSSC's website should be enhanced as an interactive and flexible means of relaying current information regarding contract opportunities and the SLMBE Program with an enhanced Internet presence with an updated web page design, content, and user-friendly interface,

WSSC should be able to target more market area M/WBE businesses and effectively encourage them to register with the CBR.

16. Pay Mobilization to Subcontractors

When mobilization payments are approved for the prime contractor, the subcontractor should be paid an amount equal to their participation percentage no later than five business days after a prime contractor receives mobilization payments from WSSC. To ensure transparency, subcontractors should be notified when prime contractors receive mobilization payments from WSSC via e-mail and postings on the CBR web page.

B. Post-Award Recommendations

1. Implement Subcontractor Substitution Standards

The grounds for which WSSC should allow a prime contractor to substitute another entity for a listed subcontractor should minimally include: (a) if the subcontractor listed in the bid fails or refuses to execute a written subcontract after having had a reasonable opportunity to do so; (b) if the subcontractor becomes bankrupt or insolvent; (c) if the subcontractor fails or refuses to perform its subcontract; (d) if the subcontractor fails to obtain the necessary licenses, bonding, insurance, or other statutory requirements to perform the work detailed in the contract; and when (5) if the WSSC determines that the work performed by the listed subcontractor is not in substantial accordance with drawings, specifications, or scope of work or substantially delays or causes the disruption of the progress of work.

2. Develop an Expedited Payment Program

WSSC should develop an expedited payment program to pay M/WBE prime contractors and other prime contractors that meet the contract M/WBE goals within ten days of WSSC's receipt of an approved invoice.

3. Track All Subcontractors

Prime contractors should be required to record all M/WBE and non-M/WBE subcontractors in SymTrac™. WSSC should require the prime contractors to record and verify all subcontractors in SymTrac™ prior to issuing their first invoice payment.

4. Track Subcontractors on Master Orders by Each Release Order

Subcontractors used on master orders are tracked in SymTrac™ by a master order number. Each release order from a master is a separate purchase order thus the prime contractor might use different subcontractors for each release order. Subcontractors for master orders should be tracked in SymTrac™ by the release order.

5. Require Prime Contractor Validation of Subcontractor Payments Prior to Receiving Final Payment

WSSC should require its prime contractors who are requesting final contract payment to submit with their final payment voucher an affidavit to verify payment in full to their subcontractors.

6. List Payments Made to Prime Contractors on SymTrac™

SymTrac™, a web-based tool used by WSSC to track subcontractors and ensure that prime contractors comply with their subcontractor requirements, should be modified to allow subcontractors to view the payments made by WSSC to prime contractors.

7. Publish SLMBE Utilization Reports

WSSC should draft utilization reports to measure the effectiveness of the SLMBE Program and present payment and award data organized by industry, ethnicity, gender, certification status, and department. The fourth quarter utilization reports prepared by the SLMBE Director should include an assessment of Program activities including the annual SLMBE Office evaluation and recommendations for improvement. In addition, exemplary practices and achievements should also be noted in the fourth quarter report.

8. Provide Debriefing Sessions for Unsuccessful Bidders

Debriefing sessions offered to unsuccessful bidders should be published on the CBR web page and included in the bid solicitation.

9. Conduct Routine Post-Award Contract Compliance Monitoring

WSSC should conduct monthly contract compliance monitoring to ensure that the subcontractor participation listed in bids, proposals, and statements of qualification is achieved throughout the duration of a contract. The contract compliance monitoring methods recommended include: (a) track and report subcontractor utilization in an electronic database; (b) collect copies of the canceled checks written to subcontractors in order to verify payment information on a quarterly basis; and (c) impose penalties for failure to pay a listed subcontractor for work performed.

10. Conduct Semi-Annual Review of Contracting Activities

WSSC should conduct a review of its contracting activities twice a year to determine the types of services and goods it anticipates procuring over a two to five year period.

IX. CONTRACTING AND ACQUISITION PROCESS RECOMMENDATIONS

A. Procurement Process Enhancements

Standards should be established to make the procurement policies and procedures and SLMBE Program standards transparent to the business community, including updating WSSC's Procurement Manual on an annual basis to reflect new policies and procedures adopted by WSSC.

Annual training should be conducted to ensure that all staff members are knowledgeable about WSSC's procurement policies and procedures. Training will also help avoid discrepancies in the information provided to the public regarding the SLMBE Office program requirements.

Based on a review of the Procurement Manual, some points contained in WSSC's procurement process should be clarified. Vendors should be able to understand the standard used in classifying professional services as either goods and services or architectural and engineering and the relevant procurement policy. It is also important that the Manual identify the formal and informal thresholds for each industry for both IFBs and RFPs. A summary of this information should be consolidated in a table to allow for greater accessibility to the public.

1. Regulate Compliance with Subcontractor Reporting

Procedures should be implemented to manage compliance with the present requirement to record the name and award amount of all subcontractors entered into SymTrac™ prior to issuing a notice to proceed. Compliance with the requirement should be tracked in MAPS, so that the initial invoice payment cannot be issued unless the subcontractor data has been entered.

2. Report Subcontractor Waivers Issued

Waivers to the subcontracting goals should be published in the monthly M/WBE utilization report the SLMBE Office submits to the Commissioners. Prior to approving a waiver the SLMBE Office should publish on the CBR website its intent to issue the waiver.

3. Incorporate M/WBE Waiver Standards in the Acquisition Process

Prior to issuing a notice of intent to award a contract the goal attainment or good faith effort of the intended awardee should be verified. The intent to award should be published on the CBR website listing the prime, award amount, and their subcontractors.

B. SLMBE Program Enhancements

1. Program Name Change

WSSC should consider changing its current SLMBE Program name to SLMWBE Program to include women business enterprises. Currently, women business owners are eligible to be certified by MDOT, Prince George's County, and the District of Columbia, whose certifications are recognized by WSSC.

2. SLMBE Task Force

WSSC should implement a SLMBE Task Force to serve as an oversight committee to support and enhance the operations and activities of the SLMBE Program.

3. SLMBE Ombudsperson

WSSC should authorize the appointment of an Ombudsperson as an external position away from the SLMBE Office who would have the authority to receive, investigate, and mediate complaints concerning the actions of WSSC, its prime contractors, and subcontractors.

C. Website Enhancements

WSSC's website should be enhanced to improve its accessibility to businesses seeking information on WSSC projects. The enhancements should include:

1. Provide Contact Information for Key Personnel Involved in the Bid Process

WSSC should include complete contact information for the SLMBE and Acquisition Offices, including buyers, procurement officers, and business diversity/contract compliance officers on its web site.

2. Offer Links to M/WBE Supportive Service, Agencies, and Ethnic/Trade Associations Assisting Minority and Woman Contractors

WSSC's website should include links to its partners in the market area that offer M/WBEs supportive services.

3. Promote Outreach Efforts

Outreach events within the market area should be posted and detailed on WSSC's website by providing links to market area events, conferences, and training sessions.

4. Make Compliance Reports Available

WSSC should post compliance reports on a regular schedule to document its business diversity mission.

5. Provide Site Restructuring to Assist Business Users

WSSC's Business Page should be restructured to identify who will visit this section and the information and services that are important to this segment of its service area. The website should be structured so that users can immediately identify the areas that apply to them and guide them toward their goals. For example, a business considering doing business with WSSC should be able to click on the link on the front page and arrive at the business page.

6. Update Links on the Website

WSSC should regularly update links provided on the website to ensure that contractors have access to the most current information by removing or updating non-functioning links.

7. Consider the Needs of Visitors with Disabilities

The use of a very small font and a low contrast font color on WSSC's website can be a potential barrier to access its web page. Small fonts greatly reduce readability and can present a challenge to those without 20/20 vision.

8. Update WSSC's Logo

The WSSC logo on every web page should be made clickable by inserting a hotspot, the logo that links it to the homepage. This will allow users to easily navigate back to WSSC's home page without having to search the hyperlink "Home" while they are browsing through the web pages.

9. Compress PDF Files

PDF files should be compressed for faster download. While PDF files tend to be smaller than the original source document, they can still occupy significant space. In order to post them to a web page, it is advisable to compress or reduce the file size. Most PDF writing programs, like Adobe Acrobat Pro, have file compression options.

10. Set Standard Location for Downloaded Hyperlinks

In order to enable consistent user experience for navigation, a standard needs to be set for a target location to load hyperlinks. For instance on WSSC's website, CBR is loaded in

three different targets including a parent window, new window, and new tab depending on where the link is loaded.

11. Maintain Navigation to WSSC Website

WSSC should maintain navigation to its website by any domain outside of WSSC to prevent loss of navigation from WSSC's page. Currently, the link to "Customer Notification System" hosted on "everbridge.net" is loaded on the parent window of WSSC. The user will experience loss of navigation from WSSC's page once they load the "Customer Notification System."

12. Develop a Mobile-Optimized Website

WSSC should update its web site to include a mobile-optimized feature for a faster and more efficient experience for handheld device users.

13. Reorganize Links and Reduce Text-Heavy Content

WSSC's website should reorganize its links in order to facilitate the user access to needed information within the first 30 seconds of being on the site and not having to read over the cumbersome number of links. WSSC's website is text-heavy with content that does not direct the user to a specific portion of the site or action.

14. Set Up a Twitter Feed

WSSC should include a Twitter feed on its web site as an informative tool to provide hints and tips for responding to WSSC solicitations.

D. CBR Enhancements

CBR, WSSC's bidder registration web page, was reviewed, and recommendations are offered to improve the web page's effectiveness in capturing the availability and utilization of M/WBEs. The suggested enhancements include:

1. CBR Home Page

One standard font for homepage content should be used, and the page header should be made more distinct by use of a larger font size. Hyperlinks to WSSC e-mails and telephone numbers should be added to allow users to directly e-mail or call WSSC without leaving the page. A summary of the number of solicitations should also be added to encourage more businesses to complete registration with CBR.

2. Bidder Registration Tab

The "Ethnicity" field in the Bidder Registration tab allows the registrant to choose "Not Applicable" as an option. This option should not be made available. In addition, a business' Uniform Resource Locater (URL) is not requested at the time of registration. A data field for the business URL should be added as an optional field so that WSSC has alternative means to solicit the information.

3. View Bid Opportunities Tab

The View Bid Opportunities tab lists the status of solicitations as open, awarded, cancelled, or evaluated. The table can be filtered based on the status selected, which generates an applicable list of solicitations. However, users need to filter the list with their preferences every time they view the tab. Users cannot download RFPs if an RFP's NAICS code does not match one of the users' registered NAICS codes. To prevent users from having to filter the list with their preferred setting each time, the default listing should be filtered with the individual business' primary NAICS code once a user logs into CBR. The layout of the page should be reorganized so that the table filters will appear on the topmost portion of the page allowing more room for the listing to be displayed. Restrictions on downloading RFPs if users' NAICS codes do not match NAICS codes in posted RFPs should be removed.

4. CBR Registered Firms Tab

The CBR Registered Firms tab shows a list of businesses that have registered on the CBR web page. The list can be filtered by bidder name, business type, certification type, county, phone number, zip code, and NAICS code. An Excel version of the list is available for downloading. The secondary NAICS code column should be made narrower so there is more space for telephone and fax numbers to be displayed properly. The layout of the page should be reorganized so the search criteria menus will appear on the topmost portion of the page, leaving more room for search results to be displayed. Pop-up windows should also be resized. Ethnicity and gender fields should be added to the downloadable Excel version of the list so M/WBE classification information is available in an offline source.

5. SLMBE Office Web Page

The WSSC SLMBE Office's web page currently recognizes Minority-owned Business Enterprise (MBE) certification from three external agencies: the Maryland Department of Transportation (MDOT), Prince George's County Minority Business Development Division (PGMBDD), and District of Columbia Department of Small and Local Business Development Office (DC/DSLBD). On a quarterly basis, these external certification lists should be integrated into CBR to incorporate the businesses from the external agency lists that are not registered with CBR. The certified business listings of the three external agencies

are easily accessed online, and two of them are available in downloadable formats. Since two of the lists are available for downloading, they can be easily integrated into CBR.

6. Integration of CBR and Symtrac™

CBR does not capture any information about the utilization of M/WBEs. WSSC uses a different web-based application, SymTrac™, to capture M/WBE utilization. The integration of CBR into SymTrac™ would enable WSSC to produce a comprehensive report that presents the availability and utilization of M/WBEs in one place. Therefore, CBR should enable utilized prime contractors and subcontractors to automatically export their business profiles into SymTrac™. The process would eliminate double data entry and also prevent the creation of duplicate records due to misspelled business names. CBR should also provide a hyperlink to allow utilized vendors easy access to the SymTrac™ system.

X. APPENDICES

1. Appendix A: Prime Contractor Disparity Analysis - All Prime Contracts Under $1,000,000

On February 16, 2011, upon request, Mason Tillman Associates, Ltd. undertook a further examination of compiled prime contractor data. The analysis of the data laid out in Chapters 4 and 5 had determined that there was documented statistically significant disparity and capacity for minority and woman-owned prime contractors under $500,000. The further examination determined that there was capacity and statistically significant disparity under one million dollars in construction, architectural and engineering, and goods and other services, but not in professional services.

2. Appendix B: Regression Analysis

A regression analysis was conducted to determine whether there are statistical disparities between minorities, Caucasian females, and Caucasian male-owned businesses in three outcome variables. The three outcome variables included business ownership rates, business earnings, and business loan denial rates and the regression models used were based on these variables. The three regression models used to study the outcome variables were the Likelihood of Business Ownership Model, the Earnings Disparity Model, and the Likelihood of Business Loan Denial Model.

Each regression model compared M/WBEs to Caucasian male-owned businesses by controlling for race and gender-neutral explanatory variables such as the business owner's age, education, marital status, home value, disability status, and access to capital. The regression analysis was performed for construction, architectural and engineering, goods and

other services, and professional services contracts which were included in the Disparity Study.

The analyses of the three outcome variables documented disparities that could adversely affect the formation and growth of M/WBEs within the construction, architectural and engineering, goods and other services, and professional services industries. The regression findings document racial and gender discrimination in business ownership rates, business earnings, and business loan denial rates. Such discrimination creates economic conditions in the private sector that put M/WBEs at a disadvantage and are manifested in lower M/WBE formation rates as well as depressed M/WBE earnings and access to business capital.

Table of Contents

DISPARITY STUDY FINAL REPORT

CHAPTER 1: PRIME CONTRACTOR UTILIZATION ANALYSIS 1-1

I. INTRODUCTION 1-1

II. PRIME CONTRACT DATA SOURCES 1-3

III. PRIME CONTRACTOR UTILIZATION THRESHOLDS 1-4

IV. PRIME CONTRACTOR UTILIZATION 1-5

A. All Prime Contractors 1-5
B. Highly Used Prime Contractors by Industry 1-6
C. All Prime Contracts by Industry 1-14
D. Prime Contracts under $500,000, by Industry 1-22
E. Informal Contracts $25,000 and under, by Industry 1-30

V. SUMMARY 1-38

CHAPTER 2: SUBCONTRACTOR UTILIZATION ANALYSIS 2-1

I. INTRODUCTION 2-1

II. SUBCONTRACTOR UTILIZATION DATA SOURCES 2-1

III. SUBCONTRACTOR UTILIZATION 2-3

Table of Contents Continued

A. All Subcontracts 2-3
B. All Subcontracts by Industry 2-4

CHAPTER 3: MARKET AREA ANALYSIS 3-1

I. MARKET AREA DEFINITION 3-1

A. Legal Criteria for Geographic Market Area 3-1
B. Application of the Croson Standard 3-2

II. WASHINGTON SUBURBAN SANITARY COMMISSION MARKET AREA ANALYSIS 3-5

CHAPTER 4: PRIME CONTRACTOR AND SUBCONTRACTOR AVAILABILITY ANALYSIS 4-1

I. INTRODUCTION 4-1

II. PRIME CONTRACTOR AVAILABILITY DATA SOURCES 4-2

A. Identification of Willing Businesses Within the Market Area 4-2
B. Prime Contractor Sources 4-3
C. Determination of Willingness 4-5
D. Distribution of Available Prime Contractors by Source, Ethnicity, and Gender 4-6

III. CAPACITY 4-11

A. Size of Contracts Analyzed 4-11
B. Largest M/WBE Contract Issued by WSSC, by Industry 4-19
C. Certification Standards 4-19

Table of Contents Continued

IV. PRIME CONTRACTOR AVAILABILITY ANALYSIS 4-19

A. Construction Prime Contractor Availability 4-20
B. Architectural and Engineering Services Prime Contractor Availability 4-22
C. Professional Services Prime Contractor Availability 4-24
D. Goods and Other Services Prime Contractor Availability 4-26

V. SUBCONTRACTOR AVAILABILITY ANALYSIS 4-28

A. Sources of Ready, Willing and Able Subcontractors 4-28
B. Determination of Subcontractor Willingness and Capacity 4-28
C. Size of Subcontracts Issued 4-28
D. Construction Subcontractor Availability 4-35
E. Architectural and Engineering Subcontractor Availability 4-37
F. Professional Services Subcontractor Availability 4-39
G. Goods and Other Services Subcontractor Availability 4-41

CHAPTER 5: PRIME CONTRACTOR DISPARITY ANALYSIS 5-1

I. INTRODUCTION 5-1

II. DISPARITY ANALYSIS 5-3

A. Disparity Analysis: All Prime Contracts under $500,000, by Industry 5-4
B. Disparity Analysis: All Prime Contracts $25,000 and under, by Industry 5-16

III. DISPARITY ANALYSIS SUMMARY 5-28

Table of Contents Continued

A. Construction Prime Contracts 5-28
B. Architectural and Engineering Prime Contracts 5-29
C. Professional Services Prime Contracts 5-30
D. Goods and Other Services Prime Contracts 5-31

CHAPTER 6: SUBCONTRACTOR DISPARITY ANALYSIS 6-1

I. INTRODUCTION 6-1

II. DISPARITY ANALYSIS 6-2

III. DISPARITY ANALYSIS: ALL SUBCONTRACTS, BY INDUSTRY 6-3

A. Construction Subcontracts 6-3
B. Architectural and Engineering Subcontracts 6-6
C. Professional Services Subcontracts 6-9
D. Goods and Other Services Subcontracts 6-12

IV. SUBCONTRACTOR DISPARITY SUMMARY 6-15

CHAPTER 7: ANECDOTAL ANALYSIS 7-1

I. INTRODUCTION 7-1

A. Anecdotal Evidence of Active or Passive Participation 7-1
B. Anecdotal Methodology 7-2
C. Anecdotal Interviewee Profile 7-3

II. BUSINESS COMMUNITY BARRIERS 7-4

A. Racial and Gender Barriers 7-4

Table of Contents Continued

III. DIFFICULTIES BREAKING INTO THE CONTRACTING COMMUNITY 7-7

IV. DIFFICULTIES IN THE CONTRACTING PROCESS 7-13

A. Navigating Through the Bid Process 7-13
B. Inadequate Lead Time to Bid 7-15
C. Difficulty with Suppliers 7-17

V. DIFFICULTY WITH SLMBE CERTIFICATION AND PREQUALIFICATION REQUIREMENTS 7-19

VI. WSSC MANAGERS CREATING BARRIERS 7-20

VII. FINANCIAL BARRIERS 7-23

A. Difficulty Obtaining Financing 7-23
B. Difficulty Obtaining Bonding 7-26
C. Late Payments by Prime Contractors 7-29

VIII. PUBLIC SECTOR VS. PRIVATE SECTOR 7-31

IX. COMMENTS ABOUT THE SLMBE PROGRAM 7-34

X. EXEMPLARY BUSINESS PRACTICES 7-41

XI. RECOMMENDATIONS FOR WSSC'S PROCUREMENT PROCEDURES 7-44

XII. SUMMARY OF FINDINGS 7-56

Table of Contents Continued

CHAPTER 8: RECOMMENDATIONS 8-1

I. INTRODUCTION 8-1

II. STATISTICAL FINDINGS OVERVIEW 8-2

A. Prime Contracts 8-2
B. Subcontracts 8-3
C. Prime Contract Disparity Findings 8-5
D. Subcontract Disparity Findings 8-9

III. RACE AND GENDER-CONSCIOUS REMEDIES 8-10

A. Prime Contract Remedies 8-10
B. Subcontract Remedies 8-12

IV. RACE AND GENDER-NEUTRAL RECOMMENDATIONS 8-14

A. Pre-Award Recommendations 8-14
B. Post-Award Recommendations 8-23

V. CONTRACTING AND ACQUISITION PROCESS RECOMMENDATIONS 8-26

A. Procurement Process Enhancements 8-26
B. SLMBE Program Enhancements 8-27
C. Website Enhancements 8-28
D. CBR Recommendations 8-31

APPENDIX A: PRIME CONTRACTOR DISPARITY ANALYSIS - CONTRACTS UNDER $1,000,000

APPENDIX B: REGRESSION ANALYSIS

List of Tables

Table 1.01	Business Ethnic and Gender Groups	1-2
Table 1.02	Informal Contract Thresholds by Industry	1-4
Table 1.03	Prime Contracts and Dollars Expended by Industry, July 1, 2003 to June 30, 2009	1-5
Table 1.04	Total Prime Contracts, Utilized Vendors, and Dollars Expended: All Industries, July 1, 2003 to June 30, 2009	1-6
Table 1.05	Distribution of All Contracts by Number of Vendors	1-7
Table 1.06	Top 32 Highly Used Prime Contractors by Ethnicity and Gender	1-7
Table 1.07	Construction Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009	1-8
Table 1.08	Distribution of Construction Contracts by Number of Vendors	1-8
Table 1.09	Top Eight Highly Used Construction Prime Contractors by Ethnicity and Gender	1-9
Table 1.10	Architectural and Engineering Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009	1-9
Table 1.11	Distribution of Architectural and Engineering Contracts by Number of Vendors	1-10
Table 1.12	Top 13 Highly Used Architectural and Engineering Prime Contractors by Ethnicity and Gender	1-10
Table 1.13	Professional Services Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009	1-11
Table 1.14	Distribution of Professional Services Contracts by Number of Vendors	1-11
Table 1.15	Top Eight Highly Used Professional Services Prime Contractors by Ethnicity and Gender	1-12
Table 1.16	Goods and Other Services Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009	1-12
Table 1.17	Distribution of Goods and Other Services Contracts by Number of Vendors	1-13
Table 1.18	Top 32 Highly Used Goods and Other Services Prime Contractors by Ethnicity and Gender	1-13
Table 1.19	Construction Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009	1-15
Table 1.20	Architectural and Engineering Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009	1-17
Table 1.21	Professional Services Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009	1-19

List of Tables Continued

Table 1.22	Goods and Other Services Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009	1-21
Table 1.23	Construction Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009	1-23
Table 1.24	Architectural and Engineering Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009	1-25
Table 1.25	Professional Services Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009	1-27
Table 1.26	Goods and Other Services Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009	1-29
Table 1.27	Construction Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009	1-31
Table 1.28	Architectural and Engineering Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009	1-33
Table 1.29	Professional Services Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009	1-35
Table 1.30	Goods and Other Services Prime Contract Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009	1-37
Table 2.01	Total Subcontract Issued and Dollars, All Industries, July 1, 2003 to June 30, 2009	2-3
Table 2.02	Construction Subcontractor Utilization, July 1, 2003 to June 30, 2009	2-5
Table 2.03	Architectural and Engineering Subcontractor Utilization, July 1, 2003 to June 30, 2009	2-7
Table 2.04	Professional Services Subcontractor Utilization, July 1, 2003 to June 30, 2009	2-9
Table 2.05	Goods and Other Services Subcontractor Utilization, July 1, 2003 to June 30, 2009	2-11
Table 3.01	Distribution of All Contracts Issued July 1, 2003 to June 30, 2009	3-6
Table 3.02	Local Market Area for Construction	3-7
Table 3.03	Distribution of Construction Contracts Issued July 1, 2003 to June 30, 2009	3-8
Table 3.04	Local Market Area for Architectural and Engineering	3-9
Table 3.05	Distribution of Architectural and Engineering Contracts Issued July 1, 2003 to June 30, 2009	3-10
Table 3.06	Local Market Area for Professional Services	3-11
Table 3.07	Distribution of Professional Services Contracts Issued July 1, 2003 to June 30, 2009	3-12

List of Tables Continued

Table 3.08	Local Market Area for Goods and Other Services	3-13
Table 3.09	Distribution of Goods and Other Services Contracts Issued July 1, 2003 to June 30, 2009	3-14
Table 3.10	WSSC Local Market Areas by Percent of Contracts Issued and Dollars Spent July 1, 2003 to June 30, 2009	3-15
Table 4.01	Prime Contractor Availability Data Sources	4-3
Table 4.02	Distribution of Prime Contractor Availability Data Sources, All Industries	4-6
Table 4.03	Distribution of Prime Contractor Availability Data Sources, Construction	4-7
Table 4.04	Distribution of Prime Contractor Availability Data Sources, Architectural and Engineering	4-8
Table 4.05	Distribution of Prime Contractor Availability Data Sources, Professional Services	4-9
Table 4.06	Distribution of Prime Contractor Availability Data Sources, Goods and Other Services	4-10
Table 4.07	Contracts by Size: All Industries, July 1, 2003 to June 30, 2009	4-14
Table 4.08	Construction Contracts by Size: July 1, 2003 to June 30, 2009	4-15
Table 4.09	Architectural and Engineering Contracts by Size: July 1, 2003 to June 30, 2009	4-16
Table 4.10	Professional Services Contracts by Size: July 1, 2003 to June 30, 2009	4-17
Table 4.11	Goods and Other Services Contracts by Size: July 1, 2003 to June 30, 2009	4-18
Table 4.12	Largest M/WBE Contract Issued by WSSC	4-19
Table 4.13	Available Construction Prime Contractors	4-21
Table 4.14	Available Architectural and Engineering Prime Contractors	4-23
Table 4.15	Available Professional Services Prime Contractors	4-25
Table 4.16	Available Goods and Other Services Prime Contractors	4-27
Table 4.17	Subcontractor Availability Data Sources	4-28
Table 4.18	Subcontracts by Size: All Industries, July 1, 2003 to June 30, 2009	4-30
Table 4.19	Construction Subcontracts by Size: July 1, 2003 to June 30, 2009	4-31
Table 4.20	Architectural and Engineering Subcontracts by Size: July 1, 2003 to June 30, 2009	4-32

List of Tables Continued

Table 4.21	Professional Services Subcontracts by Size: July 1, 2003 to June 30, 2009	4-33
Table 4.22	Goods and Other Services Subcontracts by Size: July 1, 2003 to June 30, 2009	4-34
Table 4.23	Available Construction Subcontractors	4-36
Table 4.24	Available Architectural and Engineering Subcontractors	4-38
Table 4.25	Available Professional Services Subcontractors	4-40
Table 4.26	Available Goods and Other Services Subcontractors	4-42
Table 5.01	Disparity Analysis: Construction Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-5
Table 5.02	Disparity Analysis: Architectural and Engineering Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-8
Table 5.03	Disparity Analysis: Professional Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-11
Table 5.04	Disparity Analysis: Goods and Other Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-14
Table 5.05	Disparity Analysis: Construction Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-17
Table 5.06	Disparity Analysis: Architectural and Engineering Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-20
Table 5.07	Disparity Analysis: Professional Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-23
Table 5.08	Disparity Analysis: Goods and Other Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-26
Table 5.09	Disparity Summary: Construction Prime Contract Dollars, July 1, 2003 to June 30, 2009	5-28
Table 5.10	Disparity Summary: Architectural and Engineering Prime Contract Dollars, July 1, 2003 to June 30, 2009	5-29
Table 5.11	Disparity Summary: Professional Services Prime Contract Dollars, July 1, 2003 to June 30, 2009	5-30
Table 5.12	Disparity Summary: Goods and Other Services Prime Contract Dollars, July 1, 2003 to June 30, 2009	5-31
Table 6.01	Disparity Analysis: Construction Subcontracts, July 1, 2003 to June 30, 2009	6-4
Table 6.02	Disparity Analysis: Architectural and Engineering Subcontracts, July 1, 2003 to June 30, 2009	6-7

List of Tables Continued

Table 6.03	Disparity Analysis: Professional Services Subcontracts, July 1, 2003 to June 30, 2009	6-10
Table 6.04	Disparity Analysis: Goods and Other Services Subcontracts, July 1, 2003 to June 30, 2009	6-13
Table 6.05	Subcontractor Disparity Summary, July 1, 2003 to June 30, 2009	6-15
Table 7.01	Anecdotal Interviewee Profile	7-3
Table 8.01	Total Prime Contracts and Dollars Expended: All Industries, July 1, 2003 to June 30, 2009	8-3
Table 8.02	Total Subcontract Dollars: All Industries, July 1, 2003 to June 30, 2009	8-4
Table 8.03	Disparity Summary: Construction Contract Dollars, July 1, 2003 to June 30, 2009	8-5
Table 8.04	Disparity Summary: Architectural and Engineering Contract Dollars, July 1, 2003 to June 30, 2009	8-6
Table 8.05	Disparity Summary: Professional Services Contract Dollars, July 1, 2003 to June 30, 2009	8-7
Table 8.06	Disparity Summary: Goods and Other Services Contract Dollars, July 1, 2003 to June 30, 2009	8-8
Table 8.07	Subcontract Disparity Summary, July 1, 2003 to June 30, 2009	8-9
Table 8.08	Quantifiable Good Faith Efforts	8-12
Table 8.09	Subcontractor Availability	8-13
Table 8.10	Outreach and Marketing Strategies	8-20
Table 8.11	Data Fields in CBR Registration Tab	8-34
Table 8.12	External Certification Databases	8-37
Table 8.13	Business Profile Fields in External Certification Databases Compared to CBR	8-38
Table 8.14	Business Contact Fields in External Certification Databases Compared to CBR	8-39
Table 8.15	Minority Status Fields in External Certification Databases Compared to CBR	8-40

List of Charts

Chart 5.01	Disparity Analysis: Construction Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-6
Chart 5.02	Disparity Analysis: Architectural and Engineering Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-9
Chart 5.03	Disparity Analysis: Professional Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-12
Chart 5.04	Disparity Analysis: Goods and Other Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009	5-15
Chart 5.05	Disparity Analysis: Construction Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-18
Chart 5.06	Disparity Analysis: Architectural and Engineering Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-21
Chart 5.07	Disparity Analysis: Professional Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-24
Chart 5.08	Disparity Analysis: Goods and Other Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009	5-27
Chart 6.01	Disparity Analysis: Construction Subcontracts, July 1, 2003 to June 30, 2009	6-5
Chart 6.02	Disparity Analysis: Architectural and Engineering Subcontracts, July 1, 2003 to June 30, 2009	6-8
Chart 6.03	Disparity Analysis: Professional Services Subcontracts, July 1, 2003 to June 30, 2009	6-11
Chart 6.04	Disparity Analysis: Goods and Other Services Subcontracts, July 1, 2003 to June 30, 2009	6-14

1

PRIME CONTRACTOR UTILIZATION ANALYSIS

I. INTRODUCTION

The first step in a disparity study is the analysis of the contracting history in the jurisdiction under review. The objective of the prime contractor utilization analysis is to determine the level of minority and woman-owned business enterprise (M/WBE) utilization as prime contractors.

This chapter documents the Washington Suburban Sanitary Commission (WSSC) utilization of M/WBE prime contractors from July 1, 2003 to June 30, 2009. The analysis of WSSC's expenditures during the study period was classified into four industries. The industries are construction, architectural and engineering, professional services, and goods and other services. Construction included new construction, remodeling, renovation, maintenance, demolition and repair of any public structure or building, pipeline construction, and other public improvements. Architectural and engineering included construction management, landscape architecture, surveying, mapping services, and architectural and engineering services. Professional services included attorneys, accountants, medical professionals, technical services, research planning, and consultant services. Goods and other services included materials, supplies, equipment, maintenance, and other services which could be performed without a professional license, special education, or training.

The data in the Study is disaggregated into nine ethnic and gender groups. The nine groups are listed below in Table 1.01.

Table 1.01 Business Ethnic and Gender Groups

Ethnicity and Gender Category	Definition
African American Business Enterprises	Businesses owned by male and female African Americans
Asian American Business Enterprises	Businesses owned by male and female Asian-Pacific and Subcontinent Asian Americans
Hispanic American Business Enterprises	Businesses owned by male and female Hispanic Americans
Native American Business Enterprises	Businesses owned by male and female Native Americans
Caucasian Female Business Enterprises[1]	Businesses owned by Caucasian females
Minority Business Enterprises	Businesses owned by African American, Asian American, Hispanic American, and Native American males and females
Women Business Enterprises[2]	Businesses owned by Caucasian females
Minority and Women Business Enterprises	Businesses owned by Minority males, Minority females, and Caucasian females
Non-Minority Male Business Enterprises	Businesses owned by Caucasian males and businesses that did not declare their ethnicity or could not be identified as minority or female-owned[3]

1 The Caucasian Female Business Enterprises and Women Business Enterprises terms are used interchangeably in the Study.

2 Id.

3 See Section II: Prime Contract Data Sources for the methodology employed to identify the ethnicity and gender of WSSC's utilized prime contractors.

II. PRIME CONTRACT DATA SOURCES

The dataset analyzed for the prime contractor utilization analysis includes purchase orders (POs) and direct payments WSSC extracted from the Materials, Account Payable, Purchasing System (MAPS). Data WSSC provided to Mason Tillman was limited to purchase orders that were opened during the July 1, 2003 to June 30, 2009 study period and direct payments issued during the same period.

To create a unique list of transactions, the purchase orders were grouped by the PO number and direct payments were grouped by job numbers when the information was available or by check number when job numbers were not populated in MAPS. Task orders issued against each master release contract was counted as a separate PO. The current order amount field was used to extract the PO expenditures, and the check amount field was used for the direct payment expenditures. In this Study, each purchase order and direct payment is referred to as a contract.

Each WSSC contract was classified into one of the four industries as detailed on page 1-1. Mason Tillman worked closely with WSSC to classify the contracts into the appropriate industries given the limited information available in each contract record. All POs have descriptions and commodity codes assigned by WSSC. However, not all commodity codes assigned by WSSC are National Institute of Governmental Purchasing (NIGP) codes. The direct payments did not have any commodity codes tied to the transactions. The classification for each of the direct payments was based on the commodity code assigned by WSSC tied to the business. None of the POs or direct payments records included a North American Industry Classification System (NAICS) code and the NIGP to NAICS code bridge provided by WSSC was incomplete. Consequently, the information available in most records was not sufficient to classify the contracts by either the NIGP or the NAICS code classification system. Cooperative agreements identified by WSSC; contracts with non-profits, government agencies, and utilities; and other contracts designated as non-competitive purchases were marked by WSSC for exclusion from the Study. The final classification of the prime contracts into one of the four industries was reviewed and approved by WSSC.

When the industry classifications were approved by WSSC, the ethnicity and gender of the prime contractors were verified. The ethnicity and gender information WSSC maintained for prime contractors was incomplete. Therefore, the ethnicity and gender information for most prime contractors had to be reconstructed. The need for reconstruction is a common problem with government records. Since ethnicity and gender information is central to the validity of the prime contractor utilization analysis, Mason Tillman conducted research to verify the ethnicity and gender for each prime contractor.

The prime contractor names were cross-referenced with WSSC's SymTrac™ database, other governmental agency certification lists, and business organization membership lists compiled for this Study. Business websites were reviewed for ethnicity and gender of the business

owner. Prime contractors, whose ethnicity and gender could not be verified through published sources, were surveyed. Mason Tillman also submitted the utilized vendor list to WSSC to review for ethnicity and gender classifications known to WSSC.

III. PRIME CONTRACTOR UTILIZATION THRESHOLDS

Contracts within each of the four industries were analyzed at three dollar levels. One category included all contracts regardless of size. A second category included all contracts under $500,000. The third category included the informal contracts $25,000 and under that did not require advertising. As described in Table 1.02, the informal contract threshold for all four industries was $25,000.

The $500,000 threshold was designated because at this level there was a demonstrated capacity within the pool of M/WBEs willing to perform WSSC's contracts.[4] The informal contract threshold was set forth in WSSC's procurement manual.

Table 1.02 Informal Contract Thresholds by Industry

Industry	Informal Contract Threshold
Construction	$25,000
Architectural and Engineering	$25,000
Professional Services	$25,000
Goods and Other Services	$25,000

[4] See *Chapter 4: Availability Analysis* - Section III for a discussion of M/WBE capacity.

IV. PRIME CONTRACTOR UTILIZATION

A. All Prime Contractors

As depicted in Table 1.03 below, WSSC issued 55,927 purchase orders and direct payments to M/WBEs and non-M/WBEs for all industries during the July 1, 2003 to June 30, 2009 study period. These transactions, as previously noted, are referred to as contracts. The 55,927 contracts included 2,055 for construction, 668 for architectural and engineering, 2,414 for professional services, and 50,790 for goods and other services.

The payments made by WSSC during the study period totaled $1,302,098,374 for all 55,927 contracts. These expenditures included $532,657,942 for construction, $186,875,887 for architectural and engineering, $83,114,533 for professional services, and $499,450,013 for goods and other services.

Table 1.03 Prime Contracts and Dollars Expended by Industry, July 1, 2003 to June 30, 2009

All Industries		
Ethnicity/Gender	**Number of Contracts**	**Dollars Expended**
M/WBE	21,561	$342,454,431
Non-M/WBE	34,366	$959,643,943
Total	55,927	$1,302,098,374
Construction		
Ethnicity/Gender	**Number of Contracts**	**Dollars Expended**
M/WBE	991	$123,171,887
Non-M/WBE	1,064	$409,486,055
Total	2,055	$532,657,942
Architectural and Engineering		
Ethnicity/Gender	**Number of Contracts**	**Dollars Expended**
M/WBE	138	$16,630,691
Non-M/WBE	530	$170,245,196
Total	668	$186,875,887

Professional Services		
Ethnicity/Gender	**Number of Contracts**	**Dollars Expended**
M/WBE	506	$14,838,201
Non-M/WBE	1,908	$68,276,332
Total	2,414	$83,114,533
Goods and Other Services		
Ethnicity/Gender	**Number of Contracts**	**Dollars Expended**
M/WBE	19,926	$187,813,653
Non-M/WBE	30,864	$311,636,360
Total	50,790	$499,450,013

B. Highly Used Prime Contractors by Industry

As depicted in Table 1.04 below, WSSC's 55,927 prime contracts were issued to 2,291 unique vendors.

Table 1.04 Total Prime Contracts, Utilized Vendors, and Dollars Expended: All Industries, July 1, 2003 to June 30, 2009

Prime Contracts / Vendors / Dollars	Number of Contracts / Vendors / Dollars
Total Prime Contracts	55,927
Total Utilized Unique Vendors	2,291
Total Dollars Expended	$1,302,098,374

Thirty-two of the 2,291 unique vendors received $656,455,218 or 50 percent of the prime contract dollars. Six vendors representing 0.26 percent of all unique vendors utilized during the study period, received $331,691,435 or 25 percent of the prime contract dollars. Table 1.05 below depicts the distribution of the total prime contracts by number of unique vendors.

Table 1.05 Distribution of All Contracts by Number of Vendors

Vendors	Total Dollars	Percent of Dollars[5]	Number of Contracts	Percent of Contracts
6 Vendors Received	$331,691,435	25%	125	0.22%
32 Vendors Received	$656,455,218	50%	2,748	4.91%
49 Vendors Received	$783,695,984	60%	4,829	8.63%
2,242 Vendors Received	$518,402,390	40%	51,098	91.37%
2,291 Vendors Received	$1,302,098,374	100%	55,927	100.00%

Table 1.06 below presents the ethnic and gender profile of the 32 most highly used prime contractors. The highly used prime contractors included Non-Minority Male, Hispanic American, Caucasian Female, and African American businesses. The majority of the highly used prime contractor expenditures went to Non-Minority Male businesses, and African American businesses received the fewest dollars of the highly used vendors. The individual contracts received by these 32 businesses ranged from $1 to $112,552,414.

Table 1.06 Top 32 Highly Used Prime Contractors by Ethnicity and Gender

Ethnicity/ Gender[6]	Total Dollars	Percent of Dollars	Number of Contracts	Percent of Contracts
Non-Minority Males	$475,446,805	72.42%	1,317	47.93%
Hispanic Americans	$88,140,638	13.43%	149	5.42%
Caucasian Females	$64,845,292	9.88%	212	7.71%
African Americans	$28,022,482	4.27%	1,070	38.94%
Total	**$656,455,217**	**100.00%**	**2,748**	**100.00%**

As depicted in Table 1.07 below, WSSC's 2,055 construction prime contracts were received by 113 vendors.

[5] Percentages are rounded to the nearest whole number.

[6] Asian Americans and Native Americans were omitted from the table because they were not highly used.

Table 1.07 Construction Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009

Prime Contracts / Vendors / Dollars	Number of Contracts / Vendors / Dollars
Total Prime Contracts	2,055
Total Utilized Vendors	113
Total Dollars	$532,657,942

Five of the 113 construction vendors received $281,434,858 or 53 percent of the construction prime contract dollars. One vendor representing 0.88 percent of all construction vendors utilized during the study period received $112,552,414 or 21 percent of the construction prime contract dollars. Table 1.08 below depicts the distribution of the construction prime contracts by number of vendors.

Table 1.08 Distribution of Construction Contracts by Number of Vendors

Vendors	Total Dollars	Percent of Dollars[7]	Number of Contracts	Percent of Contracts
1 Vendors Received	$112,552,414	21%	1	0.05%
5 Vendors Received	$281,434,858	53%	104	5.06%
8 Vendors Received	$327,035,140	61%	369	17.96%
105 Vendors Received	$205,622,802	39%	1,686	82.04%
113 Vendors Received	$532,657,942	100%	2,055	100.00%

Table 1.09 below presents the ethnic and gender profile of the eight most highly used construction prime contractors. The highly used construction prime contractors included Non-Minority Male and Hispanic American businesses. The majority of the highly used construction prime contractor expenditures went to Non-Minority Male businesses and Hispanic American businesses received the fewest dollars and smallest contracts of the highly used vendors. The individual contracts received by these eight businesses ranged from $180 to $112,552,414.

[7] Percentages are rounded to the nearest whole number.

Table 1.09 Top Eight Highly Used Construction Prime Contractors by Ethnicity and Gender

Ethnicity/ Gender[8]	Total Dollars	Percent of Dollars	Number of Contracts	Percent of Contracts
Non-Minority Males	$249,551,682	76.31%	268	72.63%
Hispanic Americans	$77,483,458	23.69%	101	27.37%
Total	**$327,035,140**	**100.00%**	**369**	**100.00%**

As depicted in Table 1.10 below, WSSC's 668 architectural and engineering prime contracts were received by 63 vendors.

Table 1.10 Architectural and Engineering Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009

Prime Contracts / Vendors / Dollars	Number of Contracts / Vendors / Dollars
Total Prime Contracts	668
Total Utilized Vendors	63
Total Dollars	$186,875,887

Ten of the 63 architectural and engineering vendors received $96,067,397 or 51 percent of the architectural and engineering prime contract dollars. Four vendors representing 6.35 percent of all architectural and engineering vendors utilized during the study period received $49,278,425 or 26 percent of the architectural and engineering prime contract dollars. Table 1.11 below depicts the distribution of the architectural and engineering prime contracts by number of vendors.

[8] African Americans, Asian Americans, Native Americans, and Caucasian Females were omitted from the table because they were not highly used.

Table 1.11 Distribution of Architectural and Engineering Contracts by Number of Vendors

Vendors	Total Dollars	Percent of Dollars[9]	Number of Contracts	Percent of Contracts
4 Vendors Received	$49,278,425	26%	58	8.68%
10 Vendors Received	$96,067,397	51%	102	15.27%
13 Vendors Received	$113,574,034	61%	192	28.74%
50 Vendors Received	$73,301,853	39%	476	71.26%
63 Vendors Received	$186,875,887	100%	668	100.00%

Table 1.12 below presents the ethnic and gender profile of the 13 most highly used architectural and engineering prime contractors. The highly used architectural and engineering prime contractors included only Non-Minority Male businesses. The individual contracts received by these 13 businesses ranged from $99 to $10,947,442.

Table 1.12 Top 13 Highly Used Architectural and Engineering Prime Contractors by Ethnicity and Gender

Ethnicity/ Gender[10]	Total Dollars	Percent of Dollars	Number of Contracts	Percent of Contracts
Non-Minority Males	$113,574,034	100.00%	192	100.00%
Total	**$113,574,034**	**100.00%**	**192**	**100.00%**

[9] Percentages are rounded to the nearest whole number.

[10] African Americans, Asian Americans, Hispanic Americans, Native Americans, and Caucasian Females were omitted from the table because they were not highly used.

As depicted in Table 1.13 below, WSSC's 2,414 professional services prime contracts were received by 444 vendors.

Table 1.13 Professional Services Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009

Prime Contracts / Vendors / Dollars	Number of Contracts / Vendors / Dollars
Total Prime Contracts	2,414
Total Utilized Vendors	444
Total Dollars	$83,114,533

Four of the 444 professional services vendors received $40,747,507 or 49 percent of the professional services prime contract dollars. Two vendors representing 0.45 percent of all professional services vendors utilized during the study period received $28,137,301 or 34 percent of the professional services prime contract dollars. Table 1.14 below depicts the distribution of the professional services prime contracts by number of vendors.

Table 1.14 Distribution of Professional Services Contracts by Number of Vendors

Vendors	Total Dollars	Percent of Dollars[11]	Number of Contracts	Percent of Contracts
2 Vendors Received	$28,137,301	34%	75	3.11%
4 Vendors Received	$40,747,507	49%	81	3.36%
8 Vendors Received	$50,483,666	61%	323	13.38%
436 Vendors Received	$32,630,867	39%	2,091	86.62%
444 Vendors Received	$83,114,533	100%	2,414	100.00%

Table 1.15 below presents the ethnic and gender profile of the eight most highly used professional services prime contractors. The highly used professional services prime contractors included Non-Minority Male and Asian American businesses. The majority of the highly used professional services prime contractor expenditures went to Non-Minority Male businesses and Asian American businesses received the fewest dollars and smallest

[11] Percentages are rounded to the nearest whole number.

contracts of the highly used vendors. The individual contracts received by these eight businesses ranged from $45 to $7,763,534.

Table 1.15 Top Eight Highly Used Professional Services Prime Contractors by Ethnicity and Gender

Ethnicity/ Gender[12]	Total Dollars	Percent of Dollars	Number of Contracts	Percent of Contracts
Non-Minority Males	$48,164,403	95.41%	292	90.40%
Asian Americans	$2,319,263	4.59%	31	9.60%
Total	**$50,483,666**	**100.00%**	**323**	**100.00%**

As depicted in Table 1.16 below, WSSC's 50,790 goods and other services prime contracts were received by 1,828 vendors.

Table 1.16 Goods and Other Services Prime Contracts, Utilized Vendors, and Dollars Expended, July 1, 2003 to June 30, 2009

Prime Contracts / Vendors / Dollars	Number of Contracts / Vendors / Dollars
Total Prime Contracts	50,790
Total Utilized Vendors	1,828
Total Dollars	$499,450,013

Thirty-two of the 1,828 goods and other services vendors received $250,280,853 or 50 percent of the goods and other services prime contract dollars. Seven vendors representing 0.38 percent of all goods and other services vendors utilized during the study period received $128,308,356 or 26 percent of the goods and other services prime contract dollars. Table 1.17 below depicts the distribution of the goods and other services prime contracts by number of vendors.

[12] African Americans, Hispanic Americans, Native Americans, and Caucasian Females were omitted from the table because they were not highly used.

Table 1.17 Distribution of Goods and Other Services Contracts by Number of Vendors

Vendors	Total Dollars	Percent of Dollars[13]	Number of Contracts	Percent of Contracts
7 Vendors Received	$128,308,356	26%	1,892	3.73%
32 Vendors Received	$250,280,853	50%	4,916	9.68%
51 Vendors Received	$299,483,281	60%	9,789	19.27%
1,777 Vendors Received	$199,966,732	40%	41,001	80.73%
1,828 Vendors Received	$499,450,013	100%	50,790	100.00%

Table 1.18 below presents the ethnic and gender profile of the 32 most highly used goods and other services prime contractors. The highly used goods and other services prime contractors included Non-Minority Male, Caucasian Female, and African American businesses. The majority of the highly used goods and other services prime contractor expenditures went to Non-Minority Male businesses and African American businesses received the fewest dollars of the highly used vendors. The individual contracts received by these 32 businesses ranged from $24 to $14,121,995.

Table 1.18 Top 32 Highly Used Goods and Other Services Prime Contractors by Ethnicity and Gender

Ethnicity/ Gender[14]	Total Dollars	Percent of Dollars	Number of Contracts	Percent of Contracts
Non-Minority Males	$128,243,186	51.24%	1,426	29.01%
Caucasian Females	$64,845,292	25.91%	212	4.31%
African Americans	$57,192,375	22.85%	3,278	66.68%
Total	**$250,280,853**	**100.00%**	**4,916**	**100.00%**

[13] Percentages are rounded to the nearest whole number.

[14] Asian Americans, Hispanic Americans, and Native Americans were omitted from the table because they were not highly used.

C. All Prime Contracts by Industry

1. Construction Prime Contractor Utilization: All Contracts

Table 1.19 summarizes all prime contract dollars expended by WSSC on construction contracts. Minority Business Enterprises received 21.24 percent of the construction prime contract dollars; Women Business Enterprises received 1.88 percent; and Non-Minority Male Business Enterprises received 76.88 percent.

African Americans received 182 or 8.86 percent of the construction contracts during the study period, representing $9,144,324 or 1.72 percent of the contract dollars.

Asian Americans received 18 or 0.88 percent of the construction contracts during the study period, representing $3,182,475 or 0.6 percent of the contract dollars.

Hispanic Americans received 538 or 26.18 percent of the construction contracts during the study period, representing $100,827,487 or 18.93 percent of the contract dollars.

Native Americans received none of the construction contracts during the study period.

Minority Business Enterprises received 738 or 35.91 percent of the construction contracts during the study period, representing $113,154,286 or 21.24 percent of the contract dollars.

Women Business Enterprises received 253 or 12.31 percent of the construction contracts during the study period, representing $10,017,601 or 1.88 percent of the contract dollars.

Minority and Women Business Enterprises received 991 or 48.22 percent of the construction contracts during the study period, representing $123,171,887 or 23.12 percent of the contract dollars.

Non-Minority Male Business Enterprises received 1,064 or 51.78 percent of the construction contracts during the study period, representing $409,486,055 or 76.88 percent of the contract dollars.

Table 1.19 Construction Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	182	8.86%	$9,144,324	1.72%
Asian Americans	18	0.88%	$3,182,475	0.60%
Hispanic Americans	538	26.18%	$100,827,487	18.93%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	253	12.31%	$10,017,601	1.88%
Non-Minority Males	1,064	51.78%	$409,486,055	76.88%
TOTAL	2,055	100.00%	$532,657,942	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	4	0.19%	$152,629	0.03%
African American Males	178	8.66%	$8,991,695	1.69%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	18	0.88%	$3,182,475	0.60%
Hispanic American Females	19	0.92%	$33,565,469	6.30%
Hispanic American Males	519	25.26%	$67,262,018	12.63%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	253	12.31%	$10,017,601	1.88%
Non-Minority Males	1,064	51.78%	$409,486,055	76.88%
TOTAL	2,055	100.00%	$532,657,942	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	23	1.12%	$33,718,098	6.33%
Minority Males	715	34.79%	$79,436,188	14.91%
Caucasian Females	253	12.31%	$10,017,601	1.88%
Non-Minority Males	1,064	51.78%	$409,486,055	76.88%
TOTAL	2,055	100.00%	$532,657,942	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	738	35.91%	$113,154,286	21.24%
Women Business Enterprises	253	12.31%	$10,017,601	1.88%
Minority and Women Business Enterprises	**991**	**48.22%**	**$123,171,887**	**23.12%**
Non-Minority Male Business Enterprises	1,064	51.78%	$409,486,055	76.88%
TOTAL	2,055	100.00%	$532,657,942	100.00%

2. Architectural and Engineering Prime Contractor Utilization: All Contracts

Table 1.20 summarizes all contract dollars expended by WSSC on architectural and engineering prime contracts. Minority Business Enterprises received 8.9 percent of the architectural and engineering prime contract dollars; Women Business Enterprises received none of the architectural and engineering prime contract dollars; and Non-Minority Male Business Enterprises received 91.1 percent.

African Americans received 37 or 5.54 percent of the architectural and engineering contracts during the study period, representing $9,206,118 or 4.93 percent of the contract dollars.

Asian Americans received 101 or 15.12 percent of the architectural and engineering contracts during the study period, representing $7,424,573 or 3.97 percent of the contract dollars.

Hispanic Americans received none of the architectural and engineering contracts during the study period.

Native Americans received none of the architectural and engineering contracts during the study period.

Minority Business Enterprises received 138 or 20.66 percent of the architectural and engineering contracts during the study period, representing $16,630,691 or 8.9 percent of the contract dollars.

Women Business Enterprises received none of the architectural and engineering contracts during the study period.

Minority and Women Business Enterprises received 138 or 20.66 percent of the architectural and engineering contracts during the study period, representing $16,630,691 or 8.90 percent of the contract dollars.

Non-Minority Male Business Enterprises received 530 or 79.34 percent of the architectural and engineering contracts during the study period, representing $170,245,196 or 91.1 percent of the contract dollars.

Table 1.20 Architectural and Engineering Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	37	5.54%	$9,206,118	4.93%
Asian Americans	101	15.12%	$7,424,573	3.97%
Hispanic Americans	0	0.00%	$0	0.00%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	530	79.34%	$170,245,196	91.10%
TOTAL	668	100.00%	$186,875,887	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	5	0.75%	$2,289,715	1.23%
African American Males	32	4.79%	$6,916,403	3.70%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	101	15.12%	$7,424,573	3.97%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	0	0.00%	$0	0.00%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	530	79.34%	$170,245,196	91.10%
TOTAL	668	100.00%	$186,875,887	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	5	0.75%	$2,289,715	1.23%
Minority Males	133	19.91%	$14,340,976	7.67%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	530	79.34%	$170,245,196	91.10%
TOTAL	668	100.00%	$186,875,887	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	138	20.66%	$16,630,691	8.90%
Women Business Enterprises	0	0.00%	$0	0.00%
Minority and Women Business Enterprises	**138**	**20.66%**	**$16,630,691**	**8.90%**
Non-Minority Male Business Enterprises	530	79.34%	$170,245,196	91.10%
TOTAL	668	100.00%	$186,875,887	100.00%

3. Professional Services Prime Contractor Utilization: All Contracts

Table 1.21 summarizes all contract dollars expended by WSSC on professional services prime contracts. Minority Business Enterprises received 14.48 percent of the professional services prime contract dollars; Women Business Enterprises received 3.37 percent; and Non-Minority Male Business Enterprises received 82.15 percent.

African Americans received 250 or 10.36 percent of the professional services contracts during the study period, representing $7,738,855 or 9.31 percent of the contract dollars.

Asian Americans received 62 or 2.57 percent of the professional services contracts during the study period, representing $4,239,394 or 5.1 percent of the contract dollars.

Hispanic Americans received 4 or 0.17 percent of the professional services contracts during the study period, representing $60,393 or 0.07 percent of the contract dollars.

Native Americans received none of the professional services contracts during the study period.

Minority Business Enterprises received 316 or 13.09 percent of the professional services contracts during the study period, representing $12,038,641 or 14.48 percent of the contract dollars.

Women Business Enterprises received 190 or 7.87 percent of the professional services contracts during the study period, representing $2,799,559 or 3.37 percent of the contract dollars.

Minority and Women Business Enterprises received 506 or 20.96 percent of the professional services contracts during the study period, representing $14,838,201 or 17.85 percent of the contract dollars.

Non-Minority Male Business Enterprises received 1,908 or 79.04 percent of the professional services contracts during the study period, representing $68,276,332 or 82.15 percent of the contract dollars.

Table 1.21 Professional Services Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	250	10.36%	$7,738,855	9.31%
Asian Americans	62	2.57%	$4,239,394	5.10%
Hispanic Americans	4	0.17%	$60,393	0.07%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	190	7.87%	$2,799,559	3.37%
Non-Minority Males	1,908	79.04%	$68,276,332	82.15%
TOTAL	2,414	100.00%	$83,114,533	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	66	2.73%	$2,022,655	2.43%
African American Males	184	7.62%	$5,716,200	6.88%
Asian American Females	45	1.86%	$2,997,097	3.61%
Asian American Males	17	0.70%	$1,242,296	1.49%
Hispanic American Females	2	0.08%	$1,225	0.00%
Hispanic American Males	2	0.08%	$59,168	0.07%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	190	7.87%	$2,799,559	3.37%
Non-Minority Males	1,908	79.04%	$68,276,332	82.15%
TOTAL	2,414	100.00%	$83,114,533	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	113	4.68%	$5,020,977	6.04%
Minority Males	203	8.41%	$7,017,664	8.44%
Caucasian Females	190	7.87%	$2,799,559	3.37%
Non-Minority Males	1,908	79.04%	$68,276,332	82.15%
TOTAL	2,414	100.00%	$83,114,533	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	316	13.09%	$12,038,641	14.48%
Women Business Enterprises	190	7.87%	$2,799,559	3.37%
Minority and Women Business Enterprises	**506**	**20.96%**	**$14,838,201**	**17.85%**
Non-Minority Male Business Enterprises	1,908	79.04%	$68,276,332	82.15%
TOTAL	2,414	100.00%	$83,114,533	100.00%

4. Goods and Other Services Prime Contractor Utilization: All Contracts

Table 1.22 summarizes all contract dollars expended by WSSC on goods and other services prime contracts. Minority Business Enterprises received 20.55 percent of the goods and other services prime contract dollars; Women Business Enterprises received 17.06 percent; and Non-Minority Male Business Enterprises received 62.4 percent.

African Americans received 12,033 or 23.69 percent of the goods and other services contracts during the study period, representing $87,221,434 or 17.46 percent of the contract dollars.

Asian Americans received 1,858 or 3.66 percent of the goods and other services contracts during the study period, representing $9,250,123 or 1.85 percent of the contract dollars.

Hispanic Americans received 911 or 1.79 percent of the goods and other services contracts during the study period, representing $5,143,269 or 1.03 percent of the contract dollars.

Native Americans received 39 or 0.08 percent of the goods and other services contracts during the study period, representing $1,011,787 or 0.20 percent of the contract dollars.

Minority Business Enterprises received 14,841 or 29.22 percent of the goods and other services contracts during the study period, representing $102,626,612 or 20.55 percent of the contract dollars.

Women Business Enterprises received 5,085 or 10.01 percent of the goods and other services contracts during the study period, representing $85,187,040 or 17.06 percent of the contract dollars.

Minority and Women Business Enterprises received 19,926 or 39.23 percent of the goods and other services contracts during the study period, representing $187,813,653 or 37.6 percent of the contract dollars.

Non-Minority Male Business Enterprises received 30,864 or 60.77 percent of the goods and other services contracts during the study period, representing $311,636,360 or 62.4 percent of the contract dollars.

Table 1.22 Goods and Other Services Prime Contractor Utilization: All Contracts, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	12,033	23.69%	$87,221,434	17.46%
Asian Americans	1,858	3.66%	$9,250,123	1.85%
Hispanic Americans	911	1.79%	$5,143,269	1.03%
Native Americans	39	0.08%	$1,011,787	0.20%
Caucasian Females	5,085	10.01%	$85,187,040	17.06%
Non-Minority Males	30,864	60.77%	$311,636,360	62.40%
TOTAL	50,790	100.00%	$499,450,013	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	2,195	4.32%	$26,103,120	5.23%
African American Males	9,838	19.37%	$61,118,313	12.24%
Asian American Females	1,371	2.70%	$1,392,090	0.28%
Asian American Males	487	0.96%	$7,858,033	1.57%
Hispanic American Females	844	1.66%	$1,662,070	0.33%
Hispanic American Males	67	0.13%	$3,481,199	0.70%
Native American Females	31	0.06%	$965,670	0.19%
Native American Males	8	0.02%	$46,117	0.01%
Caucasian Females	5,085	10.01%	$85,187,040	17.06%
Non-Minority Males	30,864	60.77%	$311,636,360	62.40%
TOTAL	50,790	100.00%	$499,450,013	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	4,441	8.74%	$30,122,950	6.03%
Minority Males	10,400	20.48%	$72,503,662	14.52%
Caucasian Females	5,085	10.01%	$85,187,040	17.06%
Non-Minority Males	30,864	60.77%	$311,636,360	62.40%
TOTAL	50,790	100.00%	$499,450,013	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	14,841	29.22%	$102,626,612	20.55%
Women Business Enterprises	5,085	10.01%	$85,187,040	17.06%
Minority and Women Business Enterprises	**19,926**	**39.23%**	**$187,813,653**	**37.60%**
Non-Minority Male Business Enterprises	30,864	60.77%	$311,636,360	62.40%
TOTAL	50,790	100.00%	$499,450,013	100.00%

D. Prime Contracts under $500,000, by Industry

1. Construction Prime Contractor Utilization: Contracts under $500,000

Table 1.23 summarizes all contract dollars expended by WSSC on construction prime contracts under $500,000. Minority Business Enterprises received 27.95 percent of the prime contract dollars; Women Business Enterprises received 6.46 percent; and Non-Minority Male Business Enterprises received 65.59 percent.

African Americans received 179 or 9.34 percent of the construction contracts under $500,000 during the study period, representing $7,304,644 or 7.98 percent of the contract dollars.

Asian Americans received 17 or 0.89 percent of the construction contracts under $500,000 during the study period, representing $2,153,433 or 2.35 percent of the contract dollars.

Hispanic Americans received 498 or 25.98 percent of the construction contracts under $500,000 during the study period, representing $16,137,085 or 17.62 percent of the contract dollars.

Native Americans received none of the construction contracts under $500,000 during the study period.

Minority Business Enterprises received 694 or 36.2 percent of the construction contracts under $500,000 during the study period, representing $25,595,161 or 27.95 percent of the contract dollars.

Women Business Enterprises received 250 or 13.04 percent of the construction contracts under $500,000 during the study period, representing $5,911,766 or 6.46 percent of the contract dollars.

Minority and Women Business Enterprises received 944 or 49.24 percent of the construction contracts under $500,000 during the study period, representing $31,506,927 or 34.41 percent of the contract dollars.

Non-Minority Male Business Enterprises received 973 or 50.76 percent of the construction contracts under $500,000 during the study period, representing $60,061,888 or 65.59 percent of the contract dollars.

Table 1.23 Construction Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	179	9.34%	$7,304,644	7.98%
Asian Americans	17	0.89%	$2,153,433	2.35%
Hispanic Americans	498	25.98%	$16,137,085	17.62%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	250	13.04%	$5,911,766	6.46%
Non-Minority Males	973	50.76%	$60,061,888	65.59%
TOTAL	1,917	100.00%	$91,568,815	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	4	0.21%	$152,629	0.17%
African American Males	175	9.13%	$7,152,015	7.81%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	17	0.89%	$2,153,433	2.35%
Hispanic American Females	13	0.68%	$607,256	0.66%
Hispanic American Males	485	25.30%	$15,529,829	16.96%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	250	13.04%	$5,911,766	6.46%
Non-Minority Males	973	50.76%	$60,061,888	65.59%
TOTAL	1,917	100.00%	$91,568,815	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	17	0.89%	$759,885	0.83%
Minority Males	677	35.32%	$24,835,276	27.12%
Caucasian Females	250	13.04%	$5,911,766	6.46%
Non-Minority Males	973	50.76%	$60,061,888	65.59%
TOTAL	1,917	100.00%	$91,568,815	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	694	36.20%	$25,595,161	27.95%
Women Business Enterprises	250	13.04%	$5,911,766	6.46%
Minority and Women Business Enterprises	**944**	**49.24%**	**$31,506,927**	**34.41%**
Non-Minority Male Business Enterprises	973	50.76%	$60,061,888	65.59%
TOTAL	1,917	100.00%	$91,568,815	100.00%

2. Architectural and Engineering Prime Contractor Utilization: Contracts under $500,000

Table 1.24 summarizes all contract dollars expended by WSSC on architectural and engineering prime contracts under $500,000. Minority Business Enterprises received 19.73 percent of the architectural and engineering prime contract dollars; Women Business Enterprises received none of the architectural and engineering prime contract dollars; and Non-Minority Male Business Enterprises received 80.27 percent.

African Americans received 29 or 4.77 percent of the architectural and engineering contracts under $500,000 during the study period, representing $2,521,303 or 5 percent of the contract dollars.

Asian Americans received 101 or 16.61 percent of the architectural and engineering contracts under $500,000 during the study period, representing $7,424,573 or 14.73 percent of the contract dollars.

Hispanic Americans received none of the architectural and engineering contracts under $500,000 during the study period.

Native Americans received none of the architectural and engineering contracts under $500,000 during the study period.

Minority Business Enterprises received 130 or 21.38 percent of the architectural and engineering contracts under $500,000 during the study period, representing $9,945,875 or 19.73 percent of the contract dollars.

Women Business Enterprises received none of the architectural and engineering contracts under $500,000 during the study period.

Minority and Women Business Enterprises received 130 or 21.38 percent of the architectural and engineering contracts under $500,000 during the study period, representing $9,945,875 or 19.73 percent of the contract dollars.

Non-Minority Male Business Enterprises received 478 or 78.62 percent of the architectural and engineering contracts under $500,000 during the study period, representing $40,456,166 or 80.27 percent of the contract dollars.

Table 1.24 Architectural and Engineering Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	29	4.77%	$2,521,303	5.00%
Asian Americans	101	16.61%	$7,424,573	14.73%
Hispanic Americans	0	0.00%	$0	0.00%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	478	78.62%	$40,456,166	80.27%
TOTAL	608	100.00%	$50,402,041	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	2	0.33%	$399,385	0.79%
African American Males	27	4.44%	$2,121,917	4.21%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	101	16.61%	$7,424,573	14.73%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	0	0.00%	$0	0.00%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	478	78.62%	$40,456,166	80.27%
TOTAL	608	100.00%	$50,402,041	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	2	0.33%	$399,385	0.79%
Minority Males	128	21.05%	$9,546,490	18.94%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	478	78.62%	$40,456,166	80.27%
TOTAL	608	100.00%	$50,402,041	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	130	21.38%	$9,945,875	19.73%
Women Business Enterprises	0	0.00%	$0	0.00%
Minority and Women Business Enterprises	**130**	**21.38%**	**$9,945,875**	**19.73%**
Non-Minority Male Business Enterprises	478	78.62%	$40,456,166	80.27%
TOTAL	608	100.00%	$50,402,041	100.00%

3. Professional Services Prime Contractor Utilization: Contracts under $500,000

Table 1.25 summarizes all contract dollars expended by WSSC on professional services prime contracts under $500,000. Minority Business Enterprises received 17.45 percent of the professional services prime contract dollars; Women Business Enterprises received 4.94 percent; and Non-Minority Male Business Enterprises received 77.61 percent.

African Americans received 247 or 10.28 percent of the professional services contracts under $500,000 during the study period, representing $5,599,597 or 9.87 percent of the contract dollars.

Asian Americans received 62 or 2.58 percent of the professional services contracts under $500,000 during the study period, representing $4,239,394 or 7.47 percent of the contract dollars.

Hispanic Americans received 4 or 0.17 percent of the professional services contracts under $500,000 during the study period, representing $60,393 or 0.11 percent of the contract dollars.

Native Americans received none of the professional services contracts under $500,000 during the study period.

Minority Business Enterprises received 313 or 13.03 percent of the professional services contracts under $500,000 during the study period, representing $9,899,383 or 17.45 percent of the contract dollars.

Women Business Enterprises received 190 or 7.91 percent of the professional services contracts under $500,000 during the study period, representing $2,799,559 or 4.94 percent of the contract dollars.

Minority and Women Business Enterprises received 503 or 20.94 percent of the professional services contracts under $500,000 during the study period, representing $12,698,943 or 22.39 percent of the contract dollars.

Non-Minority Male Business Enterprises received 1,899 or 79.06 percent of the professional services contracts under $500,000 during the study period, representing $44,028,149 or 77.61 percent of the contract dollars.

Table 1.25 Professional Services Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	247	10.28%	$5,599,597	9.87%
Asian Americans	62	2.58%	$4,239,394	7.47%
Hispanic Americans	4	0.17%	$60,393	0.11%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	190	7.91%	$2,799,559	4.94%
Non-Minority Males	1,899	79.06%	$44,028,149	77.61%
TOTAL	2,402	100.00%	$56,727,092	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	65	2.71%	$1,347,655	2.38%
African American Males	182	7.58%	$4,251,942	7.50%
Asian American Females	45	1.87%	$2,997,097	5.28%
Asian American Males	17	0.71%	$1,242,296	2.19%
Hispanic American Females	2	0.08%	$1,225	0.00%
Hispanic American Males	2	0.08%	$59,168	0.10%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	190	7.91%	$2,799,559	4.94%
Non-Minority Males	1,899	79.06%	$44,028,149	77.61%
TOTAL	2,402	100.00%	$56,727,092	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	112	4.66%	$4,345,977	7.66%
Minority Males	201	8.37%	$5,553,406	9.79%
Caucasian Females	190	7.91%	$2,799,559	4.94%
Non-Minority Males	1,899	79.06%	$44,028,149	77.61%
TOTAL	2,402	100.00%	$56,727,092	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	313	13.03%	$9,899,383	17.45%
Women Business Enterprises	190	7.91%	$2,799,559	4.94%
Minority and Women Business Enterprises	**503**	**20.94%**	**$12,698,943**	**22.39%**
Non-Minority Male Business Enterprises	1,899	79.06%	$44,028,149	77.61%
TOTAL	2,402	100.00%	$56,727,092	100.00%

4. Goods and Other Services Prime Contractor Utilization: Contracts under $500,000

Table 1.26 summarizes all contract dollars expended by WSSC on goods and other services prime contracts under $500,000. Minority Business Enterprises received 28.57 percent of the goods and other services prime contract dollars; Women Business Enterprises received 7.94 percent; and Non-Minority Male Business Enterprises received 63.5 percent.

African Americans received 12,012 or 23.72 percent of the goods and other services contracts under $500,000 during the study period, representing $69,833,591 or 24.93 percent of the contract dollars.

Asian Americans received 1,854 or 3.66 percent of the goods and other services contracts under $500,000 during the study period, representing $5,939,980 or 2.12 percent of the contract dollars.

Hispanic Americans received 910 or 1.8 percent of the goods and other services contracts under $500,000 during the study period, representing $3,219,218 or 1.15 percent of the contract dollars.

Native Americans received 39 or 0.08 percent of the goods and other services contracts under $500,000 during the study period, representing $1,011,787 or 0.36 percent of the contract dollars.

Minority Business Enterprises received 14,815 or 29.25 percent of the goods and other services contracts under $500,000 during the study period, representing $80,004,576 or 28.57 percent of the contract dollars.

Women Business Enterprises received 5,062 or 10 percent of the goods and other services contracts under $500,000 during the study period, representing $22,231,938 or 7.94 percent of the contract dollars.

Minority and Women Business Enterprises received 19,877 or 39.25 percent of the goods and other services contracts under $500,000 during the study period, representing $102,236,514 or 36.5 percent of the contract dollars.

Non-Minority Male Business Enterprises received 30,764 or 60.75 percent of the goods and other services contracts under $500,000 during the study period, representing $177,839,193 or 63.5 percent of the contract dollars.

Table 1.26 Goods and Other Services Prime Contractor Utilization: Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	12,012	23.72%	$69,833,591	24.93%
Asian Americans	1,854	3.66%	$5,939,980	2.12%
Hispanic Americans	910	1.80%	$3,219,218	1.15%
Native Americans	39	0.08%	$1,011,787	0.36%
Caucasian Females	5,062	10.00%	$22,231,938	7.94%
Non-Minority Males	30,764	60.75%	$177,839,193	63.50%
TOTAL	50,641	100.00%	$280,075,707	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	2,192	4.33%	$23,659,622	8.45%
African American Males	9,820	19.39%	$46,173,969	16.49%
Asian American Females	1,371	2.71%	$1,392,090	0.50%
Asian American Males	483	0.95%	$4,547,890	1.62%
Hispanic American Females	844	1.67%	$1,662,070	0.59%
Hispanic American Males	66	0.13%	$1,557,148	0.56%
Native American Females	31	0.06%	$965,670	0.34%
Native American Males	8	0.02%	$46,117	0.02%
Caucasian Females	5,062	10.00%	$22,231,938	7.94%
Non-Minority Males	30,764	60.75%	$177,839,193	63.50%
TOTAL	50,641	100.00%	$280,075,707	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	4,438	8.76%	$27,679,452	9.88%
Minority Males	10,377	20.49%	$52,325,124	18.68%
Caucasian Females	5,062	10.00%	$22,231,938	7.94%
Non-Minority Males	30,764	60.75%	$177,839,193	63.50%
TOTAL	50,641	100.00%	$280,075,707	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	14,815	29.25%	$80,004,576	28.57%
Women Business Enterprises	5,062	10.00%	$22,231,938	7.94%
Minority and Women Business Enterprises	**19,877**	**39.25%**	**$102,236,514**	**36.50%**
Non-Minority Male Business Enterprises	30,764	60.75%	$177,839,193	63.50%
TOTAL	50,641	100.00%	$280,075,707	100.00%

E. Informal Contracts $25,000 and under, by Industry

1. Construction Prime Contractor Utilization: Contracts $25,000 and under

Table 1.27 summarizes all contract dollars expended by WSSC on construction prime contracts $25,000 and under. Minority Business Enterprises received 35.16 percent of the construction prime contract dollars; Women Business Enterprises received 8.37 percent; and Non-Minority Male Business Enterprises received 56.47 percent.

African Americans received 112 or 10.2 percent of the construction contracts $25,000 and under during the study period, representing $853,289 or 10.1 percent of the contract dollars.

Asian Americans received 6 or 0.55 percent of the construction contracts $25,000 and under during the study period, representing $43,389 or 0.51 percent of the contract dollars.

Hispanic Americans received 382 or 34.79 percent of the construction contracts $25,000 and under during the study period, representing $2,075,081 or 24.55 percent of the contract dollars.

Native Americans received none of the construction contracts $25,000 and under during the study period.

Minority Business Enterprises received 500 or 45.54 percent of the construction contracts $25,000 and under during the study period, representing $2,971,759 or 35.16 percent of the contract dollars.

Women Business Enterprises received 199 or 18.12 percent of the construction contracts $25,000 and under during the study period, representing $707,140 or 8.37 percent of the contract dollars.

Minority and Women Business Enterprises received 699 or 63.66 percent of the construction contracts $25,000 and under during the study period, representing $3,678,899 or 43.53 percent of the contract dollars.

Non-Minority Male Business Enterprises received 399 or 36.34 percent of the construction contracts $25,000 and under during the study period, representing $4,772,283 or 56.47 percent of the contract dollars.

Table 1.27 Construction Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	112	10.20%	$853,289	10.10%
Asian Americans	6	0.55%	$43,389	0.51%
Hispanic Americans	382	34.79%	$2,075,081	24.55%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	199	18.12%	$707,140	8.37%
Non-Minority Males	399	36.34%	$4,772,283	56.47%
TOTAL	1,098	100.00%	$8,451,182	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	2	0.18%	$31,428	0.37%
African American Males	110	10.02%	$821,861	9.72%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	6	0.55%	$43,389	0.51%
Hispanic American Females	7	0.64%	$67,716	0.80%
Hispanic American Males	375	34.15%	$2,007,365	23.75%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	199	18.12%	$707,140	8.37%
Non-Minority Males	399	36.34%	$4,772,283	56.47%
TOTAL	1,098	100.00%	$8,451,182	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	9	0.82%	$99,144	1.17%
Minority Males	491	44.72%	$2,872,615	33.99%
Caucasian Females	199	18.12%	$707,140	8.37%
Non-Minority Males	399	36.34%	$4,772,283	56.47%
TOTAL	1,098	100.00%	$8,451,182	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	500	45.54%	$2,971,759	35.16%
Women Business Enterprises	199	18.12%	$707,140	8.37%
Minority and Women Business Enterprises	**699**	**63.66%**	**$3,678,899**	**43.53%**
Non-Minority Male Business	399	36.34%	$4,772,283	56.47%
TOTAL	1,098	100.00%	$8,451,182	100.00%

2. Architectural and Engineering Prime Contractor Utilization: Contracts $25,000 and under

Table 1.28 summarizes all contract dollars expended by WSSC on architectural and engineering prime contracts $25,000 and under. Minority Business Enterprises received 16.75 percent of the architectural and engineering prime contract dollars; Women Business Enterprises received none of the architectural and engineering prime contract dollars; and Non-Minority Male Business Enterprises received 83.25 percent.

African Americans received 7 or 3.37 percent of the architectural and engineering contracts $25,000 and under during the study period, representing $66,440 or 3.5 percent of the contract dollars.

Asian Americans received 17 or 8.17 percent of the architectural and engineering contracts $25,000 and under during the study period, representing $251,177 or 13.25 percent of the contract dollars.

Hispanic Americans received none of the architectural and engineering contracts $25,000 and under during the study period.

Native Americans received none of the architectural and engineering contracts $25,000 and under during the study period.

Minority Business Enterprises received 24 or 11.54 percent of the architectural and engineering contracts $25,000 and under during the study period, representing $317,617 or 16.75 percent of the contract dollars.

Women Business Enterprises received none of the architectural and engineering contracts $25,000 and under during the study period.

Minority and Women Business Enterprises received 24 or 11.54 percent of the architectural and engineering contracts $25,000 and under during the study period, representing $317,617 or 16.75 percent of the contract dollars.

Non-Minority Male Business Enterprises received 184 or 88.46 percent of the architectural and engineering contracts $25,000 and under during the study period, representing $1,578,465 or 83.25 percent of the contract dollars.

Table 1.28 Architectural and Engineering Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	7	3.37%	$66,440	3.50%
Asian Americans	17	8.17%	$251,177	13.25%
Hispanic Americans	0	0.00%	$0	0.00%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	184	88.46%	$1,578,465	83.25%
TOTAL	208	100.00%	$1,896,082	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	1	0.48%	$93	0.00%
African American Males	6	2.88%	$66,347	3.50%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	17	8.17%	$251,177	13.25%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	0	0.00%	$0	0.00%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	184	88.46%	$1,578,465	83.25%
TOTAL	208	100.00%	$1,896,082	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	1	0.48%	$93	0.00%
Minority Males	23	11.06%	$317,523	16.75%
Caucasian Females	0	0.00%	$0	0.00%
Non-Minority Males	184	88.46%	$1,578,465	83.25%
TOTAL	208	100.00%	$1,896,082	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	24	11.54%	$317,617	16.75%
Women Business Enterprises	0	0.00%	$0	0.00%
Minority and Women Business Enterprises	**24**	**11.54%**	**$317,617**	**16.75%**
Non-Minority Male Business	184	88.46%	$1,578,465	83.25%
TOTAL	208	100.00%	$1,896,082	100.00%

3. Professional Services Prime Contractor Utilization: Contracts $25,000 and under

Table 1.29 summarizes all contract dollars expended by WSSC on professional services prime contracts $25,000 and under. Minority Business Enterprises received 20.23 percent of the professional services prime contract dollars; Women Business Enterprises received 6.73 percent; and Non-Minority Male Business Enterprises received 73.04 percent.

African Americans received 203 or 10.59 percent of the professional services contracts $25,000 and under during the study period, representing $992,353 or 18.26 percent of the contract dollars.

Asian Americans received 11 or 0.57 percent of the professional services contracts $25,000 and under during the study period, representing $96,389 or 1.77 percent of the contract dollars.

Hispanic Americans received 3 or 0.16 percent of the professional services contracts $25,000 and under during the study period, representing $11,043 or 0.2 percent of the contract dollars.

Native Americans received none of the professional services contracts $25,000 and under during the study period.

Minority Business Enterprises received 217 or 11.33 percent of the professional services contracts $25,000 and under during the study period, representing $1,099,786 or 20.23 percent of the contract dollars.

Women Business Enterprises received 160 or 8.35 percent of the professional services contracts $25,000 and under during the study period, representing $365,746 or 6.73 percent of the contract dollars.

Minority and Women Business Enterprises received 377 or 19.68 percent of the professional services contracts $25,000 and under during the study period, representing $1,465,531 or 26.96 percent of the contract dollars.

Non-Minority Male Business Enterprises received 1,539 or 80.32 percent of the professional services contracts $25,000 and under during the study period, representing $3,970,388 or 73.04 percent of the contract dollars.

Table 1.29 Professional Services Prime Contractor Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	203	10.59%	$992,353	18.26%
Asian Americans	11	0.57%	$96,389	1.77%
Hispanic Americans	3	0.16%	$11,043	0.20%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	160	8.35%	$365,746	6.73%
Non-Minority Males	1,539	80.32%	$3,970,388	73.04%
TOTAL	1,916	100.00%	$5,435,920	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	53	2.77%	$334,375	6.15%
African American Males	150	7.83%	$657,978	12.10%
Asian American Females	8	0.42%	$76,934	1.42%
Asian American Males	3	0.16%	$19,455	0.36%
Hispanic American Females	2	0.10%	$1,225	0.02%
Hispanic American Males	1	0.05%	$9,818	0.18%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	160	8.35%	$365,746	6.73%
Non-Minority Males	1,539	80.32%	$3,970,388	73.04%
TOTAL	1,916	100.00%	$5,435,920	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	63	3.29%	$412,534	7.59%
Minority Males	154	8.04%	$687,252	12.64%
Caucasian Females	160	8.35%	$365,746	6.73%
Non-Minority Males	1,539	80.32%	$3,970,388	73.04%
TOTAL	1,916	100.00%	$5,435,920	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	217	11.33%	$1,099,786	20.23%
Women Business Enterprises	160	8.35%	$365,746	6.73%
Minority and Women Business Enterprises	**377**	**19.68%**	**$1,465,531**	**26.96%**
Non-Minority Male Business	1,539	80.32%	$3,970,388	73.04%
TOTAL	1,916	100.00%	$5,435,920	100.00%

4. Goods and Other Services Prime Contractor Utilization: Contracts $25,000 and under

Table 1.30 summarizes all contract dollars expended by WSSC on goods and other services prime contracts $25,000 and under. Minority Business Enterprises received 29.52 percent of the goods and other services prime contract dollars; Women Business Enterprises received 7.42 percent; and Non-Minority Male Business Enterprises received 63.06 percent.

African Americans received 11,476 or 23.64 percent of the goods and other services contracts $25,000 and under during the study period, representing $20,883,762 or 24 percent of the contract dollars.

Asian Americans received 1,820 or 3.75 percent of the good other services contracts $25,000 and under during the study period, representing $2,593,093 or 2.98 percent of the contract dollars.

Hispanic Americans received 898 or 1.85 percent of the goods and other services contracts $25,000 and under during the study period, representing $1,777,369 or 2.04 percent of the contract dollars.

Native Americans received 27 or 0.06 percent of the goods and other services contracts $25,000 and under during the study period, representing $428,168 or 0.49 percent of the contract dollars.

Minority Business Enterprises received 14,221 or 29.29 percent of the goods and other services contracts $25,000 and under during the study period, representing $25,682,392 or 29.52 percent of the contract dollars.

Women Business Enterprises received 4,939 or10.17 percent of the goods and other services contracts $25,000 and under during the study period, representing $6,454,926 or 7.42 percent of the contract dollars.

Minority and Women Business Enterprises received 19,160 or 39.47 percent of the goods and other services contracts $25,000 and under during the study period, representing $32,137,318 or 36.94 percent of the contract dollars.

Non-Minority Male Business Enterprises received 29,389 or 60.53 percent of the goods and other services contracts $25,000 and under during the study period, representing $54,866,334 or 63.06 percent of the contract dollars.

Table 1.30 Goods and Other Services Prime Contract Utilization: Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	11,476	23.64%	$20,883,762	24.00%
Asian Americans	1,820	3.75%	$2,593,093	2.98%
Hispanic Americans	898	1.85%	$1,777,369	2.04%
Native Americans	27	0.06%	$428,168	0.49%
Caucasian Females	4,939	10.17%	$6,454,926	7.42%
Non-Minority Males	29,389	60.53%	$54,866,334	63.06%
TOTAL	48,549	100.00%	$87,003,652	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	1,960	4.04%	$7,597,013	8.73%
African American Males	9,516	19.60%	$13,286,749	15.27%
Asian American Females	1,368	2.82%	$1,148,143	1.32%
Asian American Males	452	0.93%	$1,444,950	1.66%
Hispanic American Females	841	1.73%	$1,512,620	1.74%
Hispanic American Males	57	0.12%	$264,749	0.30%
Native American Females	19	0.04%	$382,051	0.44%
Native American Males	8	0.02%	$46,117	0.05%
Caucasian Females	4,939	10.17%	$6,454,926	7.42%
Non-Minority Males	29,389	60.53%	$54,866,334	63.06%
TOTAL	48,549	100.00%	$87,003,652	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	4,188	8.63%	$10,639,828	12.23%
Minority Males	10,033	20.67%	$15,042,564	17.29%
Caucasian Females	4,939	10.17%	$6,454,926	7.42%
Non-Minority Males	29,389	60.53%	$54,866,334	63.06%
TOTAL	48,549	100.00%	$87,003,652	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	14,221	29.29%	$25,682,392	29.52%
Women Business Enterprises	4,939	10.17%	$6,454,926	7.42%
Minority and Women Business Enterprises	**19,160**	**39.47%**	**$32,137,318**	**36.94%**
Non-Minority Male Business	29,389	60.53%	$54,866,334	63.06%
TOTAL	48,549	100.00%	$87,003,652	100.00%

V. SUMMARY

WSSC's prime contractor utilization analysis examined $1,302,098,374 expended on prime contracts issued between July 1, 2003 and June 30, 2009. The $1,302,098,374 expended included $532,657,942 for construction, $186,875,887 for architectural and engineering, $83,114,533 for professional services, and $499,450,013 for goods and other services. A total of 55,927 contracts were analyzed, which included 2,055 for construction, 668 for architectural and engineering services, 2,414 for professional services, and 50,790 for goods and other services.

The utilization analysis was performed separately for informal and formal prime contracts. The informal level included contracts $25,000 and under for construction, contracts $25,000 and under for architectural and engineering, contracts $25,000 and under for professional services, and contracts $25,000 and under for goods and other services. At the formal level contracts were analyzed at two thresholds - all contracts and another for contracts under $500,000. *Chapter 5: Prime Contractor Disparity Analysis* presents the statistical analysis of disparity in each of the four industries.

2

SUBCONTRACTOR UTILIZATION ANALYSIS

I. INTRODUCTION

As discussed in *Chapter 1*: *Prime Contractor Utilization Analysis*, a disparity study, as required under *Croson,* documents minority and woman-owned business enterprises' (M/WBEs') contracting history in the market area. The objective of this chapter is to determine the level of M/WBE subcontractor utilization by ethnicity and gender compared to Non-Minority male subcontractor utilization. A finding of statistically significant disparity is required to implement a race-based M/WBE subcontracting program.

In order to determine whether there is underutilization of M/WBE subcontractors by the Washington Suburban Sanitary Commission's (WSSC's) construction, architectural and engineering, professional services, and goods and other services prime contractors, it is imperative to determine the level of M/WBE and non-M/WBE subcontractor utilization on WSSC's contracts. In this Study, the subcontracts issued by WSSC prime contractors during the July 1, 2003 to June 30, 2009 study period are analyzed.

II. SUBCONTRACTOR UTILIZATION DATA SOURCES

Extensive research was undertaken to compile the subcontracts issued by WSSC's prime contractors during the study period. Mason Tillman worked closely with WSSC's staff to reconstruct the subcontractor data for construction, architectural and engineering, professional services, and goods and other services prime contracts.

The first source of data used was WSSC's SymTrac™ subcontractor tracking database. SymTrac™ tracked payments made to subcontractors for the period between July 2005 and June 2009. Nearly 81 percent of the subcontracts analyzed for this Study were not recorded

in SymTrac™ from January 2008 through June 2009. Therefore, the majority of the subcontractor data had to be captured from other sources. It is notable that eighty-nine percent of the payments recorded in the SymTrac™ subcontractor tracking database during the study period were paid to M/WBEs.

Mason Tillman also used data compiled by the project managers from WSSC's Department of Acquisition and Department of Engineering and Construction as the second source of subcontractor data.

The third source was the prime contractor expenditure survey. WSSC mailed a survey, to each prime contractor that received at least one purchase order over $100,000, requesting a list of their subcontractors. Purchase orders issued over $100,000 were the most likely to have utilized subcontractors. For each subcontract, the prime contractor was asked to provide the subcontractor name, contact information, award, and total payment amount.

There was a response rate of 10 percent from the first survey mailing. Thereafter Mason Tillman conducted a second mailing to the prime contractors who had not responded to WSSC's survey. Mason Tillman made three rounds of reminder telephone calls to encourage prime contractors to respond to the second survey mailing. The second survey, with follow-up telephone calls, had a 32 percent response rate. Thus, the overall response rate to the prime contractor expenditure survey was 42 percent.

Concurrent with the mail survey, Mason Tillman reviewed WSSC's project files of contracts over $100,000. Hard copy subcontractor records were collected from WSSC's project files made available in the Laurel, Maryland office. Subcontractor data extracted from the hard copy files were entered into Mason Tillman's database. In addition, WSSC's internal auditing team assisted in collecting data from prime contractors who received the larger contracts and had not responded to the prime contractor expenditure surveys.

All subcontractors identified from WSSC's records and the prime contractor survey were contacted to verify their participation and payment on each prime contract.

The extraordinary effort of the project team and WSSC staff members made it possible to reconstruct the subcontracts for many construction, architectural and engineering, and goods and other services prime contracts. The exception was professional services. Despite the extensive research, there were no reported subcontracts on 80 percent of the professional services prime contracts over $100,000. It should be noted that 171 or 7.08 percent of the professional services contracts issued by WSSC during the July 1, 2003 to June 30, 2009 study period exceeded $100,000. It was expected that more subcontracts would have been identified given the number of large contracts.

III. SUBCONTRACTOR UTILIZATION

A. All Subcontracts

As depicted in Table 2.01 below, Mason Tillman analyzed 2,277 subcontracts, which included 1,346 construction subcontracts, 403 architectural and engineering subcontracts, 47 professional services subcontracts, and 481 goods and other services subcontracts for the July 1, 2003 to June 30, 2009 study period.

There were $229,792,797 total subcontract dollars expended during the July 1, 2003 to June 30, 2009 study period, which included $86,165,169 for construction subcontracts; $62,440,402 for architectural and engineering subcontracts; $8,833,601 for professional services subcontracts; and $72,353,625 for goods and other services subcontracts.

Table 2.01 Total Subcontract Issued and Dollars, All Industries, July 1, 2003 to June 30, 2009

Industry	Total Number of Subcontracts	Total Amount Expended
Construction	1,346	$86,165,169
Architectural and Engineering	403	$62,440,402
Professional Services	47	$8,833,601
Goods and Other Services	481	$72,353,625
Total	2,277	$229,792,797

B. All Subcontracts by Industry

1. Construction Subcontracts

Table 2.02 depicts the construction subcontracts issued by WSSC's prime contractors. Minority Business Enterprises received 26.31 percent of the construction subcontract dollars; Women Business Enterprises received 13.52 percent; and Non-Minority Male Business Enterprises received 60.17 percent. These ethnic and gender groups are defined in Table 1.01 of *Chapter 1: Prime Contractor Utilization Analysis.*

African Americans received 161 or 11.96 percent of WSSC's construction subcontracts during the study period, representing $10,978,285 or 12.74 percent of the subcontract dollars.

Asian Americans received 12 or 0.89 percent of WSSC's construction subcontracts during the study period, representing $814,221 or 0.94 percent of the subcontract dollars.

Hispanic Americans received 63 or 4.68 percent of WSSC's construction subcontracts during the study period, representing $10,781,147 or 12.51 percent of the subcontract dollars.

Native Americans received 2 or 0.15 percent of WSSC's construction subcontracts during the study period, representing $95,000 or 0.11 percent of the subcontract dollars.

Minority Business Enterprises received 238 or 17.68 percent of WSSC's construction subcontracts during the study period, representing $22,668,653 or 26.31 percent of the subcontract dollars.

Women Business Enterprises received 205 or 15.23 percent of WSSC's construction subcontracts during the study period, representing $11,647,147 or 13.52 percent of the subcontract dollars.

Minority and Women Business Enterprises received 443 or 32.91 percent of WSSC's construction subcontracts during the study period, representing $34,315,799 or 39.83 percent of the subcontract dollars.

Non-Minority Male Business Enterprises received 903 or 67.09 percent of WSSC's construction subcontracts during the study period, representing $51,849,369 or 60.17 percent of the subcontract dollars.

Table 2.02 Construction Subcontractor Utilization, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	161	11.96%	$10,978,285	12.74%
Asian Americans	12	0.89%	$814,221	0.94%
Hispanic Americans	63	4.68%	$10,781,147	12.51%
Native Americans	2	0.15%	$95,000	0.11%
Caucasian Females	205	15.23%	$11,647,147	13.52%
Non-Minority Males	903	67.09%	$51,849,369	60.17%
TOTAL	1,346	100.00%	$86,165,169	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	20	1.49%	$2,393,143	2.78%
African American Males	141	10.48%	$8,585,141	9.96%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	12	0.89%	$814,221	0.94%
Hispanic American Females	9	0.67%	$635,195	0.74%
Hispanic American Males	54	4.01%	$10,145,952	11.78%
Native American Females	2	0.15%	$95,000	0.11%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	205	15.23%	$11,647,147	13.52%
Non-Minority Males	903	67.09%	$51,849,369	60.17%
TOTAL	1,346	100.00%	86,165,169	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	31	2.30%	$3,123,338	3.62%
Minority Males	207	15.38%	$19,545,314	22.68%
Caucasian Females	205	15.23%	$11,647,147	13.52%
Non-Minority Males	903	67.09%	$51,849,369	60.17%
TOTAL	1,346	100.00%	$86,165,169	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	238	17.68%	$22,668,653	26.31%
Women Business Enterprises	205	15.23%	$11,647,147	13.52%
Minority and Women Business Enterprises	**443**	**32.91%**	**$34,315,799**	**39.83%**
Non-Minority Male Business Enterprises	903	67.09%	$51,849,369	60.17%
TOTAL	1,346	100.00%	$86,165,169	100.00%

2. Architectural and Engineering Subcontracts

Table 2.03 depicts the architectural and engineering services subcontracts issued by WSSC's prime contractors. Minority Business Enterprises received 56.23 percent of the architectural and engineering services subcontract dollars; Women Business Enterprises received 11.39 percent; and Non-Minority Male Business Enterprises received 32.38 percent.

African Americans received 114 or 28.29 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $18,008,048 or 28.84 percent of the subcontract dollars.

Asian Americans received 91 or 22.58 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $15,194,254 or 24.33 percent of the subcontract dollars.

Hispanic Americans received 7 or 1.74 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $1,909,083 or 3.06 percent of the subcontract dollars.

Native Americans received none of WSSC's architectural and engineering services subcontracts during the study period.

Minority Business Enterprises received 212 or 52.61 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $35,111,385 or 56.23 percent of the subcontract dollars.

Women Business Enterprises received 54 or 13.4 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $7,109,533 or 11.39 percent of the subcontract dollars.

Minority and Women Business Enterprises received 266 or 66 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $42,220,918 or 67.62 percent of the subcontract dollars.

Non-Minority Male Business Enterprises received 137 or 34 percent of WSSC's architectural and engineering services subcontracts during the study period, representing $20,219,484 or 32.38 percent of the subcontract dollars.

Table 2.03 Architectural and Engineering Subcontractor Utilization, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	114	28.29%	$18,008,048	28.84%
Asian Americans	91	22.58%	$15,194,254	24.33%
Hispanic Americans	7	1.74%	$1,909,083	3.06%
Native Americans	0	0.00%	$0	0.00%
Caucasian Females	54	13.40%	$7,109,533	11.39%
Non-Minority Males	137	34.00%	$20,219,484	32.38%
TOTAL	403	100.00%	$62,440,402	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	24	5.96%	$6,228,942	9.98%
African American Males	90	22.33%	$11,779,106	18.86%
Asian American Females	8	1.99%	$1,689,755	2.71%
Asian American Males	83	20.60%	$13,504,499	21.63%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	7	1.74%	$1,909,083	3.06%
Native American Females	0	0.00%	$0	0.00%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	54	13.40%	$7,109,533	11.39%
Non-Minority Males	137	34.00%	$20,219,484	32.38%
TOTAL	403	100.00%	62,440,402	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	32	7.94%	$7,918,697	12.68%
Minority Males	180	44.67%	$27,192,688	43.55%
Caucasian Females	54	13.40%	$7,109,533	11.39%
Non-Minority Males	137	34.00%	$20,219,484	32.38%
TOTAL	403	100.00%	$62,440,402	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	212	52.61%	$35,111,385	56.23%
Women Business Enterprises	54	13.40%	$7,109,533	11.39%
Minority and Women Business Enterprises	**266**	**66.00%**	**$42,220,918**	**67.62%**
Non-Minority Male Business Enterprises	137	34.00%	$20,219,484	32.38%
TOTAL	403	100.00%	$62,440,402	100.00%

3. Professional Services Subcontracts

Table 2.04 depicts the professional services subcontracts issued by WSSC's prime contractors. Minority Business Enterprises received 41.83 percent of the professional services subcontract dollars; Women Business Enterprises received 10.82 percent; and Non-Minority Male Business Enterprises received 47.36 percent.

African Americans received 17 or 36.17 percent of WSSC's professional services subcontracts during the study period, representing $2,925,196 or 33.11 percent of the subcontract dollars.

Asian Americans received 5 or 10.64 percent of WSSC's professional services subcontracts during the study period, representing $353,139 or 4 percent of the subcontract dollars.

Hispanic Americans received none of WSSC's professional services subcontracts during the study period.

Native Americans received 1 or 2.13 percent of WSSC's professional services subcontracts during the study period, representing $416,368 or 4.71 percent of the subcontract dollars.

Minority Business Enterprises received 23 or 48.94 percent of WSSC's professional services subcontracts during the study period, representing $3,694,703 or 41.83 percent of the subcontract dollars.

Women Business Enterprises received 12 or 25.53 percent of WSSC's professional services subcontracts during the study period, representing $955,567 or 10.82 percent of the subcontract dollars.

Minority and Women Business Enterprises received 35 or 74.47 percent of WSSC's professional services subcontracts during the study period, representing $4,650,270 or 52.64 percent of the subcontract dollars.

Non-Minority Male Business Enterprises received 12 or 25.53 percent of WSSC's professional services subcontracts during the study period, representing $4,183,330 or 47.36 percent of the subcontract dollars.

Table 2.04 Professional Services Subcontractor Utilization, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	17	36.17%	$2,925,196	33.11%
Asian Americans	5	10.64%	$353,139	4.00%
Hispanic Americans	0	0.00%	$0	0.00%
Native Americans	1	2.13%	$416,368	4.71%
Caucasian Females	12	25.53%	$955,567	10.82%
Non-Minority Males	12	25.53%	$4,183,330	47.36%
TOTAL	47	100.00%	$8,833,601	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	8	17.02%	$1,521,137	17.22%
African American Males	9	19.15%	$1,404,059	15.89%
Asian American Females	1	2.13%	$142,587	1.61%
Asian American Males	4	8.51%	$210,552	2.38%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	0	0.00%	$0	0.00%
Native American Females	0	0.00%	$0	0.00%
Native American Males	1	2.13%	$416,368	4.71%
Caucasian Females	12	25.53%	$955,567	10.82%
Non-Minority Males	12	25.53%	$4,183,330	47.36%
TOTAL	47	100.00%	8,833,601	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	9	19.15%	$1,663,724	18.83%
Minority Males	14	29.79%	$2,030,979	22.99%
Caucasian Females	12	25.53%	$955,567	10.82%
Non-Minority Males	12	25.53%	$4,183,330	47.36%
TOTAL	47	100.00%	$8,833,601	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	23	48.94%	$3,694,703	41.83%
Women Business Enterprises	12	25.53%	$955,567	10.82%
Minority and Women Business Enterprises	**35**	**74.47%**	**$4,650,270**	**52.64%**
Non-Minority Male Business Enterprises	12	25.53%	$4,183,330	47.36%
TOTAL	47	100.00%	$8,833,601	100.00%

4. Goods and Other Services Subcontracts

Table 2.05 depicts the goods and other services subcontracts issued by WSSC's prime contractors. Minority Business Enterprises received 22.98 percent of the goods and other services subcontract dollars; Women Business Enterprises received 42.26 percent; and Non-Minority Male Business Enterprises received 34.77 percent.

African Americans received 98 or 20.37 percent of WSSC's goods and other services subcontracts during the study period, representing $9,899,610 or 13.68 percent of the subcontract dollars.

Asian Americans received 22 or 4.57 percent of WSSC's goods and other services subcontracts during the study period, representing $1,954,035 or 2.7 percent of the subcontract dollars.

Hispanic Americans received 20 or 4.16 percent of WSSC's goods and other services subcontracts during the study period, representing $1,725,149 or 2.38 percent of the subcontract dollars.

Native Americans received 3 or 0.62 percent of WSSC's goods and other services subcontracts during the study period, representing $81,038 or 0.11 percent of the subcontract dollars.

Minority Business Enterprises received 143 or 29.73 percent of WSSC's goods and other services subcontracts during the study period, representing $13,659,833 or 18.88 percent of the subcontract dollars.

Women Business Enterprises received 78 or 16.22 percent of WSSC's goods and other services subcontracts during the study period, representing $33,537,645 or 46.35 percent of the subcontract dollars.

Minority and Women Business Enterprises received 221 or 45.95 percent of WSSC's goods and other services subcontracts during the study period, representing $47,197,478 or 65.23 percent of the subcontract dollars.

Non-Minority Male Business Enterprises received 260 or 54.05 percent of WSSC's goods and other services subcontracts during the study period, representing $25,156,148 or 34.77 percent of the subcontract dollars.

Table 2.05 Goods and Other Services Subcontractor Utilization, July 1, 2003 to June 30, 2009

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
African Americans	98	20.37%	$9,899,610	13.68%
Asian Americans	22	4.57%	$1,954,035	2.70%
Hispanic Americans	20	4.16%	$1,725,149	2.38%
Native Americans	3	0.62%	$81,038	0.11%
Caucasian Females	78	16.22%	$33,537,645	46.35%
Non-Minority Males	260	54.05%	$25,156,148	34.77%
TOTAL	481	100.00%	$72,353,625	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
African American Females	16	3.33%	$2,561,224	3.54%
African American Males	82	17.05%	$7,338,386	10.14%
Asian American Females	6	1.25%	$257,625	0.36%
Asian American Males	16	3.33%	$1,696,410	2.34%
Hispanic American Females	5	1.04%	$1,185,342	1.64%
Hispanic American Males	15	3.12%	$539,807	0.75%
Native American Females	3	0.62%	$81,038	0.11%
Native American Males	0	0.00%	$0	0.00%
Caucasian Females	78	16.22%	$33,537,645	46.35%
Non-Minority Males	260	54.05%	$25,156,148	34.77%
TOTAL	481	100.00%	72,353,625	100.00%
Minority and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Females	30	6.24%	$4,085,229	5.65%
Minority Males	113	23.49%	$9,574,604	13.23%
Caucasian Females	78	16.22%	$33,537,645	46.35%
Non-Minority Males	260	54.05%	$25,156,148	34.77%
TOTAL	481	100.00%	$72,353,625	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	143	29.73%	$13,659,833	18.88%
Women Business Enterprises	78	16.22%	$33,537,645	46.35%
Minority and Women Business Enterprises	**221**	**45.95%**	**$47,197,478**	**65.23%**
Non-Minority Male Business Enterprises	260	54.05%	$25,156,148	34.77%
TOTAL	481	100.00%	$72,353,625	100.00%

3

MARKET AREA ANALYSIS

I. MARKET AREA DEFINITION

A. Legal Criteria for Geographic Market Area

The Supreme Court's decision in *City of Richmond v. J.A. Croson Co.*[1] held that programs established by local governments to set goals for the participation of minority and woman-owned businesses, must be supported by evidence of past discrimination in the awarding of their contracts.

Prior to the *Croson* decision, many agencies and jurisdictions implementing race-conscious programs did so without developing a detailed public record to document discrimination in their awarding of contracts. Instead, they relied upon common knowledge and what was viewed as widely recognized patterns of discrimination, both local and national.[2]

Croson established that a local government could not rely on society-wide discrimination as the basis for a race-based program but, instead, was required to identify discrimination within its own jurisdiction.[3] In *Croson*, the Court found the City of Richmond's Minority Business Enterprise (MBE) construction program to be unconstitutional because there was insufficient evidence of discrimination in the local construction market.

Croson was explicit in saying that the local construction market was the appropriate geographical framework within which to perform statistical comparisons of business availability and business utilization. Therefore, the identification of the local market area is

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1 *City of Richmond v. J.A. Croson Co.*, 488 U.S. 469 (1989).

2 *United Steelworkers v. Weber*, 433 U.S. 193, 198, n. 1 (1979).

3 *Croson*, 488 U.S. at 497 (1989).

particularly important because it establishes the parameters within which to perform the disparity study analysis.

B. Application of the Croson Standard

While *Croson* emphasized the importance of the local market area, it provided little assistance in defining its parameters.[4] It is, however, informative to review the Court's definition of the City of Richmond's market area. In discussing the scope of the constitutional violation that must be investigated, the Court interchangeably used the terms "relevant market,"[5] "Richmond construction industry,"[6] and "city's construction industry"[7] to define the proper scope of the examination of the existence of discrimination within the City. This interchangeable use of terms lends support to a definition of market area that coincides with the boundaries of a jurisdiction under examination.

In analyzing the cases following *Croson,* a pattern emerges that provides additional guidance. The body of cases supports a definition of market area that is reasonable.[8] In *Cone Corporation v. Hillsborough County*,[9] the U.S. Eleventh Circuit Court of Appeals considered a study in support of Hillsborough County, Florida's MBE Program, which defined available businesses as minority contractors located within the County. The Hillsborough County MBE Program was found to be constitutional under the compelling governmental interest component of the strict scrutiny standard.

Hillsborough County's MBE Program was based on statistics which documented that discrimination existed in the County's award of construction contracts, not in the construction industry in general. Hillsborough County had extracted contract data from within its own jurisdictional boundaries and assessed the percentage of minority businesses available in Hillsborough County. The Court determined it was proper that the County defined the "local construction industry" market area within its jurisdictional boundaries.[10]

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4 *Adarand,* which extended *Croson's* strict scrutiny standard to federal programs, did not change *Croson's* approach to market area where federal funds are involved.

5 *Croson*, 488 U.S. at 471 (1989).

6 *Id.* at 500.

7 *Id.* at 470.

8 *See e.g., Concrete Works of Colorado v. City of Denver, Colorado,* 36 F.3d 1513, 1528 (10th Cir. 1994).

9 *Cone Corporation v. Hillsborough County*, 908 F.2d 908 (11th Cir. 1990).

10 *Id.* at 915.

Similarly, in *Associated General Contractors v. Coalition for Economic Equity (AGCCII),*[11] the U.S. Ninth Circuit Court of Appeals found the City and County of San Francisco's MBE program to have the factual predicate necessary to survive strict scrutiny. The San Francisco MBE program was supported by a study that assessed the number of available MBE contractors within the City and County of San Francisco. The Court found it appropriate to use the City and County as the relevant market area within which to conduct a disparity study.[12]

In *Coral Construction v. King County*, the Ninth Circuit Court of Appeals held that "a set-aside program is valid only if actual, identifiable discrimination has occurred within the local industry affected by the program."[13] In support of its MBE program, the State of Washington's King County offered studies compiled by other jurisdictions, including entities completely within the County or adjacent to the County, as well as a separate jurisdiction completely outside of the County. The plaintiffs contended that *Croson* required King County to compile its own data and cited *Croson* as prohibiting data sharing.

The Court found that data sharing with another jurisdiction could potentially lead to the improper use of societal discrimination data as the factual basis for a local MBE program and that innocent third parties could be unnecessarily burdened if an MBE program were based on outside data. However, the Court also found that the data from entities within the County and from adjacent counties was relevant to discrimination in the County. They also found that the data posed no risk of unfairly burdening innocent third parties.

Concerning data gathered by a neighboring county, the Court concluded that this data could not be used to support King County's MBE program. The Court noted, "It is vital that a race-conscious program align itself as closely to the scope of the problem legitimately sought to be rectified by the governmental entity. To prevent overbreadth, the enacting jurisdiction should limit its factual inquiry to the presence of discrimination within its own boundaries."[14] However, the Court did note that the "world of contracting does not conform itself neatly to jurisdictional boundaries."[15]

There are other situations where courts have approved a definition of market area that extends beyond a jurisdiction's geographic boundaries. In *Concrete Works v. City and*

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11 *Associated General Contractors of California v. Coalition for Economic Equity and City and County of San Francisco*, 950 F.2d 1401 (9th Cir. 1991).

12 *Id.* at 1415.

13 *Coral Construction Co. v. King County*, 941 F.2d 910 (9th Cir. 1991), *cert. denied*, 112 S.Ct. 875 (1992).

14 *Id.* at 917.

15 *Id.*

County of Denver,[16] the U.S. Tenth Circuit Court of Appeals directly addressed the issue of whether extra-jurisdictional evidence of discrimination can be used to determine "local market area" for a disparity study. In *Concrete Works*, the defendant relied on evidence of discrimination in the six-county Denver Metropolitan Statistical Area (MSA) to support an MBE program that operated exclusively in Denver City and County. Plaintiffs argued that the federal constitution prohibited consideration of evidence beyond jurisdictional boundaries. The Court of Appeals disagreed.

Critical to the Court's acceptance of the Denver MSA as the relevant local market, was the finding that more than 80 percent of construction and design contracts awarded by Denver were awarded to contractors within the six-county MSA. Another consideration was that Denver's analysis was based on U.S. Census data, which was available for the Denver MSA but not for the city itself. There was no undue burden placed on nonculpable parties, as Denver had conducted a majority of its construction contracts within the area defined as the local market. Citing *AGCCII*,[17] the Court noted "that any plan that extends race-conscious remedies beyond territorial boundaries must be based on very specific findings that actions that the city has taken in the past have visited racial discrimination on such individuals."[18]

Similarly, New York State conducted a disparity study in which the geographic market consisted of New York State and eight counties in northern New Jersey. The geographic market was defined as the area encompassing the location of businesses which received more than 90 percent of the dollar value of all contracts awarded by the agency.[19]

State and local governments must pay special attention to the geographical scope of their disparity studies. *Croson* determined that the statistical analysis should focus on the number of qualified minority individuals or qualified minority business owners in the government's marketplace.[20] The text of *Croson* itself suggests that the geographical boundaries of the government entity comprise an appropriate market area and other courts have agreed with this finding. In addition, other cases have approved the use of a percentage of the dollars spent by an agency on contracting.

It follows then that an entity may limit consideration of evidence of discrimination to discrimination occurring within its own jurisdiction. Under certain circumstances, extra-jurisdictional evidence can be used if the value of the contracts the entity awards to

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16 *Concrete Works*, 36 F.3d 1513, 1528 (10th Cir. 1994).

17 *AGCCII*, 950 F.2d 1401 (9th Cir. 1991).

18 *Concrete Works*, 36 F.3d at 1528 (10th Cir. 1994).

19 *Opportunity Denied! New York State's Study*, 26 *Urban Lawyer* No. 3, Summer 1994.

20 *Croson*, 488 U.S. at 501 (1989).

businesses located outside its service area is a significant percentage of the entity's dollars awarded.

II. WASHINGTON SUBURBAN SANITARY COMMISSION MARKET AREA ANALYSIS

Although *Croson* and its progeny do not provide a bright line rule for the delineation of the local market area, taken collectively, the case law supports a definition of market area as within the local geographic area where the jurisdiction spends a majority of its dollars. It is within the local geographical market area where the Washington Suburban Sanitary Commission (WSSC) may consider evidence of discrimination.

The location of businesses issued a WSSC contract was defined as the mailing address in the company's vendor profile. A review of the contracts issued by WSSC shows that most of its 55,927 contracts and the majority of the contract dollars were issued to businesses located in Maryland, Virginia, and the District of Columbia. Additionally, the distribution of contract dollars issued within the construction, architectural and engineering, professional services, and goods and other services industries show a pattern of contracting with businesses from the same nine jurisdictions. The nine jurisdictions common to all four industries include Anne Arundel County, Baltimore County, Howard County, Montgomery County, Prince George's County, Prince William County, Fairfax County, Baltimore City, and the District of Columbia.

The distribution of the majority of the contract dollars for the construction industry was within thirteen counties and independent cities across Maryland, Virginia, and the District of Columbia; nine counties and independent cities for the architectural and engineering industry; and eighteen counties and independent cities for the professional services and goods and other services industries.

1. Summary of the Distribution of All Contracts Issued

WSSC issued 55,927 contracts valued at $1,302,098,374 during the July 1, 2003 to June 30, 2009 study period. Businesses based in WSSC's three market areas received 82.96 percent of these contracts and 83.22 percent of the dollars. The distribution of all contracts and dollars received by all businesses within and outside of WSSC's three market areas ranked by total dollars are depicted in Table 3.01. The highlighted cities and counties depicted in the table comprise the market area for the four industries combined.

Table 3.01 Distribution of All Contracts Issued July 1, 2003 to June 30, 2009

City/County	Number of Contracts	Percent of Contracts	Total Dollars	Percent of Dollars
Montgomery - MD	7,668	13.71%	$336,175,839	25.82%
Prince George's - MD	20,326	36.34%	$300,702,747	23.09%
Baltimore City - MD	8,709	15.57%	$167,528,675	12.87%
Baltimore - MD	849	1.52%	$70,425,753	5.41%
Fauquier - VA	19	0.03%	$49,253,831	3.78%
Howard - MD	1,827	3.27%	$48,214,267	3.70%
Anne Arundel - MD	1,300	2.32%	$42,417,889	3.26%
Fairfax - VA	644	1.15%	$38,491,562	2.96%
Frederick - MD	1,819	3.25%	$30,501,066	2.34%
Out of Local Market Area - IL	1,455	2.60%	$26,424,185	2.03%
Out of Local Market Area - PA	1,715	3.07%	$22,814,371	1.75%
Out of Local Market Area - MO	98	0.18%	$16,963,813	1.30%
Carroll - MD	269	0.48%	$16,760,303	1.29%
Out of Local Market Area - GA	542	0.97%	$16,078,309	1.23%
Out of Local Market Area - OH	273	0.49%	$16,007,985	1.23%
District of Columbia	1,956	3.50%	$14,059,776	1.08%
Out of Local Market Area - CA	346	0.62%	$9,249,775	0.71%
Out of Local Market Area - NJ	432	0.77%	$9,076,456	0.70%
Out of Local Market Area - TX	289	0.52%	$8,003,785	0.61%
Clarke - VA	4	0.01%	$6,980,031	0.54%
Out of Local Market Area - NY	354	0.63%	$6,933,725	0.53%
Out of Local Market Area - FL	152	0.27%	$5,496,771	0.42%
Falls Church City - VA	67	0.12%	$5,360,254	0.41%
Out of Local Market Area - NC	199	0.36%	$4,058,952	0.31%
Calvert - MD	20	0.04%	$3,535,193	0.27%
Charles - MD	620	1.11%	$3,347,491	0.26%
Wicomico - MD	91	0.16%	$3,255,859	0.25%
Virginia Beach City - VA	12	0.02%	$2,634,433	0.20%
Alexandria City - VA	57	0.10%	$2,009,016	0.15%
Dorchester - MD	48	0.09%	$1,417,639	0.11%
Harford - MD	84	0.15%	$1,366,092	0.10%
Out of Local Market Area - WI	403	0.72%	$1,107,726	0.09%
Prince William - VA	113	0.20%	$1,093,839	0.08%
Out of Local Market Area - MI	28	0.05%	$1,051,062	0.08%
Loudoun - VA	25	0.04%	$1,019,165	0.08%
Out of Local Market Area - MA	68	0.12%	$1,006,359	0.08%
Out of Local Market Area - CO	33	0.06%	$914,595	0.07%
Arlington - VA	43	0.08%	$605,832	0.05%
Remaining*	2,970	5.31%	$9,753,953	0.75%
Total	**55,927**	**100.00%**	**$1,302,098,374**	**100.00%**

*Remaining includes Other Out of Local Market Area Counties and States

2. Distribution of Construction Contracts

WSSC issued 2,055 construction contracts valued at $532,657,942 during the July 1, 2003 to June 30, 2009 study period. Businesses in WSSC's market area for construction received 98.54 percent of the construction contracts and 96.82 percent of the dollars. The thirteen jurisdictions within the local market area for construction are depicted in Table 3.02.

Table 3.02 Local Market Area for Construction

Counties in the State of Maryland	Counties in the State of Virginia	Independent Cities and Districts
Anne Arundel	Fairfax	Baltimore City, MD
Baltimore	Prince William	Alexandria City, VA
Calvert		Falls Church City, VA
Frederick		District of Columbia
Howard		
Montgomery		
Prince George's		

The distribution of the construction contracts and dollars received by all businesses within and outside of WSSC's local market area for construction is depicted in Table 3.03. The highlighted cities and counties depicted in the table comprise the market area for the construction industry.

Table 3.03 Distribution of Construction Contracts Issued
July 1, 2003 to June 30, 2009

City/County	Number of Contracts	Percent of Contracts	Total Dollars	Percent of Dollars
Montgomery - MD	324	15.77%	$256,325,278	48.12%
Prince George's - MD	742	36.11%	$146,432,127	27.49%
Baltimore City - MD	396	19.27%	$25,607,935	4.81%
Baltimore - MD	94	4.57%	$24,300,426	4.56%
Frederick - MD	186	9.05%	$23,417,240	4.40%
Howard - MD	239	11.63%	$21,052,113	3.95%
Anne Arundel - MD	12	0.58%	$7,357,239	1.38%
Clarke - VA	2	0.10%	$6,907,531	1.30%
Falls Church City - VA	4	0.19%	$3,945,664	0.74%
Calvert - MD	1	0.05%	$3,487,887	0.65%
Wicomico - MD	4	0.19%	$2,916,802	0.55%
Out of Local Market Area - OH	10	0.49%	$2,358,450	0.44%
Fairfax - VA	17	0.83%	$2,173,842	0.41%
Out of Local Market Area - CA	4	0.19%	$1,998,343	0.38%
Out of Local Market Area - NJ	1	0.05%	$1,696,556	0.32%
District of Columbia	6	0.29%	$616,455	0.12%
Out of Local Market Area - IL	4	0.19%	$548,849	0.10%
Out of Local Market Area - GA	2	0.10%	$506,080	0.10%
Alexandria City - VA	3	0.15%	$505,821	0.09%
Prince William - VA	1	0.05%	$472,919	0.09%
Richmond City - VA	1	0.05%	$14,500	0.00%
Out of Local Market Area - CO	1	0.05%	$13,574	0.00%
Out of Local Market Area - WV	1	0.05%	$2,313	0.00%
Total	**2,055**	**100.00%**	**$532,657,942**	**100.00%**

3. Distribution of Architectural and Engineering Contracts

WSSC issued 668 architectural and engineering contracts valued at $186,875,887 during the July 1, 2003 to June 30, 2009 study period. Businesses based in WSSC's local market area for architectural and engineering received 83.68 percent of the architectural and engineering contracts and 87.12 percent of the dollars. The nine jurisdictions within the local market area for architectural and engineering market are depicted in Table 3.04.

Table 3.04 Local Market Area for Architectural and Engineering

Counties in the State of Maryland	Counties in the State of Virginia	Independent Cities and Districts
Anne Arundel	Fairfax	Baltimore City, MD
Baltimore	Prince William	District of Columbia
Howard		
Montgomery		
Prince George's		

The distribution of the architectural and engineering contracts and dollars received by all businesses within and outside of WSSC's local market area for architectural and engineering is depicted in Table 3.05. The highlighted cities and counties depicted in the table comprise the market area for the architectural and engineering industry.

Table 3.05 Distribution of Architectural and Engineering Contracts Issued July 1, 2003 to June 30, 2009

City/County	Number of Contracts	Percent of Contracts	Total Dollars	Percent of Dollars
Baltimore City - MD	246	36.83%	$61,733,805	33.03%
Prince George's - MD	85	12.72%	$48,209,528	25.80%
Anne Arundel - MD	39	5.84%	$16,068,811	8.60%
Fairfax - VA	18	2.69%	$13,551,132	7.25%
Montgomery - MD	64	9.58%	$12,393,132	6.63%
Out of Local Market Area - IL	12	1.80%	$9,962,476	5.33%
Out of Local Market Area - PA	67	10.03%	$8,365,386	4.48%
Baltimore - MD	80	11.98%	$6,791,518	3.63%
Out of Local Market Area - GA	2	0.30%	$4,710,118	2.52%
Howard - MD	18	2.69%	$2,353,479	1.26%
District of Columbia	8	1.20%	$1,704,820	0.91%
Out of Local Market Area - MA	2	0.30%	$306,220	0.16%
Out of Local Market Area - OK	1	0.15%	$239,971	0.13%
Out of Local Market Area - FL	11	1.65%	$234,608	0.13%
Out of Local Market Area - NE	1	0.15%	$97,610	0.05%
Out of Local Market Area - CO	9	1.35%	$89,542	0.05%
Out of Local Market Area - CA	3	0.45%	$50,850	0.03%
Out of Local Market Area - NY	1	0.15%	$7,249	0.00%
Prince William - VA	1	0.15%	$5,632	0.00%
Total	**668**	**100.00%**	**$186,875,887**	**100.00%**

4. Distribution of Professional Services Contracts

WSSC issued 2,414 professional services contracts valued at $83,114,533 during the July 1, 2003 to June 30, 2009 study period. Businesses based in WSSC's local market area for professional services received 48.96 percent of the professional services contracts and 51.88 percent of the dollars. The eighteen jurisdictions within the local market area for professional services are depicted in Table 3.06.

Table 3.06 Local Market Area for Professional Services

Counties in the State of Maryland	Counties in the State of Virginia	Independent Cities and Districts
Anne Arundel	Arlington	Baltimore City, MD
Baltimore	Fairfax	Alexandria City, VA
Calvert	Loudoun	Falls Church City, VA
Carroll	Prince William	District of Columbia
Charles		
Frederick		
Harford		
Howard		
Montgomery		
Prince George's		

The distribution of the professional services contracts and dollars received by all businesses within and outside of WSSC's local market area for professional services is depicted in Table 3.07. The highlighted cities and counties depicted in the table comprise the market area for the professional services industry.

Table 3.07 Distribution of Professional Services Contracts Issued July 1, 2003 to June 30, 2009

City/County	Number of Contracts	Percent of Contracts	Total Dollars	Percent of Dollars
Out of Local Market Area - MO	72	2.98%	$16,558,526	19.92%
Out of Local Market Area - OH	19	0.79%	$12,093,212	14.55%
Montgomery - MD	140	5.80%	$9,997,623	12.03%
Baltimore - MD	98	4.06%	$9,422,436	11.34%
Baltimore City - MD	293	12.14%	$8,918,883	10.73%
Prince George's - MD	202	8.37%	$7,062,497	8.50%
District of Columbia	139	5.76%	$3,342,716	4.02%
Out of Local Market Area - NY	95	3.94%	$2,530,384	3.04%
Howard - MD	95	3.94%	$1,560,272	1.88%
Out of Local Market Area - CA	85	3.52%	$1,513,342	1.82%
Out of Local Market Area - PA	31	1.28%	$1,093,571	1.32%
Out of Local Market Area - IL	48	1.99%	$981,207	1.18%
Loudoun - VA	12	0.50%	$909,555	1.09%
Out of Local Market Area - FL	19	0.79%	$852,594	1.03%
Fairfax - VA	17	0.70%	$625,333	0.75%
Alexandria City - VA	9	0.37%	$609,272	0.73%
Out of Local Market Area - GA	49	2.03%	$571,193	0.69%
Out of Local Market Area - MA	16	0.66%	$544,837	0.66%
Out of Local Market Area - CO	6	0.25%	$446,805	0.54%
Out of Local Market Area - TX	45	1.86%	$423,343	0.51%
Out of Local Market Area - NC	32	1.33%	$356,820	0.43%
Out of Local Market Area - NJ	9	0.37%	$317,688	0.38%
Out of Local Market Area - AZ	10	0.41%	$310,606	0.37%
Out of Local Market Area - DE	6	0.25%	$305,479	0.37%
Out of Local Market Area - Canada	5	0.21%	$244,378	0.29%
Frederick - MD	77	3.19%	$207,183	0.25%
Anne Arundel - MD	36	1.49%	$174,327	0.21%
Arlington - VA	28	1.16%	$149,254	0.18%
Richmond City - VA	2	0.08%	$147,527	0.18%
Halifax - VA	10	0.41%	$119,064	0.14%
Out of Local Market Area - WA	3	0.12%	$105,305	0.13%
Out of Local Market Area - CT	600	24.86%	$104,996	0.13%
Out of Local Market Area - MN	8	0.33%	$84,034	0.10%
Out of Local Market Area - NM	2	0.08%	$56,550	0.07%
Out of Local Market Area - UT	9	0.37%	$55,038	0.07%
Prince William - VA	1	0.04%	$46,400	0.06%
Carroll - MD	29	1.20%	$43,459	0.05%
Out of Local Market Area - VT	3	0.12%	$35,375	0.04%
Out of Local Market Area - TN	1	0.04%	$28,303	0.03%
Harford - MD	3	0.12%	$25,300	0.03%
Falls Church City - VA	1	0.04%	$19,878	0.02%
Winchester City - VA	1	0.04%	$15,241	0.02%
Out of Local Market Area - WI	6	0.25%	$13,936	0.02%
Out of Local Market Area - SC	3	0.12%	$7,524	0.01%
Warren - VA	1	0.04%	$6,881	0.01%
Out of Local Market Area - NH	3	0.12%	$5,387	0.01%
Calvert - MD	1	0.04%	$4,800	0.01%
Out of Local Market Area - KY	1	0.04%	$2,686	0.00%
Out of Local Market Area - KS	9	0.37%	$2,112	0.00%
Talbot - MD	8	0.33%	$1,089	0.00%
St. Mary's - MD	1	0.04%	$800	0.00%
Charles - MD	1	0.04%	$800	0.00%
Remaining*	14	0.58%	$58,712	0.07%
Total	**2,414**	**100.00%**	**$83,114,533**	**100.00%**

*Remaining includes Other Out of Local Market Area Counties and States

5. Distribution of Goods and Other Services Contracts

WSSC issued 50,790 goods and other services contracts valued at $499,450,013 during the July 1, 2003 to June 30, 2009 study period. Businesses based in WSSC's local market area for goods and other services received 83.93 percent of the goods and other services contracts and 72.48 percent of the dollars. The eighteen jurisdictions within the local market area for goods and other services are depicted in Table 3.08.

Table 3.08 Local Market Area for Goods and Other Services

Counties in the State of Maryland	Counties in the State of Virginia	Independent Cities and Districts
Anne Arundel	Arlington	Baltimore City, MD
Baltimore	Fairfax	Alexandria City, VA
Calvert	Loudoun	Falls Church City, VA
Carroll	Prince William	District of Columbia
Charles		
Frederick		
Harford		
Howard		
Montgomery		
Prince George's		

The distribution of the goods and other services contracts and dollars received by all businesses within and outside of WSSC's local market area for goods and other services is depicted in Table 3.09. The highlighted cities and counties depicted in the table comprise the market area for the goods and other services industry.

Table 3.09 Distribution of Goods and Other Services Contracts Issued July 1, 2003 to June 30, 2009

City/County	Number of Contracts	Percent of Contracts	Total Dollars	Percent of Dollars
Prince George's - MD	19,297	37.99%	$98,998,595	19.82%
Baltimore City - MD	7,774	15.31%	$71,268,053	14.27%
Montgomery - MD	7,140	14.06%	$57,459,806	11.50%
Fauquier - VA	19	0.04%	$49,253,831	9.86%
Baltimore - MD	577	1.14%	$29,911,374	5.99%
Howard - MD	1,475	2.90%	$23,248,403	4.65%
Fairfax - VA	592	1.17%	$22,141,255	4.43%
Anne Arundel - MD	1,213	2.39%	$18,817,512	3.77%
Carroll - MD	240	0.47%	$16,716,844	3.35%
Out of Local Market Area - IL	1,391	2.74%	$14,931,652	2.99%
Out of Local Market Area - PA	1,617	3.18%	$13,355,414	2.67%
Out of Local Market Area - GA	489	0.96%	$10,290,918	2.06%
District of Columbia	1,803	3.55%	$8,395,785	1.68%
Out of Local Market Area - TX	244	0.48%	$7,580,442	1.52%
Out of Local Market Area - NJ	422	0.83%	$7,062,212	1.41%
Frederick - MD	1,556	3.06%	$6,876,643	1.38%
Out of Local Market Area - CA	254	0.50%	$5,687,240	1.14%
Out of Local Market Area - FL	122	0.24%	$4,409,568	0.88%
Out of Local Market Area - NY	258	0.51%	$4,396,092	0.88%
Out of Local Market Area - NC	167	0.33%	$3,702,132	0.74%
Charles - MD	619	1.22%	$3,346,691	0.67%
Virginia Beach City - VA	11	0.02%	$2,634,296	0.53%
Out of Local Market Area - OH	244	0.48%	$1,556,322	0.31%
Dorchester	48	0.09%	$1,417,639	0.28%
Falls Church City - VA	62	0.12%	$1,394,713	0.28%
Harford - MD	81	0.16%	$1,340,792	0.27%
Out of Local Market Area - WI	397	0.78%	$1,093,790	0.22%
Out of Local Market Area - MI	28	0.06%	$1,051,062	0.21%
Alexandria City - VA	45	0.09%	$893,924	0.18%
Out of Local Market Area - ME	3	0.01%	$576,669	0.12%
Prince William - VA	110	0.22%	$568,888	0.11%
Out of Local Market Area - IN	128	0.25%	$548,266	0.11%
Henrico - VA	9	0.02%	$518,130	0.10%
Out of Local Market Area - MN	50	0.10%	$498,821	0.10%
Halifax - VA	224	0.44%	$469,457	0.09%
Arlington - VA	15	0.03%	$456,578	0.09%
Out of Local Market Area - MO	26	0.05%	$405,287	0.08%
Hanover - VA	6	0.01%	$391,889	0.08%
Out of Local Market Area - VT	73	0.14%	$377,063	0.08%
Out of Local Market Area - CO	17	0.03%	$364,673	0.07%
Richmond City - VA	70	0.14%	$353,655	0.07%
Wicomico - MD	87	0.17%	$339,057	0.07%
Out of Local Market Area - NH	38	0.07%	$333,630	0.07%
Out of Local Market Area - WA	27	0.05%	$328,295	0.07%
Out of Local Market Area - AL	492	0.97%	$288,535	0.06%
Washington - MD	3	0.01%	$287,688	0.06%
Out of Local Market Area - KS	24	0.05%	$282,241	0.06%
Out of Local Market Area - Canada	18	0.04%	$223,393	0.04%
Queen Anne's - MD	93	0.18%	$214,681	0.04%
Worcester - MD	93	0.18%	$186,016	0.04%
Out of Local Market Area - NE	4	0.01%	$167,383	0.03%
Talbot - MD	423	0.83%	$163,966	0.03%
Out of Local Market Area - MA	50	0.10%	$155,302	0.03%
Out of Local Market Area - OK	19	0.04%	$143,108	0.03%
Gloucester - VA	153	0.30%	$119,537	0.02%
Loudoun - VA	13	0.03%	$109,610	0.02%
Out of Local Market Area - AZ	37	0.07%	$106,731	0.02%
Out of Local Market Area - IA	29	0.06%	$95,634	0.02%
Out of Local Market Area - UT	9	0.02%	$86,607	0.02%
Out of Local Market Area - TN	17	0.03%	$76,630	0.02%
Out of Local Market Area - KY	48	0.09%	$76,098	0.02%
Out of Local Market Area - RI	11	0.02%	$75,994	0.02%
Petersburg City - VA	8	0.02%	$74,818	0.01%
Clarke - VA	2	0.00%	$72,500	0.01%
Out of Local Market Area - NM	2	0.00%	$65,000	0.01%
Hopewell City - VA	7	0.01%	$54,095	0.01%
Culpeper - VA	2	0.00%	$51,276	0.01%
Out of Local Market Area - OR	17	0.03%	$48,074	0.01%
Calvert - MD	18	0.04%	$42,506	0.01%
Remaining*	130	0.26%	$419,231	0.08%

Table 3.10 presents an overview of the number of construction, architectural and engineering, professional services, and goods and other services contracts WSSC issued and the dollars spent during the July 1, 2003 to June 30, 2009 study period.

Table 3.10 WSSC Local Market Areas by Percent of Contracts Issued and Dollars Spent July 1, 2003 to June 30, 2009

Market Area	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
Combined Industries				
Market Area	46,396	82.96%	$1,083,614,759	83.22%
Outside Market Area	9,531	17.04%	$218,483,616	16.78%
Total	55,927	100.00%	$1,302,098,374	100.00%
Construction				
Market Area	2,025	98.54%	$515,694,944	96.82%
Outside Market Area	30	1.46%	$16,962,998	3.18%
Total	2,055	100.00%	$532,657,942	100.00%
Architecture & Engineering				
Market Area	559	83.68%	$162,811,857	87.12%
Outside Market Area	109	16.32%	$24,064,030	12.88%
Total	668	100.00%	$186,875,887	100.00%
Professional Services				
Market Area	1,182	48.96%	$43,119,986	51.88%
Outside Market Area	1,232	51.04%	$39,994,547	48.12%
Total	2,414	100.00%	$83,114,533	100.00%
Goods & Services				
Market Area	42,630	83.93%	$361,987,972	72.48%
Outside Market Area	8,160	16.07%	$137,462,041	27.52%
Total	50,790	100.00%	$499,450,013	100.00%

4

PRIME CONTRACTOR AND SUBCONTRACTOR AVAILABILITY ANALYSIS

I. INTRODUCTION

Availability is defined, according to *Croson*, as the number of businesses in the jurisdiction's market area that are ready, willing and able to provide goods or services.[1] To determine availability, minority and woman-owned business enterprises (M/WBEs) and non-M/WBEs within the jurisdiction's market area that are willing and able to provide the goods and services need to be enumerated. The market area, as defined in *Chapter 3*: *Market Area Analysis*, encompasses the District of Columbia and counties and independent cities in Maryland and Virginia. The construction market area includes the District of Columbia and twelve counties and independent cities in Maryland and Virginia. The architectural and engineering market area includes the District of Columbia and eight counties and independent cities in Maryland and Virginia. The professional services and goods and other services industries both have the same market area, which includes the District of Columbia and seventeen counties and independent cities in Maryland and Virginia.

When considering sources for determining the number of willing and able M/WBEs and non-M/WBEs in the market area, the selection must be based on whether two significant aspects about the population in question can be gauged from the sources. One consideration is a business' interest in doing business with the jurisdiction, as implied by the term "willing," and the other is its ability or capacity to provide a service or good, as implied by the term "able."

The compiled list of available businesses includes M/WBEs and non-M/WBEs in the construction, architectural and engineering, professional services, and goods and other services industries. Washington Suburban Sanitary Commission (WSSC) records, other

[1] *City of Richmond v. J.A. Croson Co.*, 488 U.S. 469, 509 (1989).

government certification records, business association membership listings, and an outreach campaign were used to compile the sources for available market area businesses. Separate availability lists were compiled by industry for prime contractors and subcontractors. The distribution of available businesses is presented in this chapter by ethnicity, gender, and industry.

II. PRIME CONTRACTOR AVAILABILITY DATA SOURCES

A. Identification of Willing Businesses Within the Market Area

Mason Tillman used four types of sources to identify businesses in the market area that provide goods and services that WSSC procures. The sources were identified from records maintained by WSSC, other governments, and trade and professional associations. The sources included the WSSC-utilized businesses, Centralized Bidder Registration-registered (CBR-registered) businesses, other government certification lists, business association membership lists, and business outreach campaign. Only businesses that were determined to be willing were added to the availability list. All businesses identified as willing from more than one source were counted only once.

The first source used to build the availability list was the WSSC-utilized businesses. Added to this list were the WSSC unsuccessful bidders, other CBR-registered businesses, businesses identified through other government certification lists, and the willing businesses identified from a survey of the lists of business association members and the outreach campaign. The sources were ranked with the highest rank assigned to the utilized businesses.

The utilized businesses, unsuccessful bidders, and CBR-registered businesses were secured from WSSC records. The certification lists were collected from federal and local government certification agencies. The certification lists included the M/W/DBEs maintained by the Maryland Department of Transportation (MDOT).

Extensive targeted outreach to business associations in WSSC's market area was performed to identify additional businesses willing to contract with WSSC. Written and telephone contact with the associations garnered a number of membership lists. From the combined four sources, 13,969 unique market area businesses were identified. An account of the willing businesses derived by source is listed below:

1. WSSC Records

All of the WSSC-utilized businesses, unsuccessful bidders, and CBR-registered businesses were determined to be willing. There were 5,541 utilized and unsuccessful bidders and CBR-

registered businesses. From these sources 2,819 unique businesses were added to the availability list.

2. Other Government Certification Lists

All the market area businesses on the government certification lists that were classified in one of the four industries studied were considered willing. There were 19,074 certified market area businesses in the four industries. From these certification lists, 11,074 unique certified businesses were added to the availability list.

3. Business Association Membership Lists

Membership lists were obtained from 12 business associations located in the market area. From the business association membership lists, 1,038 market area businesses in the four industries were identified. The unique list was queried for businesses with a telephone number. There were 820 businesses with telephone numbers. These businesses were included in a willingness survey to determine their willingness to contract with WSSC. There were 73 unique businesses added to the availability list.

4. Outreach Campaign Responses

Business names were obtained from responses to the media coverage for the two community meetings, hits from the Disparity Study web page, e-mail blasts of the community meeting notices, and attendees at the two community meetings. From this campaign, 187 businesses responded. There were three unique businesses added to the availability list.

B. Prime Contractor Sources

Table 4.01 lists the sources from which the list of willing businesses was compiled.

Table 4.01 Prime Contractor Availability Data Sources

Source	Type of Information
WSSC Records	
WSSC Utilized Businesses	M/WBEs and non-M/WBEs
WSSC Centralized Bidder Registration	M/WBEs and non-M/WBEs
WSSC SLBE Certification List	M/WBEs and non-M/WBEs

Source	Type of Information
WSSC SymTrac™ Web-Based Subcontract Compliance Tool	M/WBEs and non-M/WBEs
Government Certification Lists	
Certified Business Enterprises of Department of Small and Local Business Development, District of Columbia	M/WBEs and non-M/WBEs
City of Baltimore Department of Law Minority and Women Business Enterprises	M/WBEs
Directory of Minority & Woman-Owned Businesses of Anne Arundel County, Maryland	M/WBEs
Maryland Historically Underutilized Businesses	M/WBEs and non-M/WBEs
Maryland Department of Transportation Directory of Certified Minority Business Enterprise/Disadvantaged Business Enterprises	M/W/DBEs
Maryland Small Business Administration	M/WBEs and non-M/WBEs
Metropolitan Washington Airports Authority Local Disadvantaged Business Enterprise Program and Disadvantaged Business Enterprise Program Certification List	LDBEs and DBEs
Prince George's County Minority Business Development Division	M/WBEs
Prince George's County Minority Businesses Certification List	M/WBEs
U.S. Small Business Administration: Maryland, Virginia, and Washington, D.C. Procurement Marketing and Access Network	M/WBEs and non-M/WBEs
Virginia Small, Women- and Minority-Owned Businesses Certification List	M/WBEs and non-M/WBEs
Business Association Membership Lists	
American Council of Engineering Companies, Maryland Chapter	M/WBEs and non-M/WBEs
American Subcontractors Association of Baltimore	M/WBEs and non-M/WBEs
Associated Builders & Contractors Metro, Washington Chapter	M/WBEs and non-M/WBEs
Calvert County Minority Business Alliance	M/WBEs
Count Contractors and Unions Together Membership List	M/WBEs and non-M/WBEs
County Engineers Association of Maryland	M/WBEs and non-M/WBEs
Maryland-Washington Minority Contractors Association	M/WBEs
Metropolitan Subcontractors Association Membership Directory	M/WBEs and non-M/WBEs

Source	Type of Information
Home Builder's Association of Maryland	M/WBEs and non-M/WBEs
Montgomery County Chamber of Commerce	M/WBEs and non-M/WBEs
National Electrical Contractors Association, Maryland Chapter	M/WBEs and non-M/WBEs
The Mechanical Equipment Manufacturers Representatives Association	M/WBEs and non-M/WBEs
Women's Business Enterprise National Council	WBEs
Outreach Campaign	
Prince George's County Business Community Meeting	M/WBEs and non-M/WBEs
Montgomery County Business Community Meeting	M/WBEs and non-M/WBEs

C. Determination of Willingness

All businesses included in the availability analysis were determined to be willing to contract with WSSC. Willingness is defined in *Croson* and its progeny as a business' interest in doing government contracting. Businesses identified from the 28 sources listed in Table 4.01 had demonstrated their willingness to perform on public contracts. To be classified as willing, the business either had bid on a WSSC contract, registered on the CBR system, secured government certification, was listed on a business organization's membership list and affirmed an interest in contracting with WSSC through the willingness survey, or responded to the outreach campaign conducted in conjunction with this Study.

D. Distribution of Available Prime Contractors by Source, Ethnicity, and Gender

Tables 4.02 through 4.06 present the distribution of willing prime contractors by the source. The prime contractors compiled in the availability list are considered willing for all WSSC prime contracts. The highest ranked source was the prime contractors utilized by WSSC. All utilized prime contractors were counted. Each ranked business is *counted only once*. For example, a utilized prime contractor counted once in the prime contractor utilization source was not counted a second time as a bidder, as a certified business, or as a company identified from a business association list.

As noted in Table 4.02, 99.46 percent of the businesses on the unique list of available prime contractors were obtained from WSSC records and government certification lists. Companies identified through the business outreach campaign and the business association membership lists represent 0.54 percent of the willing businesses.

Table 4.02 Distribution of Prime Contractor Availability Data Sources, All Industries

Sources	M/WBE Percentage	Non-M/WBE Percentage	Source Percentage
Prime Contractor Utilization	3.83%	17.02%	8.57%
Centralized Bidder Registration System	8.46%	17.23%	11.61%
Government Certification Lists	87.50%	64.61%	79.28%
Subtotal	**99.79%**	**98.86%**	**99.46%**
Business Association Membership Lists	0.19%	1.12%	0.52%
Community Meeting Attendees	0.02%	0.02%	0.02%
Subtotal	**0.21%**	**1.14%**	**0.54%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

* The percentages may not total 100 percent due to rounding.

A distribution of available businesses by source also was calculated for each industry. As noted in Table 4.03, 98.75 percent of the construction companies identified were derived from WSSC records and government certification lists. Companies identified through the business association membership lists represent 1.25 percent of the willing businesses.

Table 4.03 Distribution of Prime Contractor Availability Data Sources, Construction

Sources	M/WBE Percentage	Non-M/WBE Percentage	Source Percentage
Prime Contractor Utilization	3.38%	8.51%	5.03%
Centralized Bidder Registration System	15.14%	37.00%	22.17%
Government Certification Lists	81.19%	51.24%	71.55%
Subtotal	**99.71%**	**96.75%**	**98.75%**
Business Association Membership Lists	0.29%	3.25%	1.25%
Subtotal	**0.29%**	**3.25%**	**1.25%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

* The percentages may not total 100 percent due to rounding.

Table 4.04 depicts the data sources for the available architectural and engineering prime contractors. As noted, 98.81 percent of the architectural and engineering businesses identified were derived from WSSC records and government certification lists. Businesses identified through the business association membership lists represent 1.19 percent of the willing businesses.

Table 4.04 Distribution of Prime Contractor Availability Data Sources, Architectural and Engineering

Sources	M/WBE Percentage	Non-M/WBE Percentage	Source Percentage
Prime Contractor Utilization	4.50%	15.38%	8.70%
Centralized Bidder Registration System	18.65%	26.15%	21.54%
Government Certification Lists	76.53%	55.90%	68.58%
Subtotal	**99.68%**	**97.44%**	**98.81%**
Business Association Membership Lists	0.32%	2.56%	1.19%
Subtotal	**0.32%**	**2..56%**	**1.19%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

* The percentages may not total 100 percent due to rounding.

Table 4.05 depicts the data sources for available professional services prime contractors. As noted, 99.32 percent of the professional services companies identified were derived from WSSC records and government certification lists. Companies identified through the business outreach campaign and the business association membership lists represent 0.68 percent of the willing businesses.

Table 4.05 Distribution of Prime Contractor Availability Data Sources, Professional Services

Sources	M/WBE Percentage	Non-M/WBE Percentage	Source Percentage
Prime Contractor Utilization	2.05%	7.76%	3.86%
Centralized Bidder Registration System	10.57%	16.05%	12.31%
Government Certification Lists	87.11%	74.62%	83.14%
Subtotal	**99.73%**	**98.44%**	**99.32%**
Business Association Membership Lists	0.24%	1.51%	0.64%
Community Meeting Attendees	0.03%	0.06%	0.04%
Subtotal	**0.27%**	**1.56%**	**0.68%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

* The percentages may not total 100 percent due to rounding.

Table 4.06 depicts the data sources for available goods and other services prime contractors. As noted, 99.9 percent of the goods and other services prime contractors were obtained from WSSC records and government certification lists. Companies identified through the business outreach campaign and the business association membership lists represent less than one percent of the willing businesses.

Table 4.06 Distribution of Prime Contractor Availability Data Sources, Goods and Other Services

Sources	M/WBE Percentage	Non-M/WBE Percentage	Source Percentage
Prime Contractor Utilization	4.15%	21.69%	10.35%
Centralized Bidder Registration System	7.94%	14.04%	10.09%
Government Certification Lists	87.83%	64.14%	79.45%
Subtotal	**99.91%**	**99.87%**	**99.90%**
Business Association Membership Lists	0.07%	0.13%	0.09%
Community Meeting Attendees	0.02%	0.00%	0.01%
Subtotal	**0.09%**	**0.13%**	**0.10%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

* The percentages may not total 100 percent due to rounding.

III. CAPACITY

The second component of the availability requirement set forth in *Croson* is a business' capacity or ability to work on the contracts issued by the jurisdiction.[2] However, capacity requirements are not delineated in *Croson*. In fact, a standard for capacity has only been addressed in a few cases. Each case where capacity has been considered has involved large, competitively bid construction prime contracts. The capacity of willing market area businesses to do business with WSSC was assessed using three approaches.

- The size of all prime contracts issued by WSSC was analyzed to determine the capacity needed to perform the average issued contract.

- The largest contracts issued to M/WBEs were identified to determine demonstrated ability to win large, competitively bid contracts.

- The MDOT certification process was assessed to determine if it meets the standard set in *Contractors Ass'n of Eastern Pennsylvania v. City of Philadelphia (Philadelphia),*[3] which found the U.S. Department of Transportation (USDOT) certification sufficient to measure capacity.

A. Size of Contracts Analyzed

In *Associated General Contractors of America v. City of Columbus* and *Engineering Contractors Ass'n of South Florida v. Metropolitan Dade City*, the courts were concerned with the capacity of the enumerated businesses to bid on large, competitively bid contracts. It should also be noted that the focus in both cases was on the bidder's size and ability to perform on large, competitively bid construction contracts.[4]

WSSC's construction, architectural and engineering, professional services, and goods and other services contracts were analyzed to determine the size of issued contracts in order to gauge the capacity required to perform on WSSC's contracts. The size distribution illustrates the fact that the majority of WSSC-issued contracts were under $25,000. The distribution in Table 4.07 illustrates that limited capacity is needed to perform the majority of WSSC's contracts.

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2 *Croson*, 488 U.S. 469.

3 *Contractors Ass'n of Eastern Pennsylvania v. City of Philadelphia*, 6 F.3d 990 (3d Cir. 1993), on remand, 893 F. Supp. 419 (E.D. Penn. 1995), affd, 91 F.3d 586 (3d Cir. 1996).

4 *Associated General Contractors of America v. City of Columbus*, 936 F. Supp. 1363 (S.D. Ohio Eastern Division , decided August 26, 1996), and *Engineering Contractors Ass'n of South Florida v. Metropolitan Dade City*, 943 F. Supp. 1546 (S.D. Fla. 1996), aff'd 122 F.3d 895 (11th Cir. 1997). Writ of certiorari denied *Metropolitan Dade County v. Engineering Contrs. Ass'n*, 523 U.S. 1004, 140 L. Ed. 2d 317, 118 S. Ct. 1186, (1998); Related proceeding at *Hershell Gill Consulting Eng'Rs, Inc. v. Miami-Dade County*, 2004 U.S. Dist. LEXIS 17197 (S.D. Fla., Aug. 24, 2004). Decision was vacated by the 6th Circuit Court of Appeals.

For the size analysis, WSSC's contracts were grouped into eight dollar ranges.[5] Each industry was analyzed to determine the number and percentage of contracts that fell within the eight size categories. The size distribution of contracts issued to Non-Minority Males was then compared to the size distribution of contracts issued to Caucasian Females, Minority Females, and Minority Males.

Table 4.07, which presents the size distribution for all industries combined, demonstrates that 92.53 percent of WSSC's contracts were less than $25,000; 95.43 percent were less than $50,000; 97.27 percent were less than $100,000; and 99.36 percent were less than $500,000. Only 0.63 percent of WSSC's contracts were $500,000 or more.

The prime contract analysis has been capped at contracts under $500,000. The analysis was capped for two reasons. One was to address the concern that including larger contracts would distort the analysis because of the capacity required to perform larger contracts. The other consideration was the fact that the percentage of contracts WSSC awarded to non-minority males, women-owned businesses, and minority male firms is clearly similar up to $500,000 thereby limiting the capacity to perform the contracts subjected to the statistical analysis.

1. Construction Contracts by Size

Table 4.08 depicts WSSC's construction contracts issued within the eight dollar ranges. Contracts valued at less than $25,000 were 53.28 percent; those less than $50,000 were 69.29 percent; those less than $100,000 were 81.55 percent; and those less than $500,000 were 93.28 percent.

2. Architectural and Engineering Contracts by Size

Table 4.09 depicts architectural and engineering services contracts issued within the eight dollar ranges. Contracts valued at less than $25,000 were 31.14 percent; those less than $50,000 were 48.95 percent; those less than $100,000 were 63.77 percent; and those less than $500,000 were 91.02 percent.

3. Professional Services Contracts by Size

Table 4.10 depicts professional services contracts issued within the eight dollar ranges. Contracts valued at less than $25,000 were 79.12 percent; those less than $50,000 were 88.44 percent; those less than $100,000 were 92.91 percent; and those less than $500,000 were 99.49 percent.

[5] The eight dollar ranges are $1 to $24,999; $25,000 to $49,999; $50,000 to $99,999; $100,000 to $249,999; $250,000 to $499,999; $500,000 to $999,999; $1,000,000 to $2,999,999; and $3,000,000 and greater.

4. Goods and Other Services Contracts by Size

Table 4.11 depicts goods and other services contracts issued within the eight dollar ranges. Contracts valued at less than $25,000 were 95.56 percent; those less than $50,000 were 97.43 percent; those less than $100,000 were 98.55 percent; and those less than $500,000 were 99.7 percent.

Table 4.07 Contracts by Size: All Industries, July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	5297	95.82%	31,495	91.65%	4,261	92.99%	10,697	93.42%	51,750	92.53%
$25,000 - $49,999	87	1.57%	1,092	3.18%	155	3.38%	288	2.52%	1,622	2.90%
$50,000 - $99,999	46	0.83%	747	2.17%	89	1.94%	148	1.29%	1,030	1.84%
$100,000 - $249,999	45	0.81%	548	1.59%	58	1.27%	181	1.58%	832	1.49%
$250,000 - $499,999	27	0.49%	232	0.68%	6	0.13%	69	0.60%	334	0.60%
$500,000 - $999,999	8	0.14%	127	0.37%	6	0.13%	35	0.31%	176	0.31%
$1,000,000 - $2,999,999	11	0.20%	85	0.25%	3	0.07%	31	0.27%	130	0.23%
$3,000,000 and greater	7	0.13%	40	0.12%	4	0.09%	2	0.02%	53	0.09%
Total	5528	100.00%	34366	100.00%	4582	100.00%	11451	100.00%	55927	100.00%

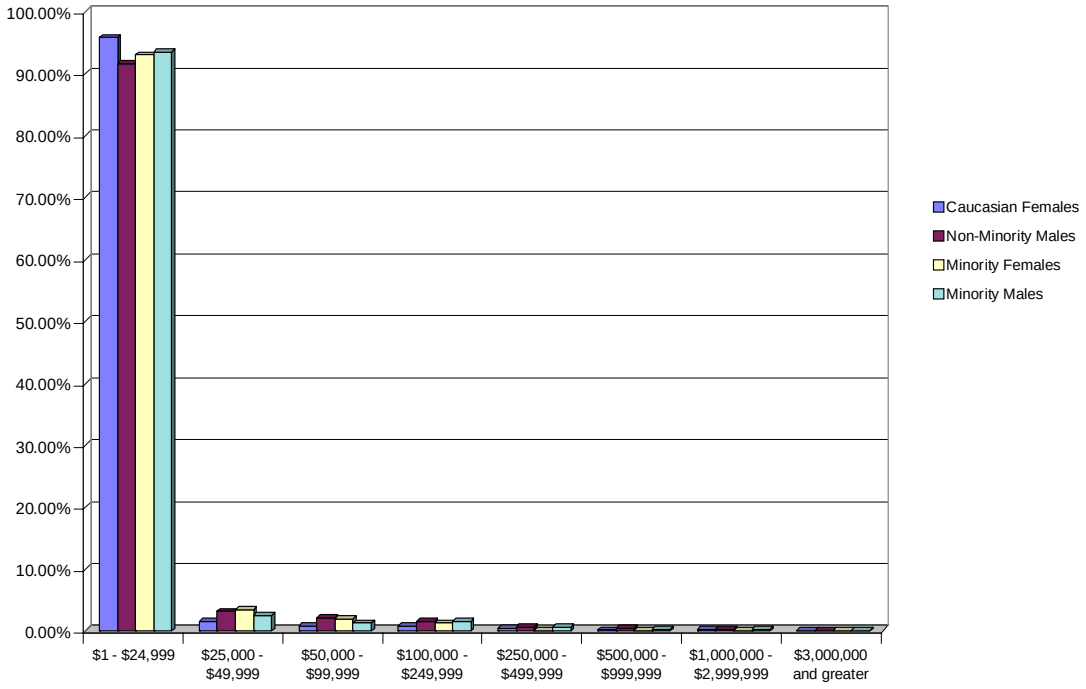


Table 4.08 Construction Contracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	199	78.66%	396	37.22%	9	39.13%	491	68.67%	1,095	53.28%
$25,000 - $49,999	23	9.09%	228	21.43%	2	8.70%	76	10.63%	329	16.01%
$50,000 - $99,999	16	6.32%	188	17.67%	4	17.39%	44	6.15%	252	12.26%
$100,000 - $249,999	6	2.37%	118	11.09%	2	8.70%	39	5.45%	165	8.03%
$250,000 - $499,999	6	2.37%	43	4.04%	0	0.00%	27	3.78%	76	3.70%
$500,000 - $999,999	1	0.40%	41	3.85%	0	0.00%	13	1.82%	55	2.68%
$1,000,000 - $2,999,999	2	0.79%	37	3.48%	2	8.70%	23	3.22%	64	3.11%
$3,000,000 and greater	0	0.00%	13	1.22%	4	17.39%	2	0.28%	19	0.92%
Total	253	100.00%	1064	100.00%	23	100.00%	715	100.00%	2055	100.00%

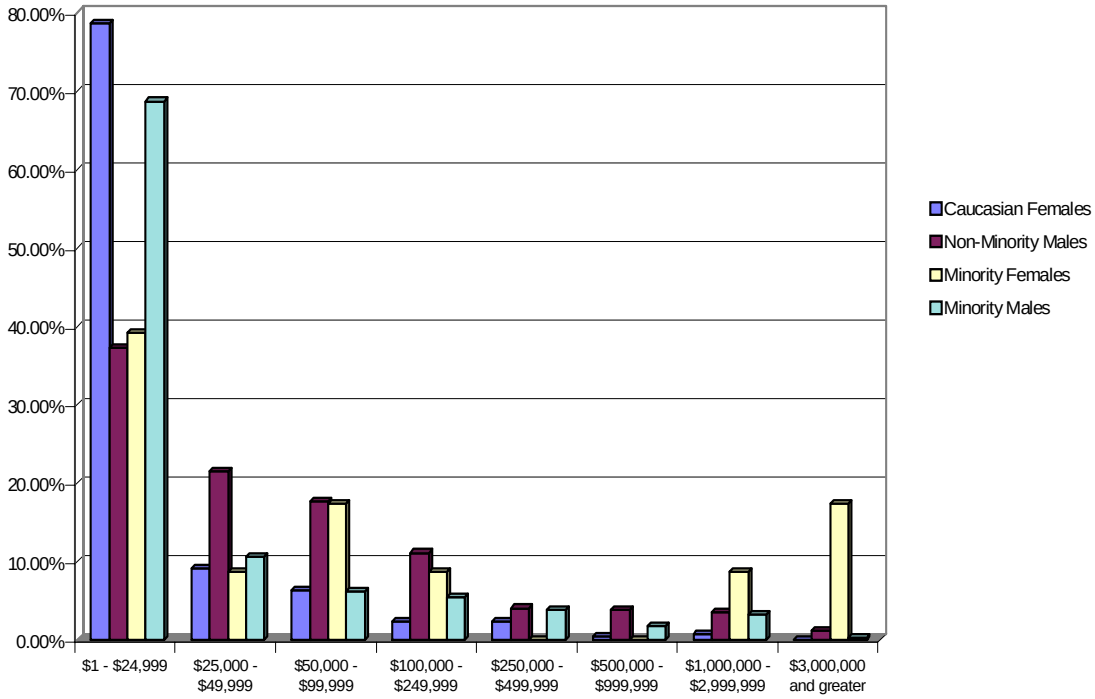


Table 4.09 Architectural and Engineering Contracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	0		184	34.72%	1	20.00%	23	17.29%	208	31.14%
$25,000 - $49,999	0		58	10.94%	0	0.00%	61	45.86%	119	17.81%
$50,000 - $99,999	0		86	16.23%	0	0.00%	13	9.77%	99	14.82%
$100,000 - $249,999	0		120	22.64%	0	0.00%	24	18.05%	144	21.56%
$250,000 - $499,999	0		30	5.66%	1	20.00%	7	5.26%	38	5.69%
$500,000 - $999,999	0		23	4.34%	3	60.00%	3	2.26%	29	4.34%
$1,000,000 - $2,999,999	0		13	2.45%	0	0.00%	2	1.50%	15	2.25%
$3,000,000 and greater	0		16	3.02%	0	0.00%	0	0.00%	16	2.40%
Total	0	0.00%	530	100.00%	5	100.00%	133	100.00%	668	100.00%

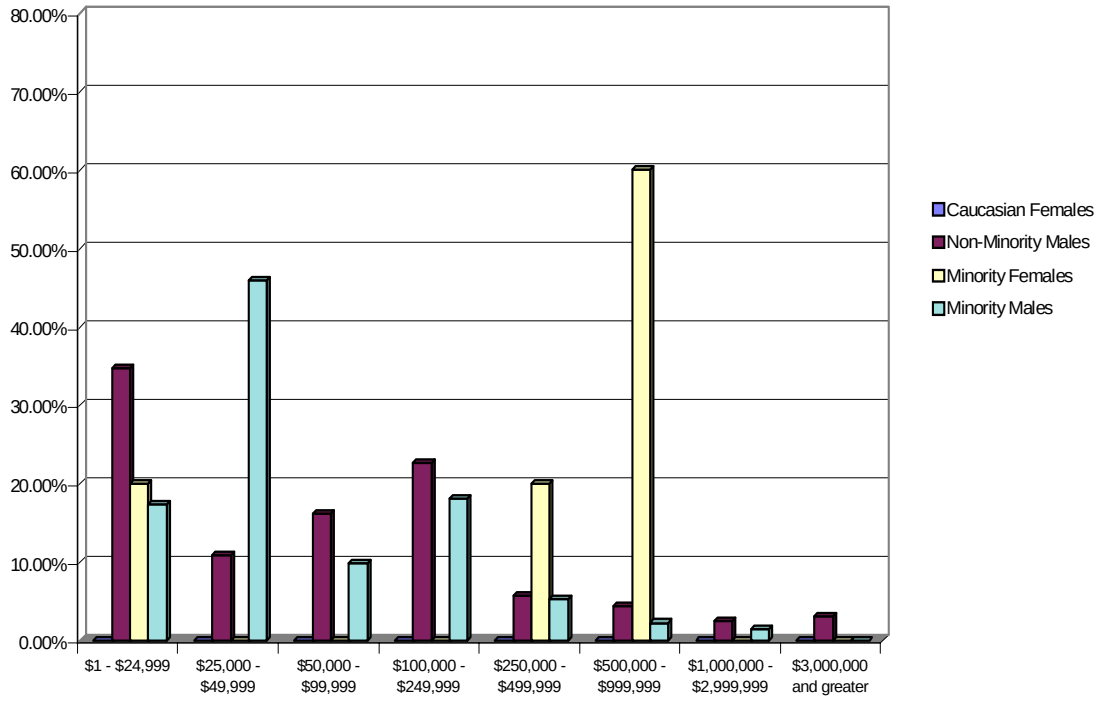


Table 4.10 Professional Services Contracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	159	83.68%	1,534	80.40%	63	55.75%	154	75.86%	1,910	79.12%
$25,000 - $49,999	17	8.95%	169	8.86%	20	17.70%	19	9.36%	225	9.32%
$50,000 - $99,999	7	3.68%	71	3.72%	17	15.04%	13	6.40%	108	4.47%
$100,000 - $249,999	5	2.63%	67	3.51%	11	9.73%	10	4.93%	93	3.85%
$250,000 - $499,999	2	1.05%	58	3.04%	1	0.88%	5	2.46%	66	2.73%
$500,000 - $999,999	0	0.00%	3	0.16%	1	0.88%	2	0.99%	6	0.25%
$1,000,000 - $2,999,999	0	0.00%	3	0.16%	0	0.00%	0	0.00%	3	0.12%
$3,000,000 and greater	0	0.00%	3	0.16%	0	0.00%	0	0.00%	3	0.12%
Total	190	100.00%	1908	100.00%	113	100.00%	203	100.00%	2414	100.00%

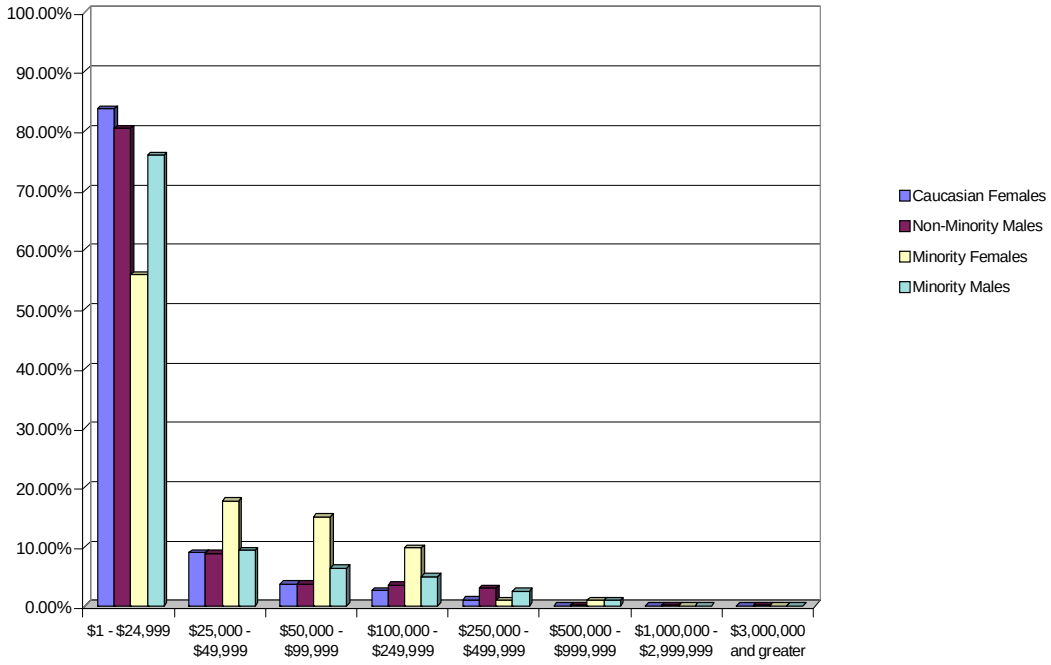
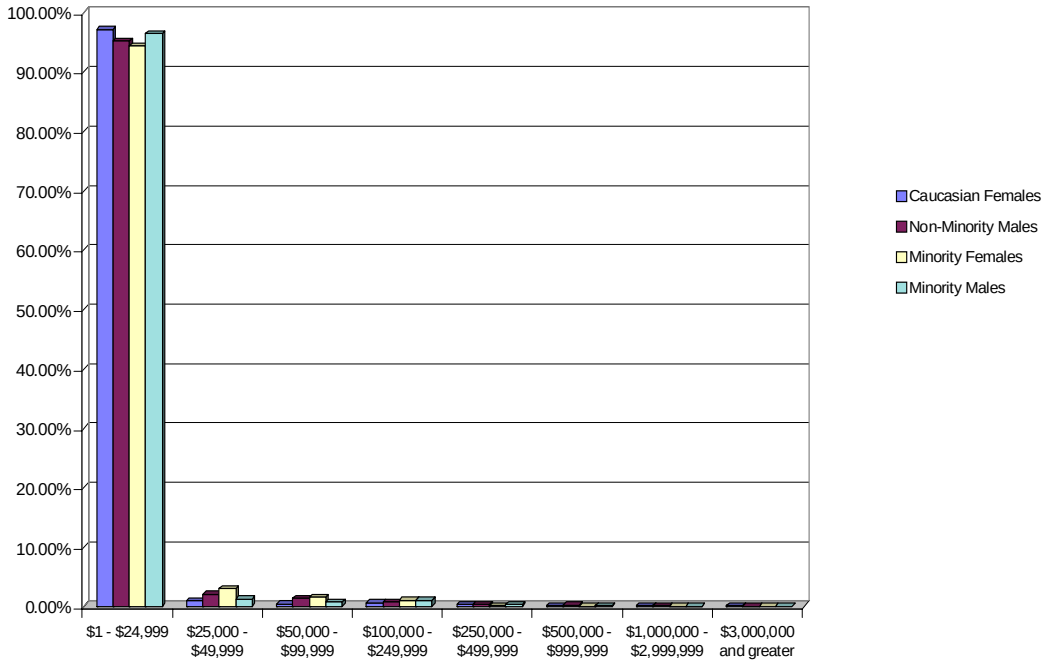


Table 4.11 Goods and Other Services Contracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	4939	97.13%	29,381	95.20%	4,188	94.30%	10,029	96.43%	48,537	95.56%
$25,000 - $49,999	47	0.92%	637	2.06%	133	2.99%	132	1.27%	949	1.87%
$50,000 - $99,999	23	0.45%	402	1.30%	68	1.53%	78	0.75%	571	1.12%
$100,000 - $249,999	34	0.67%	243	0.79%	45	1.01%	108	1.04%	430	0.85%
$250,000 - $499,999	19	0.37%	101	0.33%	4	0.09%	30	0.29%	154	0.30%
$500,000 - $999,999	7	0.14%	60	0.19%	2	0.05%	17	0.16%	86	0.17%
$1,000,000 - $2,999,999	9	0.18%	32	0.10%	1	0.02%	6	0.06%	48	0.09%
$3,000,000 and greater	7	0.14%	8	0.03%	0	0.00%	0	0.00%	15	0.03%
Total	5085	100.00%	30864	100.00%	4441	100.00%	10400	100.00%	50790	100.00%



B. Largest M/WBE Contract Issued by WSSC, by Industry

M/WBEs were issued large contracts in each industry. The distribution of the largest contracts WSSC issued to M/WBEs is depicted in Table 4.12. In each industry, M/WBEs were issued very large, competitively bid contracts. The utilization analysis shows that M/WBEs demonstrated the capacity to successfully compete for contracts as large as $11.4 million in construction, $2 million in architectural and engineering, $781,000 in professional services, and $7.9 million in goods and other services.

Table 4.12 Largest M/WBE Contract Issued by WSSC

	Largest Contract Value			
Ethnic/ Gender Group	**Construction**	**Architectural and Engineering**	**Professional Services**	**Goods and Other Services**
MBEs	$11,448,445	$1,988,683	$781,825	$1,924,051
WBEs	$1,960,609	$0	$285,195	$7,955,500

C. Certification Standards

The Court has addressed the merits of certification as a measure of capacity.[6] *Philadelphia*, an appellate court decision, found that a certification program which was based on USDOT standards satisfied the determination of a business' capability. Thus, a certification program like MDOT, which adheres to the standards set forth in the USDOT regulations, 49 Code of Federal Regulations Part 26, is considered a documentation of M/WBE capacity.

IV. PRIME CONTRACTOR AVAILABILITY ANALYSIS

The prime contractor availability findings for the WSSC market area are summarized in this section.

[6] *Contractors Ass'n of Eastern Pennsylvania v. City of Philadelphia*, 6 F.3d 990 (3d Cir. 1993), on remand, 893 F. Supp. 419 (E.D. Penn. 1995), affd, 91 F.3d 586 (3d Cir. 1996).

A. Construction Prime Contractor Availability

The distribution of available construction prime contractors is summarized in Table 4.13 below. These ethnic and gender groups are defined in Table 1.01 of *Chapter 1: Prime Contractor Utilization Analysis.*

African Americans account for 39.51 percent of the construction businesses in WSSC's market area.

Asian Americans account for 5.48 percent of the construction businesses in WSSC's market area.

Hispanic Americans account for 12.81 percent of the construction businesses in WSSC's market area.

Native Americans account for 1.1 percent of the construction businesses in WSSC's market area.

Minority Business Enterprises account for 58.89 percent of the construction businesses in WSSC's market area.

Women Business Enterprises account for 10.11 percent of the construction businesses in WSSC's market area.

Minority and Women Business Enterprises account for 69.01 percent of the construction businesses in WSSC's market area.

Non-Minority Male Business Enterprises account for 30.99 percent of the construction businesses in WSSC's market area.

Table 4.13 Available Construction Prime Contractors

Ethnicity	Percent of Businesses
African Americans	39.51%
Asian Americans	5.48%
Hispanic Americans	12.81%
Native Americans	1.10%
Caucasian Females	10.11%
Non-Minority Males	30.99%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	6.23%
African American Males	33.28%
Asian American Females	0.95%
Asian American Males	4.53%
Hispanic American Females	1.99%
Hispanic American Males	10.81%
Native American Females	0.30%
Native American Males	0.80%
Caucasian Females	10.11%
Non-Minority Males	30.99%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	9.47%
Minority Males	49.43%
Caucasian Females	10.11%
Non-Minority Males	30.99%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	58.89%
Women Business Enterprises	10.11%
Minority and Women Business Enterprises	**69.01%**
Non-Minority Male Business Enterprises	30.99%
TOTAL	100.00%

B. Architectural and Engineering Services Prime Contractor Availability

The distribution of available architectural and engineering prime contractors is summarized in Table 4.14 below:

African Americans account for 23.72 percent of the architectural and engineering businesses in WSSC's market area.

Asian Americans account for 19.17 percent of the architectural and engineering businesses in WSSC's market area.

Hispanic Americans account for 5.53 percent of the architectural and engineering businesses in WSSC's market area.

Native Americans account for 0.4 percent of the architectural and engineering businesses in WSSC's market area.

Minority Business Enterprises account for 48.81 percent of the architectural and engineering businesses in WSSC's market area.

Women Business Enterprises account for 13.04 percent of the architectural and engineering businesses in WSSC's market area.

Minority and Women Business Enterprises account for 61.86 percent of the architectural and engineering businesses in WSSC's market area.

Non-Minority Male Business Enterprises account for 38.14 percent of the architectural and engineering businesses in WSSC's market area.

Table 4.14 Available Architectural and Engineering Prime Contractors

Ethnicity	Percent of Businesses
African Americans	23.72%
Asian Americans	19.17%
Hispanic Americans	5.53%
Native Americans	0.40%
Caucasian Females	13.04%
Non-Minority Males	38.14%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	3.36%
African American Males	20.36%
Asian American Females	1.19%
Asian American Males	17.98%
Hispanic American Females	0.99%
Hispanic American Males	4.55%
Native American Females	0.20%
Native American Males	0.20%
Caucasian Females	13.04%
Non-Minority Males	38.14%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	5.73%
Minority Males	43.08%
Caucasian Females	13.04%
Non-Minority Males	38.14%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	48.81%
Women Business Enterprises	13.04%
Minority and Women Business Enterprises	**61.86%**
Non-Minority Male Business Enterprises	38.14%
TOTAL	100.00%

C. Professional Services Prime Contractor Availability

The distribution of available professional services prime contractors is summarized in Table 4.15 below:

African Americans account for 36.22 percent of the professional services businesses in WSSC's market area.

Asian Americans account for 10.56 percent of the professional services businesses in WSSC's market area.

Hispanic Americans account for 4.01 percent of the professional services businesses in WSSC's market area.

Native Americans account for 0.72 percent of the professional services businesses in WSSC's market area.

Minority Business Enterprises account for 51.51 percent of the professional services businesses in WSSC's market area.

Women Business Enterprises account for 17.26 percent of the professional services businesses in WSSC's market area.

Minority and Women Business Enterprises account for 68.77 percent of the professional services businesses in WSSC's market area.

Non-Minority Male Business Enterprises account for 31.23 percent of the professional services businesses in WSSC's market area.

Table 4.15 Available Professional Services Prime Contractors

Ethnicity	Percent of Businesses
African Americans	36.22%
Asian Americans	10.56%
Hispanic Americans	4.01%
Native Americans	0.72%
Caucasian Females	17.26%
Non-Minority Males	31.23%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	13.88%
African American Males	22.34%
Asian American Females	3.66%
Asian American Males	6.90%
Hispanic American Females	1.31%
Hispanic American Males	2.71%
Native American Females	0.28%
Native American Males	0.44%
Caucasian Females	17.26%
Non-Minority Males	31.23%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	19.12%
Minority Males	32.39%
Caucasian Females	17.26%
Non-Minority Males	31.23%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	51.51%
Women Business Enterprises	17.26%
Minority and Women Business Enterprises	**68.77%**
Non-Minority Male Business Enterprises	31.23%
TOTAL	100.00%

D. Goods and Other Services Prime Contractor Availability

The distribution of available goods and other services prime contractors is summarized in Table 4.16 below:

African Americans account for 34.49 percent of the goods and other services businesses in WSSC's market area.

Asian Americans account for 8 percent of the goods and other services businesses in WSSC's market area.

Hispanic Americans account for 4.34 percent of the goods and other services businesses in WSSC's market area.

Native American Businesses account for 0.77 percent of the goods and other services businesses in WSSC's market area.

Minority Business Enterprises account for 47.59 percent of the goods and other services businesses in WSSC's market area.

Women Business Enterprises account for 17.32 percent of the goods and other services businesses in WSSC's market area.

Minority and Women Business Enterprises account for 64.91 percent of the goods and other services businesses in WSSC's market area.

Non-Minority Male Business Enterprises account for 35.09 percent of the goods and other services businesses in WSSC's market area.

Table 4.16 Available Goods and Other Services Prime Contractors

Ethnicity	Percent of Businesses
African Americans	34.49%
Asian Americans	8.00%
Hispanic Americans	4.34%
Native Americans	0.77%
Caucasian Females	17.32%
Non-Minority Males	35.09%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	11.55%
African American Males	22.94%
Asian American Females	2.72%
Asian American Males	5.28%
Hispanic American Females	1.55%
Hispanic American Males	2.79%
Native American Females	0.28%
Native American Males	0.49%
Caucasian Females	17.32%
Non-Minority Males	35.09%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	16.10%
Minority Males	31.50%
Caucasian Females	17.32%
Non-Minority Males	35.09%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	47.59%
Women Business Enterprises	17.32%
Minority and Women Business Enterprises	**64.91%**
Non-Minority Male Business Enterprises	35.09%
TOTAL	100.00%

V. SUBCONTRACTOR AVAILABILITY ANALYSIS

A. Sources of Ready, Willing and Able Subcontractors

All available prime contractors were included in the calculation of subcontractor availability. Additional subcontractors were identified in the market area using the sources listed in Table 4.17.

Table 4.17 Subcontractor Availability Data Sources

Type of Record	Type of Information
• Subcontract records provided by WSSC	• M/WBEs and non-M/WBEs
• Subcontractors identified in the prime contractor survey	• M/WBEs and non-M/WBEs

B. Determination of Subcontractor Willingness and Capacity

Subcontractor availability was limited to businesses determined to be willing and able to perform as prime contractors and businesses utilized as subcontractors. It is notable that using this method to identify subcontractors verified the business' capacity, although *Croson* does not require a measure of subcontractor capacity.

C. Size of Subcontracts Issued

WSSC's construction, architectural and engineering, professional services, and goods and other services subcontracts were analyzed to determine the size of the issued contracts. This information established parameters for the capacity required to perform WSSC's subcontracts issued during the July 1, 2003 to June 30, 2009 study period.

The subcontract size distribution documents the fact that 55.29 percent of WSSC's subcontracts were under $25,000. This distribution illustrates the limited capacity needed to perform the majority of WSSC's subcontracts.

WSSC's subcontracts were grouped into eight dollar ranges.[7] Each subcontract amount was analyzed to determine the number and percentage of subcontracts that fall within the eight

[7] The eight dollar ranges are $1 to $24,999; $25,000 to $49,999; $50,000 to $99,999; $100,000 to $249,999; $250,000 to $499,999; $500,000 to $999,999; $1,000,000 to $2,999,999; and $3,000,000 and greater.

size categories. The size distribution of subcontracts issued to Non-Minority Males was then compared to the size distribution of contracts issued to Caucasian Females, Minority Females, and Minority Males.

- **WSSC Subcontract Size Analysis**

The analysis in Table 4.18, which combines the construction, architectural and engineering, professional services, and goods and other services industries, demonstrates that 55.29 percent of WSSC's subcontracts were less than $25,000; 79.71 percent were less than $100,000; and 96.22 percent were less than $500,000. Only 3.77 percent of WSSC's subcontracts were $500,000 or more.

1) Construction Subcontracts by Size

Table 4.19 depicts WSSC's construction subcontracts issued within the eight dollar ranges. 64.71 percent of construction subcontracts were valued at less than $25,000; 87.29 percent were less than $100,000; and 97.99 percent were less than $500,000.

2) Architectural and Engineering Subcontracts by Size

Table 4.20 depicts architectural and engineering subcontracts issued within the eight dollar ranges. 36.23 percent of architectural and engineering subcontracts were valued at less than $25,000; 67.74 percent were less than $100,000; and 92.3 percent were less than $500,000.

3) Professional Services Subcontracts by Size

Table 4.21 depicts professional services subcontracts issued within the eight dollar ranges. 25.53 percent of professional services subcontracts were valued at less than $25,000; 63.83 percent were less than $100,000; and 89.36 percent were less than $500,000.

4) Goods and Other Services Subcontracts by Size

Table 4.22 depicts goods and other services subcontracts issued within the eight dollar ranges. 47.82 percent of goods and other services subcontracts were valued at less than $25,000; 70.06 percent were less than $100,000; and 95.22 percent were less than $500,000.

Table 4.18 Subcontracts by Size: All Industries, July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	208	59.60%	823	62.73%	36	35.29%	192	37.35%	1,259	55.29%
$25,000 - $49,999	38	10.89%	157	11.97%	14	13.73%	82	15.95%	291	12.78%
$50,000 - $99,999	30	8.60%	122	9.30%	16	15.69%	97	18.87%	265	11.64%
$100,000 - $249,999	21	6.02%	53	4.04%	9	8.82%	40	7.78%	123	5.40%
$250,000 - $499,999	34	9.74%	123	9.38%	16	15.69%	80	15.56%	253	11.11%
$500,000 - $999,999	7	2.01%	17	1.30%	8	7.84%	17	3.31%	49	2.15%
$1,000,000 - $2,999,999	5	1.43%	15	1.14%	3	2.94%	6	1.17%	29	1.27%
$3,000,000 and greater	6	1.72%	2	0.15%	0	0.00%	0	0.00%	8	0.35%
Total	349	100.00%	1312	100.00%	102	100.00%	514	100.00%	2277	100.00%

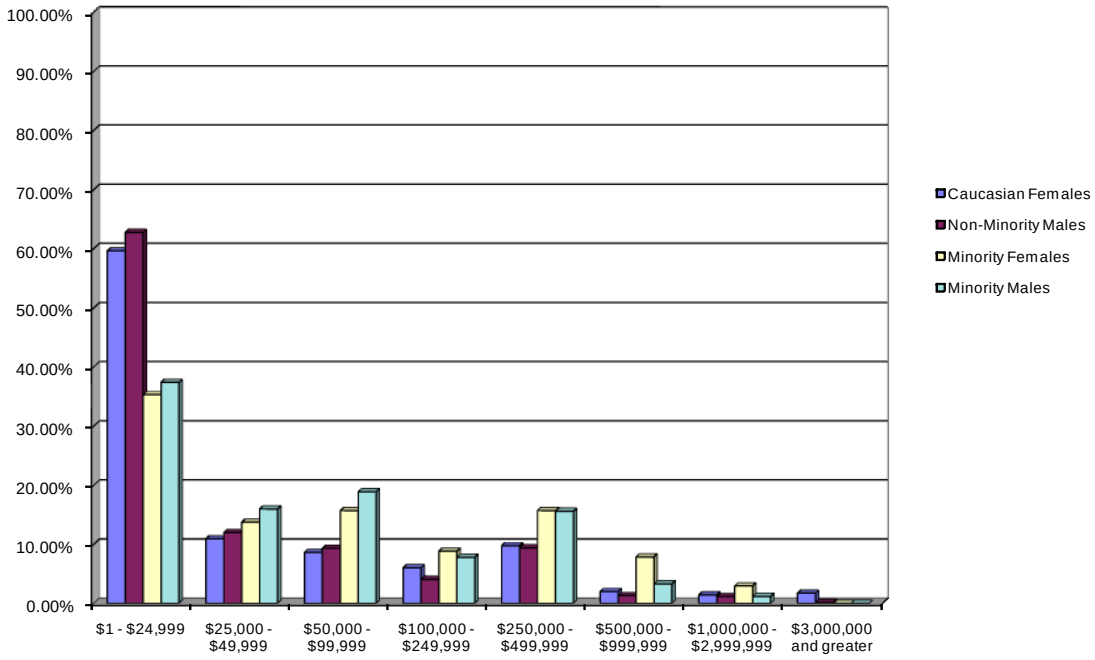


Table 4.19 Construction Subcontracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	138	67.32%	625	69.21%	12	38.71%	96	46.38%	871	64.71%
$25,000 - $49,999	19	9.27%	113	12.51%	6	19.35%	35	16.91%	173	12.85%
$50,000 - $99,999	16	7.80%	79	8.75%	5	16.13%	31	14.98%	131	9.73%
$100,000 - $249,999	8	3.90%	25	2.77%	0	0.00%	12	5.80%	45	3.34%
$250,000 - $499,999	19	9.27%	48	5.32%	7	22.58%	25	12.08%	99	7.36%
$500,000 - $999,999	5	2.44%	7	0.78%	0	0.00%	6	2.90%	18	1.34%
$1,000,000 - $2,999,999	0	0.00%	5	0.55%	1	3.23%	2	0.97%	8	0.59%
$3,000,000 and greater	0	0.00%	1	0.11%	0	0.00%	0	0.00%	1	0.07%
Total	205	100.00%	903	100.00%	31	100.00%	207	100.00%	1346	100.00%

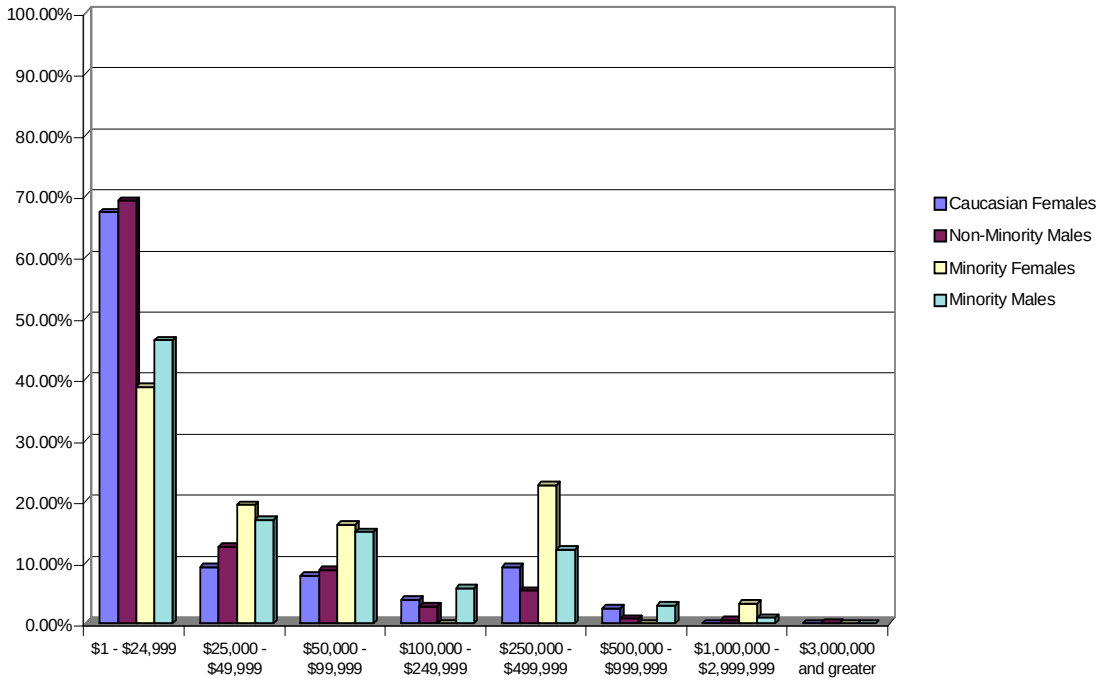


Table 4.20 Architectural and Engineering Subcontracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	37	68.52%	48	35.04%	10	31.25%	51	28.33%	146	36.23%
$25,000 - $49,999	5	9.26%	20	14.60%	3	9.38%	26	14.44%	54	13.40%
$50,000 - $99,999	5	9.26%	24	17.52%	3	9.38%	41	22.78%	73	18.11%
$100,000 - $249,999	2	3.70%	15	10.95%	6	18.75%	13	7.22%	36	8.93%
$250,000 - $499,999	2	3.70%	21	15.33%	5	15.63%	35	19.44%	63	15.63%
$500,000 - $999,999	0	0.00%	4	2.92%	3	9.38%	10	5.56%	17	4.22%
$1,000,000 - $2,999,999	3	5.56%	5	3.65%	2	6.25%	4	2.22%	14	3.47%
$3,000,000 and greater	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	54	100.00%	137	100.00%	32	100.00%	180	100.00%	403	100.00%

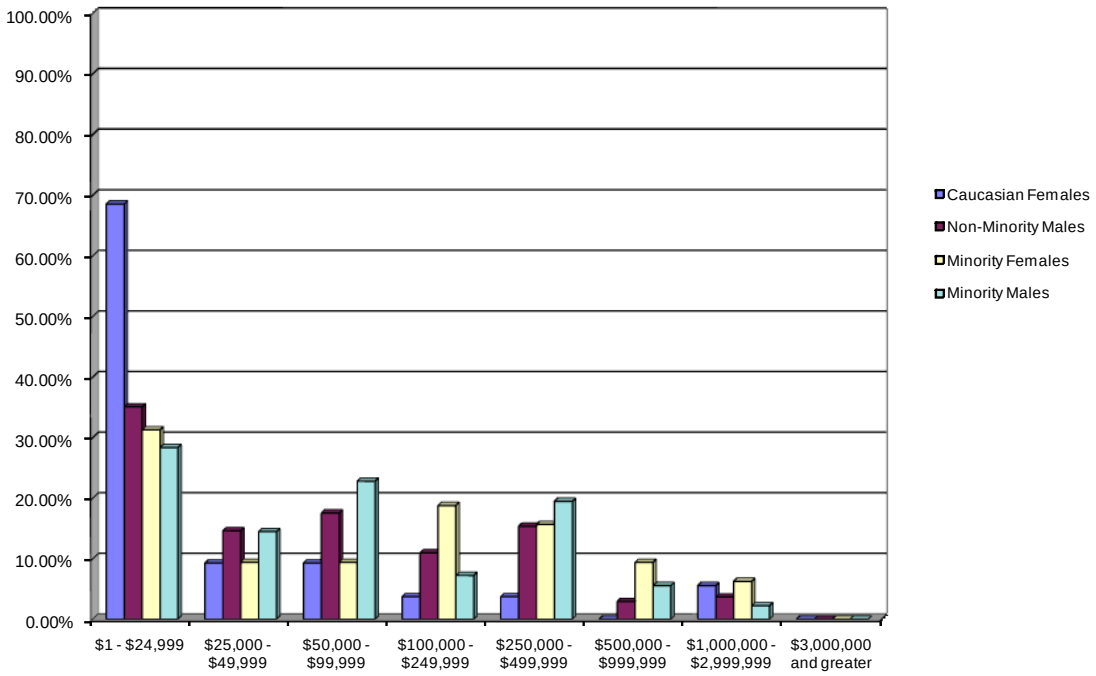


Table 4.21 Professional Services Subcontracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	4	33.33%	2	16.67%	3	33.33%	3	21.43%	12	25.53%
$25,000 - $49,999	4	33.33%	2	16.67%	0	0.00%	3	21.43%	9	19.15%
$50,000 - $99,999	2	16.67%	2	16.67%	2	22.22%	3	21.43%	9	19.15%
$100,000 - $249,999	2	16.67%	1	8.33%	0	0.00%	4	28.57%	7	14.89%
$250,000 - $499,999	0	0.00%	2	16.67%	2	22.22%	1	7.14%	5	10.64%
$500,000 - $999,999	0	0.00%	1	8.33%	2	22.22%	0	0.00%	3	6.38%
$1,000,000 - $2,999,999	0	0.00%	2	16.67%	0	0.00%	0	0.00%	2	4.26%
$3,000,000 and greater	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	12	100.00%	12	100.00%	9	100.00%	14	100.00%	47	100.00%

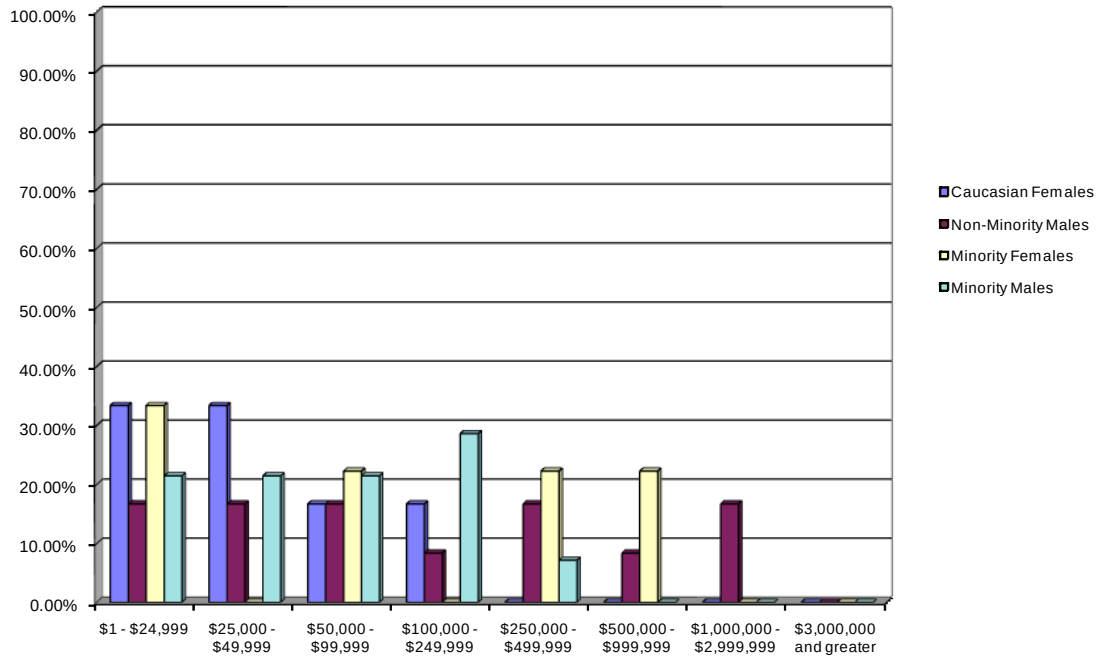
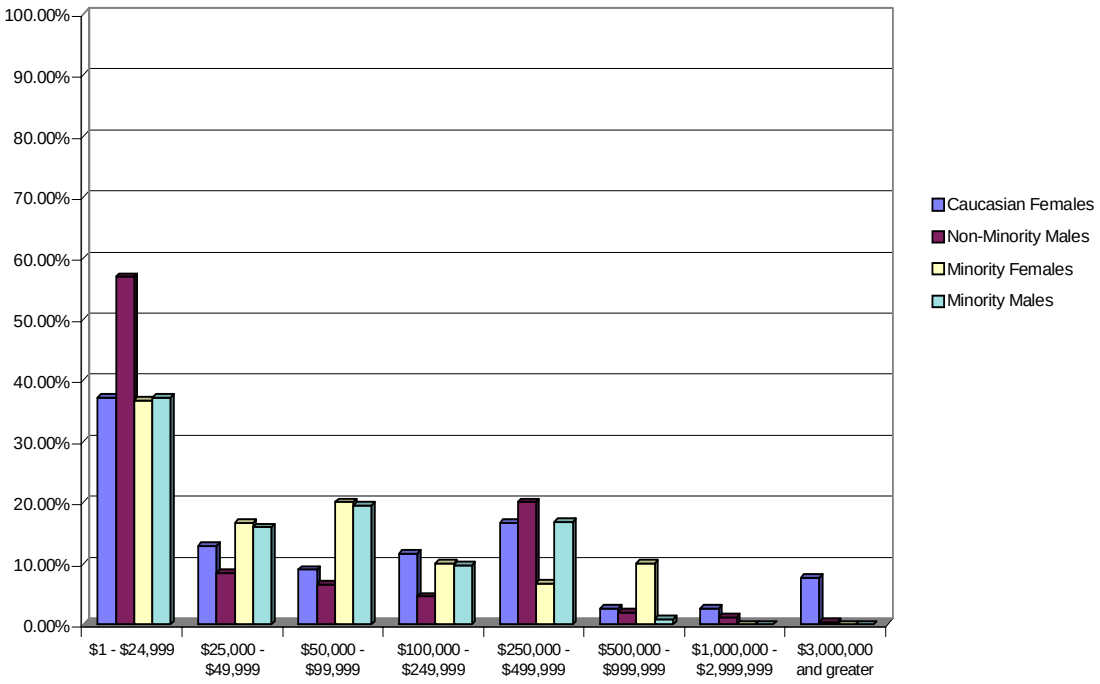


Table 4.22 Goods and Other Services Subcontracts by Size: July 1, 2003 to June 30, 2009

Size	Non-Minority				Minority					
	Females		Males		Females		Males		Total	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$1 - $24,999	29	37.18%	148	56.92%	11	36.67%	42	37.17%	230	47.82%
$25,000 - $49,999	10	12.82%	22	8.46%	5	16.67%	18	15.93%	55	11.43%
$50,000 - $99,999	7	8.97%	17	6.54%	6	20.00%	22	19.47%	52	10.81%
$100,000 - $249,999	9	11.54%	12	4.62%	3	10.00%	11	9.73%	35	7.28%
$250,000 - $499,999	13	16.67%	52	20.00%	2	6.67%	19	16.81%	86	17.88%
$500,000 - $999,999	2	2.56%	5	1.92%	3	10.00%	1	0.88%	11	2.29%
$1,000,000 - $2,999,999	2	2.56%	3	1.15%	0	0.00%	0	0.00%	5	1.04%
$3,000,000 and greater	6	7.69%	1	0.38%	0	0.00%	0	0.00%	7	1.46%
Total	78	100.00%	260	100.00%	30	100.00%	113	100.00%	481	100.00%



D. Construction Subcontractor Availability

The distribution of available construction subcontractors is summarized in Table 4.23.

African Americans account for 37.13 percent of the construction firms in WSSC's market area.

Asian Americans account for 5.25 percent of the construction firms in WSSC's market area.

Hispanic Americans account for 11.92 percent of the construction firms in WSSC's market area.

Native Americans account for 1.23 percent of the construction firms in WSSC's market area.

Minority Business Enterprises account for 55.53 percent of the construction firms in WSSC's market area.

Women Business Enterprises account for 10.6 percent of the construction firms in WSSC's market area.

Minority and Women Business Enterprises account for 66.13 percent of the construction firms in WSSC's market area.

Non-Minority Male Business Enterprises account for 33.87 percent of the construction firms in WSSC's market area.

Table 4.23 Available Construction Subcontractors

Ethnicity	Percent of Businesses
African Americans	37.13%
Asian Americans	5.25%
Hispanic Americans	11.92%
Native Americans	1.23%
Caucasian Females	10.60%
Non-Minority Males	33.87%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	6.29%
African American Males	30.84%
Asian American Females	0.85%
Asian American Males	4.40%
Hispanic American Females	1.94%
Hispanic American Males	9.98%
Native American Females	0.43%
Native American Males	0.80%
Caucasian Females	10.60%
Non-Minority Males	33.87%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	9.51%
Minority Males	46.03%
Caucasian Females	10.60%
Non-Minority Males	33.87%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	55.53%
Women Business Enterprises	10.60%
Minority and Women Business Enterprises	**66.13%**
Non-Minority Male Business Enterprises	33.87%
TOTAL	100.00%

E. Architectural and Engineering Subcontractor Availability

The distribution of available architectural and engineering subcontractors is summarized in Table 4.24.

African Americans account for 23.22 percent of the architectural and engineering firms in WSSC's market area.

Asian Americans account for 18.37 percent of the architectural and engineering firms in WSSC's market area.

Hispanic Americans account for 5.37 percent of the architectural and engineering firms in WSSC's market area.

Native Americans account for 0.35 percent of the architectural and engineering firms in WSSC's market area.

Minority Business Enterprises account for 47.31 percent of the architectural and engineering firms in WSSC's market area.

Women Business Enterprises account for 13.52 percent of the architectural and engineering firms in WSSC's market area.

Minority and Women Business Enterprises account for 60.83 percent of the architectural and engineering firms in WSSC's market area.

Non-Minority Male Business Enterprises account for 39.17 percent of the architectural and engineering firms in WSSC's market area.

Table 4.24 Available Architectural and Engineering Subcontractors

Ethnicity	Percent of Businesses
African Americans	23.22%
Asian Americans	18.37%
Hispanic Americans	5.37%
Native Americans	0.35%
Caucasian Females	13.52%
Non-Minority Males	39.17%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	3.99%
African American Males	19.24%
Asian American Females	1.56%
Asian American Males	16.81%
Hispanic American Females	0.87%
Hispanic American Males	4.51%
Native American Females	0.17%
Native American Males	0.17%
Caucasian Females	13.52%
Non-Minority Males	39.17%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	6.59%
Minority Males	40.73%
Caucasian Females	13.52%
Non-Minority Males	39.17%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	47.31%
Women Business Enterprises	13.52%
Minority and Women Business Enterprises	**60.83%**
Non-Minority Male Business Enterprises	39.17%
TOTAL	100.00%

F. Professional Services Subcontractor Availability

The distribution of available professional services subcontractors is summarized in Table 4.25.

African Americans account for 36.66 percent of the professional services firms in WSSC's market area.

Asian Americans account for 10.8 percent of the professional services firms in WSSC's market area.

Hispanic Americans account for 3.98 percent of the professional services firms in WSSC's market area.

Native Americans account for 0.79 percent of the professional services firms in WSSC's market area.

Minority Business Enterprises account for 52.23 percent of the professional services firms in WSSC's market area.

Women Business Enterprises account for 16.51 percent of the professional services firms in WSSC's market area.

Minority and Women Business Enterprises account for 68.74 percent of the professional services firms in WSSC's market area.

Non-Minority Male Business Enterprises account for 31.26 percent of the professional services firms in WSSC's market area.

Table 4.25 Available Professional Services Subcontractors

Ethnicity	Percent of Businesses
African Americans	36.66%
Asian Americans	10.80%
Hispanic Americans	3.98%
Native Americans	0.79%
Caucasian Females	16.51%
Non-Minority Males	31.26%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	14.12%
African American Males	22.54%
Asian American Females	3.72%
Asian American Males	7.09%
Hispanic American Females	1.34%
Hispanic American Males	2.64%
Native American Females	0.27%
Native American Males	0.52%
Caucasian Females	16.51%
Non-Minority Males	31.26%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	19.44%
Minority Males	32.79%
Caucasian Females	16.51%
Non-Minority Males	31.26%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	52.23%
Women Business Enterprises	16.51%
Minority and Women Business Enterprises	**68.74%**
Non-Minority Male Business Enterprises	31.26%
TOTAL	100.00%

G. Goods and Other Services Subcontractor Availability

The distribution of available goods and other services subcontractors is summarized in Table 4.26.

African Americans account for 35.05 percent of the goods and other services firms in WSSC's market area.

Asian Americans account for 8.2 percent of the goods and other services firms in WSSC's market area.

Hispanic Americans account for 4.32 percent of the goods and other services firms in WSSC's market area.

Native Americans account for 0.91 percent of the goods and other services firms in WSSC's market area.

Minority Business Enterprises account for 48.47 percent of the goods and other services firms in WSSC's market area.

Women Business Enterprises account for 16.68 percent of the goods and other services firms in WSSC's market area.

Minority and Women Business Enterprises account for 65.16 percent of the goods and other services firms in WSSC's market area.

Non-Minority Male Business Enterprises account for 34.84 percent of the goods and other services firms in WSSC's market area.

Table 4.26 Available Goods and Other Services Subcontractors

Ethnicity	Percent of Businesses
African Americans	35.05%
Asian Americans	8.20%
Hispanic Americans	4.32%
Native Americans	0.91%
Caucasian Females	16.68%
Non-Minority Males	34.84%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
African American Females	11.85%
African American Males	23.20%
Asian American Females	2.77%
Asian American Males	5.42%
Hispanic American Females	1.54%
Hispanic American Males	2.78%
Native American Females	0.35%
Native American Males	0.56%
Caucasian Females	16.68%
Non-Minority Males	34.84%
TOTAL	100.00%
Minority and Gender	**Percent of Businesses**
Minority Females	16.51%
Minority Males	31.96%
Caucasian Females	16.68%
Non-Minority Males	34.84%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	48.47%
Women Business Enterprises	16.68%
Minority and Women Business Enterprises	**65.16%**
Non-Minority Male Business Enterprises	34.84%
TOTAL	100.00%

5

PRIME CONTRACTOR DISPARITY ANALYSIS

I. INTRODUCTION

The objective of the disparity analysis is to determine the levels at which minority and woman-owned business enterprises (M/WBEs) are utilized on Washington Suburban Sanitary Commission (WSSC) contracts. Under a fair and equitable system of awarding contracts, the proportion of contract dollars awarded to M/WBEs should be relatively close to the corresponding proportion of available M/WBEs[1] in the relevant market area. If the available M/WBE prime contractors are underutilized, a statistical test is conducted to calculate the probability of observing the empirical disparity ratio or any event which is less probable. This analysis assumes a fair and equitable system.[2] *Croson* states that an inference of discrimination can be made prima facie if the disparity is statistically significant.

The first step in conducting the statistical test is to calculate the contract value that each ethnic and gender group is expected to receive. This value is based on each group's availability in the market area, and shall be referred to as the **expected contract amount**. The next step computes the difference between each ethnic and gender group's expected contract amount and the **actual contract amount** received by each group. Then, the **disparity ratio** is computed by dividing the actual contract amount by the expected contract amount.

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1 Availability is defined as the number of ready, willing and able firms. The methodology for determining willing and able firms is detailed in Chapter 4.

2 When conducting statistical tests, a confidence level 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 to be 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.

In practice, a disparity ratio of less than 0.80 indicates a relevant degree of disparity. To test the statistical significance of a disparity ratio, a P-value must be calculated.[3] All disparity findings less than 1 are subject to the analysis which tests for statistical significance. The three methods employed to calculate statistical significance include a parametric analysis,[4] a non-parametric analysis,[5] and a simulation analysis.

A parametric analysis is most commonly used when the number of contracts is sufficiently large and the variation of the contract dollar amounts is not too large. When the variation in contract dollar amounts is large, a disparity may not be detectable using a parametric analysis. Therefore, a non-parametric analysis would be employed to analyze the contracts ranked by dollar amount. Both parametric and non-parametric analyses are effective due to the central limit theorem, which is strongest when the number of contracts is large and the data is not skewed. When there are too few contracts[6] or the contract dollar data is skewed, a simulation analysis is employed. The utility of the simulation analysis is also dependent on the severity of the disparity when there are too few contracts. The simulation analysis utilizes randomization to simulate a distribution for the contracts.[7] By conducting multiple trials in the simulation, the empirical data can be used to test the distribution of contract awards for significance.

For parametric and non-parametric analyses, 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.[8] In the simulation analysis, the P-value takes into account a combination of the distribution formulated from the empirical data and the contract dollar amounts or contract rank. If the actual contract dollar amount, or actual contract rank, falls below the fifth percentile of the distribution, it denotes a P-value less than 0.05, which is statistically significant.

Our statistical model employs all three methods simultaneously to each industry. Findings from one of the three models are reported.

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3 P-value is a measure of statistical significance.

4 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.

5 Non-parametric analysis is a method to make data more suitable for statistical testing by allowing one variable to be replaced with a new variable that maintains the essential characteristics of the original one. In this case, the contracts are ranked from the smallest to the largest. The dollar value of each contract is replaced with its rank order number.

6 Note: a relatively small availability population size decreases the reliability of the statistical results. therefore any availability percentage under one percent cannot be labeled as statistically significant.

7 The simulation analysis can be conducted using contract dollar amounts or contract rankings.

8 The study does not test statistically the overutilization of M/WBEs or the underutilization of Non-Minority males.

II. DISPARITY ANALYSIS

A prime contract disparity analysis was performed on construction, architectural and engineering, professional services, and goods and other services contracts issued between July 1, 2003 and June 30, 2009.

As demonstrated in *Chapter 4: Availability Analysis*, the majority of WSSC's contracts were small. Construction prime contracts valued at less than $100,000 constituted 81.55 percent, and those valued at less than $500,000 constituted 93.28. Architectural and engineering prime contracts valued at less than $100,000 represented 63.77 percent, and those valued at less than $500,000 constituted 91.02 percent. Professional services prime contracts valued at less than $100,000 represented 92.91 percent, and those valued at less than $500,000 constituted 99.49 percent. Goods and other services prime contracts valued at less than $100,000 represented 98.55 percent, and those valued at less than $500,000 constituted 99.7 percent.

The threshold levels for the disparity analysis were set to ensure that within the pool of willing businesses there was documented capacity to perform the formal contracts analyzed. The threshold for all four industries: construction, architectural and engineering, professional services, and goods and other services was limited to the $500,000 level. The $500,000 threshold was designated because at this level there was a demonstrated capacity within the pool of M/WBEs willing to perform WSSC's contracts.[9] The threshold applied for the informal contract analysis was the $25,000 threshold stipulated in WSSC procurement policy.

[9] See *Chapter 4: Availability Analysis* - Section III for a discussion of M/WBE capacity.

A. Disparity Analysis: All Prime Contracts under $500,000, by Industry

1. Construction Prime Contracts under $500,000

The disparity analysis of all construction prime contracts under $500,000 is described below and depicted in Table 5.01 and Chart 5.01.

African American Businesses represent 39.51 percent of the available construction businesses and received 7.98 percent of construction prime contracts under $500,000. This underutilization is statistically significant.

Asian American Businesses represent 5.48 percent of the available construction businesses and received 2.35 percent of construction prime contracts under $500,000. This underutilization is statistically significant.

Hispanic American Businesses represent 12.81 percent of the available construction businesses and received 17.62 percent of construction prime contracts under $500,000. This study does not test statistically the overutilization of minority groups.

Native American Businesses represent 1.1 percent of the available construction businesses and received none of the construction prime contracts under $500,000. This underutilization is statistically significant.

Minority Business Enterprises represent 58.89 percent of the available construction businesses and received 27.95 percent of construction prime contracts under $500,000. This underutilization is statistically significant.

Women Business Enterprises represent 10.11 percent of the available construction businesses and received 6.46 percent of construction prime contracts under $500,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 69.01 percent of available construction businesses and received 34.41 percent of construction prime contracts under $500,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 30.99 percent of the available construction businesses and received 65.59 percent of construction prime contracts under $500,000. This overutilization is statistically significant.

Table 5.01 Disparity Analysis: Construction Prime Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$7,304,644	7.98%	39.51%	$36,180,404	-$28,875,760	0.20	< .05 *
Asian Americans	$2,153,433	2.35%	5.48%	$5,018,719	-$2,865,287	0.43	< .05 *
Hispanic Americans	$16,137,085	17.62%	12.81%	$11,725,553	$4,411,532	1.38	**
Native Americans	$0	0.00%	1.10%	$1,003,744	-$1,003,744	0.00	< .05 *
Caucasian Females	$5,911,766	6.46%	10.11%	$9,261,818	-$3,350,052	0.64	< .05 *
Non-Minority Males	$60,061,888	65.59%	30.99%	$28,378,576	$31,683,311	2.12	< .05 †
TOTAL	$91,568,815	100.00%	100.00%	$91,568,815			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$152,629	0.17%	6.23%	$5,703,090	-$5,550,461	0.03	< .05 *
African American Males	$7,152,015	7.81%	33.28%	$30,477,314	-$23,325,299	0.23	< .05 *
Asian American Females	$0	0.00%	0.95%	$866,870	-$866,870	0.00	----
Asian American Males	$2,153,433	2.35%	4.53%	$4,151,850	-$1,998,417	0.52	< .05 *
Hispanic American Females	$607,256	0.66%	1.99%	$1,824,989	-$1,217,733	0.33	< .05 *
Hispanic American Males	$15,529,829	16.96%	10.81%	$9,900,564	$5,629,264	1.57	**
Native American Females	$0	0.00%	0.30%	$273,748	-$273,748	0.00	----
Native American Males	$0	0.00%	0.80%	$729,996	-$729,996	0.00	----
Caucasian Females	$5,911,766	6.46%	10.11%	$9,261,818	-$3,350,052	0.64	< .05 *
Non-Minority Males	$60,061,888	65.59%	30.99%	$28,378,576	$31,683,311	2.12	< .05 †
TOTAL	$91,568,815	100.00%	100.00%	$91,568,815			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$759,885	0.83%	9.47%	$8,668,697	-$7,908,812	0.09	< .05 *
Minority Males	$24,835,276	27.12%	49.43%	$45,259,723	-$20,424,447	0.55	< .05 *
Caucasian Females	$5,911,766	6.46%	10.11%	$9,261,818	-$3,350,052	0.64	< .05 *
Non-Minority Males	$60,061,888	65.59%	30.99%	$28,378,576	$31,683,311	2.12	< .05 †
TOTAL	$91,568,815	100.00%	100.00%	$91,568,815			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$25,595,161	27.95%	58.89%	$53,928,420	-$28,333,259	0.47	< .05 *
Women Business Enterprises	$5,911,766	6.46%	10.11%	$9,261,818	-$3,350,052	0.64	< .05 *
Minority and Women Business Enterprises	**$31,506,927**	**34.41%**	**69.01%**	**$63,190,238**	**-$31,683,311**	**0.50**	**< .05 ***
Non-Minority Male Business Enterprises	$60,061,888	65.59%	30.99%	$28,378,576	$31,683,311	2.12	< .05 †

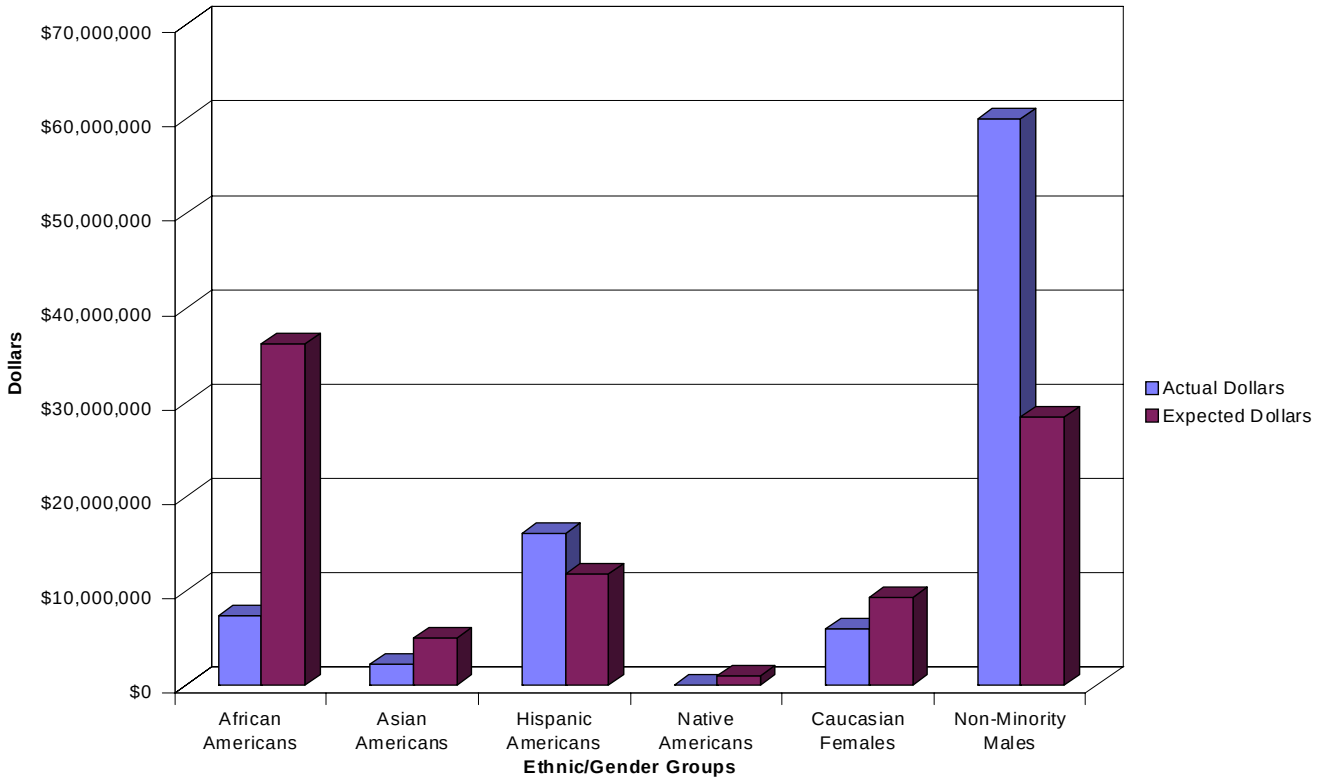
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.01 Disparity Analysis: Construction Prime Contracts under $500,000, July 1, 2003 to June 30, 2009



2. Architectural and Engineering Prime Contracts under $500,000

The disparity analysis of architectural and engineering prime contracts under $500,000 is described below and depicted in Table 5.02 and Chart 5.02.

African American Businesses represent 23.72 percent of the available architectural and engineering businesses and received 5 percent of architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Asian American Businesses represent 19.17 percent of the available architectural and engineering businesses and received 14.73 percent of architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Hispanic American Businesses represent 5.53 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Native American Businesses represent 0.4 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $500,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 48.81 percent of the available architectural and engineering businesses and received 19.73 percent of architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Women Business Enterprises represent 13.04 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 61.86 percent of the available architectural and engineering businesses and received 19.73 percent of architectural and engineering prime contracts under $500,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 38.14 percent of the available architectural and engineering businesses and received 80.27 percent of architectural and engineering prime contracts under $500,000. This overutilization is statistically significant.

Table 5.02 Disparity Analysis: Architectural and Engineering Prime Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$2,521,303	5.00%	23.72%	$11,953,053	-$9,431,751	0.21	< .05 *
Asian Americans	$7,424,573	14.73%	19.17%	$9,662,051	-$2,237,479	0.77	< .05 *
Hispanic Americans	$0	0.00%	5.53%	$2,789,046	-$2,789,046	0.00	< .05 *
Native Americans	$0	0.00%	0.40%	$199,218	-$199,218	0.00	----
Caucasian Females	$0	0.00%	13.04%	$6,574,179	-$6,574,179	0.00	< .05 *
Non-Minority Males	$40,456,166	80.27%	38.14%	$19,224,494	$21,231,672	2.10	< .05 †
TOTAL	$50,402,041	100.00%	100.00%	$50,402,041			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$399,385	0.79%	3.36%	$1,693,349	-$1,293,964	0.24	< .05 *
African American Males	$2,121,917	4.21%	20.36%	$10,259,704	-$8,137,786	0.21	< .05 *
Asian American Females	$0	0.00%	1.19%	$597,653	-$597,653	0.00	< .05 *
Asian American Males	$7,424,573	14.73%	17.98%	$9,064,399	-$1,639,826	0.82	not significant
Hispanic American Females	$0	0.00%	0.99%	$498,044	-$498,044	0.00	----
Hispanic American Males	$0	0.00%	4.55%	$2,291,002	-$2,291,002	0.00	< .05 *
Native American Females	$0	0.00%	0.20%	$99,609	-$99,609	0.00	----
Native American Males	$0	0.00%	0.20%	$99,609	-$99,609	0.00	----
Caucasian Females	$0	0.00%	13.04%	$6,574,179	-$6,574,179	0.00	< .05 *
Non-Minority Males	$40,456,166	80.27%	38.14%	$19,224,494	$21,231,672	2.10	< .05 †
TOTAL	$50,402,041	100.00%	100.00%	$50,402,041			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$399,385	0.79%	5.73%	$2,888,655	-$2,489,269	0.14	< .05 *
Minority Males	$9,546,490	18.94%	43.08%	$21,714,713	-$12,168,223	0.44	< .05 *
Caucasian Females	$0	0.00%	13.04%	$6,574,179	-$6,574,179	0.00	< .05 *
Non-Minority Males	$40,456,166	80.27%	38.14%	$19,224,494	$21,231,672	2.10	< .05 †
TOTAL	$50,402,041	100.00%	100.00%	$50,402,041			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$9,945,875	19.73%	48.81%	$24,603,368	-$14,657,493	0.40	< .05 *
Women Business Enterprises	$0	0.00%	13.04%	$6,574,179	-$6,574,179	0.00	< .05 *
Minority and Women Business Enterprises	**$9,945,875**	**19.73%**	**61.86%**	**$31,177,547**	**-$21,231,672**	**0.32**	**< .05 ***
Non-Minority Male Business Enterprises	$40,456,166	80.27%	38.14%	$19,224,494	$21,231,672	2.10	< .05 †

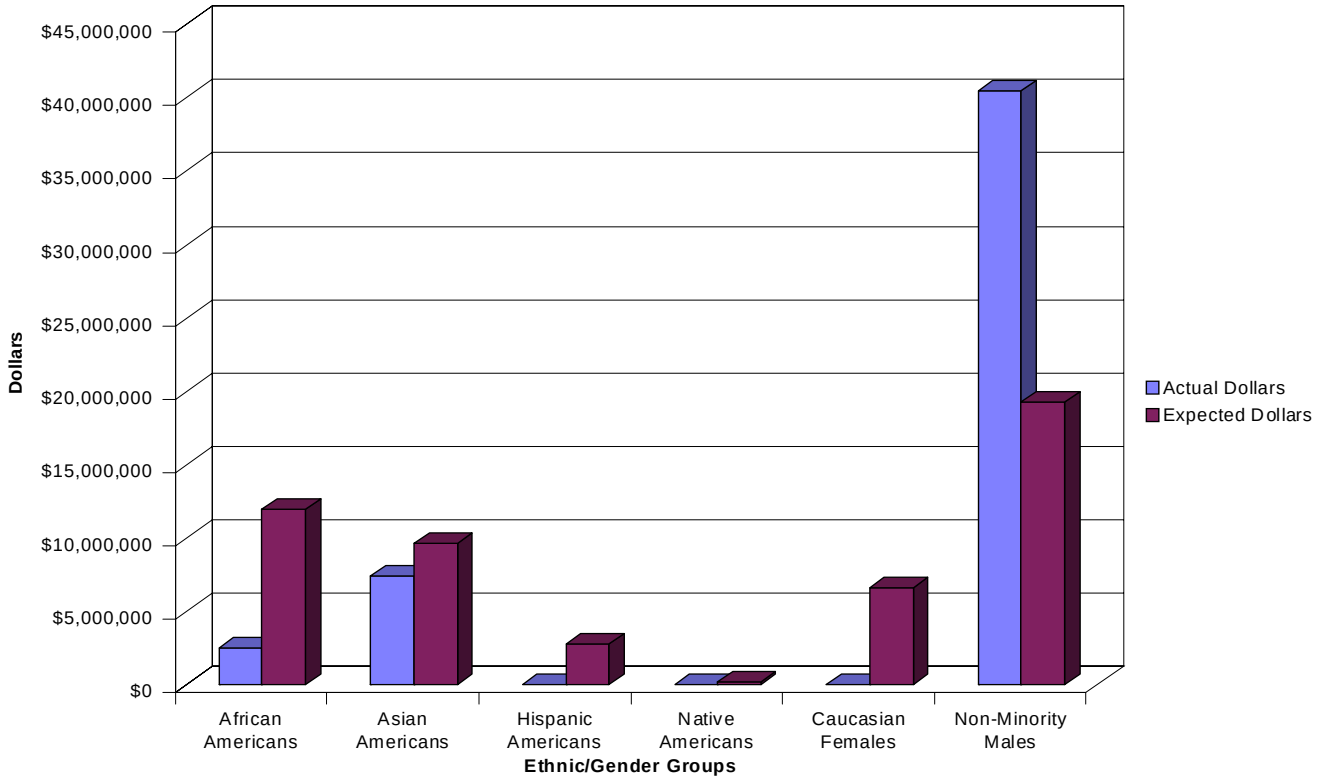
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.02 Disparity Analysis: Architectural and Engineering Prime Contracts under $500,000, July 1, 2003 to June 30, 2009



3. Professional Services Prime Contracts under $500,000

The disparity analysis of professional services prime contracts under $500,000 is described below and depicted in Table 5.03 and Chart 5.03.

African American Businesses represent 36.22 percent of the available professional services businesses and received 9.87 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Asian American Businesses represent 10.56 percent of the available professional services businesses and received 7.47 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Hispanic American Businesses represent 4.01 percent of the available professional services businesses and received 0.11 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Native American Businesses represent 0.72 percent of the available professional services businesses and received none of the professional services prime contracts under $500,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 51.51 percent of the available professional services businesses and received 17.45 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Women Business Enterprises represent 17.26 percent of the available professional services businesses and received 4.94 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 68.77 percent of the available professional services businesses and received 22.39 percent of professional services prime contracts under $500,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 31.23 percent of the available professional services businesses and received 77.61 percent of professional services prime contracts under $500,000. This overutilization is statistically significant.

Table 5.03 Disparity Analysis: Professional Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$5,599,597	9.87%	36.22%	$20,544,519	-$14,944,922	0.27	< .05 *
Asian Americans	$4,239,394	7.47%	10.56%	$5,992,151	-$1,752,758	0.71	< .05 *
Hispanic Americans	$60,393	0.11%	4.01%	$2,275,765	-$2,215,372	0.03	< .05 *
Native Americans	$0	0.00%	0.72%	$407,132	-$407,132	0.00	----
Caucasian Females	$2,799,559	4.94%	17.26%	$9,792,052	-$6,992,493	0.29	< .05 *
Non-Minority Males	$44,028,149	77.61%	31.23%	$17,715,472	$26,312,677	2.49	< .05 †
TOTAL	$56,727,092	100.00%	100.00%	$56,727,092			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$1,347,655	2.38%	13.88%	$7,871,223	-$6,523,568	0.17	< .05 *
African American Males	$4,251,942	7.50%	22.34%	$12,673,296	-$8,421,354	0.34	< .05 *
Asian American Females	$2,997,097	5.28%	3.66%	$2,077,418	$919,679	1.44	**
Asian American Males	$1,242,296	2.19%	6.90%	$3,914,733	-$2,672,437	0.32	< .05 *
Hispanic American Females	$1,225	0.00%	1.31%	$741,189	-$739,964	0.00	< .05 *
Hispanic American Males	$59,168	0.10%	2.71%	$1,534,575	-$1,475,407	0.04	< .05 *
Native American Females	$0	0.00%	0.28%	$156,589	-$156,589	0.00	----
Native American Males	$0	0.00%	0.44%	$250,543	-$250,543	0.00	----
Caucasian Females	$2,799,559	4.94%	17.26%	$9,792,052	-$6,992,493	0.29	< .05 *
Non-Minority Males	$44,028,149	77.61%	31.23%	$17,715,472	$26,312,677	2.49	< .05 †
TOTAL	$56,727,092	100.00%	100.00%	$56,727,092			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$4,345,977	7.66%	19.12%	$10,846,420	-$6,500,443	0.40	< .05 *
Minority Males	$5,553,406	9.79%	32.39%	$18,373,147	-$12,819,741	0.30	< .05 *
Caucasian Females	$2,799,559	4.94%	17.26%	$9,792,052	-$6,992,493	0.29	< .05 *
Non-Minority Males	$44,028,149	77.61%	31.23%	$17,715,472	$26,312,677	2.49	< .05 †
TOTAL	$56,727,092	100.00%	100.00%	$56,727,092			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$9,899,383	17.45%	51.51%	$29,219,567	-$19,320,184	0.34	< .05 *
Women Business Enterprises	$2,799,559	4.94%	17.26%	$9,792,052	-$6,992,493	0.29	< .05 *
Minority and Women Business Enterprises	**$12,698,943**	**22.39%**	**68.77%**	**$39,011,620**	**-$26,312,677**	**0.33**	**< .05 ***
Non-Minority Male Business Enterprises	$44,028,149	77.61%	31.23%	$17,715,472	$26,312,677	2.49	< .05 †

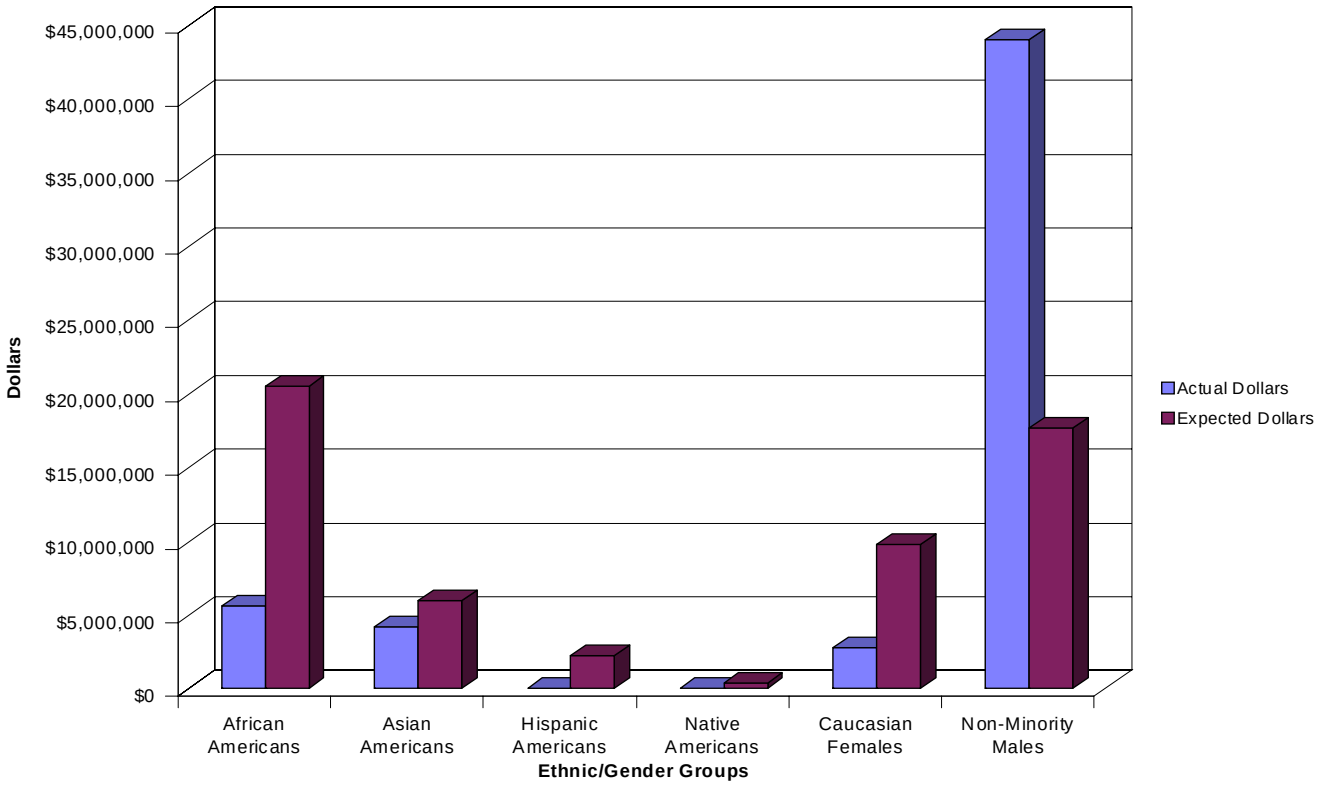
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.03 Disparity Analysis: Professional Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009



4. Goods and Other Services Prime Contracts under $500,000

The disparity analysis of goods and other services prime contracts under $500,000 is described below and depicted in Table 5.04 and Chart 5.04.

African American Businesses represent 34.49 percent of the available goods and other services businesses and received 24.93 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Asian American Businesses represent 8 percent of the available goods and other services businesses and received 2.12 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Hispanic American Businesses represent 4.34 percent of the available goods and other services businesses and received 1.15 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Native American Businesses represent 0.77 percent of the available goods and other services businesses and received 0.36 percent of goods and other services prime contracts under $500,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 47.59 percent of the available goods and other services businesses and received 28.57 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Women Business Enterprises represent 17.32 percent of the available goods and other services businesses and received 7.94 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 64.91 percent of the available goods and other services businesses and received 36.5 percent of goods and other services prime contracts under $500,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 35.09 percent of the available goods and other services businesses and received 63.5 percent of goods and other services prime contracts under $500,000. This overutilization is statistically significant.

Table 5.04 Disparity Analysis: Goods and Other Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$69,833,591	24.93%	34.49%	$96,601,471	-$26,767,879	0.72	< .05 *
Asian Americans	$5,939,980	2.12%	8.00%	$22,395,610	-$16,455,630	0.27	< .05 *
Hispanic Americans	$3,219,218	1.15%	4.34%	$12,144,558	-$8,925,340	0.27	< .05 *
Native Americans	$1,011,787	0.36%	0.77%	$2,154,680	-$1,142,893	0.47	----
Caucasian Females	$22,231,938	7.94%	17.32%	$48,512,939	-$26,281,001	0.46	< .05 *
Non-Minority Males	$177,839,193	63.50%	35.09%	$98,266,450	$79,572,743	1.81	< .05 †
TOTAL	$280,075,707	100.00%	100.00%	$280,075,707			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$23,659,622	8.45%	11.55%	$32,352,841	-$8,693,219	0.73	< .05 *
African American Males	$46,173,969	16.49%	22.94%	$64,248,629	-$18,074,660	0.72	< .05 *
Asian American Females	$1,392,090	0.50%	2.72%	$7,606,672	-$6,214,582	0.18	< .05 *
Asian American Males	$4,547,890	1.62%	5.28%	$14,788,938	-$10,241,048	0.31	< .05 *
Hispanic American Females	$1,662,070	0.59%	1.55%	$4,342,006	-$2,679,936	0.38	< .05 *
Hispanic American Males	$1,557,148	0.56%	2.79%	$7,802,552	-$6,245,404	0.20	< .05 *
Native American Females	$965,670	0.34%	0.28%	$783,520	$182,150	1.23	**
Native American Males	$46,117	0.02%	0.49%	$1,371,160	-$1,325,043	0.03	----
Caucasian Females	$22,231,938	7.94%	17.32%	$48,512,939	-$26,281,001	0.46	< .05 *
Non-Minority Males	$177,839,193	63.50%	35.09%	$98,266,450	$79,572,743	1.81	< .05 †
TOTAL	$280,075,707	100.00%	100.00%	$280,075,707			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$27,679,452	9.88%	16.10%	$45,085,039	-$17,405,587	0.61	< .05 *
Minority Males	$52,325,124	18.68%	31.50%	$88,211,279	-$35,886,155	0.59	< .05 *
Caucasian Females	$22,231,938	7.94%	17.32%	$48,512,939	-$26,281,001	0.46	< .05 *
Non-Minority Males	$177,839,193	63.50%	35.09%	$98,266,450	$79,572,743	1.81	< .05 †
TOTAL	$280,075,707	100.00%	100.00%	$280,075,707			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$80,004,576	28.57%	47.59%	$133,296,318	-$53,291,742	0.60	< .05 *
Women Business Enterprises	$22,231,938	7.94%	17.32%	$48,512,939	-$26,281,001	0.46	< .05 *
Minority and Women Business Enterprises	**$102,236,514**	**36.50%**	**64.91%**	**$181,809,257**	**-$79,572,743**	**0.56**	**< .05 ***
Non-Minority Male Business Enterprises	$177,839,193	63.50%	35.09%	$98,266,450	$79,572,743	1.81	< .05 †

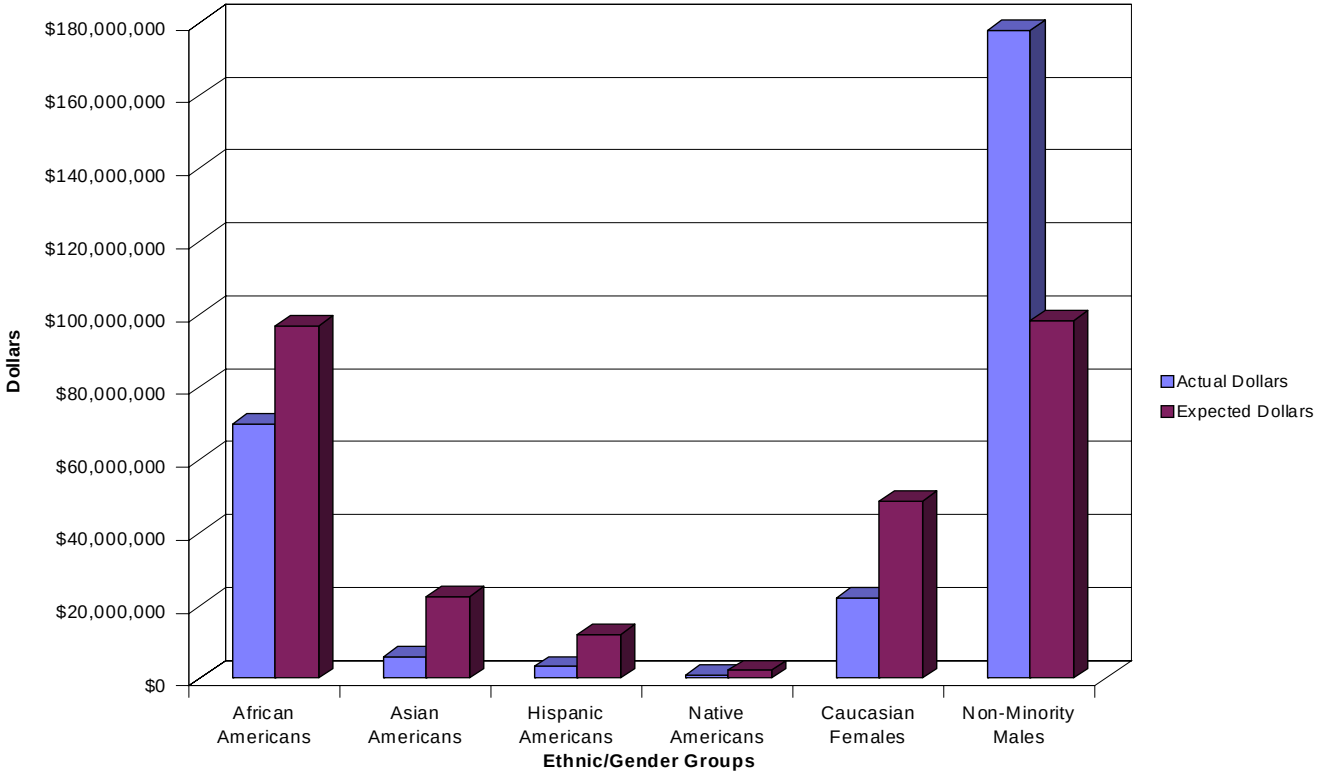
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.04 Disparity Analysis: Goods and Other Services Prime Contracts under $500,000, July 1, 2003 to June 30, 2009



B. Disparity Analysis: All Prime Contracts $25,000 and under, by Industry

1. Construction Prime Contracts $25,000 and under

The disparity analysis of all construction prime contracts $25,000 and under is described below and depicted in Table 5.05 and Chart 5.05.

African American Businesses represent 39.51 percent of the available construction businesses and received 10.1 percent of construction prime contracts $25,000 and under. This underutilization is statistically significant.

Asian American Businesses represent 5.48 percent of the available construction businesses and received 0.51 percent of construction prime contracts $25,000 and under. This underutilization is statistically significant.

Hispanic American Businesses represent 12.81 percent of the available construction businesses and received 24.55 percent of construction prime contracts $25,000 and under. This study does not test statistically the overutilization of minority groups.

Native American Businesses represent 1.1 percent of the available construction businesses and received none of the construction prime contracts $25,000 and under. This underutilization is statistically significant.

Minority Business Enterprises represent 58.89 percent of the available construction businesses and received 35.16 percent of construction prime contracts $25,000 and under. This underutilization is statistically significant.

Women Business Enterprises represent 10.11 percent of the available construction businesses and received 8.37 percent of construction prime contracts $25,000 and under. This underutilization is not statistically significant.

Minority and Women Business Enterprises represent 69.01 percent of available construction businesses and received 43.53 percent of construction prime contracts $25,000 and under. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 30.99 percent of the available construction businesses and received 56.47 percent of construction prime contracts $25,000 and under. This overutilization is statistically significant.

Table 5.05 Disparity Analysis: Construction Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$853,289	10.10%	39.51%	$3,339,206	-$2,485,917	0.26	< .05 *
Asian Americans	$43,389	0.51%	5.48%	$463,194	-$419,805	0.09	< .05 *
Hispanic Americans	$2,075,081	24.55%	12.81%	$1,082,189	$992,892	1.92	**
Native Americans	$0	0.00%	1.10%	$92,639	-$92,639	0.00	< .05 *
Caucasian Females	$707,140	8.37%	10.11%	$854,803	-$147,663	0.83	not significant
Non-Minority Males	$4,772,283	56.47%	30.99%	$2,619,151	$2,153,132	1.82	< .05 †
TOTAL	$8,451,182	100.00%	100.00%	$8,451,182			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$31,428	0.37%	6.23%	$526,357	-$494,929	0.06	< .05 *
African American Males	$821,861	9.72%	33.28%	$2,812,850	-$1,990,989	0.29	< .05 *
Asian American Females	$0	0.00%	0.95%	$80,006	-$80,006	0.00	----
Asian American Males	$43,389	0.51%	4.53%	$383,188	-$339,799	0.11	< .05 *
Hispanic American Females	$67,716	0.80%	1.99%	$168,434	-$100,718	0.40	< .05 *
Hispanic American Males	$2,007,365	23.75%	10.81%	$913,755	$1,093,610	2.20	**
Native American Females	$0	0.00%	0.30%	$25,265	-$25,265	0.00	----
Native American Males	$0	0.00%	0.80%	$67,374	-$67,374	0.00	----
Caucasian Females	$707,140	8.37%	10.11%	$854,803	-$147,663	0.83	not significant
Non-Minority Males	$4,772,283	56.47%	30.99%	$2,619,151	$2,153,132	1.82	< .05 †
TOTAL	$8,451,182	100.00%	100.00%	$8,451,182			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$99,144	1.17%	9.47%	$800,062	-$700,918	0.12	< .05 *
Minority Males	$2,872,615	33.99%	49.43%	$4,177,166	-$1,304,552	0.69	< .05 *
Caucasian Females	$707,140	8.37%	10.11%	$854,803	-$147,663	0.83	not significant
Non-Minority Males	$4,772,283	56.47%	30.99%	$2,619,151	$2,153,132	1.82	< .05 †
TOTAL	$8,451,182	100.00%	100.00%	$8,451,182			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$2,971,759	35.16%	58.89%	$4,977,228	-$2,005,470	0.60	< .05 *
Women Business Enterprises	$707,140	8.37%	10.11%	$854,803	-$147,663	0.83	not significant
Minority and Women Business Enterprises	**$3,678,899**	**43.53%**	**69.01%**	**$5,832,031**	**-$2,153,132**	**0.63**	**< .05 ***
Non-Minority Male Business Enterprises	$4,772,283	56.47%	30.99%	$2,619,151	$2,153,132	1.82	< .05 †

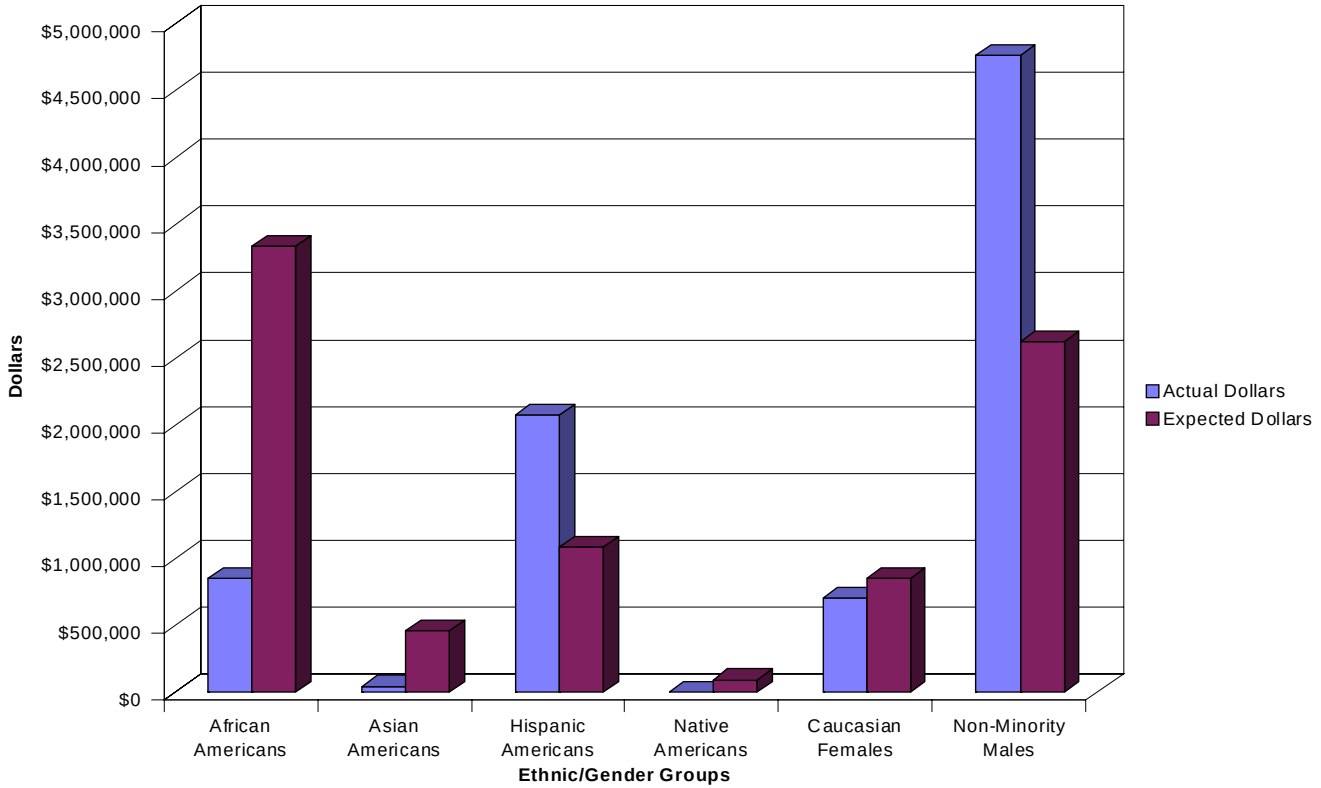
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.05 Disparity Analysis: Construction Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009



2. Architectural and Engineering Prime Contracts $25,000 and under

The disparity analysis of architectural and engineering prime contracts $25,000 and under is described below and depicted in Table 5.06 and Chart 5.06.

African American Businesses represent 23.72 percent of the available architectural and engineering businesses and received 3.5 percent of architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Asian American Businesses represent 19.17 percent of the available architectural and engineering businesses and received 13.25 percent of architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Hispanic American Businesses represent 5.53 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Native American Businesses represent 0.4 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts $25,000 and under. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 48.81 percent of the available architectural and engineering businesses and received 16.75 percent of architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Women Business Enterprises represent 13.04 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 61.86 percent of the available architectural and engineering businesses and received 16.75 percent of architectural and engineering prime contracts $25,000 and under. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 38.14 percent of the available architectural and engineering businesses and received 83.25 percent of architectural and engineering prime contracts $25,000 and under. This overutilization is statistically significant.

Table 5.06 Disparity Analysis: Architectural and Engineering Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$66,440	3.50%	23.72%	$449,664	-$383,224	0.15	< .05 *
Asian Americans	$251,177	13.25%	19.17%	$363,478	-$112,301	0.69	< .05 *
Hispanic Americans	$0	0.00%	5.53%	$104,922	-$104,922	0.00	< .05 *
Native Americans	$0	0.00%	0.40%	$7,494	-$7,494	0.00	----
Caucasian Females	$0	0.00%	13.04%	$247,315	-$247,315	0.00	< .05 *
Non-Minority Males	$1,578,465	83.25%	38.14%	$723,209	$855,256	2.18	< .05 †
TOTAL	$1,896,082	100.00%	100.00%	$1,896,082			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$93	0.00%	3.36%	$63,702	-$63,609	0.00	< .05 *
African American Males	$66,347	3.50%	20.36%	$385,961	-$319,615	0.17	< .05 *
Asian American Females	$0	0.00%	1.19%	$22,483	-$22,483	0.00	not significant
Asian American Males	$251,177	13.25%	17.98%	$340,995	-$89,818	0.74	not significant
Hispanic American Females	$0	0.00%	0.99%	$18,736	-$18,736	0.00	----
Hispanic American Males	$0	0.00%	4.55%	$86,186	-$86,186	0.00	< .05 *
Native American Females	$0	0.00%	0.20%	$3,747	-$3,747	0.00	----
Native American Males	$0	0.00%	0.20%	$3,747	-$3,747	0.00	----
Caucasian Females	$0	0.00%	13.04%	$247,315	-$247,315	0.00	< .05 *
Non-Minority Males	$1,578,465	83.25%	38.14%	$723,209	$855,256	2.18	< .05 †
TOTAL	$1,896,082	100.00%	100.00%	$1,896,082			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$93	0.00%	5.73%	$108,669	-$108,575	0.00	< .05 *
Minority Males	$317,523	16.75%	43.08%	$816,889	-$499,365	0.39	< .05 *
Caucasian Females	$0	0.00%	13.04%	$247,315	-$247,315	0.00	< .05 *
Non-Minority Males	$1,578,465	83.25%	38.14%	$723,209	$855,256	2.18	< .05 †
TOTAL	$1,896,082	100.00%	100.00%	$1,896,082			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$317,617	16.75%	48.81%	$925,558	-$607,941	0.34	< .05 *
Women Business Enterprises	$0	0.00%	13.04%	$247,315	-$247,315	0.00	< .05 *
Minority and Women Business Enterprises	**$317,617**	**16.75%**	**61.86%**	**$1,172,873**	**-$855,256**	**0.27**	**< .05 ***
Non-Minority Male Business Enterprises	$1,578,465	83.25%	38.14%	$723,209	$855,256	2.18	< .05 †

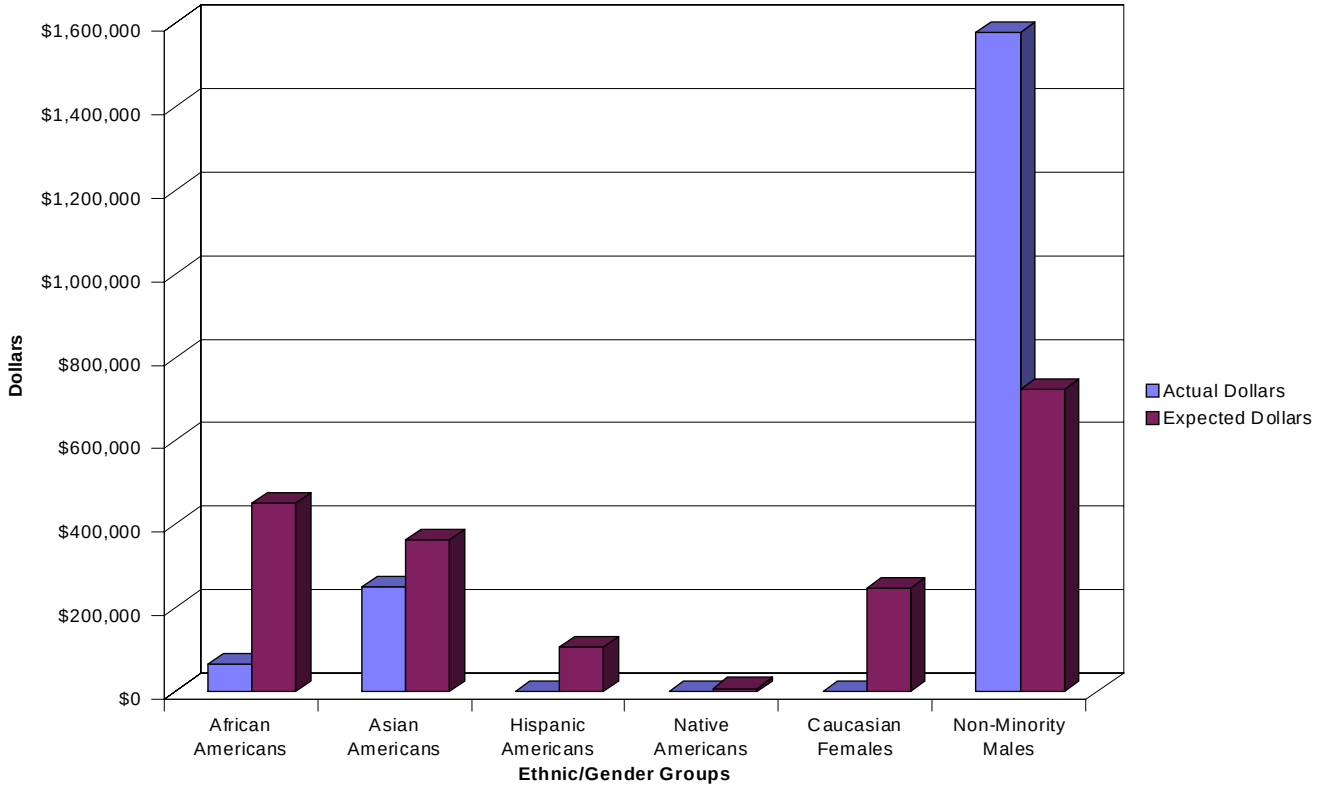
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.06 Disparity Analysis: Architectural and Engineering Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009



3. Professional Services Prime Contracts $25,000 and under

The disparity analysis of professional services prime contracts $25,000 and under is described below and depicted in Table 5.07 and Chart 5.07.

African American Businesses represent 36.22 percent of the available professional services businesses and received 18.26 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Asian American Businesses represent 10.56 percent of the available professional services businesses and received 1.77 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Hispanic American Businesses represent 4.01 percent of the available professional services businesses and received 0.2 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Native American Businesses represent 0.72 percent of the available professional services businesses and received none of the professional services prime contracts $25,000 and under. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 51.51 percent of the available professional services businesses and received 20.23 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Women Business Enterprises represent 17.26 percent of the available professional services businesses and received 6.73 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 68.77 percent of the available professional services businesses and received 26.96 percent of professional services prime contracts $25,000 and under. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 31.23 percent of the available professional services businesses and received 73.04 percent of professional services prime contracts $25,000 and under. This overutilization is statistically significant.

Table 5.07 Disparity Analysis: Professional Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$992,353	18.26%	36.22%	$1,968,695	-$976,342	0.50	< .05 *
Asian Americans	$96,389	1.77%	10.56%	$574,203	-$477,813	0.17	< .05 *
Hispanic Americans	$11,043	0.20%	4.01%	$218,077	-$207,034	0.05	< .05 *
Native Americans	$0	0.00%	0.72%	$39,014	-$39,014	0.00	----
Caucasian Females	$365,746	6.73%	17.26%	$938,331	-$572,586	0.39	< .05 *
Non-Minority Males	$3,970,388	73.04%	31.23%	$1,697,599	$2,272,789	2.34	< .05 †
TOTAL	$5,435,920	100.00%	100.00%	$5,435,920			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$334,375	6.15%	13.88%	$754,266	-$419,891	0.44	< .05 *
African American Males	$657,978	12.10%	22.34%	$1,214,429	-$556,451	0.54	< .05 *
Asian American Females	$76,934	1.42%	3.66%	$199,070	-$122,136	0.39	< .05 *
Asian American Males	$19,455	0.36%	6.90%	$375,132	-$355,677	0.05	< .05 *
Hispanic American Females	$1,225	0.02%	1.31%	$71,025	-$69,800	0.02	< .05 *
Hispanic American Males	$9,818	0.18%	2.71%	$147,052	-$137,234	0.07	< .05 *
Native American Females	$0	0.00%	0.28%	$15,005	-$15,005	0.00	----
Native American Males	$0	0.00%	0.44%	$24,008	-$24,008	0.00	----
Caucasian Females	$365,746	6.73%	17.26%	$938,331	-$572,586	0.39	< .05 *
Non-Minority Males	$3,970,388	73.04%	31.23%	$1,697,599	$2,272,789	2.34	< .05 †
TOTAL	$5,435,920	100.00%	100.00%	$5,435,920			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$412,534	7.59%	19.12%	$1,039,367	-$626,833	0.40	< .05 *
Minority Males	$687,252	12.64%	32.39%	$1,760,622	-$1,073,370	0.39	< .05 *
Caucasian Females	$365,746	6.73%	17.26%	$938,331	-$572,586	0.39	< .05 *
Non-Minority Males	$3,970,388	73.04%	31.23%	$1,697,599	$2,272,789	2.34	< .05 †
TOTAL	$5,435,920	100.00%	100.00%	$5,435,920			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$1,099,786	20.23%	51.51%	$2,799,989	-$1,700,203	0.39	< .05 *
Women Business Enterprises	$365,746	6.73%	17.26%	$938,331	-$572,586	0.39	< .05 *
Minority and Women Business Enterprises	**$1,465,531**	**26.96%**	**68.77%**	**$3,738,320**	**-$2,272,789**	**0.39**	**< .05 ***
Non-Minority Male Business Enterprises	$3,970,388	73.04%	31.23%	$1,697,599	$2,272,789	2.34	< .05 †

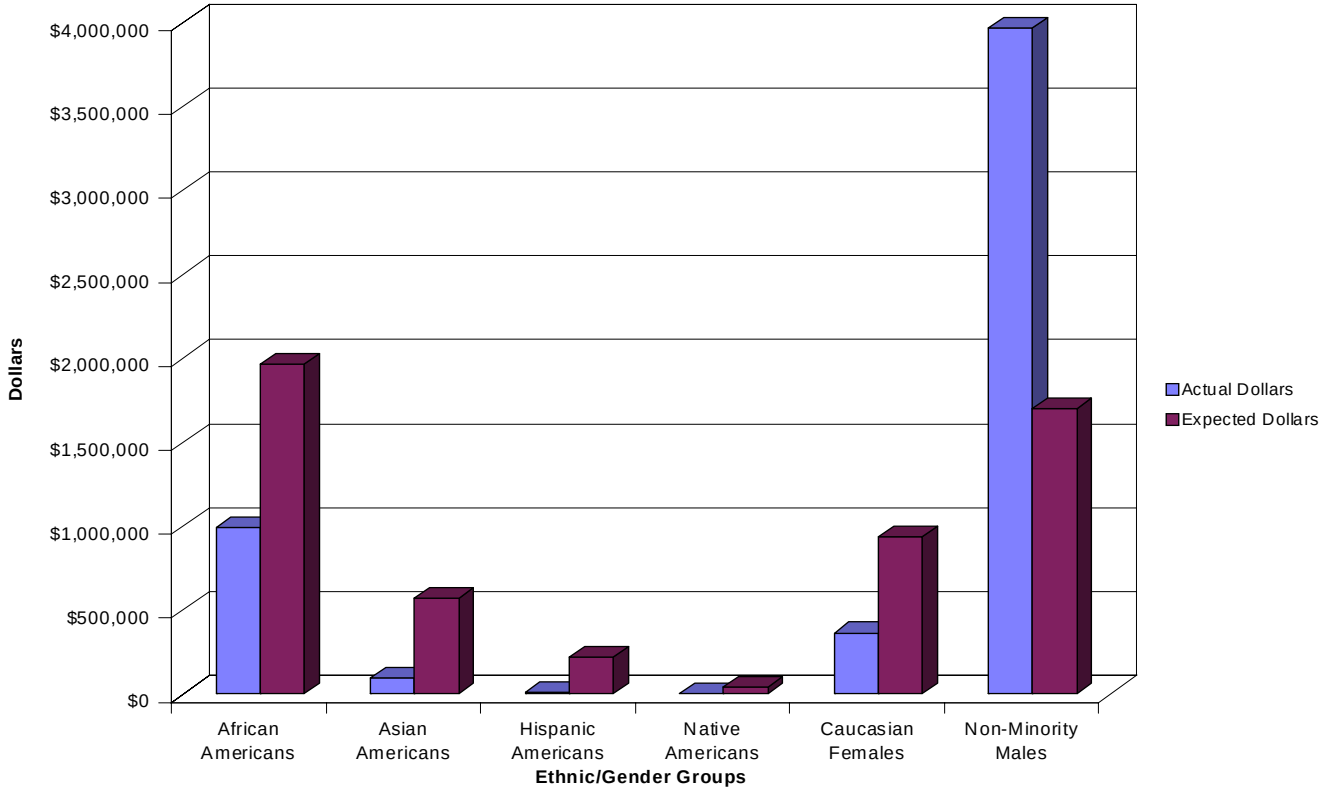
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.07 Disparity Analysis: Professional Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009



4. Goods and Other Services Prime Contracts $25,000 and under

The disparity analysis of goods and other services prime contracts $25,000 and under is described below and depicted in Table 5.08 and Chart 5.08.

African American Businesses represent 34.49 percent of the available goods and other services businesses and received 24 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Asian American Businesses represent 8 percent of the available goods and other services businesses and received 2.98 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Hispanic American Businesses represent 4.34 percent of the available goods and other services businesses and received 2.04 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Native American Businesses represent 0.77 percent of the available goods and other services businesses and received 0.49 percent of goods and other services prime contracts $25,000 and under. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 47.59 percent of the available goods and other services businesses and received 29.52 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Women Business Enterprises represent 17.32 percent of the available goods and other services businesses and received 7.42 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 64.91 percent of the available goods and other services businesses and received 36.94 percent of goods and other services prime contracts $25,000 and under. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 35.09 percent of the available goods and other services businesses and received 63.06 percent of goods and other services prime contracts $25,000 and under. This overutilization is statistically significant.

Table 5.08 Disparity Analysis: Goods and Other Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$20,883,762	24.00%	34.49%	$30,008,603	-$9,124,841	0.70	< .05 *
Asian Americans	$2,593,093	2.98%	8.00%	$6,957,047	-$4,363,954	0.37	< .05 *
Hispanic Americans	$1,777,369	2.04%	4.34%	$3,772,626	-$1,995,257	0.47	< .05 *
Native Americans	$428,168	0.49%	0.77%	$669,337	-$241,169	0.64	----
Caucasian Females	$6,454,926	7.42%	17.32%	$15,070,221	-$8,615,295	0.43	< .05 *
Non-Minority Males	$54,866,334	63.06%	35.09%	$30,525,818	$24,340,516	1.80	< .05 †
TOTAL	$87,003,652	100.00%	100.00%	$87,003,652			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$7,597,013	8.73%	11.55%	$10,050,195	-$2,453,181	0.76	< .05 *
African American Males	$13,286,749	15.27%	22.94%	$19,958,409	-$6,671,660	0.67	< .05 *
Asian American Females	$1,148,143	1.32%	2.72%	$2,362,962	-$1,214,819	0.49	< .05 *
Asian American Males	$1,444,950	1.66%	5.28%	$4,594,085	-$3,149,135	0.31	< .05 *
Hispanic American Females	$1,512,620	1.74%	1.55%	$1,348,815	$163,805	1.12	**
Hispanic American Males	$264,749	0.30%	2.79%	$2,423,811	-$2,159,062	0.11	< .05 *
Native American Females	$382,051	0.44%	0.28%	$243,395	$138,656	1.57	**
Native American Males	$46,117	0.05%	0.49%	$425,942	-$379,825	0.11	----
Caucasian Females	$6,454,926	7.42%	17.32%	$15,070,221	-$8,615,295	0.43	< .05 *
Non-Minority Males	$54,866,334	63.06%	35.09%	$30,525,818	$24,340,516	1.80	< .05 †
TOTAL	$87,003,652	100.00%	100.00%	$87,003,652			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$10,639,828	12.23%	16.10%	$14,005,367	-$3,365,539	0.76	< .05 *
Minority Males	$15,042,564	17.29%	31.50%	$27,402,246	-$12,359,682	0.55	< .05 *
Caucasian Females	$6,454,926	7.42%	17.32%	$15,070,221	-$8,615,295	0.43	< .05 *
Non-Minority Males	$54,866,334	63.06%	35.09%	$30,525,818	$24,340,516	1.80	< .05 †
TOTAL	$87,003,652	100.00%	100.00%	$87,003,652			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$25,682,392	29.52%	47.59%	$41,407,613	-$15,725,221	0.62	< .05 *
Women Business Enterprises	$6,454,926	7.42%	17.32%	$15,070,221	-$8,615,295	0.43	< .05 *
Minority and Women Business Enterprises	**$32,137,318**	**36.94%**	**64.91%**	**$56,477,834**	**-$24,340,516**	**0.57**	**< .05 ***
Non-Minority Male Business Enterprises	$54,866,334	63.06%	35.09%	$30,525,818	$24,340,516	1.80	< .05 †

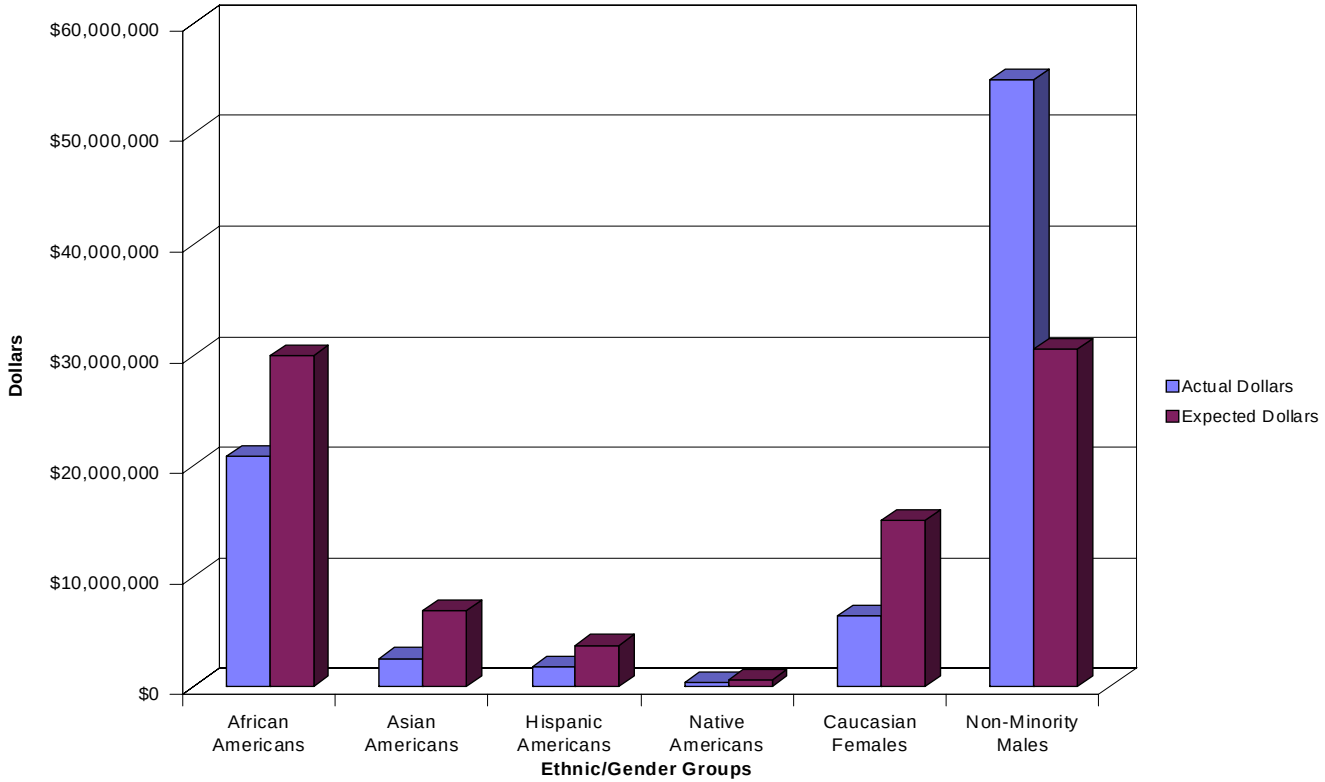
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 5.08 Disparity Analysis: Goods and Other Services Prime Contracts $25,000 and under, July 1, 2003 to June 30, 2009



III. DISPARITY ANALYSIS SUMMARY

A. Construction Prime Contracts

As indicated in Table 5.09, African American, Asian American, and Native American construction prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at the formal contract level.

Table 5.09 Disparity Summary: Construction Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	No	No
Native Americans	Yes	Yes
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	No
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.

B. Architectural and Engineering Prime Contracts

As indicated in Table 5.10, African American, Asian American, and Hispanic American architectural and engineering prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at both the formal and informal contract levels.

Table 5.10 Disparity Summary: Architectural and Engineering Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Architectural and Engineering	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

C. Professional Services Prime Contracts

As indicated in Table 5.11, African American, Asian American, and Hispanic American professional services prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at both the formal and informal contract levels.

Table 5.11 Disparity Summary: Professional Services Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Professional Services	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

D. Goods and Other Services Prime Contracts

As indicated in Table 5.12, African American, Asian American, and Hispanic American goods and other services prime contractors were determined to be significantly underutilized at both the formal and informal contract levels. Women Business Enterprises were significantly underutilized at both the formal and informal contract levels.

Table 5.12 Disparity Summary: Goods and Other Services Prime Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Goods and Other Services	
	Contracts under $500,000	Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

6

SUBCONTRACTOR DISPARITY ANALYSIS

I. INTRODUCTION

The objective of this analysis is to determine if minority and woman-owned business enterprise (M/WBE) subcontractors were underutilized at a statistically significant level on Washington Suburban Sanitary Commission's (WSSC's) contracts. A detailed discussion of the statistical procedures for conducting a disparity analysis is set forth in *Chapter 5: Prime Contractor Disparity Analysis*. The same analytical procedures are used to perform the subcontractor disparity analysis. Under a fair and equitable system of awarding subcontracts, the proportion of subcontracts and subcontract dollars awarded to M/WBEs would be approximate to the proportion of available M/WBEs[1] in the relevant market area. If the available M/WBE businesses are underutilized, a statistical test can determine the probability that the disparity is due to chance. If there is a low probability that the disparity is due to chance,[2] *Croson* states that an inference of discrimination can be made.

1 Availability is defined as the number of willing and able businesses. The methodology for determining willing and able businesses is detailed in Chapter 4.

2 When conducting statistical tests, a confidence level 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 to be 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.

II. DISPARITY ANALYSIS

As detailed in *Chapter 2: Subcontractor Utilization Analysis*, extensive efforts were undertaken to obtain subcontractor records for WSSC's construction, architectural and engineering, professional services, and goods and other services contracts. Information on subcontracts for all four industries was provided by WSSC, its prime contractors, and its subcontractors.

A subcontractor disparity analysis was performed on construction, architectural and engineering, and goods and other services contracts issued between July 1, 2003 and June 30, 2009. There was underutilization of M/WBEs subcontracts on the professional services subcontracts collected but it could not be measured statistically because there were too few subcontracts to perform the disparity analysis. With more subcontracts and the same pattern of use, the analysis would show a statistically significant disparity for professional services subcontracts.

It is notable that WSSC implemented a mandatory goal-based MBE subcontracting program for architectural and engineering, professional services, and goods and other services contracts for five of the six year study period. The mandatory goal-based MBE subcontracting program was suspended from July 1, 2006 through June 30, 2007. The goal-based MBE subcontracting program was voluntary for construction contracts during the entire six year study period.

The subcontract disparity findings in the four industries under consideration are summarized below.

III. DISPARITY ANALYSIS: ALL SUBCONTRACTS, BY INDUSTRY

A. Construction Subcontracts

The disparity analysis of construction subcontracts is described below and depicted in Table 6.01 and Chart 6.01.

African American Businesses represent 37.13 percent of the available construction businesses and received 12.74 percent of construction subcontracts. This underutilization is statistically significant.

Asian American Businesses represent 5.25 percent of the available construction businesses and received 0.94 percent of construction subcontracts. This underutilization is statistically significant.

Hispanic American Businesses represent 11.92 percent of the available construction businesses and received 12.51 percent of construction subcontracts. This study does not test statistically the overutilization of minority groups.

Native American Businesses represent 1.23 percent of the available construction businesses and received 0.11 percent of construction subcontracts. This underutilization is statistically significant.

Minority Business Enterprises represent 55.53 percent of the available construction businesses and received 26.31 percent of construction subcontracts. This underutilization is statistically significant.

Women Business Enterprises represent 10.6 percent of the available construction businesses and received 13.52 percent of construction subcontracts. This study does not test statistically the overutilization of women business groups.

Minority and Women Business Enterprises represent 66.13 percent of the available construction businesses and received 39.83 percent of construction subcontracts. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 33.87 percent of the available construction businesses and received 60.17 percent of construction subcontracts. This overutilization is statistically significant.

Table 6.01 Disparity Analysis: Construction Subcontracts, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$10,978,285	12.74%	37.13%	$31,996,054	-$21,017,769	0.34	< .05 *
Asian Americans	$814,221	0.94%	5.25%	$4,524,283	-$3,710,062	0.18	< .05 *
Hispanic Americans	$10,781,147	12.51%	11.92%	$10,271,345	$509,803	1.05	**
Native Americans	$95,000	0.11%	1.23%	$1,059,742	-$964,742	0.09	< .05 *
Caucasian Females	$11,647,147	13.52%	10.60%	$9,130,084	$2,517,063	1.28	**
Non-Minority Males	$51,849,369	60.17%	33.87%	$29,183,662	$22,665,708	1.78	< .05 †
TOTAL	$86,165,169	100.00%	100.00%	$86,165,169			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$2,393,143	2.78%	6.29%	$5,420,987	-$3,027,844	0.44	< .05 *
African American Males	$8,585,141	9.96%	30.84%	$26,575,066	-$17,989,925	0.32	< .05 *
Asian American Females	$0	0.00%	0.85%	$733,667	-$733,667	0.00	----
Asian American Males	$814,221	0.94%	4.40%	$3,790,615	-$2,976,395	0.21	< .05 *
Hispanic American Females	$635,195	0.74%	1.94%	$1,671,131	-$1,035,936	0.38	< .05 *
Hispanic American Males	$10,145,952	11.78%	9.98%	$8,600,213	$1,545,739	1.18	**
Native American Females	$95,000	0.11%	0.43%	$366,834	-$271,834	0.26	----
Native American Males	$0	0.00%	0.80%	$692,908	-$692,908	0.00	----
Caucasian Females	$11,647,147	13.52%	10.60%	$9,130,084	$2,517,063	1.28	**
Non-Minority Males	$51,849,369	60.17%	33.87%	$29,183,662	$22,665,708	1.78	< .05 †
TOTAL	$86,165,169	100.00%	100.00%	$86,165,169			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$3,123,338	3.62%	9.51%	$8,192,620	-$5,069,282	0.38	< .05 *
Minority Males	$19,545,314	22.68%	46.03%	$39,658,803	-$20,113,489	0.49	< .05 *
Caucasian Females	$11,647,147	13.52%	10.60%	$9,130,084	$2,517,063	1.28	**
Non-Minority Males	$51,849,369	60.17%	33.87%	$29,183,662	$22,665,708	1.78	< .05 †
TOTAL	$86,165,169	100.00%	100.00%	$86,165,169			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$22,668,653	26.31%	55.53%	$47,851,423	-$25,182,770	0.47	< .05 *
Women Business Enterprises	$11,647,147	13.52%	10.60%	$9,130,084	$2,517,063	1.28	**
Minority and Women Business Enterprises	**$34,315,799**	**39.83%**	**66.13%**	**$56,981,507**	**-$22,665,708**	**0.60**	**< .05 ***
Non-Minority Male Business Enterprises	$51,849,369	60.17%	33.87%	$29,183,662	$22,665,708	1.78	< .05 †

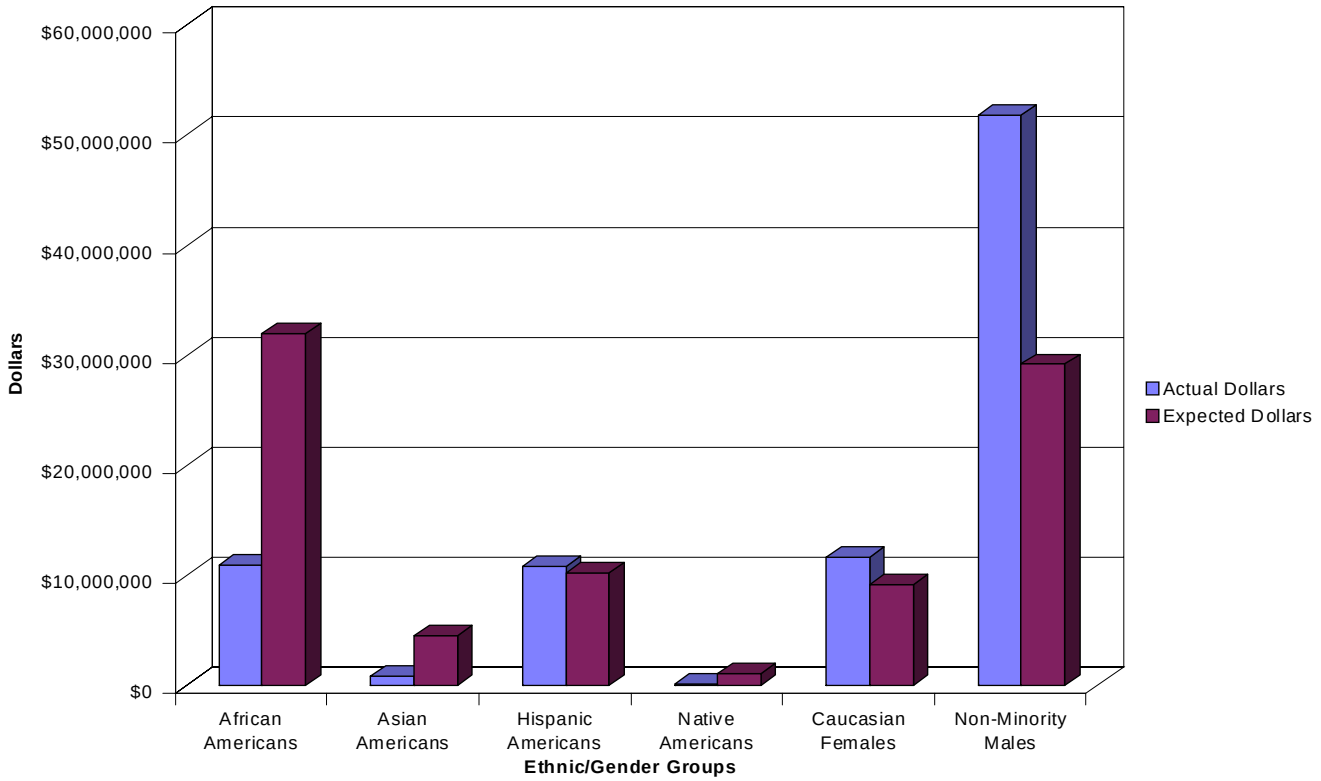
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

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

Chart 6.01 Disparity Analysis: Construction Subcontracts, July 1, 2003 to June 30, 2009



B. Architectural and Engineering Subcontracts

The disparity analysis of architectural and engineering subcontracts is described below and depicted in Table 6.02 and Chart 6.02.

African American Businesses represent 23.22 percent of the available architectural and engineering businesses and received 28.84 percent of architectural and engineering subcontracts. This study does not test statistically the overutilization of minority groups.

Asian American Businesses represent 18.37 percent of the available architectural and engineering businesses and received 24.33 percent of architectural and engineering subcontracts. This study does not test statistically the overutilization of minority groups.

Hispanic American Businesses represent 5.37 percent of the available architectural and engineering businesses and received 3.06 percent of architectural and engineering subcontracts. This underutilization is statistically significant.

Native American Businesses represent 0.35 percent of the available architectural and engineering businesses and received none of the architectural and engineering subcontracts. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 47.31 percent of the available architectural and engineering businesses and received 56.23 percent of architectural and engineering subcontracts. This study does not test statistically the overutilization of minority groups.

Women Business Enterprises represent 13.52 percent of the available architectural and engineering businesses and received 11.39 percent of architectural and engineering subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Minority and Women Business Enterprises represent 60.83 percent of the available architectural and engineering businesses and received 67.62 percent of architectural and engineering subcontracts. This study does not test statistically the overutilization of minority and women business groups.

Non-Minority Male Business Enterprises represent 39.17 percent of the available architectural and engineering businesses and received 32.38 percent of architectural and engineering subcontracts. This study does not test statistically the underutilization of non-minority males.

Table 6.02 Disparity Analysis: Architectural and Engineering Subcontracts, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$18,008,048	28.84%	23.22%	$14,500,891	$3,507,157	1.24	**
Asian Americans	$15,194,254	24.33%	18.37%	$11,470,854	$3,723,401	1.32	**
Hispanic Americans	$1,909,083	3.06%	5.37%	$3,354,684	-$1,445,601	0.57	< .05 *
Native Americans	$0	0.00%	0.35%	$216,431	-$216,431	0.00	----
Caucasian Females	$7,109,533	11.39%	13.52%	$8,440,817	-$1,331,284	0.84	not significant
Non-Minority Males	$20,219,484	32.38%	39.17%	$24,456,726	-$4,237,242	0.83	**
TOTAL	$62,440,402	100.00%	100.00%	$62,440,402			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$6,228,942	9.98%	3.99%	$2,488,959	$3,739,983	2.50	**
African American Males	$11,779,106	18.86%	19.24%	$12,011,932	-$232,826	0.98	not significant
Asian American Females	$1,689,755	2.71%	1.56%	$973,940	$715,815	1.73	**
Asian American Males	$13,504,499	21.63%	16.81%	$10,496,913	$3,007,586	1.29	**
Hispanic American Females	$0	0.00%	0.87%	$541,078	-$541,078	0.00	----
Hispanic American Males	$1,909,083	3.06%	4.51%	$2,813,606	-$904,523	0.68	< .05 *
Native American Females	$0	0.00%	0.17%	$108,216	-$108,216	0.00	----
Native American Males	$0	0.00%	0.17%	$108,216	-$108,216	0.00	----
Caucasian Females	$7,109,533	11.39%	13.52%	$8,440,817	-$1,331,284	0.84	not significant
Non-Minority Males	$20,219,484	32.38%	39.17%	$24,456,726	-$4,237,242	0.83	**
TOTAL	$62,440,402	100.00%	100.00%	$62,440,402			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$7,918,697	12.68%	6.59%	$4,112,193	$3,806,504	1.93	**
Minority Males	$27,192,688	43.55%	40.73%	$25,430,666	$1,762,021	1.07	**
Caucasian Females	$7,109,533	11.39%	13.52%	$8,440,817	-$1,331,284	0.84	not significant
Non-Minority Males	$20,219,484	32.38%	39.17%	$24,456,726	-$4,237,242	0.83	**
TOTAL	$62,440,402	100.00%	100.00%	$62,440,402			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$35,111,385	56.23%	47.31%	$29,542,859	$5,568,526	1.19	**
Women Business Enterprises	$7,109,533	11.39%	13.52%	$8,440,817	-$1,331,284	0.84	not significant
Minority and Women Business Enterprises	**$42,220,918**	**67.62%**	**60.83%**	**$37,983,676**	**$4,237,242**	**1.11**	**
Non-Minority Male Business Enterprises	$20,219,484	32.38%	39.17%	$24,456,726	-$4,237,242	0.83	**

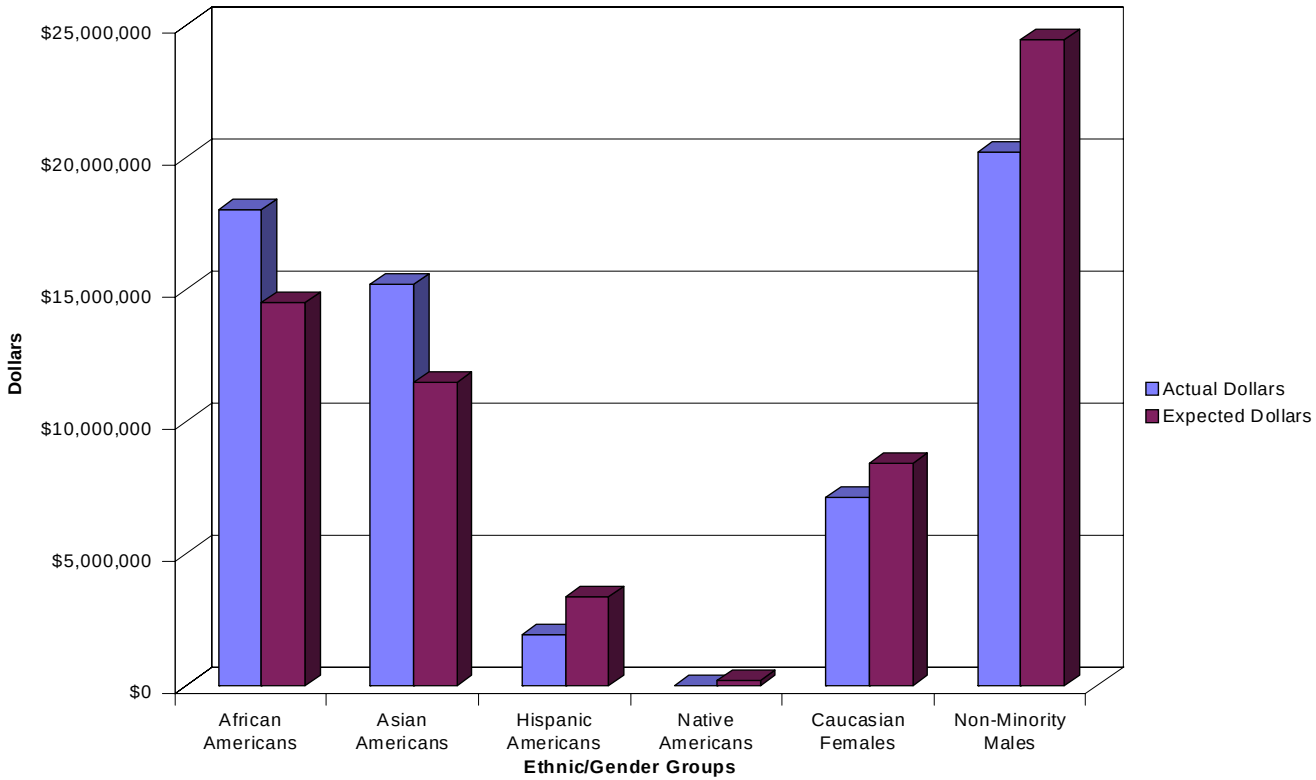
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

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

Chart 6.02 Disparity Analysis: Architectural and Engineering Subcontracts, July 1, 2003 to June 30, 2009



C. Professional Services Subcontracts

The disparity analysis of all professional services subcontracts is described below and depicted in Table 6.03 and Chart 6.03.

African American Businesses represent 36.66 percent of the available professional services businesses and received 33.11 percent of professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Asian American Businesses represent 10.8 percent of the available professional services businesses and received 4 percent of professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Hispanic American Businesses represent 3.98 percent of the available professional services businesses and received none of the professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Native American Businesses represent 0.79 percent of the available professional services businesses and received 4.71 percent of professional services subcontracts. This study does not test statistically the overutilization of minority groups.

Minority Business Enterprises represent 52.23 percent of the available professional services businesses and received 41.83 percent of professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Women Business Enterprises represent 16.51 percent of the available professional services businesses and received 10.82 percent of professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Minority and Women Business Enterprises represent 68.74 percent of the available professional services businesses and received 52.64 percent of professional services subcontracts. While this group was underutilized, there were too few subcontracts to determine statistical significance.

Non-Minority Male Business Enterprises represent 31.26 percent of the available professional services businesses and received 47.36 percent of professional services subcontracts. While this group was overutilized, there were too few subcontracts to determine statistical significance.

Table 6.03 Disparity Analysis: Professional Services Subcontracts, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$2,925,196	33.11%	36.66%	$3,238,367	-$313,171	0.90	not significant
Asian Americans	$353,139	4.00%	10.80%	$954,252	-$601,113	0.37	not significant
Hispanic Americans	$0	0.00%	3.98%	$351,923	-$351,923	0.00	not significant
Native Americans	$416,368	4.71%	0.79%	$69,369	$346,999	6.00	**
Caucasian Females	$955,567	10.82%	16.51%	$1,458,449	-$502,882	0.66	not significant
Non-Minority Males	$4,183,330	47.36%	31.26%	$2,761,240	$1,422,090	1.52	not significant
TOTAL	$8,833,601	100.00%	100.00%	$8,833,601			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$1,521,137	17.22%	14.12%	$1,246,957	$274,180	1.22	**
African American Males	$1,404,059	15.89%	22.54%	$1,991,409	-$587,350	0.71	not significant
Asian American Females	$142,587	1.61%	3.72%	$328,236	-$185,649	0.43	not significant
Asian American Males	$210,552	2.38%	7.09%	$626,017	-$415,464	0.34	not significant
Hispanic American Females	$0	0.00%	1.34%	$118,436	-$118,436	0.00	not significant
Hispanic American Males	$0	0.00%	2.64%	$233,487	-$233,487	0.00	not significant
Native American Females	$0	0.00%	0.27%	$23,687	-$23,687	0.00	----
Native American Males	$416,368	4.71%	0.52%	$45,682	$370,686	9.11	**
Caucasian Females	$955,567	10.82%	16.51%	$1,458,449	-$502,882	0.66	not significant
Non-Minority Males	$4,183,330	47.36%	31.26%	$2,761,240	$1,422,090	1.52	not significant
TOTAL	$8,833,601	100.00%	100.00%	$8,833,601			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$1,663,724	18.83%	19.44%	$1,717,316	-$53,592	0.97	not significant
Minority Males	$2,030,979	22.99%	32.79%	$2,896,595	-$865,616	0.70	not significant
Caucasian Females	$955,567	10.82%	16.51%	$1,458,449	-$502,882	0.66	not significant
Non-Minority Males	$4,183,330	47.36%	31.26%	$2,761,240	$1,422,090	1.52	not significant
TOTAL	$8,833,601	100.00%	100.00%	$8,833,601			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$3,694,703	41.83%	52.23%	$4,613,911	-$919,208	0.80	not significant
Women Business Enterprises	$955,567	10.82%	16.51%	$1,458,449	-$502,882	0.66	not significant
Minority and Women Business Enterprises	**$4,650,270**	**52.64%**	**68.74%**	**$6,072,360**	**-$1,422,090**	**0.77**	**not significant**
Non-Minority Male Business Enterprises	$4,183,330	47.36%	31.26%	$2,761,240	$1,422,090	1.52	not significant

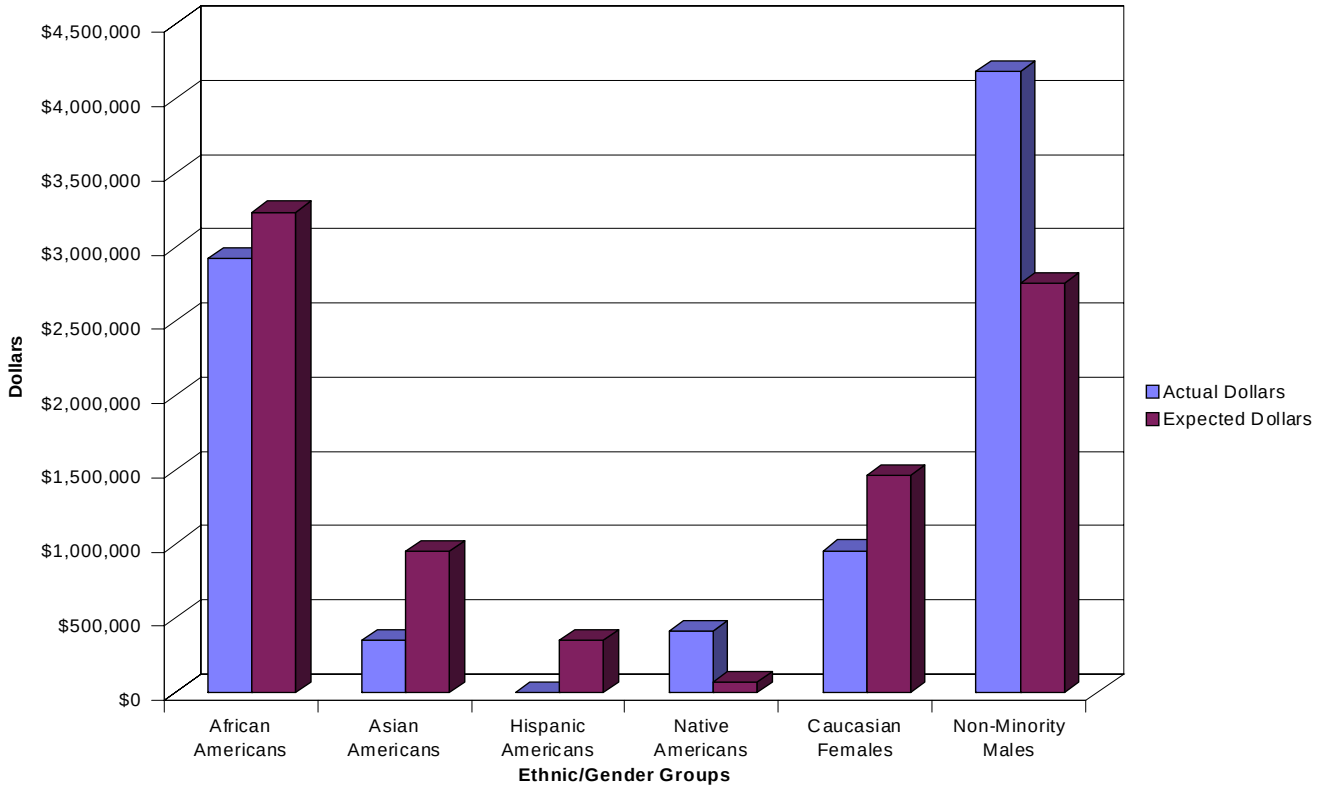
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

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

Chart 6.03 Disparity Analysis: Professional Services Subcontracts, July 1, 2003 to June 30, 2009



D. Goods and Other Services Subcontracts

The disparity analysis of all goods and other services subcontracts is described below and depicted in Table 6.04 and Chart 6.04.

African American Businesses represent 35.05 percent of the available goods and other services businesses and received 13.68 percent of goods and other services subcontracts. This underutilization is statistically significant.

Asian American Businesses represent 8.2 percent of the available goods and other services businesses and received 2.7 percent of goods and other services subcontracts. This underutilization is statistically significant.

Hispanic American Businesses represent 4.32 percent of the available goods and other services businesses and received 2.38 percent of goods and other services subcontracts. This underutilization is not statistically significant.

Native American Businesses represent 0.91 percent of the available goods and other services businesses and received 0.11 percent of goods and other services subcontracts. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 48.47 percent of the available goods and other services businesses and received 18.88 percent of goods and other services subcontracts. This underutilization is statistically significant.

Women Business Enterprises represent 16.68 percent of the available goods and other services businesses and received 46.35 percent of goods and other services subcontracts. This study does not test statistically the overutilization of women business groups.

Minority and Women Business Enterprises represent 65.16 percent of the available goods and other services businesses and received 65.23 percent of goods and other services subcontracts. This study does not test statistically the overutilization of minority and women business groups.

Non-Minority Male Business Enterprises represent 34.84 percent of the available goods and other services businesses and received 34.77 percent of goods and other services subcontracts. This study does not test statistically the underutilization of non-minority males.

Table 6.04 Disparity Analysis: Goods and Other Services Subcontracts, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$9,899,610	13.68%	35.05%	$25,358,807	-$15,459,196	0.39	< .05 *
Asian Americans	$1,954,035	2.70%	8.20%	$5,930,194	-$3,976,159	0.33	< .05 *
Hispanic Americans	$1,725,149	2.38%	4.32%	$3,127,148	-$1,401,999	0.55	not significant
Native Americans	$81,038	0.11%	0.91%	$656,964	-$575,926	0.12	----
Caucasian Females	$33,537,645	46.35%	16.68%	$12,070,617	$21,467,028	2.78	**
Non-Minority Males	$25,156,148	34.77%	34.84%	$25,209,895	-$53,748	1.00	**
TOTAL	$72,353,625	100.00%	100.00%	$72,353,625			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$2,561,224	3.54%	11.85%	$8,575,569	-$6,014,345	0.30	< .05 *
African American Males	$7,338,386	10.14%	23.20%	$16,783,238	-$9,444,852	0.44	< .05 *
Asian American Females	$257,625	0.36%	2.77%	$2,005,930	-$1,748,305	0.13	< .05 *
Asian American Males	$1,696,410	2.34%	5.42%	$3,924,264	-$2,227,854	0.43	not significant
Hispanic American Females	$1,185,342	1.64%	1.54%	$1,112,459	$72,883	1.07	**
Hispanic American Males	$539,807	0.75%	2.78%	$2,014,689	-$1,474,882	0.27	not significant
Native American Females	$81,038	0.11%	0.35%	$254,026	-$172,988	0.32	----
Native American Males	$0	0.00%	0.56%	$402,938	-$402,938	0.00	----
Caucasian Females	$33,537,645	46.35%	16.68%	$12,070,617	$21,467,028	2.78	**
Non-Minority Males	$25,156,148	34.77%	34.84%	$25,209,895	-$53,748	1.00	**
TOTAL	$72,353,625	100.00%	100.00%	$72,353,625			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$4,085,229	5.65%	16.51%	$11,947,984	-$7,862,755	0.34	< .05 *
Minority Males	$9,574,604	13.23%	31.96%	$23,125,130	-$13,550,526	0.41	< .05 *
Caucasian Females	$33,537,645	46.35%	16.68%	$12,070,617	$21,467,028	2.78	**
Non-Minority Males	$25,156,148	34.77%	34.84%	$25,209,895	-$53,748	1.00	**
TOTAL	$72,353,625	100.00%	100.00%	$72,353,625			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$13,659,833	18.88%	48.47%	$35,073,113	-$21,413,281	0.39	< .05 *
Women Business Enterprises	$33,537,645	46.35%	16.68%	$12,070,617	$21,467,028	2.78	**
Minority and Women Business Enterprises	**$47,197,478**	**65.23%**	**65.16%**	**$47,143,730**	**$53,748**	**1.00**	**
Non-Minority Male Business Enterprises	$25,156,148	34.77%	34.84%	$25,209,895	-$53,748	1.00	**

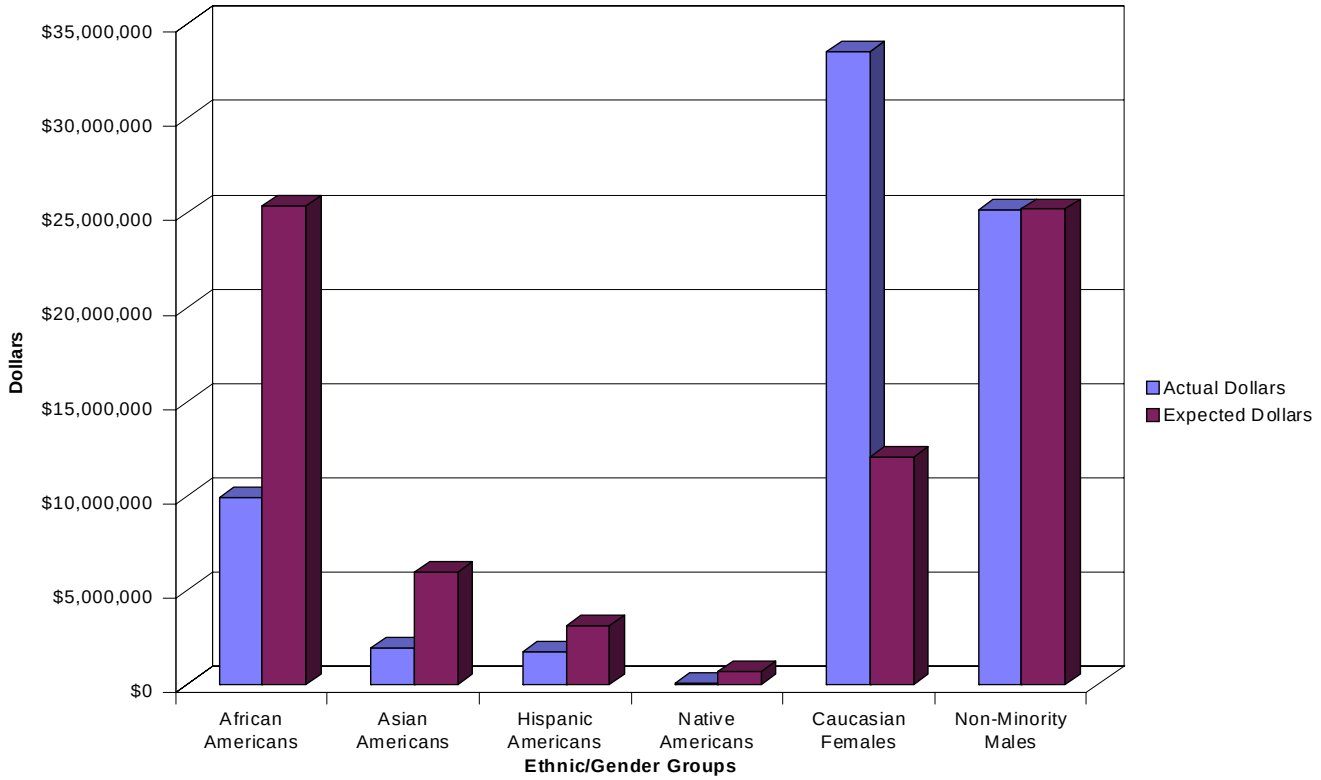
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

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

Chart 6.04 Disparity Analysis: Goods and Other Services Subcontracts, July 1, 2003 to June 30, 2009



IV. SUBCONTRACTOR DISPARITY SUMMARY

As indicated in Table 6.05, African American, Asian American, and Native American construction subcontractors were determined to be underutilized at a statistically significant level on construction subcontracts. Hispanic American subcontractors were determined to be underutilized at a statistically significant level on architectural and engineering subcontracts. Women Business Enterprises were also underutilized on architectural and engineering subcontracts, but not at a statistically significant level.

African American, Asian American, Hispanic American, and Women Business Enterprises were underutilized on professional services subcontracts but there were too few subcontracts to test for statistical significance. African American and Asian American goods and other services subcontractors were determined to be underutilized at a statistically significant level on goods and other services subcontracts. Hispanic Americans were also underutilized on goods and other services contracts but not at a statistically significant level.

Table 6.05 Subcontractor Disparity Summary, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction	Architectural and Engineering	Professional Services	Goods and Other Services
African Americans	Yes	No	---	Yes
Asian Americans	Yes	No	---	Yes
Hispanic Americans	No	Yes	---	No
Native Americans	Yes	---	No	---
Minority Business Enterprises	Yes	No	---	Yes
Women Business Enterprises	No	No	---	No
Minority and Women Business Enterprises	Yes	No	---	No

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

7

ANECDOTAL ANALYSIS

I. INTRODUCTION

The United States Supreme Court in its 1989 decision, *City of Richmond v. J.A. Croson Co.*,[1] specified the use of anecdotal testimony as a means to determine whether remedial race-conscious relief may be justified in a particular market area. In the *Croson* decision the Court stated that "evidence of a pattern of individual discriminatory acts can, if supported by appropriate statistical proofs, lend support to a [local entity's] determination that broader remedial relief [be] justified."[2]

Anecdotal testimony, when paired with statistical data, can document the routine practices by which minority and women-owned business enterprises (M/WBEs) are excluded from business opportunities within a given market area. The statistical data can quantify the results of discriminatory practices, while anecdotal testimony provides the human context within which the numbers can be understood. Anecdotal testimony from business owners provides information on the kinds of barriers believed to exist within the market area.

A. Anecdotal Evidence of Active or Passive Participation

Croson authorizes anecdotal inquiries along two lines. The first approach investigates active government discrimination or formal acts of exclusion that are undertaken by representatives of the governmental entity. The purpose of this examination is to determine whether the government has committed acts that bar minority and women business owners from contracting opportunities.

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1 *City of Richmond v. J.A. Croson Co.*, 488 U.S. at 509 (1989).

2 Id.

The second line of inquiry examines the government's passive support of exclusionary practices that occur in the market area into which its funds are infused. Passive exclusion results from government officials knowingly using public monies to contract with companies that discriminate against M/WBEs, or fail to take positive steps to prevent discrimination by contractors who receive public funds.[3]

Anecdotal accounts of passive discrimination mainly delve into the activities of private sector entities. The Tenth Circuit Court of Appeals has cautioned that anecdotal accounts of discrimination are entitled to less evidentiary weight when the accounts concern more private than government-sponsored activities.[4] Nonetheless, when paired with appropriate statistical data, anecdotal evidence of either active or passive forms of discrimination can support the imposition of a race or gender-conscious remedial program. Anecdotal evidence that is not sufficiently compelling, in combination with statistical data, to support a race or gender-conscious program is not without utility in the *Croson* framework. As *Croson* points out, jurisdictions have at their disposal "a whole array of race-neutral devices to increase the accessibility of city contracting opportunities to small entrepreneurs of all races."[5] Anecdotal accounts can paint a finely detailed portrait of the practices and procedures that generally govern the award of public contracts in the relevant market area.

This chapter presents anecdotal accounts from interviews with businesses domiciled in the District of Columbia, Maryland and Virginia. The anecdotal accounts include barriers encountered directly with the Washington Suburban Sanitary Commission (WSSC). The anecdotal accounts include the business owner's positive experiences working with WSSC as well as recommendations to enhance WSSC's procurement practices.

Representatives from local trade associations were also interviewed. The association representatives were queried to solicit information regarding their knowledge of barriers encountered by their members attempting to work with WSSC or within the market area.

B. Anecdotal Methodology

The method used to gather anecdotal testimony was oral history defined by the *American Heritage Dictionary* as "historical information obtained in tape-recorded interviews with individuals having firsthand knowledge." The in-depth interview technique affords the researcher the opportunity to garner eyewitness accounts to assess the effects of exclusionary

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[3] *Croson*, 488 U.S. at 491-93, 509.

[4] *Concrete Works of Colorado v. City and County of Denver*, 36 F.3d at 1530 (10th Cir. 1994): "while a fact finder should accord less weight to personal accounts of discrimination that reflect isolated incidents, anecdotal evidence of a municipality's institutional practices carry more weight due to the systemic impact that such institutional practices have on market conditions."

[5] *Croson*, 488 U.S. at 509.

practices on minority and women-owned business enterprises and the conditions under which these practices occur. The in-depth interviews also afford the interviewee a process that preserves their anonymity.

Allowing interviewees to describe the barriers they have experienced in conducting business informs an understanding of how the conditions occur, who creates them, and their effect on business development. Thus, the information obtained can offer WSSC vital insights on the potential for program enhancements.

The interviewees were identified from the WSSC utilized vendors, certification lists, community meetings, and outreach. Potential interviewees were pre-screened to determine if they operated within the market area and were willing to commit to the interview process. Completed interviews were transcribed, coded, and analyzed. The anecdotal report describes general market conditions, prime contractor barriers, barriers attributed to WSSC, and exemplary practices of WSSC.

C. Anecdotal Interviewee Profile

Table 7.01 presents a profile of the business owners interviewed for this Study.

Table 7.01 Anecdotal Interviewee Profile

Ethnicity	Number
African American	26
Hispanic American	5
Asian American	8
Native American	1
Caucasian	16
Total	56
Gender	**Number**
Male	35
Female	21
Total	56

Table 7.01 Anecdotal Interviewee Profile

Industry	Number
Construction Services	11
Architectural and Engineering Services	15
Professional Services	15
Goods and Other Services	15
Total	56
Trade Organizations	**Number**
Representatives	16
Total	16

II. BUSINESS COMMUNITY BARRIERS

A. Racial and Gender Barriers

The interviewees reported the following anecdotes concerning racial barriers:

A minority male owner of a construction business reports his belief that WSSC has a reputation for not including minority construction contractors on its projects:

> They don't want minority companies to be too large or get into the water and sewer business. It's one of the most profitable areas of the underground utility industry. There's a huge market there. They talk a good game. They say they are trying but the only thing that really matters are results. Why is it that other utility companies do not have such a hostile environment? Why is it that WSSC has the absolute worst reputation as far as inclusion is concerned? Why is that? And we are in every other utility except for water and sewer. Why do you think that is? I will say this and I hope you record this. I hope that this study helps. And I hope they take me under their wing into a mentoring program. We are successful in every other utility. We can be successful in this.

> There is a reason why other private contractors seek us out.
> I'd never ever really seen discrimination and never really experienced much of it. But it is blatant there; this old boy network. You just can't penetrate it. They are smart people so they come up with this small business certified stuff that dilutes the whole minority goal thing. It dilutes it but it satisfies their numbers. They say, "We don't give anybody preference." Well, guess who the majority of the people coming to those meetings are? That's why they snicker, because there is a way around it. Everybody else is pretty honest with their minority outreach programs.

A minority male owner of an architectural and engineering business reported that his business is not treated the same as Caucasian-owned businesses:

> There is a Caucasian company that does engineering services at WSSC, and I see the way that they are treated by the folks in meetings. We are not treated in the same regard. They are treated as a successful small business. There is an older Caucasian guy about 50 to 60 years old, and he is treated with more respect. They are good for the economy. We are treated as just something like, "Oh, here is a little minority-owned business, whatever. What do you want now? You're bothering me and taking my time."

This same business owner also described instances where he believes minority and woman-owned businesses were treated in a discriminatory manner:

> This is an Indian-owned firm that hires a lot of minorities. I hired a couple of black guys and you hear the same stuff you hear about minorities all across, they can't do as good a job as other firms. We also see a lot of women firms that are treated poorly. Like, "Aw, that is a chick? What's she doing here? Boy, they sent the ugly girl today. Why not the cute girl?"

A minority male owner of a professional services business believes that the credibility of African American businesses is often trivialized as insignificant:

> I don't think a lot of people take African-Americans seriously. They already know who they want, and we don't fit into that little box. As a Black or African-American business owner a lot of people do not take us seriously.

A representative of a minority male-owned architectural and engineering business believes that minority and woman-owned businesses are judged at a higher standard than Caucasian-owned businesses:

> There is always the assumption that a minority firm or a woman-owned firm has to be better than the average majority firm in order to compete. We have to maintain a level of excellence that is above the norm.

The interviewees reported the following anecdotes concerning gender barriers:

A Caucasian male owner of an architectural and engineering business reported on the discrimination that his female colleagues have endured in his industry:

> I have noticed discrimination toward females in our industry. I've seen males make inappropriate comments to female colleagues. Males getting preferential treatment over the females, when a female may be equally or more qualified. It's improved over the years. There are a lot more female engineers in the business now, so that has started to help the problem.

A minority female owner of an architectural and engineering business reported that she and a female colleague were treated unfairly by a WSSC project manager:

> There was a team we were on, and one of the project managers spoke in a demeaning manner to women of other ethnicities. I was a Black woman and there was also a Hispanic woman. It was very obvious the way he would talk to the White males and the way he would talk to us. There was a big difference in the way he would talk to us and them, or he wouldn't talk to us at all.

A minority female owner of an architectural and engineering business believes that her Caucasian male colleagues prefer not to work with female business owners:

> White males don't necessarily want to deal with females in general. I have not figured out if it's just Black females or just females in general. Especially older ones, they don't want to include females in project meetings and decision making.

A minority female owner of a professional services business believes that being a female business owner has been a handicap which has impeded her success:

> I think I would be more successful if I was not a minority. I think that there have been efforts to even the playing field, but there are some situations where being a woman has also been a handicap.

A minority female owner of an architectural and engineering business reported that female business owners are not viewed as competent in her industry:

> I don't think women are taken seriously in the construction industry as men are. And that is a barrier for [female] civil engineers. I don't think much has changed over the years even though there was a lot of effort made in that regard. I don't think it's changed very much. The construction industry is still a good-old-boys' industry.

III. DIFFICULTIES BREAKING INTO THE CONTRACTING COMMUNITY

A minority male owner of a construction business described his frustration trying to obtain work from WSSC over the last nine years:

> We were never awarded a contract even though we have attempted many times with WSSC. We have put in a lot of [intentionally omitted] in military bases in Maryland, Virginia, the Pentagon, and D.C. But we have never been awarded anything from WSSC. I'm a very ambitious person so I went down to the minority office at WSSC. I met a lot of people there and I never got any work out of it. I followed up at

> least five or six times. WSSC is just a waste of time. It's very frustrating. You can't get the experience. You can't break in. Even a company that is as qualified as we are, you cannot scratch the surface. At the get-togethers that are [hosted by] WSSC you exchange business cards and shake hands but nothing ever comes of it. Most minorities that try to do business with the WSSC are frustrated. If we depended on WSSC, we would be in big trouble. Companies have gone out of business messing around with WSSC.

This same business owner believes that WSSC relegates certain low technical work for minority construction contractors:

> "If you want to do some work, you can haul some dirt." That's been put out there by WSSC. Those are the minority companies that get work, the dump truck force. Most people that I know that have dealt with WSSC are pretty bitter. I have tried to get into WSSC for [many] years and approached it from all kind of ways.

This business owner also believes that WSSC has used the same contractors over the past 20 years:

> WSSC has used the same contractors for the last 20 years. They have been able to survive on that for a long time. It's always the same ones and everybody knows it.

A minority female owner of a goods and other services business believes that WSSC prefers working with certain contractors:

> WSSC deals with who they want to deal with. And they have their select few contractors that they want to deal with.

A Caucasian female owner of a goods and other services business reported that she was prevented from bidding on a project that should have been rebid after it expired:

> We had a situation where we knew that a bid had expired, and it did not go out for rebid. We called the

> contracting officer and said we would love to bid on it. We offered our current pricing which we knew was considerably lower than what they were paying. But we couldn't get them to put it back up for bid, and we could not get them to even entertain buying it from us.

A minority male owner of an architectural and engineering business reported that he responded to multiple proposals each month and never received a response:

> I've bid a lot of bids. My minimum was 20 a month and then a lot of them, you don't get a response back if you won or not.

A minority male owner of a goods and other services business reported that he has been unable to secure information on solicitation procedures for WSSC's service contracts:

> I have tried to contact several people at WSSC because I know for a fact that they have several copiers that we service. After numerous phone calls and numerous contacts they did not have the professional courtesy to call me back. I gave the lead to my [employee] and she also had the same problem. However, she managed to get an appointment with [name withheld]. And she was told that, "It doesn't matter when our contract is up. If you guys can give us a better deal, we can break the contract and come with you." But this is when a lot of problems started with communication. He wouldn't return phone calls and it was extremely hard to get in touch with anybody. We are not looking for a handout. Yes, we are a minority disadvantaged company . . . we are looking for an opportunity to compete. That's all we are looking for.

This same business owner believes that WSSC prefers to work with the same Caucasian contractors:

> She also went to some of the small business meetings with WSSC. It just was a big problem. In my [opinion], they put up a big front like they want to deal with 8A small minority companies, but when it really comes down to it, they don't want to deal with

> us. They have special people that they like to do business with and everyone else is shut off. And that has been exactly our experience with them. I did get in touch with [name withheld] at WSSC's small business office. I told her that, "We really just want an opportunity to compete. That's all we're looking for." She confirmed for me that there was also [certain equipment] that was going to be up for bid. She basically gave me a lot of front information and smiling, but I could never get her to respond back to me. So it was just blatantly obvious that they did not want to communicate with us because they chose who they were going to work with.

A minority male owner of a professional services business explained why he no longer seeks work from WSSC:

> I do not bother with the WSSC because it is a waste of my time. The chances of getting business there is like zilch.

A minority male owner of a professional services business also stopped seeking work from WSSC because he was unable to obtain any work:

> We used to bid quite a bit up through early 2009, and then we just started losing faith since we were not getting anything.

A representative of a minority-owned architectural and engineering business explained that the networking events are not effective:

> There needs to be more effort in connecting prime contractors to subcontractors. They have vendor events where I see small, local, and minority businesses, but they do not network and create teams because the projects are too big for some of the smaller entities to compete.

A minority male owner of an architectural and engineering business reported that he is excluded from networking events:

> At the outreach events I am one of two or three persons of color in the room. And everyone sits there

> and shoots the breeze to everybody else. They don't talk to us. And they put all the minorities at the same table. I get asked, "Did you go to this dinner? Or did you go to this? Everybody was there." They invited people from WSSC, the Water and Sewer Authority, and Baltimore. Of course, I would have gone if I got an invite. Give me a break. But I'm not one of the boys. I'm not in one of the clubs. If you can't network and get in with the right people then you can't get contracts.

A representative of a minority female-owned construction business believes that minorities have a difficult time networking with Caucasian-owned businesses:

> Being a minority has been a barrier to developing business relationships. If they are not comfortable with your culture, then it's difficult to develop that relationship. It has been our experience that there is a difference between perception versus reality when people sit down with minority business owners.

A Caucasian male owner of a construction business reported that WSSC's networking sessions are not beneficial to him because they are not attended by business owners that provide the services that he needs:

> I have attended networking events that WSSC has sponsored. Usually 40 other businesses and 30 of them had no relationship to what I did. I don't need carpenters or people to clean buildings. There are a lot of truckers, probably one of the most popular businesses. The networking session that WSSC puts on does not get the people together that we need.

A Caucasian female owner of a construction business believes that she is excluded from landscaping projects because they are bundled into large contracts:

> They don't have enough diversity as far as landscaping projects. As much landscaping as WSSC needs for repair work, it should be broken down into one or two contracts. If they don't do that, we don't get any work. I find it near impossible for us to get work directly with WSSC. I think management has caused the problem by not letting the maintenance

> department find contractors to do the small jobs. They were very small jobs under $5,000, we could make the repair, and submit the invoice and we were paid. They do not have these small repairs anymore. So it really knocked a lot of people out of work. Even though it was small jobs, they were jobs that we could do year-round. I feel I have done everything that I know to get business with WSSC, but there's always a road block with the way they package the landscaping.

A minority female owner of a professional services business reported that the size of WSSC's projects is a barrier to her being awarded a contract:

> The kind of projects that I'm pursuing with WSSC is very large, and WSSC is not likely to pick me as a prime consultant.

A minority female owner of a professional services business reported that she has never received a solicitation from WSSC for work in her field:

> We never received an RFP for public relations work or community relations work. And that to me was very surprising. Because certainly there must have been opportunities where they needed internal training, where they needed some public relations or advertising. How could we have been registered and certified by them and never received an RFP? That perplexes me.

A Caucasian female owner of an architectural and engineering business reported that she was able to automatically renew her contract even though it was supposed to be rebid:

> We had a contract with WSSC with a one or two year option. They called and said, "Are you going to keep your prices the same? Are you going to increase them? What can we do?" They give us an extension because we kept our prices the same based on the contract that we previously won. It will probably come up to bid next year. But we've always had positive feedback.

A minority female owner of a professional services business believes that some prime contractors utilize the same minority contractors to meet the SLMBE goals:

> Most of the prime contractors already have the MBE that they are going to use. That is my main beef with these partner agreements. They lock out other companies from really competing.

A minority female owner of a goods and other services business reported that WSSC bids work with manufacturers that do not have distributorships with minority suppliers:

> We have been supplying materials to the WSSC for several decades. And you would think that since this period of time we would have established ourselves as a full-fledged distributor like the majority-owned companies that we have to do some business with. WSSC will put a manufacturer on their approved product list and there is no regard for whether or not they have a local minority distributorship anywhere in the country for any of their products. So, if you don't require it, they don't do it. This is a problem for any minority firm that wishes to sell products to a utility. If that minority firm cannot get direct access as a distributor from a manufacturer, they will not be able to sell the product competitively in the industry. There are few, if any, minority distributors in the United States selling water utility products to a utility or to contractors.

IV. DIFFICULTIES IN THE CONTRACTING PROCESS

A. Navigating Through the Bid Process

A minority female owner of a professional services business reported that she has not received a bid notice from WSSC for the last five years:

> I don't recall seeing any notices from WSSC about bidding opportunities for the last four to five years. I have not seen any notices. I don't care because I moved on to market elsewhere. I made a decision, how long am I going to go one place where they

> didn't seem like they wanted to work with an African American-owned public relations firm?

A minority male owner of a professional services business also reported that he does not receive any bid notices from WSSC:

> I don't recall receiving notices for my area of work. All of the work that I receive from WSSC has been as a result of attending the outreach sessions and meeting people face to face. I receive notices all the time from different vendors, but I don't notice a lot from WSSC.

A minority male owner of a professional services business reported that WSSC's registration system limits the bid notices he receives:

> The way their website is set, you have to put in a certain NAICS code, but there should be a way to put in more than one code. I don't get notified on certain projects.

A Caucasian male owner of a construction business reported that WSSC's bid notices require multiple addenda:

> At one time we get a bid advertisement by email and then, within an hour, I'd get an addendum because the bid was wrong. Their documents were wrong. They don't do that as often anymore. It would be a relatively small job and within a week, there would be six addenda on it, which is far too many. This indicates to me that the people in acquisitions don't understand the job and all the documents that goes with a construction job.

A minority male owner of a professional services business reported that some prime contractors solicit bids to meet their MBE requirements with no intention of utilizing his business as a subconsultant:

> I had other instances where a prime contractor needed to have a certified MBE. They got our name just to get to fax over our capability and then you never hear from them. I think that happens a lot.

A male representative of a minority female-owned architectural and engineering business reported that a bid submitted to WSSC was rejected although it was the lowest:

> I had great pricing from the manufacturer, but they weren't willing to place the order for me without having cash up front. I didn't have the cash flow available to place that order for WSSC and then wait 30 plus days to receive a payment from them. So I put an asterisk next to my pricing indicating that a deposit may be required at the time that the order is placed. WSSC notified me that my bid was the lowest bid, but that it was rejected because the payment terms offered by WSSC were non-negotiable. I told them no problem we can work around it. But she said, "Too late, I have to move onto the next lowest price."

A minority female owner of a professional services business reported that oftentimes minority and women-owned businesses are forced to lower their prices by prime contractors soliciting bids:

> I have been in many different meetings with minority and women-owned firms who voiced their concerns about how they have been bullied into lowering their prices. And once they lower their prices, the contracts are still taken from them and given to someone else who had a higher bid.

B. Inadequate Lead Time to Bid

A Caucasian male owner of an architectural and engineering business reported that he is given inadequate lead time to respond to solicitations from prime contractors:

> There are times where prime contractor give us a short window to put together a complete bid proposal package especially when we have a lot of subconsultants on our team. It's difficult to put together all the financial information and pricing information from the subs in addition to writing and clarifying the scope. On average we get one to two weeks and we need at least three weeks or more.

A minority female owner of a professional services business also reported receiving insufficient time to respond to WSSC's solicitations from prime contractors:

> I would love to have a month lead time, but that is not the case with WSSC's prime contractors. Too often we get notices within two weeks. So there are instances where we don't bid because it was predetermined who was going to get it. And we know that, but we can't prove it.

A female owner of a professional services business reported that WSSC's contractors often give inadequate lead time to respond to their solicitations:

> We get inadequate lead time from prime contractors. They are usually received a couple of weeks after WSSC has released the bid.

A minority male owner of an architectural and engineering business believes some WSSC prime contractors purposefully provide inadequate lead time to subcontractors:

> Sometimes as a subconsultant and a minority business, we do not get much lead time. But, it's not WSSC's fault. They put out bids on the Internet when everyone else gets it. But, these large majority-owned firms know what projects are coming before it hits the system. These guys have the inside scoop. They get a hell of a lot more information than I'm getting. And it helps them get six months lead time.

A minority male owner of a professional services business also reported that there is frequently inadequate lead time to respond to solicitations from prime contractors:

> About 25 percent of the time the lead time is too short. They will have extensive RFPs for fairly simple projects. Oftentimes it takes up 33 percent of our time to pull all that stuff together. This is a problem for small businesses like us because we have to do the business development and deliver on projects. I don't have the luxury to just do business development 100 percent of the time. Realistically I need about four weeks.

C. Difficulty with Suppliers

A minority male owner of a construction business believes that stricter requirements should be implemented to certify as a small business:

> It is one piece of paper. My 15 year-old son could fill it out while he is playing with his video game. That's not good. It's self-satisfying, just a piece of paper. Are you a small business? Yes. Okay, you're in.

This same business owner believes that WSSC should implement standards for prequalifying construction businesses:

> As far as the prequalification process, I think they should truly look at the contractor's experience. Our experience is what's valuable. Any time you put in millions and millions of feet of underground product, you have experience. You've encountered just about every problem that there is out there. And you get better and stronger as a result of it. WSSC does not care what my experience is, you just fill out that application. "Yeah, I'm an SLMBE." Good enough and they throw you in a pool with everybody else. Experience means nothing.

A minority female owner of a professional services business reported that WSSC disqualified her business as a subcontractor on a project because of the business' product line:

> I guess you have to prequalify for engineering and construction [projects]. But there was a request for a proposal back in December 2009 for a particular type of consulting service. There was an MBE subcontracting requirement. The prime contractor inquired whether or not we could qualify as their subcontractor and WSSC told them, "No, we couldn't qualify." The reason they said we could not qualify was because we sold water meters. There was no relationship other than a reseller agreement between us and the manufacturer of the water meter. But, we were disqualified and the bidder was told that we could not qualify as a subcontractor which made no sense at all.

This same business owner believes that the documentation required for MBE certification programs require excessive paper work:

> The paperwork is onerous in terms of the documentation that you have to provide to support that you are a minority and that you are not exceeding the dollar threshold as far as your financial net worth is concerned. As far as the small local program at WSSC is concerned, we've not applied for that, and I can't speak to the paperwork. I think that WSSC certifies small and local businesses. But the paperwork associated with being certified as a minority requires a lot of paper.

This minority male owner of an architectural and engineering business reported that WSSC does not have a standard process for prequalifying consulting businesses:

> WSSC does not have a set prequalification process. You go to the agency and talk to the different project managers and department managers and let them known what it is that you.

A minority male owner of a professional services business described the recertification requirements as burdensome:

> The process of fulfilling the [recertification] requirements for a SLMBE certification every three years is very burdensome and a lot of paperwork. They should have something online that you complete, where [the business owner] can answer the questions and provide information.

A minority female owner of an architectural and engineering business reported that the notary requirement for certification with each bid submittal is excessive:

> I think the paperwork is excessive when submitting a proposal that requires you to fill out three forms that have to be notarized with every bid. If you are a registered SLMBE, you should have your declarations and statements done once as part of your certification process and not have to repeat it every time you submit a bid. So that I don't have to run around looking for a notary public every time I put in a bid,

> to repeat the same thing that I'm a minority business enterprise. I try to deal with what's there because I think that if you complain you can put yourself in a position where you're not welcome.

A minority male owner of a construction business believes that a lot of paperwork is required to meet the SLMBE certification requirements:

> The SLMBE certification requirements seemed to [require] a lot of paperwork. I believe that whatever the requirements are, either you meet them or you don't.

V. DIFFICULTY WITH SLMBE CERTIFICATION AND PREQUALIFICATION REQUIREMENTS

This minority male owner of an architectural and engineering business reported that WSSC does not have a standard process for prequalifying consulting businesses:

> WSSC does not have a set prequalification process. You go to the agency and talk to the different project managers and department managers and let them known what it is that you do.

A minority female owner of an architectural and engineering business reported that the notary requirement for SLMBE certifications with each bid submittal is excessive:

> I think the paperwork is excessive when submitting a proposal that requires you to fill out three forms that have to be notarized with every bid. If you are a registered SLMBE, you should have your declarations and statements done once as part of your certification process, and not have to repeat it every time you submit a bid. So that I don't have to run around looking for a notary public every time I put in a bid, to repeat the same thing, that I'm a minority business enterprise. I try to deal with what's there because I think that if you complain you can put yourself in a position where you're not welcome.

A minority male owner of a construction business believes that a lot of paperwork is required to meet the SLMBE certification requirements:

> The SLMBE certification requirements seemed to [require] a lot of paperwork. I believe that whatever the requirements are, either you meet them or you don't.

A minority male owner of a goods and other services business explained why his company does not qualify as an MBE in WSSC's SLMBE Program:

> The SLMBE program has a cut-off limit in terms of business revenue and size. And the bar is set pretty low. A lot of minority businesses that qualify as MBEs, DBEs, or small businesses at the federal level do not qualify for the WSSC SLMBE program. We do not qualify for the small, local, or minority business program at the WSSC. We are registered as a certified minority business with the State of Maryland.

VI. WSSC MANAGERS CREATING BARRIERS

A minority male owner of an architectural and engineering business reported that he was directed by a project manager to do work that was out of the project's scope and was not paid for it:

> I was a subcontractor on a project, and we were told that the work that we did which WSSC's project manager directed us to do, was out of scope. So they said they would not pay us.

A female representative for a Caucasian male-owned business reported performing out of scope work requested by an engineer who refused to pay for their services:

> An engineer tried to get us to do work outside the scope. We didn't really complain. We were trying to explain our side of it to keep the peace. We presented the facts and requested payment for the additional services but it was denied.

A Caucasian male owner of a construction business reported that oftentimes inspectors will ask them to do work outside of the scope without compensation:

> Inspectors and contract managers are always trying to get a little something extra without doing the burdensome change order paperwork. But if it is for anything significant, we either get a change order in advance or they treat it as a claim and direct us to perform the work.

A minority male owner of a construction business reported that the good old boys network is deeply entrenched in WSSC's management team:

> WSSC hosts these general meetings that are open to contractors. Basically, you see the people that always get the work, and they were hostile about sharing the pie. This is a very interesting concept because I subcontract with majority companies that are much larger than these guys, and they welcome. Because when you both get a contract, you both keep your people working and pay your mortgages. WSSC has an old boy network that is deeply entrenched even its top management. They have their loyalties. When they step away from WSSC and get on the golf course, it's obvious that those people have known each other for a long time. And it starts from the buyers, top management, chief engineers, all of that, all the way down. I never saw an old boy's network until I started messing around with WSSC.

A minority female owner of a professional services business suggests more sensitivity from WSSC buyers toward small businesses:

> The buyers have to stop thinking that large businesses with name recognition are better than small businesses. There has to be a change in perception that contracting with small business is risky versus contracting with large business. So there is a certain perception and discrimination based on that perception.

A minority male owner of an architectural and engineering business reported that he was unfairly evaluated by a WSSC selection committee:

> We found that there was some personal bias against us or our firm and that one of the larger majority-owned firms had talked to some of these folks at WSSC and convinced them to award them the contract. And we were technically the highest-scoring firm. Going into the interview, we were the highest ranking firm by a long stretch. Coming out of the interview, we supposedly lost the project. And one of the people who used to work at WSSC told me that he had never seen a lead like that get lost in the history of WSSC.

This same business owner provided an explanation as to why he believes certain WSSC employees favor Caucasian-owned businesses:

> I think that some of these large majority-owned firms are able to convince or coerce a lot of WSSC employees through whatever means. It hurts the minority and the small business. It's a very small industry and once they leave WSSC, if you want to go the private sector you are going to work for one of the primes. If you piss off the primes you are probably not going to get a job from them. So, it's funny how that works.

A minority male owner of an architectural and engineering business reported that the selection committee was not attentive during their presentation:

> The selection committee did not pay attention to our presentation, and all the members were not present. I don't believe that it was a real competition. It was wired prior. They were just going through the motions.

VII. FINANCIAL BARRIERS

A. Difficulty Obtaining Financing

A minority male owner of a professional services business reported difficulties acquiring financing. He also discussed the disparate treatment of minority business owners by financial institutions:

> We had problems all along getting financing. What is interesting our banks tell me I need to get to know them on a personal level and I need to get them to trust me. And I asked them how I can do that and they [said], "Well, you should join the same clubs as we do and socialize in the same places we socialize in." I'm not the right religion or the right skin color to get into some of those country clubs. It's funny, when I compare notes with my neighbors who are Caucasian, they give me the referrals for their bankers. And they say, "Well, why don't you call this guy? He's a pretty good guy in issues of financing." I have seen [my neighbor's] balance sheet and [compared it to] my balance sheet. Unfortunately for him, his is much worse than mine. But he gets blind credit and gets financing for equipment. He gets all kinds of stuff and that's just absurd. [I am told] that I don't have enough operating history or I'm too small a fish for them. I have a couple of friends in my neighborhood and they run similar businesses. None of these White guys get the treatment that I get.

A minority female owner of a professional services business reported that minority business owners receive disparate treatment when seeking financial assistance:

> Minorities get loans the rates that are much higher than non-minority firms. It's just not parity across the board and it should be.

A minority male owner of a construction business reported being unable to obtain financing for his small business. The impact of inadequate financing on his construction business was also discussed:

> If you don't have enough money to buy all the materials which could be thousands of dollars, then

> you either have to borrow it or pay an exorbitant amount for it. Or get a loan from someone other than a bank that is willing to loan it to you at a very exorbitant rate with a short turnaround time. I don't want to use the term "loan-sharking," but it's almost like that. We have had issues with payroll and buying materials because of lack of funds. On occasion, we literally waited on a check so we can deposit it in time to meet payroll.

A minority male owner of an architectural and engineering business reported that the inability to obtain adequate financing for his business has prevented him from responding to request for proposals:

> Unfortunately, in my line of business, we provide interior furnishings from manufacturers, and we have to put the money up front and place the order. In most cases this creates somewhat of an obstacle in today's economy to order $100,000 worth of furniture. You got to put up $50,000 to place the order. A lot of people in my industry are having difficulty. Because of the insurance requirements, you still [need] to have money up front before you can actually get paid for performing the service. This is a huge barrier right now. This is why I have not [responded to] any recent [proposals]. I can't afford the overhead, carrying insurance for a specific project, and not having any income coming in.

A minority male owner of a professional services business reported experiencing financial hardships over the last few years. He stated that even though he was able to provide collateral for a loan, he was denied financing:

> We have experienced severe financial problems particularly during 2008 and 2009. We were unable to obtain funding in spite of the fact that we had receivables and were prepared to make them available. We weren't able to get financing at all, even with the assistance of the Prince George's Economic Development Corporation. We had a [financing indicated] that they didn't have any concerns about being repaid their funds because we had receivables, which they would have collected directly. Yet, at the

> end of the day, they did not provide the funding. We eventually got funding from a New York company. But their costs were high and it actually undermined the business by eroding all the profits. We provided evidence that we had the capacity to pay and that we had restructured our arrangements so that we would be able to survive over the long term. We did all that and we still got a no.

A male representative of a minority female-owned construction business reported that his business is often offered financial assistance with undesirable terms:

> I have not been able to get credit and it impacted our ability to deliver or offer products to the customer. Or the credit terms have been unfavorable and we still had to purchase materials which impacted our cash flow. They allowed us to get the product but we had to pay up front.

A minority female owner of a professional services business reported that the financing offered was significantly lower than what was requested:

> We tried to get credit through Wachovia and Municipal Employees' Credit Union in 2006 and 2007. The amounts that they approved were not sufficient. They both said that we were approved for $25,000 but our request was for $150,000. We purchased a firm that had been in business for 23 years and had good standing with the same bank that we applied to. The previous owner took us there since he [received] loans when he needed it for the company. The business standing was pretty good; it was the same as it had been in the past. We thought we would at least get the same [terms] that the business always had [received], but it was reduced because they felt that we were too new to the game.

A minority male owner of a goods and other services business reported that sometimes minority business owners allow Caucasian employees to represent the business in an effort to increase chances of receiving financing:

> When we have occasion to network, all the time we hear stuff about [minorities] not being able to get

> bonding or financing. They have more success getting business when they have a Caucasian represent the business rather than the African-American owner. We hear stuff like that all the time, it's nothing unusual.

A minority male owner of an architectural and engineering business reported that it is uncommon for consulting businesses to develop a business relationship with a financial institution:

> Consulting firms, particularly start-ups, have a lot of trouble getting any sort of banking relationship.

A minority female owner of an architectural and engineering business reported that she has only found one supplier that is willing to work with her small business;

> Back in 2006 and 2007 suppliers were more willing to provide the merchandise and do the standard 30-day billing. Now, they are requiring a deposit at the time that the order is placed. So I've only been able to work efficiently with one manufacturer.

B. Difficulty Obtaining Bonding

A male representative for a Caucasian female-owned architectural and engineering business reported that many consulting projects are classified as construction and therefore include bond requirements:

> The kind of work we do as professional engineers does not require bonding. But what we are finding is that municipalities and states are increasingly labeling a number of their projects as construction and lumping what we do into a big pot called construction. And, as a result, it requires us to get a bond. It is extremely expensive for us to get a bond. We don't approve of this practice. We think it's a method to eliminate small businesses because bonds are not required for what we do. Within the last year we have seen more RFPs for construction-related services, when a great majority of the work is consulting, which does not require bonding.

A minority male owner of a professional services business also reported that bonding requirements have prevented him from seeking consulting work from WSSC.

> Bonding requirements are ridiculously steep especially when you are in the IT or any professional services business. And one of the frustrations for small professional service business like us is that we are held to the same bonding requirements. So, this has been a very big barrier for doing business with WSSC. It's prevented us from bidding on a lot of work.

A minority male owner of a professional services business believes that bonding requirements are major obstacles for MBEs. He also reported that prime contractors are requiring their subcontractors to obtain bonding to assist them in meeting their bond requirements:

> Bonding is a major issue in the MBE community right now; virtually every single procurement outreach event usually has a workshop on bonding. They invite bonding companies who say that they have programs to help MBEs get bonding. This is a major issue because you hear stories all the time of owners losing their business. If the prime has to get a bond, very often they require the subcontractors, the MBEs, to go get a bond.

A male representative of a minority trade organization reported that minority businesses typically are unable to meet the bonding requirements on public projects:

> Overall, bonding has been an issue for minority businesses because the bonding fees exceed the ability of MBEs to go after them and because the credit requirements are very stringent.

A female representative of a minority trade organization also reported on her knowledge of minority businesses experiencing difficulties obtaining bonding:

> Some of our members stated that the bonding requirements keep them from participating actively as a prime or subcontractor. Access to organizations that can help underwrite bonds or provide training and information is needed.

A minority male owner of a construction business reported failure to obtain bonding despite being in business for six years:

> I have not been able to obtain bonding of any sort. I just answered some questions over the phone with and that was also declined. We did not have enough capital in the bank or "just not at this time." It has affected my business tremendously. So it leaves me and maybe another 100,000 people bidding on smaller jobs, and everyone is trying to win so the prices are very competitive. It's almost impossible to make money so you have to find other things to do. We have to cut our profit margin down to the bare minimum just to survive, or it forces some companies out of business. I have a hard time of understanding if a project is $125,000, why there is a $100,000 bond requirement?

A minority male owner of a construction business reported that his business could not respond to 20 percent of bid opportunities because of the bonding requirements:

> The amount of bonding that we can secure is much less at the rate we were being charged. About 20 percent of the business in our industry we don't bid on because we have a difficult time getting bonded. So, that is a hindrance. I think this is a problem in the industry for all minority business owners. One of the biggest hurdles for all minority businesses is to get to a point where they are bondable and can have a line of credit.

A minority male owner of an architectural and engineering business reported that he is unable to team with minority construction contractors because of their inability to obtain bonding:

> We do a lot of design build projects. We try to team with minority contractors, but they are unable to obtain a bond which is a requirement for their part of the work. The size jobs that we're able to do with them are limited based on their bonding capacity.

A minority male owner of an architectural and engineering business reported that he was able to get bonding, but it is increasingly more difficult to meet the requirements for each project:

> In 2008 and 2009 I went to what is referred as a "subprime" bonding company. I wasn't able to get what I needed because you have to have a certain amount of money in the bank. I went through about two or three different companies. Finally, someone referred me to a [company] in Baltimore that I was able to work with. It took me about three tries before I got to that person. But we are constantly trying to think of creative ways to get bonding.

C. Late Payments by Prime Contractors

A minority male owner of an architectural and engineering business credits the SLMBE Program with growing his business. He believes that the Program could do more to help SLMBE subcontractors by paying its prime contractors in a timely manner:

> WSSC's SLMBE Program has strengthened the community that it serves. WSSC can be credited with helping us out in getting started as a small business. It was from there that one of the contractors who wanted to satisfy his SLMBE requirements contacted us. But, I think WSSC really does need to revisit the SLMBE Program. It's a profoundly important contribution to the community it serves. But there is more to be done to ensure that the payment of SLMBE subcontractors is done within a 30-day period. It needs to be done within a 30-day period, and there needs to be a system in place so subcontractors will survive. Their processes should facilitate the payment to their prime contractors so that a subcontractor gets paid in a timely manner to sustain him.

A minority male construction business explained the effects of late payments on his small businesses:

> Small contractors have to put up money out front for payroll and materials, but prime contractors drag their feet on paying you. It's difficult to build up enough cash reserve so that you will not have these issues.

> So we are always playing catch up because it's a situation where you do the job, buy the materials, you pay your employees every week.

This same business owner reported that some prime contractors pay their subcontractors late regardless of contractual agreements:

> We experienced late payment in the last year and a half with the one project at WSSC, but it was because of the prime. Contracts usually require payment within 30 days of the prime contractor receiving payment. And, in many cases this did not happen. They would indicate that scope of work wasn't exactly as they thought it would be, so they hold back payment for a while. Prime contractors do not have any respect for small contractors. I honestly feel . . . that because she was a Black female . . . that they felt as though they could do what they wanted by dragging their feet or refuse to pay. It was just a nightmare dealing with this guy.

A minority male owner of a construction business also reported that prime contractors fail to abide by their contractual agreements with their subcontractors:

> We had an agreement with a prime contractor as to when payment would be due. This corresponded to when the supplier's payment was due. We agreed to the arrangement and then the prime contractor failed to pay and I wasn't able to meet my obligations to my suppliers. I don't have any recourse, and I am at his mercy at that point. I wasn't able to pay the suppliers, and I still haven't gotten paid.

A minority male owner of an architectural and engineering business reported that he feels pressured to sign contractual agreements with prime contractors that include terms that are not favorable to his small business:

> Bigger companies can negotiate better. As a minority business, I get a blanket contract to sign by the prime contractor. And, if I touch one letter on it, they are like, "well, screw you, we are going to move to another MBE." I don't have much power to change contracts. Unfortunately, I sign a lot of contracts

> with prime contractors, and I know I'm legally toast if something happens from the payment side.

A minority female owner of a professional services business reported that she has waited from four months to five years for payment from prime contractors:

> Payments are never on time. We allow 120 days and we still not receiving them until after four months. We have one where we are still trying to get payment from five years ago.

A minority male owner of a professional services business reported that one prime contractor paid 90 days after receipt of the invoice:

> We were dealing with a huge corporation that was tied to the WSSC, who was paying us 90 days behind and we had workers to pay. Under the contractual arrangements with WSSC, the prime should not have been able to do that.

A minority male owner of a professional services business reported that WSSC prime contractors routinely pay him late:

> Every single payment is late except a direct contract that I had with WSSC. When we deal with the WSSC directly, there was absolutely no problem. But with the prime contractor, that was the case. I have tried to dialogue with the prime contractors in every way that I can, but I did not complain directly to WSSC. When I realized that there was going to be a disparity study, I thought that would bring it out.

VIII. PUBLIC SECTOR VS. PRIVATE SECTOR

A minority male owner of a construction business reported that private companies tend to pay in a timely manner:

> In the private sector you can submit your invoices and you get paid timely. In the public sector, there seems to be a lot of red tape to get paid timely. We had a 15-day turnaround with one private company.

A Caucasian male owner of a construction business reported that less than seven percent of his work is from the private sector:

> Only about five to seven percent of our work is from the private sector.

A minority male owner of an architectural and engineering business described what he believes are the benefits and disadvantages in the public and private sectors:

> There is more work in the public sector, but the private sector pays quicker. Also, we have more access to projects in the public sector.

A minority male owner of a professional services business believes that the private sector is more progressive than the public sector:

> I think the private sector tends to be a lot more progressive. The public sector folks who have been with the same agencies for a very long time tend to have a lack of innovation and understanding that there may be new ways of doing things.

A minority male owner of a construction business believes there are more financing benefits in the private sector:

> Financing is much better with the private sector because you get half your money up front. Also, it is not always about the lowest price. It's about the best product. So that's a plus.

A minority male owner of a professional services business reported that the public sector allows more lead time to respond to proposals compared to the private sector:

> I think there are more opportunities in the public sector in a systematic manner. In the private sector the bid turnaround time happens at a faster pace. But the public sector is much slower where they give you a little bit more lead time.

A male representative for a Caucasian female-owned construction business believes that minorities have more opportunities in the public sector:

> I would say that the government regulations offer us more opportunities. If there's no MBE requirement then there is no relationship. The public sector tries to build capacity so that we can compete as a prime contractor. Otherwise, there are very limited opportunities.

A Caucasian female owner of a construction business reported that the procurement process is streamlined in the private sector:

> It's a lot less paperwork in the private sector. They call and ask me to do the work. They ask me how much it's going to be, and they accept my price. It's just very cut and dry.

A minority male owner of an architectural and engineering business believes there is more discrimination against minorities in the private sector:

> The private sector is less fair than the public sector. The private sector discriminates much more than the public sector. The public sector has checks and balances and like an SLMBE office to protect us. The private sector does not. The big corporations, the majority-owned corporations can buy contracts in the private sector.

A Caucasian male owner of a construction business reported that there is less paperwork in the private sector, but there is also less lead time to respond to a solicitation:

> The private sector generally involves a lot less paperwork but the private sector will sometimes cut bid times very short. I have received a call on Monday and they need a response by Friday. If it's a good customer, you do it. Or you just tell them that it is impossible to do.

A minority female owner of an architectural and engineering business prefers the technical evaluations conducted in the private sector:

> The technical evaluations are a lot stronger than in the public sector. Decisions seem to be based on their understanding of the problems and we have provided an appropriate technical solution.

A minority female owner of a professional services business also believes the private sector has more technical knowledge regarding contract specifications:

> The private sector is much more organized, and they move quicker. They seem to understand the field better, so their RFPs are straightforward. And they have the courtesy of frequently letting you know whether or not you got the work.

A minority female owner of a professional services business reported that she only receives work when there is a minority requirement regardless whether it is the private or public sector:

> Most of the business that we do, whether it's private or the public sector, is minority driven. And our experience has been that folks generally will do business on the consulting side or on the supply side with us because there is a mandate to do business with a minority. In 2009 we did business with two majority companies as subcontractors. Their previous contract did not require that they work with a minority firm and they didn't. Their contractual relationship now requires that they work with a minority firm. Hence, we are working with them.

IX. COMMENTS ABOUT THE SLMBE PROGRAM

A minority female owner of an architectural and engineering business reported that the SLMBE Program was the catalyst to starting her business:

> WSSC has been a very positive client, and they are one of the reasons that I've been able to make the transition from working for an engineering firm to

> starting my own business. It would have been very difficult to do this without the SLMBE Program.

A minority female owner of a construction business believes that the SLMBE Office needs more authority to assist minority businesses:

> The SLMBE Office needs a little more power than what they have to help minority businesses. The prime contractors have all the power, and I will leave it at that.

A male representative of a minority trade organization believes that WSSC's needs a MBE Program requiring strict accountability by key procurement managers:

> WSSC needs a stronger and clearer MBE program with clear targeted goals. I think that the individuals in WSSC's contract groups should be held accountable for achieving the WSSC goals in a more aggressive and assertive manner. I think establishing a firm MBE program and including in it an evaluation criteria for everyone involved from outreach through the general manager would make the process much more effective.

A Caucasian male owner of a construction business believes that minority prime contractors have a benefit over other contractors because they do not have to meet any SLMBE Program requirements:

> If you bid the job as a minority prime contractor, you do not have to participate in the MBE or SLBE program. To me, that is not fair. I think everyone should participate in it. It seems to me like the person who is a minority prime contractor has an advantage over anyone they're bidding against who is not a minority because it costs money to subcontract out work. They should have minority prime contractors participate in the program the same as we do.

A minority male owner of a construction business believes that the SLMBE Program offers useful technical assistance workshops:

> The SLMBE Program provides workshops on how to qualify for bid opportunities. It is good that they have those programs.

A Caucasian male owner of a professional services business reported that he does not believe that WSSC's SLMBE Program is designed to help small businesses obtain contracts:

> Even though WSSC has a SLMBE program, it really isn't a program set up for small businesses. We basically go after the same projects that the large firms go after.

A minority male owner of an architectural and engineering business believes that minority contractors are afforded more opportunities on projects that have MBE goals. He also believes that there should be specific minority prime contractor goals:

> There is more opportunity for M/WBEs when there are goals. The projects with the goals have a watchdog agency so you are usually going to get paid. Some prime contractors that I work with at WSSC, I also work with on other projects that are not with WSSC. If you look at the data where there are no program goals, we do not get work. It's only places where there are programs that we are working. It's not a question of a skill set, because we work for those other firms and I did not lose the capability to do the work. They need to increase the SLMBE goal and then they need to set a goal for minority prime contractors. This will allow folks to develop the skill set and be able to compete in the marketplace.

A minority female owner of a professional services business believes that M/WBE participation is higher when an agency has requirements instead of goals:

> When you have a M/WBE requirement, firms don't have a choice. When you have a M/WBE goal, it's a little loose. People can say, "Well, we just don't have the right firms." I think if the statistics were done in places where you have a goal versus a requirement,

> you will find that the participation will be higher where there are requirements as opposed to a goal.

A minority male owner of a construction business believes that the SLMBE Program is ineffective because its MBE goals are aspirational:

> The way that it's set up at WSSC, there is a pool of names on the list because they are afraid of showing any favoritism so the system is watered down. I go to these meetings that are full of people and they apologize for basically having an affirmative action type of program. "Oh, don't worry we are not giving them any favoritism. Don't worry it's not a quota system. It doesn't mean we have to obtain ten percent. We just have to try to get ten percent." It's very embarrassing to sit in with these people . . . making a mockery of a goal system. It's always been that way. It's a mess.

This same business owner also believes that the SLBE goals are circumvented by businesses with bogus certifications:

> What they should do is deal strictly with certified DBEs like the State of Maryland. But then you still have front companies who say, "Oh, it's in my wife's name." I sit right next to these guys, and their wives don't know a hill of beans about the business. She's very well dressed, but don't know much about the business. This is with WSSC and the construction industry. Majority-owned businesses get around this minority goal with this self-certification as a small local business with WSSC.

A minority female owner of a goods and other services business believes that minority contractors are only utilized by prime contractors if there is a requirement:

> Prime contractors do not need us unless there is an SLMBE goal. They don't even come and ask us to partner because they like our warehouse or like the way we deliver or like the products we offer. They don't care unless there's a goal.

A minority female owner of a goods and other services business also reported that MBE participation requirements are a major factor for her businesses receiving work:

> They would not buy from me if I was not an MBE, because they can beat my prices with a bigger company.

A representative of a Caucasian male-owned architectural and engineering business believes the SLMBE Program is equitable for both Caucasian-owned and minority-owned businesses:

> WSSC has set criteria that are fair. It offers an opportunity for major business like ours and minority businesses.

A minority male owner of an architectural and engineering business reported that despite the business' extensive experience, he only can get work at WSSC if the project has an MBE goal:

> We are a pretty good engineering firm, and I'm not saying that because I own the firm. We do a lot of work with the U.S. Capital. We've done work at the new Giants stadium and the Bureau of Engraving. But, if there is no MBE goal at entities like WSSC, we do not get called, period. If a project does not have goals, we don't get an opportunity to compete. When they suspended the MBE program for a short time in the fall of 2006 or 2007, we didn't get one call. In fact, I had companies tell me they don't know what is going to at WSSC. The MBE program levels the playing field. The MBE goals level the playing field and provide opportunities for smaller minority and women-owned businesses to get work experience. We don't want to get a project because of the color of our skin. We want to get a project because the quality of our work.

A minority male owner of a professional services business reported that he also does not get subcontracting opportunities without MBE goals:

> There was a knockdown, drag out fight over the MBE program at the WSSC. However, many of the people that do business with us wouldn't give us the time of day if it were not for the SLMBE Program.

A minority male owner of a professional services business explained that the SLMBE Program is too inclusive because it serves local, small, minority, and women-businesses:

> I think business size and the ethnicity comes into play because White companies and small businesses can qualify as small businesses. So it's very hard for us to make a mark and establish a relationship and be successful. One of the problems is that they lump too many groups together. So, women-owned, small, and minority businesses are all lumped together in the same pot. This is not fair to companies like ours. If you really want to increase minority participation, then they need to differentiate between those groups.

A minority female owner of a professional services business also believes that minority contractors are only utilized on projects where there are goals:

> There is no such thing as working on contracts without SLMBE goals because if they don't have an SLMBE goal, we don't have access. Unless it is a requirement, there is less likely there will be an opportunity for an MBE to qualify or to be considered.

A minority female owner of an architectural and engineering business does not believe the SLMBE Program is beneficial for consultants in her field:

> I registered for the SLMBE Program, but it wasn't very helpful. There are not any engineering-related set-asides. So I never did get anything out of it. And, after a year with no opportunities I let my certification expire and I did not renew it. I only work on the contracts with SLMBE goals usually. I see the flyers for the WSSC Program and they are geared toward MBE firms that supply commodities or during construction work for WSSC.

A representative from a Caucasian male-owned construction business reported that WSSC provides its prime contractors with a substantial list of SLMBE subcontractors to meet SLMBE goals:

> WSSC has a substantial MBE and WBE percentage requirements for their contracts. They provide a list

> of those companies, and we are able to find a pretty good company. This has worked out well to help us meet the MBE and WBE percentages.

A minority female owner of a professional services business believes that WSSC does an effective job reaching out to minority businesses owners:

> There is an effort to reach out to minority businesses. WSSC has tried to increase the participation of Hispanic-owned businesses into their procurement process. I think it shows in their actions because their small business office has been very positive with reaching out to get people to the table. We definitely need to maintain and strengthen the SLMBE Program. I think it's a must. They should work at promoting and highlighting success stories by SLMBEs. We need to have more opportunities available that give some preference to SLMBEs. The SLMBE Program is extremely helpful to my business. The minority subcontracting requirements are extremely valuable if for nothing else but to provide a venue for primes to develop relationships with good MBEs that can add value to their contracts.

A representative of a minority-owned architectural and engineering business is hopeful that the Disparity Study will result in policies that improve the participation of SLMBEs on WSSC's contracts:

> WSSC's first disparity study was apparently discarded, and that is why another one is being done. We hope that our comments are considered. If you want to put small businesses out of business, you can do it very easily by the size of the contracts. Large contracts can knock a lot of us out of the ballpark. We are not going to be able to compete with the big boys without some kind of small projects. It is difficult to get a contract without SLMBE goals.

X. EXEMPLARY BUSINESS PRACTICES

A minority female owner of a construction business reported that she has received telephone solicitations from the SLMBE Office regarding sheltered market opportunities:

> One of the guys from WSSC's SLMBE office said, "Hey, this bid is coming out. Would you be able to do this?" I think they wanted to put it in a sheltered market. So that was a positive.

A minority male owner of an architectural and engineering business reported that WSSC is efficient in advertising upcoming consulting projects:

> From my experience WSSC is probably one of very few agencies where all the jobs in my area are listed on their jobs board. So I always know what projects are going to come up, and I have the opportunity to go after them. Very few projects are not advertised. So you are pretty much aware of at least 85 percent of the work that's going on at the agency.

A minority male owner of a professional services business reported on the positive relationship she has with two WSSC project managers. She also discussed the beneficial training WSSC provides to contractors interested in working for the agency:

> There are project managers within WSSC who have been very helpful to me, such as [names withheld] in the waste water collection systems group. Also, they provide training when there is new software that they have chosen to use, especially one that is going to give access to business development opportunities and is going to hold both prime contractors and subcontractors accountable in terms of tracking the level of success they're having within any given contract. I think that is certainly a worthwhile service.

A minority male owner of a construction business spoke highly of WSSC's inspectors. He credits them in providing guidance on helping his business to succeed on WSSC's projects:

> I have been shown how to do the work by the top inspectors at WSSC in terms of what they look for. I have been invited to job sites. They have really tried

> to make an effort to make sure that I got a fair shot at it and wouldn't fail. We talked about the failures of companies in the past, how to avoid it, and how to do the work so you don't fail. They have taken me under their wing. I can't say enough in terms of gratitude and thankfulness to the inspectors there because those guys have no problems with showing you how to do the work. When they inspect the work, they want you to do it well. They don't want lousy work so they are going to show you how to do it right.

A minority male owner of a professional services business also reported that he received valuable guidance from a WSSC manager:

> I sought assistance from one of WSSC's senior program managers who provided guidance. This person was genuine when he provided assistance.

A minority female owner of an architectural and engineering business reported that a WSSC inspector has provided her with practical advice based on his valuable field experience:

> [Name withheld], one of their construction inspectors, has always been helpful in going over the constructability issues of our engineering designs. He is a great resource because we are engineers and we do good work, but it's good to have somebody with more practical field and street eyes to look at a project.

A Caucasian female owner of a construction business also reported on the helpful assistance she received from WSSC managers:

> Their managers have met me on the job and explained how they would like something done. They are very good to work with. It's been good working relationships with the inspectors. They have not put any major requirements that we felt were unreasonable. They also had a class for Centrex that was very beneficial. It provided information on how to invoice and post payments.

A minority male owner of an architectural and engineering business reported that his business has been treated fairly by WSSC inspectors:

> [Names withheld] have been very helpful. They are good people within WSSC. If you have questions on projects, they were open. They treated us nice. Now there is some people that haven't been helpful, but that's okay, I'm not going to mention their names.

A male representative of a minority female-owned professional services business reported that the business has received several opportunities from WSSC:

> WSSC offers a great number of opportunities to interact with them. At least quarterly we get an opportunity to meet with other vendors where WSSC offers us an opportunity to interact with colleagues and persons who can assist us. They are always trying to update their information as to how best to do business with WSSC. Those things stand out.

A minority female owner of a professional services business reported that WSSC's efforts to reach out to women and minority-owned businesses are exceptional:

> I think that WSSC has done a tremendous job in the last few years of doing outreach events for women-owned and minority-owned businesses, especially Hispanic business owners. And they have participated in a significant way to trade associations or conferences. They have made a concerted effort to reach out to small businesses and minority-owned businesses. I think that they have made a commitment and are definitely on board with trying to make sure that minority and women small businesses are at the table.

XI. RECOMMENDATIONS FOR WSSC'S PROCUREMENT PROCEDURES

A minority male owner of a professional services business recommends unbundling large contracts into smaller projects:

> Sometimes the way the contracts are bundled by WSSC can be a barrier to participation for firms like mine. I think the inclusion of women and minority-owned businesses certain things need to continue to help us get our fair share.

A male representative of a trade association recommends unbundling construction projects into contracts valued at $250,000 or less to increase opportunities for SLMBEs:

> WSSC should look at individual jobs and break them up into smaller jobs that [amount] to a quarter of a million dollars or less. We found that most of the companies in Prince George's County can go after opportunities.

A male representative of a trade organization recommends WSSC unbundle its contracts to create more opportunities for small businesses:

> A lot of these [architectural and professional] contracts are procured in a manner where small contractors do not hear about them, and when they do, they are already done. They should unbundle some of them to create smaller opportunities for contracting so smaller contractors will be able to manage them.

A minority male owner of an architectural and engineering business also suggests unbundling large projects:

> Split out the projects into multi discipline contracts instead of just doing one contract. Then you will have a lot of small businesses be able to win some of those contracts. So, if they unbundle contracts, that would really help out.

This same business owner also recommends MBE goals on all projects:

> They need to have MBE goals on each and every contract. So, the important thing is to have it across the board and unilaterally. These big companies have all this influence with different organizations including WSSC. They go into this closed door room and say, "Should we have an MBE goal on this?" and there's a lot of competing interests at the table. "Oh, no, we can't find an MBE let's not have an MBE goal on this." Well, that's absurd.

A minority male owner of an architectural and engineering business recommends increased SLMBE goals and more opportunities for minority prime contractors:

> They need to raise the goals. That would allow us to win larger projects and to build even larger firms. They should also require architectural and engineering projects have MBE prime contract goals. If you have five watershed projects, two of those ought to be primed by MBEs.

A minority male owner of a construction business suggests that small contracts be set aside for minority contractors:

> Increase the minority participation percentage for companies under a certain size such as a gross income of less than half a million dollars a year. The payment process for subcontractors should be geared to a two-week turnaround. Once the contractor has been paid, there should be a two-week maximum turnaround because cash flow is an issue.

A minority male owner of a construction business recommends separate goals for MBEs and SLBEs:

> MBE goals should be separate from local small business goals. It takes a lot to become an MBE because they thoroughly investigate you since there are some front companies out there. At WSSC a mentoring program would greatly improve the success rate of minority companies doing business with them.

A minority male owner of a professional services business suggests mandatory MBE goals:

> A mandatory MBE goal would provide minority businesses with a greater sell our services. There are very few [opportunities] for MBE participation at the WSSC.

A minority male owner of a professional services business recommends more policies to help minority contractors:

> A lot of WSSC's open bids should not be open. They are small enough to be set aside for minority vendors. They should limit it.

A male representative of a trade association suggests that WSSC's monitoring procedures address the following questions to strengthen its good faith effort requirements:

> My members should be asked, do you know that you were listed on this contract? We found that through testimony in Annapolis, some of our members did not know that they were listed on a contract or bid documents as a subcontractor. So that is fraud right there.

This same representative offers the following recommendation for WSSC's SymTrac™ system.

> Once a subcontractor is loaded into SymTrac™ [for a particular project], the system should not allow another subcontractor to be added without the required substitution authority.

A female minority owner of a professional services business offered recommendations to improve opportunities for minority suppliers:

> A fair and open playing field with MBE requirements that is legitimate. Require manufacturers that are on WSSC's approved list to open up distributorships to minority companies.

A minority female owner of a goods and other services business reported being unable to secure agreements with some of the manufacturers that WSSC specifies in their bid documents:

> We try to sell water utility products to WSSC, such as [intentionally omitted]. It is very difficult for us because WSSC has specific manufacturers that you have to use. We sought out direct relationships with those manufacturers to supply their material. In many cases, the manufacturers have denied and refused us the opportunity to sell, resell, or handle their material.

A representative of a Caucasian female-owned construction business recommends that prime contractors reach out to SLMBEs when there are no participation goals:

> Prime contractors should make an honest and concerted effort to build a relationship with SLMBEs and demonstrate that they work with those companies on non-minority required projects.

A minority female owner of an architectural and engineering business suggests that the revenue requirements for certified small businesses be reduced to reflect smaller businesses:

> I think their definition for small business needs to be defined better. You really do not have to be small to qualify as a small business.

A minority female owner of a construction business suggests training for construction contractors:

> It would be helpful to get training on the work that WSSC [procures]. They would have a bigger pool to pull from.

A minority male owner of a construction business suggests bonding opportunities for SLMBEs:

> They need to establish bonding assistance and that would be a big improvement.

A male representative of a trade organization has specific suggestions for providing bonding opportunities for minority and women businesses:

> Look at the projects and make sure that the bonding requirements [are needed], especially on capital projects. WSSC should also consider whether subcontractors can ride on the bond of the prime contractor. And WSSC should create a self-insurance program for projects under $250,000 or $200,000. Part of the problem with many of the small, minority, and women-owned companies is that they may not have all the tools or the pre-requisite work ahead of time like their prime contractors.

A male representative of a minority trade organization explained why he believes bonding assistance is needed for minority business owners:

> To obtain bonding, the discretion is with the insurance companies. The basic requirements are three years of financial statements. Several of our members don't have problems providing that, but when the decision is made for bonding, they don't know what goes into the equation. One example that I have was where the bonding company actually instructed the business that they must use an accounting firm that the bonding company picked. The reasons for rejection are [usually] not enough experience, capital, or capacity to fulfill the job. These are some of the reasons that I hear a lot. If WSSC is serious about including minorities in their contracting, then they need to be sensitive to the fact that most of the minority firms may not meet the bonding requirements if they are very stringent.

A male representative of a minority trade organization offers WSSC the following suggestions to assist MBEs in meeting their bonding requirements:

> They should reduce the amount of the bond required for a job to be closer to the actual value of the project. They could assist MBEs by providing low-cost assistance and guarantee the bond with the MBEs. Or, they could help underwrite the bond by

guaranteeing a portion of it or some other method.

A minority male owner of a professional services business reported that he and other business owners complained to WSSC regarding the bonding requirements but were unsuccessful, although their appeal convinced another local agency to change their requirements:

> I complained and [WSSC] said they were they going to look into the matter but things never changed. We have not been able to get any business at WSSC. And we put a lot into qualifying as a minority business enterprise with them. But we have not been able to make that work for us**.** I am part of various small business groups and whenever we talk about WSSC, other utility type companies have the same issues. About a couple dozen different small businesses, like us, that complain about this all the time. These are almost all African American-owned businesses. We complained to the Washington Metropolitan Transit Authority about similar issues and they made changes.

A minority male owner of a professional services business recommends overtime pay for subcontractors:

> The issue of payment for overtime whether it is with WSSC directly or with the contractors needs to be addressed. Contracts that are undertaken by the prime contractors should be subject to the federal law as it relates to the payment of overtime, once a worker works over 40 hours per week. Because you would have a much better working relationship with the worker who doesn't feel that he is being unfairly treated.

A male representative of a trade association suggests WSSC implement an outreach event similar to one hosted by a corporation:

> Verizon has Industry Day where they invite the industry to come in and discuss what they do and then Verizon has all of their engineers and procurement folks [available] to figure out If WSSC had Industry Day, their engineers and scientists could explain what they do to the vendor community.

A representative from a Caucasian male-owned architectural and engineering business recommends more networking opportunities with WSSC project managers:

> More networking opportunities with actual project managers and WSSC's upper management.

A male representative of a trade association recommends that WSSC have managers with procurement authority conduct outreach events.

> WSSC has the wrong people doing outreach. They have people that do not know what the hell a bid, RFP, IFB is from a tree. They need to have their procurement folks do outreach, that is where the rubber hits the road. Don't send people that are not even buying paper clips for the agency out to these events because it does nothing. It makes the agency look bad. The contracting community looks at it as a joke and say, "here you go, sending us the same old people that have no authority or power to buy a paper clip." But you are sending them to get [minority contractors] registered in the database that is a black hole [because] they are never going to get used.

This same representative believes that WSSC's procurement managers should be accessible at the agency's outreach events:

> If WSSC sent out its top-tier procurement managers, we could hold those people accountable for the utilization [of minority contractors] or the lack thereof. When the majority white-owned companies go to WSSC, they do not meet with the outreach person; they meet with their procurement managers. If you talk about discriminatory practices, having me go in and meet [with the] outreach person as opposed to the procurement [managers], is discriminatory in my estimation. I believe their procurement folks should get out from behind their desks and meet with the minority businesses and talk to them about specific needs of the agency.

A minority female owner of a professional services business suggests more networking events:

> Better networking with agency officials and prime contractors.

A female representative of a minority business development agency suggests more partnerships between WSSC and minority business associations:

> It is very difficult for [minority contractors] to get work from WSSC because they do not understand what is required to win a contract. Our chamber and WSSC need to work together to define what the needs are for our constituents in terms of explaining and presenting a winning proposal versus one that is not. And there should be an involvement from the rest of WSSC with minority contracting beyond the SLMBE Office.

A male representative of a trade association reported that he has been unable to partner with WSSC, but believes a partnership would be beneficial:

> I have tried to establish partnerships with WSSC, but I have run into difficulties with the internal folks on setting up something like that. So yeah, we have run into difficulties. I would like them to come out and speak directly to our members about their procurement opportunities and forecasts for their capital improvements budget.

This same representative reported on the successful partnerships he has forged with other local agencies:

> Other entities like the Prince George's County Public Schools do that and we found it to be very worthwhile. It's a good partnership for both of us because we have subcontractors qualified to do the work. So, it's a win-win for both parties. We also have a very good relationship with WMATA (the Washington Metropolitan Area Transit Association), and DC Water, so it's mind-boggling that one of our home agencies, WSSC, has not stepped up to the plate. We are looking for a partnership and it seems

> that there is some resistance or reluctance by WSSC to partner with us.

A male representative of a trade organization explained why be believes a partnership would be beneficial to his members:

> [A partnership] would allow us to get access to information about WSSC's programs and the kinds of projects that are being forecasted. We could get that information out to our various contractors. I think they could do more outreach to minority contractors in the marketplace. Such as, having a Contractors' Day to talk to primes and subs about the kind of work that's coming up.

A female representative of a minority trade organization also reported that she would like to develop a partnership with WSSC:

> We would like to [have a partnership] and would appreciate the opportunity for information notices, training, and networking. We never have been approached to do so.

A female representative of a female trade organization suggests WSSC improve the dissemination of their proposal information regarding professional services opportunities:

> We never, or seldom ever, see opportunities for professional services become available. We see where a contract has been awarded to someone else but somehow we didn't seem to have access to it. Or it just seems not to be advertised as frequently or on the same means as the construction and engineering opportunities. I would recommend more availability in terms of when opportunities become available so they actually reach the people who are always trying to get the work but never seem to. For instance, several of our members have tried for years to work with WSSC and it has never happened because the types of contracts that become available are somehow never made available through the means that we currently have access to. So I would definitely recommend more dialogue between the relative parties as to what is available and how to get access to these

> opportunities. They should make the contracting opportunities more available to women-owned businesses.

This same trade representative also suggested that WSSC ensure that the bid solicitations match the service the business provides:

> I would certainly recommend that the bid submittals more closely relates to the field that has been indicated by the business. Often, we receive things that are more related to construction and are not in our field of the businesses such as consulting or marketing. If there's a way to streamline the process so that there's a direct communication with those offices that need the services. It seems that there is very seldom any need for consulting that comes out of WSSC, or it's not being disseminated the same way.

A male representative of a trade organization suggests WSSC's clarify the terms and requirements of their RFPs for professional services:

> The way the RFP is written for professional services makes it very difficult for our members to respond. I think at the get-go what is required [for a responsive bid] should be provided so people can follow it in an intelligent way and be able to respond to it and abide by it. Oftentimes it's very confusing when you try to understand [the bids] and the language they use is not easy for your everyday person to understand. This is usually typical of WSSC from what I understand. WSSC has a very strict list of requirements that they have established. They made that very clear at one of our meetings that if it's not followed fully, they will reject your bid.
>
> And the requirement for project experience is way too high. I think the requirement was five years or five similar projects and that was just too much. This particular member was not able to fulfill that requirement, although they do good work, but that cost them the contract. And they should make sure that when the RFP is written, it's written in a way that allows people a chance to submit a proposal that is

> believable. That allows them a chance to win the project and not just a waste of time because each RFP a company submits costs a lot of money, overhead, and fulfilling all the requirements. Unfortunately, it just goes into a pile when the requirements are so high you don't have a chance or you need to go and joint venture with a big firm to just give you a chance in the door. And that's never going to happen so the small business gets crushed. And this happens over and over again.

This same trade representative also recommends that WSSC advertise more of their professional services proposals:

> I would say advertise more [professional services projects] and make people aware of what they're doing. They could be a great agency, they probably are sending information to a limited number of people, my members are not getting it.

A minority male owner of a professional services business recommends that WSSC set aside small projects that match the type of services that minority companies typically provide:

> WSSC needs more transparency in terms of the opportunities that they have. They should make sure that whenever they put out solicitations they analyze it to [determine] if it's small enough to be presented to the minority certified company. It seems like the person who decides whether or not the opportunity is going to have minority participation is not in tune with what services are provided by the certified small, local minority businesses.

A male representative of a trade association suggests WSSC advertise in more minority focused media outlets:

> I'd like to see more advertising in ethnic minority newspapers, such as the *Afro-American* and the *Washington Informer*. Or advertise public service announcements on WHUR or WOL radio stations.

A minority female owner of a professional services business suggests more sensitivity by WSSC buyers toward small businesses:

> The buyers have to stop thinking that large businesses with name recognition are better than small businesses. There has to be a change in perception that contracting with small business is risky versus contracting with large business. So there is a certain perception and discrimination based on that perception.

A Caucasian female owner of a construction business recommends that WSSC post their specifications online:

> The problem I have with WSSC is that the plans are not available online. But I have to go to the office on Sweitzer Lane to pick them up.

A female representative of a minority business development agency suggests that WSSC offer debriefing sessions for minority contractors:

> It was very difficult to get in contact with a contracting officer after the award. And, it was very difficult to get a response on who won or whether the award was even made. Our members mentioned that they were not able to get a debriefing.

A female representative of a female trade organization suggests WSSC's debriefing process includes specific information concerning the successful bid:

> I think they should share the winning bid and whatever they saw as better standards. The most effective process is one that can literally walk someone through the requirements that are considered by WSSC and what it takes to actually win a bid. And this could increase the number of small, minority, disadvantaged, and women-owned businesses who are participating in contracting opportunities with WSSC.

A male representative of a trade association offers the following suggestions for WSSC's debriefing process:

> WSSC should [provide information] on the competitive range for the job, such as why a contractor did not get certain points and the specific areas where they received low scores.

A male representative of a trade association offers several suggestions to improve access for minority contractors to WSSC contracts:

> Provide pre-bid conferences on all projects [valued at] $250,000 and above. Host match-making sessions for prime contractors and subcontractors to [disseminate] information on who is bidding on specific jobs.

XII. SUMMARY OF FINDINGS

Mason Tillman completed 72 anecdotal interviews with business owners and representatives from trade associations that were domiciled in the District of Columbia and the states of Maryland and Virginia. The business owners and association representatives were identified from community meetings, media outreach, bidders registration lists, and trade and business organizations.

The 72 interviews yielded anecdotes regarding the interviewees experiences working with or seeking work from WSSC and interactions with other entities within the market area. Interviewees reported on their personal knowledge of barriers they believed prevented M/WBE contractors from successfully competing for public contracts. Exemplary practices were recounted and recommendations for enhancements were offered. Representatives from the trade associations provided their knowledge regarding the public contracting obstacles faced by members of their organizations.

There were several explicit references to discriminatory acts accounts of racial and gender barriers reported by the interviewees. WSSC reportedly has a reputation for excluding minorities on its construction contracts. Interviewees reported that WSSC views minority firms as inferior to their Caucasian-owned counterparts. Reports that minorities' work performance is held to higher standards than their non-minority competitors was also recounted as a barrier to contracting.

An overwhelming majority of the interviewees described their frustration in trying to obtain contracting opportunities with WSSC. There were several reports that WSSC prefers to work with the same contractors on their projects. There were reports that WSSC relegates

certain low technical work to minority construction contractors. Specifically, a minority interviewee reported that WSSC's doctrine includes the premise that, "If you want to do some work, you can haul some dirt." As a result of the inability of the interviewees to obtain work, many have become discouraged from continuing to bid on WSSC contracts.

Several interviews reported rarely receiving bid notices from WSSC. One business owner stated that she had not received a bid notice within the last five years. There were also substantial reports on barriers to financing and bonding.

Unfair tactics by WSSC managers and inspectors were also reported by several interviewees. There were several accounts where WSSC managers required business owners to perform work outside of their scope without payment. An interviewee also reported that WSSC has an old boy network that is deeply entrenched up to its top management. An architectural and engineering consultant reported that WSSC's selection committee was biased against his firm. While another architectural and engineering firm reported that WSSC's selection committee was not attentive during his presentation because be believed the contractor had already been chosen. Furthermore, there was a report that large majority-owned firms were able to convince or coerce WSSC selection panels because the panel members would probably work for a Caucasian prime after leaving WSSC.

Inadequate lead time to respond to prime contractors' bid requests was reported as a tactic prime contractors utilized to prevent minority and female subcontractors from submitting timely bids. Several interviewees believed that other prime contractors purposely gave inadequate lead time to avoid working with M/WBE subcontractors.

Most of the interviewees favored the SLMBE Program, although some considered it ineffectual because the enforcement regulations or penalties offered were lacking. Recommendations were offered to improve the SLMBE Program including a race-specific requirement, unbundling of large contracts, minority distributorship opportunities, and assistance with bonding requirements.

It should also be noted that some business owners described positive relationships that they had with WSSC managers. WSSC managers were given accolades by the business owners for the guidance they received.

8

RECOMMENDATIONS

I. INTRODUCTION

This chapter is organized into five sections. The first is an *Introduction.* The *Statistical Findings Overview* is presented in section two and the Race and Gender-Conscious Recommendations and *Race and Gender-Neutral Remedies* are provided in sections *three* and *four*. *Contracting and Acquisition Process Recommendations* are presented in section five.

The race and gender-specific recommendations apply to the ethnic and gender groups that were underutilized at a statistically significant level. The statistical analysis included a review of construction, architectural and engineering, professional services, and goods and other services prime contracts and subcontracts issued during the July 1, 2003 to June 30, 2009 study period. Race and gender-neutral recommendations apply to all ethnic and gender groups which provide the goods and services WSSC procures. The race and gender-neutral recommendations derived from an analysis of the Washington Suburban Sanitary Commission (WSSC) Procurement Manual, a review of WSSC's web page,[1] and best management practices in the government and corporate arena intended to increase minority, woman-owned business enterprises (M/WBE) and small business (SBE) access to contracting. The recommendations for WSSC's contracting and acquisition process include administrative recommendations, a web page analysis, and a review of the Centralized Bidder Registration System (CBR).

[1] Although additional manuals were reviewed, race and gender-neutral recommendations were formulated solely on an analysis of the current purchasing policies described in the WSSC Procurement Manual and WSSC web pages, as explicitly directed by WSSC.

II. STATISTICAL FINDINGS OVERVIEW

The statistical analysis of M/WBE utilization is a critical component of the Study. The objective of the analysis was to determine if M/WBE contractors were utilized at the level they were available in WSSC's market area. Where an ethnic or gender group was underutilized and the underutilization was statistically significant, the finding constituted a disparity. Race and gender-specific recommendations are proposed where there was a finding of disparity.

The statistical findings are presented by ethnicity and gender within each industry and at two different threshold levels. For the formal contracts the threshold for all four industries–construction, architectural and engineering, professional services, and goods and other services--was limited to $500,000. The $500,000 threshold was designated because there was a demonstrated capacity within the pool of M/WBEs willing to perform on WSSC's contracts at that level. The informal threshold for each of the four industries was $25,000, because it was the level stated in the WSSC procurement policy.

A. Prime Contracts

As depicted in Table 8.01, WSSC issued 55,927 contracts, purchase orders, and direct payments[2] during the July 1, 2003 to June 30, 2009 study period. These 55,927 purchase orders and direct payments, which are referred to as contracts in this Study, included 2,055 for construction, 668 for architectural and engineering, 2,414 for professional services, and 50,790 for goods and other services.

The payments made by WSSC to prime contractors on the 55,927 contracts in the four industries during the study period totaled $1,302,098,374. The payments included $532,657,942 for construction, $186,875,887 for architectural and engineering, $83,114,533 for professional services, and $499,450,013 for goods and other services. The statistical analysis of disparity for each industry, as noted above, was limited to prime contracts valued under $500,000.

[2] These three types of transactions are referred to as contracts in this Study.

Table 8.01 Total Prime Contracts and Dollars Expended: All Industries, July 1, 2003 to June 30, 2009

Industry	Total Number of Contracts	Total Dollars Expended
Construction	2,055	$532,657,942
Architectural and Engineering	668	$186,875,887
Professional Services	2,414	$83,114,533
Goods and Other Services	50,790	$499,450,013
Total Expenditures	55,927	$1,302,098,374

B. Subcontracts

As indicated in Table 8.02, a total of 2,277 subcontracts were identified in all four industries. Specifically, the subcontracts identified included 1,346 construction subcontracts, 403 architectural and engineering subcontracts, 47 professional services subcontracts, and 481 goods and other services subcontracts for the July 1, 2003 to June 30, 2009 study period.

The total subcontract dollars analyzed were $229,792,797. This total included $86,165,169 for construction subcontracts; $62,440,40 for architectural and engineering subcontracts; $8,833,601 for professional services subcontracts; and $72,353,625 for goods and other services subcontracts.

Table 8.02 Total Subcontract Dollars: All Industries, July 1, 2003 to June 30, 2009

Industry	Total Number of Subcontracts	Total Dollars Expended
Construction	1,346	$86,165,169
Architectural and Engineering	403	$62,440,402
Professional Services	47	$8,833,601
Goods and Other Services	481	$72,353,625
Total	2,277	$229,792,797

C. Prime Contract Disparity Findings

1. Construction Contracts

As indicated in Table 8.03, African American, Asian American, and Native American construction prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels. Women Business Enterprises were only determined to be underutilized as prime contractors at a statistically significant level at the formal contract level.

Table 8.03 Disparity Summary: Construction Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	No	No
Native Americans	Yes	Yes
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	No
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.

2. Architectural and Engineering Contracts

As indicated in Table 8.04, African American, Asian American, Hispanic American, and Women Business Enterprise architectural and engineering prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels.

Table 8.04 Disparity Summary: Architectural and Engineering Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Architectural and Engineering	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

3. Professional Services Contracts

As indicated in Table 8.05, African American, Asian American, Hispanic American, and Women Business Enterprise professional services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels.

Table 8.05 Disparity Summary: Professional Services Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Professional Services	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	----	----
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

4. Goods and Other Services Contracts

As indicated in Table 8.06, African American, Asian American, Hispanic American, and Women Business Enterprise goods and other services prime contractors were determined to be underutilized at a statistically significant level at both the formal and informal contract levels.

Table 8.06 Disparity Summary: Goods and Other Services
Contract Dollars, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Goods and Other Services	
	Formal Contracts under $500,000	Informal Contracts $25,000 and under
African Americans	Yes	Yes
Asian Americans	Yes	Yes
Hispanic Americans	Yes	Yes
Native Americans	---	---
Minority Business Enterprises	Yes	Yes
Women Business Enterprises	Yes	Yes
Minority and Women Business Enterprises	Yes	Yes

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
--- = There were insufficient records to determine statistical disparity.

D. Subcontract Disparity Findings

As indicated in Table 8.07, African American, Asian American, and Native American construction subcontractors were determined to be underutilized at a statistically significant level. Hispanic American architectural and engineering subcontractors were determined to be underutilized at a statistically significant level. Women Business Enterprises were also underutilized on architectural and engineering subcontracts, but not at a statistically significant level.

African American, Asian American, Hispanic American, and Women Business Enterprise professional services subcontractors were determined to be underutilized, but there were too few contracts to test the statistical significance of the underutilization. African American and Asian American goods and other services subcontractors were determined to be underutilized at a statistically significant level. Hispanic Americans were also underutilized on goods and other services contracts but not at a statistically significant level.

Table 8.07 Subcontract Disparity Summary, July 1, 2003 to June 30, 2009

Ethnicity/Gender	Construction Services	Architectural and Engineering	Professional Services	Goods and Other Services
African Americans	Yes	No	----	Yes
Asian Americans	Yes	No	----	Yes
Hispanic Americans	No	Yes	----	No
Native Americans	Yes	----	No	----
Minority Business Enterprises	Yes	No	----	Yes
Women Business Enterprises	No	No	----	No
Minority and Women Business Enterprises	Yes	No	----	No

Yes = Statistically significant disparity was found.
No = Statistically significant disparity was not found.
---- = There were insufficient records to determine statistical disparity.

III. RACE AND GENDER-CONSCIOUS REMEDIES

Several race and gender-conscious remedies are recommended to address the statistically significant findings of disparity for M/WBEs at the prime contract and subcontract levels. At the prime contract level every industry had a statistically significant disparity for the ethnic and gender groups. The findings are especially notable since the decisions to award prime contracts are made by WSSC in contrast to the selection of subcontractors which are made by the prime contractors.

WSSC managers make the recommendations to award the prime contracts and their recommendations are not subject to Commission approval until it exceeds $500,000 for architectural and engineering contracts and $750,000 for construction and goods and other services contracts. Since prime contract set asides are not a viable remedy and there are limited race and gender-specific remedies available to correct prime disparity there should be a major overhaul of the prime contractor selection procedures which would constitute race and gender-neutral modifications to the procurement process.

A. Prime Contract Remedies

1. Incentive Credits for Architectural and Engineering and Professional Services Contracts

Incentive credits should be incorporated in the evaluation process for the award of architectural and engineering and professional services prime contracts. Incentive credits would be given to African American, Asian American, Hispanic American, and Women Business Enterprise prime contractors because these groups were determined to have a statistically significant underutilization for architectural and engineering and professional services contracts. Fifteen to twenty percent of the evaluation credits could be comprised of such incentive credits when the selection process includes a proposal or statement of qualifications. Including incentive credits in the evaluation criteria can counterbalance the competitive disadvantage experienced by the groups with a statistically significant underutilization. Offsetting this disadvantage could mitigate the disparity on architectural and engineering and professional services prime contracts.

2. Bid Discounts for Low Bid Contracts

Bid discounts could be incorporated into the evaluation process for the award of prime contracts for construction and goods and other services when low bid is a criterion. A ten percent bid discount should be given to the underutilized groups and applied in determining the lowest bidder. The discount would be applied in the evaluation process in each industry where cost is an evaluation criterion.

3. Small Contracts Rotation Program

A Small Contracts Rotation Program could be employed in the construction, architectural and engineering, professional services, and goods and other services formal and informal contracts. The groups with statistically significant underutilization in the four industries would be eligible to participate in the Program.

A Small Contracts Rotation Program could be established for prime contracts valued at less than $100,000. Contracts under $100,000 can be awarded with the General Manager's signature. A rotational program would limit competition to businesses from the statistically significant underutilized groups and small businesses that meet the eligibility criteria. This Program would allow M/WBEs and small businesses to build capacity by working as prime contractors.

The Small Contracts Rotation Program would ensure that quotations for contracts are solicited from a diverse pool of small businesses on a rotating basis. The statistically significant underutilized groups would be presumed to be eligible. The eligibility of any other groups would be determined through a certification process.

Work orders would be assigned on a rotating basis, and no business in the rotation would be eligible to receive a second assignment until all other businesses on the list had been offered at least one assignment. Every third solicitation would be limited to businesses from the statistically significant underutilized groups.

The existence of a Small Contracts Rotation Program should be widely advertised to the businesses in the ethnic and gender groups with a statistically significant underutilization and all other certified businesses. The list of certified vendors certified for the Program would be posted for public view on WSSC's website.

Financial support and technical assistance should be available to businesses from statistically significant underutilized groups that participate in the Program. Financial incentives could include prompt payment, waived bonding requirements, reduced liability insurance requirement, and mobilization payments to offset start-up costs. Businesses would graduate from the Program once they reach a certain level of revenue.

4. Quantified Good Faith Effort Criteria

WSSC should quantify the good faith effort criteria in its policy in order to measure a prime contractor's efforts to secure the participation of M/WBEs to meet the contract goal. Table 8.08 illustrates the criteria to quantify good faith efforts.

For example, a prime contractor would earn five points for advertising at least twice in the general circulation media, minority focused media, or trade-related publications, ten days

prior to submission. Requisite documentation, such as dated copies of the advertisement or an affidavit from the periodical verifying these efforts, would be required from the prime contractors. There would be a minimum overall score for the prime contractor to demonstrate sufficient good faith efforts in lieu of meeting the contract goal.

Table 8.08 Quantifiable Good Faith Efforts

Criterion	Effort	Documentation
Advertising (5 points)	Advertise at least twice in the general circulation media, minority focused media, or trade related publications, ten days prior to submission.	Dated copies of the advertisement or an affidavit from the periodical.
Bonding Requirements (5 points)	Waive or reduce bonding requirements for subcontractors	Copies of bid solicitations waiving or reducing bond requirements

B. Subcontract Remedies

1. Set Overall M/WBE Subcontracting Goal

There are statistically significant findings of underutilization for African American, Asian American, Hispanic American, and Native American subcontractors for construction, architectural and engineering, and goods and other services contracts. An overall M/WBE subcontracting goal should be established to eliminate the documented disparity. The overall subcontracting goal should reflect the availability of the statistically significant underutilized groups documented in the disparity study. A program goal should be set for the award of subcontracts in the three industries where there was a finding of statistically significant underutilization. The goal should be derived from the availability numbers calculated for each group.

Table 8.09 depicts the availability of statistically significant underutilized minority construction, architectural and engineering, and goods and other services subcontractors.

Table 8.09 Subcontractor Availability

Underutilized Groups	Construction Availability Percentage	Architectural and Engineering Availability Percentage	Goods and Other Services Availability Percentage
African American Businesses	37.13	----	35.05
Asian American Businesses	5.25	----	8.20
Hispanic American Businesses	----	5.37	----
Native American Businesses	1.23	----	----

2. Set Contract-Specific M/WBE Subcontracting Goals

Contract-specific M/WBE subcontracting goals should be set on prime contracts as a strategy to eliminate the documented disparity. The subcontracting goals should be set on all prime contracts over $100,000 for the ethnic and gender groups that had statistically significant underutilization. There was a statistically significant disparity for African American, Asian American, and Native American subcontractors on construction subcontracts. There was a statistically significant disparity for Hispanic American subcontractors on architectural and engineering subcontracts, and there was a statistically significant disparity for African American and Asian American subcontractors on goods and other services subcontracts.

The subcontracting goal should reflect the availability of the statistically significant underutilized groups at the time the prime contract is advertised.

3. Re-evaluate Professional Services Disparity in Six Months

M/WBES were underutilized on professional services contracts however there were too few records to test the statistical significance of the disparity ratio. All subcontractors used on every professional services contract should be tracked and recorded. Professional services solicitations and contracts should be modified to include explicit terms and conditions requiring the reporting of all subcontractors. Within six months there should be a re-examination of the professional services subcontract records to measure the statistically significant disparity.

IV. RACE AND GENDER-NEUTRAL RECOMMENDATIONS

The race and gender-neutral recommendations presented in this section are proposed to enhance the current procurement process as described in the WSSC Procurement Manual and on the WSSC web page. These recommendations are applicable to all types and sizes of contracts which WSSC may award. Application of these recommendations could address the discrimination M/WBEs encountered in doing business with WSSC, as well as improve access to WSSC contracts for all businesses.

A. Pre-Award Recommendations

1. Expand Unbundling Policy

WSSC should unbundle its contracts to increase the number of businesses participating at both the prime contracting and subcontracting levels. The substantial size of WSSC's procurement contracts limits competition. One manifestation of the current practice of bundling contracts is the fact that 60 percent of the dollars were issued to only 49 businesses. Master agreements against which task orders are written when services are needed could be disaggregated into separate contracts the size of the average task order. Other large projects should be evaluated for unbundling into smaller contracts.

Decisions to unbundle a contract should be reviewed using the following criteria:

- Determine whether project delivery will require multiple task orders and whether the task orders will be for different services at various times
- Evaluate the sequencing and delivery of the work
- Determine whether the project will be conducted in multiple locations
- Review the size and complexity of the procurement
- Determine the similarity of the goods and services procured
- Establish public safety issues and convenience
- Identify options presented by the procurement division

WSSC could also consider separating landscaping, trucking, and site preparation jobs from its construction projects to create smaller contracts for M/WBEs. Additionally, unbundling larger contracts should also be considered to ensure that consulting services are not lumped together with construction projects. Smaller professional services and architecture and engineering contractors often do not provide construction services and lumping both industries together can limit contracting opportunities for professional services and

architecture and engineering M/WBE businesses.

2. Adhere to the Standard Procedure for Direct Payments

WSSC should adhere to the Standard Procedure limiting the use of direct payments to purchases where the purchase order is not practical and/or feasible. The direct payment should not be used to circumvent the purchase order system's competitive bidding process. When direct payments are used for unauthorized purchases the opportunity for a M/WBE contract is limited. Examples of the expenditures allowed by WSSC's Standard Procedure are corporate membership dues, benefit payments, utility charges, and subscriptions.

In the direct payment data analyzed for the Disparity Study, there are single checks for direct payments as high as $3.6 million, and 577 checks were issued for $100,000 and over. There are also numerous direct payments made throughout the study period for types of expenditures which a purchase order should have been issued. Sixty-eight of these payments had no job number. In addition, there is no encumbered amount in the record to provide the customary fiscal control of payments within an approved limit. It is recommended for all transactions as required by the Standard Procedure to be processed through the purchase orders system. Purchase orders provide appropriate tracking of the contract encumbrance and payments. Using purchase orders will prevent the possibility of making payments that exceeds the contract amount.

3. Develop a Mentor-Protégé Program

A voluntary Mentor-Protégé Program with MBE Mentor-Protégé Initiatives was proposed at a WSSC Staff and Committee meeting on April 11, 2008.[3] The proposed Program was a voluntary affirmative procurement initiative for construction prime contractors to assist with the development of local certified SLMBE contractors and to encourage mentor-protégé relationships on WSSC contracts. Proposed incentives would take the form of either prime contractors reimbursed for a portion of overhead cost, given price preferences, or assigned evaluation points.

WSSC's website does not provide any information indicating whether a Mentor-Protégé Program was implemented or if there is a projected future implementation date. The proposed Mentor-Protégé Program is another strategy that could increase M/WBE participation on WSSC contracts. The initiatives should apply to construction, architectural and engineering, professional services, and goods and other services contracts.

[3] WSSC Staff and Committee Meeting Summary, April 11, 2008. http://www.wsscwater.com/file/SLMBE/2008/041608/SLMBE%20Item1Review%20of%20MBE%20Program%20Options%20and%20Selection.pdf

4. Establish a Direct Purchase Program for Construction Contracts

A Direct Purchase Program would allow WSSC to order project materials and supplies directly from the supplier. The bidder includes the estimates in its bid. Although the material and supply costs subject to the Direct Purchase Program are not included when calculating the bond fee because the supplies are purchased directly by WSSC. A Direct Purchase Program would therefore reduce the amount of the construction bid subject to a bond. For the purpose of bonding a job, the cost of supplies could be subtracted from the bid price, thereby reducing the amount of the contractor's bond.

This program can be beneficial and offer savings for construction contractors, especially M/WBEs, because costs subject to a bond are reduced by the material costs included in the direct purchase. The supplier, knowing that it would receive direct payment from WSSC, may also give the bidder a more competitive price, thereby reducing the overall bid amount and allowing the M/WBE to be more competitive. The cash flow required to pay suppliers in advance of receiving reimbursement from the prime contractor is also eliminated.

5. Maintain Virtual Plan Room

WSSC should consider purchasing software that would allow bidders to obtain digitized plans and specifications on the CBR web page. Online access to plans and specifications could reduce the need to designate or pay for a space for a plan room and reduce the reproduction cost for WSSC and the contractor.

6. Form Partnerships with Lending Institutions

WSSC's relationships with financial institutions should be leveraged to assist M/WBEs with project financing and operating capital. Financial institutions currently providing services to WSSC could offer financial assistance to M/WBEs and small businesses who typically face barriers to commercial capital. The evaluation criteria WSSC uses to select financial institutions should include points for evidence of prior experience providing credit card, payroll, rate pay, checking, and financial management services to M/WBEs.

7. Remove Brand Name Requirements from Solicitations

WSSC should refrain from specifying brand names in their solicitations in order to avoid restricting competition since the named brands may not be available to M/WBEs or offered to them at a competitive rate.

8. Review Non-Competitive Procurement Requirements

According to a WSSC memo dated August 27, 2010, "the procurement manual is the only authorized manual for procuring goods and services." Pursuant to the WSSC Procurement manual the purchase of materials, supplies, equipment or services can be procured without competitive solicitation procedures for (1) purchases less than $5,000; (2) sole source

purchases if a commodity or service is only available from a single distributor or vendor; (3) repairs or maintenance by the manufacturer; (4) justification by a comparative analysis, usage, or other factors deemed to be in the best interest of the WSSC through standardization of an item or service from a single source(s); (5) purchase of a service or item based on an existing public or governmental agency contract; (6) bids that are negotiated after advertising; and (7) procurement of professional services for medical or legal services and purchases and contracts negotiated with a university, hospital, college or other educational institution.

A contract amendment or change order that is not within the scope of the original contract should be considered a non-competitive procurement and should comply with the suggested recommendations.

A procurement of materials or services by noncompetitive solicitations should only be used when the award of a contract is not feasible under the small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:

- The item is available only from a single source
- The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation
- After solicitation of a number of sources, competition is determined inadequate
- Repairs or maintenance by the manufacturer
- Service or item based on an existing public or governmental agency contract
- Procurement of professional services for medical or legal services and purchases and contracts negotiated with a university, hospital, college or other educational institution
- Formal notice is provided to the M/WBEs certified in CBR with the relevant NAICS codes and the opportunity is published on the WSSC website

Transparency in WSSC's procurement process should be enhanced to improve the accountability of its procurement managers. WSSC's direct purchase procurement requirements should be examined to ensure that the authority of WSSC's procurement managers to solicit direct purchases is based on a set of guidelines that are aimed to increase contracting opportunities for M/WBEs. The revised procedures should include solicitations for new procurements and contract renewals. WSSC should ensure that appropriate access to information on all of its solicitations are available to all prospective bidders and proposers.

Prior to the selection of a sole source vendor the procurement should be advertised on CBR for at least five days.

9. Promote Direct Supplier Requirement

WSSC should require manufacturers doing business with WSSC to document that it has M/WBE distributors authorized to sell its product line at the regional or the national level. This should be a minimum requirement to get prequalified with WSSC.

10. Revise Bonding Requirements

Bonding requirements can be a significant disincentive to bidders and a barrier to M/WBE and small business bidders. Surety premiums are an indirect cost to WSSC which the prime contractors and subcontractors pass through in their bids. Therefore, WSSC should consider implementing a Surety Assistance Program. A Surety Assistance Program could attract more bidders and thereby increase competition and reduce costs. Any revisions to the bonding provisions must comply with statutory requirements.

The bonding requirements on small contracts should be evaluated to ensure that they do not carry a level of coverage disproportionate to WSSC's potential risk. On smaller contracts, the bonding requirements should be set in relation to the nature and scope of work to be performed while balancing liability, risk, and statutory requirements. WSSC should implement standard risk management provisions for all of its contracts that reflect reasonable risks.

The process to apply for and obtain a partial or complete waiver of WSSC's bonding requirements should be published in CBR and on all solicitations for small contracts.

11. Revise Insurance Requirements

Insurance requirements should be evaluated to ensure that smaller contracts do not carry a disproportionately high level of coverage. Criteria should be developed for insurance waivers for small contracts under $100,000. The process to apply for and obtain a partial or complete waiver of WSSC's insurance requirements should be made available on the WSSC website. The insurance requirements on small contracts should be set in relation to the actual contract liability. Any revisions to the insurance provisions must comply with statutory requirements.

12. Publish Informal Contracts

Contracts under $100,000 should be set aside for small businesses. The SLMBE Office should receive timely notice of informal contracts to enable the Office to identify M/WBEs and small businesses capable of providing the required goods or services. Each opportunity should be published on the WSSC website on the "View Bid Opportunities" tab. Added to the tab should be a drop-down specifying formal and informal opportunities by industry. Informal opportunities should also be e-mailed to CBR-registered businesses with the requisite NAICS code designation. The threshold for informal contracts should be posted

on WSSC's website and M/WBEs should be requested to register their interest in performing the small contracts.

13. Publish Bid Award Protest Procedures

WSSC should implement written protest procedures to handle and resolve disputes relating to its bid awards. The protest process should include procedures that are fair and reasonable. The bid protest procedures should be included in the solicitation document. The decision to award the contract at issue should be suspended pending the outcome of the protest.

14. Enhance Open House Events, Training Workshops, and Seminars

WSSC should continue to post open house events, training workshops, and seminars in its E-Weekly E-Blast and on the SLMBE Events Calendar. WSSC should consider moving its event calendar to the main web page for more exposure. WSSC should standardize its Vendor Day[4] schedule and host the networking seminar on a monthly basis. Each Vendor Day should announce the relevant upcoming WSSC projects, highlight subcontracting opportunities to M/WBEs, address questions or concerns regarding bid submittals, and provide networking incentives by integrating the Mentor-Protege Program.

WSSC should provide general information regarding the procurement process for new vendors attending the event. Additionally, businesses that attend these seminars should be encouraged to complete CBR registration, as well as receive an invitation to the SLMBE Application Workshops.

15. Enhance SLMBE Outreach Campaign

WSSC's existing outreach campaign should be enhanced to promote the SLMBE Program's objectives and policy goals. In addition to the SLMBE Connection Quarterly Newsletter and Weekly E-Blast,[5] the outreach campaign should communicate the goals and objectives of the Program to CBR-registered businesses and other market area businesses. Table 8.10 lists outreach and marketing strategies and tactics that can be used to enhance the current SLMBE Outreach campaign.

[4] SLMBE Program Legislative Report, Fiscal Year 2009, p. 40

[5] SLMBE Program Legislative Report, Fiscal Year 2009, p. 35

Table 8.10 Outreach and Marketing Strategies

Strategy	Tactics
Revamp Procurement Documents	Revised procurement documents to include the SLMBE Program's standards and requirements for uniformity throughout all WSSC departments. Such materials should include: • Requests for Bids • Proposals • Qualifications • Contract Documents • Bid Solicitation Notices • Pre-bid and Proposal Conference Invitation Letter • Intent to Award Letters
Design Banner	• Design banner with placement of existing logo and new tagline
Standardize Appearance of Documents	• Revise all procurement and SLMBE materials, as well as the E-Blast and Newsletter, to include the new tagline in order to have a uniform appearance in design standards, layout, and document headings
Develop Collateral Print Material	• Produce hard-copy brochures detailing SLMBE Program policy and procedural changes to supplement the updates in the SLMBE Weekly E-Blast • Distribute hard-copy brochures, media packets, contract forecasts, and certification forms to businesses at outreach events, open houses, and networking events
Extend SLMBE Application Workshops	• Continue to hold monthly SLMBE Application Workshop series that were held from May to July 2010

Strategy	Tactics
Distribute Consistent Procurement Forecasts	• Post upcoming forecasts on the main WSSC web page • Distribute bi-monthly forecasts through the E-Blasts, which should be formatted to print on one to two pages • Advertise the availability of forecasts in the WSSC customer service notices
Enhance Media Presence	• Pitch campaign to broadcast media • Place public service announcements • Promote campaign on Internet media sites, such as Facebook, Twitter, and blogs
Devise Outdoor Advertising Campaign	Utilize WSSC's advertising portals as strategic platforms to convey to the general public WSSC's commitment to provide contract opportunities to M/WBEs
Conduct Annual SLMBE Office Evaluation	Telephone and e-mail surveys should be used to assess the effectiveness of the M/WBE outreach campaign The telephone and e-mail surveys should be distributed on an annual schedule to a sample of vendors in WSSC's database. The surveys should gather information about awareness levels of the: • Campaign tactics • Procurement process • Satisfaction levels with the SLMBE Office • Contracting opportunities Annual M/WBE utilization as prime contractors and subcontractors should be calculated and used as a measure of the campaign's effectiveness

Strategy	Tactics
Strengthen Partnerships with Agencies and Organizations	• Increase collaboration events with local business and trade group partners • Introduce a "Business Trade Organization Spotlight" section in the WSSC E-Blasts or Newsletters to promote the partners M/WBE program activity

16. Enhance Internet Presence and Online Marketing

WSSC's website should be enhanced as an interactive and flexible means of relaying current information regarding contract opportunities and the SLMBE Program. An enhanced Internet presence with an updated web page design, content, and user-friendly interface, WSSC should be able to target more market area M/WBE businesses and effectively encourage them to register in CBR.

All outreach efforts should continue to be posted on the SLMBE Events Calendar but could be moved to WSSC's main web page for more exposure. Published materials should be pithy and uniform in format and content. Compliance reports should be posted on the web page. Similar to the WSSC Pipeline Quarterly Newsletter, both the SLMBE E-Blast and the SLMBE Connection Quarterly Newsletter and its archives should also be made available for download in PDF format on the WSSC website under the Media Relations section. Targeted e-mail messages should be transmitted using online social networks such as Facebook, Twitter, and blogs. These contemporary media should deliver the message in a culturally sensitive and linguistically specific manner. Multilingual website options should also be implemented given the demographics of the target market.

Detailed enhancements recommended for WSSC's website are presented in Section V.

17. Pay Mobilization to Subcontractors

For subcontractors, project start-up costs can be significant. A subcontractor that has limited resources and access to credit may find that expenses inhibit its ability to bid. When mobilization payments are approved for the prime contractor, the subcontractor should be paid an amount equal to their participation percentage no later than five business days after a prime contractor receives mobilization payments from WSSC. To ensure transparency, subcontractors should be notified when prime contractors receive mobilization payments from WSSC via e-mail and postings on the CBR web page.

B. Post-Award Recommendations

1. Implement Subcontractor Substitution Standards

Substitution standards should be implemented to avoid prime contractors listing subcontractors on bid documents without utilizing their services. Substitution of a listed subcontractor in furtherance of bid shopping before or after the award of the prime contract should also be prohibited.

As required by WSSC, prime contractors should provide written justification whenever the prime contractor, in performing the contract, fails to employ the services of a subcontractor listed in bid documents or substitutes another subcontractor for one already identified in the documents.

The grounds for which WSSC may consider allowing a prime contractor to substitute another entity for a listed subcontractor should minimally include:

- Subcontractor listed in the bid fails or refuses to execute a written subcontract after having had a reasonable opportunity to do so.
- Subcontractor becomes bankrupt or insolvent
- Subcontractor fails or refuses to perform its subcontract
- Subcontractor fails to obtain the necessary licenses, bonding, insurance, or other statutory requirements to perform the work detailed in the contract
- WSSC determines that the work performed by the listed subcontractor is substantially unsatisfactory, not in substantial accordance with drawings, specifications, or scope of work or substantially delays or causes the disruption of the progress of work.

Due Process should be afforded the subcontractor before the requested substitution is approved. Written procedures should regulate the process.

2. Develop an Expedited Payment Program

Expedited payments are important to remove a major barrier M/WBEs encounter in government contracting. An expedited payment program should require WSSC to pay M/WBE prime contractors and prime contractors that meet the contract M/WBE goals within ten days of WSSC's receipt of an approved invoice. Prime contractors should receive written notice within five days if there are questions regarding an invoice. Disputed invoices should be approved within five days of the disputed issues being cured. Prime contractors should be required to pay their M/WBE subcontractors within five days of their receipt of payment. WSSC should not issue new contracts to prime contractors until an audit of previous subcontractor payments is complete and subcontract payments are verified.

3. Track All Subcontractors

Prime contractors should be required to record all M/WBE and non-M/WBE subcontractors in SymTrac™. During the study period, 89 percent of subcontractors tracked in SymTrac™ were M/WBEs, although less than 80 percent of the M/WBEs subcontractors utilized during the study period were recorded in SymTrac™. WSSC should require the prime contractors to record and verify all subcontractors in SymTrac™ prior to issuing their first invoice payment. SymTrac™ should also be modified to allow prime contractors to record when subcontractors will not be used on a contract.

4. Track Subcontractors on Master Orders by Each Release Order

Subcontractors used on master orders are tracked in SymTrac™ by a master order number. Each release order from a master is a separate purchase order thus the prime contractor might use different subcontractors for each release order. Subcontractors for master orders should be tracked in SymTrac™ by the release order.

5. Require Prime Contractor Validation of Subcontractor Payments Prior to Receiving Final Payment

Prime contractors requesting final contract payment should submit with their final payment voucher an affidavit to verify payment in full to their subcontractors. The final payment to the prime contractor should be held until the final and full payment to the listed subcontractors is verified.

6. List Payments Made to Prime Contractors on SymTrac™

WSSC uses SymTrac™, a web-based tool, to track subcontractors and ensure that prime contractors comply with their subcontractor requirements. SymTrac™ allows subcontractors to record their invoices and validate their payments. It should be modified to allow subcontractors to view the payments made by WSSC to prime contractors.

7. Publish SLMBE Utilization Reports

Utilization reports that measure the effectiveness of the SLMBE Program should present payment and award data organized by industry, ethnicity, gender, certification status, and department. Change orders and substitutions should be identified by prime contractor and department.

The utilization reports prepared by the SLMBE Director should in the fourth quarter report include an assessment of Program activities including the annual SLMBE Office evaluation and recommendations for improvement. Exemplary practices and achievements should also be noted in the fourth quarter report. All utilization reports should be posted on the CBR web page and made available to businesses by e-mail. The report should also be sent to all business registered in CBR.

8. Provide Debriefing Sessions for Unsuccessful Bidders

Debriefing sessions offered to unsuccessful bidders should be published on the CBR web page and included in the Notice of Intent to Award to unsuccessful bidders. Proposal and statement of qualification standards of the successful bidder should be available upon request.

9. Conduct Routine Post-Award Contract Compliance Monitoring

Monthly contract compliance monitoring should be conducted to ensure that the subcontractor participation listed in bids, proposals, and statements of qualification is achieved throughout the duration of a contract. Regular compliance monitoring should verify the prime contractors' subcontracting commitments after the award of the contract. Consistent contract compliance monitoring could minimize the hardships experienced by M/WBEs due to unauthorized substitutions and late payments.

The following contract compliance monitoring methods are recommended:

- Track and report subcontractor utilization in an electronic database
- Collect copies of the canceled checks written to subcontractors in order to verify payment information on a quarterly basis
- Impose penalties for failure to pay a listed subcontractor for work performed
- The SymTrac™ system has not captured complete subcontractor information. The review of subcontract records undertaken in the Disparity Study revealed a number of subcontracts that were not recorded in SymTrac™ during the period the SLMBE Office verified the subcontract entries prior to the WSSC issuance of a Notice to Proceed. The SLMBE Office has been verifying the SymTrac™ entries since July 2005.

10. Conduct Semi-Annual Review of Contracting Activities

WSSC should conduct a review of its contracting activities twice a year to determine the types of goods and services it anticipates procuring over a two to five year period. This information should be compared against the registered businesses in CBR to identify certified M/WBEs capable of providing services to WSSC in specific industries that have not been utilized. Anticipated contract opportunities, where there are no registered M/WBEs, should be considered targets of opportunity. Targeted recruitment should be undertaken to increase the number of registered M/WBEs in the industries with anticipated opportunities.

V. CONTRACTING AND ACQUISITION PROCESS RECOMMENDATIONS

A. Procurement Process Enhancements

Standards should be established to make the procurement policies and procedures and SLMBE Program standards transparent to the business community. WSSC's Procurement Manual should be updated on an annual basis to reflect new policies and procedures adopted by WSSC. The current Procurement Manual, for example, does not provide information regarding CBR. As a consequence, businesses which refer to the Procurement Manual would not learn about CBR. Given that the Procurement Manual is a lengthy document, it should also be made searchable so that specific information businesses seek can be located easily without reading the entire Manual.

Annual training should be conducted to ensure that all staff members are knowledgeable about WSSC's procurement policies and procedures. Training will also help avoid discrepancies in the information provided to the public regarding the SLMBE Office program requirements.

Based on a review of the Procurement Manual, some points contained in WSSC's procurement process should be clarified. Vendors should be able to understand the standard used in classifying professional services as either goods and services or architectural and engineering and the relevant procurement policy. It is also important that the Manual identify the formal and informal thresholds for each industry for both IFBs and RFPs. A summary of this information should be consolidated in a table to allow for greater accessibility to the public.

1. Regulate Compliance with Subcontractor Reporting

Procedures should be implemented to manage compliance with the present requirement to record the name and award amount of all subcontractors entered into SymTrac™ prior to issuing a notice to proceed. Compliance with the requirement should be tracked in MAPS, so that the initial invoice payment cannot be issued unless the subcontractor data has been entered.

2. Report Subcontractor Waivers Issued

Waivers to the subcontracting goals should be published in the monthly M/WBE utilization report the SLMBE Office submits to the Commissioners. Prior to approving a waiver the SLMBE Office should publish on the CBR website its intent to issue the waiver. The notice should describe the project, list the WSSC project manager, and the prime contractor's contact information. All CBR registered businesses with relevant NAICS codes should receive the notice by e mail. The notice should be advertised for a minimum of ten days. At the close of the advertisement period the contractor must amend the waiver request to

document its good faith effort to negotiate a contract with the M/WBE subcontractor identified during the public notice process.

3. Incorporate M/WBE Waiver Standards in the Acquisition Process

Prior to issuing a notice of intent to award the contract the goal attainment or good faith effort of the intended awardee should be verified. The intent to award should be published on the CBR website listing the prime, award amount, and their subcontractors. The intent to award should be published at least ten days prior to issuing a notice to proceed. The standard should be followed for all prime contracts including the non-competitive procurements.

The same process should be adhered to prior to issuing a task order under a Master Agreement.

B. SLMBE Program Enhancements

WSSC should consider changing its SLMBE Program name to SLMBE Program to include women business enterprises. Women business owners are eligible to be certified by MDOT, Prince George's County and the District of Columbia, whose certifications are recognized by WSSC. The name change would publicize WSSC's commitment to increase the participation of women business owners on its contracts and to eliminate the documented WBE disparity.

1. SLMBE Task Force

WSSC should implement a SLMBE Task Force to serve as an oversight committee to support and enhance the operations and activities of the SLMBE Program. The Task Force would perform an important role in gathering information on the management and compliance of the SLMBE Program goals and make recommendation for program modifications. Members for the Task Force should be chosen based on the following factors:

- Relevant expertise to the purpose of the Task Force.
- Membership in a SLMBE association
- Service provider in WSSC's industry

The terms of service on the Task Force should be specific and aimed at the development Task Force's goal.

2. SLMBE Ombudsperson

WSSC should authorize the appointment of an Ombudsperson as an external position from the SLMBE Office. The Ombudsperson would have the authority to receive, investigate and

mediate complaints concerning the actions of WSSC, its prime contractors and subcontractors. The Ombudsperson would operate independently of the SLMBE Office and should be appointed by the WSSC Commissioners.

C. Website Enhancements

WSSC's website should be a user-friendly Internet interface that facilitates navigation by businesses seeking information on WSSC's contract opportunities and registration on CBR. The WSSC web page was evaluated to assess its functionality, informational value, and access to contractors inquiring about business with WSSC. It is aesthetically pleasing and user-friendly for visitors wishing to obtain information about WSSC's services. The website provides useful information and features that are conducive to an interactive platform for customers and businesses seeking contracting opportunities. There are, however, some modifications which could enhance its functionality and provide user-friendly access to contracting and procurement information. The following enhancements are offered to improve its accessibility to businesses seeking information on WSSC projects.

1. Provide Contact Information for Key Personnel Involved in the Bid Process

WSSC's website lists one main number, e-mail address, and operating hours for the SLMBE Office. Complete contact information for the SLMBE and Acquisition Offices, including buyers, procurement officers, and business diversity/contract compliance officers should be listed. The office location, e-mail address, telephone numbers, and facsimile numbers for key staff should be published for the convenience of vendors wishing to contact a specific person. Listing specific contact names and information can facilitate access for contractors seeking to establish contact with WSSC for clarification on bid items, certification, or other questions.

2. Offer Links to M/WBE Supportive Service, Agencies, and Ethnic/Trade Associations Assisting Minority and Woman Contractors

The WSSC website should offer links to its partners in the market area that offer M/WBEs supportive services. Membership organizations and their services should be listed. There should also be links for ethnic/trade organizations and governmental agency publications for small businesses and minority contractors.

3. Promote Outreach Efforts

Outreach events within the market area should be posted and detailed on WSSC's website. While WSSC's website posts an SLMBE events calendar and newsletters, it should provide links to market area events, conferences, and training sessions as well.

The utilization report should present the amount of dollars expended on construction,

architectural and engineering, professional services contracts, and goods and other services contracts. The utilization report should list the industry and ethnicity of the prime and subcontractors awarded each contract. The department that awarded each contract, and the total purchase orders issued against each contract should be reported.

4. Make Compliance Reports Available

WSSC should post compliance reports on a regular schedule to document its business diversity mission. Making such information public on a regular schedule to businesses and WSSC's customers, not only ensures the integrity of WSSC's SLMBE Program but allows vendors and residents in the services area to readily review the results and effects of the Program.

5. Provide Site Restructuring to Assist Business Users

WSSC's Business Page should identify who will visit this section and the information and services that are important to this segment of its service area. These users and their priorities should be the organizing principles of this business site. The website should be structured so that users can immediately identify the areas that apply to them and guide them toward their goals. For example, a business considering doing business with WSSC should be able to click on the link on the front page and arrive at the business page. There, the user is presented with a list of links or menu items that are concise verb phrases that describe the kinds of business opportunities available with WSSC.

For example, the Contracting & Business Opportunities page should include not only a listing of bid openings but also a how-to guide for correctly submitting a bid and considerations that a bidder must take into account when producing a bid. This page would also be the natural place to promote outreach efforts, available technical assistance, or SLMBE Program objectives, as well as forms required to comply with the procurement standards. Contact information for technical and support staff from the SLMBE and Acquisition Offices and other related offices should be included. This page should be informative and give both the frequent and first-time bidder the resources to correctly prepare a bid.

Finally, WSSC's website should offer a Frequently Asked Questions page to answer common questions that vendors have.

6. Update Links on the Website

WSSC should regularly update links provided on the website to ensure that contractors have access to the most current information. Non-functioning links should be updated or removed. Additionally, on the CBR page vendors seeking additional information on CBR or information on the CBR registration process are asked to visit the Contracting & Business Opportunities page and click on the "Vendor Information Guide." However, this guide is not available on the indicated page. Updating links and ensuring their functionality will

prevent confusion and make it more efficient to obtain information on WSSC's procurement practices.

7. Consider the Needs of Visitors with Disabilities

While the web is still a largely visual medium, it is important to take into consideration those who cannot access it in the standard way. Many design decisions affect not only a website's appearance but also how accessible it is to those who depend on alternative technologies to interact with the Internet. Good design practices for accessibility are almost always good design practices in general. A well-designed site will often be an accessible site.

In particular, pages within the web page are too wordy. Shorter and concise text would direct users more quickly and reliably to the information they are seeking. Shorter, more direct text would also improve the experience of those visually-impaired users employing screen readers, because they would listen to less text to arrive at a point where they can make a decision. The use of a very small font and a low contrast font color is another potential barrier to access for WSSC's web page, since small fonts greatly reduce readability and the site presents a challenge to those without 20/20 vision.

8. Update WSSC's Logo

The WSSC logo on every web page should be made clickable. It is a general web design practice to insert a hotspot on a business/organization's logo and link it to the homepage so that users can easily navigate back to a home page without having to search the hyperlink "Home" while they are browsing through the web pages.

9. Compress PDF Files

PDF files should be compressed for faster download. For example, the download of "SymTrac™ Vendor Training Manual" takes 15 to 17 seconds for a standard DSL connection at the downstream rate of 768 Kbps. While PDF files tend to be smaller than the original source document, they can still occupy significant space. In order to post them to a web page, it is advisable to compress or reduce the file size. Most PDF writing programs, like Adobe Acrobat Pro, have file compression options.

10. Set Standard Location for Downloaded Hyperlinks

In order to enable consistent user experience for navigation, a standard needs to be set for a target location to load hyperlinks. For instance on WSSC's website, CBR is loaded in three different targets including a parent window, new window, and new tab depending on where the link is loaded. A standard can be set to load CBR always in a new tab.

11. Maintain Navigation to WSSC Website

Any domain outside of WSSC should be loaded in a new window or new tab. Currently, the

link to "Customer Notification System" hosted on "everbridge.net" is loaded on the parent window of WSSC. The user will experience loss of navigation from WSSC's page once they load the "Customer Notification System."

12. Develop a Mobile-Optimized Website

With the current popularity of small handheld devices, it is recommended that a mobile-optimized WSSC website be implemented for a faster and more efficient experience for handheld device users. Although smartphones, such as the iPhone and Google Android devices, can display full web pages, having features with essential information that can be found in a few seconds can make the mobile web-browsing experience more user-friendly.

13. Reorganize Links and Reduce Text-Heavy Content

WSSC's website should reorganize its links in order to facilitate the user access to needed information within the first 30 seconds of being on the site and not having to read over the cumbersome number of links. Internet users consistently approach websites using a task-oriented method. This means that in lieu of reading thoroughly and sequentially through all provided text, users tend to superficially scan a page for items pertaining to their immediate task. Therefore, the most successful sites quickly and unambiguously direct users to the information they seek or the tasks they wish to perform. The key to a successful website is creating a clear visual hierarchy, where the user is guided to the most pertinent information first.

WSSC's website is text-heavy with content that does not direct the user to a specific portion of the site or action. Most users will not take the time to read the site's text thoroughly, even if they are able, as users generally read about 28 percent of a web page's text. Furthermore, the wordiness of the website provides a barrier to many potential users, especially low-literacy adults. Featuring visuals also allows for low literacy engagement and the elimination of most of the language bias found on the current site. Although the web is still primarily a visual medium, it is important to also consider the means of access that accommodate those atypical users. As is, the text-heavy site is not accessible to those with low-literacy or the visually impaired who need to access it through a screen reader.

14. Set Up a Twitter Feed

WSSC's website should incorporate a Twitter feed and place it on the front page of the website. A Twitter feed can be an informative tool providing hints and tips for responding to WSSC solicitations. The object is to have rotating, pertinent information for the site's target user, as opposed to amassing Twitter followers.

D. CBR Recommendations

The objective of the CBR review is to assess the web page's effectiveness in capturing the

availability and utilization of M/WBEs. The functionality and Graphical User Interface (GUI) of the CBR web page is the subject of the review. CBR is WSSC's online registration web page for businesses to register their interest in receiving announcements about bidding opportunities and to access and download lists of registered businesses. A business must register on the CBR web page in order to respond to a WSSC solicitation.

While the CBR web page is effective with regards to profiling available businesses and showing bid opportunities, it does have some limitations. The way users interact with and receive information from the CBR web page could benefit from the enhancements discussed below in the recommendation sections. There are recommendations provided for each of the five tabs on the CBR web page. Recommendations for web page enhancements to address WSSC's stated objective to capture the availability and utilization of M/WBEs are also set forth.

1. Evaluation of the CBR Web Page

The CBR web page consists of five tabs: CBR Home Page, Bidder Login, Bidder Registration, View Bid Opportunities, and CBR Registered Firms. An evaluation of the functionality and GUI for each tab and the recommended enhancements are as follows:

- **CBR Home Page Tab**: This tab consists of a welcome message and informs users about the essential information needed for the registration and notification of changes in the standard procedures for the registration process.

Functionality: The tab displays a welcome message and information that businesses need to know prior to the registration. However, no navigation buttons or text describing how to get to the other tabs on the web page exist.

Graphical User Interface: The font size of the headline is smaller than the font of the content on the page. The use of two different fonts gives the home page an untidy appearance. The e-mail links at the bottom of the page are not hyperlinked, thus requiring the user to manually load an e-mail editor to contact WSSC. Users who do not notice the presence of the tabs on the top of the page may lose navigation.

Recommended Enhancement: One standard font for homepage content should be used and the page header should be made more distinct by use of a larger font size. Hyperlinks to WSSC e-mails and telephone numbers should be added to allow users to directly e-mail or call WSSC without leaving the page. A summary of the number of solicitations should also be added to encourage more businesses to complete registration with CBR. A summary should include the following information:

- Number of open solicitations

- Number of awarded solicitations

- Number of cancelled solicitations

• **Bidder Login Tab**: This tab consists of two data input fields: user ID and password. These fields must be entered to log into the CBR web page.

Functionality: The tab allows returning users to login and make changes to their profiles. However, it does not allow businesses to change their status to "inactive." A business is classified as "inactive" if the business fails to revise or update its profile at least once every 24 months on the CBR web page.

Graphical User Interface: The Bidder Login tab follows immediately after the CBR Home Page tab. This sequence is not logical for first time user who has not received login credentials. The Bidder Registration Tab should precede the Bidder Login tab.

Recommended Enhancements: The Bidder Login tab fulfills its intended purpose. There are no recommendations for this tab.

• **Bidder Registration Tab**: The Bidder Registration tab contains four data entry forms that capture the business profile in four categories: Primary Business Information, Primary Contact Information, Solicitation Contact Information, and Small, Local and Minority Business Enterprise (SLMBE) Status Information. The data fields for each data entry form are shown in Table 8.11. The fields listed in Table 8.11 in bold text must be completed by all businesses registering with CBR. The bold italicized text denotes the fields that must be completed only by businesses registering as an SLMBE. Of the 46 fields, 27 of them in the CBR registration form must be completed in order to save the record.

Table 8.11 Data Fields in CBR Registration Tab

Primary Business Information	Primary Contact Information	Solicitation Contact Information	SLMBE Status Information
Company Tax ID	**Last Name**	**Last Name**	**MBE Certified(Yes/No)**
Business Name	**First Name**	**First Name**	***Ethnicity***
Alternate Business Name	Prefix	Prefix	***Certification Number***
Business Type	Suffix	Suffix	***Certifying Agency***
Type of Organization	**Title**	**Title**	***Gender***
DUNS Number	Department	Department	MBE Expiration Date
DUNS Rating	**Phone**	**Phone**	**WSSC SLBE Approved(Yes/No)**
Primary NAICS Code	Fax	Fax	SLBE Expiration Date
Secondary NAICS Code	**Email**	**Email**	
Accept Procurement credit card (Yes/No)?	**Address**	**Address**	
	City	**City**	
	County	**County**	
	State	**State**	
	Zip Code	**Zip Code**	
Bold text: Mandatory ***Bold italicized text***: Mandatory only when MBE certified value is yes			

Functionality: The Bidder Registration tab works well for compiling business information. Information about solicitation opportunities is distributed to businesses in accordance with their North American Industry Classification System (NAICS) codes. However, businesses cannot request notifications for a solicitation or addenda if the NAICS codes in their profile do not match the requested solicitation.

Graphical User Interface: The Bidder Registration tab is overloaded with text. Long passages can be a deterrent to the registration process because they can give the impression that the registration process is time-consuming and difficult. Generally speaking, the GUI of a website is optimized for quick, efficient use through short blurbs or bulleted points that state essential information succinctly. Therefore, long passages minimize efficacy as they increase the amount of time a user would have to spend on any given page. Additionally, the page does not mention if a user can return to the system if the registration process is stopped before completion.

Recommended Enhancements: Currently the "Ethnicity" field allows the registrant to choose "Not Applicable" as an option. This option should not be made available. In addition, a business' Uniform Resource Locater (URL) is not requested at the time of registration. A data field for the business URL should be added as an optional field so that WSSC has

alternative means to solicit the information. Businesses without URLs may only have an e-mail address or a facsimile as a digital means of communication; these fields should be made optional as well, since not all businesses communicate using the same digital means. Doing so will enable WSSC to acquire information from businesses in more than one way.

The CBR web page should state from the beginning of the registration process whether login credentials would be issued to allow the user to return to the registration page to complete the process if registration is stopped for any reason. A business should, at any time, be able to indicate after completing registration an interest in receiving any solicitation and their addenda. Users should be able to offer feedback at any time after the registration. Collecting end-user suggestions will further improve CBR. The text under the Bidder Registration tab should be streamlined and standardized to ensure that information is brief and direct. A link to a help page available on each screen of the registration process would eliminate the need for lengthy instructions on the home page.

- **View Bid Opportunities Tab**: This tab shows solicitation opportunities in a table format. In order to filter the table, a user can select a solicitation status (open, awarded, evaluation, cancelled, or all) from a drop-down menu. A user can search the table by solicitation number, solicitation title, buyer, or NAICS code. An Excel version of the list is also available for downloading.

Functionality: This tab lists the status of solicitations as open, awarded, cancelled, or evaluated. The table can be filtered based on the status selected, which generates an applicable list of solicitations. However, users need to filter the list with their preferences every time they view the tab. Users cannot download RFPs if an RFP's NAICS code does not match one of the users' registered NAICS codes.

Graphical User Interface: The table filter section takes up almost half of the entire page length, resulting in less space for search results to be displayed.

Recommended Enhancements: To prevent users from having to filter the list with their preferred setting each time, the default listing should be filtered with the individual business' primary NAICS code once a user logs into CBR. The layout of the page should be reorganized so that the table filters will appear on the topmost portion of the page allowing more room for the listing to be displayed. Restrictions on downloading RFPs if users' NAICS codes do not match NAICS codes in posted RFPs should be removed.

- **CBR Registered Firms Tab**: This tab shows a list of businesses that have registered on the CBR web page. The list can be filtered by bidder name, business type, certification type, county, phone number, zip code, and NAICS code. An Excel version of the list is available for downloading.

Functionality: The tab is useful for finding available M/WBE businesses registered with WSSC.

Graphical User Interface: The fonts used in the table are not consistent. Some records are displayed in lowercase and some in uppercase. Hyperlinks, which would enable a user to compose an e-mail without having to navigate away from the web page, are not available for businesses' e-mail addresses. The listing displays a telephone number in two lines, giving the listing an untidy appearance. The pop up window of CBR loaded from the "Small, Local and Minority Businesses" main page is set at the fixed resolution of 800x600, and parts of CBR bid opportunities and CBR-registered businesses are not visible to users. The window can neither be maximized nor scrollable to see the missing information.

Recommended Enhancements: The secondary NAICS code column should be made narrower so there is more space for telephone and fax numbers to be displayed properly. The layout of the page should be reorganized so the search criteria menus will appear on the topmost portion of the page, leaving more room for search results to be displayed. Pop-up windows should also be resized. Ethnicity and gender fields should be added to the downloadable Excel version of the list so M/WBE classification is available in an offline source.

2. Recommendations to Capture Market Area Businesses' Availability from Approved Certification Lists

The WSSC SLMBE Office's web page currently recognizes Minority-owned Business Enterprise (MBE) certification from three external agencies: the Maryland Department of Transportation (MDOT), Prince George's County Minority Business Development Division (PGMBDD), and District of Columbia Department of Small and Local Business Development Office (DC/DSLBD).

On a quarterly basis, these external certification lists should be integrated into CBR to incorporate the businesses from the external agency lists that are not registered with CBR. The certified business listings of the three external agencies are easily accessed online, and two of them are available in downloadable formats. Since two of the lists are available for downloading, they can be easily integrated into CBR. Table 8.12 describes the URLs for each agency.

Table 8.12 External Certification Databases

Certification	Maryland Department of Transportation	Prince George's County Minority Business Development Division	District of Columbia Department of Small and Local Business Development
Minority Business Enterprise	X	X	
Small Business Enterprise			X
Disadvantage Business Enterprise	X		X
Veteran-Owned Business			X
Document Format	Online/Excel Spreadsheet	Online/PDF	Online
Internet Address	http://mbe.mdot.state.md.us/directory/	http://www.co.pg.md.us/Government/AgencyIndex/CentralServices/PDF/mbdd-directory.pdf	http://lsdbe.dslbd.dc.gov/public/certification/search.aspx

When the external databases are downloaded, the records must be reviewed to identify incomplete records and nonprofit organizations that must be excluded before uploading the database. The eligible files can then be appended to CBR and searched for duplicate records.

Each quarter, the WSSC should contact via e-survey the businesses recently appended to CBR to verify their interest in doing business with the WSSC. The WSSC should also provide surveyed businesses with login credentials, allowing them to edit their record appended to CBR. In addition, the invitation to complete the WSSC's registration should include a list of upcoming contracts and contact information for key project managers in order to encourage the business to complete the registration.

- **Comparison of Data Fields in CBR to External Agencies' Certification Databases**

Table 8.13 compares business profile fields in CBR to the fields in the MDOT, PGMBDD, and DC/DSLBD databases. As shown in Table 8.13, the NAICS codes and Dun and Bradstreet (DUNS) numbers are not requested by MDOT or PGMBDD. CBR collects this data at the time of registration. NAICS codes are needed to accurately determine industry classification. In addition, it is important to assign NAICS codes for the external certification lists before integrating them into CBR, since businesses only receive solicitations by their NAICS codes.

Table 8.13 Business Profile Fields in External Certification Databases Compared to CBR

Field Name	Washington Suburban Sanitary Commission	Maryland Department of Transportation	Prince George's County Minority Business Development Division	District of Columbia Department of Small and Local Business Development
Name	x	x	x	x
Federal Tax Id	x	x	x	
FEIN/SSN Number				x
Alternate Business Name	x	x	x	
Business Type/Description	x	x	x	x
Type of Organization	x	x	x	x
DUNS Number	x			x
DUNS Rating	x			
Primary NAICS Code	x			
Secondary NAICS Code	x			
Commodity Codes			x	x
Accept Procurement Credit Card (Yes/No)?	x			
Website		x		x
Number Of Employees		x		x

Table 8.14 compares business contact fields in CBR to the fields in the MDOT, PGMBDD, and DC/DSLBD databases. With a few exceptions, each external database contains the same fields as CBR. The three data fields that are not the same are prefix, suffix, and department.

Table 8.14 Business Contact Fields in External Certification Databases Compared to CBR

Field Name	Washington Suburban Sanitary Commission	Maryland Department of Transportation	Prince George's County Minority Business Development Division	District of Columbia Department of Small and Local Business Development
Last Name	x	x	x	x
First Name	x	x	x	x
Prefix	x			
Suffix	x			
Title	x	x		
Department	x			
Phone	x	x	x	x
Fax	x	x	x	
Email	x	x	x	x
Address	x	x	x	x
City	x	x	x	x
County	x	x	x	
State	x	x	x	x
Zip Code	x	x	x	x

Table 8.15 compares certification fields in CBR to the fields in the MDOT, PGMBDD and DC/DSLBD databases. Ethnicity and gender information is collected in the three certification databases. CBR does not collect ownership percentage, but MDOT, PGMBDD, and DC/DSLBD collect this information.

Table 8.15 Minority Status Fields in External Certification Databases Compared to CBR

Field Name	Washington Suburban Sanitary Commission	Maryland Department of Transportation	Prince George's County Minority Business Development Division	District of Columbia Department of Small and Local Business Development
MBE Certified (Yes/No)	x			
Ethnicity	x	x	x	x
Certification Number	x			
Certifying Agency	x			
Gender	x	x	x	x
MBE Expiration Date	x		x	
WSSC SLBE Approved (Yes/No)	x			
SLBE Expiration Date	x			
Percentage Owned		x	x	x
U.S. Citizen (Yes/No)		x		x
Lawfully Admitted Permanent Resident (Yes/No)		x		x
Disabled (Yes/No)			x	x
Veteran (Yes/No)			x	x

3. Recommendations to Capture the Utilization of M/WBEs

CBR does not capture any information about the utilization of M/WBEs. WSSC uses a different web-based application, SymTrac™, to capture M/WBE utilization. The integration of CBR into SymTrac™ would enable WSSC to produce a comprehensive report that presents the availability and utilization of M/WBEs in one place. Therefore, CBR should enable utilized prime contractors and subcontractors to automatically export their business profiles into SymTrac™. The process would eliminate double data entry and also prevent the creation of duplicate records due to misspelled business names. CBR should also provide a hyperlink to allow utilized vendors easy access to the SymTrac™ system.

APPENDIX A

PRIME CONTRACTOR DISPARITY ANALYSIS - CONTRACTS UNDER $1,000,000

On February 16, 2011, upon request, Mason Tillman Associates, Ltd. undertook a further examination of compiled prime contractor data. The analysis of the data laid out in Chapters 4 and 5 of the Disparity Study had determined that there was documented statistically significant disparity and capacity for minority and woman-owned prime contractors under $500,000. The further examination determined that there was capacity and statistically significant disparity under one million dollars in construction, architectural and engineering, and goods and other services, but not in professional services. The findings from the analysis are presented in this Appendix.

A. Disparity Analysis: All Prime Contracts under $1,000,000, by Industry

1. Construction Prime Contracts under $1,000,000

The disparity analysis of all construction prime contracts under $1,000,000 is described below and depicted in Table 1 and Chart 1.

African American Businesses represent 39.51 percent of the available construction businesses and received 7 percent of construction prime contracts under $1,000,000. This underutilization is statistically significant.

Asian American Businesses represent 5.48 percent of the available construction businesses and received 1.65 percent of construction prime contracts under $1,000,000. This underutilization is statistically significant.

Hispanic American Businesses represent 12.81 percent of the available construction businesses and received 17.56 percent of construction prime contracts under $1,000,000. This study does not test statistically the overutilization of minority groups.

Native American Businesses represent 1.1 percent of the available construction businesses and received none of the construction prime contracts under $1,000,000. This underutilization is statistically significant.

Minority Business Enterprises represent 58.89 percent of the available construction businesses and received 26.21 percent of construction prime contracts under $1,000,000. This underutilization is statistically significant.

Women Business Enterprises represent 10.11 percent of the available construction businesses and received 5.02 percent of construction prime contracts under $1,000,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 69.01 percent of available construction businesses and received 31.24 percent of construction prime contracts under $1,000,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 30.99 percent of the available construction businesses and received 68.76 percent of construction prime contracts under $1,000,000. This overutilization is statistically significant.

Table 1 Disparity Analysis: Construction Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$9,144,324	7.00%	39.51%	$51,596,779	-$42,452,455	0.18	< .05 *
Asian Americans	$2,153,433	1.65%	5.48%	$7,157,182	-$5,003,750	0.30	< .05 *
Hispanic Americans	$22,934,246	17.56%	12.81%	$16,721,781	$6,212,465	1.37	**
Native Americans	$0	0.00%	1.10%	$1,431,436	-$1,431,436	0.00	< .05 *
Caucasian Females	$6,560,609	5.02%	10.11%	$13,208,255	-$6,647,646	0.50	< .05 *
Non-Minority Males	$89,793,435	68.76%	30.99%	$40,470,613	$49,322,822	2.22	< .05 †
TOTAL	$130,586,046	100.00%	100.00%	$130,586,046			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$152,629	0.12%	6.23%	$8,133,162	-$7,980,533	0.02	< .05 *
African American Males	$8,991,695	6.89%	33.28%	$43,463,617	-$34,471,922	0.21	< .05 *
Asian American Females	$0	0.00%	0.95%	$1,236,241	-$1,236,241	0.00	----
Asian American Males	$2,153,433	1.65%	4.53%	$5,920,942	-$3,767,509	0.36	< .05 *
Hispanic American Females	$607,256	0.47%	1.99%	$2,602,612	-$1,995,356	0.23	< .05 *
Hispanic American Males	$22,326,990	17.10%	10.81%	$14,119,169	$8,207,821	1.58	**
Native American Females	$0	0.00%	0.30%	$390,392	-$390,392	0.00	----
Native American Males	$0	0.00%	0.80%	$1,041,045	-$1,041,045	0.00	----
Caucasian Females	$6,560,609	5.02%	10.11%	$13,208,255	-$6,647,646	0.50	< .05 *
Non-Minority Males	$89,793,435	68.76%	30.99%	$40,470,613	$49,322,822	2.22	< .05 †
TOTAL	$130,586,046	100.00%	100.00%	$130,586,046			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$759,885	0.58%	9.47%	$12,362,406	-$11,602,521	0.06	< .05 *
Minority Males	$33,472,118	25.63%	49.43%	$64,544,772	-$31,072,654	0.52	< .05 *
Caucasian Females	$6,560,609	5.02%	10.11%	$13,208,255	-$6,647,646	0.50	< .05 *
Non-Minority Males	$89,793,435	68.76%	30.99%	$40,470,613	$49,322,822	2.22	< .05 †
TOTAL	$130,586,046	100.00%	100.00%	$130,586,046			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$34,232,003	26.21%	58.89%	$76,907,178	-$42,675,176	0.45	< .05 *
Women Business Enterprises	$6,560,609	5.02%	10.11%	$13,208,255	-$6,647,646	0.50	< .05 *
Minority and Women Business Enterprises	**$40,792,612**	**31.24%**	**69.01%**	**$90,115,433**	**-$49,322,822**	**0.45**	**< .05 ***
Non-Minority Male Business Enterprises	$89,793,435	68.76%	30.99%	$40,470,613	$49,322,822	2.22	< .05 †

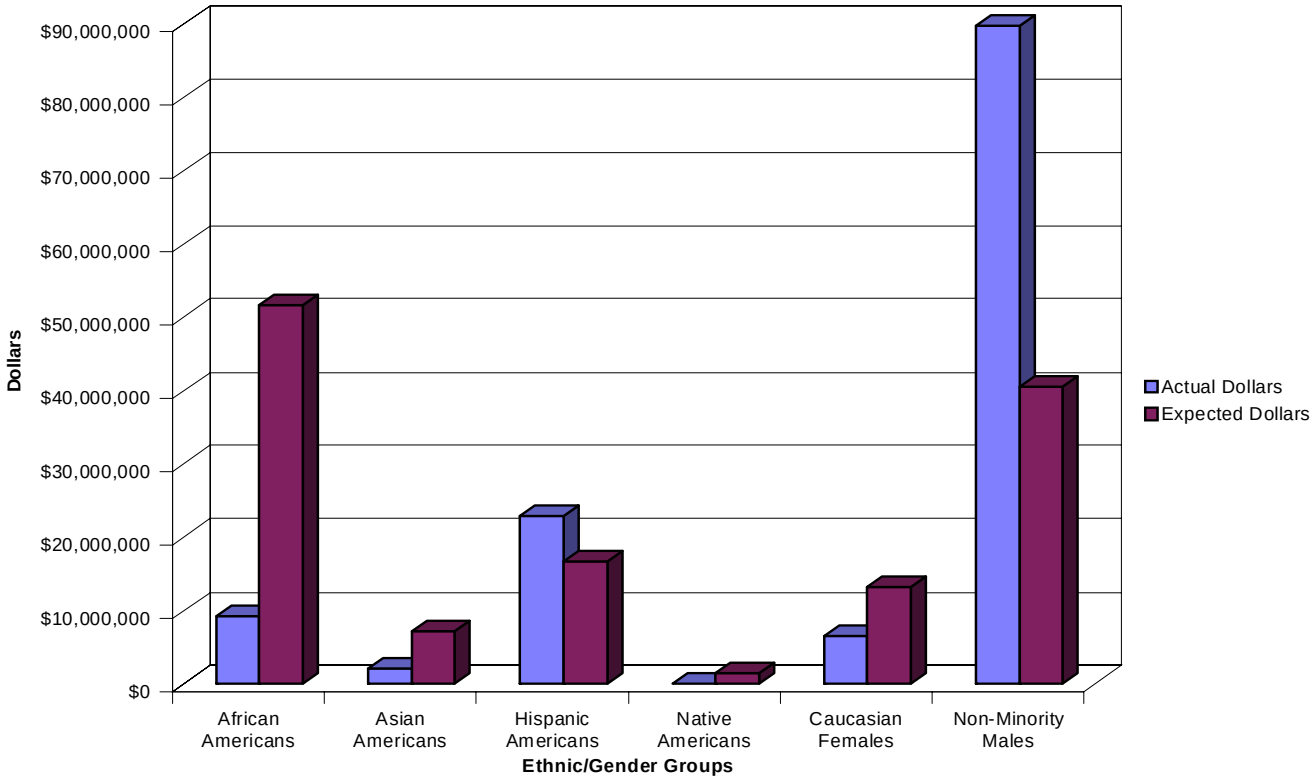
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 1 Disparity Analysis: Construction Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009



2. Architectural and Engineering Prime Contracts under $1,000,000

The disparity analysis of architectural and engineering prime contracts under $1,000,000 is described below and depicted in Table 2 and Chart 2.

African American Businesses represent 23.72 percent of the available architectural and engineering businesses and received 8.79 percent of architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Asian American Businesses represent 19.17 percent of the available architectural and engineering businesses and received 10.66 percent of architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Hispanic American Businesses represent 5.53 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Native American Businesses represent 0.4 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $1,000,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 48.81 percent of the available architectural and engineering businesses and received 19.45 percent of architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Women Business Enterprises represent 13.04 percent of the available architectural and engineering businesses and received none of the architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 61.86 percent of the available architectural and engineering businesses and received 19.45 percent of architectural and engineering prime contracts under $1,000,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 38.14 percent of the available architectural and engineering businesses and received 80.55 percent of architectural and engineering prime contracts under $1,000,000. This overutilization is statistically significant.

Table 2 Disparity Analysis: Architectural and Engineering Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$6,126,821	8.79%	23.72%	$16,524,610	-$10,397,789	0.37	< .05 *
Asian Americans	$7,424,573	10.66%	19.17%	$13,357,393	-$5,932,820	0.56	< .05 *
Hispanic Americans	$0	0.00%	5.53%	$3,855,742	-$3,855,742	0.00	< .05 *
Native Americans	$0	0.00%	0.40%	$275,410	-$275,410	0.00	----
Caucasian Females	$0	0.00%	13.04%	$9,088,535	-$9,088,535	0.00	< .05 *
Non-Minority Males	$56,127,378	80.55%	38.14%	$26,577,081	$29,550,297	2.11	< .05 †
TOTAL	$69,678,772	100.00%	100.00%	$69,678,772			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$2,289,715	3.29%	3.36%	$2,340,986	-$51,272	0.98	not significant
African American Males	$3,837,107	5.51%	20.36%	$14,183,623	-$10,346,517	0.27	< .05 *
Asian American Females	$0	0.00%	1.19%	$826,230	-$826,230	0.00	not significant
Asian American Males	$7,424,573	10.66%	17.98%	$12,531,162	-$5,106,590	0.59	< .05 *
Hispanic American Females	$0	0.00%	0.99%	$688,525	-$688,525	0.00	----
Hispanic American Males	$0	0.00%	4.55%	$3,167,217	-$3,167,217	0.00	< .05 *
Native American Females	$0	0.00%	0.20%	$137,705	-$137,705	0.00	----
Native American Males	$0	0.00%	0.20%	$137,705	-$137,705	0.00	----
Caucasian Females	$0	0.00%	13.04%	$9,088,535	-$9,088,535	0.00	< .05 *
Non-Minority Males	$56,127,378	80.55%	38.14%	$26,577,081	$29,550,297	2.11	< .05 †
TOTAL	$69,678,772	100.00%	100.00%	$69,678,772			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$2,289,715	3.29%	5.73%	$3,993,447	-$1,703,733	0.57	not significant
Minority Males	$11,261,679	16.16%	43.08%	$30,019,708	-$18,758,029	0.38	< .05 *
Caucasian Females	$0	0.00%	13.04%	$9,088,535	-$9,088,535	0.00	< .05 *
Non-Minority Males	$56,127,378	80.55%	38.14%	$26,577,081	$29,550,297	2.11	< .05 †
TOTAL	$69,678,772	100.00%	100.00%	$69,678,772			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$13,551,394	19.45%	48.81%	$34,013,155	-$20,461,761	0.40	< .05 *
Women Business Enterprises	$0	0.00%	13.04%	$9,088,535	-$9,088,535	0.00	< .05 *
Minority and Women Business Enterprises	**$13,551,394**	**19.45%**	**61.86%**	**$43,101,691**	**-$29,550,297**	**0.31**	**< .05 ***
Non-Minority Male Business Enterprises	$56,127,378	80.55%	38.14%	$26,577,081	$29,550,297	2.11	< .05 †

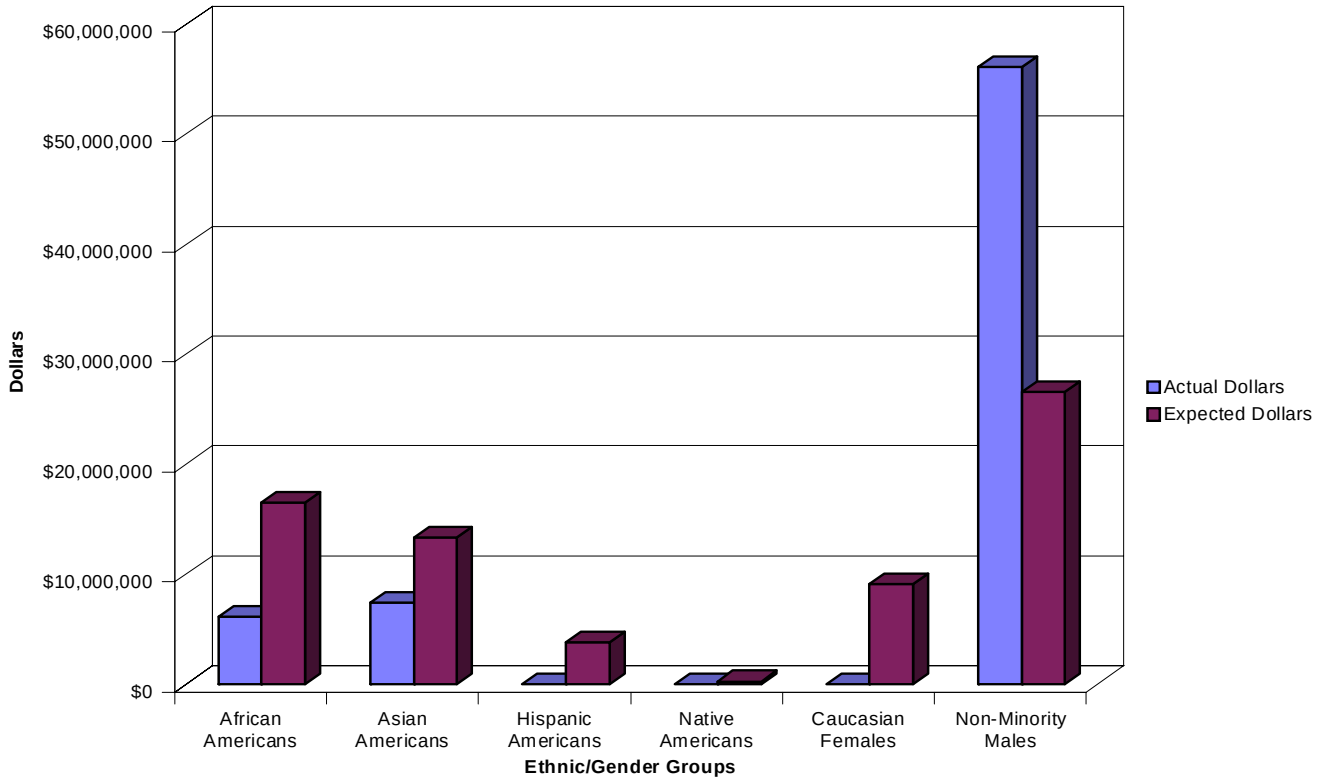
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 2 Disparity Analysis: Architectural and Engineering Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009



3. Professional Services Prime Contracts under $1,000,000

The disparity analysis of professional services prime contracts under $1,000,000 is described below and depicted in Table 3 and Chart 3.

African American Businesses represent 36.22 percent of the available professional services businesses and received 12.72 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Asian American Businesses represent 10.56 percent of the available professional services businesses and received 6.97 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Hispanic American Businesses represent 4.01 percent of the available professional services businesses and received 0.1 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Native American Businesses represent 0.72 percent of the available professional services businesses and received none of the professional services prime contracts under $1,000,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 51.51 percent of the available professional services businesses and received 19.79 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Women Business Enterprises represent 17.26 percent of the available professional services businesses and received 4.6 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 68.77 percent of the available professional services businesses and received 24.4 percent of professional services prime contracts under $1,000,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 31.23 percent of the available professional services businesses and received 75.6 percent of professional services prime contracts under $1,000,000. This overutilization is statistically significant.

Table 3 Disparity Analysis: Professional Services Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$7,738,855	12.72%	36.22%	$22,028,380	-$14,289,525	0.35	< .05 *
Asian Americans	$4,239,394	6.97%	10.56%	$6,424,944	-$2,185,551	0.66	< .05 *
Hispanic Americans	$60,393	0.10%	4.01%	$2,440,136	-$2,379,743	0.02	< .05 *
Native Americans	$0	0.00%	0.72%	$436,538	-$436,538	0.00	----
Caucasian Females	$2,799,559	4.60%	17.26%	$10,499,299	-$7,699,740	0.27	< .05 *
Non-Minority Males	$45,986,097	75.60%	31.23%	$18,995,001	$26,991,096	2.42	< .05 †
TOTAL	$60,824,297	100.00%	100.00%	$60,824,297			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$2,022,655	3.33%	13.88%	$8,439,735	-$6,417,080	0.24	< .05 *
African American Males	$5,716,200	9.40%	22.34%	$13,588,645	-$7,872,445	0.42	< .05 *
Asian American Females	$2,997,097	4.93%	3.66%	$2,227,463	$769,634	1.35	**
Asian American Males	$1,242,296	2.04%	6.90%	$4,197,481	-$2,955,185	0.30	< .05 *
Hispanic American Females	$1,225	0.00%	1.31%	$794,723	-$793,498	0.00	< .05 *
Hispanic American Males	$59,168	0.10%	2.71%	$1,645,413	-$1,586,245	0.04	< .05 *
Native American Females	$0	0.00%	0.28%	$167,899	-$167,899	0.00	----
Native American Males	$0	0.00%	0.44%	$268,639	-$268,639	0.00	----
Caucasian Females	$2,799,559	4.60%	17.26%	$10,499,299	-$7,699,740	0.27	< .05 *
Non-Minority Males	$45,986,097	75.60%	31.23%	$18,995,001	$26,991,096	2.42	< .05 †
TOTAL	$60,824,297	100.00%	100.00%	$60,824,297			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$5,020,977	8.25%	19.12%	$11,629,821	-$6,608,844	0.43	< .05 *
Minority Males	$7,017,664	11.54%	32.39%	$19,700,177	-$12,682,513	0.36	< .05 *
Caucasian Females	$2,799,559	4.60%	17.26%	$10,499,299	-$7,699,740	0.27	< .05 *
Non-Minority Males	$45,986,097	75.60%	31.23%	$18,995,001	$26,991,096	2.42	< .05 †
TOTAL	$60,824,297	100.00%	100.00%	$60,824,297			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$12,038,641	19.79%	51.51%	$31,329,998	-$19,291,357	0.38	< .05 *
Women Business Enterprises	$2,799,559	4.60%	17.26%	$10,499,299	-$7,699,740	0.27	< .05 *
Minority and Women Business Enterprises	**$14,838,201**	**24.40%**	**68.77%**	**$41,829,297**	**-$26,991,096**	**0.35**	**< .05 ***
Non-Minority Male Business Enterprises	$45,986,097	75.60%	31.23%	$18,995,001	$26,991,096	2.42	< .05 †

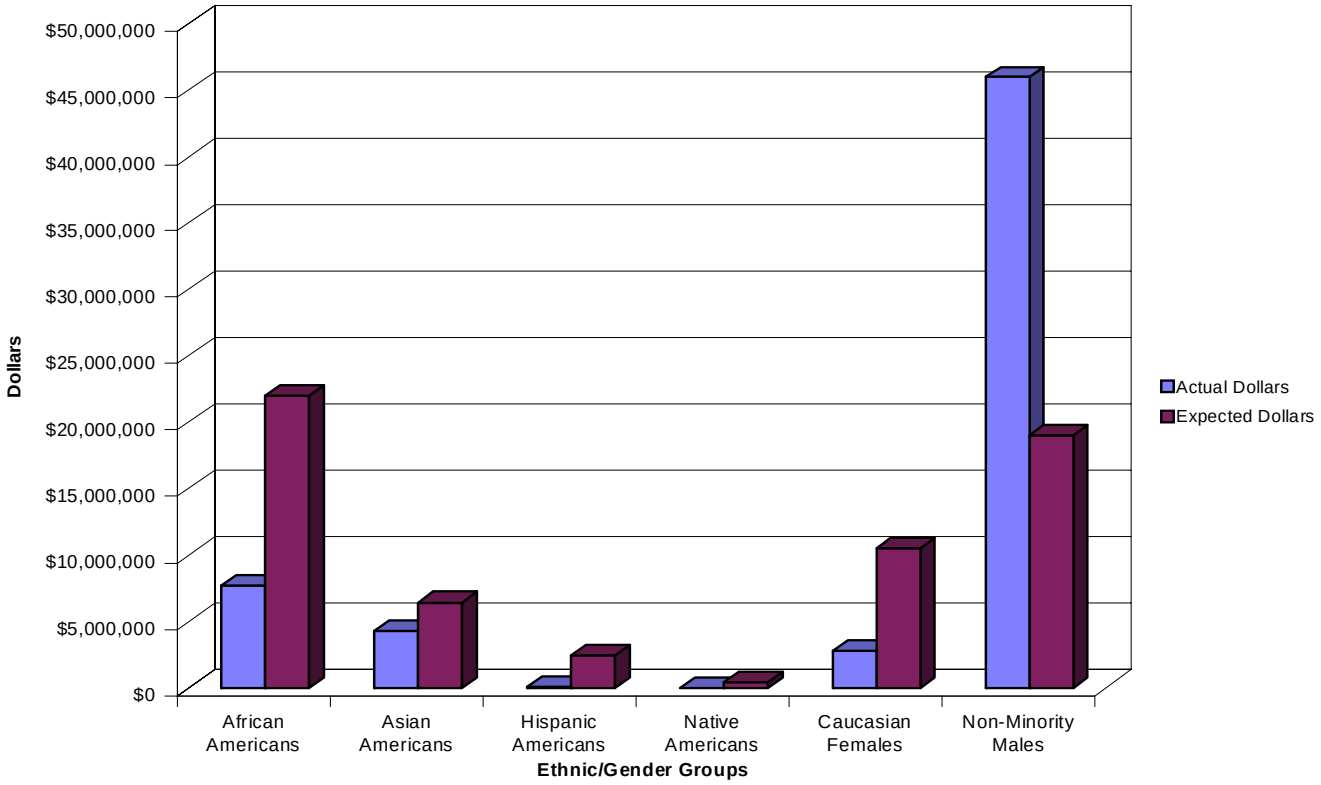
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

Chart 3 Disparity Analysis: Professional Services Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009



4. Goods and Other Services Prime Contracts under $1,000,000

The disparity analysis of goods and other services prime contracts under $1,000,000 is described below and depicted in Table 4 and Chart 4.

African American Businesses represent 34.49 percent of the available goods and other services businesses and received 24.05 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Asian American Businesses represent 8 percent of the available goods and other services businesses and received 2.14 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Hispanic American Businesses represent 4.34 percent of the available goods and other services businesses and received 0.95 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Native American Businesses represent 0.77 percent of the available goods and other services businesses and received 0.3 percent of goods and other services prime contracts under $1,000,000. While this group was underutilized, there were too few available businesses to determine statistical significance.

Minority Business Enterprises represent 47.59 percent of the available goods and other services businesses and received 27.44 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Women Business Enterprises represent 17.32 percent of the available goods and other services businesses and received 7.9 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Minority and Women Business Enterprises represent 64.91 percent of the available goods and other services businesses and received 35.34 percent of goods and other services prime contracts under $1,000,000. This underutilization is statistically significant.

Non-Minority Male Business Enterprises represent 35.09 percent of the available goods and other services businesses and received 64.66 percent of goods and other services prime contracts under $1,000,000. This overutilization is statistically significant.

Table 4 Disparity Analysis: Goods and Other Services Prime Contracts under $1,000,000, July 1, 2003 to June 30, 2009

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
African Americans	$81,529,812	24.05%	34.49%	$116,921,146	-$35,391,335	0.70	< .05 *
Asian Americans	$7,250,123	2.14%	8.00%	$27,106,423	-$19,856,301	0.27	< .05 *
Hispanic Americans	$3,219,218	0.95%	4.34%	$14,699,110	-$11,479,892	0.22	< .05 *
Native Americans	$1,011,787	0.30%	0.77%	$2,607,907	-$1,596,120	0.39	----
Caucasian Females	$26,789,880	7.90%	17.32%	$58,717,412	-$31,927,533	0.46	< .05 *
Non-Minority Males	$219,187,527	64.66%	35.09%	$118,936,347	$100,251,180	1.84	< .05 †
TOTAL	$338,988,346	100.00%	100.00%	$338,988,346			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
African American Females	$24,961,345	7.36%	11.55%	$39,158,113	-$14,196,767	0.64	< .05 *
African American Males	$56,568,466	16.69%	22.94%	$77,763,034	-$21,194,567	0.73	< .05 *
Asian American Females	$1,392,090	0.41%	2.72%	$9,206,701	-$7,814,611	0.15	< .05 *
Asian American Males	$5,858,033	1.73%	5.28%	$17,899,723	-$12,041,690	0.33	< .05 *
Hispanic American Females	$1,662,070	0.49%	1.55%	$5,255,327	-$3,593,257	0.32	< .05 *
Hispanic American Males	$1,557,148	0.46%	2.79%	$9,443,783	-$7,886,635	0.16	< .05 *
Native American Females	$965,670	0.28%	0.28%	$948,330	$17,340	1.02	**
Native American Males	$46,117	0.01%	0.49%	$1,659,577	-$1,613,460	0.03	----
Caucasian Females	$26,789,880	7.90%	17.32%	$58,717,412	-$31,927,533	0.46	< .05 *
Non-Minority Males	$219,187,527	64.66%	35.09%	$118,936,347	$100,251,180	1.84	< .05 †
TOTAL	$338,988,346	100.00%	100.00%	$338,988,346			
Minority and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Females	$28,981,175	8.55%	16.10%	$54,568,470	-$25,587,295	0.53	< .05 *
Minority Males	$64,029,764	18.89%	31.50%	$106,766,116	-$42,736,352	0.60	< .05 *
Caucasian Females	$26,789,880	7.90%	17.32%	$58,717,412	-$31,927,533	0.46	< .05 *
Non-Minority Males	$219,187,527	64.66%	35.09%	$118,936,347	$100,251,180	1.84	< .05 †
TOTAL	$338,988,346	100.00%	100.00%	$338,988,346			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$93,010,939	27.44%	47.59%	$161,334,586	-$68,323,647	0.58	< .05 *
Women Business Enterprises	$26,789,880	7.90%	17.32%	$58,717,412	-$31,927,533	0.46	< .05 *
Minority and Women Business Enterprises	**$119,800,819**	**35.34%**	**64.91%**	**$220,051,999**	**-$100,251,180**	**0.54**	**< .05 ***
Non-Minority Male Business Enterprises	$219,187,527	64.66%	35.09%	$118,936,347	$100,251,180	1.84	< .05 †

(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

(**) this study does not test statistically the overutilization of M/WBEs or the underutilization of non-minority males.

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

APPENDIX B

REGRESSION ANALYSIS

A regression analysis was conducted to determine whether there are statistical disparities between minorities, Caucasian females, and Caucasian male-owned businesses in three outcome variables. The three outcome variables included business ownership rates, business earnings, and business loan denial rates and the regression models used were based on these variables. The three regression models used to study the outcome variables were the Likelihood of Business Ownership Model, the Earnings Disparity Model, and the Likelihood of Business Loan Denial Model. The findings from the analysis are presented in this Appendix.

Table of Contents

APPENDIX B: REGRESSION ANALYSIS 1

I. INTRODUCTION 1

II. LEGAL ANALYSIS 2

III. REGRESSION ANALYSIS 4

IV. DATASETS ANALYZED 4

V. REGRESSION MODELS DEFINED 4

A. The Likelihood of Business Ownership Model 4
B. The Earnings Disparity Model 6
C. The Likelihood of Business Loan Denial Model 6
D. Aggregate Effect 7

VI. FINDINGS 7

A. The Likelihood of Business Ownership 7
B. Business Earnings 37
C. Likelihood of Business Loan Denial 67

VII. GROWTH INDICATORS FOR MINORITY-OWNED BUSINESSES 97

A. Datasets Analyzed 97
B. Findings 97

VIII. CONCLUSION 100

List of Tables

Table 1	Construction Probit Model	9
Table 2	Architectural and Engineering Probit Model	15
Table 3	Goods and Other Services Probit Model	20
Table 4	Professional Services Probit Model	27
Table 5	Likelihood of Business Ownership Aggregate Effect	33
Table 6	Construction Industry Linear Regression	39
Table 7	Architectural and Engineering Industry Linear Regression	45
Table 8	Goods and Other Services Industry Linear Regression	51
Table 9	Professional Services Industry Linear Regression	57
Table 10	Business Earnings Aggregate Effect	63
Table 11	Construction Industry Likelihood of Business Loan Denial Probit Model	69
Table 12	Architectural and Engineering Industry Likelihood of Business Loan Denial Probit Model	75
Table 13	Goods and Other Services Industry Likelihood of Business Loan Denial Probit Model	83
Table 14	Professional Services Industry Likelihood of Business Loan Denial Probit Model	90
Table 15	Business Survival Rates	98
Table 16	Business Expansion Rates	98
Table 17	Business Contraction Rates	99

REGRESSION ANALYSIS

I. INTRODUCTION

Private sector business practices which are not subject to government-imposed Minority and Woman-Owned Business Enterprise (M/WBE) requirements are indicators of marketplace conditions which could affect the formation and growth of M/WBEs. A regression analysis was conducted to examine three outcome variables--business ownership rates, business earnings, and business loan denial rates. The three regression models used to study the outcome variables were the Likelihood of Business Ownership Model, the Earnings Disparity Model, and the Likelihood of Business Loan Denial Model. Each regression model compared M/WBEs to Caucasian male-owned businesses by controlling for race and gender-neutral explanatory variables such as the business owner's age, education, marital status, home value, disability status, and access to capital. The impact of the explanatory variables on the outcome variables is described in this Chapter. In addition, a U.S. Small Business Administration's (SBA) Office of Advocacy report published in 2005 was used to analyze growth indicators for minority businesses.

The US Census PUMS data was used to compare M/WBEs and Caucasian male-owned businesses' ownership rates. Probit regression analysis was used to determine if ethnicity and gender have a statistically significant effect on business ownership rates. The PUMS data was also used to compare the business earnings of M/WBEs to Caucasian male-owned businesses. Ordinary least square regression was utilized to analyze the PUMS data for disparities in business earnings after controlling for race and gender-neutral factors. The National Survey of Small Business Finances data was used to compare the business loan denial rates for M/WBEs and Caucasian male-owned businesses, while controlling for other business explanatory variables.

While disparity findings are illustrative of private sector discrimination, they are not actionable by WSSC. No matter how discriminatory the private sector may be, the findings cannot be used as the factual basis for a government sponsored race-based M/WBE program.

Caution, therefore, should be exercised in the interpretation and application of the regression findings.

Case law regarding the application of private sector discrimination is discussed in detail in Section II, *Legal Analysis*.

II. LEGAL ANALYSIS

The issue of private sector discriminatory barriers that M/WBEs encountered in the formation and development of businesses and their consequence for State and local remedial programs[1] was addressed in *Concrete Works III*,[2] and *City of Chicago*.[3] *Concrete Works III* set forth a framework for considering private sector discrimination as a passive participant model for analysis. *City of Chicago* addressed the obligation of a showing that there be an appropriate nexus between the government remedy and the private sector discrimination.

- **Passive Discrimination**

In January 2003, the Tenth Circuit decided *Concrete Works of Colorado v. City and County of Denver*[4] (*Concrete Works III*) where it explicitly held that business activities conducted in the private sector if within the government's marketplace are also appropriate areas to explore the issue of passive participation. However, the court was not asked in that case to review the appropriateness of the city's remedy but only to examine the facts to determine if the private sector business practices under consideration constituted discrimination. For technical legal reasons[5] the court did not examine whether a consequent public sector remedy, i.e., one involving a goal requirement on the city of Denver's contracts, was "narrowly tailored" or otherwise supported by the city's private sector findings of discrimination.

The question of whether a particular public sector remedy is narrowly tailored when it is based solely on business practices within the private sector was in issue in *City of Chicago*. *City of Chicago*, decided ten months after *Concrete Works*, found that certain business practices constituted discrimination against minorities in the Chicago market area. However,

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1 Such programs are distinct from federally funded programs pursuant to Department of Transportation regulations. Thus, cases such as the recent Federal District Court opinion in *GEOD v. New Jersey Transit* that examined those regulations are inapposite.

2 C*oncrete Works of Colo., Inc. v. City of Denve*r, 86 F. Supp. 2d 1042, 1073 (D. Colo. 2000), rev'd on other grounds, 321 F.3d 950 (10th Cir. 2003), cert. denied, 540 U.S. 1027 (2003).

3 *Builders Association of Greater Chicago v. City of Chicago,* 298 F.Supp.2d 725 (N.D. III. 2003).

4 *Concrete Works of Colorado v. City and County of Denver,* 321 F.3d 950 (Tenth Circuit, 2003).

5 Plaintiff had not preserved the issue on appeal. Therefore, it was no longer part of the case.

the District Court did not find the city of Chicago's M/WBE subcontracting goal to be a remedy"narrowly tailored" to address the documented private discriminatory business practices that had been discovered within the city's market area. The Court explicitly stated that certain discriminatory business practices documented by regression analyses, constituted private sector discrimination. It is notable that the documented discriminatory business practices were similar to those reviewed in *Concrete Works*. Notwithstanding the fact that discrimination in market access was documented, the Court determined that the evidence was insufficient to support race-based subcontracting goals. The Court ordered an injunction to invalidate the city of Chicago's goal-based program.

We note the following statements from that opinion:

> Racial preferences are, by their nature, highly suspect, and they cannot be used to benefit one group that, by definition, is not either individually or collectively the present victim of discrimination. There may well also be (and the evidence suggests that there are) minorities and women who do not enter the industry because they perceive barriers to entry. If there is none, and their perception is in error, that false perception cannot be used to provide additional opportunities to M/WBEs already in the market to the detriment of other firms who, again by definition, neither individually nor collectively are engaged in discriminatory practices [top of page 10].

> Given these distortions of the market and these barriers, is the City's program narrowly tailored as a remedy? It is here that I believe the program fails. There is no "meaningful individualized review" of M/WBEs, *Gratz v. Bollinger*, 539 U.S. 244, 156 L. Ed. 2d 257, 123 S.Ct. 2411, 2431 (2003)(Justice O'Connor concurring), Chicago's program is more expansive and more rigid than plans that have been sustained by the courts. It has no termination date, nor has it any means for determining a termination date. The 'graduation' revenue amount is very high, $27,500,00, and very few have graduated. There is no net worth threshold. A third generation Japanese -American from a wealthy family, and with a graduate degree from MIT, qualifies (and an Iraq immigrant does not). Waivers are rarely or never granted on construction contracts, but "regarding the availability of waivers is of particular importance... a 'rigid numerical quota' particularly disserves the cause of narrow tailoring" *Adarand Constructors v. Slater, supra*, at 1177. The City program is "rigid numerical quota," a quota not related to the number of available, wiling and able forms but to concepts of how many of those firms there should be. Formulistic points did not survive strict scrutiny in *Gratz v. Bollinger, supra,* and formulistic percentages cannot survive scrutiny [bottom page 13 to top page 14].

III. REGRESSION ANALYSIS

Regression analysis is the methodology employed to ascertain whether there are private sector economic indicators of discrimination in WSSC's market area that could impact the formation and development of M/WBEs. The focus of this regression analysis is on the four industries studied in the 2010 WSSC Disparity Study, which include the construction, architectural and engineering, goods and other services, and professional services industries.

Three regression models are used for this analysis. They are the Likelihood of Business Ownership Model, the Earnings Disparity Model, and the Likelihood of Business Loan Denial Model. The analysis takes into consideration race and gender-neutral factors such as age, education, and creditworthiness in assessing whether the explanatory factors examined in these models disproportionately affect minorities and women when compared to similarly situated Caucasian males.

IV. DATASETS ANALYZED

Two datasets produced by the United States Census Bureau were used. The 2008 Public Use Microdata Sample (PUMS)[6] data was used to analyze businesses within the WSSC market area. This area included counties within Maryland, Virginia, and the District of Columbia. Business ownership and earning disparities were analyzed using the PUMS data in the Likelihood of Business Ownership Model and the Earnings Disparity Model. The PUMS data allowed for an analysis by an individual's race and gender. The dataset includes observations regarding personal profile, industry, work characteristics, and family structure.

The 2003 Survey of Small Business Finances (SSBF) was utilized to analyze business loan denial rates in the Likelihood of Business Loan Denial Model. The SSBF dataset includes observations for business and owner characteristics, the business's credit and financial status, and the lender environment and loan characteristics. Th 2003 SSBF contains the most recent available data on access to credit.

V. REGRESSION MODELS DEFINED

A. The Likelihood of Business Ownership Model

The Likelihood of Business Ownership Model examines the relationship between the likelihood of being a business owner and socio-economic variables. The dependent variable,

[6] The 2008 PUMS dataset includes the years 2004 and 2006.

business ownership, includes business owners of incorporated and non-incorporated firms. The business ownership variable takes only two values. A value of "1" indicates that a person is a business owner, whereas a value of "0" indicates that a person is not a business owner. When the dependent variable is defined this way it is called a binary variable.[7] In this case a Probit model is utilized to predict the likelihood of business ownership on the basis of independent socio-economic variables. The independent variables are not used to construct the dependent variable; however, they are just simple enumerations of Right Hand Side (RHS) variables. There are 31 independent RHS variables (namely Xs) in each function that contain only 1 dependent RHS variable (namely Y). Each regression uses only data from one industry. Cluster effect has been considered and its bias influences have been removed by removing the noise. Furthermore, a Clustered Standard Error method was also used to enable the standard errors to remain robust when within group correlations among samples from the same district and the same year exist. Thus, a model using clustered standard errors recognizes that the data comes from three different regions and three different periods, and that the significance of each variable is calculated robustly. Categories of independent variables analyzed include educational level, citizenship status, personal characteristics, race and gender, personal capital indicators, and area/survey year indicators.

A disparity finding is denoted on the tables below when the independent variable is significant at or above one of the three levels: the 90% level (*), 95% level (**), or 99% level (***). A finding of disparity indicates that there is a non-random relationship between the likelihood of owning a business and each independent variable. Tables of regression results indicate the sign of each variable's coefficient from the regression output. If the coefficient sign is positive, it means there is a positive relationship between the two variables. For example, having an advanced degree is positively related to the likelihood of being a business owner, holding all else constant. If the coefficient sign for the independent variable is negative, this implies an inverse relationship between the two variables. For example, as the number of years a firm has been in operation increases, the likelihood of being denied a business loan decreases, holding all else constant.

Regression result tables also indicate the marginal effect on business ownership of each variable, evaluated at the sample mean value of that variable. For example, being married has a positive marginal effect of 0.051. This implies that, on average of the entire sample set, a married individual has 5.1% higher probability of being a business owner when all other variables are held constant.

[7] In this case, the standard OLS regression model cannot be employed and a Probit model is utilized to predict the likelihood of business ownership

B. The Earnings Disparity Model

The Business Earnings Disparity Model examines the relationship between the annual personal income of business owners and socio-economic variables. Wages are defined as the individual's total dollar income earned in the previous twelve months. Categories of independent variables analyzed include educational level, citizenship status, personal characteristics, race and gender, personal capital indicators, and area/survey year indicators.

All of the independent variables are regressed against wages in a standard Ordinary Least Squares regression model (OLS). The OLS model estimates a linear relationship between the independent variables and the dependent variable. This multivariate regression model estimates a line similar to the standard $y = mx+b$ format, but with additional independent variables. The mathematical purpose of a regression analysis is to estimate a linear line for all observations and explain if the findings are statistically significant.

A disparity finding is denoted on the tables below when the independent variable is significant at or above one of the three levels: the 90% level (*), 95% level (**), or 99% level (***). A finding of disparity indicates that there is a non-random relationship between wages and each independent variable. Tables of regression results indicate the sign of each variable's coefficient from the regression output. If the coefficient sign is positive, it means there is a positive relationship between the two variables. For example, age is positively related to wages. Therefore, older individuals tend to have higher business earnings, holding all else constant. If the coefficient sign for the independent variable is negative, this implies an inverse relationship between the two variables. For example, individuals who have children under the age of six have tend to have lower business earnings.

Additionally, the regression results tables indicate the average effect per-unit change of each independent variable holding all else constant. For example, the interest and dividend income (in units of $10,000) has an average effect of 1354.02, which means that when interest and dividend income increase by $10,000, on sample average, the annual self-employment income increases by $1,354.02.

C. The Likelihood of Business Loan Denial Model

The Likelihood of Business Loan Denial Model examines the relationship between the likelihood of being denied a business loan and variables related to socio-economics and business. The model is an Ordered Probit model where the dependent variable is the reported probability of experiencing loan denial. It allows for three levels of answers: "1" indicates that a business is always denied a loan; "0.5" indicates that a business is sometimes denied a loan; and "0" indicates that a business is never denied a loan. Independent variable categories include race and gender, business owners' credit and resources, business credit and financial health, and business/lender environment and loan characteristics.

A disparity finding is denoted on the tables below when the independent variable is significant at or above one of the three levels: the 90% level (*), 95% level (**), or 99% level (***). A finding of disparity indicates that there is a non-random relationship between being denied a business loan and each independent variable. The tables containing the regression results also indicate the sign of each variable's coefficient from the regression output. If the coefficient sign is positive, it means there is a positive relationship between the two variables. For example, if having a college degree has a positive coefficient, then individuals with a college degree are more likely to be denied a business loan, holding all other variables constant. If the coefficient sign for the independent variable is negative, this implies an inverse relationship between the two variables. For example, as a business owner's credit score increases, the likelihood of being denied a business loan decreases.

Regression result tables also indicate the marginal effect on business loan denial of each variable, evaluated at the sample mean value of that variable.

D. Aggregate Effect

Aggregate effect is the average predicted level of probability or earning calculated by using the coefficients from the corresponding regression model and the model's variable values from the sample. Therefore, to calculate the aggregate effect for Caucasian male, the report calculates the average earnings by assuming everyone in the sample is Caucasian male and holding other variables at sample mean. The value is "statistically significant" if the average predicted probability or earning for each racial group is statistically significantly different from zero.[8]

VI. FINDINGS

A. The Likelihood of Business Ownership

The business ownership variable is identified by whether an individual is a business owner. The analysis considered incorporated and non-incorporated businesses. The data in this section comes from the 2004, 2006, and 2008 PUMS dataset.[9] Previous studies have shown that many non-discriminatory factors such as education, age, and marital status are associated with self-employment. In this analysis, race and gender-neutral factors are combined with race and gender groups in a Probit regression model to determine whether observed race or gender disparities were independent of the race and gender-neutral factors known to be associated with self-employment. It has to be noted that many of these variables, for instance

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8 As reported by margins statement in STATA. Note that the estimated values are "statistically significantly different from *zero*." This interpretation is different from the regression models and does not carry as much weight in the analysis.

9 The PUMS data were collected by the U.S. Census Bureau from a five percent sample of U.S. households. The observations were weighted to preserve the representative nature of the sample in relation to the population as a whole.

access to capital, while seeming to be race and gender-neutral, may be in fact correlated with race and gender.

The PUMS data for individuals in the construction, architectural and engineering, goods and other services, and professional services industries was examined. The analysis considered both incorporated and non-incorporated business sectors.

For each of the four industries, the Probit regression is used to identify the probability that an individual owns a business given his or her background, including ethnicity, gender, and race and gender-neutral factors. The dependent variables in all regressions are binary variables coded as "1" for individuals who are self-employed and "0" for individuals who are not self-employed. The independent variables used are as follows:

Personal Characteristics	Educational Attainment	Personal Finance Information	Race	Gender
-Age -Marital status -Citizenship -Disability -English-speaking competency -Number of children under the age of six in the household	Whether the individual has: -Less than a college education -Some college level education -A bachelor's degree - An advanced degree	Whether the individual: -Owns a home -Current home value (in units of $10,000) -Monthly mortgage payment (1st and 2nd) -Interest and dividend income (in units of $10,000)	-African American -Asian Pacific American -Hispanic American -Other minority group	-Male -Female

1. Probit Model Results for Construction Business Ownership Probabilities

Table 1 presents the Probit regression results for the likelihood or probability of owning a business in the construction industry based on the 32 variables analyzed in this model.

Table 1 Construction Probit Model

Probit Regression with Clustered Standard Errors					Number of Observations = 14,585				
Regression Result								Marginal Effect	
Business Ownership Model	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Age	0.060	***	0.005	12.700	0.000	0.051	0.070	0.017	41.599
Age-squared	0.000	***	0.000	-8.600	0.000	-0.001	0.000	0.000	1920.120
Married	0.180	***	0.026	6.820	0.000	0.128	0.231	0.051	0.563
Having children under the age of six	-0.141		0.126	-1.120	0.263	-0.387	0.106	-0.038	0.009
Own home	0.170	***	0.052	3.280	0.001	0.068	0.271	0.050	0.290
Home value (in units of $10,000)	0.022	**	0.010	2.280	0.023	0.003	0.041	0.006	7.830
Monthly mortgage payment (1st and 2nd) $10,000	0.323	***	0.106	3.040	0.002	0.115	0.530	0.093	0.031
Interest and dividend income ($10,000)	0.042	***	0.013	3.210	0.001	0.016	0.067	0.012	0.128
Speaking a language other than English at home	0.279	***	0.074	3.750	0.000	0.133	0.424	0.085	0.233
English-speaking competency	-0.184	***	0.027	-6.900	0.000	-0.236	-0.132	-0.053	0.355
Disabled	0.029		0.049	0.600	0.550	-0.066	0.125	0.008	1.896
Some college	0.084	*	0.047	1.790	0.074	-0.008	0.177	0.024	0.397
College degree	0.110	*	0.064	1.710	0.087	-0.016	0.235	0.033	0.099
Advanced degree	-0.020		0.068	-0.300	0.765	-0.153	0.112	-0.006	0.027

Probit Regression with Clustered Standard Errors					Number of Observations = 14,585				
Regression Result								Marginal Effect	
Business Ownership Model	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Caucasian female	-0.497	***	0.031	-15.810	0.000	-0.559	-0.436	-0.120	0.116
Hispanic American male	-0.084	*	0.044	-1.910	0.056	-0.170	0.002	-0.025	0.794
African American male	-0.192	***	0.050	-3.870	0.000	-0.289	-0.095	-0.052	0.132
Asian Pacific American male	0.204		0.126	1.620	0.106	-0.043	0.452	0.063	0.016
Other minority group male	0.076		0.057	1.320	0.188	-0.037	0.188	0.022	0.074
Hispanic American female	0.287	***	0.068	4.230	0.000	0.154	0.419	0.090	0.093
African American female	-0.020		0.207	-0.100	0.922	-0.425	0.385	-0.006	0.011
Asian Pacific American female	-0.273		0.295	-0.930	0.354	-0.850	0.304	-0.070	0.003
Not being a U.S. citizen	-0.051		0.055	-0.920	0.355	-0.158	0.057	-0.014	0.118
Being a foreign-born U.S. citizen	0.078		0.056	1.400	0.163	-0.031	0.187	0.023	0.047
Hispanic non-citizen	-0.081		0.099	-0.810	0.415	-0.275	0.113	-0.023	0.115
African non-citizen	0.196		0.155	1.270	0.205	-0.108	0.500	0.061	0.006
Asian Pacific non-citizen	0.166		0.143	1.150	0.248	-0.116	0.447	0.051	0.006
Maryland	-0.049		0.076	-0.640	0.521	-0.198	0.100	-0.014	0.413
Virginia	0.060		0.077	0.790	0.432	-0.090	0.210	0.017	0.563
Year 2006	-0.001		0.020	-0.070	0.942	-0.041	0.038	0.000	0.423
Year 2008	-0.631	**	0.262	-2.400	0.016	-1.145	-0.116	-0.173	0.414
Constant	-2.528		0.146	-17.330	0.000	-2.814	-2.242		

Construction Industry Business Ownership Model Result Interpretations

The findings of business ownership probabilities in the construction industry are described below in terms of the relation between the dependent variable and each independent variable.

- Age has a positive marginal effect to business ownership. Holding all other variables constant at the sample mean value, an increase in age by one year increases the probability of owning a business in the construction industry by 1.7%. This relationship is significant at the 99% level.[10]

- Holding all other variables constant at the sample mean value, the change from not married to married increases the probability of being a construction business owner by 5.1%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.[11]

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one increases the probability of being a construction business owner by 5%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000[12] increases the probability of being a construction business owner by 0.6%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 increases the probability of being a construction business owner by 9.3%. This relationship is significant at the 99% level.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 increases the probability of being a construction business owner by 1.2%. This relationship is significant at the 99% level

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- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise increases the probability of being a

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10 Significance at the 99% level indicates that the observed relationship between the dependent variable and independent variable has a 1% or less probability of occurring due to random chance.

11 A relationship that is statistically insignificant indicates that one cannot prove that the observed relationship between the dependent variable and independent variable is non-zero.

12 Note that the sample mean is in units of $10,000.

construction business owner by 8.5%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, having lower English speaking competency decreases the probability of being a construction business owner by 5.3%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having some college education increases the probability of being a construction business owner by 2.4%. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having a college degree increases the probability of being a construction business owner by 3.3%. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having an advanced degree does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the probability of being a construction business owner by 12%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male decreases the probability of being a construction business owner by 2.5%. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male decreases the probability of being a construction business owner by 5.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the

probability of being a construction business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group[13] male does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a construction business owner between a Hispanic American female and a Hispanic American male is smaller than the difference between a Caucasian female and a Caucasian male. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a construction business owner between an African American female and an African American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a construction business owner between an Asian Pacific American female and an Asian Pacific American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen does not significantly impact the probability of being a construction business owner. This relationship is statistically insignificant.

[13] Other minority group male/ female refers to individuals who do not identify as Caucasian (in the datasets used), and also do not identify with one of the specific minority groups included in the dataset used (i.e. African American, Asian Pacific American, or Hispanic American). Other minority group males and females includes American Indian and Alaska Native.

2. Probit Model Results for Architectural and Engineering Business Ownership Probabilities

Table 2 summarizes the Probit regression results for the likelihood of owning a business in the architectural and engineering industry using the 30 variables[14] analyzed in this model.

[14] The variables African non-citizen and Hispanic non-citizen were dropped due to too few observations in the data.

Table 2 Architectural and Engineering Probit Model

Probit Regression with Clustered Standard Errors								Number of Observations = 3,710	
Regression Result								Marginal Effect	
Business Ownership Model	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Age	0.016		0.014	1.110	0.268	-0.012	0.043	0.002	43.606
Age-squared	0.000		0.000	0.920	0.356	0.000	0.000	0.000	2084.420
Married	-0.168	*	0.072	-2.320	0.020	-0.309	-0.026	-0.020	0.664
Having children under the age of six	0.019		0.149	0.130	0.898	-0.274	0.312	0.002	0.032
Own home	0.474		0.245	1.940	0.053	-0.006	0.954	0.062	0.329
Home value (in units of $10,000)	0.017	***	0.006	2.930	0.003	0.006	0.029	0.002	8.109
Monthly mortgage payment (1st and 2nd) $10,000	0.681		0.214	3.180	0.001	0.261	1.101	0.078	0.056
Interest and dividend income ($10,000)	0.031	**	0.021	1.480	0.140	-0.010	0.072	0.004	0.247
Speaking a language other than English at home	-0.111		0.177	-0.630	0.530	-0.459	0.236	-0.012	0.174
English-speaking competency	0.107		0.112	0.950	0.342	-0.114	0.327	0.012	0.158
Disabled	0.078		0.083	0.940	0.346	-0.084	0.240	0.009	1.950
Some college	0.022		0.103	0.220	0.830	-0.179	0.223	0.003	0.289
College degree	0.237	**	0.120	1.970	0.048	0.002	0.472	0.029	0.362

Probit Regression with Clustered Standard Errors								Number of Observations = 3,710	
Regression Result								Marginal Effect	
Business Ownership Model	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Advanced degree	0.281	**	0.140	2.000	0.045	0.006	0.557	0.036	0.274
Caucasian female	-0.197	***	0.046	-4.300	0.000	-0.286	-0.107	-0.021	0.300
Hispanic American male	-0.001		0.066	-0.020	0.983	-0.131	0.128	0.000	0.785
African American male	-0.412	***	0.136	-3.030	0.002	-0.679	-0.145	-0.036	0.093
Asian Pacific American male	-0.178		0.167	-1.060	0.289	-0.506	0.151	-0.018	0.060
Other minority group male	0.011		0.218	0.050	0.959	-0.417	0.439	0.001	0.025
Hispanic American female	-0.023		0.079	-0.290	0.775	-0.178	0.132	-0.003	0.236
African American female	0.355		0.293	1.210	0.226	-0.219	0.929	0.052	0.038
Asian Pacific American female	-0.079		0.496	-0.160	0.874	-1.050	0.893	-0.008	0.019
Not being a U.S. citizen	0.073		0.149	0.490	0.625	-0.219	0.365	0.009	0.043
Being a foreign-born U.S. citizen	0.187	**	0.094	1.990	0.046	0.003	0.371	0.024	0.092
Asian Pacific non-citizen	-0.140		0.372	-0.380	0.707	-0.869	0.589	-0.014	0.017
Maryland	-0.207	***	0.080	-2.590	0.010	-0.363	-0.050	-0.023	0.411
Virginia	-0.348	***	0.073	-4.780	0.000	-0.490	-0.205	-0.041	0.542
Year 2006	-0.007		0.097	-0.070	0.940	-0.198	0.183	-0.001	0.432
Year 2008	-0.897	**	0.358	-2.510	0.012	-1.599	-0.195	-0.094	0.405
Constant	-2.382		0.416	-5.720	0.000	-3.198	-1.566		

Architectural and Engineering Industry Business Ownership Model Result Interpretations

The Probit regression results for the architectural and engineering industry show:

- Holding all other variables constant at the sample mean value, age does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not married to married decreases the probability of being an architectural and engineering business owner by 2%. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 increases the probability of being an architectural and engineering business owner by 0.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 increases the probability of being an architectural and engineering business owner by 0.4%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having some college education does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having a college education increases the probability of being an architectural and engineering business owner by 2.9%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having an advanced degree increases the probability of being an architectural and engineering business owner by 3.6%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the probability of being an architectural and engineering business owner by 2.1%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male does not impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male decreases the probability of being an architectural and engineering business owner by 3.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being an architectural and engineering business owner between a Hispanic American female and a Hispanic American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being an architectural and engineering business owner between an African American female and an African American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being an architectural and engineering business owner between an Asian Pacific American female and an Asian Pacific American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen increases the probability of being a an architectural and engineering business owner by 2.4%. This relationship is statistically significant at the 95% level.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the probability of being an architectural and engineering business owner. This relationship is statistically insignificant.

3. Probit Model Results for Goods and Other Services Business Ownership Probabilities

Table 3 summarizes the Probit regression results for the likelihood or probability of owning a business in the goods and other services industry using the 32 variables analyzed in this model.

Table 3 Goods and Other Services Probit Model

Probit Regression with Clustered Standard Errors					Number of Observations= 14,624				
Business Ownership Model	Regression Result							Marginal Effect	
	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Age	0.006		0.011	0.600	0.550	-0.015	0.027	0.000	45.376
Age-squared	0.000		0.000	0.910	0.361	0.000	0.000	0.000	2235.600
Married	0.085		0.077	1.110	0.266	-0.065	0.236	0.005	0.627
Having children under the age of six	-0.072		0.129	-0.550	0.580	-0.325	0.182	-0.004	0.022
Own home	0.257	***	0.074	3.470	0.001	0.112	0.402	0.016	0.308
Home value (in units of $10,000)	0.046	***	0.014	3.180	0.001	0.018	0.074	0.003	7.095
Monthly mortgage payment (1st and 2nd) $10,000	0.327		0.241	1.360	0.175	-0.145	0.798	0.019	0.028
Interest and dividend income ($10,000)	0.033	***	0.006	5.680	0.000	0.021	0.044	0.002	0.110
Speaking a language other than English at home	0.040		0.118	0.340	0.736	-0.192	0.272	0.002	0.145
English-speaking competency	0.029		0.053	0.530	0.594	-0.076	0.133	0.002	0.177
Disabled	-0.020		0.082	-0.240	0.808	-0.181	0.141	-0.001	1.900

Probit Regression with Clustered Standard Errors						Number of Observations= 14,624			
Business Ownership Model	Regression Result							Marginal Effect	
	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Some college	0.190	***	0.067	2.810	0.005	0.057	0.322	0.011	0.420
College degree	0.354	***	0.095	3.720	0.000	0.168	0.541	0.026	0.152
Advanced degree	0.062		0.065	0.960	0.340	-0.065	0.190	0.004	0.072
Caucasian female	0.146	***	0.015	9.460	0.000	0.116	0.176	0.009	0.320
Hispanic American male	-0.188	***	0.034	-5.600	0.000	-0.254	-0.123	-0.012	0.744
African American male	-0.673	***	0.136	-4.940	0.000	-0.939	-0.406	-0.027	0.191
Asian Pacific American male	-0.103		0.195	-0.530	0.596	-0.485	0.278	-0.005	0.041
Other minority group male	0.006		0.070	0.080	0.933	-0.132	0.144	0.000	0.025
Hispanic American female	-0.087		0.072	-1.210	0.226	-0.229	0.054	-0.005	0.241
African American female	-0.145		0.182	-0.800	0.425	-0.501	0.211	-0.007	0.069
Asian Pacific American female	-0.317	**	0.161	-1.970	0.049	-0.632	-0.001	-0.013	0.016
Not being a U.S. citizen	0.050		0.054	0.920	0.357	-0.056	0.156	0.003	0.047
Being a foreign-born U.S. citizen	0.008		0.143	0.050	0.958	-0.272	0.287	0.000	0.055
Hispanic non-citizen	0.045		0.100	0.450	0.651	-0.151	0.242	0.003	0.041
African non-citizen	0.503	***	0.160	3.140	0.002	0.189	0.817	0.046	0.005
Asian Pacific non-citizen	-0.003		0.173	-0.020	0.985	-0.342	0.336	0.000	0.014
Maryland	-0.294	***	0.086	-3.420	0.001	-0.463	-0.125	-0.015	0.325
Virginia	-0.553	***	0.085	-6.530	0.000	-0.719	-0.387	-0.039	0.663
Year 2006	-0.092	***	0.016	-5.740	0.000	-0.123	-0.061	-0.005	0.424

Probit Regression with Clustered Standard Errors					Number of Observations= 14,624				
Business Ownership Model	Regression Result							Marginal Effect	
	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Year 2008	-1.369	***	0.340	-4.030	0.000	-2.035	-0.703	-0.074	0.397
Constant	-1.777	***	0.273	-6.500	0.000	-2.313	-1.242		

Goods and Other Services Industry Business Ownership Model Result Interpretations

The Probit regression results for the goods and other services industry show:

- Age has a positive marginal effect to business ownership. Holding all other variables constant at the sample mean value, an increase in age by one year does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one increases the probability of being a goods and other services business owner by 1.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 increases the probability of being a goods and other services business owner by 0.3%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 increases the probability of being a goods and other services business owner by 0.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having some college education increases the probability of being a goods and other services business owner by 1.1%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having a college degree increases the probability of being a goods and other services business owner by 2.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having an advanced degree does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female increases the probability of being a goods and other services business owner by 0.9%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male decreases the probability of being a goods and other services business owner by 1.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male decreases the probability of being a goods and other services business owner by 2.7%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a goods and other services business owner between a Hispanic American female and a Hispanic American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a goods and other services business owner between an African American female and an African American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a goods and other services business owner between an Asian Pacific American female and an Asian Pacific American male is smaller than the difference between a Caucasian female and a Caucasian male. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a Hispanic non-citizen does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being an African non-citizen increases the probability of being a goods and other services business owner by 4.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the probability of being a goods and other services business owner. This relationship is statistically insignificant.

4. Probit Model Results for Professional Services Business Ownership Probabilities

Table 4 presents the Probit regression results for the likelihood or probability of owning a business in the professional services industry using the 32 variables analyzed in this model.

Table 4 Professional Services Probit Model

Probit Regression with Clustered Standard Errors								Number of Observations= 11,065	
Business Ownership Model	**Regression Results**							**Marginal Effect**	
	Coefficient	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**		**Marginal Effect Estimated at Sample Mean**	**Sample Mean Value**
Age	0.043	***	0.003	13.920	0.000	0.037	0.049	0.010	43.977
Age-squared	0.000	***	0.000	-10.470	0.000	0.000	0.000	0.000	2185.860
Married	0.026		0.044	0.600	0.546	-0.059	0.112	0.006	0.546
Having children under the age of six	0.090		0.072	1.260	0.207	-0.050	0.230	0.022	0.044
Own home	0.163	***	0.025	6.640	0.000	0.115	0.211	0.039	0.292
Home value (in units of $10,000)	0.000		0.006	0.030	0.974	-0.011	0.012	0.000	7.810
Monthly mortgage payment (1st and 2nd) $10,000	-0.175		0.117	-1.500	0.134	-0.404	0.054	-0.041	0.033
Interest and dividend income ($10,000)	0.040	**	0.018	2.210	0.027	0.004	0.075	0.009	0.126
Speaking a language other than English at home	-0.022		0.034	-0.640	0.521	-0.089	0.045	-0.005	0.227
English-speaking competency	0.044		0.029	1.520	0.127	-0.013	0.101	0.010	0.314
Disabled	-0.001		0.050	-0.030	0.976	-0.099	0.096	0.000	1.899
Some college	-0.158	***	0.030	-5.240	0.000	-0.217	-0.099	-0.036	0.367
College degree	-0.628	***	0.062	-10.080	0.000	-0.750	-0.506	-0.117	0.185

Probit Regression with Clustered Standard Errors						Number of Observations= 11,065			
Business Ownership Model	Regression Results							Marginal Effect	
	Coefficient	Significance	Standard Error	t-score	P-value>|t|	95% Confidence Interval		Marginal Effect Estimated at Sample Mean	Sample Mean Value
Advanced degree	-1.102	***	0.084	-13.110	0.000	-1.266	-0.937	-0.162	0.135
Caucasian female	0.096	***	0.025	3.800	0.000	0.047	0.146	0.022	0.579
Hispanic American male	-0.143	***	0.026	-5.570	0.000	-0.193	-0.093	-0.034	0.793
African American male	-0.094		0.091	-1.030	0.302	-0.274	0.085	-0.021	0.178
Asian Pacific American male	0.358	***	0.127	2.810	0.005	0.109	0.608	0.096	0.064
Other minority group male	0.124	**	0.061	2.040	0.042	0.005	0.244	0.030	0.046
Hispanic American female	0.020		0.035	0.570	0.565	-0.048	0.088	0.005	0.458
African American female	-0.157		0.119	-1.320	0.187	-0.391	0.076	-0.034	0.102
Asian Pacific American female	-0.276	***	0.072	-3.820	0.000	-0.417	-0.134	-0.056	0.043
Not being a U.S. citizen	0.396	***	0.065	6.100	0.000	0.269	0.523	0.107	0.087
Being a foreign-born U.S. citizen	0.152	*	0.078	1.950	0.051	0.000	0.305	0.038	0.089
Hispanic non-citizen	-0.123	***	0.047	-2.640	0.008	-0.215	-0.032	-0.027	0.076
African non-citizen	-0.178	***	0.063	-2.800	0.005	-0.302	-0.053	-0.037	0.011
Asian Pacific non-citizen	-0.420	***	0.099	-4.250	0.000	-0.614	-0.227	-0.078	0.024
Maryland	0.337	***	0.048	6.970	0.000	0.242	0.432	0.081	0.388
Virginia	0.285	***	0.048	5.990	0.000	0.192	0.378	0.066	0.522
Year 2006	0.029	**	0.013	2.210	0.027	0.003	0.055	0.007	0.407
Year 2008	-0.143		0.104	-1.370	0.172	-0.347	0.062	-0.033	0.405
Constant	-2.079	***	0.133	-15.570	0.000	-2.341	-1.817		

Professional Services Industry Business Ownership Model Result Interpretations

The findings of business ownership probabilities in the professional services industry are as follows:

- Holding all other variables constant at the sample mean value, an increase in age by one year increases the probability of being a professional services business owner by 1%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one increases the probability of being a professional services business owner by 3.9%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 increases the probability of being a professional services business owner by 0.9%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having some college education decreases the probability of being a professional services business owner by 3.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having a college degree decreases the probability of being a professional services business owner by 11.7%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having only a high school diploma to having an advanced degree decreases the probability of being a professional services business owner by 16.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female increases the probability of being a professional services business owner by 2.2%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male decreases the probability of being a professional services business owner by 3.4%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male does not significantly impact the probability of being a professional services business owner. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male increases the probability of being a professional services business owner by 9.6%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male increases the probability of being a professional services business owner by 3%. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a professional services business owner between a Hispanic American female and a Hispanic American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a professional services business owner between an African American female and an African American male is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in the probability of being a professional services business owner between an Asian Pacific American female and an Asian Pacific American male is smaller than the difference between a Caucasian female and a Caucasian male. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen increases the probability of being a professional services business owner by 10.7%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen increases the probability of being a professional services business owner by 3.8%. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, being a Hispanic non-citizen decreases the probability of being a professional services business owner by 2.7%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being an African non-citizen decreases the probability of being a professional services business owner by 3.7%. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen decreases the probability of being a professional services business owner by 7.8%. This relationship is significant at the 99% level.

5. Aggregate Effect

Because the effects of the citizenship, gender, and race variables are included in the business earnings model with multiple interaction terms, the effect of each variable alone has to be calculated using a marginal effect aggregation method. Table 5 provides the results of the aggregated effects of each of the citizenship, gender, and race variables analyzed in the previous regressions. The results are provided for each industry.

Table 5 Likelihood of Business Ownership Aggregate Effect

Predicted Business Ownership Value					
		Construction	**Architectural and Engineering**	**Goods and Other Services**	**Professional Services**
Group 1	Male	0.239	0.084	0.034	0.164
	Female	0.167	0.060	0.038	0.179
Group 2	Caucasian male	0.266	0.089	0.052	0.182
	Hispanic American	0.234	0.082	0.037	0.165
Group 3	Caucasian male	0.266	0.089	0.052	0.182
	African American	0.196	0.046	0.012	0.152
Group 4	Caucasian male	0.266	0.089	0.052	0.182
	Asian Pacific American	0.306	0.059	0.039	0.252
Group 5	U.S. citizen	0.233	0.078	0.034	0.168
	Non-U.S. citizen	0.209	0.087	0.044	0.231
Group 6	Caucasian male	0.266	0.089	0.052	0.182
	Caucasian female	0.138	0.064	0.069	0.207
Every variable is significantly different from zero at the 99 percent level					

Note: All minority groups include both males and females.

Aggregate Effect Results

Construction Industry

The aggregate effect results for business ownership in the construction industry indicate that holding all variables constant at the sample mean:

- A male's predicted probability of owning a construction business is 23.9%, whereas a female's predicted probability of owning a construction business is 16.7%.

- A Caucasian male's predicted probability of owning a construction business is 26.6%, whereas a Hispanic American's predicted probability of owning a construction business is 23.4%.

- A Caucasian male's predicted probability of owning a construction business is 26.6%, whereas an African American's predicted probability of owning a construction business is 19.6%.

- A Caucasian male's predicted probability of owning a construction business is 26.6%, whereas an Asian Pacific American's predicted probability of owning a construction business is 30.6%.

- A non-U.S. citizen's predicted probability of owning a construction business is 20.9%, whereas a U.S. citizen's predicted probability of owning a construction business is 23.3%.

- A Caucasian male's predicted probability of owning a construction business is 26.6%, whereas a Caucasian female's predicted probability of owning a construction business is 13.8%.

Architectural and Engineering Industry

The aggregate effect results for business ownership in the architectural and engineering industry indicate that holding all variables constant at the sample mean:

- A male's predicted probability of owning an architectural and engineering business is 8.4%, whereas a female's predicted probability of owning an architectural and engineering business is 6%.

- A Caucasian male's predicted probability of owning an architectural and engineering business is 8.9%, whereas a Hispanic American's predicted probability of owning an architectural and engineering business is 8.2%.

- A Caucasian male's predicted probability of owning an architectural and engineering business is 8.9%, whereas an African American's predicted probability of owning an architectural and engineering business is 4.6%.

- A Caucasian male's predicted probability of owning an architectural and engineering business is 8.9%, whereas an Asian Pacific American's predicted probability of owning an architectural and engineering business is 5.9%.

- A non-U.S. citizen's predicted probability of owning an architectural and engineering business is 8.7%, whereas a U.S. citizen's predicted probability of owning an architectural and engineering business is 7.8%.

- A Caucasian male's predicted probability of owning an architectural and engineering business is 8.9%, whereas a Caucasian female's predicted probability of owning an architectural and engineering business is 6.4%.

Goods and Other Services Industry

The aggregate effect results for business ownership in the goods and other services industry indicate that holding all variables constant at the sample mean:

- A male's predicted probability of owning a goods and other services business is 3.4%, whereas a female's predicted probability of owning a goods and other services business is 3.8%.

- A Caucasian male's predicted probability of owning a goods and other services business is 5.2%, whereas a Hispanic American's predicted probability of owning a goods and other services business is 3.7%.

- A Caucasian male's predicted probability of owning a goods and other services business is 5.2%, whereas an African American's predicted probability of owning a goods and other services business is 1.2%.

- A Caucasian male's predicted probability of owning a goods and other services business is 5.2%, whereas an Asian Pacific American's predicted probability of owning a goods and other services business is 3.9%.

- A non-U.S. citizen's predicted probability of owning a goods and other services business is 4.4%, whereas a U.S. citizen's predicted probability of owning a goods and other services business is 3.4%.

- A Caucasian male's predicted probability of owning a goods and other services business is 5.2%, whereas a Caucasian female's predicted probability of owning a goods and other services business is 6.9%.

Professional Services Industry

The aggregate effect results for business ownership in the professional services industry indicate that holding all variables constant at the sample mean:

- A male's predicted probability of owning a professional services business is 16.4%, whereas a female's predicted probability of owning a professional services business is 17.9%.

- A Caucasian male's predicted probability of owning a professional services business is 18.2%, whereas a Hispanic American's predicted probability of owning a professional services business is 16.5%.

- A Caucasian male's predicted probability of owning a professional services business is 18.2%, whereas an African American's predicted probability of owning a professional services business is 15.2%.

- A Caucasian male's predicted probability of owning a professional services business is 18.2%, whereas an Asian Pacific American's predicted probability of owning a professional services business is 25.2%.

- A non-U.S. citizen's predicted probability of owning a professional services business is 23.1%, whereas a U.S. citizen's predicted probability of owning a professional services business is 16.8%.

- A Caucasian male's predicted probability of owning a professional services business is 18.2%, whereas a Caucasian female's predicted probability of owning a professional services business is 20.7%.

B. Business Earnings

The business earnings variable is identified by self-employment income[15] within the past 12 months in the four industries: construction, architectural and engineering, professional services, and goods and other services. The analysis considered incorporated and non-incorporated businesses. The data in this section comes from the 2004, 2006, and 2008 PUMS datasets.

Previous studies have shown that many non-discriminatory factors such as education, age, and marital status are associated with self-employment income. In this analysis, race and gender-neutral factors are combined with race and gender groups in an OLS regression model to determine whether observed race or gender disparities were independent of the race and gender-neutral factors known to be associated with self-employment income.

The PUMS data for the States of Maryland, Virginia, and for The District of Columbia included a total of 6,059 individuals in the construction, architectural and engineering, professional services, and goods and other services industries. The analysis considered both incorporated and non-incorporated business sectors.

For each of the four industries, the OLS regression is used to identify the linear relationship of a self-employed individual's annual income (in U.S. dollars) given his or her background, including ethnicity, gender, and race and gender-neutral factors. The independent variables used are as follows:

Personal characteristics	Educational attainment	Personal finance information	Race	Gender
-Age -Marital status -Citizenship -Disability - English-speaking competency -Number of children under the age of six in the household	Whether the individual has less than: -A college education -Some college level education -A bachelor's degree -An advanced degree.	Whether the individual: -Owns a home -Current home value (in units of $10,000) -Monthly mortgage payment (1st and 2nd) -Interest and dividend income (in units of $10,000)	-African American -Asian Pacific American -Hispanic American -Other minority groups	-Male -Female

[15] The terms "business earning" and "self-employment income" are used interchangeably.

1. Linear Regression Results for Business Earnings in the Construction Industry

Table 6 depicts the regression results for annual business earnings or annual self-employment income in the construction industry based on the 32 variables analyzed in this model.

Table 6 Construction Industry Linear Regression

Linear Regression			Number of Observations= 3,359				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value >|t|**	**95% Confidence Interval**	
Age	1111.201	***	272.750	4.070	0.004	482.238	1740.165
Age-squared	-12.258	***	2.957	-4.140	0.003	-19.078	-5.439
Married	1586.543		905.552	1.750	0.118	-501.664	3674.749
Having children under the age of six	-6248.840	*	3247.023	-1.920	0.090	-13736.490	1238.808
Own home	286.160		1067.116	0.270	0.795	-2174.613	2746.933
Home value (in units of $10,000)	576.471	***	111.692	5.160	0.001	318.908	834.033
Monthly mortgage payment (1st and 2nd) $10,000	13269.920		7523.005	1.760	0.116	-4078.164	30618.000
Interest and dividend income ($10,000)	1354.022	**	566.345	2.390	0.044	48.029	2660.016
Speaking a language other than English at home	-1823.218		1559.454	-1.170	0.276	-5419.326	1772.890
English-speaking competency	-825.073		1284.616	-0.640	0.539	-3787.403	2137.256
Disabled	8642.741	***	1303.614	6.630	0.000	5636.601	11648.880
Some college	-2790.264	**	1128.821	-2.470	0.039	-5393.330	-187.198
College degree	5115.371	**	1558.800	3.280	0.011	1520.771	8709.971
Advanced degree	541.379		5746.583	0.090	0.927	-12710.270	13793.020
Caucasian female	-18107.650	***	509.876	-35.510	0.000	-19283.430	-16931.870

Linear Regression			Number of Observations= 3,359				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value >|t|**	**95% Confidence Interval**	
Hispanic American male	-6747.632	***	689.657	-9.780	0.000	-8337.985	-5157.279
African American male	-5473.647	***	1585.518	-3.450	0.009	-9129.859	-1817.436
Asian Pacific American male	1246.223		5940.999	0.210	0.839	-12453.750	14946.190
Other minority group male	-2329.673		2244.488	-1.040	0.330	-7505.472	2846.126
Hispanic American female	7449.161	**	2972.212	2.510	0.037	595.228	14303.090
African American female	26456.190	**	11160.420	2.370	0.045	720.209	52192.160
Asian Pacific American female	-22655.750	***	2950.397	-7.680	0.000	-29459.380	-15852.120
Not being a U.S. citizen	33737.440	***	3786.033	8.910	0.000	25006.840	42468.050
Being a foreign-born U.S. citizen	5038.678		3334.883	1.510	0.169	-2651.576	12728.930
Hispanic non-citizen	-30618.370	***	3273.850	-9.350	0.000	-38167.890	-23068.860
African non-citizen	-8553.738		9192.950	-0.930	0.379	-29752.720	12645.240
Asian Pacific non-citizen	2700.288		6766.712	0.400	0.700	-12903.780	18304.350
Maryland	-7192.888		5651.237	-1.270	0.239	-20224.660	5838.889
Virginia	-8352.201		5763.436	-1.450	0.185	-21642.710	4938.307
Year 2006	1709.464	*	744.229	2.300	0.051	-6.731	3425.658
Year 2008	-14909.110	***	2601.804	-5.730	0.000	-20908.880	-8909.343
Constant	-5113.682		9046.524	-0.570	0.587	-25975.000	15747.640

Construction Industry Business Earnings Model Result Interpretations

The linear regression results for annual business earnings in the construction industry show the relation between the dependent variable and each independent variable:

- Age has a positive marginal effect to business earnings. Holding all other variables constant at the sample mean value, an increase in age by one year increases the annual business earnings of a self-employed individual by $1,111.20 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six decreases the annual business earnings of a self-employed individual by $6,248.84 in the construction industry. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning a home does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 increases the annual business earnings of a self-employed individual by $576.47 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 increases the annual business earnings of a self-employed individual by $1,354.02 in the construction industry. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the annual

business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, disability status increases the annual business earnings of a self-employed individual by $8,642.74 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having some college education decreases the annual business earnings of a self-employed individual by $2,790.26 in the construction industry. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having a college degree increases the annual business earnings of self-employed individual by $5,115.37 in the construction industry. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from having less than college level education to having an advanced degree does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the annual business earnings of a self-employed individual by $18,107.65 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male decreases the annual business earnings of a self-employed individual by $6,747.63 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male decreases the annual business earnings of a self-employed individual by $5,473.65 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between a Hispanic American female and a Hispanic American male in the construction industry is smaller than the difference between a Caucasian female and a Caucasian male by the amount of $7,449.16. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an African American female and an African American male in the construction industry is smaller than the difference between a Caucasian female and a Caucasian male by the amount of $26,456.19. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an Asian Pacific American female and an Asian Pacific American male in the construction industry is larger than the difference between a Caucasian female and a Caucasian male by the amount of $22,655.75. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen increases the annual business earnings of a self-employed individual by $33,737.44 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a Hispanic non-citizen decreases the annual business earnings of a self-employed individual by $30,618.37 in the construction industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being an African non-citizen does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the annual business earnings of a self-employed individual in the construction industry. This relationship is statistically insignificant.

2. Linear Regression Results for Business Earnings in the Architectural and Engineering Industry

The linear regression results for annual business earnings or annual self-employment income in the architectural and engineering industry based on the 30 variables analyzed in this model are depicted in Table 7.

Table 7 Architectural and Engineering Industry Linear Regression

Linear Regression			Number of Observations= 290				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
Age	3106.414	***	547.127	5.680	0.000	1844.737	4368.090
Age-squared	-33.854	***	5.180	-6.530	0.000	-45.801	-21.908
Married	179.133		9056.873	0.020	0.985	-20706.050	21064.320
Having children under the age of six	-6976.431		17911.490	-0.390	0.707	-48280.400	34327.540
Own home	7440.667		20342.840	0.370	0.724	-39470.000	54351.340
Home value (in units of $10,000)	1391.808		1506.746	0.920	0.383	-2082.755	4866.371
Monthly mortgage payment (1st and 2nd) $10,000	-36022.010		20363.830	-1.770	0.115	-82981.100	10937.070
Interest and dividend income ($10,000)	-1836.399	*	921.549	-1.990	0.081	-3961.496	288.698
Speaking a language other than English at home	1746.679		27160.000	0.060	0.950	-60884.390	64377.740
English-speaking competency	-11402.820		25373.910	-0.450	0.665	-69915.160	47109.530
Disabled	-15579.080		16483.740	-0.950	0.372	-53590.660	22432.500
Some college	-6432.057		9979.436	-0.640	0.537	-29444.680	16580.560
College degree	13113.100		11857.470	1.110	0.301	-14230.270	40456.470
Advanced degree	9045.346		8737.539	1.040	0.331	-11103.450	29194.150
Caucasian female	-26060.340	***	7749.552	-3.360	0.010	-43930.840	-8189.838
Hispanic American male	-9657.762		5211.556	-1.850	0.101	-21675.630	2360.107
African American male	-10360.910		17664.150	-0.590	0.574	-51094.520	30372.690
Asian Pacific American male	11550.440		35013.690	0.330	0.750	-69191.270	92292.150

Linear Regression			Number of Observations= 290				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
Other minority group male	32034.890		38207.480	0.840	0.426	-56071.710	120141.500
Hispanic American female	8889.571		15177.660	0.590	0.574	-26110.170	43889.310
African American female	70.916		26212.390	0.000	0.998	-60374.970	60516.800
Asian Pacific American female	-18667.010		38006.130	-0.490	0.637	-106309.300	68975.270
Not being a U.S. citizen	11021.110		18029.270	0.610	0.558	-30554.470	52596.690
Being a foreign-born U.S. citizen	9839.943		17875.820	0.550	0.597	-31381.760	51061.650
Asian Pacific non-citizen	-44609.050		27769.620	-1.610	0.147	-108645.900	19427.810
Maryland	-8782.648		14582.190	-0.600	0.564	-42409.250	24843.950
Virginia	-8455.791		16227.170	-0.520	0.616	-45875.720	28964.140
Year 2006	-4560.083		5275.087	-0.860	0.413	-16724.460	7604.288
Year 2008	-47176.010		49327.590	-0.960	0.367	-160925.600	66573.610
Constant	20962.640		34841.310	0.600	0.564	-59381.570	101306.900

Note: The relatively small sample size (number of observations = 290) may influence the significance of some variables to be less significant than they would be in a larger sample.

Architectural and Engineering Industry Business Earnings Model Result Interpretations

The regression results for annual business earnings in the architectural and engineering industry indicate:

- Holding all other variables constant at the sample mean value, age increases the annual business earnings of a self-employed individual by $3,106.41 in the architectural and engineering industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 decreases the annual business earnings of a self-employed individual by $1,836.40 in the architectural and engineering industry. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the annual

business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having some college education does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having a college education does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having an advanced degree does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the annual business earnings of a self-employed individual by $26,060.34 in the architectural and engineering industry. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between a Hispanic American female and a Hispanic American male in the architectural and engineering industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an African American female and an African American male in the architectural and engineering industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an Asian Pacific American female and an Asian Pacific American male in the architectural and engineering industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the annual business earnings of a self-employed individual in the architectural and engineering industry. This relationship is statistically insignificant.

3. Linear Regression Results for Business Earnings in the Goods and Other Services Industry

The linear regression results for annual business earnings or annual self-employment income in the goods and other services industry based on the 32 variables analyzed in this model are depicted in Table 8.

Table 8 Goods and Other Services Industry Linear Regression

Linear Regression			Number of Observations = 509				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
Age	1532.065	**	489.606	3.130	0.014	403.031	2661.100
Age-squared	-16.305	***	4.883	-3.340	0.010	-27.565	-5.045
Married	-7391.645		4856.635	-1.520	0.167	-18591.070	3807.776
Having children under the age of six	-25019.300	**	11123.160	-2.250	0.055	-50669.360	630.764
Own home	5190.514		6921.584	0.750	0.475	-10770.690	21151.710
Home value (in units of $10,000)	807.806	*	425.877	1.900	0.094	-174.267	1789.879
Monthly mortgage payment (1st and 2nd) $10,000	10547.370		41087.770	0.260	0.804	-84201.190	105295.900
Interest and dividend income ($10,000)	-619.669		528.298	-1.170	0.275	-1837.925	598.588
Speaking a language other than English at home	-18659.420	***	4687.707	-3.980	0.004	-29469.290	-7849.547
English-speaking competency	9497.597	*	4180.911	2.270	0.053	-143.602	19138.800
Disabled	7239.458		6252.967	1.160	0.280	-7179.910	21658.830
Some college	8647.793		4755.110	1.820	0.106	-2317.510	19613.100
College degree	13599.630	*	6004.711	2.260	0.053	-247.256	27446.520
Advanced degree	28904.360	**	11661.130	2.480	0.038	2013.747	55794.980
Caucasian female	-23753.350	***	2967.267	-8.010	0.000	-30595.880	-16910.820
Hispanic American male	-9692.795	***	2563.418	-3.780	0.005	-15604.050	-3781.542
African American male	-5104.530		12236.830	-0.420	0.688	-33322.720	23113.660
Asian Pacific American male	-5819.610		8172.726	-0.710	0.497	-24665.950	13026.730
Other minority group male	3792.936		10377.930	0.370	0.724	-20138.610	27724.480

Linear Regression					Number of Observations = 509		
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
Hispanic American female	11131.940	***	1965.308	5.660	0.000	6599.931	15663.950
African American female	3326.823		11457.710	0.290	0.779	-23094.710	29748.360
Asian Pacific American female	11458.050		8628.101	1.330	0.221	-8438.383	31354.490
Not being a U.S. citizen	-36339.100	***	4024.026	-9.030	0.000	-45618.520	-27059.670
Being a foreign-born U.S. citizen	-8749.383	**	2749.592	-3.180	0.013	-15089.950	-2408.812
Hispanic non-citizen	23102.570	***	2160.813	10.690	0.000	18119.720	28085.410
African non-citizen	808.421		9821.698	0.080	0.936	-21840.460	23457.300
Asian Pacific non-citizen	2699.047		9262.315	0.290	0.778	-18659.890	24057.980
Maryland	-11232.320		8908.209	-1.260	0.243	-31774.690	9310.045
Virginia	-9266.542		9264.268	-1.000	0.346	-30629.980	12096.900
Year 2006	6908.232	**	2123.981	3.250	0.012	2010.324	11806.140
Year 2008	-20592.640		11456.720	-1.800	0.110	-47011.890	5826.618
Constant	-10055.590		23319.840	-0.430	0.678	-63831.230	43720.060

Note: The relatively small sample size (number of observations = 509) may influence the significance of some variables to be less significant than they would be in a larger sample.

Goods and Other Services Industry Business Earnings Model Result Interpretations

The linear regression results for annual business earnings or annual self-employment income in the goods and other services industry show:

- Age has a positive marginal effect to annual business earnings. Holding all other variables constant at the sample mean value, an increase in age by one year increases the annual business earnings of a self-employed individual in the goods and other services industry by $1,532.07. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six decreases the annual business earnings of a self-employed individual in the goods and other services industry by $25,019.30. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 increases the annual business earnings of a self-employed individual in the goods and other services industry by $807.81. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise decreases the annual business earnings of a

self-employed individual in the goods and other services industry by $18,659.42. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, having higher English-speaking competency increases the annual business earnings of a self-employed individual in the goods and other services industry by $9,497.59. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, an individual's disability status does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having some college education does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having a college degree increases the annual business earnings of a self-employed individual in the goods and other services industry by $13,599.63. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having an advanced degree increases the annual business earnings of a self-employed individual in the goods and other services industry by $28,904.36. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the annual business earnings of a self-employed individual in the goods and other services industry by $23,753.35. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male decreases the annual business earnings of a self-employed individual in the goods and other services industry by $9,692.80. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between a Hispanic American female and a Hispanic American male in the goods and other services industry is larger than the difference between a Caucasian female and a Caucasian male by the amount of $11,131.94. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the difference in earnings between an African American female and an African American male in the goods and other services industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an Asian Pacific American female and an Asian Pacific American male in the goods and other services industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen decreases the annual business earnings of a self-employed individual in the goods and other services industry by $36,339.10. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen decreases the annual income of a self-employed individual in the goods and other services industry by $8,749.38. This relationship is significant at the 95% level.

- Holding all other variables constant at sample mean value, being a Hispanic non-citizen increases the annual business earnings of a self-employed individual in the goods and other services industry by $23,102.57. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, being an African non-citizen does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the annual business earnings of a self-employed individual in the goods and other services industry. This relationship is statistically insignificant.

4. Linear Regression Results for Business Earnings in the Professional Services Industry

The linear regression results for annual business earnings or annual self-employment income in the professional services industry based on the 32 variables analyzed in this model are presented in Table 9.

Table 9 Professional Services Industry Linear Regression

Linear Regression			Number of Observations = 1,901				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
Age	993.652	***	165.597	6.000	0.000	611.784	1375.519
Age-squared	-9.575	***	1.791	-5.350	0.001	-13.704	-5.445
Married	926.489		778.530	1.190	0.268	-868.804	2721.781
Having children under the age of six	-3004.965		1729.255	-1.740	0.120	-6992.635	982.705
Own home	-2890.505		4549.658	-0.640	0.543	-13382.040	7601.025
Home value (in units of $10,000)	193.655	**	75.321	2.570	0.033	19.965	367.345
Monthly mortgage payment (1st and 2nd) $10,000	4055.951		8056.617	0.500	0.628	-14522.640	22634.540
Interest and dividend income ($10,000)	-922.506	***	271.434	-3.400	0.009	-1548.433	-296.579
Speaking a language other than English at home	-3896.305		2578.432	-1.510	0.169	-9842.179	2049.569
English-speaking competency	-273.820		1018.781	-0.270	0.795	-2623.133	2075.492
Disabled	7803.590	***	1938.831	4.020	0.004	3332.637	12274.540
Some college	319.654		1206.149	0.270	0.798	-2461.732	3101.039
College degree	-980.062		1581.483	-0.620	0.553	-4626.968	2666.845
Advanced degree	-2145.929		3027.538	-0.710	0.499	-9127.443	4835.585
Caucasian female	-6325.550	***	939.129	-6.740	0.000	-8491.186	-4159.914
Hispanic American male	3238.430	*	1548.135	2.090	0.070	-331.576	6808.436
African American male	4218.293		3694.164	1.140	0.287	-4300.464	12737.050
Asian Pacific American male	4345.615		4201.562	1.030	0.331	-5343.204	14034.430
Other minority group male	3600.977		3181.121	1.130	0.290	-3734.701	10936.660
Hispanic American female	2080.556		2226.092	0.930	0.377	-3052.821	7213.934

Linear Regression			Number of Observations = 1,901				
Regression Results							
Business Earnings Model	**Marginal Effect**	**Significance**	**Standard Error**	**t-score**	**P-value>|t|**	**95% Confidence Interval**	
African American female	-440.422		4859.270	-0.090	0.930	-11645.920	10765.070
Asian Pacific American female	-2274.702		2033.324	-1.120	0.296	-6963.555	2414.150
Not being a U.S. citizen	3214.544		2451.300	1.310	0.226	-2438.164	8867.252
Being a foreign-born U.S. citizen	1625.017		4398.914	0.370	0.721	-8518.896	11768.930
Hispanic non-citizen	-1924.039		1892.241	-1.020	0.339	-6287.554	2439.475
African non-citizen	-3748.062		6827.040	-0.550	0.598	-19491.240	11995.120
Asian Pacific non-citizen	-242.101		4651.026	-0.050	0.960	-10967.390	10483.180
Maryland	-7751.242		4550.283	-1.700	0.127	-18244.210	2741.729
Virginia	-5987.271		4517.555	-1.330	0.222	-16404.770	4430.229
Year 2006	537.110		1530.542	0.350	0.735	-2992.327	4066.546
Year 2008	399.332		4805.722	0.080	0.936	-10682.680	11481.350
Constant	-18238.850	**	6569.873	-2.780	0.024	-33389.010	-3088.700

Professional Services Industry Business Earnings Model Result Interpretations

The linear regression results for annual business earnings or annual self-employment income in the professional services industry show:

- Age has a positive marginal effect to annual business earnings. Holding all other variables constant at the sample mean value, an increase in age by one year increases the annual business earnings of a self-employed individual in the professional services industry by $993.65. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from not married to married does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, having children under the age of six does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from not owning a home to owning one does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change in a house's value by an average of $10,000 increases the annual business earnings of a self-employed individual in the professional services industry by $193.65. This relationship is significant at the 95% level.

- Holding all other variables constant at the sample mean value, the change in mortgage payment by an average of $10,000 does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables at the sample mean value, a change in interest and dividend income by an average of $10,000 decreases the annual business earnings of a self-employed individual in the professional services industry by $922.51. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from speaking English at home to otherwise does not significantly impact the annual

business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, English-speaking competency does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, disability status increases the annual business earnings of a self-employed individual in the professional services industry by $7,803.59. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from having less than a college level education to having some college education does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than college level education to having a college degree does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from having less than college level education to having an advanced degree does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to a Caucasian female decreases the annual business earnings of a self-employed individual in the professional services industry by $6,325.55. This relationship is significant at the 99% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Hispanic American male increases the annual business earnings of a self-employed individual in the professional services industry by $3,238.43. This relationship is significant at the 90% level.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to African American male does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Asian Pacific American male does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the change from being a Caucasian male to Other minority group male does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between a Hispanic American female and a Hispanic American male in the professional services industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an African American female and an African American male in the professional services industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, the difference in annual business earnings between an Asian Pacific American female and an Asian Pacific American male in the professional services industry is not different from the difference between a Caucasian female and a Caucasian male. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, not being a U.S. citizen does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a foreign-born U.S. citizen does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being a Hispanic non-citizen does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being an African non-citizen does not significantly impact the annual business earnings of a self-employed

individual in the professional services industry. This relationship is statistically insignificant.

- Holding all other variables constant at the sample mean value, being an Asian Pacific non-citizen does not significantly impact the annual business earnings of a self-employed individual in the professional services industry. This relationship is statistically insignificant.

5. Aggregate Effect

Because the effects of the citizenship, gender, and race variables are included in the business earnings model with multiple interaction terms, the effect of each variable alone has to be calculated using a marginal effect aggregation method. Table 10 provides the results of the aggregated effects of each citizenship, gender, and race variables analyzed in the previous regressions. The results are provided for each industry.

Table 10 Business Earnings Aggregate Effect

Predicted Business Earnings Value					
		Construction	**Architectural and Engineering**	**Goods and Other Services**	**Professional Services**
Group 1	Male	21503.880	35416.830	22574.180	17589.260
	Female	11477.770	15784.740	8098.943	12610.390
Group 2	Caucasian male	27064.940	42734.300	31241.920	13692.110
	Hispanic American	19317.780	30056.850	17532.100	14353.620
Group 3	Caucasian male	27064.940	42734.300	31241.920	13692.110
	African American	22374.200	27802.830	19636.220	13803.130
Group 4	Caucasian male	27064.940	42734.300	31241.920	13692.110
	Asian Pacific American	24488.460	46418.890	21509.070	12816.950
Group 5	U.S. citizen	20185.980	32028.260	18672.890	14418.460
	Non- U.S. citizen	29540.990	40895.830	574.597	15582.070
Group 6	Caucasian male	27064.940	42734.300	31241.920	13692.110
	Caucasian female	8957.290	16673.960	7488.570	7366.560

Every variable is significantly different from zero at the 99 percent level except those highlighted in gray, which are not significant.

Note: All minority groups include both males and females

Aggregate Effect Results

Construction Industry

- A male's predicted annual construction business earning is $21,503.88, whereas a female's predicted annual construction business earning is $11,477.77.

- A Hispanic American's predicted annual construction business earning is $19,317.78, whereas a Caucasian male's predicted annual construction business earning is $27,064.94.

- An African American's predicted annual construction business earning is $22,374.20, whereas a Caucasian male's predicted annual construction business earning is $27,064.94.

- An Asian Pacific American's predicted annual construction business earning is $24,488.46, whereas a Caucasian male's predicted annual construction business earning is $27,064.94.

- A non-U.S. citizen's predicted annual construction business earning is $29,540.99, whereas a U.S. citizen's annual construction predicted business earning is $20,185.98.

- A Caucasian male's predicted annual construction business earning is $27,064.94, whereas a Caucasian female's predicted annual construction business earning is $8,957.29.

Architectural and Engineering Industry

- A male's predicted annual architectural and engineering business earning is $35,416.83, whereas a female's predicted annual architectural and engineering business earning is $15,784.74.

- A Hispanic American's predicted annual architectural and engineering business earning is $30,056.85, whereas a Caucasian male's predicted annual architectural and engineering business earning is $42,734.30.

- An African American's predicted annual architectural and engineering business earning is $27,802.83, whereas a Caucasian male's predicted annual architectural and engineering business earning is $42,734.30.

- An Asian American's predicted annual architectural and engineering business earning is $46,418.89, whereas a Caucasian male's predicted annual architectural and engineering business earning is $42,734.30.

- A non-U.S. citizen's predicted annual architectural and engineering business earning is $40,895.83, whereas a U.S. citizen's predicted annual architectural and engineering business earning is $32,028.26.

- A Caucasian male's predicted annual architectural and engineering business earning is $42,734.30, whereas a Caucasian female's predicted annual architectural and engineering business earning is $16,673.96.

Goods and Other Services Industry

- A male's predicted annual goods and other services business earning is $22,574.18, whereas a female's predicted annual goods and other services business earning is $8,098.94.

- A Hispanic American's predicted annual goods and other services business earning is $17,532.1, whereas a Caucasian male's predicted annual goods and other services business earning is $31,241.92.

- An African American's predicted annual goods and other services business earning is $19,636.22, whereas a Caucasian male's predicted annual goods and other services business earning is $31,241.92.

- An Asian Pacific American's predicted annual goods and other services business earning is $21,509.07, whereas a Caucasian male's predicted annual goods and other services business earning is $31,241.92.

- A non-U.S. citizen's predicted annual goods and other services business earning is $574.59, whereas a U.S. citizen's predicted annual goods and other services business earning is $18,672.89.

- A Caucasian male's predicted annual goods and other services business earning is $31,241.92, whereas a Caucasian female's predicted annual goods and other services business earning is $7,488.57.

Professional Services Industry

- A male's predicted annual professional services business earning is $17,589.26, whereas a female's predicted annual professional services business earning is $12,610.39.

- A Hispanic American's predicted annual professional services business earning is $14,353.62, whereas a Caucasian male's predicted annual professional services business earning is $13,692.11.

- An African American's predicted annual professional services business earning is $13,803.13, whereas a Caucasian male's predicted annual professional services business earning is $13,692.11.

- An Asian Pacific American's predicted annual professional services business earning is $12,816.95, whereas a Caucasian male's predicted annual professional services business earning is $13,692.11.

- A non-U.S. citizen's predicted annual professional services business earning is $15,582.07, whereas a U.S. citizen's predicted annual professional services business earning is $14,418.46.

- A Caucasian male's predicted annual professional services business earning is $13,692.11, whereas a Caucasian female's predicted annual professional services business earning is $7,366.56.

C. Likelihood of Business Loan Denial

Access to business capital in the form of loans is measured by the likelihood of business loan denial. The Likelihood of Business Loan Denial Variable is a score that reflects the reported probability of experiencing loan denial. It allows for three levels of answers: "1" indicates that a business is always denied a loan; "0.5" indicates that a business is sometimes denied a loan; and "0" indicates that a business is never denied a loan. The data in this section comes from the 2003 SSBF dataset.[16] Previous studies have shown that many non-discriminatory factors such as education, experience of the firm owner, and firm characteristics could lead to difference in loan denial rate. In this analysis, race and gender- neutral factors are combined with race and gender groups in a Order Probit regression model to determine whether observed race or gender disparities were independent of the race and gender-neutral factors known to be associated with self-employment.

The SSBF indicator for State was not utilized because the regional data was insufficient to perform the analysis. Since the scale of the survey size is small, if restricted to geographic areas close to Maryland, Virginia, and The District of Columbia (i.e. the Mid-Atlantic Area), then the sample size is only around 100 for each regression. Therefore, all the data in the SSBF dataset was included to make the estimation more efficient and accurate. By doing so, the sample size for each regressions was raised to about 1,000, which is a relatively satisfactory sample size for estimating more than fifty variables in a non-linear model. The findings from the national data may indicate a pattern that is present in the market area, but there is insufficient data from the market area to determine its pattern. Therefore the findings from the national analysis are simply an indication of the national trends in the financial market. No conclusions about the market area can be drawn from the data. This limitation has no adverse impact on the Disparity Study since the regression analysis is not being used to make recommendations for either race and gender-specific or race and gender-neutral recommendations.

The SSBF included a total of 11,444 individuals in the construction, architectural and engineering, goods and other services, and professional services industries. The analysis considered both incorporated and non-incorporated business sectors.

For each of the four industries, the Order Probit regression is used to identify the relationship of the probability that a firm is denied in loan with the company and its owner's background, including ethnicity, gender, and race and gender-neutral factors. The dependent variables in all regressions are 3-level score variables coded as: "1" indicates that a business is always denied a loan; "0.5" indicates that a business is sometimes denied a loan; and "0" indicates that a business is never denied a loan. It could be read as the reported probability of loan denial. The variables used in the model include the following:

[16] The SSBF data were collected by the U.S. Federal Reserve. The Survey of Small Business Finances (SSBF) collects information on small businesses (fewer than 500 employees) in the United States: owner characteristics, firm size, use of financial services, and the income and balance sheets of the firm, etc.

Personal Characteristics	Company Level information	Race	Gender
-Some college education -Bachelor's degree -Advanced degree -Age -If owner's personal credit card was used for business -Log of net worth of the owner excluding home value	-Negative worth indicator - Dun & Bradstreet (D&B) risk -Firm bankruptcy in the past 7 years -Firm delinquency in business transactions -Ownership -Firm age -Firm's financial account -Firm has line of credit -Existing capital leases -Types of existing loans -Existing stockholder -Used trade credit -Total employees -Sales -Assets -Liabilities -Cost doing business -Partnership -S corporation -C corporation -Herfindahl index -Firm located in metropolitan area -Indicators of having loan application -Number of financial institutions firm contacted/existing relationship with lender	-Asian Pacific American -African American -Hispanic American -Other minority group -Asian Pacific American female -African American female -Hispanic American female -Other minority group female	-Male -Female

1. Likelihood of Business Loan Denial in the Construction Industry

Table 11 presents the construction Probit regression results for the probability or likelihood of business loan denial based on the 54 variables analyzed in this model.

Table 11 Construction Industry Likelihood of Business Loan Denial Probit Model

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,455	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
Owner's Characteristics			
Caucasian female	0		0.885
Experience	0		0.772
Some college	0.001		0.706
Four year degree	-0.013		0.573
Advanced degree	-0.057		0.04
Age	-0.003		0.956
Asian Pacific American male	0.008	***	0
African American male	-0.001	**	0.046
Hispanic American male	0.001	**	0.034
Other minority group male	0		0.836
Asian Pacific American female	-0.002	***	N/A[a]
African American female	0		N/A
Hispanic American female	0		N/A
Other minority group female	0		N/A
Owner's Credit and Company Level Information			
If owner's personal credit card was used for business	0.009		0.67
Log of net worth excluding home	0		0.36

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,455	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
Negative worth indicator	(omitted)[b]		
D&B high risk	-0.084	*	0.057
D&B significant risk	-0.084	**	0.011
D&B average risk	-0.097	***	0.003
D&B moderate risk	0.11	***	0
Firm bankruptcy in past 7 years	(omitted)		
Firm delinquency in business transactions	0.14	**	0.013
Principal owned $10,000	0.007	***	0
Family owned	0.004		0.893
Purchased	0.106	***	0.003
Inherited	-0.049		0.245
Firm age	-0.002		0.213
Firm has checking	-0.039		0.11
Firm has savings account	0.014		0.385
Firm has line of credit	0.164	***	0
Existing capital leases	0.446	***	0
Existing business mortgage	0.807	***	0
Existing vehicle loan	0.006		0.801
Existing equipment loan	0.096	*	0.066
Existing other loans	-0.17		0.166
Existing stockholder	0.031		0.18

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,455	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
Used trade credit	-0.018		0.584
Total employees (100)	0		0.498
Total sales ($1,000,000)	0		0.963
Cost of doing business ($1,000,000)	0.028	***	0
Total assets ($1,000,000)	0		0.658
Total liability ($1,000,000)	0		0.805
Partnership	-0.431	***	0
S corporation	-0.335	***	0
C corporation	-0.442	***	0
Herfindahl index = .1 to .18	0.061	***	0
Located in MSA	0.032		0.272
Capital lease application	-0.376	***	0.001
Mortgage application	-0.83	***	0
Vehicle loan application	0.043		0.235
Equipment loan application	0.062		0.403
Other loan application	0.38	***	0.006
Number of financial institutions firm contacted/ existing relationship with lender	0.012		0.292

a= N/A denotes an interaction variable whose marginal effect is included in the interaction terms that created it (i.e. the African American female marginal effect is included in the female marginal effect and the African American marginal effect).

b= This variable was dropped due to insufficient observations in the data.

Construction Industry Business Loan Denial Model Result Interpretations

The Probit regression results for the construction likelihood of business loan denial model, which relates the dependent variable and each independent variable, are presented below. Results significant at or above the 90% level include the following:

a. Owner's Characteristics

- On an average level, an Asian Pacific American male compared to a similarly-situated Caucasian male is significantly different. Being an Asian American increases the likelihood of loan denial by 0.8%. This relationship is significant at the 99% level.

- On an average level, an African American male compared to a similarly-situated Caucasian male is significantly different. Being an African American male decreases the likelihood of loan denial by 0.1%. This relationship is significant at the 95% level.

- On an average level, a Hispanic American male compared to a similarly-situated Caucasian male is significantly different. Being a Hispanic American male increases the likelihood of loan denial by 0.1%. This relationship is significant at the 95% level.

- On an average level, Asian Pacific American female company owners experience an extra effect that decreases their likelihood of loan denial compared to company owners who are neither Asian Pacific American nor female. The effect on the likelihood of loan denial decreases by the marginal effect value by 0.2%. This relationship is significant at the 99% level.

b. Owner's Credit and Company Level Information

- If the loan has a high D&B risk level, then it is significantly different from having a less than moderate risk. The likelihood of loan denial decreases by the marginal effect value of 8.4%. This relationship is significant at the 90% level.

- If the loan has a significant D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial decreases by the marginal effect value of 8.4%. This relationship is significant at the 95% level.

- If the loan has an average D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial decreases by the marginal effect value of 9.7%. This relationship is significant at the 99% level.

- If the loan has a moderate D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial increases by the marginal effect value of 11.0%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not delinquent to otherwise, the likelihood of loan denial increases by the marginal effect value of 14.0%. This relationship is significant at the 95% level.

- On an average level, if a firm's total amount of principal owned increases by $10,000, the likelihood of loan denial increases by the marginal effect value of 0.7%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from established by current owner to purchased, the likelihood of loan denial increases by the marginal effect value of 10.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a line of credit to otherwise, the likelihood of loan denial increases by the marginal effect value of 16.4%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having existing capital leases to otherwise, the likelihood of loan denial increases by the marginal effect value of 44.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from having an existing business mortgage to otherwise, the likelihood of loan denial increases by the marginal effect value of 80.7%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from having an existing equipment loan to otherwise, the likelihood of loan denial increases by the marginal effect value of 9.6%. This relationship is significant at the 90% level.

- On an average level, if the firm's cost of doing business increases by $1,000,000, the likelihood of loan denial increases by the marginal effect value of 2.8%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from a partnership to otherwise, the likelihood of loan denial decreases by the marginal effect value of 43.1%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from an S corporation to otherwise, the likelihood of loan denial decreases by the marginal effect value of 33.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from a C corporation to otherwise, the likelihood of loan denial decreases by the marginal effect value of 44.2%. This relationship is significant at the 99% level.

- On an average level, if the firm's Herfindahl index is changing from other values to a value from .1 to .18, the likelihood of loan denial increases by the marginal effect value of 6.1%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a capital lease application to otherwise, the likelihood of loan denial decreases by the marginal effect value of 37.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a mortgage application to otherwise, the likelihood of loan denial decreases by the marginal effect value of 83.0%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having other loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 38.0%. This relationship is significant at the 99% level.

All other variables do not significantly influence the construction likelihood of loan denial.

2. Likelihood of Business Loan Denial in the Architectural and Engineering Industry

Table 12 presents the architectural and engineering Probit regression results for the probability or likelihood of business loan denial based on the 54 variables analyzed in this model.

Table 12 Architectural and Engineering Industry Likelihood of Business Loan Denial Probit Model

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,160	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
Owner's Characteristics			
Caucasian female	0.001	**	0.034
Experience	-0.012	***	0
Some college	0.006	***	0
Four year degree	0.151	***	0.001
Advanced degree	0.127	***	0.001
Age	0.141	***	0.001
Asian Pacific American male	-0.003	***	0
African American male	0.001	***	0
Hispanic American male	0.004	***	0
Other minority group male	-0.003	***	0
Asian Pacific American female	0		0.677
African American female	0	***	0
Hispanic American female	0	***	0.01
Other minority group female	0		0.778
Owner's Credit and Company Level Information			
If owner's personal credit card was used for business	-0.045	**	0.024
Log of net worth excluding home	0	*	0.06
Negative worth indicator	-0.819	***	0

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,160	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
D&B high risk	-0.218	***	0
D&B significant risk	-0.091	***	0.01
D&B average risk	-0.047		0.159
D&B moderate risk	0.007		0.768
Firm bankruptcy in past 7 years	(omitted)[b]		
Firm delinquency in business transactions	0.03		0.483
Principal owned $10,000	-0.003	***	0
Family owned	-0.2	***	0
Purchased	0.11	***	0
Inherited	0.093	**	0.018
Firm age	0.006	***	0
Firm has checking account	-0.125	***	0
Firm has savings account	0.003		0.875
Firm has line of credit	0.189	***	0
Existing capital leases	0.089	***	0.008
Existing business mortgage	0.088	**	0.043
Existing vehicle loan	-0.13	***	0
Existing equipment loan	-0.029		0.676
Existing other loans	0.417	***	0
Existing stockholder	0.051	**	0.022
Used trade credit	-0.007		0.735
Total employees (100)	0.002	***	0.004
Total sales ($1,000,000)	0	***	0.004

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 1,160	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value > |z|**
Cost of doing business ($1,000,000)	0.062	***	0.002
Total assets ($1,000,000)	0	***	0.004
Total liability ($1,000,000)	0	**	0.069
Partnership	0.675	***	0
S corporation	0.905	***	0
C corporation	0.964	***	0
Herfindahl index = .1 to .18	-0.008		0.615
Located in MSA	-0.014		0.669
Capital lease application	-0.122	**	0.017
Mortgage application	(omitted)		
Vehicle loan application	0.311	***	0
Equipment loan application	0.081		0.391
Other loan application	-0.276	***	0.01
Number of financial institutions firm contacted/existing relationship with lender	-0.015		0.243

b= This variable was dropped due to insufficient observations in the data.

Architectural and Engineering Industry Business Loan Denial Model Result Interpretations

The Probit regression results for the architectural and engineering likelihood of business loan denial model are presented below. Results significant at or above the 90% level include the following:

a. Owner's Characteristics

- If the company owner's gender classification changes from Caucasian male to Caucasian female, the likelihood of loan denial increases by the marginal effect value of 0.1%. This relationship is significant at the 95% level.

- On an average level, if the experience of the company owner increases by 1 year, the likelihood of loan denial decreases by the marginal effect value of 1.2%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having some college education, the likelihood of loan denial increases by the marginal effect value of 0.6%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having a four year degree, the likelihood of loan denial increases by the marginal effect value of 15.1%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having advanced degree, the likelihood of loan denial changes increases by the marginal effect value of 12.7%. This relationship is significant at the 99% level.

- On an average level, if the age of the company owner increases by one year, the likelihood of loan denial increases by the marginal effect value of 14.1%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Asian Pacific American male, the likelihood of loan denial decreases by the marginal effect value of 0.3%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to African American male, the likelihood of loan denial increases by the marginal effect value of 0.1%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Hispanic American male, the likelihood of loan denial increases by the marginal effect value of 0.4%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Other minority group male, the likelihood of loan denial decreases by the marginal effect value of 0.3%. This relationship is significant at the 99% level.

- African American female company owners experience an extra effect that increases their likelihood of loan denial compared to company owners who are neither African American nor female. The likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- Hispanic American female company owners experience an extra effect that increases their likelihood of loan denial compared to company owners who are neither Hispanic American nor female. The likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

b. Owner's Credit and Company Level Information

- If all company owners change from not using their personal credit card for business to using their personal credit card for business, the likelihood of loan denial decreases by the marginal effect value of 4.5%. This relationship is significant at the 95% level.

- On an average level, if the log of the net worth of the company owner increases by 1, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 90% level.

- If the net worth of the company is negative, then it is significantly different from having a positive net value. The likelihood of loan denial decreases by the marginal effect value of 81.9%. This relationship is significant at the 99% level.

- If the loan has a high D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of business loan denial decreases by the marginal effect value of 21.8%. This relationship is significant at the 99% level.

- If the loan has a significant D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial decreases by the marginal effect value of 9.1%. This relationship is significant at the 99% level.

- On an average level, if a firm's total amount of principal owned increases by $10,000, the likelihood of loan denial decreases by the marginal effect value of 0.3%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not family owned to family owned, the likelihood of loan denial decreases by the marginal effect value of 20%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from established by current owner to purchased, the likelihood of loan denial increases by the marginal effect value of 11.0%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from established by current owner to inherited, the likelihood of loan denial increases by the marginal effect value of 9.3%. This relationship is significant at the 95% level.

- On an average level, if a firm's age increases by 1 year, the likelihood of loan denial changes increases by the marginal effect value of 0.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a checking account to otherwise, the likelihood of loan denial decreases by the marginal effect value of 12.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a line of credit to otherwise, the likelihood of loan denial increases by the marginal effect value of 18.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having existing capital leases to otherwise, the likelihood of loan denial increases by the marginal effect value of 8.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing business mortgage to otherwise, the likelihood of loan denial increases by the marginal effect value of 8.8%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not having an existing vehicle loan to otherwise, the likelihood of loan denial decreases by the marginal effect value of 13.0%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having another existing loan to otherwise, the likelihood of loan denial increases by the marginal effect value of 41.7%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing stockholder to otherwise, the likelihood of loan denial increases by the marginal effect value of 5.1%. This relationship is significant at the 95% level.

- On an average level, if a firm's total number of employees changes by 100, the likelihood of loan denial changes increases by the marginal effect value of 0.2%. This relationship is significant at the 99% level.

- On an average level, if a firm's total sales change by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- On an average level, if a firm's cost of doing business increases by $1,000,000, the likelihood of loan denial increases by the marginal effect value of 6.2%. This relationship is significant at the 99% level.

- On an average level, if a firm's total assets change by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- On an average level, if a firm's total liability changes by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not a partnership firm to otherwise, the likelihood of loan denial increases by the marginal effect value of 67.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not an S corporation to otherwise, the likelihood of loan denial increases by the marginal effect value of 90.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not a C corporation to otherwise, the likelihood of loan denial increases by the marginal effect value of 96.4%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a capital lease application to otherwise, the likelihood of loan denial decreases by the marginal effect value of 12.2%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not having a vehicle loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 31.1%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having another loan application to otherwise, the likelihood of loan denial decreases by the marginal effect value of 27.6%. This relationship is significant at the 99% level.

All other variables do not significantly influence the architectural and engineering likelihood of loan denial.

3. Likelihood of Business Loan Denial in the Goods and Other Services Industry

Table 13 presents the goods and other services Probit regression results for the probability or likelihood of business loan denial based on the 54 variables analyzed in this model.

Table 13 Goods and Other Services Industry Likelihood of Business Loan Denial Probit Model

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 7,674	
Likelihood of Business Loan Denial Model	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value> |z|**
Owner's Characteristics			
Caucasian female	0.000		0.545
Experience	0.000		0.627
Some college	-0.002	***	0.001
Four year degree	0.003		0.823
Advanced degree	-0.018		0.182
Age	-0.018		0.288
Asian Pacific American male	0.000		0.504
African American male	0.000		0.926
Hispanic American male	0.000		0.601
Other minority group male	-0.004	***	0.000
Asian Pacific American female	N/A[a]	N/A	N/A
African American female	N/A	N/A	N/A
Hispanic American female	N/A	N/A	N/A
Other minority group female	N/A	N/A	N/A
Owner's Credit and Company Level Information			
If owner's personal credit card was used for business	-0.035	***	0.000
Log of net worth excluding home	0.000		0.283
Negative worth indicator	(omitted)[b]		

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 7,674	
Likelihood of Business Loan Denial Model	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value> |z|**
D&B high risk	0.041	**	0.011
D&B significant risk	-0.016		0.355
D&B average risk	0.041	***	0.002
D&B moderate risk	0.030	***	0.009
Firm bankruptcy in past 7 years	-0.056		0.438
Firm delinquency in business transactions	-0.045	**	0.074
Principal owned $10,000	0.000		0.940
Family owned	-0.036	***	0.003
Purchased	0.022	**	0.040
Inherited	0.043	***	0.008
Firm age	0.002	***	0.000
Firm has checking account	0.029	***	0.001
Firm has savings account	0.013	*	0.078
Firm has line of credit	0.255	***	0.000
Existing capital leases	-0.049	***	0.001
Existing business mortgage	0.097	***	0.000
Existing vehicle loan	0.062	***	0.000
Existing equipment loan	0.030		0.135
Existing other loans	0.018		0.461
Existing stockholder	0.056	***	0.000
Used trade credit	0.101	***	0.000
Total employees (100)	0.001	***	0.000

Calculated Marginal Effect at Sample Mean Level		Number of Observations = 7,674	
Likelihood of Business Loan Denial Model	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value> |z|**
Total sales ($1,000,000)	0.000		0.510
Cost doing of business ($1,000,000)	0.000		0.655
Total assets ($1,000,000)	0.000		0.758
Total liability ($1,000,000)	0.000	***	0.002
Partnership	0.028		0.518
S corporation	-0.001		0.978
C corporation	0.037		0.379
Herfindahl index = .1 to .18	0.022	***	0.001
Located in MSA	0.000		0.989
Capital lease application	0.139	***	0.000
Mortgage application	-0.030		0.295
Vehicle loan application	0.029	*	0.080
Equipment loan application	0.116	***	0.000
Other loan application	0.112	***	0.000
Number of financial institutions firm contacted/existing relationship with lender	-0.025	***	0.000

a= N/A denotes an interaction variable whose marginal effect is included in the interaction terms that created it (i.e. the African American female marginal effect is included in the female marginal effect and the African American marginal effect).

b= This variable was dropped due to insufficient observations in the data.

Goods and Other Services Industry Business Loan Denial Model Result Interpretations

The Probit regression results for the goods and other services likelihood of business loan denial model are presented below. Results significant at or above the 90% level include the following:

a. Owner's Characteristics

- On an average level, if the company owner changes from having less than some college education to having some college education, the likelihood of loan denial decreases by the marginal effect value of 0.2%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Other minority group male, the likelihood of loan denial decreases by the marginal effect value of 0.4%. This relationship is significant at the 99% level.

b. Owner's Credit and Company Level Information

- If all company owners change from not using their personal credit card for business to using their personal credit card for business, the likelihood of loan denial decreases by the marginal effect value of 3.5%. This relationship is significant at the 99% level.

- If the loan has a high D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial increases by the marginal effect value of 4.1%. This relationship is significant at the 95% level.

- If the loan has an average D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial increases by the marginal effect value of 4.1%. This relationship is significant at the 99% level.

- If the loan has a moderate D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial increases by the marginal effect value of 3%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not delinquent to otherwise, the likelihood of loan denial decreases by the marginal effect value of 4.5%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not family owned to family owned, the likelihood of loan denial decreases by the marginal effect value of 3.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from established by current owner to purchased, the likelihood of loan denial increases by the marginal effect value of 2.2%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from established by current owner to inherited, the likelihood of loan denial increases by the marginal effect value of 4.3%. This relationship is significant at the 99% level.

- On an average level, if a firm's age increases by one year, the likelihood of loan denial changes increases by the marginal effect value of 0.2%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a checking account to otherwise, the likelihood of loan denial increases by the marginal effect value of 2.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a savings account to otherwise, the likelihood of loan denial increases by the marginal effect value of 1.3%. This relationship is significant at the 90% level.

- On an average level, if a firm changes from not having a line of credit to otherwise, the likelihood of loan denial increases by the marginal effect value of 25.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having existing capital leases to otherwise, the likelihood of loan denial decreases by the marginal effect value of 4.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing business mortgage to otherwise, the likelihood of loan denial increases by the marginal effect value of 9.7%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing vehicle loan to otherwise, the likelihood of loan denial increases by the marginal effect value of 6.2%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing stockholder to otherwise, the likelihood of loan denial increases by the marginal effect value of 5.6%. This relationship is significant at the 99% level.

- If all company owners change from not using trade credit card for business to otherwise, the likelihood of loan denial increases by the marginal effect value of 10.1%. This relationship is significant at the 99% level.

- On an average level, if a firm's total number of employees changes by 100, the likelihood of loan denial changes increases by the marginal effect value of 0.1%. This relationship is significant at the 99% level.

- On an average level, if a firm's total liability changes by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- On an average level, if a firm's Herfindahl index is changing from other values to a value between .1 to .18, the likelihood of loan denial increases by the marginal effect value of 2.2%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a capital lease application to otherwise, the likelihood of loan denial increases by the marginal effect value of 13.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing vehicle loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 2.9%. This relationship is significant at the 90% level.

- On an average level, if a firm changes from not having an existing equipment loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 11.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having another existing loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 11.2%. This relationship is significant at the 99% level.

- On an average level, as the number of financial institutions a firm contacts increases, the likelihood of loan denial decreases by the marginal effect value of 2.5%. This relationship is significant at the 99% level.

All other variables do not significantly influence the goods and other services likelihood of loan denial.

4. Likelihood of Business Loan Denial in the Professional Services Industry

Table 14 presents the professional services Probit regression results for the probability or likelihood of business loan denial based on the 54 variables analyzed in this model.

Table 14 Professional Services Industry Likelihood of Business Loan Denial Probit Model

Calculated Marginal Effect at Sample Mean Level		Number of Observations=1,155	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value >|z|**
Owner's Characteristics			
Caucasian female	0		0.273
Experience	-0.008	***	0
Some college	0.013	***	0
Four year degree	-0.444	***	0
Advanced degree	-0.419	***	0
Age	-0.309	***	0.001
Asian Pacific American male	-0.002	***	0.001
African American male	0		0.927
Hispanic American male	0.002	***	0
Other minority group male	0.014	***	0
Asian Pacific American female	-0.179	***	0
African American female	-0.008		0.247
Hispanic American female	-0.047	***	0
Other minority group female	0.544	***	0
Owner's Credit and Company Level Information			
If owner's personal credit card was used for business	0.089	***	0
Log of net worth excluding home	0	***	0
Negative worth indicator	-1.182	***	0
D&B high risk	0.002		0.957

Calculated Marginal Effect at Sample Mean Level		Number of Observations=1,155	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value >|z|**
D&B significant risk	0.049		0.142
D&B average risk	0.231	***	0
D&B moderate risk	-0.042	*	0.053
Firm bankruptcy in past 7 years	-1.206	***	0
Firm delinquency in business transactions	-0.401	***	0
Principal owned $10,000	-0.003		0.288
Family owned	-0.139	***	0
Purchased	0.043	*	0.094
Inherited	0.13	**	0.013
Firm age	-0.003	***	0.008
Firm has checking account	-0.01		0.67
Firm has savings account	-0.015		0.38
Firm has line of credit	0.259	***	0
Existing capital leases	0.154	***	0.001
Existing business mortgage	0.507	**	0.029
Existing vehicle loan	-0.111	***	0.001
Existing equipment loan	-0.058	**	0.039
Existing other loans	0.121		0.153
Existing stockholder	0.006		0.797
Used trade credit	0.089	***	0.002
Total employees (100)	0.001	**	0.03
Total sales ($1,000,000)	0	***	0.002

Calculated Marginal Effect at Sample Mean Level		Number of Observations=1,155	
Variable	**Marginal Effect Estimated at Sample Mean**	**Significance for Aggregate Terms**	**P-value >|z|**
Cost of doing business ($1,000,000)	-0.056	***	0
Total assets ($1,000,000)	0	***	0
Total liability ($1,000,000)	0		0.218
Partnership	0.081	*	0.099
S corporation	0.101	**	0.031
C corporation	0.126	***	0.008
Herfindahl index = .1 to .18	-0.04	***	0.01
Located in MSA	-0.027		0.397
Capital lease application	-0.136	**	0.026
Mortgage application	-0.327		0.139
Vehicle loan application	0.295	***	0
Equipment loan application	0.232	***	0
Other loan application	-0.159		0.117
Number of financial institutions firm contacted/existing relationship with lender	0.004		0.729

Professional Services Industry Business Loan Denial Model Result Interpretations

The Probit regression results for the professional services likelihood of business loan denial model are presented below. Results significant at or above the 90% level include the following:

a. Owner's Characteristics

- On an average level, if the experience of the company owner increases by one year, the likelihood of loan denial decreases by the marginal effect value of 0.8%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having some college education, the likelihood of loan denial increases by the marginal effect value of 1.3%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having a four year degree, the likelihood of loan denial decreases by the marginal effect value of 44.4%. This relationship is significant at the 99% level.

- On an average level, if the company owner changes from having less than some college education to having an advanced degree, the likelihood of loan denial decreases by the marginal effect value of 41.9%. This relationship is significant at the 99% level.

- On an average level, if the age of the company owner increases by one year, the likelihood of loan denial decreases by the marginal effect value of 30.9%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Asian Pacific American male, the likelihood of loan denial decreases by the marginal effect value of 0.2%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Hispanic American male, the likelihood of loan denial increases by the marginal effect value of 0.2%. This relationship is significant at the 99% level.

- On an average level, if a company owner's racial classification changes from Caucasian male to Other minority group male, the likelihood of loan denial increases by the marginal effect value of 1.4%. This relationship is significant at the 99% level.

- Asian Pacific American female company owners experience an extra effect that decreases their likelihood of loan denial compared to company owners who are neither Asian Pacific American nor female. The effect on the likelihood of loan denial decreases by the marginal effect value 17.9%. This relationship is significant at the 99% level.

- Hispanic American female company owners experience an extra effect that decreases their likelihood of loan denial compared to company owners who are neither Hispanic American nor female. The effect on the likelihood of loan denial decreases by the marginal effect value of 4.7%. This relationship is significant at the 99% level.

- Other minority group female company owners experience an extra effect that increases their likelihood of loan denial compared to company owners who are neither a minority nor female. The effect on the likelihood of loan denial increases by the marginal effect value of 54.4%. This relationship is significant at the 99% level.

b. Owner's Credit and Company Level Information

- If all company owners change from not using their personal credit card for business to otherwise, the likelihood of loan denial increases by the marginal effect value of 8.9%. This relationship is significant at the 99% level.

- On an average level, if the log of the net worth of the company owner increases by 1, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- If the net worth of the company is negative, then it is significantly different from having a positive net value. The likelihood of loan denial decreases by the marginal effect value of 118.2%. This relationship is significant at the 99% level.

- If the loan has an average D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial increases by the marginal effect value of 23.1%. This relationship is significant at the 99% level.

- If the loan has a moderate D&B risk level, then it is significantly different from having less than a moderate risk. The likelihood of loan denial decreases by the marginal effect value of 4.2%. This relationship is significant at the 90% level.

- If the firm declared bankruptcy within the past 7 years, the likelihood of loan denial decreases by the marginal effect value of 120.6%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not delinquent to otherwise, the likelihood of loan denial decreases by the marginal effect value of 40.1%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not family owned to family owned, the likelihood of loan denial decreases by the marginal effect value of 13.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from established by current owner to purchased, the likelihood of loan denial increases by the marginal effect value of 4.3%. This relationship is significant at the 90% level.

- On an average level, if a firm changes from established by current owner to inherited, the likelihood of loan denial increases by the marginal effect value of 13%. This relationship is significant at the 95% level.

- On an average level, if a firm's age increases by one year, the likelihood of loan denial changes decreases by the marginal effect value of 0.3%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having a line of credit to otherwise, the likelihood of loan denial increases by the marginal effect value of 25.9%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having existing capital leases to otherwise, the likelihood of loan denial increases by the marginal effect value of 15.4%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing business mortgage to otherwise, the likelihood of loan denial increases by the marginal effect value of 50.7%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not having an existing vehicle loan to otherwise, the likelihood of loan denial decreases by the marginal effect value of 11.1%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an existing equipment loan to otherwise, the likelihood of loan denial decreases by the marginal effect value of 5.8%. This relationship is significant at the 95% level.

- On an average level, if a company owner changes from not using trade credit card for business to otherwise, the likelihood of loan denial increases by the marginal effect value of 8.9%. This relationship is significant at the 99% level.

- On an average level, if a firm's total number of employees changes by 100, the likelihood of loan denial increases by the marginal effect value of 0.1%. This relationship is significant at the 95% level.

- On an average level, if a firm's total sales change by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the This relationship is significant at the 99% level.

- On an average level, if a firm's cost of doing business increases by $1,000,000, the likelihood of loan denial decreases by the marginal effect value of 5.6%. This relationship is significant at the 99% level.

- On an average level, if a firm's total assets change by $1,000,000, the likelihood of loan denial changes by an undetermined marginal effect value close to 0. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not a partnership firm to otherwise, the likelihood of loan denial increases by the marginal effect value of 8.1%. This relationship is significant at the 90% level.

- On an average level, if a firm changes from not an S corporation to otherwise, the likelihood of loan denial increases by the marginal effect value of 10.1%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not a C corporation to otherwise, the likelihood of loan denial increases by the marginal effect value of 12.6%. This relationship is significant at the 99% level.

- On an average level, if a firm's Herfindahl index is changing from other values to a value between .1 to .18, the likelihood of loan denial decreases by the marginal effect value of 4%. This relationship is significant at the 99% level.

- On an average level, if firm changes from not having a capital lease application to otherwise, the likelihood of loan denial decreases by the marginal effect value of 13.6%. This relationship is significant at the 95% level.

- On an average level, if a firm changes from not having a vehicle loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 29.5%. This relationship is significant at the 99% level.

- On an average level, if a firm changes from not having an equipment loan application to otherwise, the likelihood of loan denial increases by the marginal effect value of 23.2%. This relationship is significant at the 99% level.

All other variables do not significantly influence the professional services likelihood of loan denial.

VII. GROWTH INDICATORS FOR MINORITY-OWNED BUSINESSES

This section presents an analysis of findings on minority-owned business survival, expansion, and contraction rates as reported in the U.S. Small Business Administration's (SBA) Office of Advocacy report published in 2005. The report tracks the minority-owned businesses over the period of 1997-2001.

A. Datasets Analyzed

The dataset was provided to the Small Business Administration's Office of Advocacy by the U.S. Census Bureau. The statistical tabulations were extracted from the 1997 Survey of Minority-Owned Business Enterprises.[17]

B. Findings

1. Business Survival Rates

The report examined the survival rates of business enterprises with paid employees other than the owner's family members. Between 1997 and 2001, the survival rate of all minority-owned business enterprises (MBEs) was lower than that of Caucasian-owned business enterprises. The survival rate for Caucasian-owned employer establishments was 72.6 percent. The survival rates by ethnic group are presented in Table 15.

[17] Lowery, Ying. 2005. "Dynamics of Minority-Owned Employer Establishments, 1997-2001." U.S. Small Business Administration Office of Advocacy, Washington D.C.

Table 15 Business Survival Rates

Ethnicity	Business Survival Rate
African American	61.0%
American Indian and Alaska Native	67.0%
Asian American and Pacific Islander	72.1%
Caucasian	72.6%
Hispanic American	68.6%

These results demonstrate that MBEs have a lower probability of succeeding, and thus, a higher probability of closure, as compared to Caucasian-owned businesses.

2. Business Expansion Rates

During the four year period, the Caucasian-owned business enterprises' expansion rate was 27.4 percent. Business expansion rate measures the increase in the number of employees. Table 16 depicts the expansion rates by ethnic group.

Table 16 Business Expansion Rates

Ethnicity	Business Expansion Rate
African American	25.7%
American Indian and Alaska Native	27.8%
Asian American and Pacific Islander	32.1%
Caucasian	27.4%
Hispanic American	34.0%

The business expansion rate results indicate that Hispanic Americans, Asian American and Pacific Islanders, and American Indian and Alaska Native business enterprises exceeded Caucasian-owned business enterprises' expansion rates. However, African American businesses experienced lower expansion rates than Caucasian-owned businesses.

3. Business Contraction Rates

Business contraction measures the rate at which a business enterprise reduces the number of employees. The contraction rate of Caucasian-owned businesses is 21.1 percent. Table 17 depicts the business contraction rates by ethnic group.

Table 17 Business Contraction Rates

Ethnicity	Business Contraction Rate
African American	19.9%
American Indian and Alaska Native	22.4%
Asian American and Pacific Islander	22.9%
Caucasian	21.1%
Hispanic American	17.8%

Table 8.17 shows that African American and Hispanic American business enterprises have a lower probability of reducing their total number of employees compared to Caucasian-owned businesses. Nonetheless, Asian American and Pacific Islanders and American Indian and Alaska Native business enterprises have a higher contraction rate than that of Caucasian-owned businesses.

VIII. CONCLUSION

This chapter used three regression models to determine whether there are statistical disparities between minorities, Caucasian females, and Caucasian male-owned businesses in the three outcome variables of business ownership, business earnings, and business loan denial. It also examined growth indicators for various ethnic groups from the findings of a 2005 U.S. Small Business Administration Office of Advocacy report.

The three regression models used for this analysis were the Likelihood of Business Ownership Model, the Earnings Disparity Model, and the Likelihood of Business Loan Denial Model. The regression analysis examined the effect of race and gender on the three outcome variables. This analysis was performed for the four industries, construction, architectural and engineering, goods and other services, and professional services which were included in the Disparity Study.

The Likelihood of Business Ownership Model results show that when controlling for race and gender-neutral factors, statistically significant disparities exist for Caucasian females as well as African American males and Hispanic American males in the construction industry compared to Caucasian males. Caucasian females and African American males also have a lower probability of owning a business in the architectural and engineering industry at a statistically significant level. African American males and Hispanic American males are also less likely to be self-employed in the goods and other services industry at a statistically significant level. Additionally, Hispanic American males have a statistically significant lower probability of being self-employed in the professional services industry.

Moreover, the likelihood of business ownership aggregate effect results demonstrate that all females in general and Caucasian females in particular, as well as Hispanic Americans and African Americans in general have lower predicted probabilities of owning a business in the construction industry compared to Caucasian males. In the architectural and engineering industry aggregate effects results, all females, Caucasian females, Hispanic Americans, African, and Asian Pacific Americans have lower predicted business ownership probabilities than Caucasian males. In the goods and other services industry, Hispanic Americans, African Americans, and Asian Pacific Americans also have lower predicted probabilities of business ownership than Caucasian males. In addition, Hispanic Americans and African Americans have a lower predicted probability of owning a business in the professional services industry compared to Caucasian males.

The Earnings Disparity Model regression analysis documented statistically significant disparities in the business earnings of African American males, Hispanic American males, and Caucasian females in the construction industry compared to their Caucasian male counterparts. Caucasian females also experience statistically significant earning disparities in the architectural and engineering industry when compared to Caucasian males. Within the goods and other services industry, Hispanic American males and Caucasian females have

statistically significant lower business earnings than Caucasian males. While statistically significant disparities in the professional services industry were not found for minorities, Caucasian females were determined to have statistically significant lower business earnings in the professional services industry than Caucasian males.

In addition, the business earnings aggregate effects indicate that African Americans, Asian Pacific Americans, Hispanic Americans, and Caucasian females have lower predicted business earnings in the construction industry compared to Caucasian males. Lower business earnings are also predicted for all females, Caucasian females, and Hispanic Americans in the architectural and engineering industry. All females, Hispanic Americans, African Americans, Asian Pacific Americans, and Caucasian females in the goods and other services industry were determined to have lower predicted business earnings compared to Caucasian males. Within the professional services industry, all females, Caucasian females, and Asian Pacific Americans are predicted to have lower business earnings compared to Caucasian males.

The Likelihood of Business Loan Denial Model reveals that even after controlling for race and gender-neutral factors, Asian Pacific American males and Hispanic American males have a statistically significant higher probability of being denied a business loan in the construction industry compared to Caucasian males. In the architectural and engineering industry, African American males and Hispanic American males have a higher probability of being rejected for a business loan at a statistically significant level than Caucasian males. In addition, when compared to Caucasian males, Caucasian females have a statistically significant higher likelihood of being denied a business loan in the architectural and engineering industry. Within the professional services industry, there is a statistically significant higher probability that Hispanic American males and other minority group males are denied a business loan than Caucasian males. This statistically significant disparity is also present for other minority group females in the professional services industry.

This statistically significant disparity documented for M/WBEs points to the presence of race and gender disparity as a factor in the specific groups' access to business capital. Access to business capital in the private sector constitutes a major factor in business development and continuity. The documented disparity in M/WBEs' access to business capital may have adversely impacted their availability in the construction, architectural and engineering, goods and other services, and professional services industries.

The analysis of business growth indicators examined for various racial groups showed that MBEs have a lower probability of succeeding and a higher probability of closure, as compared to their Caucasian counterparts. The MBE survival, expansion, and contraction rates also demonstrate African American business enterprises experience lower expansion rates than their non-minority counterparts. Furthermore, Asian American and Pacific Islander

and American Indian and Alaska Native business enterprises have a higher contraction rate than that of similarly situated Caucasian male-owned businesses.[18]

These analyses of the three outcome variables documented disparities that could adversely affect the formation and growth of M/WBEs within the construction, architectural and engineering, goods and other services, and professional services industries. In the absence of a race and gender-neutral explanation for the disparities, the regression findings document racial and gender discrimination in business ownership rates, business earnings, and business loan denial rates. Such discrimination creates economic conditions in the private sector that disadvantage M/WBEs, and are manifested in lower M/WBE formation rates and depressed M/WBE earnings and access to business capital.

[18] These classifications reflect those used in Ying Lowery's 2005 report, "Dynamics of Minority-Owned Employer Establishments, 1997-2001." For the 2010 Washington Suburban Sanitary Commission Disparity Study, Pacific Islanders are included under Asian American, and American Indians and Alaska Natives are included under Native American.

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