DISPARITY STUDY
FINAL REPORT

STATE OF RHODE ISLAND

SUBMITTED JULY 2021

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CHAPTER 1: Legal Review

I. Introduction

The standard for measuring evidence of disparity in public contracting is set forth in the 1989 United States Supreme Court decision of *City of Richmond v. J.A. Croson Co.*[1]*("Croson")*. This chapter summarizes the legal standard decided in *Croson* and its progeny as applied to contracting programs for minority, woman, local, and small-owned business enterprises. The State of Rhode Island Disparity Study applies *Croson* and subsequent federal circuit court cases to the examination of the utilization of available minority and women-owned business enterprises (M/WBEs) on the State of Rhode Island's contracts awarded during the July 1, 2014 through June 30, 2017 study period.

This chapter is organized into seven sections. This first section is the Introduction. *Section II: Standard of Review* provides an overview of the constitutional parameters applicable to race and gender-conscious programs and race and gender-neutral programs. A factual predicate is set forth in *Section III: Burden of Proof*, which describes the documented evidence of past discrimination that must be demonstrated by the Baltimore County before the implementation of race and gender remedial measures. The *Croson Evidentiary Framework* is discussed in *Section IV*. The framework must include a strong basis in evidence of past discrimination and "narrowly tailored" race-conscious remedies.[2] A *Consideration of Race-Neutral Options,* described in *Section V,* references remedial initiatives to be considered in addition to race and gender-conscious remedies. The *Conclusion* and *List of Authorities* are contained in *Section VI* and *Section VII*, respectively.

II. Standard of Review

Croson examined the City of Richmond's Minority Business Enterprise (MBE) Program and decided that programs employing racial classifications would be subject to "strict scrutiny," the highest legal standard. Broad notions of equity or general allegations of historical and societal discrimination against minorities fail to meet the requirements of strict scrutiny. Where there are identified statistical findings of discrimination sufficient to warrant remediation, the remedy must also impose a minimal burden upon unprotected classes. In this section, the standard of review refers to the level of scrutiny a court applies during its analysis of whether or not a particular law is constitutional.

[1] *City of Richmond v. J.A. Croson Co.*, 488 U.S. 469, 495-96 (1989).

[2] *Croson*, 488 U.S. at 486.

1. Minority Business Enterprise Programs

In *Croson*, the United States Supreme Court affirmed that, pursuant to the Fourteenth Amendment, the proper standard of review for state and local race-based MBE programs is strict scrutiny.[3] Specifically, the government must show that the race-conscious remedies are narrowly tailored to achieve a compelling state interest.[4] The Court recognized that a state or local entity may take action, in the form of an MBE program, to rectify the effects of *identified, systemic racial discrimination* within its jurisdiction.[5] Justice O'Connor, speaking for the majority, articulated various methods of demonstrating discrimination and set forth guidelines for crafting MBE programs that are "narrowly tailored" to address systemic racial discrimination.[6]

2. Women Business Enterprise Programs

Since *Croson*, which dealt exclusively with the review of race-conscious plans, the United States Supreme Court has remained silent with respect to the appropriate standard of review for geographically based Women Business Enterprise (WBE) programs and Local Business Enterprise (LBE) programs. In other contexts, however, the United States Supreme Court has ruled that gender classifications are not subject to the rigorous strict scrutiny standard applied to racial classifications. Instead, gender classifications have been subject only to an "intermediate" standard of review, regardless of which gender is favored.

Notwithstanding the fact that the United States Supreme Court has not ruled on a WBE program, the consensus among the federal circuit courts of appeals is that WBE programs are subject to intermediate scrutiny, rather than the more exacting strict scrutiny standard to which race-conscious programs are subject.[7] Intermediate scrutiny requires the governmental entity to demonstrate that the action taken furthers an "important governmental objective," employing a method that bears a fair and substantial relation to the goal.[8] The courts have also described the test as requiring an "exceedingly persuasive justification" for classifications based on gender.[9] The United States Supreme Court acknowledged that in "limited circumstances a gender-based

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[3] *Croson*, 488 U.S. at 493-95.

[4] *Id.* at 493.

[5] *Id*. at 509.

[6] *Id.* at 501-2. Cases involving education and employment frequently refer to the principal concepts applicable to the use of race in government contracting: compelling interest and narrowly tailored remedies. The Supreme Court in *Croson* and subsequent cases provides fairly detailed guidance on how those concepts are to be treated in contracting. In education and employment, the concepts are not explicated to nearly the same extent. Therefore, references in those cases to "compelling governmental interest" and "narrow tailoring" for purposes of contracting are essentially generic and of little value in determining the appropriate methodology for disparity studies.

[7] *See Coral Constr. Co. v. King Cnty.*, 941 F.2d 910, 930 (9th Cir. 1991); *Contractors Ass'n of E. Pa. v. City of Philadelphia* ("*Philadelphia VI*"), 91 F.3d 586, 596-98 (3d Cir. 1996); *Eng'g Constr. Ass'n v. Metro. Dade Cnty.* ("*Dade County II*"), 122 F.3d 895, 907-08 (11th Cir. 1997); *see also Concrete Works of Colo. v. City & Cnty. of Denver*, 321 F.3d 950, 960 (10th Cir. 2003) ("*Concrete Works IV"*); and *H.B. Rowe Co. v. N.C. Dep't of Transp*, 615 F.3d 233, 236 (4th Cir. 2010) (*"Rowe"*).

[8] *Miss. Univ. for Women v. Hogan*, 458 U.S. 718, 726 (1982); *see also United States v. Virginia*, 518 U.S. 515, 524 (1996) ("*Virginia*").

[9] *Hogan*, 458 U.S. at 751; *see also Mich. Rd. Builders Ass'n, Inc. v. Milliken*, 834 F.2d 583, 595 (6th Cir. 1987).

classification favoring one sex can be justified if it intentionally and directly assists the members of that sex who are disproportionately burdened."[10]

Consistent with the United States Supreme Court's finding with regard to gender classification, the Third Circuit in *Contractors Association of Eastern Pennsylvania v. City of Philadelphia* ("*Philadelphia IV*") ruled in 1993 that the standard of review governing WBE programs is different from the standard imposed upon MBE programs.[11]The Third Circuit held that, whereas MBE programs must be "narrowly tailored" to a "compelling state interest," WBE programs must be "substantially related" to "important governmental objectives."[12] In contrast, an MBE program would survive constitutional scrutiny only by demonstrating a pattern and practice of systemic racial exclusion or discrimination in which a state or local government was an active or passive participant.[13]

The Ninth Circuit in *Associated General Contractors of California v. City and County of San Francisco* ("*AGCC I*") held that classifications based on gender require an "exceedingly persuasive justification."[14] The justification is valid only if members of the gender benefited by the classification actually suffer a disadvantage related to the classification, and the classification does not reflect or reinforce archaic and stereotyped notions of the roles and abilities of women.[15]

The Eleventh Circuit United States Court of Appeals (Eleventh Circuit) also applied intermediate scrutiny.[16] In its review and affirmation of the district court's holding, in *Engineering Contractors Association of South Florida v. Metropolitan Dade County* ("*Dade County II*"), the Eleventh Circuit cited the Third Circuit's 1993 formulation in *Philadelphia IV*: "[T]his standard requires the [County] to present probative evidence in support of its stated rationale for the gender preference, discrimination against women-owned contractors."[17] Although the *Dade County II* appellate court ultimately applied the intermediate scrutiny standard, it queried whether the United States Supreme Court decision in *United States v. Virginia*,[18] finding the all-male program at Virginia Military Institute unconstitutional, signaled a heightened level of scrutiny.[19] In the case of *United States v. Virginia*, the U.S. Supreme Court held that parties who seek to defend gender-based government action must demonstrate an "exceedingly persuasive justification" for

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[10] *Hogan*, 458 U.S. at 728; *see also Schlesinger v. Ballard*, 419 U.S. 498, 508 (1975) (*"Ballard"*).

[11] *Contractors Ass'n of E. Pa. v. City of Philadelphia* ("*Philadelphia IV*"), 6 F. 3d 990, 1001 (3d Cir. 1993).

[12] *Philadelphia IV*, 6 F.3d at 1009-10.

[13] *Id*. at 1002.

[14] *Associated Gen. Contractors of Cal. v. City & Cnty. of San Francisco*, 813 F.2d 922, 940 (9th Cir. 1987) ("*AGCC I*").

[15] *Ballard*, 419 U.S. at 508.

[16] *Ensley Branch N.A.A.C.P. v. Seibels*, 31 F. 3d 1548, 1579-80 (11th Cir. 1994).

[17] *Dade County II*, 122 F.3d at 909 (citing *Philadelphia IV*, 6 F.3d at 1010; *see also Saunders v. White*, 191 F. Supp. 2d 95, 134 (D.D.C. 2002) (stating "[g]iven the gender classifications explained above, the initial evaluation procedure must satisfy intermediate scrutiny to be constitutional.").

[18] *Virginia*, 518 U.S. at 534.

[19] *Dade County II*, 122 F.3d at 907-08.

that action.[20] While the Eleventh Circuit United States Court of Appeals echoed that speculation, it concluded that "[u]nless and until the U.S. Supreme Court tells us otherwise, intermediate scrutiny remains the applicable constitutional standard in gender discrimination cases, and a gender preference may be upheld so long as it is substantially related to an important governmental objective."[21]

In *Dade County II*, the Eleventh Circuit court noted that the Third Circuit in *Philadelphia IV* was the only federal appellate court that explicitly attempted to clarify the evidentiary requirement applicable to WBE programs.[22]*Dade County II* interpreted that standard to mean that "evidence offered in support of a gender preference must not only be 'probative' [but] must also be 'sufficient.'"[23]

> It also reiterated two principal guidelines of intermediate scrutiny evidentiary analysis: (1) under this test, a local government must demonstrate some past discrimination against women, but not necessarily discrimination by the government itself;[24] and (2) the intermediate scrutiny evidentiary review is not to be directed toward mandating that gender-conscious affirmative action is used only as a "last resort"[25] but instead ensuring that the affirmative action is "a product of analysis rather than a stereotyped reaction based on habit."[26]

This determination requires "evidence of past discrimination in the economic sphere at which the affirmative action program is directed."[27] The court also stated that "a gender-conscious program need not closely tie its numerical goals to the proportion of qualified women in the market."[28]

3. Local Business Enterprise Programs

In *AGCC I*, a pre-*Croson* case, the Ninth Circuit Court of Appeals applied the rational basis standard when evaluating the City and County of San Francisco's Local Business Enterprise (LBE) program, holding that a local government may give a preference to local businesses to address the

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[20] *Virginia*, 518 U.S. at 534.

[21] *Dade County II*, 122 F.3d at 908.

[22] *Id.* at 909.

[23] *Id.* at 910.

[24] *Id.* (quoting *Ensley Branch*, 31 F.3d at 1580).

[25] *Id.* (quoting *Hayes v. N. State Law Enforcement Officers Ass'n*., 10 F.3d 207, 217 (4th Cir. 1993) (racial discrimination case)).

[26] *Id.* (quoting *Philadelphia IV,* 6 F.3d at 1010).

[27] *Id.* (quoting *Ensley Branch*, 31 F.3d at 1581).

[28] *Id.* at 929; *cf*, *Builders Ass'n of Greater Chi. v. Cnty. of Cook*, 256 F. 3d 642, 644 (7th Cir. 2001) (questioned why there should be a lesser standard where the discrimination was against women rather than minorities.).

economic disadvantages those businesses face in doing business within the City and County of San Francisco.[29]

To survive a constitutional challenge under a rational basis review, the government entity need only demonstrate that the governmental action or program is rationally related to a legitimate government interest.[30] The Supreme Court cautioned government agencies seeking to meet the rational basis standard by advising that, if a race- and gender-neutral program is subjected to a constitutional attack, the facts upon which the program is predicated will be subject to judicial review.[31] The rational basis standard of review does not have to be the government's actual interest. Rather, if the court can merely hypothesize a legitimate interest served by the challenged action, it will withstand the rational basis review.[32] The term rational must convince an impartial lawmaker that the classification would serve a legitimate public purpose that transcends the harm to the members of the disadvantaged class.[33]

San Francisco conducted a detailed study of the economic disadvantages faced by San Francisco-based businesses as compared to businesses located in other jurisdictions. The study showed a competitive disadvantage in public contracting for businesses located within the City as compared to businesses from other jurisdictions.
San Francisco-based businesses incurred higher administrative costs in doing business within the City. Such costs included higher taxes, rents, wages, insurance rates, and benefits for labor. In upholding the LBE Ordinance, the Ninth Circuit held ". . . the city may rationally allocate its own funds to ameliorate disadvantages suffered by local businesses, particularly where the city itself creates some of the disadvantages."[34]

4. Small Business Enterprise Programs

A government entity may implement a Small Business Enterprise (SBE) program predicated upon a rational basis to ensure adequate small business participation in government contracting. Rational basis is the lowest level of scrutiny and the standard the courts apply to race- and gender-neutral public contracting programs.[35]

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[29] *AGCC I*, 813 F.2d at 943; *Lakeside Roofing Company v. State of Missouri*, et al., 2012 WL 709276 (E.D.Mo. Mar. 5, 2012) (Note that federal judges will generally rule the way that a previous court ruled on the same issue following the doctrine of *stare decisis* – the policy of courts to abide by or adhere to principles established by decisions in earlier cases; however, a decision reached by a different circuit is not legally binding on another circuit court, it is merely persuasive and instructional on the issue).

[30] *Armour v. City of Indianapolis, Ind.,* 132 S. Ct. 2073, 2080 (2012) (quoting *Heller v. Doe*, 509 U.S. 312, 319–320 (1993)).

[31] *Id.*

[32] *Lakeside Roofing*, 2012 WL 709276; *see* KATHLEEN M. SULLIVAN& GERALD GUNTHER, CONSTITUTIONAL LAW FOUNDATION PRESS Chapter 9 (16th ed. 2007).

[33] *Croson*, 488 U.S. at 515.

[34] *AGCC I*, 813 F.2d at 943.

[35] *Doe 1 v. Lower Merion Sch. Dist.*, 689 F. Supp. 2d 742, 748 (E.D. Pa. 2010).

III. Burden of Proof

The procedural protocol established by *Croson* imposes an initial burden of proof upon the government to demonstrate that the challenged MBE program is supported by a strong factual predicate, i.e., documented evidence of past discrimination. Notwithstanding this requirement, the plaintiff bears the ultimate burden of proof to persuade the court that the MBE program is unconstitutional. The plaintiff may challenge a government's factual predicate on any of the following grounds:[36]

- Disparity exists due to race-neutral reasons
- Methodology is flawed
- Data are statistically insignificant
- Controverting data exist

A. Initial Burden of Proof

Croson requires defendant jurisdictions to produce a "strong basis in evidence" that the objective of the challenged MBE program is to rectify the effects of past identified discrimination.[37] Whether the government has produced a strong basis in evidence is a question of law.[38] The defendant in a constitutional claim against a disparity study has the initial burden of proof to show that there was past discrimination.[39] Once the defendant meets this initial burden, the burden shifts to the plaintiff to prove that the program is unconstitutional. Because the sufficiency of the factual predicate supporting the MBE program is at issue, factual determinations relating to the accuracy and validity of the proffered evidence underlie the initial legal conclusion to be drawn.[40]

The adequacy of the government's evidence is "evaluated in the context of the breadth of the remedial program advanced by the [jurisdiction]."[41] The onus is upon the jurisdiction to provide a factual predicate that is sufficient in scope and precision to demonstrate that contemporaneous discrimination necessitated the adoption of the MBE program.[42]

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[36] *Contractors Ass'n v. City of Philadelphia*, 893 F. Supp. 419, 430, 431, 433, 437 (E.D. Pa.1995) ("*Philadelphia V*") (These were the issues on which the district court in Philadelphia reviewed the disparity study before it).

[37] *Philadelphia VI,* 91 F.3d at 586 (citing *Concrete Works of Colo. v. Denver*, 36 F.3d 1513, 1522 (10th Cir. 1994)("*Concrete Works II*")); *see Croson*, 488 U.S. at 510.

[38] *Id.* (citing *Associated Gen. Contractors v.New Haven*, 791 F. Supp. 941, 944 (D. Conn. 1992)).

[39] *Concrete Works II*, 36 F.3d at 1521-22 (citing *Wygant v. Jackson Bd. of Educ.*, 476 U.S. 267, 292 (1986)).

[40] *Id.* at 1522.

[41] *Id.* (citing *Croson,* 488 U.S. at 498).

[42] *See Croson*, 488 U.S at 488.

B. Ultimate Burden of Proof

The party challenging an MBE program will bear the ultimate burden of proof throughout the course of the litigation—despite the government's obligation to produce a strong factual predicate to support its program.[43] The plaintiff must persuade the court that the program is constitutionally flawed either by challenging the government's factual predicate for the program or by demonstrating that the program is overly broad.

Joining the majority in stating that the ultimate burden rests with the plaintiff, Justice O'Connor explained the nature of the plaintiff's burden of proof in her concurring opinion in *Wygant v. Jackson Board of Education* ("*Wygant*"):[44]

> [I]t is incumbent upon the nonminority [plaintiffs] to prove their case; they continue to bear the ultimate burden of persuading the court that the [government's] evidence did not support an inference of prior discrimination and thus a remedial purpose, or that the plan instituted on the basis of this evidence was not sufficiently "narrowly tailored."[45]

In *Philadelphia VI*, the Third Circuit Court of Appeals clarified this allocation of the burden of proof and the constitutional issue of whether facts constitute a "strong basis" in evidence for race-based remedies.[46] That Court wrote that the allocation of the burden of persuasion is dependent upon the plaintiff's argument against the constitutionality of the program. If the plaintiff's theory is that an agency has adopted race-based preferences with a purpose other than remedying past discrimination, the plaintiff has the burden of convincing the court that the identified remedial motivation is a pretext and that the real motivation was something else.[47] If, on the other hand, the plaintiff argues there is no existence of past discrimination within the agency, the plaintiff must successfully rebut the agency's evidentiary facts and prove their inaccuracy.[48]

However, the ultimate issue of whether sufficient evidence exists to prove past discrimination is a question of law. The burden of persuasion in the traditional sense plays no role in the court's resolution of that ultimate issue.[49]

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[43] *See Wygant*, 476 U.S. at 277-78, 293.

[44] *Id.* (O'Connor, S., concurrence).

[45] *Wygant,* 476 U.S. at 277-78.

[46] *Philadelphia VI*, 91 F.3d at 597.

[47] *Id.* at 597.

[48] *Id*. at 597-598.

[49] At first glance, the Third Circuit and the Eleventh Circuit positions appear to be inconsistent as to whether the issue at hand is a legal issue or a factual issue. However, the two courts were examining the issues in different scenarios. For instance, the Third Circuit was examining whether enough facts existed to determine if past discrimination existed, and the Eleventh Circuit was examining whether the remedy the agency utilized was the appropriate response to the determined past discrimination. Therefore, depending upon the Plaintiff's arguments, a court reviewing an MBE program is likely to be presented with questions of law and fact.

Concrete Works VI made clear that the plaintiff's burden is an evidentiary one; it cannot be discharged simply by argument. The court cited its opinion in *Adarand Constructors Inc. v. Slater,* 228 F.3d 1147, 1173 (10th Cir. 2000): "[g]eneral criticism of disparity studies, as opposed to particular evidence undermining the reliability of the particular disparity study, is of little persuasive value."[50] The requisite burden of proof needed to establish a factual predicate for race- and gender-conscious goals as set forth by *Croson* and its progeny is described below in *Section IV*.

The Tenth Circuit and the Eleventh Circuit present alternative approaches to the legal evidentiary requirements of the shifting burden of proof in racial classification cases. This split among the circuits pertains to the allocation of the burden of proof once the initial burden of persuading the court is met, that persisting vestiges of discrimination exist.[51]

The Tenth Circuit's opinion in *Concrete Works VI* states that the burden of proof remains with the plaintiff to demonstrate that an ordinance is unconstitutional.[52]On the other hand, the Eleventh Circuit in *Hershell* contends that the government, as the proponent of the classification, bears the burden of proving that its consideration of race- is narrowly tailored to serve a compelling state interest, and that the government must always maintain a "strong basis in evidence" for undertaking affirmative action programs.[53]Therefore, the proponent of the classification must meet a substantial burden of proof, a standard largely allocated to the government to prove that sufficient vestiges of discrimination exist to support the conclusion that remedial action is necessary. Within the Eleventh Circuit, judicial review of a challenged affirmative action program focuses primarily on whether the government entity can meet the burden of proof.

In practice, the standards prescribed in the Eleventh Circuit for proving the constitutionality of a proposed M/WBE framework are rooted in *Engineering Contractors Ass'n v. Metropolitan Dade County*, the same Eleventh Circuit case that was cited to in the Tenth Circuit.[54] In *Dade County I*, the court found that a municipality can justify affirmative action by demonstrating "gross statistical disparities" between the proportion of minorities awarded contracts and the proportion of minorities willing and able to do the work, or by presenting anecdotal evidence – especially if buttressed by statistical data.[55]

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[50] *Concrete Works VI*, 321 F.3d at 979.

[51] *Hershell Gill Consulting Eng'rs, Inc. v. Miami-Dade Cnty.*, 333 F. Supp. 2d 1305, 1325 (S.D. Fla. 2004).

[52] *Concrete Works VI*, 321 F.3d at 959 (quoting *Adarand v. Pena*, 228 F.3d 1147, 1176 (10th Cir. 2000) ("We reiterate that the ultimate burden of proof remains with the challenging party to demonstrate the unconstitutionality of an affirmative-action program.")).

[53] *Hershell,* 333 F. Supp. 2d at 1305 (stating that Concrete Works is not persuasive because it conflicts with the allocation of the burden of proof stated by Eleventh Circuit precedent in *Johnson v. Board of Regents of the University of Georgia*, 263 F.3d 1234, 1244 (11th Cir. 2001)).

[54] 943 F. Supp. 1546 (S.D. Fla. 1996) (**""***Dade County I*").

[55] *Id.* at 907.

IV. Croson Evidentiary Framework

Government entities must construct a strong evidentiary framework to stave off legal challenges and ensure that the adopted MBE program comports with the requirements of the Equal Protection Clause of the United States Constitution. The framework must comply with the stringent requirements of the strict scrutiny standard. Accordingly, there must be a strong basis in evidence that tends to show past discrimination, and the race-conscious remedy must be "narrowly tailored," as set forth in *Croson*.[56] A summary of the appropriate types of evidence to satisfy the first element of the *Croson* standard follows.

A. Active or Passive Participation

Croson requires that the local entity seeking to adopt an MBE program must have perpetuated the discrimination to be remedied by the program.[57] However, the local entity need not have been an active perpetrator of such discrimination. Passive participation will satisfy this part of the Court's strict scrutiny review.[58]An entity will be considered an "active" participant if the evidence shows that it created barriers that actively exclude MBEs from its contracting opportunities. An entity will be considered to be a "passive" participant in private sector discriminatory practices if it has infused tax dollars into that discriminatory industry.[59]
Until *Concrete Works I*, the inquiry regarding passive discrimination was limited to the subcontracting practices of government prime contractors. The Tenth Circuit, in *Concrete Works I,* considered a purely private sector definition of passive discrimination, holding that evidence of a government entity infusing its tax dollars into a discriminatory system can satisfy passive discrimination.[60]

In *Concrete Works I*, the district court granted summary judgment in favor of the City of Denver in 1993.[61] Concrete Works appealed to the Tenth Circuit, in *Concrete Works II*, in which the summary judgment in favor of the City of Denver was reversed and the case was remanded to the district court for trial.[62] The case was remanded with specific instructions permitting the parties "to develop a factual record to support their competing interpretations of the empirical data."[63] On remand, the district court entered a judgment in favor of the plaintiff holding that the City's ordinances violated the Fourteenth Amendment.[64]

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[56] *Croson*, 488 U.S. at 486.

[57] *Id*. at 488.

[58] *Id*. at 509.

[59] *Id.* at 492, *accord Coral Constr.*, 941 F.2d at 916.

[60] *Concrete Works of Colo., Inc. v. City & Cnty. of Denver*,823 F. Supp. 821, 824 (D. Colo. 1993)("*Concrete Works I*"), *rev'd*, 36 F.3d 1513 (10th Cir. 1994), *rev'd*, 86 F. Supp. 2d 1042 (D. Colo. 2000), *rev'd*, 321 F.3d 950 (10th Cir. 2003).

[61] *Concrete Works I*,823 F. Supp.at 994.

[62] *Concrete Works II*, 36 F.3d at 1530-31.

[63] *Id.*

[64] *Concrete Works of Colo., Inc. v. City & Cnty. of Denver,* 86 F. Supp. 2d 1042, 1079 (D. Colo. 2000) ("*Concrete Works III*").

The district court in *Concrete III* rejected the four disparity studies the city offered to support the continuation of Denver's M/WBE program.[65] The court surmised that (1) the methodology employed in the statistical studies was not "designed to answer the relevant questions,"[66] (2) the collection of data was flawed, (3) important variables were not accounted for in the analyses, and (4) the conclusions were based on unreasonable assumptions.[67] The court deemed that the "most fundamental flaw" in the statistical evidence was the lack of "objective criteria [to] define who is entitled to the benefits of the program and [which groups should be] excluded from those benefits."[68] The statistical analysis relied upon by the City to support its M/WBE program was conducted as a result of the ensuing litigation. The statistical evidence proffered by the City to the court was not objective in that it lacked a correlation to the current M/WBE program goals.
The Tenth Circuit on appeal rejected the district court's analysis because the district court's queries required Denver to prove the existence of discrimination. Moreover, the Tenth Circuit explicitly held that "passive" participation included private sector discrimination in the marketplace. The court found that marketplace discrimination is relevant where the agency's prime contractors' practices are discriminatory against their subcontractors:

> The Court, however, did set out two conditions which must be met for the governmental entity to show a compelling interest. "First, the discrimination must be identified discrimination." (citation omitted). The City can satisfy this condition by identifying the discrimination "*public or private*, with some specificity." (internal quotes and citation omitted).[69]

In *Concrete Works IV*, the Tenth Circuit held that the governmental entity must also have a "strong basis in evidence to conclude that remedial action was necessary."[70] The Tenth Circuit further held that the city was correct in its attempt to show that it "indirectly contributed to private discrimination by awarding public contracts to firms that in turn discriminated against MBE and/or WBE subcontractors in other private portions of their business."[71] While the Tenth Circuit noted that the record contained "extensive evidence" of private sector discrimination, the question of the adequacy of private sector discrimination as the factual predicate for a race-based remedy was not before the court.[72]

Ten months after *Concrete Works IV,* the question of whether a particular public sector race-based remedy is narrowly tailored when it is based solely on business practices within the private sector

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[65] *Id.* at 1065-68.

[66] *Id*. at 1067.

[67] *Id*. at 1057-58, 1071.

[68] *Id*. at 1068.

[69] *Concrete Works IV*, 321 F.3d at 975-76.

[70] *Id.* at 976 (quoting *Shaw v. Hunt*, 517 U.S. 804, 909 (1996)).

[71] *Id.* at 976.

[72] *Id*. at 959, 977, 990.

was at issue in *Builders Association of Greater Chicago v. City of Chicago.*[73] The plaintiff in *Builders Association of Greater Chicago* challenged the City's construction set-aside program. The court considered pre-enactment and post-enactment evidence in support of the six-year-old M/WBE program.[74] The challenged program consisted of a 16.9 percent MBE subcontracting goal, a 10-percent MBE prime contracting goal, a 4.5 percent WBE subcontracting goal and a 1 percent WBE prime contracting goal.[75]

The district court found that private sector business practices offered by the city, which were based on United States Census data and surveys, constituted discrimination against minorities in the Chicago market area.[76]However, the district court did not find the City's M/WBE subcontracting goal to be a narrowly tailored remedy given the factual predicate. The court found that the study did not provide a meaningful, individualized review of M/WBEs in order to formulate remedies "more akin to a laser beam than a baseball bat."[77] The City was ordered to suspend its M/WBE goals program.

As recently as 2010, the Fourth Circuit in *H.B. Rowe Co. v. Tippett* ruled that the State of North Carolina could not rely on private-sector data to demonstrate that prime contractors underutilized women subcontractors in the general construction industry.[78] The court found that the private sector data did not test whether the underutilization was statistically significant or just mere chance.[79]

B. Systemic Discriminatory Exclusion

Croson established that a local government enacting a race-conscious contracting program must demonstrate identified systemic discriminatory exclusion on the basis of race or any other illegitimate criteria (arguably gender).[80] Thus, it is essential to demonstrate a pattern and practice of such discriminatory exclusion in the relevant market area.[81] Using appropriate evidence of the entity's active or passive participation in the discrimination, as discussed above, past discriminatory exclusion must be identified for each racial group to which a remedy would

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[73] *Builders Ass'n of Greater Chi. v. City of Chi.*, 298 F. Supp. 2d 725, 732 (N.D. III. 2003).

[74] *Id*. at 726, 729, 733-34.

[75] *Id*. at 729.

[76] *Id*. at 735-37.

[77] *Id.* at 737-39, 742.

[78] *Rowe*, 615 F.3d at 236.

[79] *Id.*

[80] *Croson*, 488 U.S. at 492; *see Monterey Mech. Co. v. Pete Wilson*, 125 F.3d 702, 713 (9th Cir. 1997); *see also W.H. Scott Constr. Co. v. City of Jackson,* 199 F.3d 206, 218-20 (1999) (held the City's MBE program was unconstitutional for construction contracts because minority participation goals were arbitrarily set and not based on any objective data. Moreover, the Court noted that had the City implemented the recommendations from the disparity study it commissioned, the MBE program may have withstood judicial scrutiny (the City was not satisfied with the study and chose not to adopt its conclusions)).

[81] *Croson*, 488 U.S. at 509.

apply.[82] Mere statistics and broad assertions of purely societal discrimination will not suffice to support a race- or gender-conscious program.

Croson enumerates two ways an entity may establish the requisite factual predicate of discrimination. First, a significant statistical disparity between the number of qualified minority contractors willing and able to perform a particular service and the number of such contractors actually engaged by an entity or by the entity's prime contractors may support an inference of discriminatory exclusion.[83] In other words, when the relevant statistical pool is used, a showing of statistically significant underutilization "may constitute prima facie proof of a pattern or practice of discrimination[.]"[84]

The *Croson* Court made clear that both prime contract and subcontracting data were relevant.[85] The Court observed that "[w]ithout any information on minority participation in subcontracting, it is quite simply impossible to evaluate overall minority representation in the city's construction expenditures."[86] Subcontracting data is also an important means by which to assess suggested future remedial actions. Because the decision makers are different for the awarding of prime contracts and subcontracts, the remedies for discrimination identified at a prime contractor versus subcontractor level might also be different.

Second, "evidence of a pattern of individual discriminatory acts can, if supported by appropriate statistical proof, lend support to a local government's determination that broader remedial relief is justified."[87] Thus, if a local government has statistical evidence that non-minority contractors are systematically excluding minority businesses from subcontracting opportunities, it may act to end the discriminatory exclusion.[88] Once an inference of discriminatory exclusion arises, the entity may act to dismantle the closed business system "*by taking appropriate measures against those who discriminate* on the basis of race or other illegitimate criteria."[89]*Croson* further states, "*In the extreme case,* some form of narrowly tailored racial preference might be necessary to break down patterns of deliberate exclusion."[90]

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[82] *Id.* at 506. (The Court stated in *Croson*, "[t]he random inclusion of racial groups that, as a practical matter, may never have suffered from discrimination in the construction industry in Richmond suggests that perhaps the city's purpose was not in fact to remedy past discrimination"); *See N. Shore Concrete & Assoc. v. City of New York,* 1998 U.S. Dist. LEXIS 6785 * 55 (E.D.N.Y. April 12, 1998) (rejected the inclusion of Native Americans and Alaskan Natives in the City's program).

[83] *Croson*, 488 U.S. at 509.

[84] *Id*. at 501 (citing *Hazelwood Sch. Dist. v. United States*, 433 U.S. 299, 307-08 (1977)).

[85] *Id.* at 502-03.

[86] *Id.*

[87] *Croson*, 488 U.S. at 509.

[88] *Id.*

[89] *Id.* (emphasis added).

[90] *Id.* (emphasis added).

In *Coral Construction*, the Ninth Circuit Court of Appeals further elaborated upon the type of evidence needed to establish the factual predicate that justifies a race-conscious remedy.[91] The Court held that both statistical and anecdotal evidence should be relied upon in establishing systemic discriminatory exclusion in the relevant marketplace as the factual predicate for an MBE program.[92] The court explained that statistical evidence, standing alone, often does not account for the complex factors and motivations guiding contracting decisions, many of which may be entirely race-neutral.[93]

Likewise, anecdotal evidence, standing alone, is unlikely to establish a systemic pattern of discrimination.[94] Nonetheless, anecdotal evidence is important because the individuals who testify about their personal experiences bring "the cold numbers convincingly to life."[95]

1. Geographic Market

Croson did not speak directly to how the geographic market is to be determined. In *Coral Construction*, the Ninth Circuit Court of Appeals held that "an MBE program must limit its geographical scope to the boundaries of the enacting jurisdiction."[96] Conversely, in *Concrete Works I*, the district court specifically approved the Denver Metropolitan Statistical Area (MSA) as the appropriate market area since 80 percent of the construction contracts were based there.[97] Read together, these cases support a definition of market area that is reasonable rather than dictated by a specific formula. Because *Croson* and its progeny did not provide a bright line rule for local market area, the determination should be fact-based. An entity may include consideration of evidence of discrimination within its own jurisdiction.[98] Extra-jurisdictional evidence may be permitted, when it is reasonably related to where the jurisdiction contracts.[99]

2. Current Versus Historical Evidence

In assessing the existence of identified discrimination through demonstration of a disparity between MBE utilization and availability, the entity should examine disparity data both prior to

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[91] *Coral Constr.*, 941 F.2d at 917-18, 920-26.

[92] *Id.* at 919.

[93] *Id*.

[94] *Id*.

[95] *Id*. (quoting *Int'l Bhd. of Teamsters v. United States*, 431 U.S. 324, 339 (1977) (*"Teamster"*)).

[96] *Coral Constr.*, 941 F.2d at 925.

[97] *Concrete Works I*, 823 F. Supp. at 835-836 (D. Colo. 1993); *rev'd on other grounds*, 36 F.3d 1513 (10th Cir. 1994).

[98] *Cone Corp. v. Hillsborough Cnty.*, 908 F.2d 908, 915 (11th Cir. 1990); *Associated Gen. Contractors v. Coal. for Econ. Equity*, 950 F.2d 1401, 1415 (9th Cir. 1991) ("*AGCC II*").

[99] There is a related question of which firms can participate in a remedial program. In *Coral Construction*, the Court held that the definition of "minority business" used in King County's MBE program was over-inclusive. The Court reasoned that the definition was overbroad because it included businesses other than those who were discriminated against in the King County business community. The program would have allowed, for instance, participation by MBEs who had no prior contact with the County. Hence, location within the geographic area is not enough. An MBE had to have shown that it previously sought business or is currently doing business in the market area.

and after the entity's current MBE program was enacted. This is referred to as "pre-program" versus "post-program" data.

Croson requires that an MBE program be "narrowly tailored" to remedy current evidence of discrimination.[100] Thus, goals must be set according to the evidence of disparity found. For example, if there is a current disparity between the percentage of an entity's utilization of Hispanic construction contractors and the availability of Hispanic construction contractors in that entity's marketplace, then that entity can set a goal to bridge that disparity.

It is not mandatory to examine a long history of an entity's utilization to assess current evidence of discrimination. In fact, *Croson* indicates that it may be legally fatal to justify an MBE program based upon outdated evidence.[101] Therefore, the most recent two or three years of an entity's utilization data would suffice to determine whether a statistical disparity exists between current M/WBE utilization and availability.[102]

3. Statistical Evidence

To determine whether statistical evidence is adequate to give rise to an inference of discrimination, courts have looked to the "disparity index," which consists of the percentage of minority or women contractor participation in local contracts divided by the percentage of minority or women contractor availability or composition in the population of available firms in the local market area.[103] Disparity indexes have been found highly probative evidence of discrimination where they ensure that the "relevant statistical pool" of minority or women contractors is being considered.[104]

The Third Circuit Court of Appeals, in *Philadelphia VI*, ruled that the "relevant statistical pool" includes those businesses that not only exist in the marketplace but also are qualified and interested in performing the public agency's work. In that case, the Third Circuit rejected a statistical disparity finding where the pool of minority businesses used in comparing utilization to availability was composed of those merely licensed to operate in the City of Philadelphia. A

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[100] *See Croson*, 488 U.S. at 509-10.

[101] *Croson*, 488 U.S. at 499 (stating, "[i]t is sheer speculation how many minority firms there would be in Richmond absent past societal discrimination").

[102] *See AGCC II*, 950 F.2d at 1414 (consultant study looked at City's MBE utilization over a one-year period).

[103] Although the disparity index is a common category of statistical evidence considered, other types of statistical evidence have been taken into account. In addition to looking at Dade County's contracting and subcontracting statistics, the district court also considered marketplace data statistics (which looked at the relationship between the race, ethnicity, and gender of surveyed firm owners and the reported sales and receipts of those firms), the County's Wainwright study (which compared construction business ownership rates of M/WBEs to those of non-M/WBEs and analyzed disparities in personal income between M/WBE and non-M/WBE business owners), and the County's Brimmer Study (which focused only on Black-owned construction firms and looked at whether disparities existed when the sales and receipts of Black-owned construction firms in Dade County were compared with the sales and receipts of all Dade County construction firms).The court affirmed the judgment that declared appellant's affirmative action plan for awarding county construction contracts unconstitutional and enjoined the plan's operation because there was no statistical evidence of past discrimination and appellant failed to consider race and ethic-neutral alternatives to the plan.

[104] *Rowe*, 615 F.3d at 236; *see Dade County I*, 943 F. Supp. at 1546, *aff'd*, 122 F.3d 895 (11th Cir. 1997*); see also Concrete Works II*, 36 F.3d at 1513.

license to do business with the City, standing alone, does not indicate either willingness or capability to do work for the City. The Court concluded that this particular statistical disparity did not satisfy *Croson*.[105]

When using a pool of relevant statistical evidence, a disparity between the utilization and availability of M/WBEs can be shown in more than one way. First, the number of M/WBEs utilized by an entity can be compared to the number of available M/WBEs. This is a strict *Croson* "disparity" formula. A significant statistical disparity between the number of M/WBEs that an entity utilizes in a given industry and the number of available M/WBEs in the relevant market area specializing in the specified product/service category would give rise to an inference of discriminatory exclusion.

Second, M/WBE dollar participation can be compared to M/WBE availability. This comparison could show a disparity between an entity's award of contracts to available market area non-minority male businesses and the award of contracts to M/WBEs. Thus, in *AGCC II*, the court found constitutional the comparison of an independent consultant's study which "compared the number of available MBE prime construction contractors in San Francisco with the amount of contract dollars awarded by the City to San Francisco-based MBEs" over a one-year period.[106] The study that was under review in *ACCC I* found that available MBEs received far fewer construction contract dollars in proportion to their numbers than their available non-minority counterparts.[107]*AGCC I* argued to the Ninth Circuit that the preferences given to MBEs violated the equal protection clause of the Fourteenth Amendment of the United States Constitution. The district court determined that *AGCC* only demonstrated a possibility of irreparable injury on the ground that such injury is assumed where constitutional rights have been alleged to be violated but failed to demonstrate a likelihood of success on the merits.[108] On appeal, The Ninth Circuit affirmed the district court's ruling.[109]

Whether a disparity index supports an inference that there is discrimination in the market area depends not only on what is being compared, but also on the statistical significance of any such disparity. In *Croson*, Justice O'Connor opined, "[w]here the gross statistical disparities can be shown, they alone, in a proper case, may constitute a *prima facie* proof of a pattern or practice of discrimination."[110] However, the Court has not assessed or attempted to cast bright lines for determining if a disparity index is sufficient to support an inference of discrimination. In the

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[105] *Philadelphia VI*, 91 F.3d at 601-602. The courts have not spoken to the non-M/WBE component of the disparity index. However, if only as a matter of logic, the "availability" of non-M/WBEs requires that their willingness to be government contractors be established. The same measures used to establish the interest of M/WBEs should be applied to non-M/WBEs.

[106] *AGCC II*, 950 F.2d at 1414 (*discussing AGCC I*, 813 F.2d 922 (9th Cir. 1987)).

[107] *AGCC I*, 214 F.3d 730 (6th Cir. 2000); *Id.* at 1414. Specifically, the study found that MBE availability was 49.5 percent for prime construction, but MBE dollar participation was only 11.1 percent; that MBE availability was 36 percent prime equipment and supplies, but MBE dollar participation was 17 percent; and that MBE availability for prime general services was 49 percent, but dollar participation was 6.2 percent.

[108] *AGCC I*, 813 F.2d 922 (9th Cir. 1987).

[109] *Id.* at 1401.

[110] *Croson*, 488 U.S. at 501 (quoting *Hazelwood Sch. Dist.*, 433 U.S. at 307-308).

absence of such a formula, the Tenth Circuit determined that the analysis of the disparity index and the findings of its significance are to be judged on a case-by-case basis.[111]

Following the dictates of *Croson*, courts may carefully examine whether there is data that show MBEs are qualified, ready, willing, and able to perform.[112] *Concrete Works II* made the same point: capacity—i.e., whether the firm is "able to perform"—is a ripe issue when a disparity study is examined on the merits:

> [Plaintiff] has identified a legitimate factual dispute about the accuracy of Denver's data and questioned whether Denver's reliance on the percentage of MBEs and WBEs available in the marketplace overstates "the ability of MBEs or WBEs to conduct business relative to the industry as a whole because M/WBEs tend to be smaller and less experienced than non-minority owned firms." In other words, a disparity index calculated on the basis of the absolute number of MBEs in the local market may show greater underutilization than does data that takes into consideration the size of MBEs and WBEs.[113]

Notwithstanding that appellate concern, the disparity studies before the district court on remand did not examine the issue of M/WBE capacity to perform Denver's public sector contracts.

The Sixth Circuit Court of Appeals, in *Associated General Contractors of Ohio, Inc. v. Drabik ("Drabik")*, concluded that for statistical evidence to meet the legal standard of *Croson*, it must consider the issue of capacity.[114] The State's factual predicate study based its statistical evidence on the percentage of MBE businesses in the population. The statistical evidence "did not take into account the number of minority businesses that were construction firms, let alone how many were qualified, willing, and able to perform state contracts."[115] The court reasoned as follows:

> Even statistical comparisons that might be apparently more pertinent, such as with the percentage of all firms qualified in some minimal sense, to perform the work in question, would also fail to satisfy the Court's criteria. If MBEs comprise 10 percent of the total number of contracting firms in the State, but only get 3 percent of the dollar value of certain contracts that does not alone show discrimination, or even disparity. It does not account for the relative size of the firms, either in terms of their ability to do particular work or in terms of the number of tasks they have resources to complete.[116]

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[111] *Concrete Works II*, 36 F.3d at 1522.

[112] The *Philadelphia* study was vulnerable on this issue.

[113] *Concrete Works II*, 36 F.3d at 1528.

[114] *Associated Gen. Contractors of Ohio, Inc. v. Drabik*, 214 F.3d 730, 734-38 (6th Cir. 2000) ("*Drabik"*). The Court reviewed Ohio's 1980, pre-*Croson*, program, which the Sixth Circuit found constitutional in *Ohio Contractors Ass'n v. Keip*, 713 F.2d 167, 176 (6th Cir. 1983), finding the program unconstitutional under *Croson*.

[115] *Drabik*, 214 F.3d at 736.

[116] *Id*.

Drabik also pointed out that the State not only relied upon the wrong type of statistical data, but also that the datasets were more than twenty years old. Therefore, an entity must study current data that indicate the availability and qualifications of the MBEs.

The opinions in *Philadelphia VI*[117] and *Dade County I,*[118] regarding disparity studies involving public sector contracting, are particularly instructive in defining availability. In *Philadelphia VI*, the earlier of the two decisions, contractors' associations challenged a city ordinance that created set-asides for minority subcontractors on city public works contracts. A summary judgment was granted for the contractors.[119] The Third Circuit upheld the third appeal, affirming that there was no firm basis in evidence for finding that race-based discrimination existed to justify a race-based program and that the program was not narrowly tailored to address past discrimination by the City.[120]

The Third Circuit reviewed the evidence of discrimination in prime contracting and stated that whether it is strong enough to infer discrimination is a "close call" which the court "chose not to make."[121] It was unnecessary to make this determination because the court found that even if there was a strong basis in evidence for the program, a subcontracting program was not narrowly tailored to remedy prime contracting discrimination.[122]

When the court looked at subcontracting, it found that a firm basis in evidence did not exist. The only subcontracting evidence presented was a review of a random 25 to 30 percent of project engineer logs on projects valued at more than $30,000.[123] The consultant determined that no MBEs were used during the study period based upon recollections of the former general counsel to the General and Specialty Contractors Association of Philadelphia regarding whether the owners of the utilized firms were MBEs. The court found this evidence insufficient as a basis for finding that prime contractors in the market area were discriminating against subcontractors.[124]

The Third Circuit has recognized that consideration of qualifications can be approached at different levels of specificity and that the practicality of the approach should also be weighed. The Court of Appeals found that "[i]t would be highly impractical to review the hundreds of contracts awarded each year and compare them to each and every MBE" and that it was a "reasonable choice" under the circumstances to use a list of M/WBE certified contractors as a source for

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[117] *Philadelphia VI*, 91 F.3d at 604-605.

[118] *Dade County I*, 943 F. Supp. at 1582-83.

[119] *Philadelphia VI*, 91 F.3d at 590.

[120] *Id.* at 609-10.

[121] *Id.* at 605.

[122] *Philadelphia VI*, 91 F.3d at605.

[123] *Id.* at 600.

[124] Another problem with the program was that the 15 percent goal was not based on data indicating that minority businesses in the market area were available to perform 15 percent of the City's contracts. The court noted, however, that "we do not suggest that the percentage of the preferred group in the universe of qualified contractors is necessarily the ceiling for all set-asides." The court also found the program flawed because it did not provide sufficient waivers and exemptions, as well as consideration of race-neutral alternatives.

available firms.[125] Although theoretically it may have been possible to adopt a more refined approach, the court found that using the list of certified contractors was a rational approach to identifying qualified firms.[126]

In order to qualify for certification, the federal certification program required firms to detail their bonding capacity, size of prior contracts, number of employees, financial integrity, and equipment owned. According to the court, "the process by which the firms were certified [suggests that] those firms were both qualified and willing to participate in public works projects."[127] The court found certification to be an adequate process of identifying capable firms, recognizing that the process may even understate the availability of MBE firms.[128] Therefore, the court was somewhat flexible in evaluating the appropriate method of determining the availability of MBE firms in the statistical analysis of a disparity.

Furthermore, the court discussed whether bidding was required in prime construction contracts as the measure of "willingness" and stated, "[p]ast discrimination in a marketplace may provide reason to believe the minorities who would otherwise be willing are discouraged from trying to secure work."[129]

In *Dade County I*, the district court held that the County had not shown the compelling interest required to institute a race-conscious program, because the statistically significant disparities upon which the County relied disappeared when the size of the M/WBEs was taken into account.[130] The *Dade County* district court accepted the disparity study's limiting of "available" prime construction contractors to those that had bid at least once in the study period. However, it must be noted that relying solely on bidders to identify available firms may have limitations. If the solicitation of bidders is biased, then the results of the bidding process will be biased.[131] In addition, a comprehensive count of bidders is dependent on the adequacy of the agency's record-keeping.[132]

The appellate court in *Dade County* did not determine whether the County presented sufficient evidence to justify the M/WBE program. It merely ascertained that the lower court was not clearly erroneous in concluding that the County lacked a strong basis in evidence to justify race-conscious

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[125] *Philadelphia VI*, 91 F.3d at 603.

[126] *Philadelphia VI*, 91 F.3d at 603-605, 609.

[127] *Id.* at 603.

[128] *Id.*

[129] *Id.*

[130] *Dade County I*, 943 F. Supp. at 1560.

[131] *Cf. League of United Latin Am. Citizens v. Santa Ana*, 410 F. Supp. 873, 897 (C.D. Cal. 1976); *Reynolds v. Sheet Metal Workers, Local 102*, 498 F. Supp. 952, 964 n. 12 (D. D.C. 1980), *aff'd*, 702 F.2d 221 (D.C. Cir. 1981) (involving the analysis of available applicants in the employment context).

[132] *Cf. EEOC v. Am. Nat'l Bank*, 652 F.2d 1176, 1196-1197 (4th Cir. 1981), *cert. denied*, 459 U.S. 923 (1981) (in the employment context, actual applicant flow data may be rejected where race coding is speculative or nonexistent).

affirmative action.[133] The appellate court did not prescribe the district court's analysis or any other specific analysis for future cases.

C. Anecdotal Evidence

In *Croson*, Justice O'Connor opined that "evidence of a pattern of individual discriminatory acts can, if supported by appropriate statistical proof, lend support to a local government's determination that broader remedial relief is justified."[134] Anecdotal evidence should be gathered to determine if minority contractors are systematically being excluded from contracting opportunities in the relevant market area. Remedial measures fall along a sliding scale determined by their intrusiveness on non-targeted groups. At one end of the spectrum are race-neutral measures and policies, such as outreach to all segments of the business community regardless of race. They are not intrusive and, in fact, require no evidence of discrimination before implementation. Conversely, race-conscious measures, such as set-asides, fall at the other end of the spectrum and require a larger amount of evidence.[135]

As discussed below, anecdotal evidence alone is insufficient to establish the requisite predicate for a race-conscious program. Its great value lies in pointing to remedies that are "narrowly tailored," the second prong of a *Croson* study. The following types of anecdotal evidence have been presented to and relied upon by the Ninth Circuit in both *Coral Construction* and *AGCC II*, to justify the existence of an M/WBE program:

- M/WBEs denied contracts despite being the low bidders —*Philadelphia*[136]
- Prime contractors showing MBE bids to non-minority subcontractors to find a non-minority firm to underbid the MBEs —*Cone Corporation v. Hillsborough County*[137]
- M/WBEs' inability to obtain contracts for private sector work — *Coral Construction*[138]
- M/WBEs told that they were not qualified, although they were later found to be qualified when evaluated by outside parties — *AGCC II*[139]
- Attempts to circumvent M/WBE project goals — *Concrete Works II*[140]

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[133] *Dade County I*, 943 F. Supp. at 1557.

[134] *Croson*, 488 U.S. at 509; *see Teamsters*, 431 U.S. at 338.

[135] *Cf. AGCC II*, 950 F.2d at 1417-18 (in finding that an ordinance providing for bid preferences was narrowly tailored, the Ninth Circuit stated that the program encompassed the required flexibility and stated that "the burdens of the bid preferences on those not entitled to them appear relatively light and well distributed. In addition, in contrast to remedial measures struck down in other cases, those bidding have no settled expectation of receiving a contract. [Citations omitted.]").

[136] *Philadelphia IV*, 6 F.3d at 1002.

[137] *Cone Corp.*, 908 F.2d at 916.

[138] For instance, where a small percentage of an MBE or WBE's business comes from private contracts and most of its business comes from race or gender-based set-asides, this would demonstrate exclusion in the private industry. *Coral Constr.*, 941 F.2d at 933 (WBE's affidavit indicated that less than 7 percent of the firm's business came from private contracts and that most of its business resulted from gender-based set-asides).

[139] *AGCC II*, 950 F.2d at 1415.

[140] *Concrete Works II*, 36 F.3d at 1530.

- Harassment of M/WBEs by an entity's personnel to discourage them from bidding on an entity's contracts — *AGCC II*[141]

Courts must assess the extent to which relief measures disrupt settled "rights and expectations" when determining the appropriate corrective measures.[142] Presumably, courts would look more favorably upon anecdotal evidence in support of a less intrusive program than it would in support of a more intrusive one. For example, if anecdotal accounts related experiences of discrimination in obtaining bonds, they may be sufficient evidence to support a bonding program that assists M/WBEs.[143] However, these accounts would not be evidence of a statistical availability that would justify a racially limited program such as a set-aside.

As noted above, the *Croson* Court found that the City of Richmond's MBE program was unconstitutional, because the City failed to provide a factual basis to support its MBE program. However, the Court opined that "evidence of a pattern of individual discriminatory acts can, if supported by appropriate statistical proof, lend support to a local government's determination that broader remedial relief is justified."[144]

In part, it was the absence of statistical evidence that proved fatal to the program. The Supreme Court stated that "[t]here was no direct evidence of race discrimination on the part of the city in letting contracts or any evidence that the city's prime contractors had discriminated against minority-owned subcontractors."[145]

This was not the situation confronting the Ninth Circuit in *Coral Construction*. There, the 700-plus page appellate records contained the affidavits of "at least 57 minority or women contractors, each of whom complain in varying degree of specificity about discrimination within the local construction industry . . . These affidavits certainly suggest that ongoing discrimination may be occurring in much of the King County business community."[146]

Nonetheless, this anecdotal evidence alone was insufficient to justify King County's MBE program since "[n]otably absent from the record, however, is *any* statistical data in support of the County's MBE program."[147] After noting the Supreme Court's reliance on statistical data in Title VII employment discrimination cases and cautioning that statistical data must be carefully used, the court elaborated on its mistrust of purely anecdotal evidence:

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[141] *AGCC II*, 950 F.2d at 1415.

[142] *Wygant*, 476 U.S. at 283.

[143] *Teamsters*, 431 U.S. at 339; *Coral Constr.*, 941 F.2d at 919.

[144] *Croson*, 488 U.S. at 509 (citing *Teamsters*, 431 U.S. at 338).

[145] *Id.* at 480.

[146] *Coral Constr.*, 941 F.2d at 917-18.

[147] *Id.* at 918 (emphasis added) (additional statistical evidence gathered after the program had been implemented was also considered by the court and the case was remanded to the lower court for an examination of the factual predicate).

> Unlike the cases resting exclusively upon statistical deviations to prove an equal protection violation, the record here contains a plethora of anecdotal evidence. However, anecdotal evidence, standing alone, suffers the same flaws as statistical evidence. Indeed, anecdotal evidence may even be less probative than statistical evidence in the context of proving discriminatory patterns or practices.[148]

The court concluded its discourse on the potency of anecdotal evidence in the absence of a statistical showing of disparity by observing that "rarely, if ever, can such evidence show a systemic pattern of discrimination necessary for the adoption of an affirmative action plan."[149]

Two other circuit courts also suggested that anecdotal evidence might be dispositive in rare and exceptional cases, if ever, while rejecting it in the specific case before them. For example, in *Philadelphia IV*, the Third Circuit Court of Appeals noted that the Philadelphia City Council had "received testimony from at least fourteen minority contractors who recounted personal experiences with racial discrimination," which the district court had "discounted" because it deemed this evidence to be "impermissible" for consideration under *Croson*.[150] The Third Circuit Court disapproved of the district court's actions because in its view the court's rejection of this evidence betrayed the court's role in disposing of a motion for summary judgment.[151] "Yet," the court stated:

> Given *Croson's* emphasis on statistical evidence, even had the district court credited the City's anecdotal evidence, we do not believe this amount of anecdotal evidence is sufficient to satisfy strict scrutiny [quoting *Coral*, supra]. Although anecdotal evidence alone may, in an exceptional case, be so dominant or pervasive that it passes muster under *Croson*, it is insufficient here.[152]

The District of Columbia Circuit Court echoed the Ninth Circuit's acknowledgment of the rare case in which anecdotal evidence is singularly potent in *O'Donnell Construction v. District of Columbia*.[153] The court found that, in the face of conflicting statistical evidence, the anecdotal evidence there was not sufficient:

> It is true that in addition to statistical information, the Committee received testimony from several witnesses attesting to problems they faced as minority contractors. Much of the testimony related to bonding requirements and other structural impediments any firm would have to overcome, no matter what the race of its owners. (internal citation omitted.) The more specific testimony about

[148] *Coral Constr.*, 941 F.2d at 919.

[149] *Id.*

[150] *Philadelphia IV*, 6 F.3d at 1002.

[151] *Id.* at 1003.

[152] *Id.*

[153] 963 F. 2d 420, 427 (D.C. Cir. 1992).

> discrimination by white firms could not in itself support an industry-wide remedy (internal quotes and citation omitted). Anecdotal evidence is most useful as a supplement to strong statistical evidence—which the Council did not produce in this case.[154]

The Eleventh Circuit in *Dade County II* is also in accord. In applying the "clearly erroneous" standard to its review of the district court's decision in *Dade County II*, it commented that "[t]he picture painted by the anecdotal evidence is not a good one."[155] However, it held that this was not the "exceptional case" where, unreinforced by statistics, the anecdotal evidence was enough.[156] In *Concrete Works II*, the Tenth Circuit Court of Appeals described the anecdotal evidence that is most compelling as evidence within a statistical context. In approving of the anecdotal evidence marshaled by the City of Denver in the proceedings below, the court recognized that "[w]hile a fact finder should accord less weight to personal accounts of discrimination that reflect isolated incidents, anecdotal evidence of a municipality's institutional practices carries more weight due to the systemic impact that such institutional practices have on market conditions."[157] The court noted that the City had provided such systemic evidence.

The Ninth Circuit Court of Appeals has articulated what it deems to be permissible anecdotal evidence in *AGCC II*.[158] There, the court approved a "vast number of individual accounts of discrimination," which included (1) numerous reports of MBEs denied contracts despite being the low bidder, (2) MBEs told that they were not qualified although they were later found to be qualified when evaluated by outside parties, (3) MBEs refused work even after they were awarded the contracts as low bidder, and (4) MBEs being harassed by city personnel to discourage them from bidding on city contracts. On appeal, the City pointed to numerous individual accounts of discrimination to substantiate its findings that discrimination exists in the city's procurement processes, an "old boy's network" still exists, and racial discrimination is still prevalent within the San Francisco construction industry.[159] Based on *AGCC II*, it would appear that the Ninth Circuit's standard for acceptable anecdotal evidence is more lenient than other Circuits that have considered the issue.

Taken together, these statements constitute a taxonomy of appropriate anecdotal evidence. Anecdotal evidence alone may, in exceptional cases, show a systemic pattern of discrimination necessary for the adoption of an affirmative action plan, but it must be so dominant and pervasive that it passes muster under the *Croson* standards.[160] Pursuant to *Croson* and its progeny, case law

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[154] *O'Donnell,* 963 F.2d at 427.

[155] *Dade County II*, 122 F.3d at 925.

[156] *Id.* at 926.

[157] *Concrete Works II*, 36 F.3d at 1530.

[158] *AGCC II*, 950 F.2d at 1401.

[159] *AGCC II*, 950 F.2d at 1415.

[160] *Philadelphia IV*, 6 F.3d at 1003. The anecdotal evidence must be "dominant or pervasive."

suggests that, to be optimally persuasive, anecdotal evidence collectively should satisfy six particular requirements. These requirements are that the accounts:

- Are gathered from minority contractors, preferably those that are "qualified"[161]
- Concern specific, verifiable instances of discrimination[162]
- Involve the actions of governmental officials[163]
- Involve events within the relevant jurisdiction's market area[164]
- Discuss the harm that the improper conduct has inflicted on the businesses in question[165]
- Collectively reveal that discriminatory exclusion and impaired contracting opportunities are systemic rather than isolated or sporadic.[166]

Given that neither *Croson*, nor its progeny identify the circumstances under which anecdotal evidence alone will carry the day, it is not surprising that none of these cases explicate bright line rules specifying the quantity of anecdotal evidence needed to support an MBE program. However, the foregoing cases provide some guidance by implication. *Philadelphia IV* makes clear that 14 anecdotal accounts standing alone will not suffice.[167] The court then turned to the statistical data.[168] While the matter is not free of countervailing considerations, 57 accounts, many of which appeared to be of the type referenced above, were insufficient without statistical data to justify the program in *Coral Construction*. Therefore, no court has provided rules on the number of anecdotal evidence that is needed in conjunction with statistical evidence to pass constitutional muster.

The quantum of anecdotal evidence that a court would likely find acceptable will depend on the proposed remedy. The remedies that are least burdensome to non-targeted groups would likely require a lesser degree of evidence. Those remedies that are more burdensome on the non-targeted groups would require a stronger factual basis likely extending to verification.

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[161] *Philadelphia VI*, 91 F.3d at 603.

[162] *Coral Constr.*, 941 F.2d at 917-18; *but see Concrete Works IV*, 321 F.3d at 989 ("There is no merit to [plaintiff's] argument that the witnesses' accounts must be verified to provide support for Denver's burden.").

[163] *Croson*, 488 U.S. at 509.

[164] *Coral Constr.*, 941 F.2d at 925.

[165] *O'Donnell*, 963 F.2d at 427.

[166] *Coral Constr.*, 941 F.2d at 919.

[167] *Philadelphia IV*, 6 F.3d. at 1002-03.

[168] *Id.*

V. Consideration of Race-Neutral Options

A remedial program must address the source of the disadvantage faced by minority businesses. If it is found that race discrimination places MBEs at a competitive disadvantage, an MBE program may seek to counteract the situation by providing MBEs with a counterbalancing advantage.[169]An MBE program cannot stand if the sole barrier to M/WBE participation is a barrier that is faced by all new businesses, regardless of ownership.[170] If the evidence demonstrates that the sole barrier to M/WBE participation is that M/WBEs disproportionately lack capital or cannot meet bonding requirements, then only a race-neutral program of financing for all small firms would be justified.[171] In other words, if the barriers to minority participation are race-neutral, then the program must be race-neutral.

The requirement that race-neutral measures be considered does not mean that they must be exhausted before race-conscious remedies can be employed. The Supreme Court explained that although "narrow tailoring does not require exhaustion of every conceivable race-neutral alternative" it "does require serious, good faith consideration of workable race-neutral alternatives that will achieve ... diversity[.]"[172]

If the barriers appear race-related but are not systemic, then the remedy should be aimed at the specific arena in which exclusion or disparate impact has been found as detailed above in *Section IV*. If the evidence shows that in addition to capital and bonding requirements, which are race-neutral, MBEs also face race discrimination in the awarding of contracts, then a race-conscious program will stand, so long as it also includes race-neutral measures to address the capital and bonding barriers.[173]

The Ninth Circuit Court of Appeals in *Coral Construction* ruled that there is no requirement that an entity exhaust every possible race-neutral alternative.[174] Instead, an entity must make a serious, good faith consideration of race-neutral measures in enacting an MBE program. Thus, in assessing MBE utilization, it is imperative to examine barriers to MBE participation that go beyond "small business problems." The impact on the distribution of contract programs that have been implemented to improve MBE utilization should also be measured.[175]

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[169] *AGCC II*, 950 F.2d at 1404.

[170] *Croson*, 488 U.S. at 508.

[171] *Id.* at 507.

[172] *Grutter v. Bollinger*, 539 U.S. 306, 339 (2003).

[173] *Croson*, 488 U.S. at 507 (upholding MBE program where it operated in conjunction with race-neutral measures aimed at assisting all small businesses).

[174] *Coral Constr.*, 941 F.2d at 910.

[175] *Dade County II*, 122 F.3d at 927. At the same time, the Eleventh Circuit's caveat in *Dade County* should be kept in mind: "Supreme Court decisions teach that a race-conscious remedy is not merely one of many equally acceptable medications that a government may use to treat race-based problems. Instead, it is the strongest of medicines, with many potentially harmful side-effects, and must be reserved to those severe cases that are highly resistant to conventional treatment." For additional guidance, *see supra* section II, Standard of Review for the discussion of narrow tailoring in *Concrete Works IV, Adarand*, *County of Cook*, and *City of Chicago.*

VI. Conclusion

The decision of the United States Supreme Court in the *Croson* case changed the legal landscape for local governments' business affirmative action programs. The United States Supreme Court altered the authority of a local government to use local funds to institute remedial race-conscious public contracting programs. This chapter has examined what *Croson* and its progeny require for a local government to institute a constitutional race and/or gender-conscious public contracting program.

Consistent with the case law, any race or gender-conscious recommendations for the State Purchases Act," R.I. Gen. Laws § 37-2-1, et seq, that are presented in this Disparity Study will be based on a constitutionally sound factual predicate. The methodology employed to conduct the Disparity Study will determine if the State has a compelling interest to implement a race or gender-based program. The analysis is based on statistical evidence that is limited to the State's market area, and the statistical model used in the disparity analysis is consistent with the standards proscribed in Croson progeny and tailored to the First Circuit precedent. The disparity findings for prime contracts and subcontracts are calculated separately by industry, ethnicity, and gender.

Depending on the statistical findings of the Disparity Study, the State of Rhode Island may consider race and gender-based remedies in the award of its contracts. Given the case law discussed in this chapter, any race or gender-conscious affirmative action contracting program recommended in this Disparity Study will be based on a constitutionally sound factual predicate.

VII. List of Authorities

Cases **Pages**

CHAPTER 2: Procurement Practices and Procedures Analysis

I. Introduction

This chapter is a comprehensive examination of the procurement practices of Rhode Island's State agencies that purchase construction, construction-related services, services (including professional services), and goods, commodities, and supplies pursuant to the provisions of the State Purchases Act, R.I. Gen. Laws §37-2-1, et seq (State Purchases Act). For this Study, the Rhode Island State agencies subject to the State Purchases Act include the offices of the Governor (Executive Department), Lieutenant Governor, Secretary of State, Attorney General, and General Treasurer; the Department of Administration; Department of Behavioral Healthcare, Developmental Disabilities and Hospitals; Department of Business Regulations; Department of Children, Youth and Families; Department of Corrections; Department of Education; Department of Environmental Management; Department of Health; Department of Human Services; Department of Transportation; Department of Revenue; Department of Public Safety; Executive Office of Commerce; Department of Labor and Training; Division of Public Utilities and Carriers; Rhode Island Executive Military Staff; Rhode Island Emergency Management Agency; University of Rhode Island; Rhode Island College; Community College of Rhode Island; and, Office of the Post-Secondary Commissioner.

The procurement provisions set forth in the State Purchases Act are promulgated in the State of Rhode Island's (State) Procurement Regulations, amended and adopted on June 20, 2011. The procurement policies and procedures applicable to the State agencies are centralized in the Procurement Regulations. The State Purchases Act and the State's Procurement Regulations were reviewed in preparation of this chapter.

II. Governing Laws and Regulations

The applicable laws and regulations governing the State of Rhode Island's purchase of construction, construction-related, services, and goods, commodities, and supply contracts include:

Table 2.1: Governing Laws and Regulations

Rhode Island General Laws
State Purchases Act R.I. Gen. Laws § 37-14.1
Administrative Laws and Policies
State of Rhode Island Procurement Regulations, adopted June 20, 2011

A. Rhode Island General Laws

1. State Purchases Act, Rhode Island General Laws §37-2-1, et seq

Rhode Island General Laws §37-2-1, et seq applies to every expenditure of public funds by the State or a public agency under any contract except contracts between the State and its political subdivisions or other governments.

2. Minority Business Enterprise, Rhode Island General Laws § 37-14.1-8

Rhode Island General Laws § 37-14.1-8 describes the State's policy to support the participation of firms owned and controlled by minorities and women in State funded and directed public construction programs and projects and the purchase of goods and services.

B. Administrative laws and policies

1. Rhode Island Procurement Regulations, Amended and Adopted June 20, 2011

The State Procurement Regulations was promulgated and amended by the Chief Purchasing Officer in accordance with the authority and requirements of the State Purchases Act.[176] The regulations set forth the policies and procedures for State agencies to procure construction, construction-related services, services, and goods, commodities, and supplies.

III. Industry Definitions

Construction: means the process of building, altering, repairing, improving or demolishing any public structures or building, or other public improvements of any kind to any public real property.[177]

Construction-related: means the routine maintenance or repair of existing structures, buildings, or real property routinely performed by salaried employees of the State in the usual course of their job.[178]

Architecture and Engineering: means a person by reason of his knowledge of the mathematical and physical sciences, and the principles of architecture and architectural design, acquired by professional education, practical experience, or both, is qualified to engage in the practice of architecture as attested by his licensing as an architect in the State of Rhode Island.[179] Engineer means a person by reason of his special knowledge and use of the mathematical, physical and engineering sciences and the principles and methods of engineering analysis and design, acquired

[176] Section 1.2 Application.

[177] R.I. Gen. Laws § 37-2-7(4).

[178] R.I. Gen. Laws § 37-2-7(4).

[179] R.I. Gen. Laws § 37-2-7(26); R.I. Gen. Laws Chapter 5-1-2.

by engineering education and engineering experience, is qualified to practice engineering and as attested by his registration as an engineer.[180]

Professional services: means an independent contractor who is a specialist and/or has the expertise, as demonstrated by professional licensing or certification and experience, necessary to carry out tasks regarding that particular field of expertise.[181]

Services: means the rendering, by a contractor, of its time and effort rather than the furnishing of a specific end product, other than reports which are merely incidental to the required performance of services.[182]

Goods, commodities, supplies: mean materials, supplies, and equipment.

For purposes of this Study, the industries were combined for statistical analyses to include 1) construction, 2) construction-related, 3) services (including professional services, and architecture and engineering, 4) goods commodities, supplies.

IV. Procurement Process Overview

The solicitation methods defined in the Rhode Island Procurement Regulation includes small purchases, competitive sealed bids, competitive negotiations, and non-competitive purchases. Small purchases include construction contracts valued under $10,000, services, architecture and engineering, and goods, commodities, and supplies valued under $5,000.[183] A written or oral request for quotation is required for small purchases.[184] Small purchase solicitations do not require advertising.

Competitive solicitations include construction contracts valued over $10,000[185], services, architecture and engineering, and goods, commodities, and supplies valued over $5,000. Sealed bids and Requests for Proposals are the procurement methods used for the selection and award of competitive contracts. Non-competitive procurements include sole source purchases, emergency purchases, and spot purchases.[186]

The Chief Purchasing Officer may establish prequalification requirements for the procurement of supplies, services, and construction services pursuant to R.I. Gen. Laws § 37-2-25. Advertisements are required for formal procurements. The advertisement may be placed in widely circulated newspapers and/or trade journals to maximize competition.

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[180] R.I. Gen. Laws § 37-2-7(26); R.I. Gen. Laws § 5-8-2.

[181] State of Rhode Island Procurement Regulations, Page 5.

[182] R.I. Gen. Laws § 37-2-7(20).

[183] Section 5.1(S).

[184] *Id*.

[185] Section 5.11 (A).

[186] Section 9.4

The publications may include minority and women focused periodicals to target disadvantaged businesses. However, any solicitation may be advertised if the Purchasing Agent determines that a 1) commodity or service is of a special nature and competition would be maximized by extending invitations to others than the known contractors, 2) purchase will be of interest to supportive industries, and 3) the purchase is unusually large or infrequent.

V. Small Purchases

Purchases valued $250 and under are not competitively bid if the price is reasonable. However, the solicitation of informal quotes is encouraged. The user agency has the responsible to exercise good judgment when determining what is a fair and reasonable price. Solicitations for quotes should be secured from the previous contractor and other bidders before placing a repeat order to ensure equitable distribution and to maximize competition. The additional bidders should not include previous unsuccessful bidders.

Small purchases are procurements that do not exceed $10,000 for construction services and all other purchases that do not exceed $5,000. Small purchases for construction services include building, altering, repairing, improving or demolishing buildings or other improvements to real property. It does not include routine maintenance or repair of existing structures, buildings, or real property performed by salaried employees of the State.

Competitive solicitations are required for all procurements valued greater than $250 except otherwise specified. Solicitations for small purchases must be obtained from a minimum of three bids. The purchasing agent has the discretion to determine if two bids are adequate. Small disadvantaged minority or women-owned businesses should be solicited. And, small purchases should not be artificially unbundled to circumvent the competitive process.

VI. Competitive Sealed Bids

Competitive sealed bids are used to solicit procurements that exceed $10,000 for construction, and goods, commodities, supplies that exceed $5,000 unless it is determined in writing that this method is not feasible. To determine whether competitive sealed bidding is practicable, the State considers whether:

- Specifications can be drafted in a manner to permit an award based on either lowest bid price or the lowest evaluated bid price; and
- Available sources, time and place of performance, and other relevant circumstances are appropriate for competitive sealed bidding

An invitation for bid (IFB) is used to solicit competitive sealed bids. The IFB must specify whether the contract will be awarded based on the lowest bid price or the lowest evaluated or responsive bid price. If the award is based on the lowest evaluated or responsive bid price the objective measurable criteria must be specified in the IFB.

Public notices for IFBs must be published in sufficient time prior to the date of the bid opening.

The public notice can include publication in a newspaper of general circulation not less than seven days nor more than 28 days before the bid opening date. The 28-day limitation can be waived by the purchasing agent with a written determination for the waiver. The waiver must include the number of days, including the time-frame that will be allowed before the bid opening date. The contract is awarded to the bidder whose bid is either the lowest bid price, lowest evaluated, or responsive bid price by the Chief Purchasing Officer.[187]

Title 37, Chapter 14.1 of the General Laws allows the purchasing agent to direct awards to bidders other than the responsive bid representing the lowest price when 1) the offer is responsive to the terms and conditions of the solicitation, 2) the price offer is within a competitive range (not to exceed 5% higher than the lowest responsive price offer) for the product or service, and 3) the firm making the offer is an MBE/WBE. Ten percent of the dollar value of the work performed on construction contracts valued to exceed $5,000 must be performed by MBE/WBEs if subcontract opportunities exist, and certified MBE/WBEs are available. Awards based on Chapter 14.1 must be approved by the Director of Administration including a review of the bidder's Subcontracting Plan.

VII. Competitive Negotiations

Competitive negotiations are used to solicit services contracts including architecture and engineering services. Contracts are competitively negotiated when the Purchasing Agent determines that the use of competitive sealed bidding is not practicable.[188] Competitive negotiation solicitations are used when the 1) scope, term, or other procurement requirements are not determined at the time of the issuance of the requisition, or 2) optional offers are desired and encouraged, or 3) the value of the procurement is not definitively established.

Public notice for request for proposals are published in the same manner as required for competitive sealed bidding.[189] The RFP must describe the items covered, specifications, contract terms, and any other relevant provisions or requirements.

RFPs are evaluated to determine non-responsive of submittals which are then removed from further consideration. The lowest-cost regarding options, terms, and conditions, and a cost ranking of the responses are also evaluated. The contract is awarded based on the responsible offeror whose proposal is determined in writing to be the most advantageous to the State considering the evaluation factors set forth in the RFP.[190] A selection committee is authorized to select firms to provide professional consultant services other than medical, dental and legal services that are estimated to exceed $20,000.[191]

[187] Section 5.6(C)(5).

[188] R.I. Gen. Laws § 37-2-19(1).

[189] R.I. Gen. Laws § 37-2-19(2).

[190] R.I. Gen. Laws § 37-2-19(5).

[191] R.I. Gen. Laws § 37-2-59(2).

A. Architectural, engineering and consultant services

The competitive negotiation solicitation process is used to procure architectural, engineering and consultant services. The selection committee for architectural, engineering and consultant services is comprised of:

- Chief Purchasing Officer or his designee, who serves as the chairman of the committee
- Representative of the user agency
- A public member, appointed by the Governor whose term is concurrent with that of the Governor

Public notice for architectural, engineering, or consultant services that exceed $20,000 must be published sufficiently in advance of the RFP submission due date by the Chief Purchasing Officer. The notice must be published in a newspaper of general circulation in the State and in any other publications as deemed appropriate by the selection committee. The selection committee has the option to host an informational conference for services estimated to exceed $20,000. The conference will inform the participants of the criteria to be used in evaluating the statement of qualification, performance data, and selection of firms. The evaluation criteria must minimally examine the:

- Competence to perform the services, general experience in providing the required services, and the qualifications and competence of key staff members
- Ability to perform the services
- Past performance on private sector and public sector work
- Proposed approach to the project

The selection committee will select a maximum of three firms that are deemed professionally and technically qualified. The firms may be required to meet with the Chief Purchasing Officer or his or her designee. The Chief Purchasing Officer or his or her designee is responsible for negotiating with the highest qualified firm for architectural, engineering, or consultant services for State departments and agencies based on the proposals that is determined to be fair and reasonable to the State. The Chief Purchasing Officer will make the final selection after evaluating the professional competence and technical merits of the consultants and the price for the services.

B. Professional Legal Services

State agencies must demonstrate the need for legal services to the Chief Purchasing Officer or a public agency before procuring the services of an attorney. The agency must establish (1) the need for the services including the scope of the services, 2) no legal full-time personnel employed by the State is available to perform the services, 3) funding is available for the services; 4) the potential attorney has the appropriate professional licensing and competence to perform the needed services, and 5) the ability to perform the needed services.

The attorney will enter into a letter of engagement that details the rate of compensation, scope of the services, and a provision for the payment of expenses incurred in connection with legal services. The letter of engagement must not extend beyond a one-year term.

VIII. Non-competitive Procurements

Construction, goods, and services contracts can be obtained without competition through sole source or emergency purchases, goods purchased from one State agency from another, standard or established catalogued items, and spot purchases.

A. Sole Source

Sole source procurements can be utilized without competition when the Chief Purchasing Officer or member of the executive department determines that only one source is available. Sole source purchases can include:

- Unique items which are unavailable from other sources due to patents or proprietary reasons
- Books, maps, periodicals, and technical pamphlets, films, video and audio cassettes from publishers
- Specific computer software
- Licenses for computer software
- Specialized replacement/repair parts needed to maintain a system or function, such as scientific research
- Art for museums or public display
- Specialized services where there is only one documented accepted source
- Advertisements, public notices in magazines, trade journals, newspapers, and television

State agencies must submit requisitions for sole source purchases valued above $250 unless authority is specifically delegated by regulation or by the Purchasing Agency. Annual maintenance contracts valued above $1000 and multi-year contracts require approval by the Office of Purchases.

B. Emergencies

A purchasing agent can secure emergency procurements when there is a threat to public health, welfare or safety. Emergency procurements should be purchased through competition, when practical. User agencies can procure emergency services valued above $250 if there is insufficient time for a public, formal, or informal bidding solicitation process. The Office of Purchases maintains a list of emergency response vendors that is available for user agencies. If the user agency is unable to secure a designated vendor, the Office of Purchases will assist with securing additional names and telephone numbers of responsible vendors.

C. Goods or Services Obtained by One State Agency

Goods or services obtained by one state agency from another is exempt from competition. Purchases of services from the State's higher educational institutions are subject to competitive review and require the submission of requisitions.[192]

D. Standard or Established Catalogue Items

Standard or established catalogue items are excluded from competitive bidding. The items are identified by the Chief Purchasing Officer.[193]

E. Spot Purchases

Spot purchases, items sold on the basis of posted market prices, may be exempted from competition by the Purchasing Agent. The purchasing agency must consult a market analysis to determine whether the procurement is in the best interest of the State. Seasonal and supply/demand influences are considered when determining whether to utilize formal competitive procedures.[194]

IX. Overview of the State's MBE/WBE/DBE Programs

A. Background

Executive Order 13-05, *Promotion of Diversity, Equal Opportunity and Minority Business Enterprises in Rhode Island*, was signed into law on May 9, 2013 by Governor Lincoln D. Chafee. The intent of the Order was to respond to the changing demographics of the business community in Rhode Island by maximizing the participation of minority-owned business enterprises (MBEs) in State contracts. The Executive Order directed the Director of the Department of Administration to review all divisions and offices within the Department responsible for facilitating equal opportunity programs pertaining to MBEs and offer recommendations to ensure the programs are more effective.

The recommendations were to include procedures to monitor the efficiency and accountability in MBE procurement. The recommendations were due to the Governor for approval by August 1, 2013. Each of the State's Executive Branch Departments were required to comply with the approved recommendations and take steps to increase the participation of MBEs on their State contracts.

Specifically, the Division of Purchases Minority Business Enterprise Compliance Office was charged with identifying prime contracts and subcontracts to increase the rate of MBE participation. State agencies were required to provide a list of potential contracting opportunities in coordination with the Office of Management, the Budget's Office of Performance Management

[192] Rhode Island Procurement Regulations, Section 9.3.

[193] Rhode Island Procurement Regulations, Section 9.7.

[194] Rhode Island Procurement Regulations Section 9.8

and the Division of Purchases Minority Business Enterprise Compliance Office by December 1, 2013. The Governor also directed the Director of the Department of Administration to submit an annual report demonstrating the State's progress regarding the participation of MBEs in the State's procurement and must include each State agency's Affirmative Action Plan.

B. Office of Diversity, Equity and Opportunity

Executive Order 13-05 authorized the implementation of the Office of Diversity, Equity and Opportunity (ODEO), a division within the Department of Administration in 2014. The State Equal Opportunity Office, the Human Resources Outreach & Diversity Office, the Minority Business Enterprise Compliance Office, and the Supplier Diversity Office (SDO) are under the auspices of the ODEO.

Firms seeking to participate in the State's MBE Program or the Disadvantaged Business Enterprise Program, must be certified as an MBE or DBE by the ODEO. Although the State does not have a separate business enterprise program for women, they are included in the State's MBE program (hereinafter referred to as MBE/WBE Program). Additionally, the State, a recipient of federal funds from the United States Department of Transportation, operates its DBE Program pursuant to 49 CFR Part 26.

C. Minority Business Enterprise Compliance Office

The Minority Business Enterprise Compliance Office (MBECO) is responsible for the promotion and development of certified minorities, women, and disadvantaged business enterprises. The MBECO is charged with the following responsibilities:

- Maximize the participation of MBE/WBEs on the State's contracts
- Stimulate the development and growth of MBE/WBEs
- Encourage State agencies to award not less than 10% of the dollar value of State funded or directed procurement and projects to MBE/WBEs
- Establish a strong MBE/WBE presence in minority communities and MBE organizations

D. Supplier Diversity Office Responsibilities

The Supplier Diversity Office (SDO) assist MBE/WBEs and disabled owned business enterprises secure contracts with State agencies. The SDO is charged with the following responsibilities:

- Develop and execute strategies aimed to -
    - Expand the outreach and engagement with communities and businesses that support MBE/WBEs and disabled-owned business enterprises
    - Increase the utilization of MBE/WBEs and disabled-owned business enterprises
- Identify and implement remedial measures to address barriers that prevent the full participation of MBE/WBEs and disabled-owned business enterprises in the State's procurement process

- Coordinate and facilitate workshops events to -
    - Train, educate, and build the capacity of existing MBE/WBEs and disabled-owned business enterprises
    - Promote opportunities to increase the pool of available MBE/WBEs and disabled-owned business enterprises that provide the goods and services procured by the State
    - Foster partnerships between major prime contractors, State procurement officials, MBE/WBEs, and disabled-owned business enterprises
- Disseminate period reports, newsletters, or other publications to showcase activities and highlight achievements of MBE/WBEs and disabled-owned businesses pertaining to the State's procurements

E. MBE/WBE Program Eligibility Requirements

MBE/WBEs are defined as "a small business concern, owned and controlled by one or more minorities or women certified by the Rhode Island Department of Economic Development to meet the definition established by R.I. Gen. Laws § 37-14.1."[195] Members of the minority group include persons who are a citizen or lawful permanent resident of the United States and is:

- Black
- Hispanic
- American Indian
- Alaskan Native
- Asian American
- Portuguese
- Women
- Disadvantaged business enterprises

F. Certification Requirements

The State's MBE/WBE Program and its DBE Program certification requirements include the same personal net worth (PNW) criteria to obtain an MBE/WBE or DBE certification. The personal net worth of the applicant must not exceed $1.32 million, excluding 1) the individual's ownership interest in the applicant firm; 2) the individual's equity in his or her primary residence (except any portion of such equity that is attributable to excessive withdrawals from the applicant firm); and 3) individual retirement accounts, 401(k) accounts, or other retirement savings or investment program in which the assets cannot be distributed to the individual at the present time without significant adverse tax or interest consequences. The PNW calculations do include the present value of such assets, less the tax and interest penalties that would accrue if the asset were distributed at the present time.

[195] Rhode Island Procurement Regulations Section 4.1 (D).

Applicants that are denied certification may request a hearing before the Certification Review Committee (CRC). The Director of the Department of Administration appoints five members to the CRC including a committee chairperson. The members must include an individual from the Rhode Island Department of Transportation and four individuals from either the public or private sector. Minimally, four members must represent minority groups as defined under RIGL 37-14.1.

G. MBE/WBE Goal

Pursuant to Section 37-14.1-6 MBE/WBEs should participate in all State procurements and construction projects and should be awarded a minimum of 10% of the dollar value of the procurement or project.

H. DBE Goals

The State established the following Triennial Overall DBE Goals pursuant to 49 CFR Part 26, Subpart C, Section 26.45:

- FFYs 2018-2020 FHWA annual 11.89% goal
- FFYs 2018-2020 FTA annual 1.51% goal

CHAPTER 3: Prime Contractor Utilization Analysis

I. Introduction

This chapter documents the utilization of Minority and Woman-owned Business Enterprise (MBE/WBE) and non-minority male-owned business enterprise prime contractors by ethnicity, gender, and industry during the July 1, 2014 to June 30, 2017 study period. The contracts were awarded by the State of Rhode Island, University of Rhode Island, Rhode Island College, and the Rhode Island Community College (collectively referred to as State Agencies[196]). The State Agencies' contracts examined were classified into four industries—construction, construction-related services, services, and goods, commodities, and supplies.

Construction: means the process of building, altering, repairing, improving, or demolishing any public structure, building, or other public improvements to any public real property, maintenance and repair of existing structures, buildings, or real property.

Construction-related Services: mean services such as architectural services, engineering services, construction management services, owner's program manager or owner's representative services, construction cost consultants, surveying, inspection services, remediation services, and asbestos abatement.

Services (including Professional Services): means the work performed by a contractor and rendered on a time and effort basis rather than furnishing a specific end product.

Goods, Commodities, and Supplies: mean the time and effort of a contractor or vendor to furnish a specific end product, other than reports, which are merely incidental to the required performance of services, including janitorial, pest control, maintenance services.

The data in the utilization analysis are disaggregated into the nine ethnic and gender groups listed in Table 3.1.

[196] State Agencies include the offices of the Governor (Executive Department), Lieutenant Governor, Secretary of State, Attorney General, and General Treasurer; the Department of Administration; Department of Behavioral Healthcare, Developmental Disabilities and Hospitals; Department of Business Regulations; Department of Children, Youth and Families; Department of Corrections; Department of Education; Department of Environmental Management; Department of Health; Department of Human Services; Department of Transportation; Department of Revenue; Department of Public Safety; Executive Office of Commerce; Department of Labor and Training; Division of Public Utilities and Carriers; Rhode Island Executive Military Staff; Rhode Island Emergency Management Agency; University of Rhode Island; Rhode Island College; Community College of Rhode Island; and, Office of the Post-Secondary Commissioner.

Table 3.1: Business Ethnic and Gender Groups

Ethnicity and Gender Category	Definition
Black American	Businesses owned by male or female Black Americans
Asian American	Businesses owned by male or female Asian Americans
Hispanic American	Businesses owned by male or female Hispanic Americans
American Indian/Alaskan Native	Businesses owned by male or female American Indians or Alaskan Natives
Portuguese American	Businesses owned by male or female Portuguese Americans
Caucasian Female	Businesses owned by Caucasian females
Non-minority Male-owned Businesses	Businesses owned by Caucasian males and businesses that could not be identified as Portuguese Americans, minority, or female-owned[197]
Minority-owned Businesses	Businesses owned by male or female Black Americans, Asian Americans, Hispanic Americans, American Indians/Alaskan Natives, or Portuguese Americans
Woman-owned Businesses	Businesses owned by females

II. Prime Contract Data Sources

The prime contract data (hereinafter referred to as purchase orders) consists of purchase orders issued under master purchase orders and Master Price Agreements (MPAs) extracted from the State Agencies' financial management systems. The financial management systems include Oracle RI-FANS, and Peoplesoft used by the University of Rhode Island and Rhode Island College, and Banner used by the Community College of Rhode Island. The purchase order payments were issued during the July 1, 2014 to June 30, 2017 study period.

Four types of purchase orders were reviewed and grouped to create the purchase order dataset. Purchase orders issued under a Master Purchase Order (MPO) were grouped by MPO number and vendor. Prime records missing an MPO were grouped by project ID. If a prime record was missing both an MPO and a project ID, they were grouped by agency codes. Finally, prime records missing

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

an MPO, project ID, and an agency code were grouped by PO number. The purchase order dataset was cleaned by detecting and removing inaccurate records.[198]

Each purchase order was classified into one of the four industries—construction, construction-related services, services (including professional services), and goods, commodities, and supplies. The industry classification assignments were reviewed and approved by the State Agencies.

Several steps were taken to determine the ethnicity and gender of each prime contractor. The initial step determined whether the contractor was certified by a local certifying agency. Where available, the ethnicity and gender of the certified firm's business owner was derived from the certification record. Internet research was conducted to examine the business' website, social media, digital media, and business listings to determine the business owner's ethnicity and gender. The remaining businesses were surveyed, and ethnicity and gender information was solicited directly from the business. Prime contractors whose owner's ethnicity and gender could not be verified as minority or female-owned were classified as non-minority male. The non-minority male category also included publicly traded corporations, employee-owned businesses, and fifty-fifty partnerships in which neither partner was a minority or a woman.

III. Thresholds for Analysis

The State Agencies' purchase orders awarded in each industry were analyzed at three size thresholds. The first threshold includes all purchase orders. The second threshold includes informal purchase orders, as defined by the *State of Rhode Island Procurement Regulations*, amended June 20, 2011. The third threshold includes formal purchase orders with the outliers removed. Outliers are atypical contract amounts that are notably different from other contract amounts in the dataset. Excluding outliers increases the reliability of the statistical findings. The methodology for defining the outliers in the purchase order dataset is detailed below.

A. Informal Thresholds

The thresholds for the analysis of the State Agencies' informal purchase orders are defined by industry, pursuant to *State of Rhode Island Procurement Regulations*. The informal thresholds listed in Table 3.2 apply to construction, construction-related services, services, and goods, commodities, and supplies purchase orders.

[198] The exclusions also included: Closed PO with Zero Payment Amount, Contract was canceled prior to work beginning, Cooperative Agreements, Duplicate contract, Educational Institutions and Services, Emergency Contract, Fees and Licenses, Financial Institutions, Investment Company/Insurance/Payroll Service, Food Purveyors, Government, Grant, Hotel, Individual/Reimbursements/Judgments, Mail/Courier Services, Manufacturer, Media (radio, TV, newspaper), Medical/Healthcare/Rehabilitation/Custodial Care, MegaStore, Non-Profit, On-Line Database Service, Out of study period, Periodical Subscriptions, Membership, Personal Services, PO Amount Equals Zero, Proprietary/Sole Source, Public Utilities and Fuel, Publishing, Real Estate, Recreation, Redevelopment/Residential, Registration and Tuition, Settlement of Claims, Staffing/Employment, Telecommunication, Transportation/Travel-Related, Vehicle Dealerships, and Vendors with the total dollar amount under $10,000.

Table 3.2: Informal Purchase Order Threshold by Industry

Industry	Informal Purchase Order Threshold
Construction	$10,000 and Less
Construction-related Services	$5,000 and Less
Services	$5,000 and Less
Goods, Commodities, and Supplies	$5,000 and Less

B. Formal Thresholds

The formal purchase order threshold is defined in the *State's Procurement Regulations* for each industry. To perform the statistical analysis of formal procurement the purchase orders were reviewed to ensure there were no outliers in the data set. Outliers are the atypical purchase order values notably different from the rest of the purchase order values in the dataset. Outliers skew the statistical findings. This chapter presents the utilization analysis of purchase orders with and without the outliers.

A distribution cluster analysis was undertaken to determine the characteristics of the data given the wide range of purchase order amounts in the State Agencies' dataset. The distribution analysis revealed the presence of outliers in the dataset. To define the outliers the 1.5 x interquartile range (IQR) rule was applied.[199]

Calculating the interquartile range required identifying the value of the purchase at the first quartile and the value of the purchase at the third quartile. The distance, or the difference in value, between the first and third quartile was designated as the interquartile range. The interquartile range multiplied by 1.5 was subtracted from the first quartile to identify the lower limit of the accepted purchase order amount. The value of 1.5 multiplied by the interquartile range was then added to the third quartile to identify the upper limit of the accepted purchase amount. Purchase orders that had an amount outside of the upper range were considered outliers and excluded from the disparity analysis of the formal purchase orders presented in *Chapter 7: Prime Contract Disparity Analysis*.

The utilization analysis presented in this chapter includes the purchase order dataset with outliers to illustrate the State Agencies' total spending during the study period. The high roller analysis in this chapter also includes the outliers. In addition, the purchase order dataset with the outliers removed are included in this chapter.

[199] The interquartile range (IQR) is a measure of variability, based on dividing a data set into quartiles.

Formal thresholds for each industry with the outliers removed are valued between $10,000 and $1,120,000 for construction, $5,000 and $430,000 for construction-related services, $5,000 and $130,000 for services, and $5,000 to $80,000 for goods, commodities, and supplies. Table 3.3 shows the formal purchase order thresholds for each of the industries with the outliers removed.

Table 3.3: Formal Purchase Order Threshold by Industry

Industry	Formal Purchase Order Threshold
Construction	Between $10,000 and $1,120,000
Construction-related Services	Between $5,000 and $430,000
Services	Between $5,000 and $130,000
Goods, Commodities, and Supplies	Between $5,000 and $80,000

IV. Prime Contractor Utilization

A. All Prime Contractors

As shown in Table 3.4, the State Agencies issued 57,479 purchase orders during the July 1, 2014 to June 30, 2017 study period. The 57,479 purchase orders included 2,913 for construction, 474 for construction-related services, 14,116 for services, and 39,976 for goods, commodities, and supplies. The payments made by the State Agencies during the study period totaled $1,674,521,813 for all 57,479 purchase orders. Payments included $917,562,643 for construction, $201,234,137 for construction-related services, $336,660,239 for services, and $219,064,794 for goods, commodities, and supplies.

Table 3.4: Total Purchase Orders and Dollars Expended: All Industries, July 1, 2014 to June 30, 2017

Industry	Total Number of Purchase Orders	Total Dollars Expended
Construction	2,913	$917,562,643
Construction-related Services	474	$201,234,137
Services	14,116	$336,660,239
Goods, Commodities, and Supplies	39,976	$219,064,794
Total Expenditures	**57,479**	**$1,674,521,813**

B. Distribution of Purchase Order Dollars

The distribution of purchase orders, as presented in this section, describes all purchase orders, including outliers. The State Agencies awarded a significant number of its purchase order dollars to a few vendors. The "highly used" analysis depicts the businesses that received approximately 70% of the total purchase order dollars awarded in each industry. The "most highly used" analysis depicts a subset of the "highly used" businesses that received approximately 50% of the total purchase order dollars in each industry. The "most highly used" businesses received the largest percentage of the purchase order dollars in their industry. The percent of the purchase order dollars awarded to "highly used" contractors illustrates the fact that the award of most of the State Agencies' purchase orders was controlled by a few businesses.

C. Highly Used Construction Prime Contractors

The State Agencies awarded a total of 2,913 construction purchase orders during the study period. As shown in Table 3.5, these 2,913 construction purchase orders were received by 203 businesses for a total of $917,562,643.

Table 3.5: Construction Purchase Orders

Total Purchase Orders	2,913
Total Utilized Businesses	203
Total Expenditures	**$917,562,643**

Table 3.6 shows the distribution of construction purchase orders by the number of businesses. Fourteen of the 203 businesses received $637,820,501, or 70% of the total construction purchase order dollars. The findings show that a small group of prime contractors received a majority of construction purchase order dollars spent by the State Agencies.

Table 3.6: Construction Purchase Orders Distributed by Number of Businesses

Businesses	Total Dollars	Percent of Dollars[200]	Number of Purchase Orders	Percent of Purchase Orders[201]
14 Highly Used Businesses	$637,820,501	70%	223	8%
189 Businesses	$279,742,142	30%	2,690	92%
203 Total Businesses	**$917,562,643**	**100%**	**2,913**	**100%**

Table 3.7 shows the ethnicity and gender of the most highly used construction prime contractors, who received approximately 50% of the construction purchase order dollars. The six most highly used prime contractors were non-minority male-owned businesses. The purchase orders received by these six businesses ranged from $100 to $140,636,216.

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

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

Table 3.7: Top Six Most Highly Used Construction Prime Contractors

Ethnicity/ Gender Group	Total Dollars	Percent of Dollars	Number of Purchase Orders	Percent of Purchase Orders
Non-minority Males	$474,295,009	51.69%	112	3.84%

D. Highly Used Construction-related Services Prime Contractors

The State Agencies awarded a total of 474 construction-related services purchase orders during the study period. As shown in Table 3.8, these 474 construction-related services purchase orders were received by 106 businesses for a total of $201,234,137.

Table 3.8: Construction-related Services Purchase Orders

Total Purchase Orders	474
Total Utilized Businesses	106
Total Expenditures	**$201,234,137**

Table 3.9 shows the distribution of construction-related services purchase orders by the number of businesses. Fourteen of the 106 businesses received $143,282,571, or 70% of the total construction-related services purchase orders. The findings show that a small group of contractors received a majority of construction-related services purchase orders paid by the State Agencies.

Table 3.9: Construction-related Services Purchase Orders Distributed by Number of Businesses

Businesses	Total Dollars	Percent of Dollars[202]	Number of Purchase Orders	Percent of Purchase Orders[203]
14 Highly Used Businesses	$143,282,571	71%	102	22%
92 Businesses	$57,951,566	29%	372	78%
106 Total Businesses	**$201,234,137**	**100%**	**474**	**100%**

Table 3.10 shows the ethnicity and gender of the most highly used construction-related services prime contractors, who received approximately 50% of the construction-related services purchase order dollars. The eight most highly used prime contractors were non-minority male-owned businesses. The purchase orders received by these eight businesses ranged from payments of $590 to $12,139,953.

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

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

Table 3.10: Top 8 Most Highly Used Construction-related Services Prime Contractors

Ethnicity/Gender Group	Total Dollars	Percent of Dollars	Number of Purchase Orders	Percent of Purchase Orders
Non-minority Males	$98,755,869	49.08%	57	12.03%

E. Highly Used Services Prime Contractors

The State Agencies awarded a total of 14,116 services purchase orders during the study period. As shown in Table 3.11, these 14,116 services purchase orders were received by 1,288 businesses for a total of $336,660,239.

Table 3.11: Services Purchase Orders

Total Purchase Orders	14,116
Total Utilized Businesses	1,288
Total Expenditures	**$336,660,239**

Table 3.12 shows the distribution of services purchase orders by the number of businesses. Sixty-one of the 1,288 businesses received $235,644,974, or 70% of the total services purchase orders dollars. The findings show that a small group of prime contractors received a majority of services purchase orders dollars paid by the State Agencies.

Table 3.12: Services Purchase Orders Distributed by Number of Businesses

Businesses	Total Dollars	Percent of Dollars[204]	Number of Purchase Orders	Percent of Purchase Orders[205]
61 Highly Used Businesses	$235,644,974	70%	1,328	9%
1,227 Businesses	$101,015,265	30%	12,788	91%
1,288 Total Businesses	**$336,660,239**	**100%**	**14,116**	**100%**

Table 3.13 shows the ethnicity and gender of the most highly used services prime contractors, who received approximately 50% of the services purchase order dollars. The 17 most highly used prime contractors were Caucasian female and non-minority male-owned businesses. The purchase orders received by these 17 businesses ranged from payments of $140 to $32,043,339.

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

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

Table 3.13: Top 17 Most Highly Used Services Prime Contractors

Ethnicity/Gender Group	Total Dollars	Percent of Dollars	Number of Purchase Orders	Percent of Purchase Orders
Caucasian Females	$16,030,846	4.76%	2	0.01%
Non-minority Males	$152,485,238	45.29%	669	4.74%

F. Highly Used Goods, Commodities, and Supplies Prime Contractors

The State Agencies awarded a total of 39,976 goods, commodities, and supplies purchase orders during the study period. As shown in Table 3.14, these 39,976 goods, commodities, and supplies purchase orders were received by 1,237 businesses for payments totaling $219,064,794.

Table 3.14: Goods, Commodities, and Supplies Purchase Orders

Total Purchase Orders	39,976
Total Utilized Businesses	1,237
Total Expenditures	**$219,064,794**

Table 3.15 shows the distribution of goods, commodities, and supplies purchase orders by the number of businesses. Sixty-four of the 1,237 businesses received $153,514,012, or 70% of the total goods, commodities, and supplies purchase order dollars. The findings show that a small group of prime contractors received a majority of goods, commodities, and supplies purchase order dollars paid by the State Agencies.

Table 3.15: Goods, Commodities, and Supplies Purchase Orders Distributed by Number of Businesses

Businesses	Total Dollars	Percent of Dollars[206]	Number of Purchase Orders	Percent of Purchase Orders [207]
64 Highly Used Businesses	$153,514,012	70%	20,219	51%
1,173 Businesses	$65,550,782	30%	19,757	49%
1,237 Total Businesses	**$219,064,794**	**100%**	**39,976**	**100%**

Table 3.16 shows the ethnicity and gender of the most highly used goods, commodities, and supplies prime contractors, who received approximately 50% of the goods, commodities, and supplies purchase order dollars. The 18 most highly used prime contractors were Asian American, Caucasian female, and non-minority male-owned businesses. The purchase order payments received by these 18 businesses ranged from $100 to $14,198,862.

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

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

Table 3.16: Top 18 Most Highly Used Goods, Commodities, and Supplies Prime Contractors

Ethnicity/Gender Group	Total Dollars	Percent of Dollars	Number of Purchase Orders	Percent of Purchase Orders
Asian Americans	$3,592,735	1.64%	155	0.39%
Caucasian Females	$2,859,465	1.31%	715	1.79%
Non-minority Males	$103,868,096	47.41%	13,353	33.40%

G. All Purchase Orders by Industry

1. Construction Purchase Order Utilization: All Purchase Orders

Table 3.17 summarizes all purchase order dollars expended by the State Agencies on construction purchase orders. Minority Business Enterprises (MBEs) received 2.25% of the construction purchase order dollars; Woman Business Enterprises (WBEs) received 3.96%; and non-minority male-owned businesses (non-MBE/WBEs) received 93.94%.

Black Americans received 24 or 0.82% of all construction purchase orders awarded during the study period, representing $1,448,361 or 0.16% of the construction purchase order dollars.

Asian Americans received none of the construction purchase orders awarded during the study period.

Portuguese Americans received 140 or 4.81% of all construction purchase orders awarded during the study period, representing $10,268,632 or 1.12% of the construction purchase order dollars.

Hispanic Americans received 3 or 0.10% of all construction purchase orders awarded during the study period, representing $8,764,314 or 0.96% of the construction purchase order dollars.

American Indian/Alaska Natives received 1 or 0.03% of all construction purchase orders awarded during the study period, representing $176,634 or 0.02% of the construction purchase order dollars.

Caucasian Females received 185 or 6.35% of all construction purchase orders awarded during the study period, representing $34,915,257 or 3.81% of the construction purchase order dollars.

Non-minority Males received 2,560 or 87.88% of all construction purchase orders awarded during the study period, representing $861,989,445 or 93.94% of the construction purchase order dollars.

Minority-owned Businesses received 168 or 5.77% of all construction purchase orders awarded during the study period, representing $20,657,941 or 2.25% of the construction purchase order dollars.

Woman-owned Businesses received 209 or 7.17% of all construction purchase orders awarded during the study period, representing $36,363,170 or 3.96% of the construction purchase order dollars.

Table 3.17: Construction Purchase Order Utilization:
All Purchase Orders, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	24	0.82%	$1,448,361	0.16%
Asian Americans	0	0.00%	$0	0.00%
Portuguese Americans	140	4.81%	$10,268,632	1.12%
Hispanic Americans	3	0.10%	$8,764,314	0.96%
American Indian/Alaskan Natives	1	0.03%	$176,634	0.02%
Caucasian Females	185	6.35%	$34,915,257	3.81%
Non-minority Males	2,560	87.88%	$861,989,445	93.94%
TOTAL	2,913	100.00%	$917,562,643	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	24	0.82%	$1,448,361	0.16%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	0	0.00%	$0	0.00%
Portuguese American Females	24	0.82%	$1,447,913	0.16%
Portuguese American Males	116	3.98%	$8,820,719	0.96%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	3	0.10%	$8,764,314	0.96%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	1	0.03%	$176,634	0.02%
Caucasian Females	185	6.35%	$34,915,257	3.81%
Non-minority Males	2,560	87.88%	$861,989,445	93.94%
TOTAL	2,913	100.00%	$917,562,643	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	168	5.77%	$20,657,941	2.25%
Woman Business Enterprises	209	7.17%	$36,363,170	3.96%

2. Construction-related Services Purchase Order Utilization: All Purchase Orders

Table 3.18 summarizes all purchase order dollars expended by the State Agencies on construction-related services purchase orders. MBEs received 3.08% of the construction-related services purchase order dollars; WBEs received 1.95%; and non-MBE/WBEs received 95.05%.

Black Americans received 3 or 0.63% of all construction-related services purchase orders awarded during the study period, representing $42,689 or 0.02% of the construction-related services purchase order dollars.

Asian Americans received 17 or 3.59%% of all construction-related services purchase orders awarded during the study period, representing $5,546,759 or 2.76% of the construction-related services purchase order dollars.

Portuguese Americans received none of the construction-related services purchase orders during the study period.

Hispanic Americans received 9 or 1.90% of all construction-related services purchase orders awarded during the study period, representing $607,758 or 0.30% of the construction-related services purchase order dollars.

American Indian/Alaska Natives received none of the construction-related services purchase orders during the study period.

Caucasian Females received 21 or 4.43% of all construction-related services purchase orders awarded during the study period, representing $3,763,973 or 1.87% of the construction-related services purchase order dollars.

Non-minority Males received 424 or 89.45% of all construction-related services purchase orders awarded during the study period, representing $191,272,956 or 95.05% of the construction-related services purchase order dollars.

Minority-owned Businesses received 29 or 6.12% of all construction-related services purchase orders awarded during the study period, representing $6,197,207 or 3.08% of the construction-related services purchase order dollars.

Woman-owned Businesses received 22 or 4.64% of all construction-related services purchase orders awarded during the study period, representing $3,915,246 or 1.95% of the construction-related services purchase order dollars.

Table 3.18: Construction-related Services Purchase Order Utilization: All Purchase Orders, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	3	0.63%	$42,689	0.02%
Asian Americans	17	3.59%	$5,546,759	2.76%
Portuguese Americans	0	0.00%	$0	0.00%
Hispanic Americans	9	1.90%	$607,758	0.30%
American Indian/Alaskan Natives	0	0.00%	$0	0.00%
Caucasian Females	21	4.43%	$3,763,973	1.87%
Non-minority Males	424	89.45%	$191,272,956	95.05%
TOTAL	474	100.00%	$201,234,137	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	3	0.63%	$42,689	0.02%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	17	3.59%	$5,546,759	2.76%
Portuguese American Females	0	0.00%	$0	0.00%
Portuguese American Males	0	0.00%	$0	0.00%
Hispanic American Females	1	0.21%	$151,272	0.08%
Hispanic American Males	8	1.69%	$456,486	0.23%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	21	4.43%	$3,763,973	1.87%
Non-minority Males	424	89.45%	$191,272,956	95.05%
TOTAL	474	100.00%	$201,234,137	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	29	6.12%	$6,197,207	3.08%
Woman Business Enterprises	22	4.64%	$3,915,246	1.95%

3. Services Purchase Order Utilization: All Purchase Orders

Table 3.19 summarizes all purchase order dollars expended by the State Agencies on services purchase orders. MBEs received 2.27% of the services purchase order dollars; WBEs received 8.19%; and non-MBE/WBEs received 89.95%.

Black Americans received 133 or 0.94% of all services purchase orders awarded during the study period, representing $1,971,155 or 0.59% of the services purchase order dollars.

Asian Americans received 141 or 1.00% of all services purchase orders awarded during the study period, representing $2,148,815 or 0.64% of the services purchase order dollars.

Portuguese Americans received 75 or 0.53% of all services purchase orders awarded during the study period, representing $552,427 or 0.16% of the services purchase order dollars.

Hispanic Americans received 55 or 0.39% of all services purchase orders awarded during the study period, representing $2,914,603 or 0.87% of the services purchase order dollars.

American Indian/Alaska Natives received 3 or 0.02% of all services purchase orders awarded during the study period, representing $65,200 or 0.02% of the services purchase order dollars.

Caucasian Females received 820 or 5.81% of all services purchase orders awarded during the study period, representing $26,177,541 or 7.78% of the services purchase order dollars.

Non-minority Males received 12,889 or 91.31% of all services purchase orders awarded during the study period, representing $302,830,498 or 89.95% of the services purchase order dollars.

Minority-owned Businesses received 407 or 2.88% of all services purchase orders awarded during the study period, representing $7,652,200 or 2.27% of the services purchase order dollars.

Woman-owned Businesses received 940 or 6.66% of all services purchase orders awarded during the study period, representing $27,567,129 or 8.19% of the services purchase order dollars.

Table 3.19: Services Purchase Order Utilization: All Purchase Orders, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	133	0.94%	$1,971,155	0.59%
Asian Americans	141	1.00%	$2,148,815	0.64%
Portuguese Americans	75	0.53%	$552,427	0.16%
Hispanic Americans	55	0.39%	$2,914,603	0.87%
American Indian/Alaskan Natives	3	0.02%	$65,200	0.02%
Caucasian Females	820	5.81%	$26,177,541	7.78%
Non-minority Males	12,889	91.31%	$302,830,498	89.95%
TOTAL	14,116	100.00%	$336,660,239	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	3	0.02%	$52,599	0.02%
Black American Males	130	0.92%	$1,918,557	0.57%
Asian American Females	54	0.38%	$732,960	0.22%
Asian American Males	87	0.62%	$1,415,855	0.42%
Portuguese American Females	60	0.43%	$538,830	0.16%
Portuguese American Males	15	0.11%	$13,598	0.00%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	55	0.39%	$2,914,603	0.87%
American Indian/Alaskan Native Females	3	0.02%	$65,200	0.02%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	820	5.81%	$26,177,541	7.78%
Non-minority Males	12,889	91.31%	$302,830,498	89.95%
TOTAL	14,116	100.00%	$336,660,239	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	407	2.88%	$7,652,200	2.27%
Woman Business Enterprises	940	6.66%	$27,567,129	8.19%

4. Goods, Commodities, and Supplies Purchase Order Utilization: All Purchase Orders

Table 3.20 summarizes all purchase order dollars expended by the State Agencies on goods, commodities, and supplies purchase orders. MBEs received 2.98% of the goods, commodities, and supplies purchase order dollars; WBEs received 6.34%; and non-MBE/WBEs received 92.44%.

Black Americans received 375 or 0.94% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $1,586,348 or 0.72% of the goods, commodities, and supplies purchase order dollars.

Asian Americans received 300 or 0.75% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $4,408,194 or 2.01% of the goods, commodities, and supplies purchase order dollars.

Portuguese Americans received 34 or 0.09% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $133,124 or 0.06% of the goods, commodities, and supplies purchase order dollars.

Hispanic Americans received 37 or 0.09% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $374,450 or 0.17% of the goods, commodities, and supplies purchase order dollars.

American Indian/Alaska Natives received 66 or 0.17% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $28,274 or 0.01% of the goods, commodities, and supplies purchase order dollars.

Caucasian Females received 1,807 or 4.52% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $10,030,092 or 4.58% of the goods, commodities, and supplies purchase order dollars.

Non-minority Males received 37,357 or 93.45% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $202,504,312 or 92.44% of the goods, commodities, and supplies purchase order dollars.

Minority-owned Businesses received 812 or 2.03% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $6,530,390 or 2.98% of the goods, commodities, and supplies purchase order dollars.

Woman-owned Businesses received 2,230 or 5.58% of all goods, commodities, and supplies purchase orders awarded during the study period, representing $13,895,944 or 6.34% of the goods, commodities, and supplies purchase order dollars.

Table 3.20: Goods, Commodities, and Supplies Purchase Order Utilization: All Purchase Orders, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	375	0.94%	$1,586,348	0.72%
Asian Americans	300	0.75%	$4,408,194	2.01%
Portuguese Americans	34	0.09%	$133,124	0.06%
Hispanic Americans	37	0.09%	$374,450	0.17%
American Indian/Alaskan Natives	66	0.17%	$28,274	0.01%
Caucasian Females	1,807	4.52%	$10,030,092	4.58%
Non-minority Males	37,357	93.45%	$202,504,312	92.44%
TOTAL	39,976	100.00%	$219,064,794	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	153	0.38%	$47,103	0.02%
Black American Males	222	0.56%	$1,539,245	0.70%
Asian American Females	266	0.67%	$3,741,389	1.71%
Asian American Males	34	0.09%	$666,805	0.30%
Portuguese American Females	4	0.01%	$77,360	0.04%
Portuguese American Males	30	0.08%	$55,764	0.03%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	37	0.09%	$374,450	0.17%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	66	0.17%	$28,274	0.01%
Caucasian Females	1,807	4.52%	$10,030,092	4.58%
Non-minority Males	37,357	93.45%	$202,504,312	92.44%
TOTAL	39,976	100.00%	$219,064,794	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	812	2.03%	$6,530,390	2.98%
Woman Business Enterprises	2,230	5.58%	$13,895,944	6.34%

H. Informal Purchase Orders by Industry

1. Construction Purchase Order Utilization: Purchase Orders Valued $10,000 and Less

Table 3.21 summarizes all purchase order dollars expended by the State Agencies on construction purchase orders valued $10,000 and less. MBEs received 10.43% of the construction purchase order dollars; WBEs received 8.73%; and non-MBE/WBEs received 81.73%.

Black Americans received 16 or 0.80% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $61,094 or 1.42% of the construction purchase order dollars.

Asian Americans received none of the construction purchase orders valued $10,000 and less during the study period.

Portuguese Americans received 86 or 4.31% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $386,676 or 9.01% of the construction purchase order dollars.

Hispanic Americans received none of the construction purchase orders valued $10,000 and less during the study period.

American Indian/Alaska Natives received none of the construction purchase orders valued $10,000 and less during the study period.

Caucasian Females received 121 or 6.07% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $336,290 or 7.83% of the construction purchase order dollars.

Non-minority Males received 1,771 or 88.82% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $3,508,408 or 81.73% of the construction purchase order dollars.

Minority-owned Businesses received 102 or 5.12% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $447,769 or 10.43% of the construction purchase order dollars.

Woman-owned Businesses received 128 or 6.42% of the construction purchase orders valued $10,000 and less awarded during the study period, representing $374,666 or 8.73% of the construction purchase order dollars.

Table 3.21: Construction Purchase Order Utilization: Purchase Orders Valued $10,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	16	0.80%	$61,094	1.42%
Asian Americans	0	0.00%	$0	0.00%
Portuguese Americans	86	4.31%	$386,676	9.01%
Hispanic Americans	0	0.00%	$0	0.00%
American Indian/Alaskan Natives	0	0.00%	$0	0.00%
Caucasian Females	121	6.07%	$336,290	7.83%
Non-minority Males	1,771	88.82%	$3,508,408	81.73%
TOTAL	1,994	100.00%	$4,292,467	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	16	0.80%	$61,094	1.42%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	0	0.00%	$0	0.00%
Portuguese American Females	7	0.35%	$38,375	0.89%
Portuguese American Males	79	3.96%	$348,300	8.11%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	0	0.00%	$0	0.00%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	121	6.07%	$336,290	7.83%
Non-minority Males	1,771	88.82%	$3,508,408	81.73%
TOTAL	1,994	100.00%	$4,292,467	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	102	5.12%	$447,769	10.43%
Woman Business Enterprises	128	6.42%	$374,666	8.73%

2. Construction-related Services Purchase Order Utilization: Purchase Orders Valued $5,000 and Less

Table 3.22 summarizes all purchase order dollars expended by the State Agencies on construction-related services purchase orders valued $5,000 and less. MBEs received 1.22% of the construction-related services purchase order dollars; WBEs received 3.21%; and non-MBE/WBEs received 95.57%.

Black Americans received none of the construction-related services purchase orders valued $5,000 and less during the study period.

Asian Americans received 1 or 1.06% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $500 or 0.26% of the construction-related services purchase order dollars.

Portuguese Americans received none of the construction-related services purchase orders valued $5,000 and less during the study period.

Hispanic Americans received 1 or 1.06% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $1,849 or 0.96% of the construction-related services purchase order dollars.

American Indian/Alaska Natives received none of the construction-related services purchase orders valued $5,000 and less during the study period.

Caucasian Females received 6 or 6.38% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $6,163 or 3.21% of the construction-related services purchase order dollars.

Non-minority Males received 86 or 91.49% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $183,708 or 95.57% of the construction-related services purchase order dollars.

Minority-owned Businesses received 2 or 2.13% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $2,349 or 1.22% of the construction-related services purchase order dollars.

Woman-owned Businesses received 6 or 6.38% of the construction-related services purchase orders valued $5,000 and less awarded during the study period, representing $6,163 or 3.21% of the construction-related services purchase order dollars.

Table 3.22: Construction-related Services Purchase Order Utilization: Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	0	0.00%	$0	0.00%
Asian Americans	1	1.06%	$500	0.26%
Portuguese Americans	0	0.00%	$0	0.00%
Hispanic Americans	1	1.06%	$1,849	0.96%
American Indian/Alaskan Natives	0	0.00%	$0	0.00%
Caucasian Females	6	6.38%	$6,163	3.21%
Non-minority Males	86	91.49%	$183,708	95.57%
TOTAL	94	100.00%	$192,220	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	0	0.00%	$0	0.00%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	1	1.06%	$500	0.26%
Portuguese American Females	0	0.00%	$0	0.00%
Portuguese American Males	0	0.00%	$0	0.00%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	1	1.06%	$1,849	0.96%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	6	6.38%	$6,163	3.21%
Non-minority Males	86	91.49%	$183,708	95.57%
TOTAL	94	100.00%	$192,220	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	2	2.13%	$2,349	1.22%
Woman Business Enterprises	6	6.38%	$6,163	3.21%

3. Services Purchase Order Utilization: Purchase Orders Valued $5,000 and Less

Table 3.23 summarizes all purchase order dollars expended by the State Agencies on services purchase orders valued $5,000 and less. MBEs received 3.99% of the services purchase order dollars; WBEs received 6.51%; and non-MBE/WBEs received 90.40%.

Black Americans received 104 or 0.91% of the services purchase orders valued $5,000 and less awarded during the study period, representing $205,935 or 1.86% of the services purchase order dollars.

Asian Americans received 114 or 1.00% of the services purchase orders valued $5,000 and less awarded during the study period, representing $131,720 or 1.19% of the services purchase order dollars.

Portuguese Americans received 68 or 0.59% of the services purchase orders valued $5,000 and less awarded during the study period, representing $60,184 or 0.54% of the services purchase order dollars.

Hispanic Americans received 21 or 0.18% of the services purchase orders valued $5,000 and less awarded during the study period, representing $43,362 or 0.39% of the services purchase order dollars.

American Indian/Alaska Natives received 1 or 0.01% of the services purchase orders valued $5,000 and less awarded during the study period, representing $200 or less than 0.01% of the services purchase order dollars.

Caucasian Females received 682 or 5.95% of the services purchase orders valued $5,000 and less awarded during the study period, representing $618,950 or 5.60% of the services purchase order dollars.

Non-minority Males received 10,466 or 91.36% of the services purchase orders valued $5,000 and less awarded during the study period, representing $9,988,804 or 90.40% of the services purchase order dollars.

Minority-owned Businesses received 308 or 2.69% of the services purchase orders valued $5,000 and less awarded during the study period, representing $441,401 or 3.99% of the services purchase order dollars.

Woman-owned Businesses received 774 or 6.76% of the services purchase orders valued $5,000 and less awarded during the study period, representing $719,099 or 6.51% of the services purchase order dollars.

Table 3.23: Services Purchase Order Utilization: Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	104	0.91%	$205,935	1.86%
Asian Americans	114	1.00%	$131,720	1.19%
Portuguese Americans	68	0.59%	$60,184	0.54%
Hispanic Americans	21	0.18%	$43,362	0.39%
American Indian/Alaskan Natives	1	0.01%	$200	0.00%
Caucasian Females	682	5.95%	$618,950	5.60%
Non-minority Males	10,466	91.36%	$9,988,804	90.40%
TOTAL	11,456	100.00%	$11,049,156	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	104	0.91%	$205,935	1.86%
Asian American Females	38	0.33%	$53,363	0.48%
Asian American Males	76	0.66%	$78,357	0.71%
Portuguese American Females	53	0.46%	$46,587	0.42%
Portuguese American Males	15	0.13%	$13,598	0.12%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	21	0.18%	$43,362	0.39%
American Indian/Alaskan Native Females	1	0.01%	$200	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	682	5.95%	$618,950	5.60%
Non-minority Males	10,466	91.36%	$9,988,804	90.40%
TOTAL	11,456	100.00%	$11,049,156	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	308	2.69%	$441,401	3.99%
Woman Business Enterprises	774	6.76%	$719,099	6.51%

4. Goods, Commodities, and Supplies Purchase Order Utilization: Purchase Orders Valued $5,000 and Less

Table 3.24 summarizes all purchase order dollars expended by the State Agencies on goods, commodities, and supplies purchase orders valued $5,000 and less. MBEs received 2.32% of the goods, commodities, and supplies contract dollars; WBEs received 6.91%; and non-MBE/WBEs received 91.58%.

Black Americans received 358 or 0.96% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $364,485 or 1.26% of the goods, commodities, and supplies purchase order dollars.

Asian Americans received 268 or 0.72% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $226,477 or 0.78% of the goods, commodities, and supplies purchase order dollars.

Portuguese Americans received 27 or 0.07% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $15,968 or 0.06% of the goods, commodities, and supplies purchase order dollars.

Hispanic Americans received 32 or 0.09% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $35,508 or 0.12% of the goods, commodities, and supplies purchase order dollars.

American Indian/Alaska Natives received 66 or 0.18% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $28,274 or 0.10% of the goods, commodities, and supplies purchase order dollars.

Caucasian Females received 1,552 or 4.15% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $1,762,856 or 6.10% of the goods, commodities, and supplies purchase order dollars.

Non-minority Males received 35,109 or 93.84% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $26,484,122 or 91.58% of the goods, commodities, and supplies purchase order dollars.

Minority-owned Businesses received 751 or 2.01% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $670,713 or 2.32% of the goods, commodities, and supplies purchase order dollars.

Woman-owned Businesses received 1,953 or 5.22% of the goods, commodities, and supplies purchase orders valued $5,000 and less awarded during the study period, representing $1,997,442 or 6.91% of the goods, commodities, and supplies purchase order dollars.

Table 3.24: Goods, Commodities, and Supplies Purchase Order Utilization: Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	358	0.96%	$364,485	1.26%
Asian Americans	268	0.72%	$226,477	0.78%
Portuguese Americans	27	0.07%	$15,968	0.06%
Hispanic Americans	32	0.09%	$35,508	0.12%
American Indian/Alaskan Natives	66	0.18%	$28,274	0.10%
Caucasian Females	1,552	4.15%	$1,762,856	6.10%
Non-minority Males	35,109	93.84%	$26,484,122	91.58%
TOTAL	37,412	100.00%	$28,917,690	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	153	0.41%	$47,103	0.16%
Black American Males	205	0.55%	$317,382	1.10%
Asian American Females	247	0.66%	$185,683	0.64%
Asian American Males	21	0.06%	$40,795	0.14%
Portuguese American Females	1	0.00%	$1,800	0.01%
Portuguese American Males	26	0.07%	$14,168	0.05%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	32	0.09%	$35,508	0.12%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	66	0.18%	$28,274	0.10%
Caucasian Females	1,552	4.15%	$1,762,856	6.10%
Non-minority Males	35,109	93.84%	$26,484,122	91.58%
TOTAL	37,412	100.00%	$28,917,690	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	751	2.01%	$670,713	2.32%
Woman Business Enterprises	1,953	5.22%	$1,997,442	6.91%

I. Formal Purchase Orders by Industry

1. Construction Purchase Order Utilization: Purchase Orders Valued between $10,000 and $1,120,000

Table 3.25 summarizes all purchase order dollars expended by the State Agencies on construction purchase orders valued between $10,000 and $1,120,000. MBEs received 5.23% of the construction purchase order dollars; WBEs received 10.16%; and non-MBE/WBEs received 85.79%.

Black Americans received 7 or 0.91% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $198,740 or 0.17% of the construction purchase order dollars.

Asian Americans received none of the construction purchase orders valued between $10,000 and $1,120,000 during the study period.

Portuguese Americans received 51 or 6.65% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $5,284,111 or 4.43% of the construction purchase order dollars.

Hispanic Americans received 2 or 0.26% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $573,832 or 0.48% of the construction purchase order dollars.

American Indian/Alaska Natives received 1 or 0.13% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $176,634 or 0.15% of the construction purchase order dollars.

Caucasian Females received 55 or 7.17% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $10,700,018 or 8.98% of the construction purchase order dollars.

Non-minority Males received 651 or 84.88% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $102,256,319 or 85.79% of the construction purchase order dollars.

Minority-owned Businesses received 61 or 7.95% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $6,233,317 or 5.23% of the construction purchase order dollars.

Woman-owned Businesses received 72 or 9.39% of the construction purchase orders valued between $10,000 and $1,120,000 awarded during the study period, representing $12,109,555 or 10.16% of the construction purchase order dollars.

Table 3.25: Construction Purchase Order Utilization: Purchase Orders Valued Between $10,000 and $1,120,000, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	7	0.91%	$198,740	0.17%
Asian Americans	0	0.00%	$0	0.00%
Portuguese Americans	51	6.65%	$5,284,111	4.43%
Hispanic Americans	2	0.26%	$573,832	0.48%
American Indian/Alaskan Natives	1	0.13%	$176,634	0.15%
Caucasian Females	55	7.17%	$10,700,018	8.98%
Non-minority Males	651	84.88%	$102,256,319	85.79%
TOTAL	767	100.00%	$119,189,653	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	7	0.91%	$198,740	0.17%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	0	0.00%	$0	0.00%
Portuguese American Females	17	2.22%	$1,409,537	1.18%
Portuguese American Males	34	4.43%	$3,874,574	3.25%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	2	0.26%	$573,832	0.48%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	1	0.13%	$176,634	0.15%
Caucasian Females	55	7.17%	$10,700,018	8.98%
Non-minority Males	651	84.88%	$102,256,319	85.79%
TOTAL	767	100.00%	$119,189,653	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	61	7.95%	$6,233,317	5.23%
Woman Business Enterprises	72	9.39%	$12,109,555	10.16%

2. Construction-related Services Purchase Order Utilization: Purchase Orders Valued between $5,000 and $430,000

Table 3.26 summarizes all purchase order dollars expended by the State Agencies on construction-related services purchase orders valued between $5,000 and $430,000. MBEs received 7.80% of the construction-related services purchase order dollars; WBEs received 6.06%; and non-MBE/WBEs received 86.88%.

Black Americans received 3 or 0.96% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $42,689 or 0.21% of the construction-related services purchase order dollars.

Asian Americans received 13 or 4.14% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $961,979 or 4.66% of the construction-related services purchase order dollars.

Portuguese Americans received none of the construction-related services purchase orders valued between $5,000 and $430,000 during the study period.

Hispanic Americans received 8 or 2.55% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $605,909 or 2.93% of the construction-related services purchase order dollars.

American Indian/Alaska Natives received none of the construction-related services purchase orders valued between $5,000 and $430,000 during the study period.

Caucasian Females received 13 or 4.14% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $1,100,466 or 5.33% of the construction-related services purchase order dollars.

Non-minority Males received 277 or 88.22% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $17,946,864 or 86.88% of the construction-related services purchase order dollars.

Minority-owned Businesses received 24 or 7.64% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $1,610,578 or 7.80% of the construction-related services purchase order dollars.

Woman-owned Businesses received 14 or 4.46% of the construction-related services purchase orders valued between $5,000 and $430,000 awarded during the study period, representing $1,251,738 or 6.06% of the construction-related services purchase order dollars.

Table 3.26: Construction-related Services Purchase Order Utilization: Purchase Orders Valued between $5,000 and $430,000, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	3	0.96%	$42,689	0.21%
Asian Americans	13	4.14%	$961,979	4.66%
Portuguese Americans	0	0.00%	$0	0.00%
Hispanic Americans	8	2.55%	$605,909	2.93%
American Indian/Alaskan Natives	0	0.00%	$0	0.00%
Caucasian Females	13	4.14%	$1,100,466	5.33%
Non-minority Males	277	88.22%	$17,946,864	86.88%
TOTAL	314	100.00%	$20,657,907	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	3	0.96%	$42,689	0.21%
Asian American Females	0	0.00%	$0	0.00%
Asian American Males	13	4.14%	$961,979	4.66%
Portuguese American Females	0	0.00%	$0	0.00%
Portuguese American Males	0	0.00%	$0	0.00%
Hispanic American Females	1	0.32%	$151,272	0.73%
Hispanic American Males	7	2.23%	$454,637	2.20%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	13	4.14%	$1,100,466	5.33%
Non-minority Males	277	88.22%	$17,946,864	86.88%
TOTAL	314	100.00%	$20,657,907	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	24	7.64%	$1,610,578	7.80%
Woman Business Enterprises	14	4.46%	$1,251,738	6.06%

3. Services Purchase Order Utilization: Purchase Orders Valued between $5,000 and $130,000

Table 3.27 summarizes all purchase order dollars expended by the State Agencies on services purchase orders valued between $5,000 and $130,000. MBEs received 4.39% of the services purchase order dollars; WBEs received 7.04%; and non-MBE/WBEs received 90.04%.

Black Americans received 28 or 1.21% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $575,732 or 0.91% of the services purchase order dollars.

Asian Americans received 23 or 1.00% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $948,555 or 1.51% of the services purchase order dollars.

Portuguese Americans received 5 or 0.22% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $123,335 or 0.20% of the services purchase order dollars.

Hispanic Americans received 28 or 1.21% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $1,047,288 or 1.66% of the services purchase order dollars.

American Indian/Alaska Natives received 2 or 0.09% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $65,000 or 0.10% of the services purchase order dollars.

Caucasian Females received 122 or 5.29% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $3,507,830 or 5.57% of the services purchase order dollars.

Non-minority Males received 2,098 or 90.98% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $56,654,439 or 90.04% of the services purchase order dollars.

Minority-owned Businesses received 86 or 3.73% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $2,759,911 or 4.39% of the services purchase order dollars.

Woman-owned Businesses received 148 or 6.42% of the services purchase orders valued between $5,000 and $130,000 awarded during the study period, representing $4,428,361 or 7.04% of the services purchase order dollars.

Table 3.27: Professional Services Purchase Order Utilization: Purchase Orders Valued between $5,000 and $130,000, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	28	1.21%	$575,732	0.91%
Asian Americans	23	1.00%	$948,555	1.51%
Portuguese Americans	5	0.22%	$123,335	0.20%
Hispanic Americans	28	1.21%	$1,047,288	1.66%
American Indian/Alaskan Natives	2	0.09%	$65,000	0.10%
Caucasian Females	122	5.29%	$3,507,830	5.57%
Non-minority Males	2,098	90.98%	$56,654,439	90.04%
TOTAL	2,306	100.00%	$62,922,180	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	3	0.13%	$52,599	0.08%
Black American Males	25	1.08%	$523,133	0.83%
Asian American Females	16	0.69%	$679,598	1.08%
Asian American Males	7	0.30%	$268,958	0.43%
Portuguese American Females	5	0.22%	$123,335	0.20%
Portuguese American Males	0	0.00%	$0	0.00%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	28	1.21%	$1,047,288	1.66%
American Indian/Alaskan Native Females	2	0.09%	$65,000	0.10%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	122	5.29%	$3,507,830	5.57%
Non-minority Males	2,098	90.98%	$56,654,439	90.04%
TOTAL	2,306	100.00%	$62,922,180	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	86	3.73%	$2,759,911	4.39%
Woman Business Enterprises	148	6.42%	$4,428,361	7.04%

4. Goods, Commodities, and Supplies Purchase Order Utilization: Purchase Orders Valued between $5,000 and $80,000

Table 3.28 summarizes all purchase order dollars expended by the State Agencies on goods. commodities, and supplies purchase orders valued between $5,000 and $80,000. MBEs received 2.70% of the goods, commodities, and supplies purchase order dollars; WBEs received 10.35%; and non-MBE/WBEs received 88.03%.

Black Americans received 15 or 0.66% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $436,816 or 1.03% of the goods, commodities, and supplies purchase order dollars.

Asian Americans received 27 or 1.19% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $527,059 or 1.24% of the goods, commodities, and supplies purchase order dollars.

Portuguese Americans received 7 or 0.31% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $117,156 or 0.28% of the goods, commodities, and supplies purchase order dollars.

Hispanic Americans received 4 or 0.18% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $69,441 or 0.16% of the goods, commodities, and supplies purchase order dollars.

American Indian/Alaska Natives received none of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 during the study period.

Caucasian Females received 232 or 10.26% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $3,947,804 or 9.27% of the goods, commodities, and supplies purchase order dollars.

Non-minority Males received 1,976 or 87.39% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $37,478,748 or 88.03% of the goods, commodities, and supplies purchase order dollars.

Minority-owned Businesses received 53 or 2.34% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $1,150,472 or 2.70% of the goods, commodities, and supplies purchase order dollars.

Woman-owned Businesses received 251 or 11.10% of the goods, commodities, and supplies purchase orders valued between $5,000 and $80,000 awarded during the study period, representing $4,407,768 or 10.35% of the goods, commodities, and supplies purchase order dollars.

Table 3.28: Goods, Commodities, and Supplies Purchase Order Utilization: Purchase Orders Valued between $5,000 and $80,000, July 1, 2014 to June 30, 2017

Ethnicity	Number of Purchase Orders	Percent of Purchase Orders	Amount of Dollars	Percent of Dollars
Black Americans	15	0.66%	$436,816	1.03%
Asian Americans	27	1.19%	$527,059	1.24%
Portuguese Americans	7	0.31%	$117,156	0.28%
Hispanic Americans	4	0.18%	$69,441	0.16%
American Indian/Alaskan Natives	0	0.00%	$0	0.00%
Caucasian Females	232	10.26%	$3,947,804	9.27%
Non-minority Males	1,976	87.39%	$37,478,748	88.03%
TOTAL	2,261	100.00%	$42,577,024	100.00%
Ethnicity and Gender	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Black American Females	0	0.00%	$0	0.00%
Black American Males	15	0.66%	$436,816	1.03%
Asian American Females	16	0.71%	$384,404	0.90%
Asian American Males	11	0.49%	$142,654	0.34%
Portuguese American Females	3	0.13%	$75,560	0.18%
Portuguese American Males	4	0.18%	$41,596	0.10%
Hispanic American Females	0	0.00%	$0	0.00%
Hispanic American Males	4	0.18%	$69,441	0.16%
American Indian/Alaskan Native Females	0	0.00%	$0	0.00%
American Indian/Alaskan Native Males	0	0.00%	$0	0.00%
Caucasian Females	232	10.26%	$3,947,804	9.27%
Non-minority Males	1,976	87.39%	$37,478,748	88.03%
TOTAL	2,261	100.00%	$42,577,024	100.00%
Minority and Women	**Number of Purchase Orders**	**Percent of Purchase Orders**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	53	2.34%	$1,150,472	2.70%
Woman Business Enterprises	251	11.10%	$4,407,768	10.35%

V. Summary

Purchase orders awarded by the State Agencies during the July 1, 2014 to June 30, 2017 study period totaled $1,674,521,813. The $1,674,521,813 expended included $917,562,643 for construction, $201,234,137 for construction-related services, $336,660,239 for services, and $219,064,794 for goods, commodities, and supplies. A total of 57,479 purchase orders were analyzed, which included 2,913 for construction, 474 for construction-related services, 14,116 for services, and 39,976 for goods, commodities, and supplies.

The utilization analysis was performed for purchase orders in the four industries at three-dollar thresholds: 1) all purchase orders regardless of award amount; 2) all informal purchase orders valued $10,000 and less for construction, $5,000 and less for construction-related services, $5,000 and less for services, and $5,000 and less for good, commodities, and supplies, 3) formal purchase orders as defined by the *State of Rhode Island Procurement Regulations* and formal thresholds defined by the removal of the outliers.

CHAPTER 4: Subcontractor Utilization Analysis

I. Introduction

A disparity study, as required by *Croson*, must document the local government's utilization of available Minority and Woman-owned Business Enterprises (MBE/WBE), and non-minority male-owned businesses (non-MBE males) as prime contractors and subcontractors. The objective of this chapter is to present the utilization by ethnicity, gender, and industry of MBE/WBEs and non-MBE males as construction, architecture and engineering services, and professional services subcontractors. The analysis examined the subcontracts awarded by State of Rhode Island, University of Rhode Island, Rhode Island College, and Rhode Island Community College's (collectively referred to as State Agencies[208]) prime contractors during the July 1, 2014 to June 30, 2017 study period.

II. Data Sources

The State Agencies did not maintain comprehensive data on the subcontracts awarded by the prime contractors. Consequently, extensive research was undertaken to reconstruct the subcontracts the prime contractors issued for construction, architecture and engineering services, and professional services. Mason Tillman Associates, Ltd. compiled the subcontract data with assistance from the State Agencies. Since subcontract records had to be reconstructed, the analysis was limited to purchase orders valued at $1,000,000 and over for construction, $750,000 and over for construction-related services, and $750,000 and over for services (including professional services). Mason Tillman was unsuccessful in reconstructing sufficient construction-related services or services subcontract data to analyze, even with extensive help from the State Agencies.

A. Data Collection Process

Several methods were used to compile comprehensive subcontract data. The data collection process was undertaken between June 8, 2020 to December 7, 2020.

[208] State Agencies include the offices of the Governor (Executive Department), Lieutenant Governor, Secretary of State, Attorney General, and General Treasurer; the Department of Administration; Department of Behavioral Healthcare, Developmental Disabilities and Hospitals; Department of Business Regulations; Department of Children, Youth and Families; Department of Corrections; Department of Education; Department of Environmental Management; Department of Health; Department of Human Services; Department of Transportation; Department of Revenue; Department of Public Safety; Executive Office of Commerce; Department of Labor and Training; Division of Public Utilities and Carriers; Rhode Island Executive Military Staff; Rhode Island Emergency Management Agency; University of Rhode Island; Rhode Island College; Community College of Rhode Island; and, Office of the Post-Secondary Commissioner.

1. Subcontract Records from State Agencies

State Agencies provided some electronic files containing subcontract award and payment records. Prime contractors were surveyed requesting subcontractors from their records. The subcontract data were extracted from forms submitted by the prime contractor.

2. Subcontract Records from State Agency Departments

Subcontract records were also requested directly from the State Agencies' department. Twenty-six departments from four agencies were contacted. Nineteen departments provided subcontract records for one or more of their prime contractors. Seven departments did not provide any subcontract records. Table 4.1 shows the number of subcontract records provided by each department.

Table 4.1: Data Provided by State Agency Departments

Agency	Department	Purchase Orders Identified for Data Collection	Subcontracts Provided by Department
Community College of Rhode Island	Community College of Rhode Island	8	6
Rhode Island College	Rhode Island College	11	10
Rhode Island State	No Department Specified	6	0
Rhode Island State	Department of Administration	41	18
Rhode Island State	Office of the Attorney General	3	3
Rhode Island State	Dept of Behavioral Healthcare, Dev Disabilities & Hosp	1	0
Rhode Island State	Department of Business Regulation	3	0
Rhode Island State	Coastal Resources Management Council	1	1
Rhode Island State	Department of Corrections	5	3
Rhode Island State	Department of Elementary and Secondary Education	7	5
Rhode Island State	Department of Environmental Management	4	4
Rhode Island State	Executive Office of Health and Human Services	7	6
Rhode Island State	Office of the General Treasurer	1	0
Rhode Island State	Department of Health	2	0
Rhode Island State	Historical Preservation and Heritage Commission	1	1
Rhode Island State	Department of Human Services	7	3
Rhode Island State	Department of Labor and Training	2	1

Agency	Department	Purchase Orders Identified for Data Collection	Subcontracts Provided by Department
Rhode Island State	Militia of the State	2	1
Rhode Island State	Department of Public Safety	3	3
Rhode Island State	Department of Revenue	2	1
Rhode Island State	RI Emergency Management Agency	1	0
Rhode Island State	Office of the Secretary of State	1	1
Rhode Island State	Department of Transportation	132	93
The University of Rhode Island	Communications	2	0
The University of Rhode Island	HRL Business Operations	7	7
The University of Rhode Island	University of Rhode Island	7	6
Total		**267**	**173**

B. Subcontract Data Analysis

The subcontract records that Mason Tillman was able to reconstruct from the various sources listed above were appended to the relational database and cleaned to remove duplicate records. The ethnicity and gender of each subcontractor was verified through a combination of certification directories, Internet research, and telephone surveys. Once the construction data were cleaned, the subcontract utilization tables were prepared, identifying the dollars and number of subcontracts awarded to each ethnic and gender group. Presented below is the construction subcontractor utilization data organized by ethnicity and gender.

III. Subcontractor Utilization

A. All Subcontracts

As shown in Table 4.2, 858 of the reconstructed construction subcontracts with either an award or payment amount were analyzed. There were $261,738,581 construction subcontract dollars analyzed for the July 1, 2014 to June 30, 2017 study period.

Table 4.2: Subcontracts Awarded and Dollars Expended by Industry, July 1, 2014 to June 30, 2017

Industry	Total Number of Subcontracts	Total Amount Expended
Construction	858	$261,738,581

B. Subcontracts by Industry

1. Construction Subcontracts

Table 4.3 shows the identified construction subcontracts awarded by the State Agencies' prime contractors. Minority-owned businesses (MBEs) received 8.58%; Caucasian female-owned businesses (WBEs) received 9.97%; and non-minority male-owned businesses (non-MBE/WBEs) received 82.28% of the construction subcontract dollars.

Black Americans received 36 or 4.20% of the State Agencies' construction subcontracts during the study period, representing $11,413,584 or 4.36% of the construction subcontract dollars.

Asian Americans received 3 or 0.35% of the State Agencies' construction subcontracts during the study period, representing $435,472 or 0.17% of the construction subcontract dollars.

Portuguese Americans received 63 or 7.34% of the State Agencies' construction subcontracts during the study period, representing $7,812,356 or 2.98% of the construction subcontract dollars.

Hispanic Americans received 23 or 2.68% of the State Agencies' construction subcontracts during the study period, representing $2,359,800 or 0.90% of the construction subcontract dollars.

American Indian/ Alaskan Natives received 9 or 1.05% of the State Agencies' construction subcontracts during the study period, representing $442,483 or 0.17% of the construction subcontract dollars.

Caucasian Females received 147 or 17.13% of the State Agencies' construction subcontracts during the study period, representing $23,904,102 or 9.13% of the construction subcontract dollars.

Non-minority Males received 577 or 67.25% of the State Agencies' construction subcontracts during the study period, representing $215,370,784 or 82.28% of the construction subcontract dollars.

Minority Business Enterprises received 134 or 15.62% of the State Agencies' construction subcontracts during the study period, representing $22,463,696 or 8.58% of the construction subcontract dollars.

Woman Business Enterprises received 163 or 19.00% of the State Agencies' construction subcontracts during the study period, representing $26,093,333 or 9.97% of the construction subcontract dollars.

Table 4.3: Construction Subcontractor Utilization, July 1, 2014 to June 30, 2017

Ethnicity	Number of Contracts	Percent of Contracts	Amount of Dollars	Percent of Dollars
Black Americans	36	4.20%	$11,413,584	4.36%
Asian Americans	3	0.35%	$435,472	0.17%
Portuguese Americans	63	7.34%	$7,812,356	2.98%
Hispanic Americans	23	2.68%	$2,359,800	0.90%
American Indian/Alaskan Natives	9	1.05%	$442,483	0.17%
Caucasian Females	147	17.13%	$23,904,102	9.13%
Non-minority Males	577	67.25%	$215,370,784	82.28%
TOTAL	858	100.00%	$261,738,581	100.00%
Ethnicity and Gender	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Black Americans Females	7	0.82%	$997,486	0.38%
Black Americans Males	29	3.38%	$10,416,098	3.98%
Asian Americans Females	1	0.12%	$253,000	0.10%
Asian Americans Males	2	0.23%	$182,472	0.07%
Portuguese Americans Females	8	0.93%	$938,745	0.36%
Portuguese Americans Males	55	6.41%	$6,873,611	2.63%
Hispanic Americans Females	0	0.00%	$0	0.00%
Hispanic Americans Males	23	2.68%	$2,359,800	0.90%
American Indian/Alaskan Natives Females	0	0.00%	$0	0.00%
American Indian/Alaskan Natives Males	9	1.05%	$442,483	0.17%
Caucasian Females	147	17.13%	$23,904,102	9.13%
Non-minority Males	577	67.25%	$215,370,784	82.28%
TOTAL	858	100.00%	$261,738,581	100.00%
Minority and Women	**Number of Contracts**	**Percent of Contracts**	**Amount of Dollars**	**Percent of Dollars**
Minority Business Enterprises	134	15.62%	$22,463,696	8.58%
Woman Business Enterprises	163	19.00%	$26,093,333	9.97%

IV. Summary

The subcontracts awarded by the State Agencies' prime contractors had to be reconstructed using several research methods because the State Agencies did not maintain comprehensive records. Only the reconstructed construction subcontracts were sufficient to conduct an analysis. There were 858 reconstructed construction subcontracts awarded by the State Agencies' prime contractors from July 1, 2014 to June 30, 2017. These subcontracts were valued at $261,738,581.

CHAPTER 5: 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.*[209] (*Croson*) held that programs established by local governments to set goals for the participation of Minority-owned Business Enterprises (MBEs) must be supported by evidence of past discrimination in the award of their contracts. Prior to the *Croson* decision, local governments could implement race-conscious programs without developing a detailed public record to document the underutilization of MBEs in their award of contracts. Instead, they relied on widely recognized societal patterns of discrimination.[210]

Croson established that a local government could not rely on society-wide discrimination as the basis for a race-based contracting program. Instead, a local government was required to identify discrimination within its own contracting jurisdiction.[211] In *Croson*, the United States Supreme Court found the City of Richmond, Virginia's 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 to business utilization. Therefore, the identification of the local market area is particularly important because it establishes the parameters within which to conduct a disparity study.

B. Application of the Croson Standard

While *Croson* emphasized the importance of the local market area, it provided little assistance in defining its parameters. However, it is informative to review the Court's definition of the City of Richmond, Virginia's market area. In discussing the geographic parameters of the constitutional challenge that must be investigated, the Court interchangeably used the terms "relevant market," "Richmond construction industry,"[212] and "city's construction industry."[213] These terms were used to define the proper scope for examining 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 contracting jurisdiction.

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

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

[211] *Croson*, 488 U.S. at 497.

[212] *Id*. at 500.

[213] *Id.* at 470.

An analysis of the cases following *Croson* provides additional guidance for defining the market area. The body of cases examining the *reasonable* market area definition is *fact-based*—rather than dictated by a specific formula.[214] In *Cone Corporation v. Hillsborough County*,[215] the United States Eleventh Circuit Court of Appeals considered a disparity study in support of Hillsborough County, Florida's MBE Program. The MBE program used minority contractors located in Hillsborough County as the measure of available firms. The program was found to be constitutional under the compelling governmental interest element of the strict scrutiny standard.

Hillsborough County's program was based on statistics indicating that specific discrimination existed in the construction contracts awarded by Hillsborough County, not in the construction industry in general. Hillsborough County extracted data from within its own jurisdictional boundaries and assessed the percentage of minority businesses available in Hillsborough County. The Court stated that the disparity study was properly conducted within the "local construction industry."[216]

Similarly, in *Associated General Contractors v. Coalition for Economic Equity (AGCCII)*,[217] the United States Ninth Circuit Court of Appeals found the City and County of San Francisco, California's MBE Program to have the factual predicate necessary to survive strict scrutiny. The San Francisco MBE Program was supported by a disparity study that assessed the number of available MBE contractors within the City and County of San Francisco, California. The Court found it appropriate to use the City and County as the relevant market area within which to conduct a disparity study.[218]

In *Coral Construction v. King County*, the United States 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."[219] In support of its MBE program, King County, Washington offered studies compiled by other jurisdictions, including entities completely within the County, others coterminous with the boundaries of the County, as well as a jurisdiction significantly distant from King County. The plaintiffs contended that *Croson* required King County, Washington, to compile its own data and cited *Croson* as prohibiting data sharing.

The Court found that data sharing 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 data outside the government's jurisdictional boundaries. However, the Court also found that the data from entities within King

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

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

[216] *Id.* at 915.

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

[218] *AGCCII*, 950 F.2d at 1415.

[219] *Coral Construction Co. v. King County*, 941 F.2d 910 (9th Cir. 1991).

County and from coterminous jurisdictions were relevant to discrimination in the County. They also found that the data posed no risk of unfairly burdening innocent third parties.

The Court concluded that data gathered by a neighboring county 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 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."[220] However, the Court did note that the "world of contracting does not conform itself neatly to jurisdictional boundaries."[221]

There are other situations where courts have approved a market area definition that extended beyond a jurisdiction's geographic boundaries. In *Concrete Works v. City and County of Denver* (*Concrete Works*),[222] the United States Tenth Circuit Court of Appeals directly addressed the issue of whether extra-jurisdictional evidence of discrimination can be used to determine the "local market area" for a disparity study. In *Concrete Works*, the defendant relied on evidence of discrimination in the six-county Denver, Colorado Metropolitan Statistical Area (Denver MSA) to support its MBE program. 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% of construction and design contracts awarded by the City and County of Denver were awarded to contractors within the Denver MSA. Another consideration was that the City and County of Denver's analysis was based on United States Census data, which was available for the Denver MSA but not for the City of Denver itself. There was no undue burden placed on nonculpable parties, as the City and County of Denver had expended a majority of its construction contract dollars within the area defined as the local market. Citing *AGCCII*,[223] the Court noted "that any plan that extends race-conscious remedies beyond territorial boundaries must be based on very specific findings that actions the city has taken in the past have visited racial discrimination on such individuals."[224]

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 that received more than 90% of the dollar value of all contracts awarded by the agency.[225]

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

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220 *Coral Construction Co. v. King County*, 941 F.2d at 917.

221 *Id.*

222 *Concrete Works*, 36 F.3d at 1528.

223 *AGCC II*, 950 F.2d at 1401.

224 *Concrete Works*, 36 F.3d at 1528.

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

minority business owners in the government's marketplace.[226] 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.

It follows then that an entity may limit consideration of evidence of discrimination to discrimination occurring within its own jurisdiction.

II. 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 the market area as the geographical boundaries of the government entity. Given the State of Rhode Island's (State Agencies)[227] jurisdiction, the Study's market area is determined to be the geographical boundaries of the State Agencies.

A. Summary of the Distribution of All Purchase Orders Awarded

The State Agencies awarded 57,479 purchase orders valued at $1,674,521,813 from July 1, 2014 to June 30, 2017. The distribution of all purchase orders awarded, and dollars received by all firms domiciled inside and outside of the market area is shown in Table 5.1.

Table 5.1: Distribution of All Purchase Orders Awarded

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Providence	25,396	44.18%	$740,550,317	44.22%
Kent	5,631	9.80%	$338,194,197	20.20%
Washington	3,447	6.00%	$108,632,642	6.49%
Bristol	128	0.22%	$15,032,047	0.90%
Newport	280	0.49%	$7,193,760	0.43%
Out of State	22,533	39.20%	$462,963,581	27.65%
Out of Country	64	0.11%	$1,955,270	0.12%
Total	**57,479**	**100.00%**	**$1,674,521,813**	**100.00%**

[226] *Croson*, 488 U.S. at 501.

[227] State Agencies include the offices of the Governor (Executive Department), Lieutenant Governor, Secretary of State, Attorney General, and General Treasurer; the Department of Administration; Department of Behavioral Healthcare, Developmental Disabilities and Hospitals; Department of Business Regulations; Department of Children, Youth and Families; Department of Corrections; Department of Education; Department of Environmental Management; Department of Health; Department of Human Services; Department of Transportation; Department of Revenue; Department of Public Safety; Executive Office of Commerce; Department of Labor and Training; Division of Public Utilities and Carriers; Rhode Island Executive Military Staff; Rhode Island Emergency Management Agency; University of Rhode Island; Rhode Island College; Community College of Rhode Island; and, Office of the Post-Secondary Commissioner.

B. Distribution of Construction Purchase Orders

The State Agencies awarded 2,913 construction purchase orders valued at $917,562,643 during the study period. Businesses located in the market area received 94.16% of the construction purchase orders and 88.52% of the dollars. The distribution of the construction purchase orders awarded, and dollars received by all firms domiciled inside and outside of the market area is shown in Table 5.2.

Table 5.2: Distribution of Construction Purchase Orders

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Providence	2,014	69.14%	$470,199,723	51.24%
Kent	565	19.40%	$238,123,036	25.95%
Washington	136	4.67%	$98,386,435	10.72%
Newport	14	0.48%	$5,453,683	0.59%
Bristol	14	0.48%	$46,405	0.01%
Out of State	170	5.84%	$105,353,361	11.48%
Total	**2,913**	**100.00%**	**$917,562,643**	**100.00%**

C. Distribution of Construction-related Services Purchase Orders

The State awarded 474 construction-related services purchase orders valued at $201,234,137 during the study period. Businesses located in the market area received 89.66% of the construction-related services purchase orders and 70.61% of the dollars. The distribution of the construction-related services purchase orders awarded, and dollars received by all firms domiciled inside and outside of the market area is shown in Table 5.3.

Table 5.3: Distribution of Construction-related Services Purchase Orders

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Providence	367	77.43%	$110,103,176	54.71%
Kent	51	10.76%	$31,859,738	15.83%
Washington	7	1.48%	$137,611	0.07%
Out of State	49	10.34%	$59,133,611	29.39%
Total	**474**	**100.00%**	**$201,234,137**	**100.00%**

D. Distribution of Services Purchase Orders

The State Agencies awarded 14,116 services purchase orders valued at $336,660,239 during the study period. Businesses located in the market area received 68.12% of the services purchase orders and 56.00% of the dollars. The distribution of the services purchase orders awarded, and dollars received by all firms domiciled inside and outside of the market area is shown in Table 5.4.

Table 5.4: Distribution of Services Purchase Orders

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Providence	5,654	40.05%	$111,690,820	33.18%
Kent	1,994	14.13%	$55,752,703	16.56%
Bristol	55	0.39%	$14,616,259	4.34%
Washington	1,814	12.85%	$5,514,857	1.64%
Newport	99	0.70%	$956,092	0.28%
Out of State	4,485	31.77%	$146,831,195	43.61%
Out of Country	15	0.11%	$1,298,313	0.39%
Total	**14,116**	**100.00%**	**$336,660,239**	**100.00%**

E. Distribution of Goods, Commodities, and Supplies Purchase Orders

The State awarded 39,976 goods, commodities, and supplies purchase orders valued at $219,064,794 during the study period. Businesses located in the market area received 55.28% of the goods, commodities, and supplies purchase orders and 30.48% of the dollars. The distribution of the goods, commodities, and supplies purchase orders awarded, and dollars received by all firms domiciled inside and outside of the market area is shown in Table 5.5.

Table 5.5: Distribution of Goods, Commodities, and Supplies Purchase Orders

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Providence	17,361	43.43%	$48,556,597	22.17%
Kent	3,021	7.56%	$12,458,720	5.69%
Washington	1,490	3.73%	$4,593,739	2.10%
Newport	167	0.42%	$783,985	0.36%
Bristol	59	0.15%	$369,383	0.17%
Out of State	17,829	44.60%	$151,645,414	69.22%
Out of Country	49	0.12%	$656,957	0.30%
Total	**39,976**	**100.00%**	**$219,064,794**	**100.00%**

III. Summary

During the study period, the State Agencies awarded 57,479 construction, construction-related services, services, and goods, commodities, and supplies purchase orders valued at $1,674,521,813. The State Agencies awarded of dollars to businesses domiciled within the market area.

Construction Purchase Orders: 2,743, or 94.16%, of construction purchase orders were awarded to market area businesses. Construction purchase orders in the market area accounted for $812,209,282, or 88.52%, of the total construction purchase order dollars.

Construction-related Services Purchase Orders: 425, or 89.66%, of construction-related services purchase orders were awarded to market area businesses. Construction-related services purchase orders in the market area accounted for $142,100,526, or 70.61%, of the total construction-related services purchase order dollars.

Services Purchase Orders: 9,616, or 68.12%, of services purchase orders were awarded to market area businesses. Services purchase orders in the market area accounted for $188,530,731, or 56.00%, of the total services purchase order dollars.

Goods, Commodities, and Supplies Purchase Orders: 22,098, or 55.28%, of goods, commodities, and supplies purchase orders were awarded to market area businesses. Goods, commodities, and supplies purchase orders in the market area accounted for $66,762,424, or 30.48%, of the total goods, commodities, and supplies purchase order dollars.

Table 5.6 shows an overview of the number of construction, construction-related services, services, and goods, commodities, and supplies purchase orders the State Agencies awarded, and the dollars spent in the market area.

Table 5.6: The State Agencies Purchase Order Distribution

Geographic Area	Number of Purchase Orders	Percent of Purchase Orders	Total Dollars	Percent of Dollars
Combined Industries				
Market Area	34,882	60.69%	$1,209,602,963	72.24%
Outside Market Area	22,597	39.31%	$464,918,851	27.76%
TOTAL	**57,479**	**100.00%**	**$1,674,521,813**	**100.00%**
Construction				
Market Area	2,743	94.16%	$812,209,282	88.52%
Outside Market Area	170	5.84%	$105,353,361	11.48%
TOTAL	**2,913**	**100.00%**	**$917,562,643**	**100.00%**
Construction-related Services				
Market Area	425	89.66%	$142,100,526	70.61%
Outside Market Area	49	10.34%	$59,133,611	29.39%
TOTAL	**474**	**100.00%**	**$201,234,137**	**100.00%**
Services (Including Professional Services)				
Market Area	9,616	68.12%	$188,530,731	56.00%
Outside Market Area	4,500	31.88%	$148,129,508	44.00%
TOTAL	**14,116**	**100.00%**	**$336,660,239**	**100.00%**
Goods, Commodities, and Supplies				
Market Area	22,098	55.28%	$66,762,424	30.48%
Outside Market Area	17,878	44.72%	$152,302,370	69.52%
TOTAL	**39,976**	**100.00%**	**$219,064,794**	**100.00%**

CHAPTER 6: Prime Contractor and Subcontractor Availability Analysis

I. Introduction

According to *City of Richmond v. J.A. Croson Co*. (*Croson*), availability is defined as the number of businesses in the government's geographic market area that are ready, willing, and able to provide the goods or services the entity procures.[228] The ready, willing, and able Minority and Woman-owned Business Enterprises[229] (MBE/WBEs) and non-MBE/WBEs domiciled within the market area, need to be enumerated. The market area as defined in *Chapter 5: Market Area Analysis*, is the geographical boundaries of the State of Rhode Island.

When considering sources to determine the number of available MBE/WBEs and non-MBE/WBEs in the market area, the selection must be based on whether two aspects about the population in question can be gauged from the availability sources. One consideration is a business' interest in contracting with the governmental entity, as implied by the term "willing." The other is the business' ability or capacity to provide a service or good, as implied by the term "able." The available businesses enumerated met these criteria.

II. Prime Contractor Availability Data Sources

A. Identification of Willing Businesses within the Market Area

Four sources were used to identify willing and able businesses in the State of Rhode Island that provide the construction, construction-related services, services (including professional services), and goods, commodities, and supplies procured by State Agencies.[230] The sources were 1) the State Agencies' records, including utilized businesses and a list of vendors; 2) government certification directories; 3) business owners who attended the State's Disparity Study Business Community Meeting; and 4) business association membership lists. The association lists included trade organizations, professional associations, and chambers of commerce.

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

[229] Hereinafter referred to as Minority and Caucasian female-owned businesses in the statistical tables.

[230] State agencies include the offices of the Governor (Executive Department), Lieutenant Governor, Secretary of State, Attorney General, and General Treasurer; the Department of Administration; Department of Behavioral Healthcare, Developmental Disabilities, and Hospitals; Department of Business Regulations; Department of Children, Youth, and Families; Department of Corrections; Department of Education; Department of Environmental Management; Department of Health; Department of Human Services; Department of Transportation; Department of Revenue; Department of Public Safety; Executive Office of Commerce; Department of Labor and Training; Division of Public Utilities and Carriers; Rhode Island Executive Military Staff; Rhode Island Emergency Management Agency; University of Rhode Island; Rhode Island College; Community College of Rhode Island; and Office of the Post-Secondary Commissioner.

Any business listed in more than one source was only counted once in the relevant industry. If a business was willing and able to provide goods or services in more than one industry, it was listed in each relevant industry.

The four sources were ranked according to their reliability in determining a business' willingness to contract with the State Agencies, with the highest ranking assigned to utilized businesses and a list of vendors received from the State Agencies. Government certification lists ranked second; community meeting attendees ranked third; and business association membership lists ranked fourth. The unique businesses culled from the business association lists were surveyed for an affirmation of their willingness to contract with the State Agencies.

The State Agencies' utilized businesses and vendor lists were used as the base for the availability database. Businesses identified from federal and local government certification agencies were thereafter appended. The certification lists included small, minority, and woman-owned businesses and HubZone businesses.[231] The registration list from the business community meeting was appended to the availability list, since the presence of a business at a business community meeting was an affirmation of the business' willingness to contract with the State Agencies. Businesses identified from association membership lists that affirmed their willingness through the survey of business association members were also appended.

B. Prime Contractor Sources

Extensive targeted outreach was undertaken in cooperation with Office of Diversity, Equity, and Opportunity to identify business associations in the market area and to secure their business membership directories. The list of business association directories compiled through this effort was submitted to the Governor's Working Group on Diversity in Construction for review and feedback. Table 6.1 lists the State sources, certification directories, and business association listings.

Table 6.1: Prime Contractor Availability Data Sources

Source Name	Type of Information
State of Rhode Island Records	
CCRI FY16 MBE Disparity Study Extract_20181126_091839 FY16 clean report rev 2 12 10 18 with MBE Code	MBE/WBE and Non-minority Male
CCRI FY15 MBE Disparity Study Extract_20181126_085400 FY15 12 10 18 rev 2 clean file with MBE Codes	MBE/WBE and Non-minority Male
CCRI FY17 MBE Disparity Study Extract_20181204_145735 FY17 clean report rev 2 12 10 18 with MBE Codes	MBE/WBE and Non-minority Male
Disparity.accdb	MBE/WBE and Non-minority Male
RIC - Disparity Study - Final 122018 - with MBE Codes	MBE/WBE and Non-minority Male

[231] The government certification directories also include the US Small Business Administration Rhode Island, HUBZone list.

Source Name	Type of Information
URI MBO_DisparityStudy_Report1_Results_2014 thru 2017 Final with MBE Codes	MBE/WBE and Non-minority Male
Government Certification Directories	
Office of Diversity, Equity and Opportunity	MBE/WBE and Non-minority Male
US Small Business Administration Rhode Island 8(a)	MBE/WBE and Non-minority Male
US Small Business Administration Rhode Island HUBzone	MBE/WBE and Non-minority Male
US Small Business Administration Rhode Island Small Disadvantaged	MBE/WBE and Non-minority Male
US Small Business Administration Rhode Island Veteran-owned	MBE/WBE and Non-minority Male
US Small Business Administration Rhode Island Women-owned	MBE/WBE
Business Association Membership Lists	
American Council of Engineering Companies of Rhode Island	MBE/WBE and Non-minority Male
American Institute of Architects, Rhode Island	MBE/WBE and Non-minority Male
American Subcontractors Association (RI)	MBE/WBE and Non-minority Male
Associated Builders and Contractors	MBE/WBE and Non-minority Male
Associated General Contractors of America, Rhode Island Chapter	MBE/WBE and Non-minority Male
Block Island Chamber of Commerce	MBE/WBE and Non-minority Male
Charlestown Chamber of Commerce	MBE/WBE and Non-minority Male
East Greenwich Chamber of Commerce	MBE/WBE and Non-minority Male
East Providence Area Chamber of Commerce	MBE/WBE and Non-minority Male
Greater Cranston Chamber of Commerce	MBE/WBE and Non-minority Male
Greater Providence Chamber of Commerce	MBE/WBE and Non-minority Male
Irrigation Association	MBE/WBE and Non-minority Male
Jamestown Chamber of Commerce	MBE/WBE and Non-minority Male
Mechanical Contractors Association_New England	MBE/WBE and Non-minority Male
National Association of Landscape Professionals	MBE/WBE and Non-minority Male
National Concrete Masonry Association	MBE/WBE and Non-minority Male
National Electrical Contractors Association_Rhode Island & Southeast Massachusetts Chapter	MBE/WBE and Non-minority Male

Source Name	Type of Information
National Roofing Contractors Association	MBE/WBE and Non-minority Male
National Tile Contractors Association	MBE/WBE and Non-minority Male
New England Concrete Manufacturers Association	MBE/WBE and Non-minority Male
Newport County Chamber of Commerce	MBE/WBE and Non-minority Male
North East Roofing Contractors Association_Contractors	MBE/WBE and Non-minority Male
North Kingstown Chamber of Commerce	MBE/WBE and Non-minority Male
Northeast Precast Concrete Association	MBE/WBE and Non-minority Male
Northern Rhode Island Chamber of Commerce	MBE/WBE and Non-minority Male
Ocean Community Chamber of Commerce	MBE/WBE and Non-minority Male
Rhode Island Alarm and Systems Contractors Association	MBE/WBE and Non-minority Male
Rhode Island Black Business Association	MBE/WBE
Rhode Island Glass Dealers Association	MBE/WBE and Non-minority Male
Rhode Island Independent Contractors & Associates	MBE/WBE and Non-minority Male
Rhode Island Master Plumbers Association, Inc	MBE/WBE and Non-minority Male
Rhode Island Nursery & Landscape Association	MBE/WBE and Non-minority Male
Sheet Metal & Air Conditioning Contractors National Association, Boston Chapter (RI)	MBE/WBE and Non-minority Male
Southern Rhode Island Chamber of Commerce	MBE/WBE and Non-minority Male
The American Institute of Architects	MBE/WBE and Non-minority Male

C. Determination of Willingness

There were 1,342 unique market area businesses identified from the sources that provide goods or services in one or more of the four industries. An enumeration of the willing businesses derived by source is listed below.

1. State Agencies' Records

A total of 884 unique market area businesses identified from the State Agencies' records were added to the availability database.

2. Government Certification Lists

A total of 350 unique market area businesses identified from the government certification sources were added to the availability database.

3. Business Community Meetings

A total of 13 unique market area businesses identified from the business community meetings were added to the availability database.

4. Business Association Membership Lists

There were 1,375 businesses enumerated from the business association lists that were surveyed to determine their willingness to contract with the State Agencies. From the 1,375 businesses, 206 refused to participate, 702 did not respond to the survey, 323 telephone numbers were disconnected, and 144 businesses completed the survey. Of the 144 businesses that completed the survey, 89 were willing to contract with the State Agencies and were therefore added to the availability database.

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

Table 6.2 through Table 6.5 present the distribution of available prime contractors by source. The distribution was also calculated for each industry. As noted in Table 6.2, 91.22% of the construction businesses identified were derived from the State Agencies' records and government certification lists. Companies identified through community meeting attendees and the business association membership lists represent 8.78% of the available businesses.

Table 6.2: Distribution of Prime Contractor Availability Data Sources, Construction

Sources	MBE/WBEs Percentage	Non MBE/WBEs Percentage	Source Percentage
Prime Contractor Utilization	18.85%	79.89%	54.73%
Certification Lists	78.69%	6.90%	36.49%
Subtotal	**97.54%**	**86.78%**	**91.22%**
Community Meeting Attendees	0.00%	2.87%	1.69%
Business Survey	0.00%	0.57%	0.34%
Willingness Survey	2.46%	9.77%	6.76%
Subtotal	**2.46%**	**13.22%**	**8.78%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

*The percentages may not total 100 percent due to rounding

Table 6.3 shows the data sources for available construction-related services prime contractors. As noted, 95.24% of the construction-related services prime contractors identified were derived from

State Agencies' records and government certification lists. Companies identified through the business association membership lists represented 4.76% of the willing businesses.

Table 6.3: Distribution of Prime Contractor Availability Data Sources, Construction-related Services

Sources	MBE/WBEs Percentage	Non MBE/WBEs Percentage	Source Percentage
Prime Contractor Utilization	23.53%	85.33%	60.32%
Certification Lists	76.47%	6.67%	34.92%
Subtotal	**100.00%**	**92.00%**	**95.24%**
Business Survey	0.00%	1.33%	0.79%
Willingness Survey	0.00%	6.67%	3.97%
Subtotal	**0.00%**	**8.00%**	**4.76%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

*The percentages may not total 100 percent due to rounding

Table 6.4 shows the data sources for the available services (including professional services) prime contractors. As noted, 93.03% of the services prime contractors identified were derived from State Agencies records and government certification lists. Companies identified through community meeting attendees and business association membership lists represent 6.97% of the willing businesses.

Table 6.4: Distribution of Prime Contractor Availability Data Sources, Services (Including Professional Services)

Sources	MBE/WBEs Percentage	Non MBE/WBEs Percentage	Source Percentage
Prime Contractor Utilization	26.92%	87.81%	68.46%
Certification Lists	66.15%	5.20%	24.57%
Subtotal	**93.08%**	**93.01%**	**93.03%**
Community Meeting Attendees	1.15%	0.54%	0.73%
Business Survey	0.00%	0.18%	0.12%
Willingness Survey	5.77%	6.27%	6.11%
Subtotal	**6.92%**	**6.99%**	**6.97%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

*The percentages may not total 100 percent due to rounding

Table 6.5 shows the data sources for the available goods, commodities, and supplies prime contractors. As noted, 94.99% of the goods, commodities, and supplies businesses identified were derived from State Agencies' records and government certification lists. Companies identified through community meeting attendees and business association membership lists represent 5.01% of the willing businesses.

Table 6.5: Distribution of Prime Contractor Availability Data Sources, Goods, Commodities, and Supplies

Sources	MBE/WBEs Percentage	Non MBE/WBEs Percentage	Source Percentage
Prime Contractor Utilization	44.19%	90.09%	80.67%
Certification Lists	50.00%	5.11%	14.32%
Subtotal	**94.19%**	**95.20%**	**94.99%**
Community Meeting Attendees	2.33%	0.00%	0.48%
Business Survey	1.16%	0.60%	0.72%
Willingness Survey	2.33%	4.20%	3.82%
Subtotal	**5.81%**	**4.80%**	**5.01%**
Grand Total*	**100.00%**	**100.00%**	**100.00%**

*The percentages may not total 100 percent due to rounding

II. Capacity

The second component of the availability requirement set forth in *Croson* is to assess the capacity or ability of a business to perform the purchase orders awarded by the government entity.[232] Capacity requirements are not delineated in *Croson*, although they have been considered in subsequent cases. Among the first circuit courts to address capacity was the Third Circuit, which held certification to be a valid method of defining a qualified business.[233] *Contractors Association of Eastern Pennsylvania v. City of Philadelphia* (*Philadelphia*) in 1996 held that utilizing a list of certified contractors was a rational approach to identify qualified and willing firms.[234] The court stated "[a]n analysis is not devoid of probative value simply because it may theoretically be possible to adopt a more refined approach [of qualification]."[235] As noted in *Philadelphia*, "[t]he issue of qualifications can be approached at different levels of specificity[.]"[236] Researchers have also attempted to use census data to define capacity by profiling the education of the business owner and the business' age , revenue, number of employees, and bonding limits. However, these conventional indices are themselves impacted by race and gender-based discrimination.[237]

Mason Tillman used five methods to assess the capacity of willing businesses. The measures control for the impact of race and gender discrimination. The first method was a review of the distribution of purchase orders to determine the size of purchase orders that the State Agencies awarded. The identification of the largest purchase orders awarded to MBE/WBEs was the second

[232] *Croson*, 488 U.S. 469.

[233] *Contractors Ass'n of E. Pa. v. City of Philadelphia* ("*Philadelphia VI*"), 91 F.3d 586, at 603 (3d Cir. 1996).

[234] *Id*.

[235] *Id.* at 603; see also, *Concrete Works IV*, 321 F.3d at 966 (noting a less sophisticated method to calculate availability does not render a disparity study flawed.)

[236] *Contractors Ass'n of E. Pa.*, 91 F.3d at 610.

[237] David G. Blanchflower & Phillip B. Levine & David J. Zimmerman, 2003. "Discrimination in the Small-Business Credit Market," *The Review of Economics and Statistics*, MIT Press, vol. 85(4)

method. The third, was an analysis of the frequency distribution of State Agencies purchase orders awarded to MBE/WBEs and non-minority male-owned firms. A threshold analysis of awarded purchase orders to limit the range of the formal purchase orders to be analyzed by identifying the outliers was the fourth. The fifth was an assessment of capacity-related economic factors of similarly situated MBE/WBEs and non-minority male-owned businesses using the results of a capacity eSurvey.

A. Purchase Order Size Distribution

All of the State Agencies' purchase orders were ordered by the size of the award to determine the distribution of the awarded purchase orders. The distribution gauged the capacity required to fulfill the State Agencies' purchase orders. In Table 6.6, purchase order awards in the four industries were grouped into nine ranges[238] and are presented according to the following groups: non-minority females, non-minority males, minority females, and minority males.

More than 97.82% of the purchase orders issued by the State Agencies were less than $100,000.[239] Additionally, 98.85% were less than $250,000; 99.29% were less than $500,000; 99.54% were less than $1,000,000; and 99.84% were less than $3,000,000. Only 0.16% of the awarded purchase orders were valued at $3,000,000 and greater.

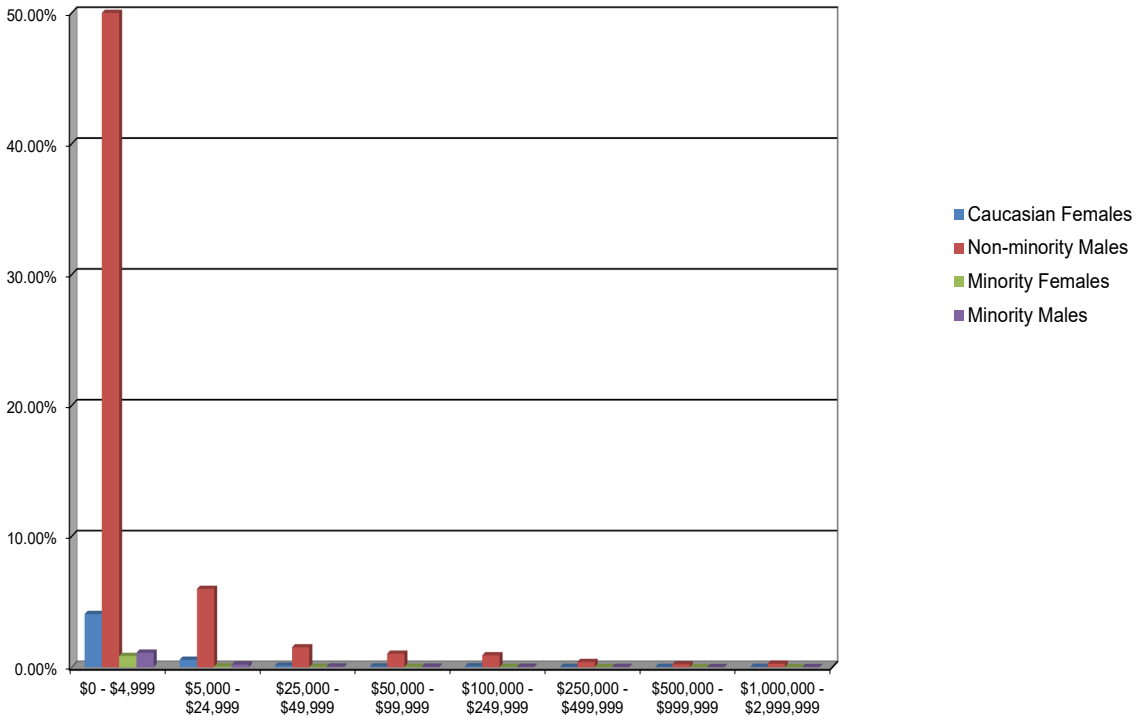
Table 6.6: All Industry Purchase Orders by Size

Size	Non-minority				Minority				Total	
	Females		Males		Females		Males			
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
$0 - $4,999	2,331	4.06%	47,201	82.12%	496	0.86%	633	1.10%	50,661	88.14%
$5,000 - $24,999	325	0.57%	3,441	5.99%	36	0.06%	113	0.20%	3,915	6.81%
$25,000 - $49,999	64	0.11%	875	1.52%	13	0.02%	35	0.06%	987	1.72%
$50,000 - $99,999	35	0.06%	592	1.03%	11	0.02%	27	0.05%	665	1.16%
$100,000 - $249,999	42	0.07%	521	0.91%	8	0.01%	17	0.03%	588	1.02%
$250,000 - $499,999	10	0.02%	230	0.40%	3	0.01%	11	0.02%	254	0.44%
$500,000 - $999,999	11	0.02%	129	0.22%	0	0.00%	5	0.01%	145	0.25%
$1,000,000 - $2,999,999	12	0.02%	152	0.26%	1	0.00%	6	0.01%	171	0.30%
$3,000,000 and greater	3	0.01%	89	0.15%	0	0.00%	1	0.00%	93	0.16%
Total	**2,833**	**4.93%**	**53,230**	**92.61%**	**568**	**0.99%**	**848**	**1.48%**	**57,479**	**100.00%**

[238] The nine dollar ranges are $0 - $4,999; $5,000 - $24,999; $25,000 - $49,999; $50,000 - $99,999; $100,000 - $249,999; $250,000 - $499,999; $500,000 - $999,999; $1,000,000 - $2,999,999; and $3,000,000 and greater.

[239] Purchase orders include prime contracts and work orders issued under master agreements.

Chart 6.1: All Industry Purchase Orders by Size



As illustrated in Chart 6.1, the size of the State Agencies' purchase orders is a determinant of the capacity that a willing business needs to be competitive at the purchase order level. The fact that 97.82% of the State's purchase orders are less than $100,000 shows that the capacity needed to perform more than 97.82% of the State Agencies' purchase orders is not considerable.

B. Largest MBE/WBE Purchase Orders Awarded by Industry

Table 6.7 shows that MBE/WBEs demonstrated the capacity to perform purchase orders as large as $8,190,482 in construction, $2,852,087 in construction-related services, $13,038,412 in services, and $2,700,902 in goods, commodities, and supplies. The size of the largest purchase orders that the State Agencies awarded to MBE/WBEs shows that MBE/WBEs have the capacity to perform substantial formal purchase orders.

Table 6.7: Largest Purchase Orders Awarded by the State Agencies to MBE/WBEs

Ethnic/Gender Group	Construction	Construction-related Services	Services (Including Professional Services)	Goods, Commodities, and Supplies
Black American Female	----	----	$27,942	$2,976
Black American Male	$1,188,528	$18,442	$1,189,488	$685,046
Asian American Female	----	----	$103,419	$2,700,902
Asian American Male	----	$2,852,087	$345,044	$340,884
Portuguese American Female	$392,345	----	$230,833	$39,560
Portuguese American Male	$2,124,191	----	$4,833	$20,596
Hispanic American Female	----	$151,272	----	----
Hispanic American Male	$8,190,482	$225,592	$815,922	$269,500
American Indian/Alaskan Native Female	----	----	$55,000	----
American Indian/Alaskan Native Male	$176,634	----	----	$1,103
Caucasian Female	$6,223,340	$1,698,025	$13,038,412	$747,465
Largest Dollar Amounts MBEs	**$8,190,482**	**$2,852,087**	**$1,189,488**	**$2,700,902**
Largest Dollar Amounts WBEs	**$6,223,340**	**$1,698,025**	**$13,038,412**	**$2,700,902**

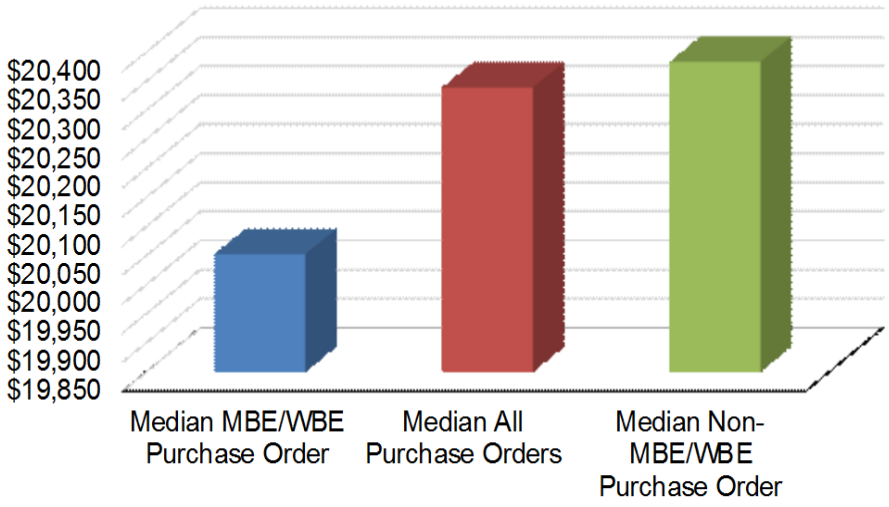
(----) Denotes a group that was not awarded any contracts within the respective industry

C. Frequency Distribution

The State Agencies' formal purchase orders range from $5,003 to $140,636,216. A frequency distribution was calculated for all State Agencies' purchase orders to define the center point, or median of the dataset. The median marked the midpoint between the smallest and largest purchase order. The frequency distribution was calculated separately for MBE/WBEs and non-MBE/WBEs. As shown in Chart 6.2, the center point of the State Agencies' purchase orders for all industries was $20,340. Fifty percent of the purchase orders were above and below $20,340. The median purchase order awarded to MBE/WBEs was $20,053 and to non-MBE/WBEs it was $20,384.

This finding illustrates that MBE/WBEs and non-MBE/WBEs have essentially the same capacity to perform a majority of the purchase orders awarded by the State Agencies. As shown in Table 6.7, there are also MBE/WBEs that have the capacity to perform very large purchase orders. It is also noteworthy to mention the conventional methods, such as subcontracting, joint ventures, and staff augmentation, that businesses have to increase their capacity.

Chart 6.2: Median Purchase Order Value



D. Formal Purchase Order Threshold Analysis

Outliers were removed from the statistical analysis because they represented the atypical purchase order values that were notably different from the rest of the purchase order values in the dataset. Removal of the outliers effectively limited the capacity needed to perform the purchase orders included in the disparity analysis.

E. Business Capacity Assessment

To ascertain the relative capacity of the minority and woman-owned businesses and non-minority male-owned businesses enumerated in the availability analysis, an eSurvey was administered to all businesses in the availability dataset. The online survey solicited responses about independent business-related socioeconomic factors that define the available businesses' capacity.

1. Profile of Respondents

Table 6.8 shows the ethnicity and gender of survey respondents. The business capacity survey respondents were 18.57% Black American; 7.14% Asian American; 17.14% Hispanic American; 1.43% American Indian/Alaskan Native; 1.43% Portuguese American; and 52.86% Caucasian American. Female business owners completed 41.43% of the surveys, and 58.57% were completed by male business owners.

Table 6.8: Ethnicity and Gender of eSurvey Respondents

Ethnicity and Gender	Black American	Asian American	Hispanic American	American Indian/Alaskan Native	Portuguese American	Caucasian American	Total
Female	2.86%	4.29%	2.86%	0.00%	0.00%	31.43%	41.43%
Male	15.71%	2.86%	14.29%	1.43%	1.43%	21.43%	58.57%
Total	**18.57%**	**7.14%**	**17.14%**	**1.43%**	**1.43%**	**52.86%**	**100.00%**

Ethnic groups were combined and analyzed as "minority males" and "minority females." As shown in Table 6.9, 11.59% were construction businesses; 26.09% of were construction-related services; 52.17% were services, and 10.14% were goods, commodities, and supplies.

Table 6.9: eSurvey Respondents' Ethnicity, Gender, and Primary Industry

Industry	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
Construction	0.00%	5.80%	2.90%	2.90%	11.59%
Construction-related Services	1.45%	10.14%	10.14%	4.35%	26.09%
Services	7.25%	18.84%	15.94%	10.14%	52.17%
Goods, Commodities, and Supplies	1.45%	1.45%	2.90%	4.35%	10.14%
Total	**10.14%**	**36.23%**	**31.88%**	**21.74%**	**100.00%**

2. Capacity Assessment Findings

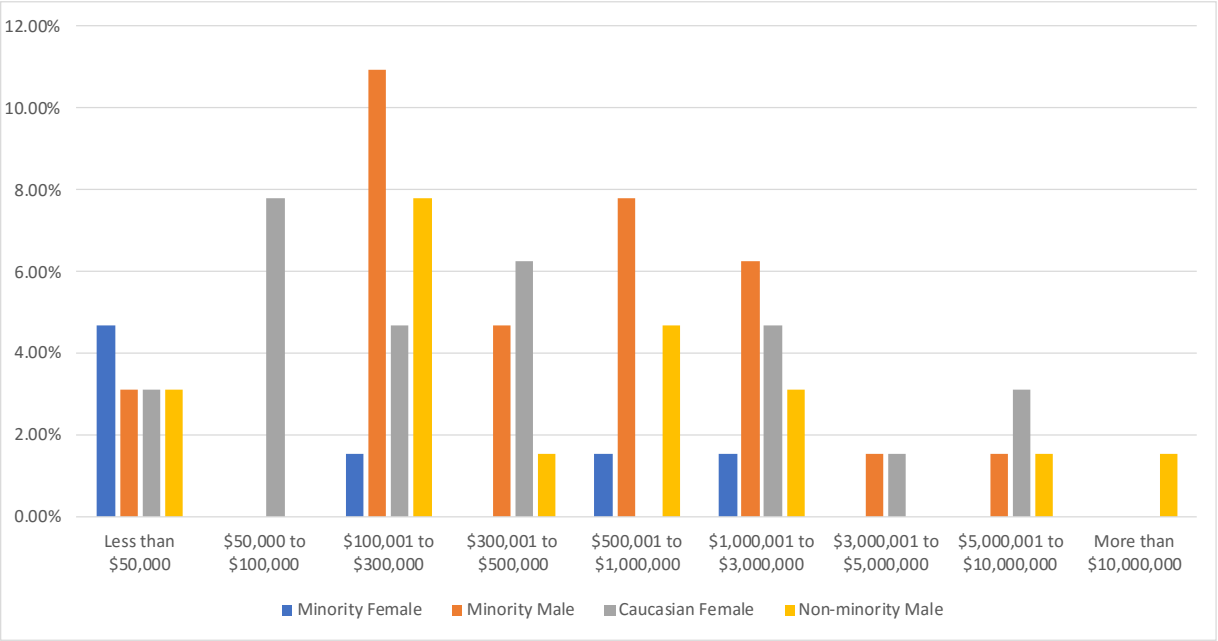
Table 6.11 details the businesses' annual gross revenue, which shows that 59.38% earned $500,000 and under; 14.06% earned $500,001 to $1,000,000; 15.63% earned $1,000,001 to $3,000,000; 3.13% earned $3,000,001 to $5,000,000; 6.25% earned $5,000,001 to $10,000,000; and 1.56% earned over $10 million.

Table 6.10: eSurvey Respondents' Annual Gross Revenue

Revenue	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
Less than $50,000	4.69%	3.13%	3.13%	3.13%	14.06%
$50,000 to $100,000	0.00%	0.00%	7.81%	0.00%	7.81%
$100,001 to $300,000	1.56%	10.94%	4.69%	7.81%	25.00%
$300,001 to $500,000	0.00%	4.69%	6.25%	1.56%	12.50%
$500,001 to $1,000,000	1.56%	7.81%	0.00%	4.69%	14.06%
$1,000,001 to $3,000,000	1.56%	6.25%	4.69%	3.13%	15.63%
$3,000,001 to $5,000,000	0.00%	1.56%	1.56%	0.00%	3.13%
$5,000,001 to $10,000,000	0.00%	1.56%	3.13%	1.56%	6.25%
More than $10,000,000	0.00%	0.00%	0.00%	1.56%	1.56%
Total	**9.38%**	**35.94%**	**31.25%**	**23.44%**	**100.00%**

Chart 6.3 shows that minority female, minority male, Caucasian female, and non-minority male revenue is most similar at the $50,000 and under level. This finding infers that the majority of businesses are small, regardless of the owner's ethnicity and gender.

Chart 6.3: eSurvey Respondents' Annual Gross Revenue



As shown in Table 6.11, 59.42% of business had 0 to 5 employees;[240] 18.84% had 6 to 10 employees; 13.04% had 11 to 20 employees; 7.25% had 21 to 50 employees; and 1.45% had more than 50 employees.

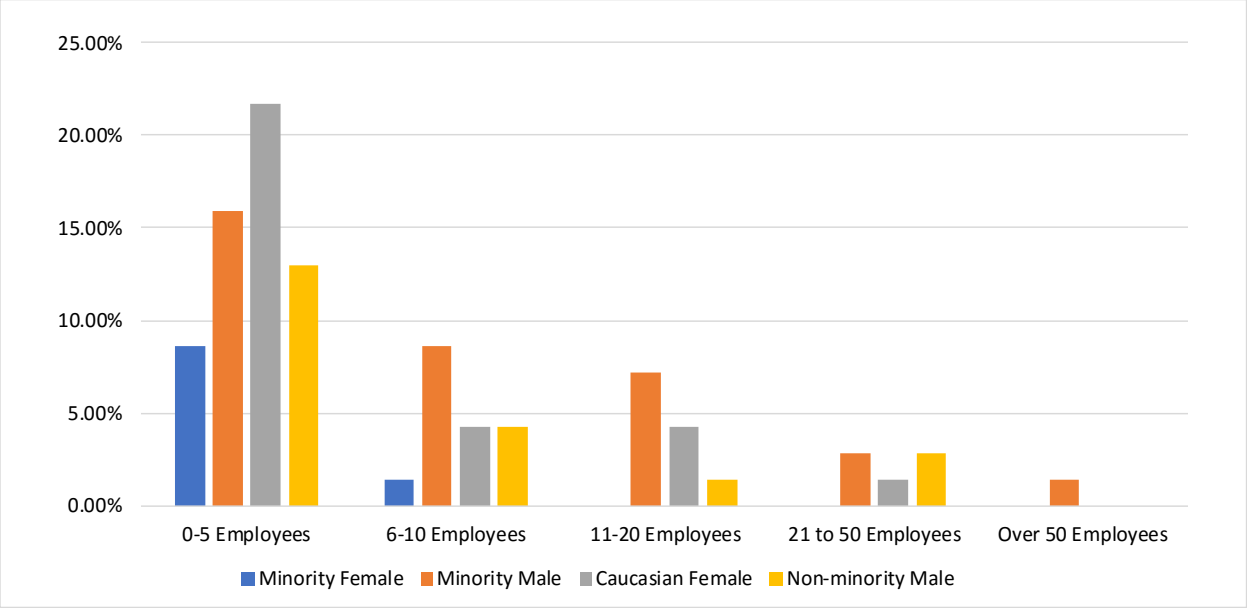
Table 6.11: eSurvey Respondents' Number of Employees

Number of Employees	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
0-5 Employees	8.70%	15.94%	21.74%	13.04%	59.42%
6-10 Employees	1.45%	8.70%	4.35%	4.35%	18.84%
11-20 Employees	0.00%	7.25%	4.35%	1.45%	13.04%
21 to 50 Employees	0.00%	2.90%	1.45%	2.90%	7.25%
Over 50 Employees	0.00%	1.45%	0.00%	0.00%	1.45%
Total	**10.14%**	**36.23%**	**31.88%**	**21.74%**	100.00%

Chart 6.4 shows that most businesses are small, including both MBE/WBEs and non-minority male-owned businesses. As reported in the eSurvey, 78.26% of all businesses are small, employing 10 or fewer persons.

[240] Business owners are not counted as employees.

Chart 6.4: eSurvey Respondents' Number of Employees



One consideration of capacity as discussed in the case law, is a firm's ability to bid and perform multiple purchase orders concurrently.[241] This factor relates to the personnel, capital resources and physical location available to perform multiple purchase orders concurrently. Table 6.13 shows that most businesses, including both MBE/WBEs and non-minority male-owned businesses, performed multiple concurrent purchase orders within a calendar year. Only 19.35% of businesses reported performing a single purchase order at a time.

Table 6.12: eSurvey Respondents' Percentage of Annual Purchase Orders

Annual Contracts	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
1 Purchase Order	3.23%	6.45%	6.45%	3.23%	19.35%
2 to 5 Purchase Orders	6.45%	16.13%	16.13%	9.68%	48.39%
6 to 10 Purchase Orders	0.00%	0.00%	6.45%	3.23%	9.68%
11 to 20 Purchase Orders	0.00%	6.45%	9.68%	3.23%	19.35%
More than 20 Purchase Orders	0.00%	0.00%	0.00%	3.23%	3.23%
Total	**6.45%**	**22.58%**	**32.26%**	**19.35%**	**80.65%**

[241] See *Rothe Development Corporation v. U.S. Department of Defense*, 262 F.3d 1306 (Fed. Cir. 2001); see also *Rothe Development Corporation v. U.S. Department of Defense*, 545 F.3d 1023 (Fed. Cir. 2008).

Chart 6.5 shows that most businesses, including MBE/WBEs and non-minority male-owned businesses, had successfully performed multiple purchase orders concurrently.

Chart 6.5: eSurvey Respondents' Number of Purchase Orders

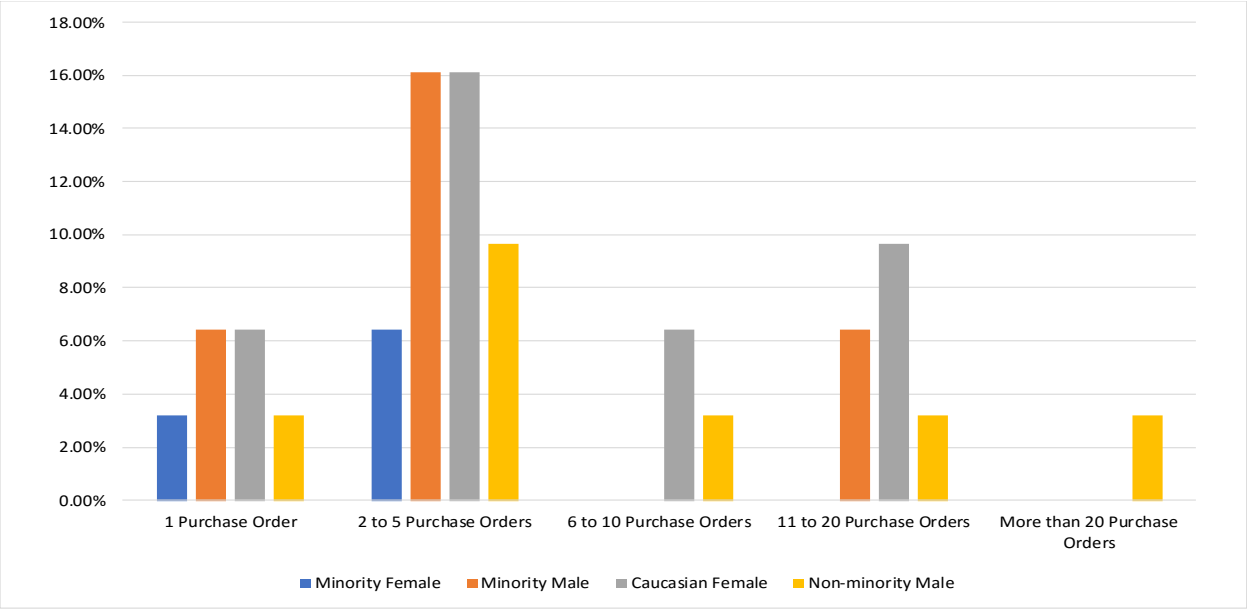


Table 6.14 shows that the majority of businesses are 21 to 50 years old (37.68%), illustrating that there are mature MBE/WBEs within the pool of available businesses. No respondent had a business over 50 years old. This finding is consistent with the passage of anti-discrimination legislation, beginning with the Civil Rights Act of 1964, which spawned the 1971 Executive Order 11625. This early legislation applied to federally funded contracts and minimally affected local laws. Local government affirmative action policies were not accelerated until after 1983 when the United States Department of Transportation (USDOT) Disadvantaged Business Enterprise (DBE) regulations were promulgated. The DBE regulations required states, counties, cities, and transportation agencies to implement affirmative action contracting programs as a condition of USDOT funding.

Table 6.13: eSurvey Respondents' Years in Business Operation

Years in Operation	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
Less than 5 years	1.45%	4.35%	1.45%	0.00%	7.25%
5 - 10 years	4.35%	13.04%	8.70%	2.90%	28.99%
11 - 20 years	0.00%	10.14%	8.70%	7.25%	26.09%
21 - 50 years	4.35%	8.70%	13.04%	11.59%	37.68%
More than 50 years	0.00%	0.00%	0.00%	0.00%	0.00%
Total	**10.14%**	**36.23%**	**31.88%**	**21.74%**	**100.00%**

Chart 6.6 also shows that most MBE/WBEs have been in operation for 21 to 50 years. However, the availability pool also includes mature MBE/WBEs with significant experience in their respective fields.

Chart 6.6: eSurvey Respondents' Years in Operation

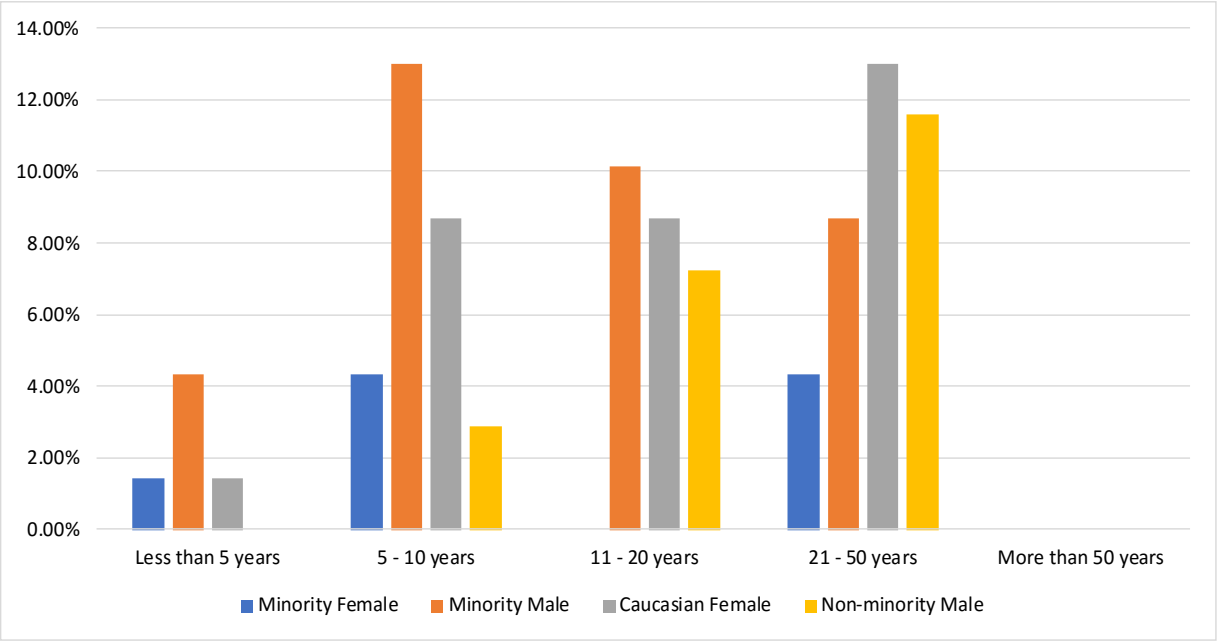


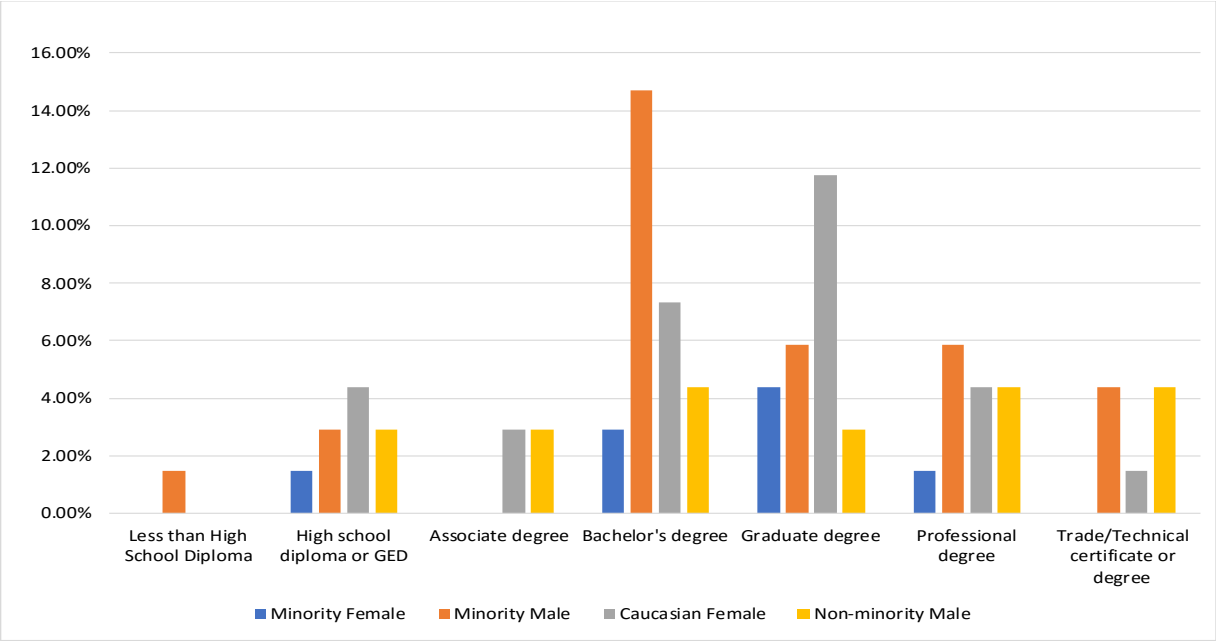
Table 6.15 shows that 29.41% of business owners have a bachelor's degree. Within this pool, minority males obtained bachelor's degrees at a higher frequency than non-minority male business owners. Despite educational attainment, non-minority male-owned businesses still received most of the State's purchase orders as detailed in *Chapter 3: Prime Contractor Utilization Analysis.*

Table 6.14: eSurvey Respondents' Education Level of Business Owners

Education	Minority Female	Minority Male	Caucasian Female	Non-minority Male	Total
Less than High School Diploma	0.00%	1.47%	0.00%	0.00%	1.47%
High school diploma or GED	1.47%	2.94%	4.41%	2.94%	11.76%
Associate degree	0.00%	0.00%	2.94%	2.94%	5.88%
Bachelor's degree	2.94%	14.71%	7.35%	4.41%	29.41%
Graduate degree	4.41%	5.88%	11.76%	2.94%	25.00%
Professional degree	1.47%	5.88%	4.41%	4.41%	16.18%
Trade/Technical certificate or degree	0.00%	4.41%	1.47%	4.41%	10.29%
Total	**10.29%**	**33.82%**	**32.35%**	**22.06%**	**100.00%**

Chart 6.7 shows that most business owners have a bachelor's degree or higher. A total of 70.59% of business owners have a bachelor's degree, graduate degree, or a professional degree.

Chart 6.7: eSurvey Respondents' Educational Attainment



The results of the eSurvey are evidence that willing MBE/WBEs have demonstrated capacity comparable to non-minority male-owned businesses. Furthermore, the analysis shows that the capacity of MBE/WBEs and similarly situated non-minority male-owned businesses enumerated in the availability dataset and included in the disparity analysis is comparable. The profile of most businesses in the dataset, including MBE/WBEs and non-minority males, have the following characteristics:

- Employ ten or fewer employees.
- Performed multiple public and private purchase orders concurrently.
- Have gross revenue of $500,000 or less.
- Operated their business up to 50 years.
- Have a bachelor's degree.

Considering the metrics reviewed in this socio-economic analysis the fact that the State Agencies awarded a disproportionate number of purchase orders to non-minority males cannot be attributed to any single factor or combination of capacity measures. Given the overwhelming evidence that the MBE/WBEs have comparable capacity to similarly situated non-minority male-owned businesses the findings documented in the statistical analysis presented in Chapter 7: *Prime Contract Disparity* cannot be explained as the result MBE/WBE business capacity.

III. Prime Contractor Availability Analysis

The prime contractor availability analysis is based on the 1,342 willing and able market area businesses enumerated from the four sources described in *Section II* above. The available market area businesses are presented by ethnicity, gender, and industry in the sections below.

A. Construction Prime Contractor Availability

The distribution of available construction prime contractors is summarized in Table 6.16 below.

Black Americans account for 8.45% of the construction prime contractors in the State's market area.

Asian Americans account for 0.68% of the construction prime contractors in the State's market area.

Portuguese Americans account for 9.12% of the construction prime contractors in the State's market area.

Hispanic Americans account for 9.46% of the construction prime contractors in the State's market area.

American Indian/Alaskan Natives account for 1.01% of the construction prime contractors in the State's market area.

Caucasian Females account for 12.50% of the construction prime contractors in the State's market area.

Non-minority Males account for 58.78% of the construction prime contractors in the State's market area.

Minority Businesses Enterprises account for 28.72% of the construction prime contractors in the State's market area.

Woman Businesses Enterprises account for 14.86% of the construction prime contractors in the State's market area.

Table 6.15: Available Construction Prime Contractors, July 1, 2014 to June 30, 2017

Ethnicity	Percent of Businesses
Black Americans	8.45%
Asian Americans	0.68%
Portuguese Americans	9.12%
Hispanic Americans	9.46%
American Indian/Alaskan Natives	1.01%
Caucasian Females	12.50%
Non-minority Males	58.78%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
Black American Females	0.34%
Black American Males	8.11%
Asian American Females	0.00%
Asian American Males	0.68%
Portuguese American Females	1.69%
Portuguese American Males	7.43%
Hispanic American Females	0.34%
Hispanic American Males	9.12%
American Indian/Alaskan Native Females	0.00%
American Indian/Alaskan Native Males	1.01%
Caucasian Females	12.50%
Non-minority Males	58.78%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	28.72%
Woman Business Enterprises	14.86%

B. Construction-related Services Prime Contractor Availability

The distribution of available construction-related services prime contractors is summarized in Table 6.17 below.

Black Americans account for 3.97% of the construction-related services prime contractors in the State's market area.

Asian Americans account for 4.76% of the construction-related services prime contractors in the State's market area.

Portuguese Americans account for none of the construction-related services prime contractors in the State's market area.

Hispanic Americans account for 3.17% of the construction-related services prime contractors in the State's market area.

American Indian/Alaskan Natives account for 0.79% of the construction-related services prime contractors in the State's market area.

Caucasian Females account for 27.78% of the construction-related services prime contractors in the State's market area.

Non-minority Males account for 59.52% of the construction-related services prime contractors in the State's market area.

Minority Businesses Enterprises account for 12.70% of the construction-related services prime contractors in the State's market area.

Woman Businesses Enterprises account for 29.37% of the construction-related services prime contractors in the State's market area.

Table 6.16: Available Construction-related Services Prime Contractors, July 1, 2014 to June 30, 2017

Ethnicity	Percent of Businesses
Black Americans	3.97%
Asian Americans	4.76%
Portuguese Americans	0.00%
Hispanic Americans	3.17%
American Indian/Alaskan Natives	0.79%
Caucasian Females	27.78%
Non-minority Males	59.52%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
Black American Females	0.79%
Black American Males	3.17%
Asian American Females	0.79%
Asian American Males	3.97%
Portuguese American Females	0.00%
Portuguese American Males	0.00%
Hispanic American Females	0.00%
Hispanic American Males	3.17%
American Indian/Alaskan Native Females	0.00%
American Indian/Alaskan Native Males	0.79%
Caucasian Females	27.78%
Non-minority Males	59.52%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	12.70%
Woman Business Enterprises	29.37%

C. Services (Including Professional Services) Prime Contractor Availability

The distribution of available services prime contractors is summarized in Table 6.18 below.

Black Americans account for 5.50% of the services prime contractors in the State's market area.

Asian Americans account for 1.10% of the services prime contractors in the State's market area.

Portuguese Americans account for 1.22% of the services prime contractors in the State's market area.

Hispanic Americans account for 2.20% of the services prime contractors in the State's market area.

American Indian/Alaskan Natives account for 0.37% of the services prime contractors in the State's market area.

Caucasian Females account for 21.39% of the services prime contractors in the State's market area.

Non-minority Males account for 68.22% of the services prime contractors in the State's market area.

Minority Businesses Enterprises account for 10.39% of the services prime contractors in the State's market area.

Woman Businesses Enterprises account for 24.57% of the services prime contractors in the State's market area.

Table 6.17: Available Services (including Professional Services) Prime Contractors, July 1, 2014 to June 30, 2017

Ethnicity	Percent of Businesses
Black Americans	5.50%
Asian Americans	1.10%
Portuguese Americans	1.22%
Hispanic Americans	2.20%
American Indian/Alaskan Natives	0.37%
Caucasian Females	21.39%
Non-minority Males	68.22%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
Black American Females	1.34%
Black American Males	4.16%
Asian American Females	0.37%
Asian American Males	0.73%
Portuguese American Females	0.86%
Portuguese American Males	0.37%
Hispanic American Females	0.49%
Hispanic American Males	1.71%
American Indian/Alaskan Native Females	0.12%
American Indian/Alaskan Native Males	0.24%
Caucasian Females	21.39%
Non-minority Males	68.22%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	10.39%
Woman Business Enterprises	24.57%

D. Goods, Commodities, and Supplies Services Prime Contractor Availability

The distribution of available goods, commodities, and supplies prime contractors is summarized in Table 6.19 below.

Black Americans account for 2.15% of the goods, commodities, and supplies prime contractors in the State's market area.

Asian Americans account for 0.95% of the goods, commodities, and supplies prime contractors in the State's market area.

Hispanic Americans account for 2.15% of the goods, commodities, and supplies prime contractors in the State's market area.

American Indian/Alaskan Natives account for 0.48% of the goods, commodities, and supplies prime contractors in the State's market area.

Portuguese Americans account for none of the goods, commodities, and supplies prime contractors in the State's market area.

Caucasian Females account for 14.80% of the goods, commodities, and supplies prime contractors in the State's market area.

Non-minority Males account for 79.47% of the goods, commodities, and supplies prime contractors in the State's market area.

Minority Businesses Enterprises account for 5.73% of the goods, commodities, and supplies prime contractors in the State's market area.

Woman Businesses Enterprises account for 16.71% of the goods, commodities, and supplies prime contractors in the State's market area.

Table 6.18: Available Goods, Commodities, and Supplies Prime Contractors, July 1, 2014 to June 30, 2017

Ethnicity	Percent of Businesses
Black Americans	2.15%
Asian Americans	0.95%
Portuguese Americans	2.15%
Hispanic Americans	0.48%
American Indian/Alaskan Natives	0.00%
Caucasian Females	14.80%
Non-minority Males	79.47%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
Black American Females	0.72%
Black American Males	1.43%
Asian American Females	0.72%
Asian American Males	0.24%
Portuguese American Females	0.48%
Portuguese American Males	1.67%
Hispanic American Females	0.00%
Hispanic American Males	0.48%
American Indian/Alaskan Native Females	0.00%
American Indian/Alaskan Native Males	0.00%
Caucasian Females	14.80%
Non-minority Males	79.47%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	5.73%
Woman Business Enterprises	16.71%

IV. Subcontractor Availability Analysis

A. Source of Willing and Able Subcontractors

All available prime contractors were included in the calculation of the subcontractor availability; however, only prime contractors that provided similar services to the services provided by subcontractors were included. The similarity of services between prime contractors and subcontractors was determined based on: companies having the same NAICS codes as their subcontractors and shared keywords found in the subcontractors' names or sub work descriptions. Additional subcontractors in the State's market area were identified using the source in Table 6.19.

Subcontractor availability was not calculated for constructions-related services, services (including professional services), and goods, commodities, and supplies, as the subcontracting activity in those industries was limited.

Table 6.19: Unique Subcontractor Availability Data Source

Type Record	Type Information
Subcontract awards provided by the State	MBE/WBEs and non-MBE/WBEs

B. Determination of Willingness and Capacity

Subcontractor availability was determined by the utilization of prime contractors and the unique businesses utilized as subcontractors, the inclusion of businesses from certification sources, willing companies from Directory sources, Business Surveys, and community meeting attendees. Therefore, the determination of willingness and capacity was achieved. Furthermore, *Croson* does not require a separate measure of subcontractor capacity in the analysis of subcontractor availability.

C. Construction Subcontractor Availability

The distribution of available construction subcontractors is summarized in Table 6.20 below.

Black Americans account for 7.12% of the construction subcontractors in the State's market area.

Asian Americans account for 1.49% of the construction subcontractors in the State's market area.

Portuguese Americans account for 4.82% of the construction subcontractors in the State's market area.

Hispanic Americans account for 5.40% of the construction subcontractors in the State's market area.

American Indian/Alaskan Natives account for 0.69% of the construction subcontractors in the State's market area.

Caucasian Females account for 21.81% of the construction subcontractors in the State's market area.

Non-minority Males account for 58.67% of the construction subcontractors in the State's market area.

Minority Businesses Enterprises account for 19.52% of the construction subcontractors in the State's market area.

Woman Businesses Enterprises account for 25.26% of the construction subcontractors in the State's market area.

Table 6.20: Available Construction Subcontractors
July 1, 2014 to June 30, 2017

Group	Percent of Businesses
Black American	7.12%
Asian American	1.49%
Portuguese American	4.82%
Hispanic American	5.40%
American Indian/Alaskan Native	0.69%
Caucasian Females	21.81%
Non-minority Males	58.67%
TOTAL	100.00%
Ethnicity and Gender	**Percent of Businesses**
Black American Females	1.15%
Black American Males	5.97%
Asian American Females	0.46%
Asian American Males	1.03%
Portuguese American Females	1.26%
Portuguese American Males	3.56%
Hispanic American Females	0.46%
Hispanic American Males	4.94%
American Indian/Alaskan Native Females	0.11%
American Indian/Alaskan Native Males	0.57%
Caucasian Females	21.81%
Non-minority Males	58.67%
TOTAL	100.00%
Minority and Females	**Percent of Businesses**
Minority Business Enterprises	19.52%
Woman Business Enterprises	25.26%

V. Summary

This chapter presents the enumeration of willing and able market area businesses by ethnicity, gender, and industry. Minority business enterprises account for 13.41% of construction, construction-related services, services, and goods, commodities, and supplies prime contractors, woman business enterprises account for 21.83%, and non-minority male-owned businesses account for 67.44%. Minority businesses enterprises account for 19.52% of construction subcontractors, woman business enterprises account for 21.81%, and non-minority male-owned businesses account for 58.67%.

The capacity of the enumerated businesses was assessed using five methods. They included a: 1) review of the State Agencies' purchase order size distribution to identify the capacity needed to perform most of the State Agencies' purchase orders; 2) determination of the largest purchase orders the State Agencies awarded to MBE/WBEs; 3) frequency distribution that defined the median size of purchase orders awarded to both MBE/WBE and non-minority male-owned businesses; 4) threshold analysis that defined the purchase orders that were outliers in order to increase the reliability of the statistical findings; and 5) business capacity analysis that profiled the socio-economic profile of the available MBE/WBE businesses compared to similarly situated non-minority male-owned businesses.

The findings from the capacity analyses illustrate that the majority of the State Agencies purchase orders awarded during the study period were relatively small. In addition, MBE/WBEs received some of the largest purchase orders and had a business profile comparable to similarly situated non-minority male-owned businesses.

CHAPTER 7: Prime Contract Disparity Analysis

I. Introduction

The objective of this chapter is to determine if available Minority and Woman-owned Business Enterprise (MBE/WBE) contractors were underutilized on the purchase orders the State Agencies issued during the July 1, 2014 to June 30, 2017 study period. Under a fair and equitable system of awarding purchase orders, the proportion of purchase order dollars awarded to MBE/WBEs should be relatively close to the corresponding proportion of available MBE/WBEs[242] in the relevant market area. If the ratio of utilized MBE/WBE prime contractors compared to available MBE/WBE prime contractors is less than one, a statistical test is conducted to calculate the probability of observing the empirical disparity ratio. This analysis assumes a fair and equitable system.[243] *City of Richmond v. J.A. Croson Co. (Croson)*[244] states that an inference of discrimination can be made if the disparity is statistically significant. Under the *Croson* standard, non-minority male-owned businesses (non-MBE/WBE) are not subjected to a statistical test of underutilization.

The first step in conducting the statistical test is to calculate the purchase order dollars 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 is to compute the difference between each ethnic and gender group's expected amount and the **actual contract amount** received by each group. The **disparity ratio** is then computed by dividing the actual purchase order amount by the expected purchase order amount.

For parametric and non-parametric analyses, the p-value takes into account the number of purchase orders, amount of purchase order dollars, and variation in purchase order dollars. If the difference between the actual and expected number of purchase orders and total purchase order dollars has a p-value equal to or less than 0.05, the difference is statistically significant.[245]

In the simulation analysis, the p-value takes into account a combination of the distribution formulated from the empirical data and the purchase order dollar amounts. If the actual purchase order dollar amount, or actual purchase rank, falls below the fifth percentile of the distribution, it denotes a p-value less than 0.05.

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[242] Availability is defined as the number of ready, willing, and able firms. The methodology for determining willing and able firms is detailed in *Chapter 6: Prime Contractor and Subcontractor Availability Analysis*.

[243] 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 the statistical standard used in physical and social sciences and is thus used in the present report to determine if an inference of discrimination can be made.

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

[245] This study does not test statistically the overutilization of minority or gender groups or the underutilization of non-minority males.

Our statistical model employs all three steps simultaneously to each industry. Findings from one of the three methods are reported. If the p-value from any one of the three methods is less than 0.05, the finding is reported in the disparity tables as statistically significant. If the p-value is greater than 0.05, the finding is reported as not statistically significant.

II. Disparity Analysis

A purchase order disparity analysis was performed on the contracts awarded in the construction, construction-related services, services (including professional services), and goods, commodities, and supplies industries during the July 1, 2014 to June 30, 2017 study period. The informal thresholds were defined according to the State of Rhode Island's Procurement Regulations, amended June 20, 2011 (Procurement Regulations). The informal thresholds for each industry are listed in Table 7.1.

Table 7.1: Informal Thresholds for Analysis by Industry

Industry	Informal Threshold
Construction	$10,000 and Less
Construction-related Services	$5,000 and Less
Services	$5,000 and Less
Goods, Commodities, and Supplies	$5,000 and Less

The formal threshold, as defined in the Procurement Regulations, is over $10,000 for construction and over $5,000 for construction-related services, services, and goods, commodities, and supplies. However, to ensure that the disparity analysis was not distorted by the presence of prime contracts that required significant capacity to perform, a formal contract size threshold was set for each industry. The statistical analysis performed to define the formal thresholds analyzed is discussed in *Chapter 3: Prime Contractor Utilization Analysis*. The formal thresholds for each industry are listed in Table 7.2.

Table 7.2: Formal Thresholds for Analysis by Industry

Industry	Formal Threshold
Construction	Between $10,000 and $1,120,000
Construction-related Services	Between $5,000 and $430,000
Services	Between $5,000 and $130,000
Goods, Commodities, and Supplies	Between $5,000 and $80,000

The findings from the methods employed to calculate statistical significance, as discussed on page 7-1, are presented in the subsequent sections. The outcomes of the statistical analyses are presented in the "P-Value" column of the tables. A description of these statistical outcomes, as shown in the disparity tables, is presented below in Table 7.3.

Table 7.3: Statistical Outcome Descriptions

P-Value Outcome	Definition of P-Value Outcome
< .05 *	This underutilization is statistically significant.
not significant	• MBE/WBEs: This underutilization is not statistically significant. • Non-minority males: This overutilization is not statistically significant.
< .05 †	This overutilization is statistically significant.
----	While this group was underutilized, there were too few available firms to determine statistical significance.
**	This study does not test statistically the overutilization of minority or gender groups or the underutilization of non-minority males.

A. Disparity Analysis: Informal Purchase Orders by Industry

1. Construction Purchase Orders Valued $10,000 and Less

The disparity analysis of construction purchase orders valued $10,000 and less is described below and depicted in Table 7.4 and Chart 7.1.

Black Americans represent 8.45% of the available construction businesses and received 1.42% of the dollars on construction contracts valued $10,000 and less. This underutilization is statistically significant.

Asian Americans represent 0.68% of the available construction businesses and received 0.00% of the dollars on construction contracts valued $10,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

Portuguese Americans represent 9.12% of the available construction businesses and received 9.01% of the dollars on construction purchase orders valued $10,000 and less. This underutilization is not statistically significant.

Hispanic Americans represent 9.46% of the available construction businesses and received 0.00% of the dollars on construction purchase orders valued $10,000 and less. This underutilization is statistically significant.

American Indian/Alaskan Natives represent 1.01% of the available construction businesses and received 0.00% of the dollars on construction purchase orders valued $10,000 and less. This underutilization is statistically significant.

Caucasian Females represent 12.50% of the available construction businesses and received 7.83% of the dollars on construction purchase orders valued $10,000 and less. This underutilization is statistically significant.

Non-minority Males represent 58.78% of the available construction businesses and received 81.73% of dollars on construction purchase orders valued $10,000 and less. This overutilization is statistically significant.

Minority-owned Businesses represent 28.72% of the available construction businesses and received 10.43% of dollars on construction contracts valued $10,000 and less. This underutilization is statistically significant.

Woman-owned Businesses represent 14.86% of the available construction businesses and received 8.73% of dollars on construction contracts valued $10,000 and less. This underutilization is statistically significant.

Table 7.4: Disparity Analysis: Construction Purchase Orders Valued $10,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$61,094	1.42%	8.45%	$362,539	-$301,446	0.17	< .05 *
Asian Americans	$0	0.00%	0.68%	$29,003	-$29,003	0.00	----
Portuguese Americans	$386,676	9.01%	9.12%	$391,543	-$4,867	0.99	not significant
Hispanic Americans	$0	0.00%	9.46%	$406,044	-$406,044	0.00	< .05 *
American Indian/Alaskan Natives	$0	0.00%	1.01%	$43,505	-$43,505	0.00	< .05 *
Caucasian Females	$336,290	7.83%	12.50%	$536,558	-$200,268	0.63	< .05 *
Non-minority Males	$3,508,408	81.73%	58.78%	$2,523,275	$985,133	1.39	< .05 †
TOTAL	$4,292,467	100.00%	100.00%	$4,292,467			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	0.34%	$14,502	-$14,502	0.00	----
Black American Males	$61,094	1.42%	8.11%	$348,038	-$286,944	0.18	< .05 *
Asian American Females	$0	0.00%	0.00%	$0	$0	----	----
Asian American Males	$0	0.00%	0.68%	$29,003	-$29,003	0.00	----
Portuguese American Females	$38,375	0.89%	1.69%	$72,508	-$34,133	0.53	< .05 *
Portuguese American Males	$348,300	8.11%	7.43%	$319,035	$29,266	1.09	**
Hispanic American Females	$0	0.00%	0.34%	$14,502	-$14,502	0.00	----
Hispanic American Males	$0	0.00%	9.12%	$391,543	-$391,543	0.00	< .05 *
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$0	0.00%	1.01%	$43,505	-$43,505	0.00	< .05 *
Caucasian Females	$336,290	7.83%	12.50%	$536,558	-$200,268	0.63	< .05 *
Non-minority Males	$3,508,408	81.73%	58.78%	$2,523,275	$985,133	1.39	< .05 †
TOTAL	$4,292,467	100.00%	100.00%	$4,292,467			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$447,769	10.43%	28.72%	$1,232,634	-$784,865	0.36	< .05 *
Woman Business Enterprises	$374,666	8.73%	14.86%	$638,069	-$263,404	0.59	< .05 *

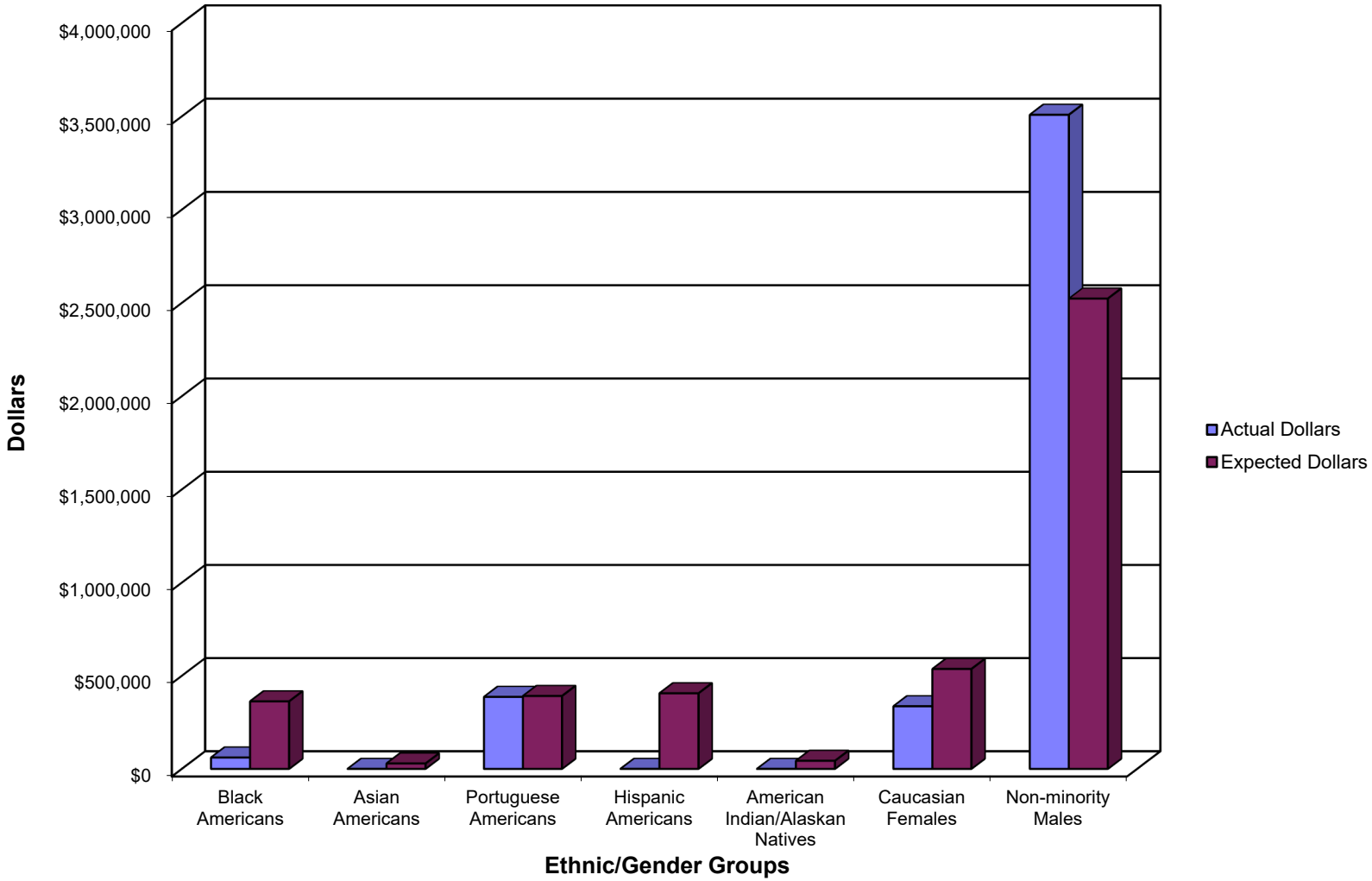
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.1: Disparity Analysis: Construction Purchase Orders Valued $10,000 and Less, July 1, 2014 to June 30, 2017



2. Construction-related Services Purchase Orders Valued $5,000 and Less

The disparity analysis of construction-related services prime purchase orders valued $5,000 and less is described below and depicted in Table 7.5 and Chart 7.2.

Black Americans represent 3.97% of the available construction-related services businesses and received 0.00% of the dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is statistically significant.

Asian Americans represent 4.76% of the available construction-related services businesses and received 0.26% of the dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is statistically significant.

Portuguese Americans represent 0.00% of the available construction-related services businesses and received 0.00% of the dollars on construction-related services purchase orders valued $5,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

Hispanic Americans represent 3.17% of the available construction-related services businesses and received 0.96% of the dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is not statistically significant.

American Indian/Alaskan Natives represent 0.79% of the available construction-related services businesses and received 0.00% of the dollars on construction-related services purchase orders valued $5,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

Caucasian Females represent 27.78% of the available construction-related services businesses and received 3.21% of the dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is statistically significant.

Non-minority Males represent 59.52% of the available construction-related services businesses and received 95.57% of dollars on construction-related services purchase orders valued $5,000 and less. This overutilization is statistically significant.

Minority-owned Businesses represent 12.70% of the available construction-related services businesses and received 1.22% of dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is statistically significant.

Woman-owned Businesses represent 29.37% of the available construction-related services businesses and received 3.21% of dollars on construction-related services purchase orders valued $5,000 and less. This underutilization is statistically significant.

Table 7.5: Disparity Analysis: Construction-related Services Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$0	0.00%	3.97%	$7,628	-$7,628	0.00	< .05 *
Asian Americans	$500	0.26%	4.76%	$9,153	-$8,653	0.05	< .05 *
Portuguese Americans	$0	0.00%	0.00%	$0	$0	----	----
Hispanic Americans	$1,849	0.96%	3.17%	$6,102	-$4,253	0.30	not significant
American Indian/Alaskan Natives	$0	0.00%	0.79%	$1,526	-$1,526	0.00	----
Caucasian Females	$6,163	3.21%	27.78%	$53,394	-$47,231	0.12	< .05 *
Non-minority Males	$183,708	95.57%	59.52%	$114,417	$69,291	1.61	< .05 †
TOTAL	$192,220	100.00%	100.00%	$192,220			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	0.79%	$1,526	-$1,526	0.00	----
Black American Males	$0	0.00%	3.17%	$6,102	-$6,102	0.00	< .05 *
Asian American Females	$0	0.00%	0.79%	$1,526	-$1,526	0.00	----
Asian American Males	$500	0.26%	3.97%	$7,628	-$7,128	0.07	< .05 *
Portuguese American Females	$0	0.00%	0.00%	$0	$0	----	----
Portuguese American Males	$0	0.00%	0.00%	$0	$0	----	----
Hispanic American Females	$0	0.00%	0.00%	$0	$0	----	----
Hispanic American Males	$1,849	0.96%	3.17%	$6,102	-$4,253	0.30	not significant
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$0	0.00%	0.79%	$1,526	-$1,526	0.00	----
Caucasian Females	$6,163	3.21%	27.78%	$53,394	-$47,231	0.12	< .05 *
Non-minority Males	$183,708	95.57%	59.52%	$114,417	$69,291	1.61	< .05 †
TOTAL	$192,220	100.00%	100.00%	$192,220			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$2,349	1.22%	12.70%	$24,409	-$22,060	0.10	< .05 *
Woman Business Enterprises	$6,163	3.21%	29.37%	$56,446	-$50,283	0.11	< .05 *

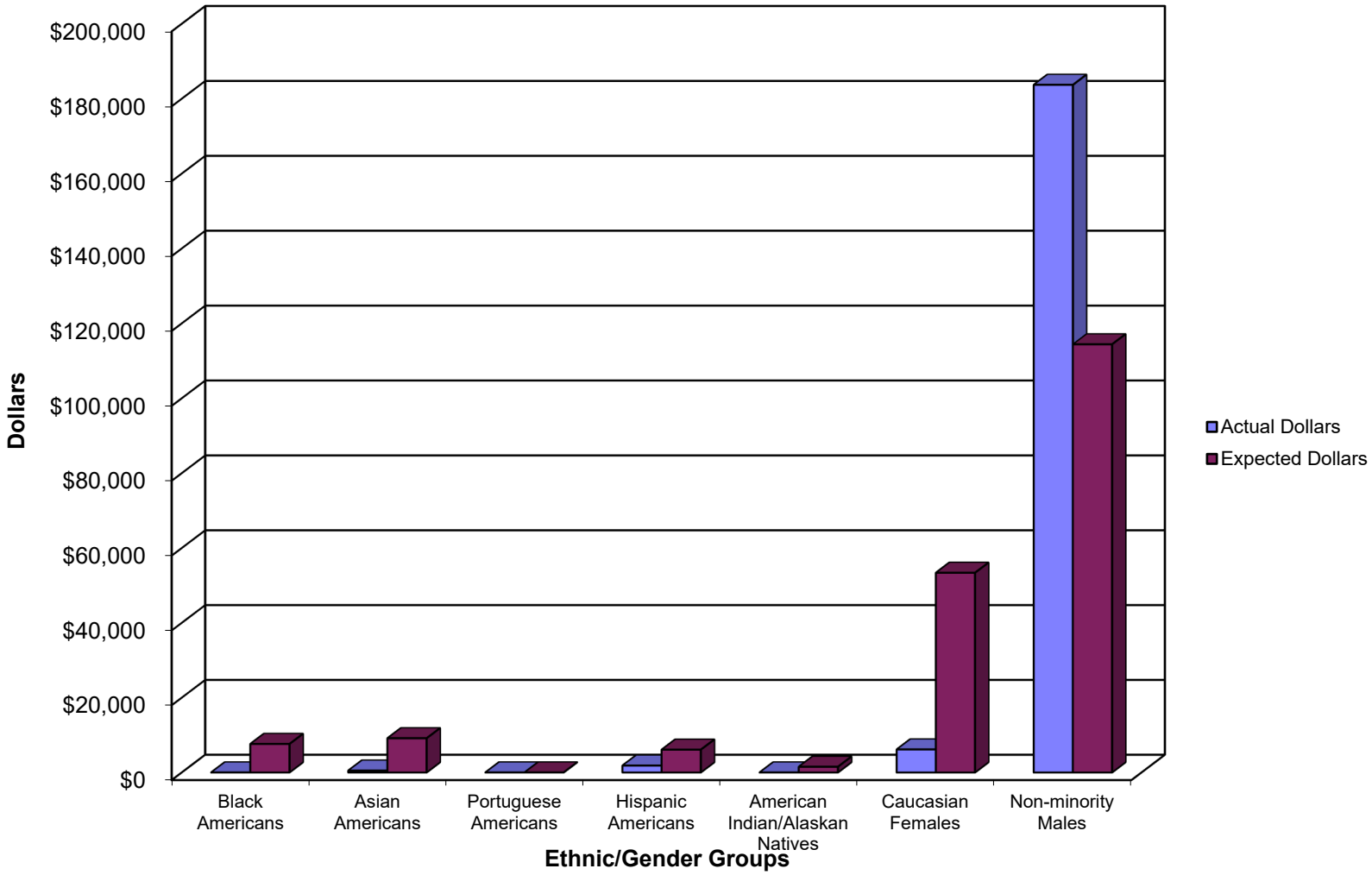
(*) denotes a statistically significant underutilization.

(†) 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 no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.2: Disparity Analysis: Construction-related Services Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017



3. Services Purchase Orders Valued $5,000 and Less

The disparity analysis of services prime purchase orders $5,000 and less is described below and depicted in Table 7.6 and Chart 7.3.

Black Americans represent 5.50% of the available services businesses and received 1.86% of the dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

Asian Americans represent 1.10% of the available services businesses and received 1.19% of the dollars on services purchase orders $5,000 and less. This study does not test statistically the overutilization of MBEs or WBEs.

Portuguese Americans represent 1.22% of the available services businesses and received 0.54% of the dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

Hispanic Americans represent 2.20% of the available services businesses and received 0.39% of the dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

American Indian/Alaskan Natives represent 0.37% of the available services businesses and received 0.00% of the dollars on services purchase orders $5,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

Caucasian Females represent 21.39% of the available services businesses and received 5.60% of the dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

Non-minority Males represent 68.22% of the available services businesses and received 90.40% of dollars on services purchase orders $5,000 and less. This overutilization is statistically significant.

Minority-owned Businesses represent 10.39% of the available services businesses and received 3.99% of dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

Woman-owned Businesses represent 24.57% of the available services businesses and received 6.51% of dollars on services purchase orders $5,000 and less. This underutilization is statistically significant.

Table 7.6: Disparity Analysis: Services Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$205,935	1.86%	5.50%	$607,839	-$401,904	0.34	< .05 *
Asian Americans	$131,720	1.19%	1.10%	$121,568	$10,152	1.08	**
Portuguese Americans	$60,184	0.54%	1.22%	$135,075	-$74,891	0.45	< .05 *
Hispanic Americans	$43,362	0.39%	2.20%	$243,135	-$199,773	0.18	< .05 *
American Indian/Alaskan Natives	$200	0.00%	0.37%	$40,523	-$40,323	0.00	----
Caucasian Females	$618,950	5.60%	21.39%	$2,363,817	-$1,744,867	0.26	< .05 *
Non-minority Males	$9,988,804	90.40%	68.22%	$7,537,199	$2,451,605	1.33	< .05 †
TOTAL	$11,049,156	100.00%	100.00%	$11,049,156			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	1.34%	$148,583	-$148,583	0.00	< .05 *
Black American Males	$205,935	1.86%	4.16%	$459,256	-$253,321	0.45	< .05 *
Asian American Females	$53,363	0.48%	0.37%	$40,523	$12,840	1.32	**
Asian American Males	$78,357	0.71%	0.73%	$81,045	-$2,688	0.97	----
Portuguese American Females	$46,587	0.42%	0.86%	$94,553	-$47,966	0.49	----
Portuguese American Males	$13,598	0.12%	0.37%	$40,523	-$26,925	0.34	----
Hispanic American Females	$0	0.00%	0.49%	$54,030	-$54,030	0.00	----
Hispanic American Males	$43,362	0.39%	1.71%	$189,105	-$145,743	0.23	< .05 *
American Indian/Alaskan Native Females	$200	0.00%	0.12%	$13,508	-$13,308	0.01	----
American Indian/Alaskan Native Males	$0	0.00%	0.24%	$27,015	-$27,015	0.00	----
Caucasian Females	$618,950	5.60%	21.39%	$2,363,817	-$1,744,867	0.26	< .05 *
Non-minority Males	$9,988,804	90.40%	68.22%	$7,537,199	$2,451,605	1.33	< .05 †
TOTAL	$11,049,156	100.00%	100.00%	$11,049,156			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$441,401	3.99%	10.39%	$1,148,140	-$706,738	0.38	< .05 *
Woman Business Enterprises	$719,099	6.51%	24.57%	$2,715,013	-$1,995,913	0.26	< .05 *

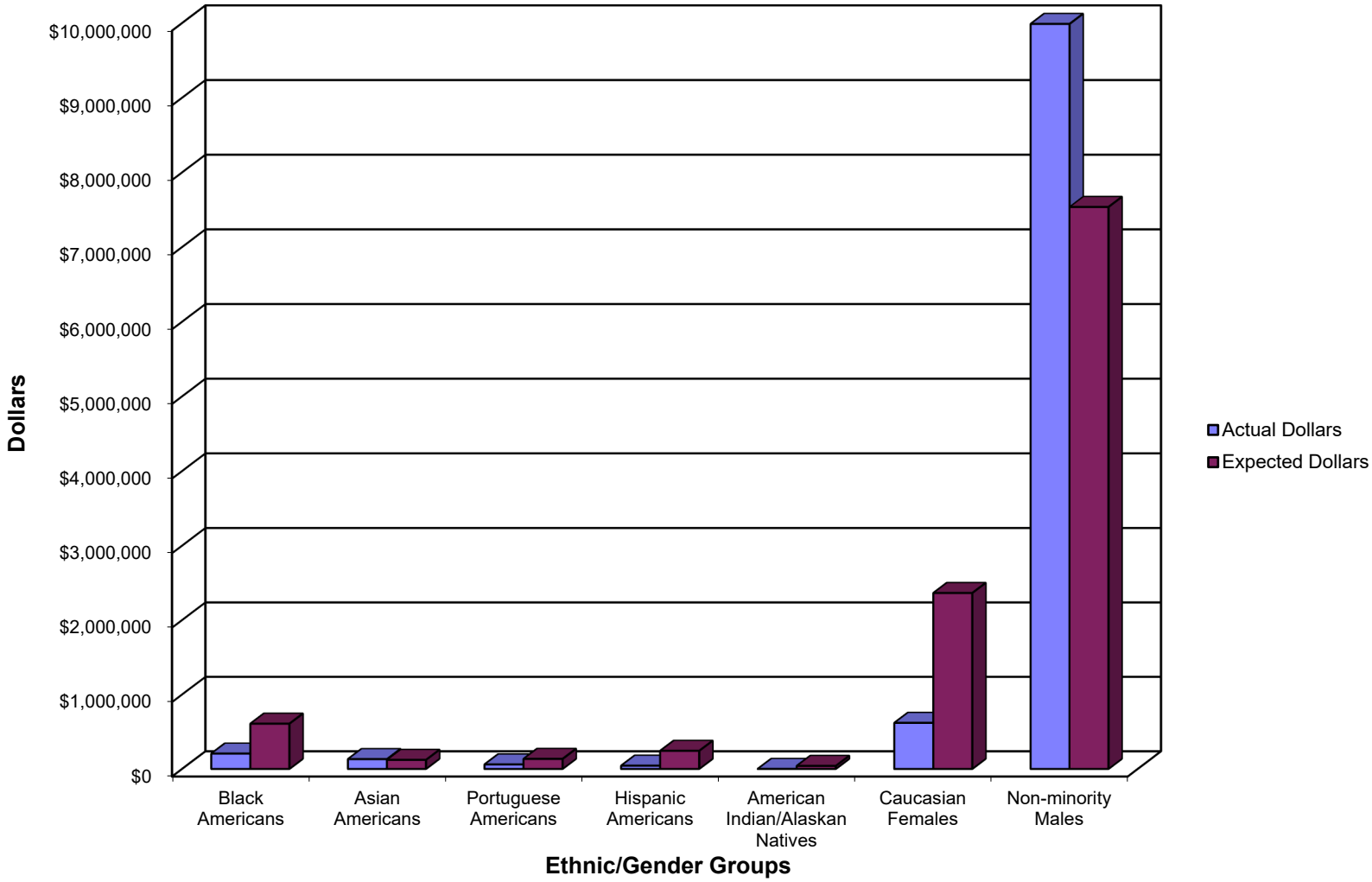
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.3: Disparity Analysis: Services Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017



4. Goods, Commodities, and Supplies Purchase Orders Valued $5,000 and Less

The disparity analysis of goods, services, and supplies prime purchase orders valued $5,000 and less is described below and depicted in Table 7.7 and Chart 7.4.

Black Americans represent 2.15% of the available goods, services, and supplies businesses and received 1.26% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. This underutilization is statistically significant.

Asian Americans represent 0.95% of the available goods, services, and supplies businesses and received 0.78% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

Portuguese Americans represent 2.15% of the available goods, services, and supplies businesses and received 0.06% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. This underutilization is statistically significant.

Hispanic Americans represent 0.48% of the available goods, services, and supplies businesses and received 0.12% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. While this group was underutilized, there were too few available firms to determine statistical significance.

American Indian/Alaskan Natives represent 0.00% of the available goods, services, and supplies businesses and received 0.10% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. This study does not test statistically the overutilization of MBE/WBEs.

Caucasian Females represent 14.80% of the available goods, services, and supplies businesses and received 6.10% of the dollars on goods, services, and supplies purchase orders valued $5,000 and less. This underutilization is statistically significant.

Non-minority Males represent 79.47% of the available goods, services, and supplies businesses and received 91.58% of dollars on goods, services, and supplies purchase orders valued $5,000 and less. This overutilization is statistically significant.

Minority-owned Businesses represent 5.73% of the available goods, services, and supplies businesses and received 2.32% of dollars on goods, services, and supplies purchase orders valued $5,000 and less. This underutilization is statistically significant.

Woman-owned Businesses represent 16.71% of the available goods, services, and supplies businesses and received 6.91% of dollars on goods, services, and supplies purchase orders valued $5,000 and less. This underutilization is statistically significant.

Table 7.7: Disparity Analysis: Goods, Commodities, and Supplies Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$364,485	1.26%	2.15%	$621,144	-$256,658	0.59	< .05 *
Asian Americans	$226,477	0.78%	0.95%	$276,064	-$49,587	0.82	----
Portuguese Americans	$15,968	0.06%	2.15%	$621,144	-$605,175	0.03	< .05 *
Hispanic Americans	$35,508	0.12%	0.48%	$138,032	-$102,523	0.26	----
American Indian/Alaskan Natives	$28,274	0.10%	0.00%	$0	$28,274	----	**
Caucasian Females	$1,762,856	6.10%	14.80%	$4,278,990	-$2,516,134	0.41	< .05 *
Non-minority Males	$26,484,122	91.58%	79.47%	$22,982,317	$3,501,804	1.15	< .05 †
TOTAL	$28,917,690	100.00%	100.00%	$28,917,690			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$47,103	0.16%	0.72%	$207,048	-$159,944	0.23	----
Black American Males	$317,382	1.10%	1.43%	$414,096	-$96,714	0.77	< .05 *
Asian American Females	$185,683	0.64%	0.72%	$207,048	-$21,365	0.90	----
Asian American Males	$40,795	0.14%	0.24%	$69,016	-$28,221	0.59	----
Portuguese American Females	$1,800	0.01%	0.48%	$138,032	-$136,232	0.01	----
Portuguese American Males	$14,168	0.05%	1.67%	$483,112	-$468,944	0.03	< .05 *
Hispanic American Females	$0	0.00%	0.00%	$0	$0	----	----
Hispanic American Males	$35,508	0.12%	0.48%	$138,032	-$102,523	0.26	----
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$28,274	0.10%	0.00%	$0	$28,274	----	**
Caucasian Females	$1,762,856	6.10%	14.80%	$4,278,990	-$2,516,134	0.41	< .05 *
Non-minority Males	$26,484,122	91.58%	79.47%	$22,982,317	$3,501,804	1.15	< .05 †
TOTAL	$28,917,690	100.00%	100.00%	$28,917,690			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$670,713	2.32%	5.73%	$1,656,383	-$985,670	0.40	< .05 *
Woman Business Enterprises	$1,997,442	6.91%	16.71%	$4,831,118	-$2,833,676	0.41	< .05 *

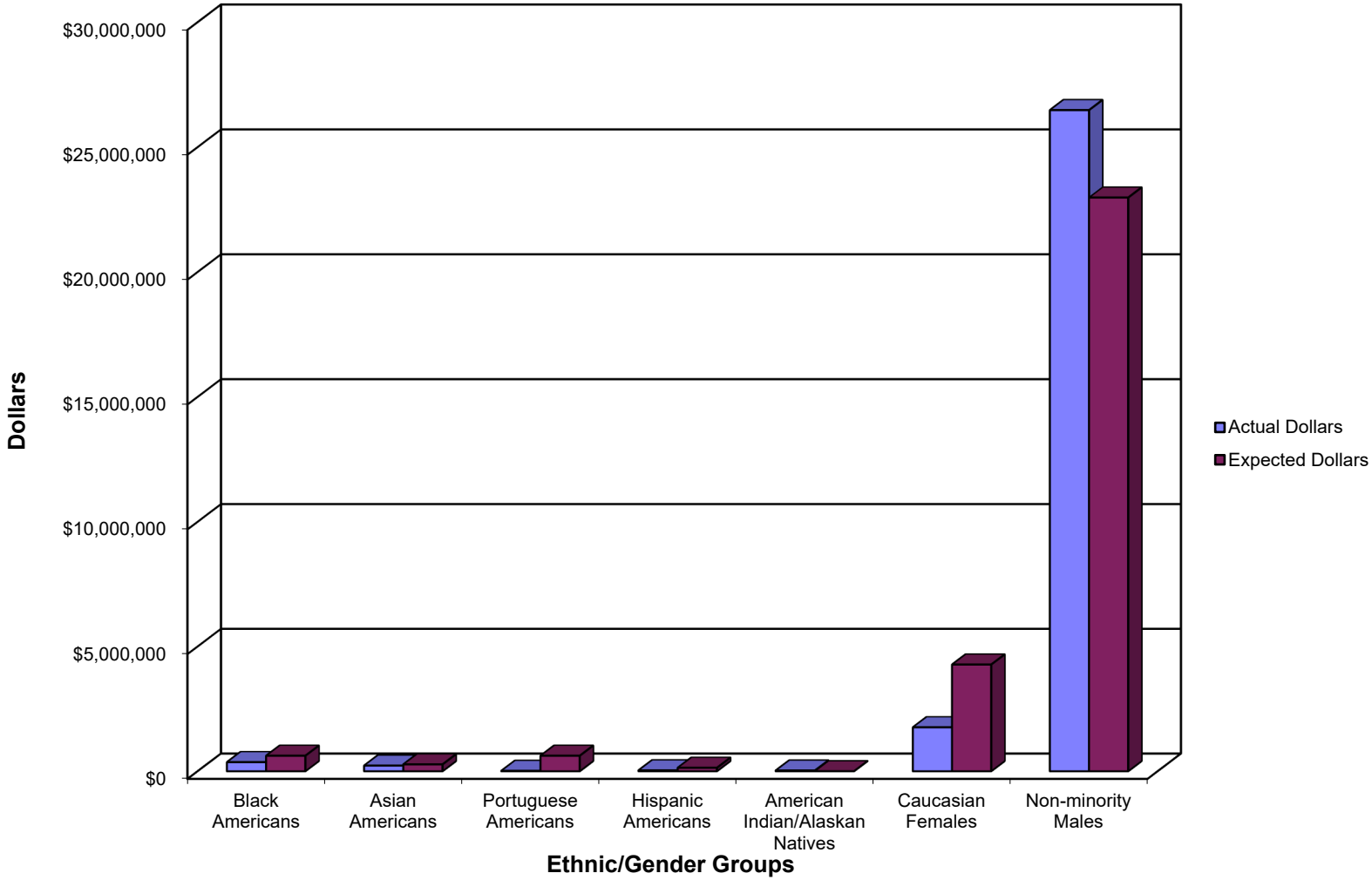
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.4: Disparity Analysis: Goods, Commodities, and Supplies Purchase Orders Valued $5,000 and Less, July 1, 2014 to June 30, 2017



B. Disparity Analysis: Formal Purchase Orders by Industry

1. Construction Purchase Orders Valued Between $10,000 and $1,120,000

The disparity analysis of construction prime purchase orders valued between $10,000 and $1,120,000 is described below and depicted in Table 7.8 and Chart 7.5.

Black Americans represent 8.45% of the available construction businesses and received 0.17% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Asian Americans represent 0.68% of the available construction businesses and received 0.00% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. While this group was underutilized, there were too few available firms to determine statistical significance.

Portuguese Americans represent 9.12% of the available construction businesses and received 4.43% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Hispanic Americans represent 9.46% of the available construction businesses and received 0.48% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

American Indian/Alaskan Natives represent 1.01% of the available construction businesses and received 0.15% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Caucasian Females represent 12.50% of the available construction businesses and received 8.98% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Non-minority Males represent 58.78% of the available construction businesses and received 85.79% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This overutilization is statistically significant.

Minority-owned Businesses represent 28.72% of the available construction businesses and received 5.23% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Woman-owned Businesses represent 41.22% of the available construction businesses and received 14.21% of the dollars on construction purchase orders valued between $10,000 and $1,120,000. This underutilization is statistically significant.

Table 7.8: Disparity Analysis: Construction Purchase Orders Valued Between $10,000 and $1,120,000, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$198,740	0.17%	8.45%	$10,066,694	-$9,867,954	0.02	< .05 *
Asian Americans	$0	0.00%	0.68%	$805,335	-$805,335	0.00	----
Portuguese Americans	$5,284,111	4.43%	9.12%	$10,872,029	-$5,587,918	0.49	< .05 *
Hispanic Americans	$573,832	0.48%	9.46%	$11,274,697	-$10,700,865	0.05	< .05 *
American Indian/Alaskan Natives	$176,634	0.15%	1.01%	$1,208,003	-$1,031,369	0.15	< .05 *
Caucasian Females	$10,700,018	8.98%	12.50%	$14,898,707	-$4,198,689	0.72	< .05 *
Non-minority Males	$102,256,319	85.79%	58.78%	$70,064,188	$32,192,131	1.46	< .05 †
TOTAL	$119,189,653	100.00%	100.00%	$119,189,653			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	0.34%	$402,668	-$402,668	0.00	----
Black American Males	$198,740	0.17%	8.11%	$9,664,026	-$9,465,286	0.02	< .05 *
Asian American Females	$0	0.00%	0.00%	$0	$0	----	----
Asian American Males	$0	0.00%	0.68%	$805,335	-$805,335	0.00	----
Portuguese American Females	$1,409,537	1.18%	1.69%	$2,013,339	-$603,801	0.70	not significant
Portuguese American Males	$3,874,574	3.25%	7.43%	$8,858,690	-$4,984,117	0.44	< .05 *
Hispanic American Females	$0	0.00%	0.34%	$402,668	-$402,668	0.00	----
Hispanic American Males	$573,832	0.48%	9.12%	$10,872,029	-$10,298,197	0.05	< .05 *
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$176,634	0.15%	1.01%	$1,208,003	-$1,031,369	0.15	< .05 *
Caucasian Females	$10,700,018	8.98%	12.50%	$14,898,707	-$4,198,689	0.72	< .05 *
Non-minority Males	$102,256,319	85.79%	58.78%	$70,064,188	$32,192,131	1.46	< .05 †
TOTAL	$119,189,653	100.00%	100.00%	$119,189,653			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$6,233,317	5.23%	28.72%	$34,226,759	-$27,993,442	0.18	< .05 *
Woman Business Enterprises	$16,933,334	14.21%	41.22%	$49,125,465	-$32,192,131	0.34	< .05 *

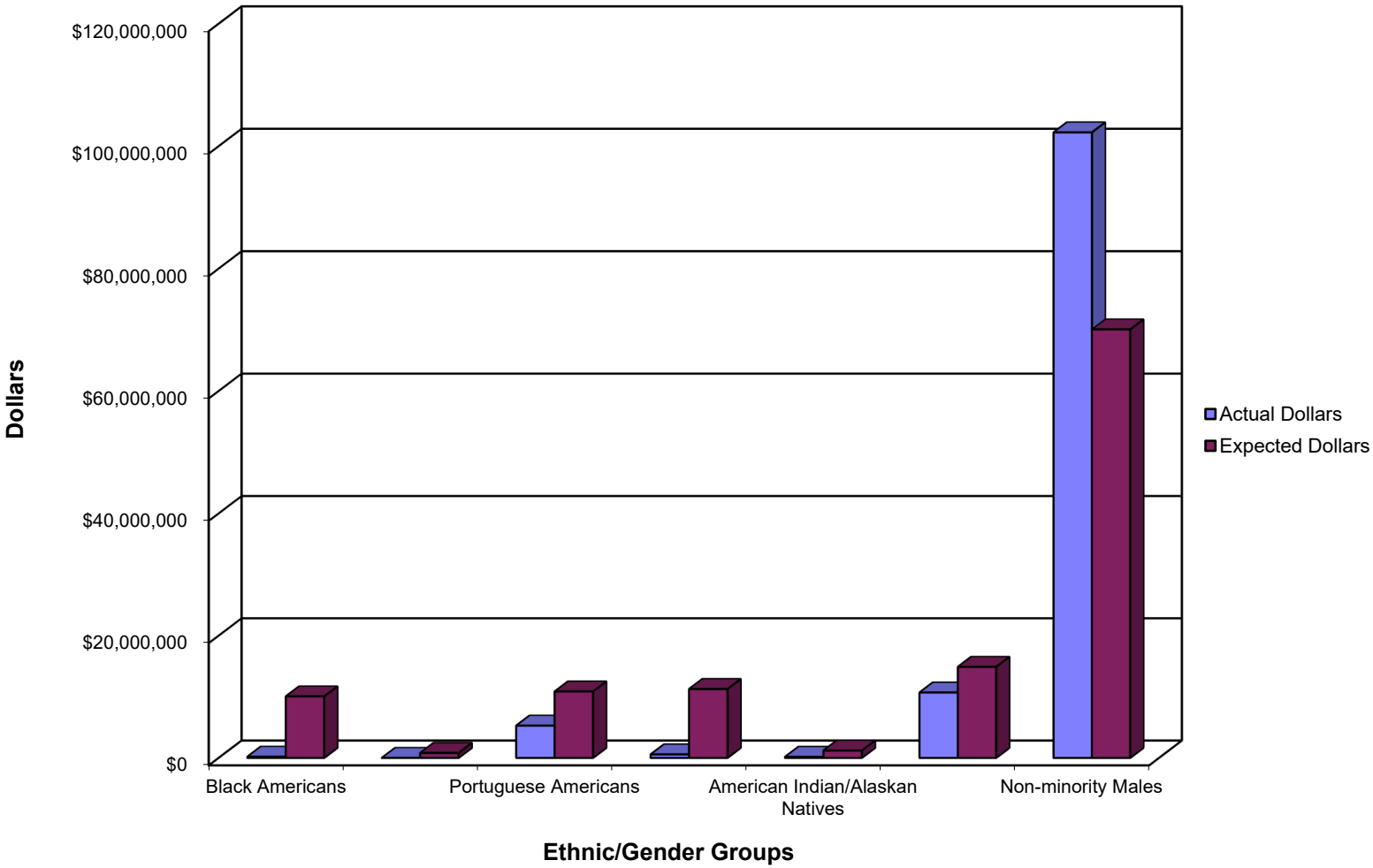
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.5: Disparity Analysis: Construction Purchase Orders Valued Between $10,000 and $1,120,000, July 1, 2014 to June 30, 2017



2. Construction-related Services Purchase Orders Valued Between $5,000 and $430,000

The disparity analysis of construction-related services prime purchase orders valued between $5,000 and $430,000 is described below and depicted in Table 7.9 and Chart 7.6.

Black Americans represent 3.97% of the available construction-related services businesses and received 0.21% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This underutilization is not statistically significant.

Asian Americans represent 4.76% of the available construction-related services businesses and received 4.66% of the dollars on construction-related services purchase orders valued between $5,000 and 430,000. This underutilization is not statistically significant.

Portuguese Americans represent 0.00% of the available construction-related services businesses and received 0.00% of the dollars on construction-related services purchase orders between $5,000 and $430,000. While this group was underutilized, there were too few available firms to determine statistical significance.

Hispanic Americans represent 3.17% of the available construction-related services businesses and received 2.93% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This underutilization is not statistically significant.

American Indian/Alaskan Natives represent 0.79% of the available construction-related services businesses and received 0.00% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. While this group was underutilized, there were too few available firms to determine statistical significance.

Caucasian Females represent 27.78% of the available construction-related services businesses and received 5.33% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This underutilization is statistically significant.

Non-minority Males represent 59.52% of the available construction-related services businesses and received 86.88% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This overutilization is statistically significant.

Minority-owned Businesses represent 12.70% of the available construction-related services businesses and received 7.80% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This underutilization is statistically significant.

Woman-owned Businesses represent 40.48% of the available construction-related services businesses and received 13.12% of the dollars on construction-related services purchase orders valued between $5,000 and $430,000. This underutilization is statistically significant.

Table 7.9: Disparity Analysis: Construction-related Services Purchase Orders Valued Between $5,000 and $430,000, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$42,689	0.21%	3.97%	$819,758	-$777,069	0.05	< .05 *
Asian Americans	$961,979	4.66%	4.76%	$983,710	-$21,731	0.98	not significant
Portuguese Americans	$0	0.00%	0.00%	$0	$0	----	----
Hispanic Americans	$605,909	2.93%	3.17%	$655,807	-$49,897	0.92	not significant
American Indian/Alaskan Natives	$0	0.00%	0.79%	$163,952	-$163,952	0.00	----
Caucasian Females	$1,100,466	5.33%	27.78%	$5,738,307	-$4,637,842	0.19	< .05 *
Non-minority Males	$17,946,864	86.88%	59.52%	$12,296,373	$5,650,490	1.46	< .05 †
TOTAL	$20,657,907	100.00%	100.00%	$20,657,907			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	0.79%	$163,952	-$163,952	0.00	----
Black American Males	$42,689	0.21%	3.17%	$655,807	-$613,117	0.07	< .05 *
Asian American Females	$0	0.00%	0.79%	$163,952	-$163,952	0.00	----
Asian American Males	$961,979	4.66%	3.97%	$819,758	$142,221	1.17	**
Portuguese American Females	$0	0.00%	0.00%	$0	$0	----	----
Portuguese American Males	$0	0.00%	0.00%	$0	$0	----	----
Hispanic American Females	$151,272	0.73%	0.00%	$0	$151,272	----	**
Hispanic American Males	$454,637	2.20%	3.17%	$655,807	-$201,169	0.69	not significant
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$0	0.00%	0.79%	$163,952	-$163,952	0.00	----
Caucasian Females	$1,100,466	5.33%	27.78%	$5,738,307	-$4,637,842	0.19	< .05 *
Non-minority Males	$17,946,864	86.88%	59.52%	$12,296,373	$5,650,490	1.46	< .05 †
TOTAL	$20,657,907	100.00%	100.00%	$20,657,907			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$1,610,578	7.80%	12.70%	$2,623,226	-$1,012,648	0.61	< .05 *
Woman Business Enterprises	$2,711,043	13.12%	40.48%	$8,361,534	-$5,650,490	0.32	< .05 *

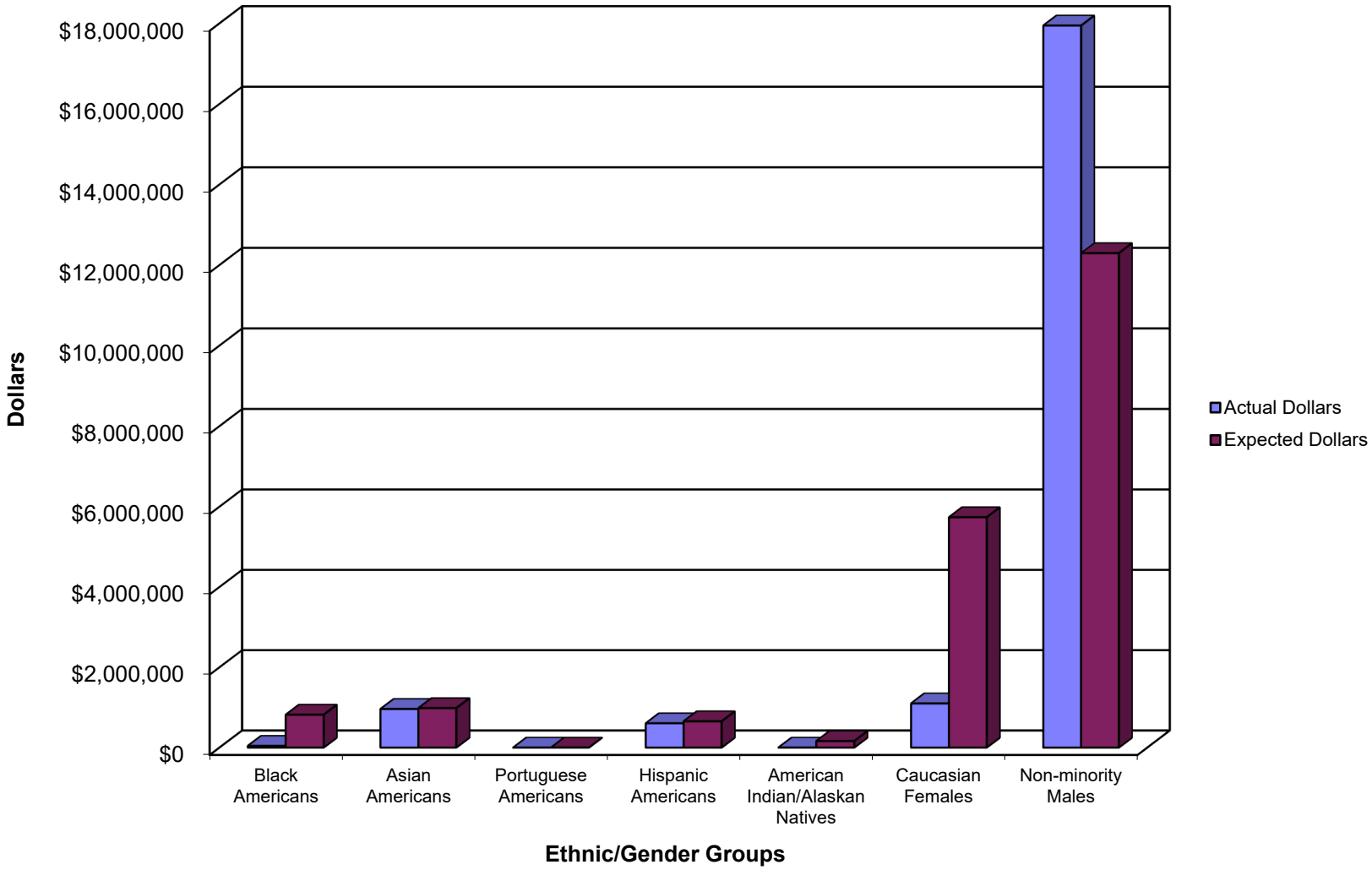
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.6: Disparity Analysis: Construction-related Services Purchase Orders Valued Between $5,000 and $430,000, July 1, 2014 to June 30, 2017



3. Services Purchase Orders Valued Between $5,000 and $130,000

The disparity analysis of services prime purchase orders valued between $5,000 and $130,000 is described below and depicted in Table 7.10 and Chart 7.7.

Black Americans represent 5.50% of the available services businesses and received 0.91% of the dollars on services purchase orders valued between $5,000 and $130,000. This underutilization is statistically significant.

Asian Americans represent 1.10% of the available services businesses and received 1.51% of the dollars on services purchase orders valued between $5,000 and $130,000. This study does not test statistically the overutilization of MBEs or WBEs.

Portuguese Americans represent 1.22% of the available services businesses and received 0.20% of the dollars on services purchase orders between $5,000 and $130,000. This underutilization is statistically significant.

Hispanic Americans represent 2.20% of the available services businesses and received 1.66% of the dollars on services purchase orders valued between $5,000 and $130,000. This underutilization is not statistically significant.

American Indian/Alaskan Natives represent 0.37% of the available services businesses and received 0.10% of the dollars on services purchase orders valued between $5,000 and $130,000. While this group was underutilized, there were too few available firms to determine statistical significance.

Caucasian Females represent 21.39% of the available services businesses and received 5.57% of the dollars on services purchase orders valued between $5,000 and $130,000. This underutilization is statistically significant.

Non-minority Males represent 68.22% of the available services businesses and received 90.04% of the dollars on services purchase orders valued between $5,000 and $130,000. This overutilization is statistically significant.

Minority-owned Businesses represent 10.39% of the available construction-related services businesses and received 4.39% of the dollars on services purchase orders valued between $5,000 and $130,000. This underutilization is statistically significant.

Woman-owned Businesses represent 24.57% of the available construction-related services businesses and received 7.04% of the dollars on services purchase orders valued between $5,000 and $130,000. This underutilization is statistically significant.

Table 7.10: Disparity Analysis: Services Purchase Orders Valued Between $5,000 and $130,000, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$575,732	0.91%	5.50%	$3,461,489	-$2,885,757	0.17	< .05 *
Asian Americans	$948,555	1.51%	1.10%	$692,298	$256,258	1.37	**
Portuguese Americans	$123,335	0.20%	1.22%	$769,220	-$645,885	0.16	< .05 *
Hispanic Americans	$1,047,288	1.66%	2.20%	$1,384,596	-$337,307	0.76	< .05 *
American Indian/Alaskan Natives	$65,000	0.10%	0.37%	$230,766	-$165,766	0.28	----
Caucasian Females	$3,507,830	5.57%	21.39%	$13,461,347	-$9,953,517	0.26	< .05 *
Non-minority Males	$56,654,439	90.04%	68.22%	$42,922,465	$13,731,974	1.32	< .05 †
TOTAL	$62,922,180	100.00%	100.00%	$62,922,180			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$52,599	0.08%	1.34%	$846,142	-$793,543	0.06	< .05 *
Black American Males	$523,133	0.83%	4.16%	$2,615,347	-$2,092,214	0.20	< .05 *
Asian American Females	$679,598	1.08%	0.37%	$230,766	$448,832	2.94	**
Asian American Males	$268,958	0.43%	0.73%	$461,532	-$192,574	0.58	----
Portuguese American Females	$123,335	0.20%	0.86%	$538,454	-$415,119	0.23	----
Portuguese American Males	$0	0.00%	0.37%	$230,766	-$230,766	0.00	----
Hispanic American Females	$0	0.00%	0.49%	$307,688	-$307,688	0.00	----
Hispanic American Males	$1,047,288	1.66%	1.71%	$1,076,908	-$29,620	0.97	not significant
American Indian/Alaskan Native Females	$65,000	0.10%	0.12%	$76,922	-$11,922	0.85	----
American Indian/Alaskan Native Males	$0	0.00%	0.24%	$153,844	-$153,844	0.00	----
Caucasian Females	$3,507,830	5.57%	21.39%	$13,461,347	-$9,953,517	0.26	< .05 *
Non-minority Males	$56,654,439	90.04%	68.22%	$42,922,465	$13,731,974	1.32	< .05 †
TOTAL	$62,922,180	100.00%	100.00%	$62,922,180			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$2,759,911	4.39%	10.39%	$6,538,368	-$3,778,457	0.42	< .05 *
Woman Business Enterprises	$4,428,361	7.04%	24.57%	$15,461,318	-$11,032,957	0.29	< .05 *

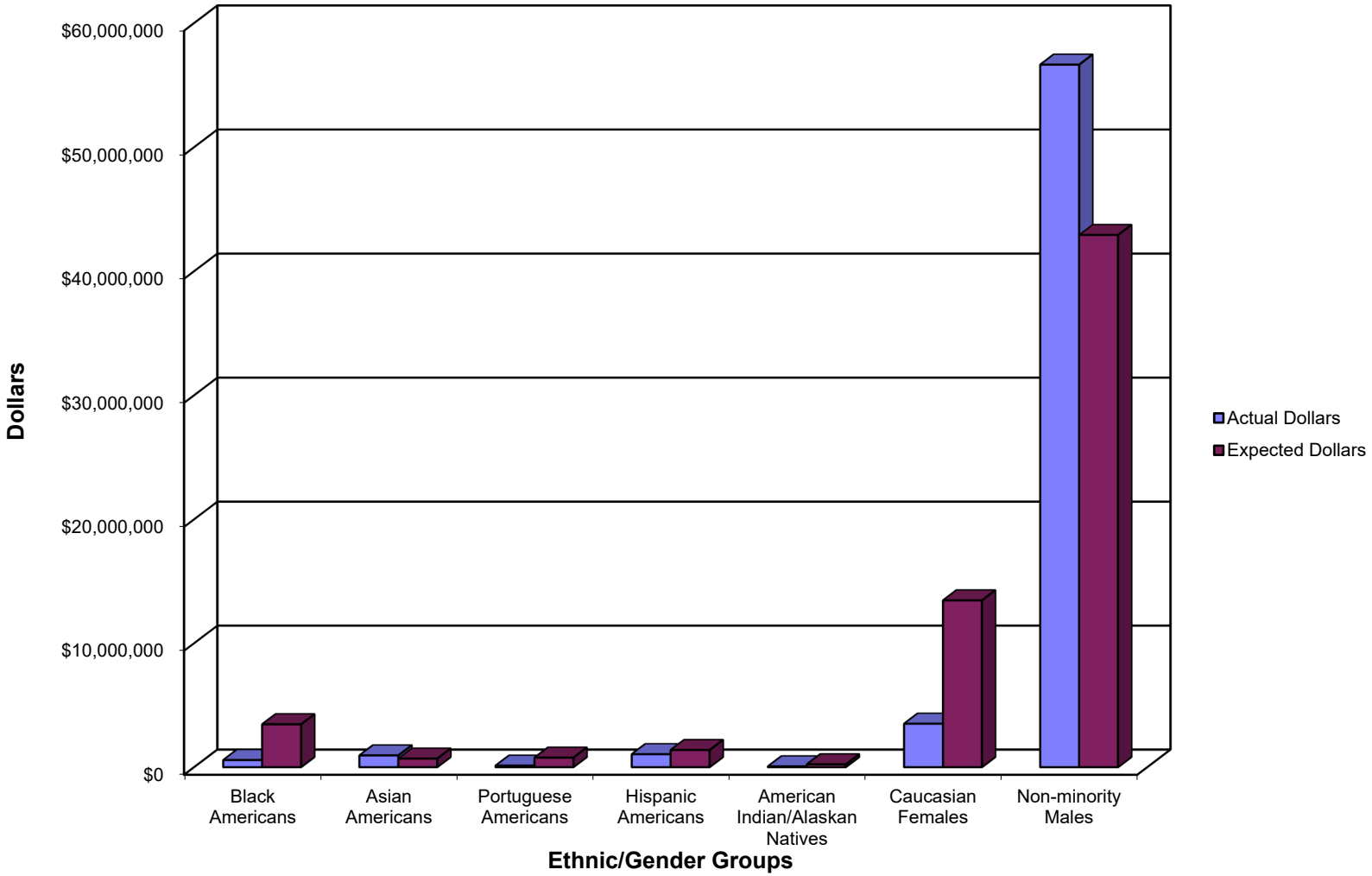
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.7: Disparity Analysis: Services Purchase Orders Valued Between $5,000 and $130,000, July 1, 2014 to June 30, 2017



4. Goods, Commodities, and Supplies Purchase Orders Valued Between $5,000 and $80,000

The disparity analysis of goods, commodities, and supplies prime purchase orders valued between $5,000 and $80,000 is described below and depicted in Table 7.11 and Chart 7.8.

Black Americans represent 2.15% of the available goods, commodities, and supplies businesses and received 1.03% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This underutilization is statistically significant.

Asian Americans represent 0.95% of the available goods, commodities, and supplies businesses and received 1.24% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This study does not test statistically the overutilization of MBEs or WBEs.

Portuguese Americans represent 2.15% of the available goods, commodities, and supplies businesses and received 0.28% of the dollars on goods, commodities, and supplies purchase orders between $5,000 and $80,000. This underutilization is statistically significant.

Hispanic Americans represent 0.48% of the available goods, commodities, and supplies businesses and received 0.16% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. While this group was underutilized, there were too few available firms to determine statistical significance.

American Indian/Alaskan Natives represent 0.00% of the available goods, commodities, and supplies businesses and received 0.00% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. While this group was underutilized, there were too few available firms to determine statistical significance.

Caucasian Females represent 14.80% of the available goods, commodities, and supplies businesses and received 9.27% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This underutilization is statistically significant.

Non-minority Males represent 79.47% of the available goods, commodities, and supplies businesses and received 88.03% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This overutilization is statistically significant.

Minority-owned Businesses represent 5.73% of the available construction-related services businesses and received 2.70% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This underutilization is statistically significant.

Woman-owned Businesses represent 20.53% of the available construction-related services businesses and received 11.97% of the dollars on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000. This underutilization is statistically significant.

Table 7.11: Disparity Analysis: Goods, Commodities, and Supplies Purchase Orders Valued Between $5,000 and $80,000, July 1, 2014 to June 30, 2017

Ethnicity	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black Americans	$436,816	1.03%	2.15%	$914,542	-$477,726	0.48	< .05 *
Asian Americans	$527,059	1.24%	0.95%	$406,463	$120,595	1.30	**
Portuguese Americans	$117,156	0.28%	2.15%	$914,542	-$797,386	0.13	< .05 *
Hispanic Americans	$69,441	0.16%	0.48%	$203,232	-$133,790	0.34	----
American Indian/Alaskan Natives	$0	0.00%	0.00%	$0	$0	----	----
Caucasian Females	$3,947,804	9.27%	14.80%	$6,300,180	-$2,352,377	0.63	< .05 *
Non-minority Males	$37,478,748	88.03%	79.47%	$33,838,064	$3,640,684	1.11	< .05 †
TOTAL	$42,577,024	100.00%	100.00%	$42,577,024			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$0	0.00%	0.72%	$304,847	-$304,847	0.00	----
Black American Males	$436,816	1.03%	1.43%	$609,695	-$172,879	0.72	< .05 *
Asian American Females	$384,404	0.90%	0.72%	$304,847	$79,557	1.26	**
Asian American Males	$142,654	0.34%	0.24%	$101,616	$41,039	1.40	**
Portuguese American Females	$75,560	0.18%	0.48%	$203,232	-$127,672	0.37	----
Portuguese American Males	$41,596	0.10%	1.67%	$711,311	-$669,715	0.06	< .05 *
Hispanic American Females	$0	0.00%	0.00%	$0	$0	----	----
Hispanic American Males	$69,441	0.16%	0.48%	$203,232	-$133,790	0.34	----
American Indian/Alaskan Native Females	$0	0.00%	0.00%	$0	$0	----	----
American Indian/Alaskan Native Males	$0	0.00%	0.00%	$0	$0	----	----
Caucasian Females	$3,947,804	9.27%	14.80%	$6,300,180	-$2,352,377	0.63	< .05 *
Non-minority Males	$37,478,748	88.03%	79.47%	$33,838,064	$3,640,684	1.11	< .05 †
TOTAL	$42,577,024	100.00%	100.00%	$42,577,024			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$1,150,472	2.70%	5.73%	$2,438,779	-$1,288,307	0.47	< .05 *
Woman Business Enterprises	$5,098,276	11.97%	20.53%	$8,738,960	-$3,640,684	0.58	< .05 *

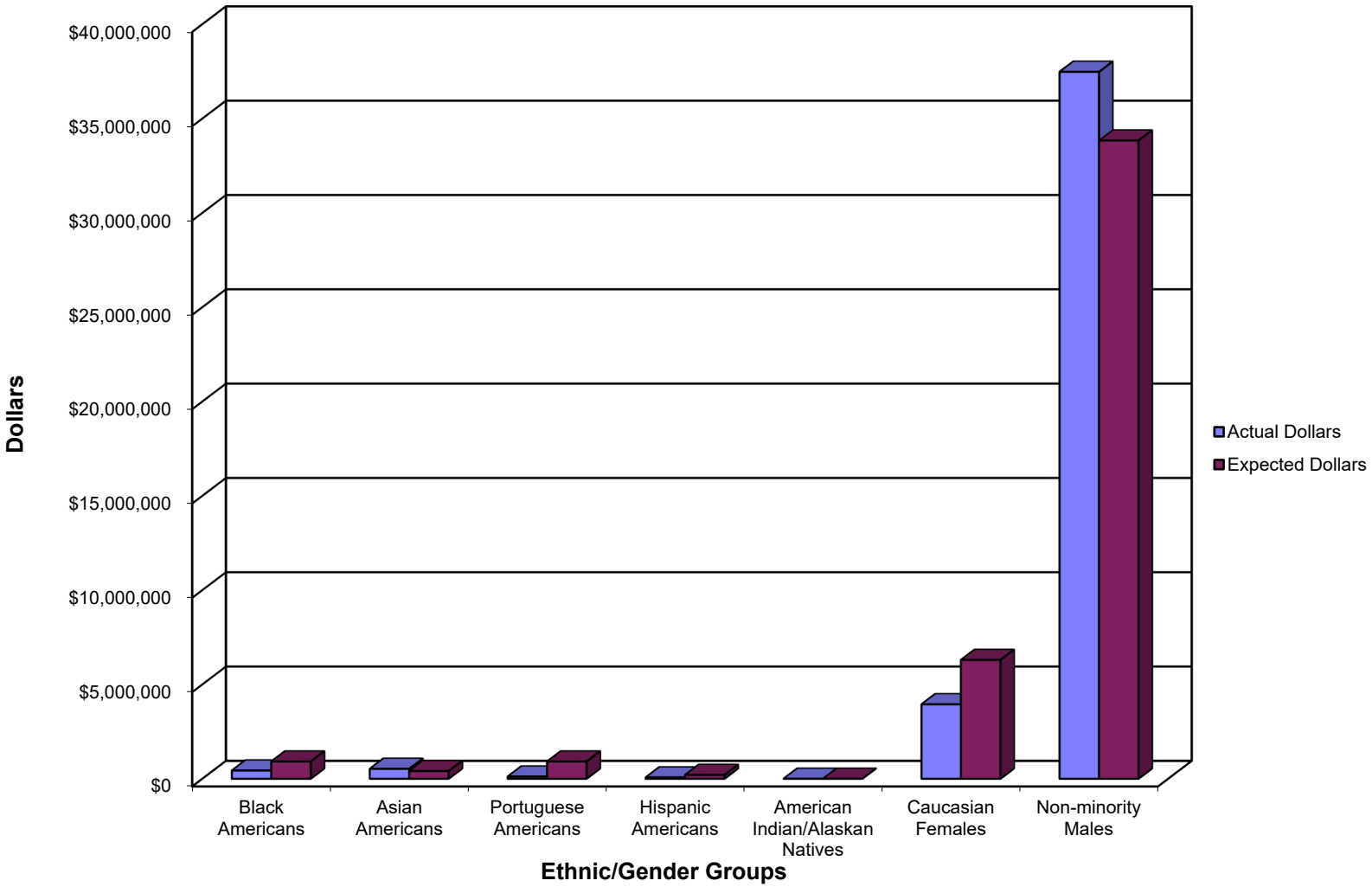
(*) denotes a statistically significant underutilization.

(†) denotes a statistically significant overutilization.

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

(----) denotes an underutilized group with no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 7.8: Disparity Analysis: Goods, Commodities, and Supplies Purchase Orders Valued Between $5,000 and $80,000, July 1, 2014 to June 30, 2017



III. Disparity Analysis Summary

A. Construction Purchase Orders

As indicated in Table 7.12 below, disparity was found for Black American, Hispanic American, American Indian/Alaskan Native, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on construction purchase orders valued $10,000 and less. Disparity was also found for Black American, Portuguese American, Hispanic American, American Indian/Alaskan Native, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on construction purchase orders valued between $5,000 and $1,120,000.

Table 7.12: Disparity Summary: Construction Prime Purchase Order Dollars, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Construction	
	Purchase Orders Valued $10,000 and Less	Purchase Orders Valued Between $10,000 and $1,120,000
Black Americans	*Disparity*	*Disparity*
Asian Americans	----	----
Portuguese Americans	No Disparity	*Disparity*
Hispanic Americans	*Disparity*	*Disparity*
American Indian/Alaskan Natives	*Disparity*	*Disparity*
Caucasian Females	*Disparity*	*Disparity*
Minority Business Enterprises	*Disparity*	*Disparity*
Woman Business Enterprises	*Disparity*	*Disparity*

(----) denotes an underutilized group with no purchase orders awarded, too few purchase orders awarded, or too few available firms to test statistical significance.

B. Construction-related Services Purchase Orders

As indicated in Table 7.13 below, disparity was found for Black American, Asian American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on construction-related services purchase orders valued $5,000 and less. Disparity was found for Black American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on construction-related services purchase orders valued between $5,000 and $430,000.

Table 7.13: Disparity Summary: Construction-related Services Purchase Order Dollars, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Construction-related Services	
	Purchase Orders Valued $5,000 and Less	Purchase Orders Valued Between $5,000 and $430,000
Black Americans	*Disparity*	*Disparity*
Asian Americans	*Disparity*	No Disparity
Portuguese Americans	----	----
Hispanic Americans	No Disparity	No Disparity
American Indian/Alaskan Natives	----	----
Caucasian Females	*Disparity*	*Disparity*
Minority Business Enterprises	*Disparity*	*Disparity*
Woman Business Enterprises	*Disparity*	*Disparity*

(----) denotes an underutilized group with no purchase orders awarded, too few purchase orders awarded, or too few available firms to test statistical significance.

C. Services Purchase Orders

As indicated in Table 7.14 below, disparity was found for Black American, Portuguese American, Hispanic American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on services purchase orders valued $5,000 and less. Disparity was also found for Black American, Portuguese American, Hispanic American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on services purchase orders valued between $5,000 and $130,000.

Table 7.14: Disparity Summary: Services Purchase Order Dollars, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Services	
	Purchase Orders Valued $5,000 and Less	Purchase Orders Valued Between $5,000 and $130,000
Black Americans	*Disparity*	*Disparity*
Asian Americans	No Disparity	No Disparity
Portuguese Americans	*Disparity*	*Disparity*
Hispanic Americans	*Disparity*	*Disparity*
American Indian/Alaskan Natives	----	----
Caucasian Females	*Disparity*	*Disparity*
Minority Business Enterprises	*Disparity*	*Disparity*
Woman Business Enterprises	*Disparity*	*Disparity*

(----) denotes an underutilized group with no purchase orders awarded, too few purchase orders awarded, or too few available firms to test statistical significance.

D. Goods, Commodities, and Supplies Purchase Orders

As indicated in Table 7.15 below, disparity was found for Black American, Portuguese American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on goods, commodities, and supplies purchase orders valued $5,000 and less. Disparity was also found for Black American, Portuguese American, Caucasian female, minority business enterprise, and woman business enterprise prime contractors on goods, commodities, and supplies purchase orders valued between $5,000 and $80,000.

Table 7.15: Disparity Summary: Goods, Commodities, and Supplies Purchase Order Dollars, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Goods, Commodities, and Supplies	
	Purchase Orders Valued $5,000 and Less	Purchase Orders Valued Between $5,000 and $80,000
Black Americans	*Disparity*	*Disparity*
Asian Americans	----	No Disparity
Portuguese Americans	*Disparity*	*Disparity*
Hispanic Americans	----	----
American Indian/Alaskan Natives	No Disparity	----
Caucasian Females	*Disparity*	*Disparity*
Minority Business Enterprises	*Disparity*	*Disparity*
Woman Business Enterprises	*Disparity*	*Disparity*

(----) Denotes an underutilized group with no purchase orders awarded, too few purchase orders awarded, or too few available firms to test statistical significance.

CHAPTER 8: Subcontract Disparity Analysis

I. Introduction

The objective of this chapter is to determine if available Minority and Woman-owned Business Enterprise (MBE/WBE) subcontractors were underutilized in the award of State of Rhode Island's contracts during the July 1, 2014 to June 30, 2017 study period. A detailed discussion of the statistical procedures for conducting a disparity analysis is set forth in *Chapter 7: Prime Contract Disparity Analysis*. The same statistical procedures are used to perform the subcontract disparity analysis.

Under a fair and equitable system of awarding subcontracts, the proportion of subcontracts and subcontract dollars awarded to MBE/WBE subcontractors should be relatively close to the proportion of available MBE/WBE subcontractors in the State of Rhode Island's market area. Availability is defined as the number of willing and able businesses. The methodology for determining willing and able businesses is detailed in *Chapter 6: Prime Contractor and Subcontractor Availability Analysis.*

If the ratio of utilized MBE/WBE subcontractors to available MBE/WBE subcontractors is less than one, a statistical test is conducted to calculate the probability of observing the empirical disparity ratio or any event that is less probable.[246] *Croson* states that an inference of discrimination can be made *prima facie* if the observed disparity is statistically significant. Under the *Croson* standard, non- minority male-owned businesses (non-MBE/WBE) are not subjected to a statistical test of underutilization.[247]

II. Disparity Analysis

As detailed in *Chapter 4: Subcontractor Utilization Analysis,* extensive efforts were undertaken to obtain subcontractor records for State of Rhode Island's construction contracts. The disparity analysis was performed on subcontracts issued July 1, 2014 to June 30, 2017.

The subcontract disparity findings in the four industries under consideration are detailed in *Section III*. The outcomes of the statistical analyses are presented in the "P-Value" column of the tables. A description of the statistical outcomes in the disparity tables are presented in Table 8.1.

[246] 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 the statistical standard used in physical and social sciences and is thus used in the present report to determine if an inference of discrimination can be made.

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

Table 8.1: Statistical Outcome Descriptions

P-Value Outcome	Definition of P-Value Outcome
< .05 *	This underutilization is statistically significant.
not significant	• MBE/WBEs: This underutilization is not statistically significant. • Non-minority males: This overutilization is not statistically significant.
< .05 †	This overutilization is statistically significant.
----	While this group was underutilized, there were too few available firms to determine statistical significance.
**	This study does not test statistically the overutilization of minority or gender groups or the underutilization of non-minority males.

III. Disparity Analysis: All Subcontracts by Industry

A. Construction Subcontracts

The disparity analysis of construction subcontracts is described below and shown in Table 8.2 and Chart 8.1.

Black Americans represent 7.12% of the available construction businesses and received 4.36% of the construction subcontract dollars. This underutilization is statistically significant.

Asian Americans represent 1.49% of the available construction businesses and received 0.17% of the construction subcontract dollars. This underutilization is statistically significant.

Portuguese Americans represent 4.82% of the available construction businesses and received 2.98% of the construction subcontract dollars. This underutilization is not statistically significant.

Hispanic Americans represent 5.40% of the available construction businesses and received 0.90% of the construction subcontract dollars. This underutilization is statistically significant.

American Indian/Alaskan Natives represent 0.69% of the available construction businesses and received 0.17% of the construction subcontract dollars. While this group was underutilized, there were too few firms to determine statistical significance.

Caucasian Females represent 21.81% of the available construction businesses and received 9.13% of the construction subcontract dollars. This underutilization is statistically significant.

Non-minority Males represent 58.67% of the available construction businesses and received 82.28% of the construction subcontract dollars. This overutilization is statistically significant.

Minority Business Enterprises represent 19.52% of the available construction businesses and received 8.58% of the construction subcontract dollars. This underutilization is statistically significant.

Woman Business Enterprises represent 25.26% of the available construction businesses and received 9.97% of the construction subcontract dollars. This underutilization is statistically significant.

Table 8.2: Disparity Analysis: Construction Subcontracts
July 1, 2014 to June 30, 2017

Group	Actual Dollars	Utilization	Availability	Expected Dollars	Dollars Lost	Disp. Ratio	P-Value
Black American	$11,413,584	4.36%	7.12%	$18,631,219	-$7,217,635	0.61	< .05 *
Asian American	$435,472	0.17%	1.49%	$3,906,546	-$3,471,074	0.11	< .05 *
Portuguese American	$7,812,356	2.98%	4.82%	$12,621,149	-$4,808,792	0.62	not significant
Hispanic American	$2,359,800	0.90%	5.40%	$14,123,666	-$11,763,867	0.17	< .05 *
American Indian/Alaskan Native	$442,483	0.17%	0.69%	$1,803,021	-$1,360,538	0.25	----
Caucasian Females	$23,904,102	9.13%	21.81%	$57,095,672	-$33,191,570	0.42	< .05 *
Non-minority Males	$215,370,784	82.28%	58.67%	$153,557,308	$61,813,476	1.40	< .05 †
TOTAL	$261,738,581	100.00%	100.00%	$261,738,581			
Ethnicity and Gender	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Black American Females	$997,486	0.38%	1.15%	$3,005,035	-$2,007,550	0.33	not significant
Black American Males	$10,416,098	3.98%	5.97%	$15,626,184	-$5,210,085	0.67	< .05 *
Asian American Females	$253,000	0.10%	0.46%	$1,202,014	-$949,014	0.21	----
Asian American Males	$182,472	0.07%	1.03%	$2,704,532	-$2,522,060	0.07	< .05 *
Portuguese American Females	$938,745	0.36%	1.26%	$3,305,539	-$2,366,794	0.28	not significant
Portuguese American Males	$6,873,611	2.63%	3.56%	$9,315,610	-$2,441,999	0.74	not significant
Hispanic American Females	$0	0.00%	0.46%	$1,202,014	-$1,202,014	0.00	----
Hispanic American Males	$2,359,800	0.90%	4.94%	$12,921,652	-$10,561,853	0.18	< .05 *
American Indian/Alaskan Native Females	$0	0.00%	0.11%	$300,504	-$300,504	0.00	----
American Indian/Alaskan Native Males	$442,483	0.17%	0.57%	$1,502,518	-$1,060,034	0.29	----
Caucasian Females	$23,904,102	9.13%	21.81%	$57,095,672	-$33,191,570	0.42	< .05 *
Non-minority Males	$215,370,784	82.28%	58.67%	$153,557,308	$61,813,476	1.40	< .05 †
TOTAL	$261,738,581	100.00%	100.00%	$261,738,581			
Minority and Females	**Actual Dollars**	**Utilization**	**Availability**	**Expected Dollars**	**Dollars Lost**	**Disp. Ratio**	**P-Value**
Minority Business Enterprises	$22,463,696	8.58%	19.52%	$51,085,601	-$28,621,906	0.44	< .05 *
Woman Business Enterprises	$26,093,333	9.97%	25.26%	$66,110,778	-$40,017,446	0.39	< .05 *

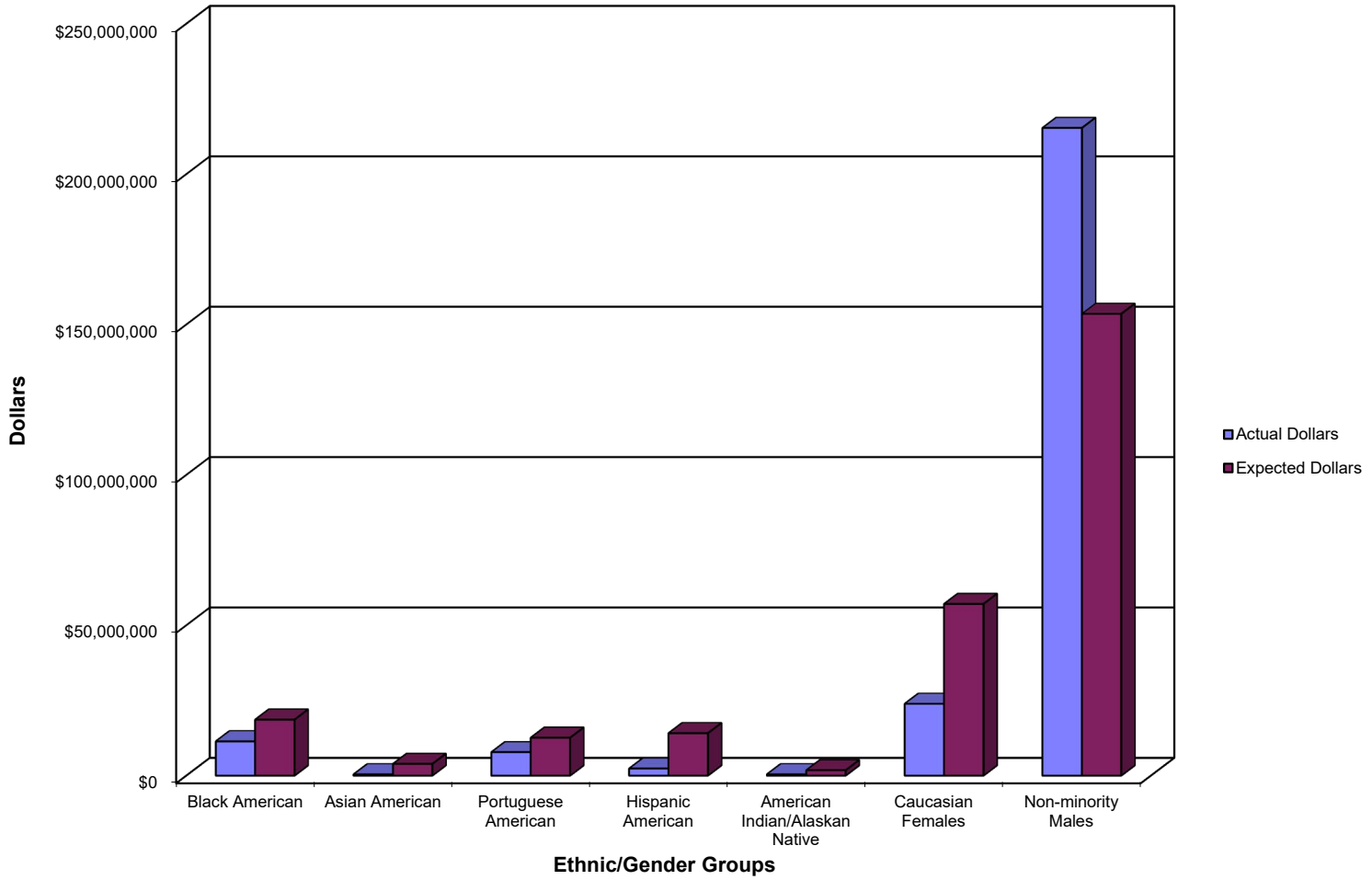
(*) denotes a statistically significant underutilization.

(†) 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 no contracts awarded, too few contracts awarded, or too few available firms to test statistical significance.

Chart 8.1: Disparity Analysis: Construction Subcontracts
July 1, 2014 to June 30, 2017



IV. Subcontract Disparity Summary

As indicated in Table 8.3, disparity was found for Black American, Asian American, Hispanic American, Caucasian female, minority business enterprise, and woman business enterprise construction subcontractors.

Table 8.3: Subcontract Disparity Summary
July 1, 2014 to June 30, 2017

Ethnicity / Gender	Construction
Black Americans	Disparity
Asian Americans	Disparity
Portuguese Americans	No Disparity
Hispanic Americans	Disparity
American Indian/Alaskan Natives	No Disparity
Caucasian Females	Disparity
Minority Business Enterprises	Disparity
Woman Business Enterprises	Disparity

CHAPTER 9: Regression Analysis

I. Introduction

Private sector business practices that are not subject to government Minority and Woman-owned Business Enterprise (MBE/WBE) requirements are indicators of marketplace conditions that could adversely affect the formation and growth of MBE/WBEs. The adverse marketplace conditions thereby could depress the current availability of MBE/WBEs. *Concrete Works of Colorado v. City and County of Denver (Concrete Works III)*[248] sets forth a framework for considering a passive participant model for an analysis of discrimination in private sector business practices. In accordance with *Concrete Works III*, regression analyses were conducted to examine two outcome variables—business ownership rates and business earnings—to determine whether the State of Rhode Island (State) is passively participating in ethnic and gender discrimination. These two regression analyses examined possible impediments to minority and woman business ownership, as well as factors affecting M/WBE business earnings. Further details are provided in the current chapter, under *Section IV Datasets Analyzed*.

Each regression analysis compared minority group members[249] and Caucasian females to non-minority male-owned businesses by controlling for race and gender-neutral explanatory variables, such as age, education, marital status, and access to capital. The impact of the explanatory variables on the outcome variables is described in this chapter. These findings elucidate the socioeconomic conditions in the State's market area that could adversely affect the measuring of relative availability of MBE/WBEs and non-minority Male-owned Business Enterprises. Statistically significant findings for lower MBE/WBE business earnings and lower likelihoods of Minority and Caucasian female Business ownership could indicate patterns of discrimination that might result in disproportionately smaller numbers of willing and capable MBE/WBEs.

The United States Census Public Use Microdata Sample (PUMS) data were used to compare a minority male, minority female, and Caucasian female's probability of owning a business to the probability of a non-minority male owning a business. Logistic regression was used to determine if race and gender have a statistically significant effect on the probability of business ownership. The PUMS data were also used to compare the business earnings of MBE/WBEs to non-minority Male-owned Businesses. An Ordinary Least Squares (OLS) regression was utilized to analyze the PUMS data for disparities in owner- reported incomes when controlling for race and gender-neutral factors.

The applicable limits of the private sector discrimination findings are set forth in *Builders Association of Greater Chicago v. City of Chicago*[250] *(City of Chicago)*, where the court

[248] *Concrete Works of Colo., Inc. v. Denver*, 86 F. Supp. 2d 1042, 1057-61 (D. Colo. 2000), *rev'd on other grounds*, 321 F.3d 950 (10th Cir. 2003), *cert. denied*, 540 U.S. 1027 (2003) ("*Concrete Works III*").

[249] Minority group members include both males and females.

[250] *Builders Ass'n of Greater Chicago v. Chicago*, 298 F. Supp. 2d 725 (N.D. III. 2003).

established that even when there is evidence of private sector discrimination, the findings cannot be used as the factual predicate for a government-sponsored, race-conscious MBE/WBE program unless there is a nexus between the private sector data and the public agency actions. The private sector findings, however, can be used to develop race-neutral programs to address barriers to the formation and development of MBE/WBEs. Given the case law, caution must be exercised in the interpretation and application of the regression findings. Case law regarding the application of private sector discrimination is discussed below in detail.

II. Legal Analysis

A. Passive Discrimination

The controlling legal precedent set forth in the 1989 *City of Richmond v. J.A. Croson Co.*[251] decision authorized state and local governments to remedy discrimination in the awarding of subcontracts by its prime contractors on the grounds that the government cannot be a "passive participant" in discrimination. In January 2003, *Concrete Works IV*[252] and *City of Chicago*[253] extended the private sector analysis to the investigation of discriminatory barriers that MBE/WBEs encountered in the formation and development of businesses and their consequence for state and local remedial programs. *Concrete Works IV* set forth a framework for considering private sector discrimination as a passive participant model for analysis. However, the obligation of presenting an appropriate nexus between the government remedy and the private sector discrimination was first addressed in *City of Chicago*.

The Tenth Circuit Court decided in *Concrete Works IV* that business activities conducted in the private sector, if within the government's market area, are also appropriate areas to explore the issue of passive participation.[254] However, the appropriateness of the City's remedy, given the finding of private sector discrimination, was not at issue before the court. The question before the court was whether sufficient facts existed to determine if the private sector business practices under consideration constituted discrimination. For technical legal reasons,[255] 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.

B. Narrow Tailoring

The question of whether a public sector remedy is narrowly tailored when it is based solely on business practices within the private sector was at issue in *City of Chicago. City of Chicago*, decided ten months after *Concrete Works IV*, found that certain private sector business practices

[251] 488 U.S. 469 (1989).

[252] *Concrete Works of Colo., Inc. v. Denver*, 321 F.3d 950, 965-69 (10th Cir. 2003) ("*Concrete Works IV*").

[253] *City of Chicago*, 298 F. Supp. 2d at 738-39.

[254] *Concrete Works IV*, 321 F.3d at 966-67.

[255] Plaintiff had not preserved the issue on appeal. Therefore, it was no longer part of the case.

constituted discrimination against minorities in the Chicago market area. However, the district court did not find City of Chicago's M/WBE subcontracting goal to be a remedy "narrowly tailored" to address the documented private sector discriminatory business practices that had been discovered within the City's market area.[256] The court explicitly stated that certain discriminatory business practices documented by regression analyses constituted private sector discrimination.[257] It is also notable that the documented discriminatory business practices reviewed by the court in *City of Chicago* were similar to those reviewed in *Concrete Works IV*. Notwithstanding the fact that discrimination in City of Chicago's market area was documented, the court determined that the evidence was insufficient to support the city's race-based subcontracting goals.[258] The court ordered an injunction to invalidate City of Chicago's race-based program.[259]

The following statements from that opinion are noteworthy:

> 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.[260]
>
> Given these distortions of the market and these barriers, is 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 in the courts. It has no termination date, nor has it any means for determining a termination date. The "graduation" revenue amount is very high, $27,500,000, and very few have graduated. There is no net worth threshold. A third-generation Japanese-American from a wealthy family, with a graduate degree from MIT, qualifies (and an Iraqi immigrant does not). Waivers are rarely or never granted on construction contracts, but "regarding flexibility, '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's program is "rigid numerical quota," a quota not related to the number of available, willing and able firms but to concepts of how many of those

[256] *City of Chicago*, 298 F. Supp. 2d at 739.

[257] *Id.* at 731-32.

[258] *Id*. at 742.

[259] *Id*.

[260] *Id*. at 734-35.

firms there should be. Formalistic points did not survive strict scrutiny in *Gratz v. Bollinger, supra*, and formalistic percentages cannot survive scrutiny.[261]

C. Conclusion

As established in *City of Chicago*, private sector discrimination cannot be used as the factual basis for a government-sponsored, race-based M/WBE program without a nexus to the government's actions. Therefore, the discrimination that might be revealed in the regression analysis is not a sufficient factual predicate for the State to establish a race-based MBE/WBE program unless a nexus is established between the State and the private sector data. These economic indicators, albeit not a measure of passive discrimination, are illustrative of private sector discrimination and can support the State-sponsored, race-neutral programs.

III. Regression Analysis Methodology

The two regression analyses focus on the construction, construction-related services, services (including professional services), and goods/commodities/ supplies industries. The datasets used for the regression analyses did not allow for an exact match of the industries used in the State's Disparity Study (Study). Therefore, the industries were selected that most closely mirror the industries used in the State's Study.

As noted, two separate regression analyses were conducted. They are the Business Ownership Analysis and the Earnings Disparity Analysis. Both analyses take into consideration race and gender-neutral factors, such as age, education, and creditworthiness in assessing whether the explanatory factors examined are disproportionately affecting minorities and females when compared to similarly situated non-minority males.

IV. Datasets Analyzed

The 2013 through 2017 PUMS dataset produced by the United States Census Bureau was used to analyze business ownership and earnings disparities within the State of Rhode Island. The 2013 through 2017 PUMS dataset represented the most recent data that most closely matched the July 1, 2014 to June 30, 2017 study period. To further align the dataset and the study period, all records from 2013 were scrubbed from the PUMS dataset. The dataset includes information on personal profile, industry, work characteristics, and family structure. The PUMS data allowed for an analysis by an individual's race and gender.

[261] *City of Chicago*, 298 F.Supp.2d at 739-40.

V. Regression Models Defined

A. Business Ownership Analysis

The Business Ownership Analysis examines the relationship between the likelihood of being a business owner and independent socioeconomic variables. Business ownership, the dependent variable, includes business owners of incorporated and non-incorporated firms. The business ownership variable utilizes 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. In this case, a logistic regression model is utilized to predict the likelihood of business ownership using independent socioeconomic variables. Four logistic models are run to predict the probability of business ownership in each of the four industries examined in the State's Study. Categories of the independent variables analyzed include educational level, citizenship status, personal characteristics, and race/gender.

In the table below, a finding of disparity is denoted by an asterisk (*) when the independent variable is significant at or above the 95% confidence level. A finding of disparity indicates that there is a non-random relationship between the probability of owning a business and the 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 indicates that there is a positive relationship between the dependent variable and that independent variable. For example, having an advanced degree is positively related to the likelihood of being a business owner, holding all other variables constant. If the coefficient sign for the independent variable is negative, this implies an inverse relationship between the dependent variable and that independent variable. For instance, an individual with children under the age of 6 has a lower likelihood of owning a business, holding all other variables constant.

For each of the four industries, the logistic regression is used to identify the likelihood that an individual owns a business given his or her background, including race, 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.[262] Table 9.1 presents the independent variables used for the Business Ownership Analysis.

Table 9.1: Independent Variables Used in the Business Ownership Analysis

Personal Characteristics	Educational Attainment	Race	Gender
1. Age	10. Bachelor's Degree	12. Caucasian American	19. Female
2. Age Squared	11. Advanced Degree	13. African American	
3. Home Ownership		14. Asian American	
4. Home Value		15. Hispanic American	
5. Monthly Mortgage Payments		16. Native American	

[262] Note: The terms "business owner" and "self-employed" are used interchangeably throughout the chapter.

Personal Characteristics	Educational Attainment	Race	Gender
6. Interest and Dividends		17. Portuguese American	
7. Speaks English at Home		18. Other Minority Group[263]	
8. Children Under the Age of Six in the Household			
9. Marital Status			

B. The Earnings Disparity Analysis

The Earnings Disparity Analysis examines the relationship between the annual self-employment income and independent socioeconomic variables. "Wages" are defined as the individual's total dollar income earned in the previous 12 months. Categories of independent socioeconomic variables analyzed include educational level, citizenship status, personal characteristics, business characteristics, and race/gender.

All of the independent variables are regressed against wages in an Ordinary Least Squares (OLS) regression model. 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 best-fit line for the model and assess which findings are statistically significant.

In the table below, a finding of disparity is denoted by an asterisk (*) when an independent variable is significant at or above the 95% confidence level. A finding of disparity indicates that there is a non-random relationship between wages and the independent variable. If the coefficient sign is positive, it means there is a positive relationship between the dependent variable and that independent variable. If the coefficient sign for the independent variable is negative, this implies an inverse relationship between the dependent variable and that independent variable.

An OLS regression analysis is used to assess the presence of business earning disparities. OLS regressions have been conducted separately for each industry. Table 9.2 presents the independent variables used for the Earnings Disparity Analysis.[264]

[263] Other Minority includes individuals who belong to two or more racial groups.

[264] If an independent variable is a binary variable, it will be coded as "1" if the individual has that variable present and "0" if otherwise (i.e. for the Hispanic American variable, it is coded as "1" if the individual is Hispanic American and "0" if otherwise). If an independent variable is a continuous variable, a value will be used (i.e. one's age can be labeled as 35).

Table 9.2: Independent Variables Used for the Earnings Disparity Analysis

Personal Characteristics	Educational Attainment	Race	Gender
1. Age	11. Bachelor's Degree	13. Caucasian American	20. Female
2. Age Squared	12. Advanced Degree	14. African American	
3. Incorporated Business		15. Asian American	
4. Home Ownership		16. Hispanic American	
5. Home Value		17. Native American	
6. Monthly Mortgage Payments		18. Portuguese American	
7. Interest and Dividends		19. Other Minority Group	
8. Speaks English at Home			
9. Children Under the Age of Six in the Household			
10. Marital Status			

VI. Findings

A. Business Ownership Analysis

The business ownership variable is defined by the number of self-employed individuals in each of the four industries. The analysis considered incorporated and non-incorporated businesses. The data in this section come from the State of Rhode Island.[265]

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-specific factors in a logistic regression model. The purpose of this model is to determine whether observed race or gender disparities are independent of the race and gender-neutral factors known to be associated with self-employment. It must be noted that many of these variables, such as having an advanced degree, while seeming to be race and gender-neutral, may in fact be correlated with race and gender.

1. Logistic Model Results for Construction Business Ownership

Table 9.3 presents the logistic regression results for the likelihood of owning a business in the construction industry based on the 21 variables analyzed in this model.

[265] The PUMS data were collected by the United States Census Bureau from a five-percent sample of United States households. The observations were weighted to preserve the representative nature of the sample in relation to the population as a whole.

Table 9.3: Construction Industry Logistic Model

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Age	0.113198	*	0.034237	3.31	0.001
Age-squared	-0.000673	*	0.000332	-2.03	0.042
Bachelor's Degree (a)	-0.351912		0.210101	-1.67	0.094
Advanced Degree	-0.768457	*	0.388698	-1.98	0.048
Home Owner	-0.489408	*	0.219754	-2.23	0.026
Home Value	0.000000	*	0.000000	2.12	0.034
Monthly Mortgage Payment	0.000084		0.000109	0.77	0.442
Interest and Dividends	-0.000003		0.000004	-0.64	0.524
Speaks English at Home	-0.200066		0.246447	-0.81	0.417
Has a Child under the Age of Six	-		-	-	-
Married	0.106580		0.174000	0.61	0.540
Caucasian Female (b)	-1.303332	*	0.359005	-3.63	0.000
Black American	-1.554174	*	0.616153	-2.52	0.012
Asian American	-0.844303		0.797469	-1.06	0.290
Hispanic American	-1.197173	*	0.403650	-2.97	0.003
American Indian/Alaskan Native	-		-	-	-
Portuguese American	-0.676072	*	0.243759	-2.77	0.006
Other Minority	-0.461025		0.557388	-0.83	0.408
Year 2015 (c)	0.036745		0.223439	0.16	0.869
Year 2016	0.172167		0.228353	0.75	0.451
Year 2017	-0.053128		0.217252	-0.24	0.807
Constant	-4.000812	*	0.895302	-4.47	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.

(b) For the ethnicity variables, the baseline variable is Caucasian males.

(c) For the year variables, the baseline variable is year 2014.

(P>|z|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

(-) denotes a variable with too few available data to determine statistical significance.

The construction industry logistic regression results indicate the following:

- The likelihood of construction business ownership is positively associated with increased age; older individuals are more likely to be business owners in the construction industry at a significant[266] level. However, as individuals reach advanced age, the likelihood of being a business owner significantly decreases.

[266] Throughout this chapter, significance refers to statistical significance.

- Having an advanced degree significantly decreases the likelihood of being a business owner in the construction industry.
- Individuals who own home are significantly less likely to be business owners in the construction industry.
- Individuals who have higher-valued home are significantly more likely to be business owners in the construction industry.
- Caucasian females, Black Americans, Hispanic Americans and Portuguese Americans are significantly less likely to be business owners in the construction industry than non-minority males.
- Asian Americans and other minorities are less likely to be business owners in the construction industry than non-minority males, but not at a significant level.

2. Logistic Model Results for Construction-related Services Business Ownership

Table 9.4 presents the logistic regression results for the likelihood of owning a business in the construction-related services industry based on the 21 variables analyzed in this model.

Table 9.4: Construction-related Services Industry Logistic Model

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Age	0.014680		0.095957	0.15	0.878
Age-squared	0.000462		0.000906	0.51	0.610
Bachelor's Degree (a)	-1.238992	*	0.508829	-2.43	0.015
Advanced Degree	-0.652692		0.502891	-1.30	0.194
Home Owner	0.086061		0.496416	0.17	0.862
Home Value	0.000001		0.000001	0.77	0.442
Monthly Mortgage Payment	0.000526	*	0.000216	2.43	0.015
Interest and Dividends	0.000000		0.000020	0.00	0.997
Speaks English at Home	0.679686		0.712727	0.95	0.340
Has a Child under the Age of Six	-1.019667		0.958420	-1.06	0.287
Married	0.435226		0.360217	1.21	0.227
Caucasian Female (b)	0.675617		0.433709	1.56	0.119
Black American	-		-	-	-
Asian American	-		-	-	-
Hispanic American	0.158673		0.830283	0.19	0.848
American Indian/Alaskan Native	-		-	-	-
Portuguese American	-0.166416		0.864318	-0.19	0.847
Other Minority	1.308045		0.988841	1.32	0.186
Year 2015 (c)	-0.710530		0.472174	-1.50	0.132
Year 2016	-0.153152		0.448867	-0.34	0.733
Year 2017	0.771899		0.466206	1.66	0.098
Constant	-4.930791		2.929234	-1.68	0.092

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.
(b) For the ethnicity variables, the baseline variable is Caucasian males.
(c) For the year variables, the baseline variable is year 2014.

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|

(P>|z|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

(-) denotes a variable with too few available data to determine statistical significance.

The construction-related services industry logistic regression results indicate the following:

- Having a bachelor's degree significantly decreases the likelihood of being a business owner in the construction-related services industry.
- Individuals who pay higher monthly mortgage amount are significantly more likely to be business owners in the construction-related services industry.
- Portuguese Americans are less likely to be business owners in the construction-related services industry than non-minority males, but not at a significant level.
- Caucasian females, Hispanic Americans, and other minorities are more likely than mon-minority males to be business owners in the construction-related services industry, but not at a significant level.

3. Logistic Model Results for Services Business Ownership

Table 9.5 presents the logistic regression results for the likelihood of owning a business in the services industry based on the 21 variables analyzed in this model.

Table 9.5: Services Industry Logistic Model

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Age	0.033930		0.032214	1.05	0.292
Age-squared	0.000003		0.000312	0.01	0.993
Bachelor's Degree (a)	0.339863	*	0.169023	2.01	0.044
Advanced Degree	0.747315	*	0.176210	4.24	0.000
Home Owner	0.251424		0.213000	1.18	0.238
Home Value	0.000000		0.000000	1.50	0.134
Monthly Mortgage Payment	-0.000010		0.000080	-0.13	0.897
Interest and Dividends	0.000005		0.000003	1.79	0.073
Speaks English at Home	0.102980		0.258243	0.40	0.690
Has a Child under the Age of Six	0.538047		0.301597	1.78	0.074
Married	0.147853		0.159743	0.93	0.355
Caucasian Female (b)	-0.127753		0.149764	-0.85	0.394
Black American	-0.392774		0.444095	-0.88	0.376
Asian American	-0.665816		0.539396	-1.23	0.217
Hispanic American	-0.187199		0.391988	-0.48	0.633
American Indian/Alaskan Native	2.487300		1.610125	1.54	0.122
Portuguese American	0.011962		0.276426	0.04	0.965
Other Minority	-0.328370		0.629531	-0.52	0.602
Year 2015 (c)	-0.193438		0.194677	-0.99	0.320
Year 2016	0.152158		0.183309	0.83	0.407
Year 2017	0.157649		0.196680	0.80	0.423

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Constant	-3.675787	*	0.824630	-4.46	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.
(b) For the ethnicity variables, the baseline variable is Caucasian males.
(c) For the year variables, the baseline variable is year 2014.
(P>|z|) of less than 0.05 denotes findings of statistical significance.
(*) denotes a statistically significant variable with 95% confidence.

The services industry logistic regression results indicate the following:

- Having a bachelor's degree or an advanced degree significantly increases the likelihood of being a business owner in the services industry.
- Caucasian females, Black Americans, Asian Americans, Hispanic Americans, and other minorities are less likely to be business owners in the services industry than non-minority males, but not at a significant level.
- American Indians/Alaskan Natives and Portuguese Americans are more likely than non-minority males to be business owners in the services industry, but not at a significant level.

4. Logistic Model Results for Goods/Commodities/Supplies Business Ownership

Table 9.6 presents the logistic regression results for the likelihood of owning a business in the goods/commodities/supplies industry based on the 21 variables analyzed in this model.

Table 9.6: Goods/Commodities/Supplies Industry Logistic Model

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Age	0.256952	*	0.065498	3.92	0.000
Age-squared	-0.002308	*	0.000640	-3.61	0.000
Bachelor's Degree (a)	-0.010658		0.371635	-0.03	0.977
Advanced Degree	-0.348673		0.713243	-0.49	0.625
Home Owner	0.283768		0.443523	0.64	0.522
Home Value	0.000001		0.000001	1.50	0.134
Monthly Mortgage Payment	-0.000054		0.000215	-0.25	0.803
Interest and Dividends	-0.000002		0.000009	-0.20	0.838
Speaks English at Home	0.411001		0.610217	0.67	0.501
Has a Child under the Age of Six	-		-	-	-
Married	0.251820		0.318043	0.79	0.428
Caucasian Female (b)	-1.125955	*	0.462980	-2.43	0.015
Black American	-1.572276		1.045226	-1.50	0.133
Asian American	-0.007810		1.314086	-0.01	0.995
Hispanic American	-1.123822		0.966125	-1.16	0.245
American Indian/Alaskan Native	-		-	-	-
Portuguese American	-0.173971		0.411936	-0.42	0.673
Other Minority	-0.343097		1.124974	-0.30	0.760
Year 2015 (c)	-0.076994		0.399785	-0.19	0.847

Business Ownership Model	Coefficient	Significance	Standard Error	Z-score	P>|z|
Year 2016	-0.010753		0.459202	-0.02	0.981
Year 2017	0.448917		0.475311	0.94	0.345
Constant	-9.235541	*	1.899814	-4.86	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.

(b) For the ethnicity variables, the baseline variable is Caucasian males.

(c) For the year variables, the baseline variable is year 2014.

(P>|z|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

(-) denotes a variable with too few available data to determine statistical significance.

The goods/commodities/supplies industry logistic regression results indicate the following:

- The likelihood of goods/commodities/supplies business ownership is positively associated with increased age; older individuals are more likely to be business owners in the goods/commodities/supplies industry at a significant level. However, as individuals reach advanced age, the likelihood of being a business owner significantly decreases.
- Caucasian females are significantly less likely to be business owners in the goods/commodities/supplies industry than non-minority males.
- Black Americans, Asian Americans, Hispanic Americans, American Indians/Alaskan Natives, Portuguese Americans, and other minorities are less likely to be business owners in the goods/commodities/supplies industry than non-minority males, but not at a significant level.

B. Business Ownership Analysis Conclusion

The Business Ownership Analysis examined the different explanatory variables' impact on an individual's likelihood of owning a business in the construction, construction-related services, services, and goods/commodities/supplies industries. Controlling for race and gender-neutral factors, the Business Ownership Analysis results show that statistically significant disparities in the likelihood of owning a business exist for minorities and Caucasian females when compared to similarly situated non-minority males.

Caucasian females experience the greatest disparity, as they are significantly less likely to own a business in the construction and goods/commodities/supplies industries than similarly situated non-minority males. Black Americans, Hispanic Americans, and Portuguese Americans are also significantly less likely to own a business in the construction industry. Table 9.7 depicts the business ownership regression analysis results by race, gender, and industry.

Table 9.7: Statistically Significant Business Ownership Disparities

Race/Gender	Construction	Construction-related Services	Services	Goods/ Commodities/ Supplies
Caucasian Female	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	***SIGNIFICANT***
Black American	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Asian American	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Hispanic American	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
American Indian/ Alaskan Native	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Portuguese American	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Other Minority	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT

C. Business Earnings Analysis

The business earnings variable is identified by self-employment income[267] from the year 2014 to 2017 for the four industries: construction, construction-related services, services, and goods/commodities/supplies. The analysis considered incorporated and non-incorporated businesses.

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.

1. OLS Regression Results in the Construction Industry

Table 9.8 depicts the results of the OLS regression for business earnings in the construction industry based on the 22 variables analyzed in this model.

Table 9.8: Construction Industry OLS Regression

Business Earnings Model	Coefficient	Significance	Standard Error	t-value	P>|t|
Age	3744.519	*	725.492	5.16	0.000
Age-squared	-36.741	*	8.507	-4.32	0.000
Incorporated Business	18685.080		10777.080	1.73	0.083
Bachelor's Degree (a)	8753.736	*	3957.543	2.21	0.027
Advanced Degree	43292.590	*	17864.310	2.42	0.016

[267] The terms "business earnings" and "self-employment income" are used interchangeably.

Business Earnings Model	Coefficient	Significance	Standard Error	t-value	P>|t|
Home Owner	616.928		4658.999	0.13	0.895
Home Value	0.021		0.014	1.58	0.115
Monthly Mortgage Payment	10.043	*	3.609	2.78	0.006
Interest and Dividends	0.054		0.124	0.43	0.664
Speaks English at Home	9498.098	*	3423.157	2.77	0.006
Has a Child under the Age of Six	2314.914		7709.208	0.30	0.764
Married	1090.690		4899.368	0.22	0.824
Caucasian Female (b)	-17319.390	*	7024.178	-2.47	0.014
Black American	-11624.640		7693.077	-1.51	0.131
Asian American	-16295.230	*	6585.060	-2.47	0.014
Hispanic American	-11589.310	*	4195.384	-2.76	0.006
American Indian/Alaskan Native	-2405.289		10166.420	-0.24	0.813
Portuguese American	-8038.281	*	3943.491000	-2.04	0.042
Other Minority	-20026.780	*	6746.456	-2.97	0.003
Year 2015 (c)	7100.338		5596.507	1.27	0.205
Year 2016	-1699.855		4008.247	-0.42	0.672
Year 2017	1199.314		3889.825	0.31	0.758
Constant	-59077.830	*	14014.130	-4.22	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.

(b) For the ethnicity variables, the baseline variable is Caucasian males.

(c) For the year variables, the baseline variable is year 2014.

(P>|t|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

The OLS regression results for business earnings in the construction industry indicate the following:

- Older business owners have significantly higher business earnings in the construction industry. However, as business owners reach advanced age, they have significantly lower business earnings in the construction industry.
- Business owners with a bachelor's degree or an advanced degree have significantly higher business earnings in the construction industry.
- Business owners with higher monthly mortgage payment have significantly higher business earnings in the construction industry.
- Business owners who speak English at home have significantly higher business earnings in the construction industry.
- Caucasian female, Asian American, Hispanic American, Portuguese American, and other minority business owners have significantly lower business earnings in the construction industry than non-minority males.
- Black American and American Indian/Alaskan Native business owners have lower business earnings in the construction industry than non-minority males, but not at a significant level.

2. OLS Regression Results in the Construction-related Services Industry

Table 9.9 depicts the results of the OLS regression for business earnings in the construction-related services industry based on the 22 variables analyzed in this model.

Table 9.9: Construction-related Services Industry OLS Regression

Business Earnings Model	Coefficient	Significance	Standard Error	t-value	P>|t|
Age	1745.161		1588.307	1.10	0.273
Age-squared	-14.453		18.970	-0.76	0.447
Incorporated Business	-29445.880	*	12819.890	-2.30	0.022
Bachelor's Degree (a)	25520.150	*	6156.363	4.15	0.000
Advanced Degree	25462.650	*	9918.478	2.57	0.011
Home Owner	3428.370		10431.190	0.33	0.743
Home Value	0.036		0.038	0.93	0.354
Monthly Mortgage Payment	0.950		6.683	0.14	0.887
Interest and Dividends	-0.143		0.360	-0.40	0.691
Speaks English at Home	24038.690	*	7078.800	3.40	0.001
Has a Child under the Age of Six	-10188.140		6981.870	-1.46	0.145
Married	12190.350	*	5720.493	2.13	0.034
Caucasian Female (b)	-25846.780	*	6363.566	-4.06	0.000
Black American	-15063.020		8379.480	-1.80	0.073
Asian American	31335.830		17599.160	1.78	0.076
Hispanic American	2141.658		9063.567	0.24	0.813
American Indian/Alaskan Native	-		-	-	-
Portuguese American	1316.049		9719.744	0.140	0.892
Other Minority	-16099.200		9947.982	-1.620	0.107
Year 2015 (c)	-9770.505		7478.174	-1.310	0.192
Year 2016	4698.234		9092.683	0.52	0.606
Year 2017	7373.706		7865.852	0.94	0.349
Constant	-30609.330		33787.270	-0.91	0.366

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.

(b) For the ethnicity variables, the baseline variable is Caucasian males.

(c) For the year variables, the baseline variable is year 2014.

(P>|t|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

The OLS regression results for business earnings in the construction-related services industry indicate the following:

- Incorporated business owners have significantly lower business earnings in the construction-related services industry.
- Business owners with a bachelor's degree or an advanced degree have significantly higher business earnings in the construction-related services industry.

- Business owners who speak English at home have significantly higher business earnings in the construction-related services industry.
- Married business owners have significantly higher business earnings in the construction-related services industry.
- Caucasian female business owners have significantly lower business earnings in the construction-related services industry than non-minority males.
- Black American and other minority business owners have lower business earnings in the construction-related services industry than non-minority males, but not at a significant level.
- Asian American, Hispanic American, and Portuguese American business owners have higher business earnings in the construction-related services industry than non-minority males, but not at a significant level.

3. OLS Regression Results in the Services Industry

Table 9.10 depicts the results of the OLS regression for business earnings in the services industry based on the 22 variables analyzed in this model.

Table 9.10: Services Industry OLS Regression

Business Earnings Model	Coefficient	Significance	Standard Error	t-value	P>|t|
Age	5416.834	*	581.193	9.32	0.000
Age-squared	-56.244	*	6.404	-8.78	0.000
Incorporated Business	8087.489		11553.960	0.70	0.484
Bachelor's Degree (a)	22168.260	*	3656.192	6.06	0.000
Advanced Degree	44003.850	*	5254.656	8.37	0.000
Home Owner	-4278.657		4322.642	-0.99	0.322
Home Value	0.054	*	0.014	3.96	0.000
Monthly Mortgage Payment	13.439	*	3.716	3.62	0.000
Interest and Dividends	0.517		0.308	1.68	0.093
Speaks English at Home	6039.068		5133.836	1.18	0.240
Has a Child under the Age of Six	-14078.890	*	6423.658	-2.19	0.029
Married	3979.725		3855.330	1.03	0.302
Caucasian Female (b)	-20821.070	*	3789.020	-5.50	0.000
Black American	-12370.300		6708.737	-1.84	0.065
Asian American	12415.650		9476.336	1.31	0.190
Hispanic American	-6393.222		7084.433	-0.90	0.367
American Indian/Alaskan Native	-37624.490	*	4647.339	-8.10	0.000
Portuguese American	-13241.060	*	4496.345	-2.94	0.003
Other Minority	-27415.290	*	11483.670	-2.39	0.017
Year 2015 (c)	1578.988		5073.045	0.31	0.756
Year 2016	-6129.300		5063.649	-1.21	0.226
Year 2017	-4738.459		4461.041	-1.06	0.288
Constant	-90950.010	*	13620.620	-6.68	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.

(b) For the ethnicity variables, the baseline variable is Caucasian males.

(c) For the year variables, the baseline variable is year 2014.

(P>|t|) of less than 0.05 denotes findings of statistical significance.

(*) denotes a statistically significant variable with 95% confidence.

The OLS regression results for business earnings in the services industry indicate the following:

- Older business owners have significantly higher business earnings in the services industry. However, as business owners reach advanced age, they have significantly lower business earnings in the services industry.
- Business owners with a bachelor's degree or an advanced degree have significantly higher business earnings in the services industry.
- Business owners with higher-valued home have significantly higher business earnings in the services industry.
- Business owners with higher monthly mortgage payment have significantly higher business earnings in the services industry.
- Business owners with a child under the age of six have significantly lower business earnings in the services industry.

- Caucasian female, American Indian/Alaskan Native, Portuguese American, and other minority business owners have significantly lower business earnings in the services industry than non-minority males.
- Black American and Hispanic American business owners have lower business earnings in the services industry than non-minority males, but not at a significant level.
- Asian American business owners have higher business earnings in the services industry than non-minority males, but not at a significant level.

4. OLS Regression Results in the Goods/Commodities/Supplies Industry

Table 9.11 depicts the results of the OLS regression for business earnings in the goods/commodities/supplies industry based on the 22 variables analyzed in this model.

Table 9.11: Goods/Commodities/Supplies Industry OLS Regression

Business Earnings Model	Coefficient	Significance	Standard Error	t-value	P>|t|
Age	5014.247	*	649.387	7.72	0.000
Age-squared	-53.527	*	7.342	-7.29	0.000
Incorporated Business	16943.760		14402.660	1.18	0.240
Bachelor's Degree (a)	16215.810	*	4726.118	3.43	0.001
Advanced Degree	-6156.177		7115.741	-0.87	0.387
Home Owner	-5714.810		4737.710	-1.21	0.228
Home Value	0.066	*	0.017	3.90	0.000
Monthly Mortgage Payment	10.553	*	4.199	2.51	0.012
Interest and Dividends	0.082		0.103	0.79	0.427
Speaks English at Home	13817.950		8280.039	1.67	0.096
Has a Child under the Age of Six	7581.461		12119.610	0.63	0.532
Married	6292.667		4262.688	1.48	0.140
Caucasian Female (b)	-14129.990	*	4349.136	-3.25	0.001
Black American	2133.836		6170.043	0.35	0.730
Asian American	19786.770		16163.000	1.22	0.221
Hispanic American	8455.271		10646.300	0.79	0.427
American Indian/Alaskan Native	-40308.410	*	6114.368	-6.59	0.000
Portuguese American	3531.353		5581.322	0.63	0.527
Other Minority	3091.573		10109.400	0.31	0.760
Year 2015 (c)	-7132.549		3904.740	-1.83	0.068
Year 2016	1215.735		4988.426	0.24	0.808
Year 2017	8236.532		5979.788	1.38	0.169
Constant	-97037.350	*	16410.280	-5.91	0.000

(a) For the variables bachelor's degree and advanced degree, the baseline variable is high school.
(b) For the ethnicity variables, the baseline variable is Caucasian males.
(c) For the year variables, the baseline variable is year 2014.
(P>|t|) of less than 0.05 denotes findings of statistical significance.
(*) denotes a statistically significant variable with 95% confidence.

The OLS regression results for business earnings in the goods/commodities/supplies industry indicate the following:

- Older business owners have significantly higher business earnings in the goods/commodities/supplies industry. However, as business owners reach advanced age, they have significantly lower business earnings in goods/commodities/supplies industry.
- Business owners with a bachelor's degree have significantly higher business earnings in the goods/commodities/supplies industry.
- Business owners with higher-valued home have significantly higher business earnings in the goods/commodities/supplies industry.
- Business owners with higher monthly mortgage payment have significantly higher business earnings in the goods/commodities/supplies industry.
- Caucasian female and American Indian/Alaskan Native business owners have significantly lower business earnings in the goods/commodities/supplies industry than non-minority males.
- Black American, Asian American, Hispanic American, Portuguese American, and other minority business owners have higher business earnings in the goods/commodities/supplies industry than non-minority males, but not at a significant level.

D. Business Earnings Analysis Conclusion

Controlling for race and gender-neutral factors, the Business Earnings Analysis documented statistically significant disparities in business earnings for minorities and Caucasian females when compared to similarly situated non-minority males. Caucasian females experience the greatest disparity, as they are significantly less likely to have lower business earnings in the construction, construction-related services, services, and goods/commodities/supplies industries than similarly situated non-minority males. American Indians/Alaskan Natives have significant lower business earnings in the services and goods/commodities/supplies industries. Portuguese Americans and other minorities have significant lower business earnings in the construction and services industries. Asian Americans and Hispanic Americans have significant lower business earnings in the construction industry. Table 9.127 depicts the earnings disparity regression results by race, gender, and industry.

Table 9.12: Statistically Significant Business Earnings Disparities

Race/Gender	Construction	Construction-related Services	Services	Goods/ Commodities/ Supplies
Caucasian Female	***SIGNIFICANT***	***SIGNIFICANT***	***SIGNIFICANT***	***SIGNIFICANT***
Black American	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Asian American	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT
Hispanic American	***SIGNIFICANT***	NOT SIGNIFICANT	NOT SIGNIFICANT	NOT SIGNIFICANT

Race/Gender	Construction	Construction-related Services	Services	Goods/ Commodities/ Supplies
American Indian/ Alaskan Native	NOT SIGNIFICANT	NOT SIGNIFICANT	***SIGNIFICANT***	***SIGNIFICANT***
Portuguese American	***SIGNIFICANT***	NOT SIGNIFICANT	***SIGNIFICANT***	NOT SIGNIFICANT
Other Minority	***SIGNIFICANT***	NOT SIGNIFICANT	***SIGNIFICANT***	NOT SIGNIFICANT

VII. Conclusion

The analyses of the two outcome variables document disparities that could adversely affect the formation and growth of MBE/WBEs within the construction, construction-related services, services, and goods/commodities/supplies industries. In the absence of a race and gender-neutral explanation for the disparities, the regression findings point to racial and gender discrimination that depressed business ownership and business earnings. Such discrimination is a manifestation of economic conditions in the private sector that impede minorities and Caucasian females' efforts to own, expand, and sustain businesses. It can reasonably be inferred that these private sector conditions are manifested in the current MBE/WBEs' experiences and likely contributed to lower levels of willing and able MBE/WBEs.

It is important to note that there are limitations to using the regression findings in order to assess disparity between the utilization and availability of businesses. No matter how discriminatory the private sector may be, the findings cannot be used as the factual basis for a government-sponsored, race-conscious MBE/WBE program. Therefore, caution must be exercised in the interpretation and application of the regression findings in a disparity study. Nevertheless, the findings can be used to enhance the race-neutral recommendations to eliminate identified statistically significant disparities in the State's use of available MBE/WBEs.

CHAPTER 10: Anecdotal Analysis

I. eSurvey Purpose and Background

The purpose of the Anecdotal eSurvey was to solicit information from MBE/WBEs and Caucasian male business owners enumerated in the State of Rhode Island (State) Disparity Study as willing and able to perform the state's contracts. The survey provided an opportunity for the available businesses to express their experience working with or seeking work from the State.

II. eSurvey Methodology

The survey population was the businesses available to perform the State contracts during the July 1, 2014 to June 30, 2017 study period. The survey was administered in a digital format.

A. eSurvey Instrument Design

The survey questions were designed to elicit from the respondents (1) general background information about their business, (2) experience submitting bids/proposals, (3) history working with the State, (4) interest in technical assistance and supportive services, and (5) assessment of the State's MBE/WBE Program.

The survey included 37 questions yielding either a yes-or-no, multiple-choice, or rating-scale responses, and five open-ended questions. The survey questions were imported into Form Assembly™, an on-line research tool that converted the questions into an eSurvey. A copy of the eSurvey is attached as Appendix B.

B. Identification of the eSurvey Population

In the survey population there were 867 minority, female-owned, and Caucasian male-owned construction, construction-related services, services (including professional services), and goods, commodities, and supplies firms. The population was the database of businesses willing and able to contract with the State produced for the availability chapter of the Study. The profile of the 867 businesses, by ethnicity and gender, is presented in Table 10.1.

Table 10.1: Profile of eSurvey Population by Ethnicity and Gender

Ethnicity/Gender	Number	Percent
Black Americans	66	7.61%
Asian Americans	16	1.85%
Portuguese Americans	37	4.27%
Hispanic Americans	46	5.31%
American Indian/Alaskan Natives	6	0.69%
Caucasian Females	231	26.64%
Non-Minority Males	465	53.63%
Total	**867**	**100.00%**

C. Distribution of the eSurvey Instrument

The eSurvey was emailed to the 867 businesses in the population. The email transmission included a description of the purpose for the survey and the Uniform Resource Locater (URL) link to the eSurvey. The business owners were encouraged to complete all questions but were informed that including their company name was optional. In an effort to maximize the number of responses, a reminder email was sent to the 867 businesses, encouraging them to complete the survey.

III. Survey Findings

Responses to the 35 questions in the eSurvey are presented below in three sections—*Profile of the Survey Respondents, Overview of Business Practices, and Best Management Practices.*

A. Profile of the Survey Respondents

Chart 10.1 presents the industry of the businesses that responded to the survey. The findings revealed that 47.50% of businesses classified themselves as services, 20.00% as goods, commodities, and supplies, 20.00% as construction, and 12.50% as construction-related services firms.

Chart 10.1: Respondents by Industry

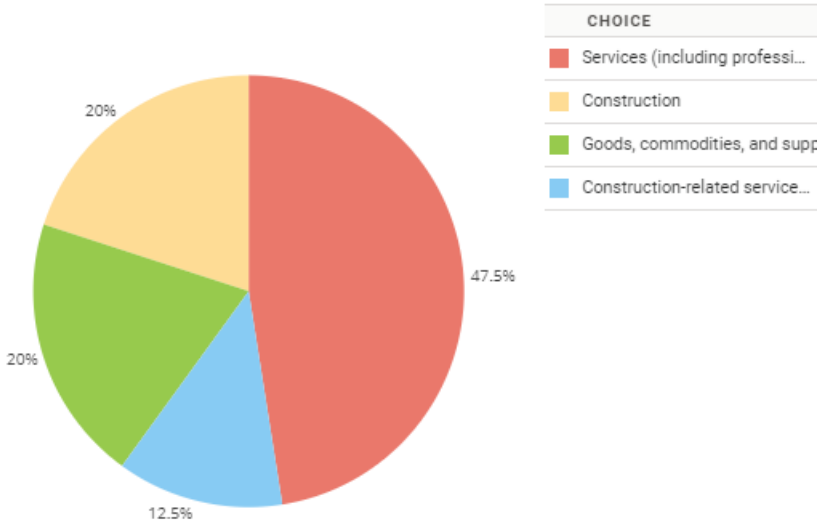


Chart 10.2 presents the gender of the business owners. Male-owned businesses represented 52.50% of respondents and woman-owned businesses represented 42.50%.

Chart 10.2: Respondents by Gender

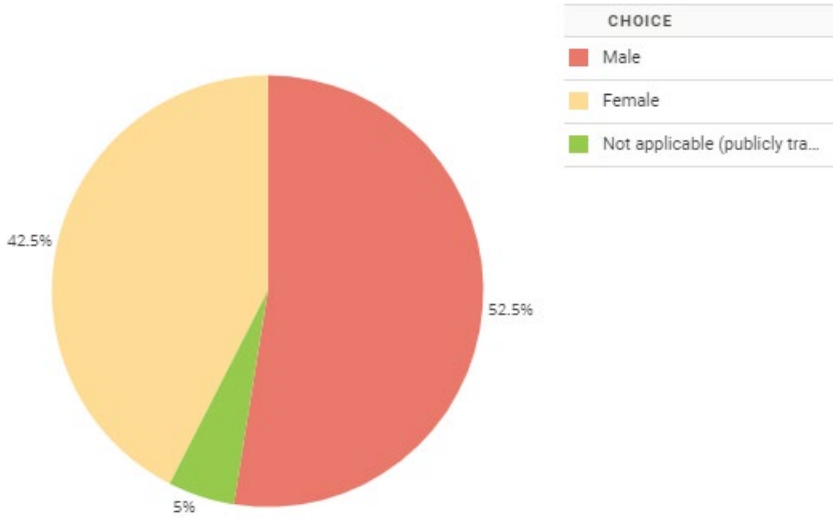


Chart 10.3 presents the ethnicity of the business owners. The majority were Caucasian American, representing 57.50% of respondents, Black American, representing 20.00% of respondents, and Hispanic American, representing 10.00% of respondents.

Chart 10.3: Businesses by Ethnicity

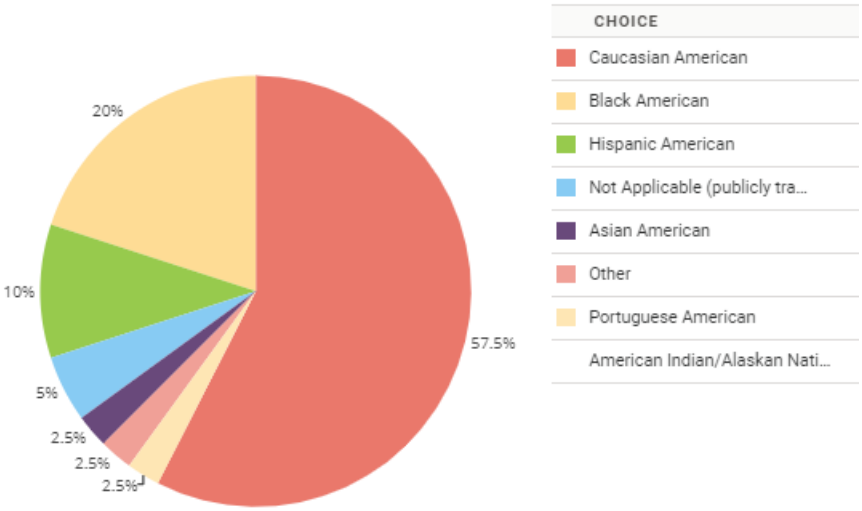


Chart 10.4 presents the business' certification status. The findings revealed that 12.50% of businesses had a DBE certification, 37.50% had Minority Business Enterprise certifications, 30.00% did not have any certification, 5.00% had other certifications. Of the other certifications 22.50% had Small Business Enterprise certification, 5.00% had Veteran Business Enterprise certification, and 25.00% had Woman Business Enterprise certification. No respondents had Service-Disabled Veteran-owned Business certification,

Chart 10.4: Respondents' Business Enterprise Certification

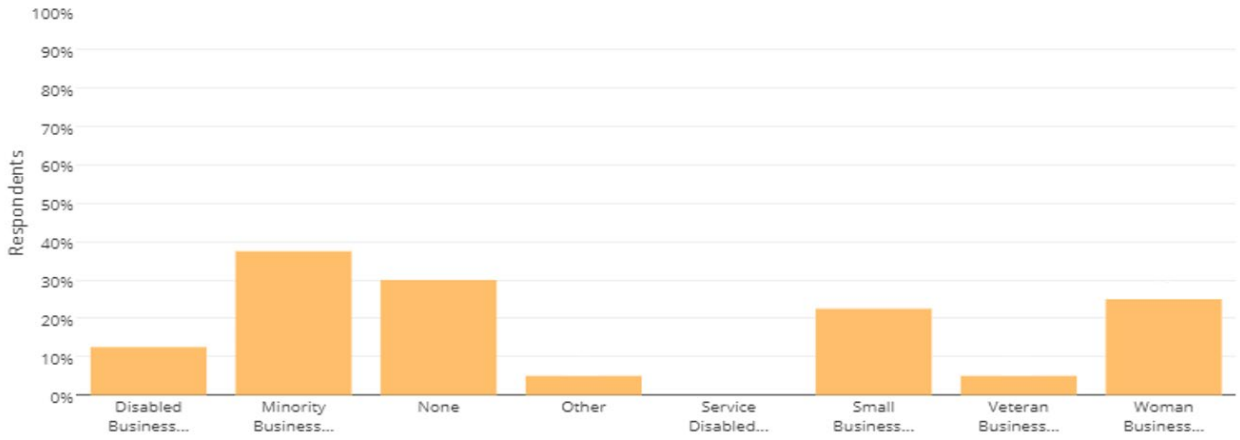
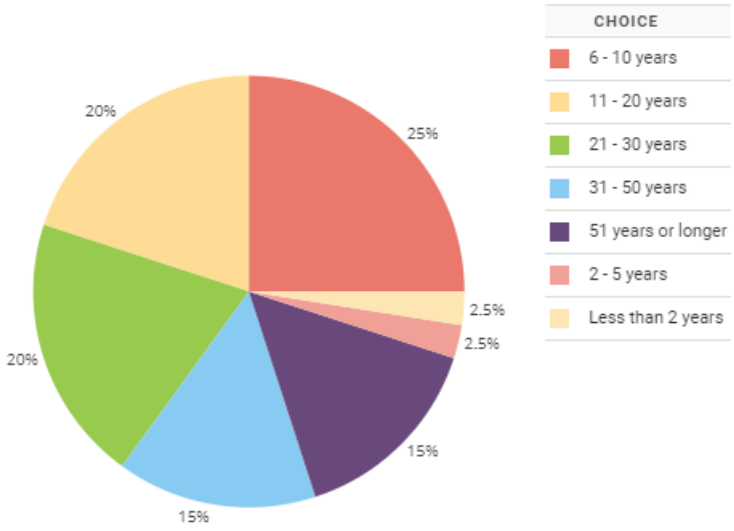


Chart 10.5 presents the years in operation of businesses that responded to the survey. Only 5.00% of respondents have been in business for 5 years or less. The majority of the businesses had been in business for 6 to 10 years and 15% for 51 years or longer.

Chart 10.5: Businesses by Number of Years in Operation



B. Overview of Business Practices

This section presents the business practices the business owners reported. The respondents reported on their experience navigating the State's procurement process as both a prime and subcontractor.

Chart 10.6 presents the number of bids, quotes, and proposals submitted to the State for construction, construction-related services, and goods, commodities, and supplies prime contracts. The majority of respondents did not submit bids/proposals during the study period. For those that submitted bids/proposals, 22.50% submitted 1 to 4 bids/proposals,17.50% submitted 5 to 9 bids/proposals, and 17.50% submitted 15 or more bids/proposals.

Chart 10.6: Prime Contract Quote, Bid, or Proposal Submittals

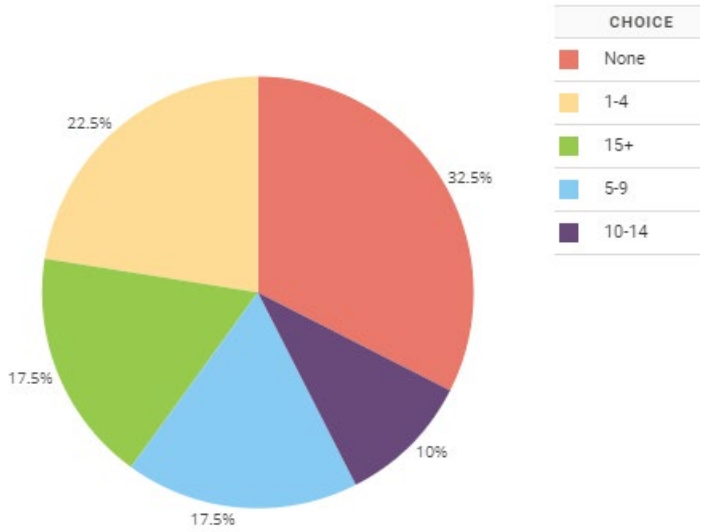


Chart 10.7 presents the number of bids and proposals the respondents submitted to the State and its prime contractors. The majority, or 42.50% of respondents, did not submit bids or proposals as subcontractors.

Chart 10.7: Subcontract Bids and Proposals Submitted

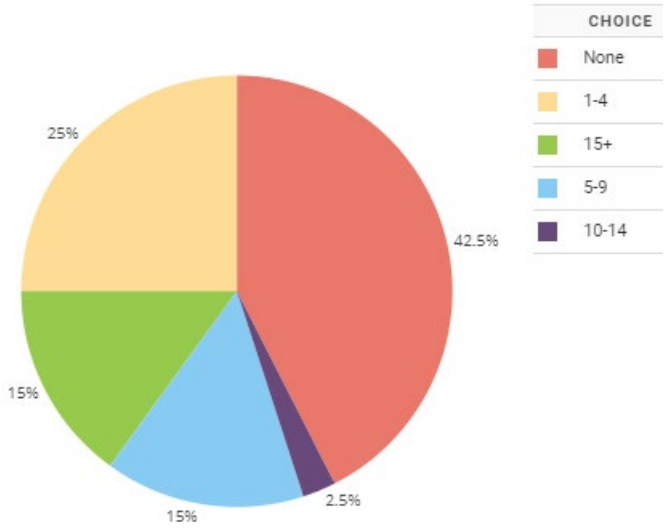


Chart 10.8 presents the number of prime contracts awarded during the study period to businesses that responded to the survey. The majority, or 42.50% of the respondents, had no prime contract awards, while 30.00% had 1 to 4 prime contract awards.

Chart 10.8: Prime Contract Awards

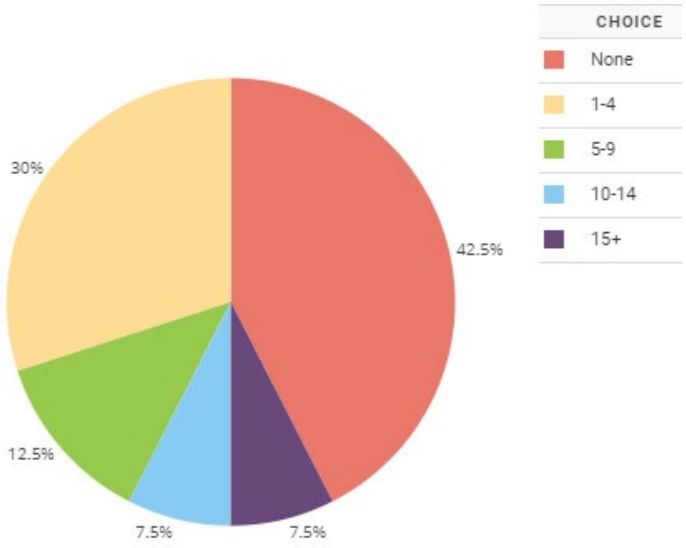


Chart 10.9 presents the number of subcontracts awarded to the respondents during the study period. The majority, or 57.50% of respondents, received no subcontract awards, while 27.50% had 1 to 4 subcontract awards.

Chart 10.9: Subcontract Awards

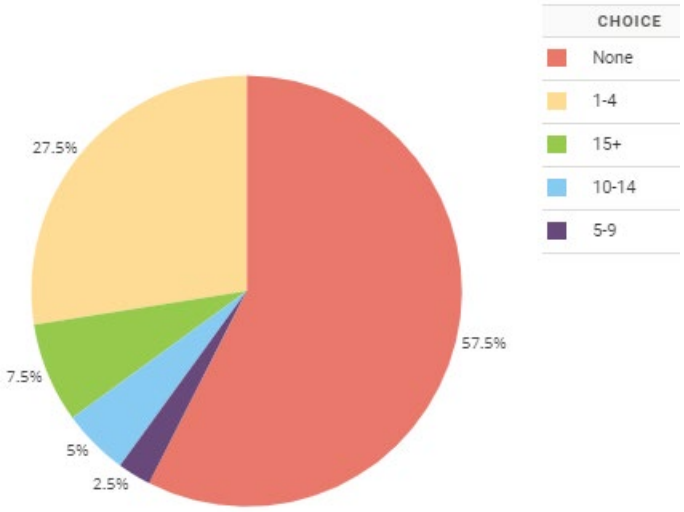


Chart 10.10 presents how often businesses that responded to the survey were asked by prime contractors to lower the price of a bid or proposal. The majority, or 75.00% of respondents, were never asked to reduce their price.

Chart 10.10: Subcontract Bid or Proposal Price Reduction Requested

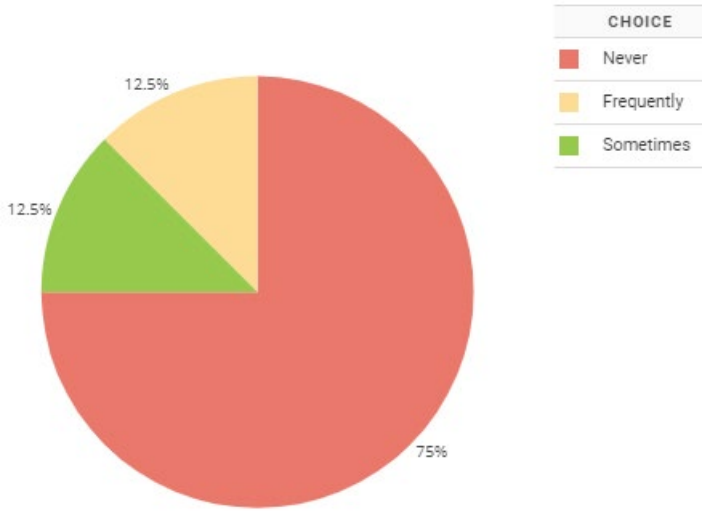


Chart 10.11 presents how often respondents experienced insufficient lead time to submit a bid or proposal on State contracts. The findings revealed 37.50% of respondents reported that sometimes they experienced insufficient lead time to submit a bid or proposal, 25.00% frequently experienced insufficient lead time to submit a bid or proposal, and 37.50% never experienced insufficient lead time to submit a bid or proposal.

Chart 10.11:Lead Time to Submit a Bid or Proposal

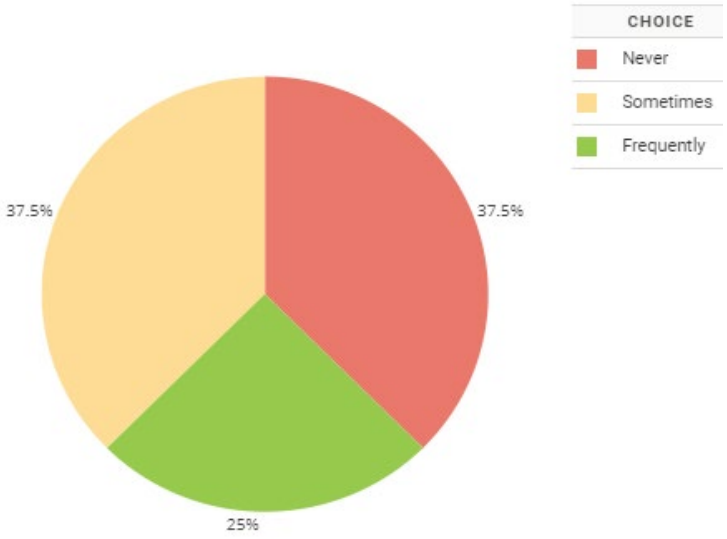


Chart 10.12 presents businesses that were not awarded work as a subcontractor by a prime contractor who won the contract. The majority, or 70.00% of respondents, received work a subcontract after the prime contractor received the award.

Chart 10.12: Subcontractors Utilized by Prime Contractors

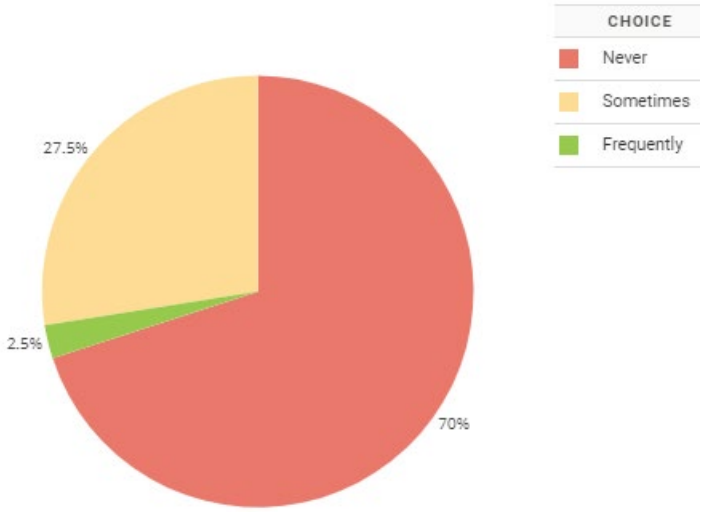


Chart 10.13 presents how often the respondents had to meet performance requirements that exceeded their scope of work. The majority, or 77.50% of the respondents, did not experience excessive performance requirements while working on a State contract.

Chart 10.13: Performance Requirements

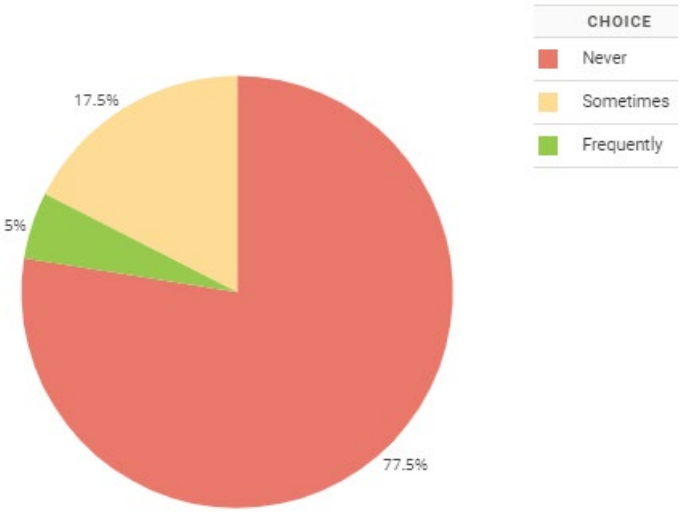


Chart 10.14 presents the frequency at which businesses that responded to the survey experienced prime contractors not paying invoices for work performed. The majority, or 87.50% of the respondents, received payment for their invoices from prime contractors.

Chart 10.14: Unpaid Invoices by Prime Contractors

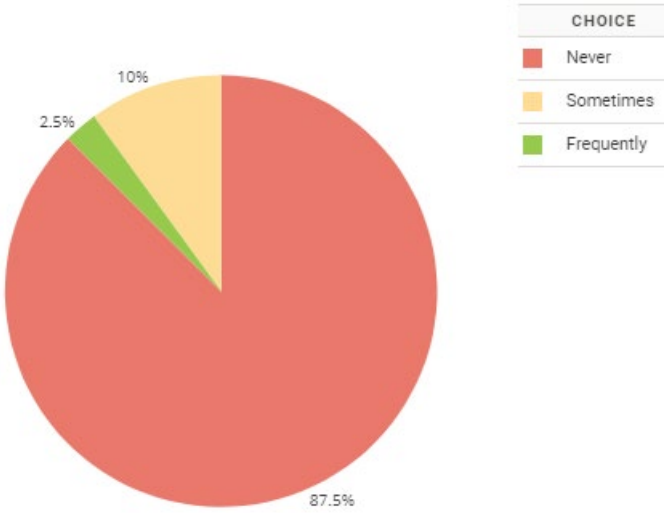


Chart 10.15 presents the frequency of State invoices paid more than 60 days late. The majority, or 87.50% of the respondents, received payments for their invoices before 60 days.

Chart 10.15: Payments by the State

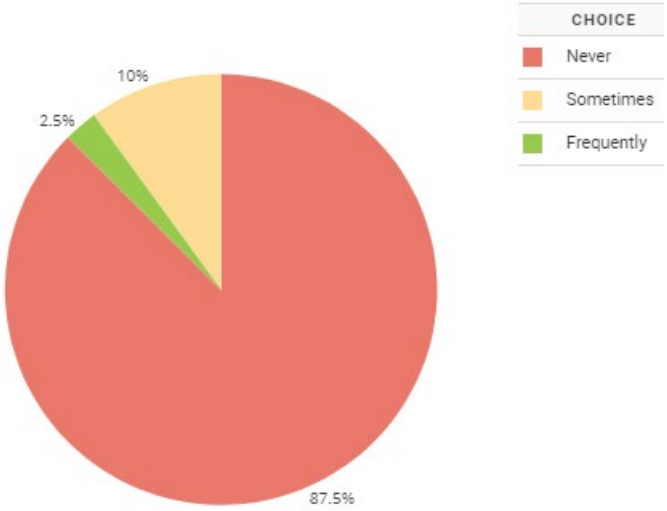


Chart 10.16 presents the respondents that requested a debriefing from the State after submitting an unsuccessful bid or proposal. The majority, or 77.50% of the respondents, did not request a debriefing from the State after their bid or proposal was unsuccessful.

Chart 10.16: Debriefing Requests from Unsuccessful Bidders or Proposers

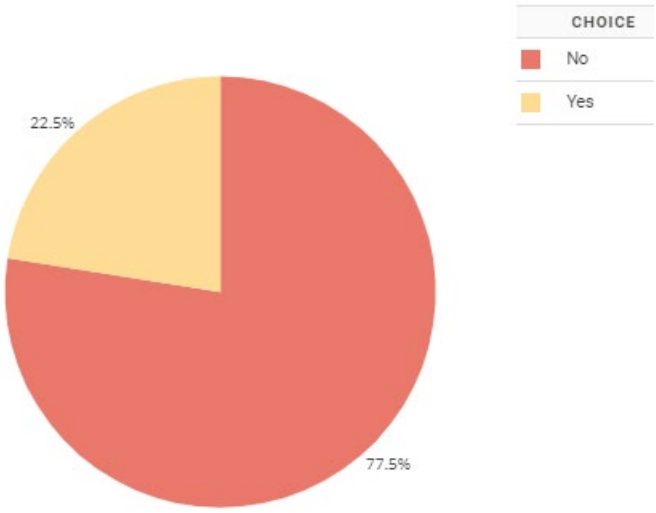


Chart 10.17 presents multi-year agreements awarded to the respondents during the study period. The majority, or 62.50% of the respondents, have never been awarded a multi-year agreement.

Chart 10.17: Multi-year Agreement Awards

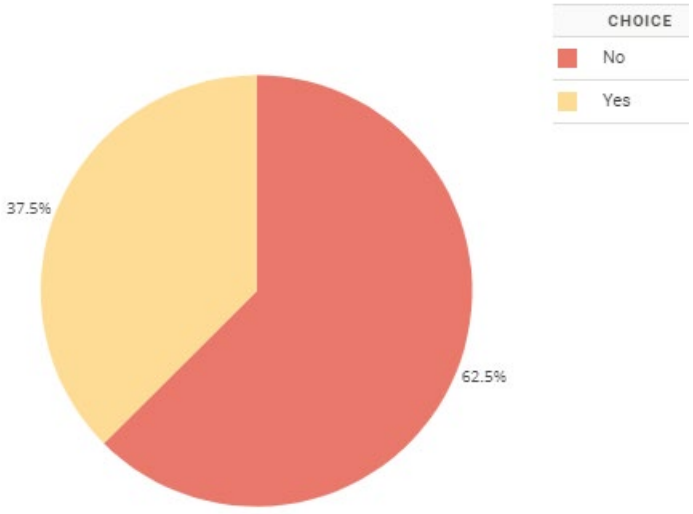


Chart 10.18 reports the respondents that believe the State has preferred contractors. The majority, or 60.00% of respondents, reported that the State has a preference for certain prime contractors.

Chart 10.18: Perceived Prime Contractor Preference

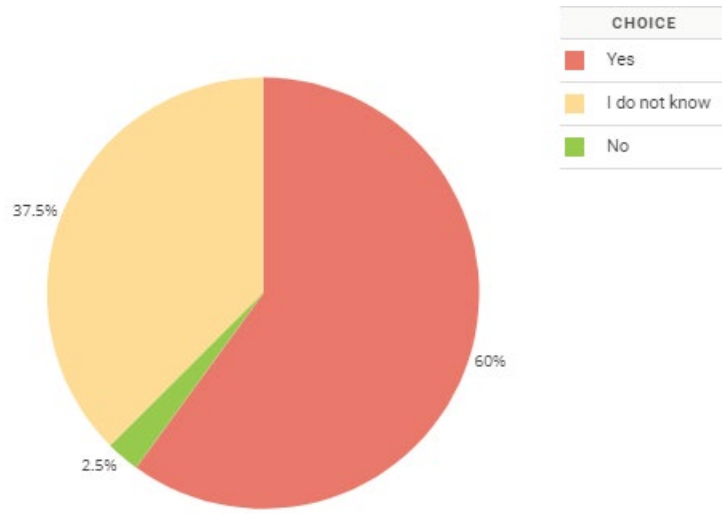


Chart 10.19 presents the types of preferential treatment the respondents believe is accorded select businesses. The findings revealed that 40.00% of respondents reported that preferred contractors receive advance bid or proposal notifications, 42.50% of respondents reported the State authorizes multiple change orders or amendments for the preferred contractors, and 55.00% of respondents reported that there are bid or proposal requirements that favor large businesses.

Chart 10.19: Preferential Treatment to Preferred Contractors

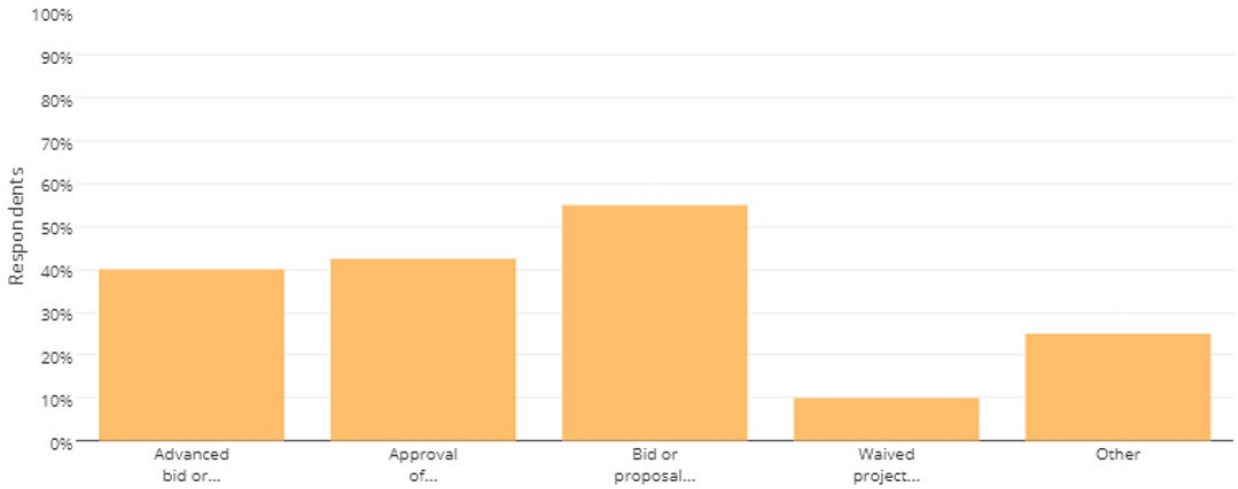


Chart 10.20 presents respondents who have submitted bond waiver applications. The findings revealed that 20.00% of the construction businesses have not applied for a bond waiver with the State.

Chart 10.20: Bond Waiver Application Requests

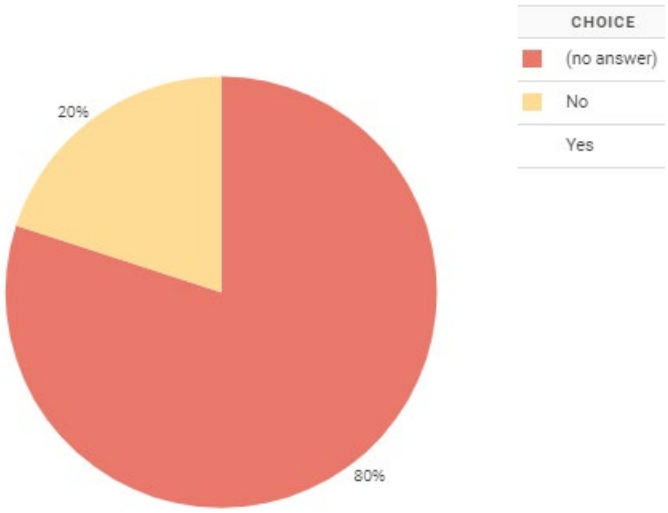


Chart 10.21 presents bond waivers awarded to construction businesses that responded to the survey. The findings revealed that no companies reported receiving bond waivers from the State on any bids.

Chart 10.21: Bond Waiver Awards

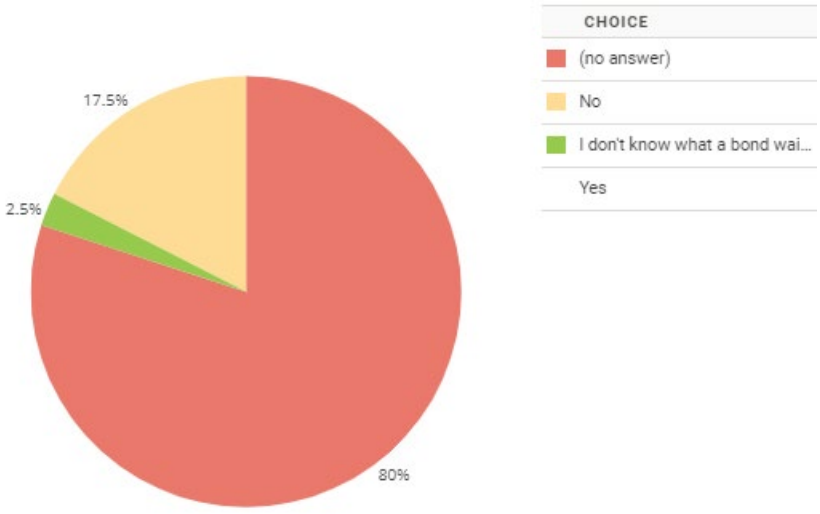


Chart 10.22 presents the number of bond waivers awarded to construction businesses that responded to the survey. The findings revealed that 17.50% of the respondents received no bond waivers.

Chart 10.22: Number of Bond Waivers

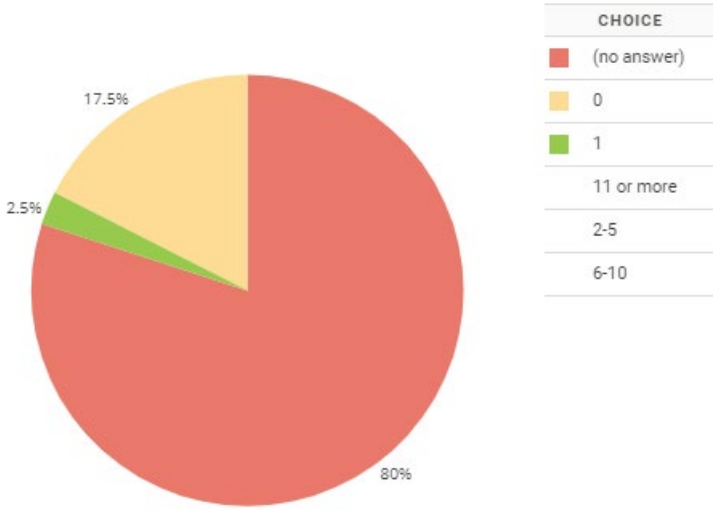
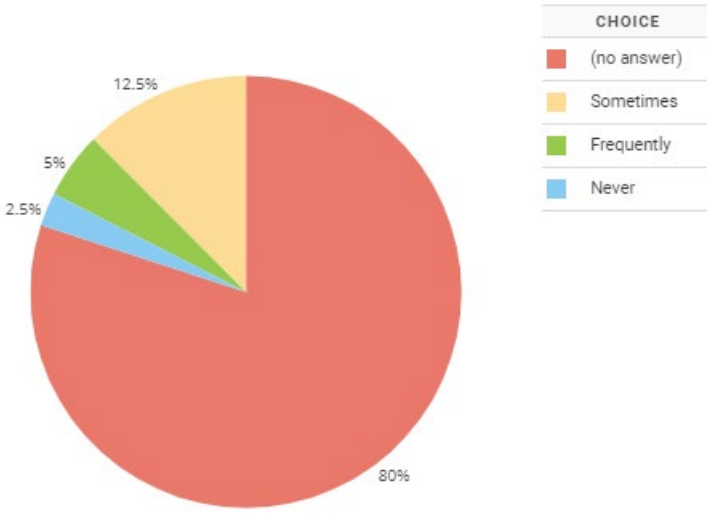


Chart 10.23 presents the respondents perception of the appropriateness of bond waiver requirements. Of the 20.00% of construction companies who responded, 5.00% reported the State's prime contract bond requirements are frequently reasonable based on the project size and scope of work, 2.50% believe that the bonding requirements are not reasonable, and 12.50% believe that the bonding requirements are sometimes reasonable.

Chart 10.23: Bond Waiver Requirements Aligned with Scope of Work



C. Minority Business Enterprise/Woman Business Enterprise Program

This section presents the respondents experience with the State's MBE/WBE Program.

Chart 10.24 presents whether respondents have benefitted from the State's MBE/WBE program. Most respondents, 65.00%, reported that they have not benefited from the State's MBE/WBE program. The findings revealed that 35.00% of the respondents reported the MBE/WBE program was beneficial.

Chart 10.24: MBE/WBE Program Beneficial

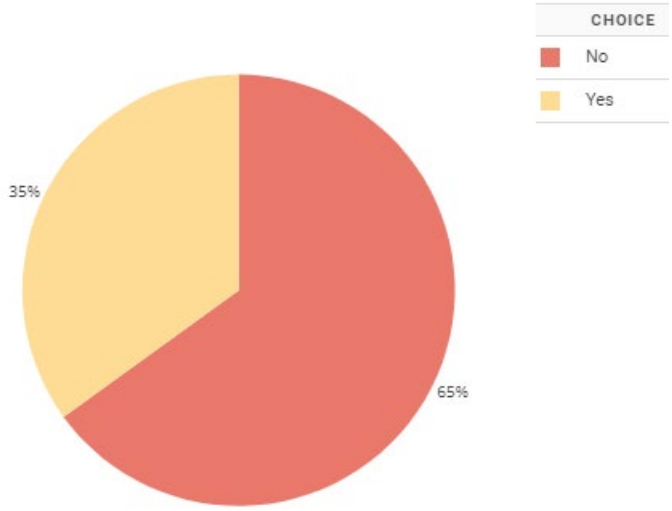


Chart 10.25 presents the number of contracts the respondents were used as subcontractors to meet an MBE/WBE goal. The majority of respondents, 57.50%, had not been used to meet an MBE/WBE goal. The findings revealed that 10.00% of the respondents had been used to meet MBE/WBE goals on 1 contract; 15.00% of the respondents had been used to meet MBE/WBE goals on 2 to 5 contracts; 2.50% of respondents had been used to meet MBE/WBE goals on 6 to 10 contracts; and 15.00% had been used to meet MBE/WBE goals on 11 or more contracts; and.

Chart 10.25: Number of Contracts Used to Meet MBE/WBE Goals

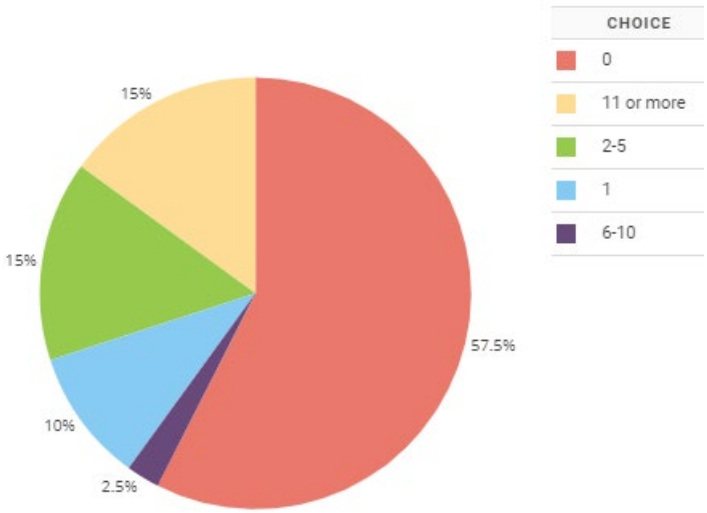
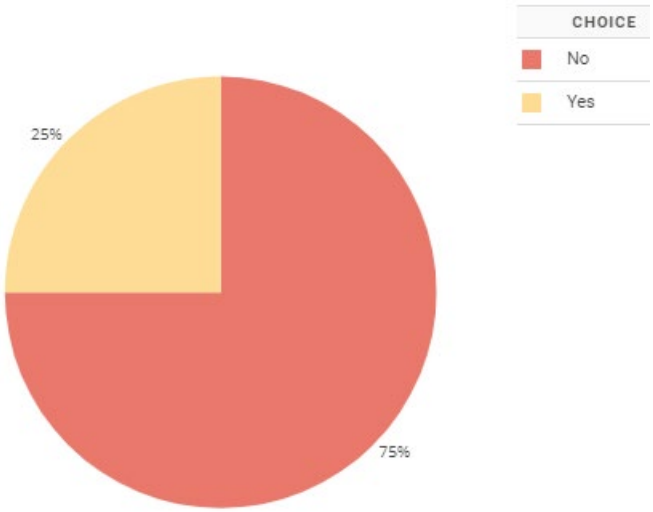


Chart 10.26 presents the respondents perception of a process available for expediting MBE/WBE certification applications to meet the State's bid/proposal deadline. The majority of the respondents, 75.00%, replied that there is not a process available for expediting MBE/WBE certification. The findings revealed that 25.00% of the respondents reported there is a process available for expediting MBE/WBE certification.

Chart 10.26: Availability of Expedited MBE/WBE Certification Process



D. Summary

The eSurvey was distributed to the dataset of available businesses compiled for the statistical analysis. Respondents represented the ethnic and gender distribution of the businesses surveyed. Caucasian Americans were the majority of the respondents, representing 57.50% of the businesses that responded Black Americans were the second largest ethnic group representing 20.00% of respondents. Male-owned businesses accounted for 52.50% of respondents. And 52.50% of respondents had an MBE/WBE certification and 22.50% had a Small Business Enterprise certification.

When describing issues navigating the State's procurement process, 62.50% of respondents reported insufficient time for submitting bids to the State. When bids were rejected by the State, 20.00% of respondents who pursued a debriefing found the meeting with the State to be helpful, while 10.00% of respondents did not find the debriefing meeting to be helpful. Respondents also detailed the types of treatment preferred contractors received. The findings revealed 40.00% of the respondents believe that preferred contractors receive advance bid and proposal notifications, 42.50% believe the State approves multiple change orders or amendments for preferred contractors, and 55.00% believe the State's bid and proposal requirements favor large businesses.

Information gathered from the eSurvey informed the race and gender-neutral recommendations set forth in *Chapter 11: Recommendations*.

CHAPTER 11: Recommendations

I. Introduction

This chapter provides race and gender-specific recommendations to eliminate the underutilization of minority and woman-owned businesses (MBE/WBEs) that had a statistically significant disparity. Race and gender-neutral recommendations for improve contracting with MBE/WBEs and other small businesses are also offered. The recommendations are based both on an analysis of the disparity study findings and best management practices in public contracting.

II. Disparity Analysis Findings

The statistical findings of disparity in the prime and subcontract awards to MBE/WBEs are summarized in this section and detailed in Chapter 7: Prime Contract Disparity Analysis and Chapter 8: Subcontract Disparity Analysis. The disparity findings upon which the race and gender recommendations are based were calculated in compliance with the constitutional parameters set forth in Croson and its progeny.[268]

A. Prime Contractor Disparity Findings

The State's prime contracts (hereinafter referred to as purchase orders) were analyzed at two size thresholds: 1) informal prime purchase orders, as defined by the State of Rhode Island Procurement Regulations; and 2) formal prime purchase orders, also defined by the State of Rhode Island Procurement Regulations except with the outliers removed. The informal threshold for each industry is shown in Table 11.1.[1]

Table 11.1: Informal Purchase Orders Threshold by Industry

Industry	Informal Threshold
Construction	$10,000 and Less
Construction-related Services	$5,000 and Less
Services	$5,000 and Less
Goods, Commodities, and Supplies	$5,000 and Less

Formal prime purchase order thresholds are over $10,000 for construction and over $5,000 for construction-related services (including professional services), and goods, commodities, and

[268] Croson, at 488 U.S. 469 (1989).

[1] Purchasing Manual. Office of Budget and Finance. Section 8-1.

supplies. However, for this analysis the outliers, or any other large contracts that skew the statistical findings, were removed and for the statistical analysis an upper limit was derived for each industry. The methodology defining the upper limits of the formal contract threshold, for each industry is detailed in *Chapter 3: Prime Contractor Utilization Analysis*. Table 11.2 shows the upper limits for the formal prime threshold derived for the four industries.

Table 11.2: Formal Purchase Order Threshold by Industry

Industry	Formal Threshold
Construction	Between $10,000 and $1,120,000
Construction-related Services	Between $5,000 and $430,000
Services	Between $5,000 and $130,000
Goods, Commodities, and Supplies	Between $5,000 and $80,000

1. Construction Prime Contractor Disparity Findings

Table 11.3 depicts informal construction purchase orders valued $10,000 and under. Table 11.4 depicts the disparity findings for formal construction purchase orders valued between $10,000 and $1,120,000.

A disparity was found in the award of informal construction prime purchase orders valued $10,000 and under for Black Americans, Hispanic Americans, American Indian/Alaskan Natives, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.3: Construction Services - $10,000 and Under, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Construction
	Purchase Orders Valued $10,000 and Less
Black Americans	*Disparity*
Asian Americans	----
Portuguese Americans	No Disparity
Hispanic Americans	*Disparity*
American Indian/Alaskan Natives	*Disparity*
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

A disparity was found in the award of formal construction prime purchase orders valued between $10,000 and $1,120,000 to Black Americans, Portuguese Americans, Hispanic Americans, American Indian/Alaskan Natives, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.4: Construction Services – Between $10,000 and $1,120,000, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Construction
	Purchase Orders Valued Between $10,000 and $1,120,000
Black Americans	*Disparity*
Asian Americans	----
Portuguese Americans	*Disparity*
Hispanic Americans	*Disparity*
American Indian/Alaskan Natives	*Disparity*
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

2. Construction-related Services Prime Contractor Disparity Findings

Table 11.5 depicts the disparity findings for construction-related services purchase orders valued $5,000 and less. Table 11.6 depicts the disparity findings for formal construction-related purchase orders valued between $5,000 and $430,000.

A disparity was found in the award of construction-related services prime purchase orders valued $5,000 and under to Black Americans, Asian Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.5: Construction-related Services – $5,000 and less, July 1, 2014, to June 30, 2017

Ethnicity/Gender	Construction-related Services
	Purchase Orders Valued $5,000 and Less
Black Americans	*Disparity*
Asian Americans	*Disparity*
Portuguese Americans	----
Hispanic Americans	No Disparity
American Indian/Alaskan Natives	----
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

A disparity was found in the award of formal construction-related prime purchase orders valued between $5,000 and $430,000 to Black Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.6: Construction-related Services between $5,000 and $430,000, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Construction-related Services
	Purchase Orders Valued Between $5,000 and $430,000
Black Americans	*Disparity*
Asian Americans	No Disparity
Portuguese Americans	----
Hispanic Americans	No Disparity
American Indian/Alaskan Natives	----
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

3. Services (Including Professional Services) Prime Contractor Disparity Findings

Table 11.7 depicts the disparity findings for services (including professional services) purchase orders valued $5,000 and less. Table 11.8 depicts the disparity findings for services purchase orders valued between $5,000 and $130,000.

A disparity was found in the award of services prime contracts valued $5,000 and less to Black Americans, Portuguese Americans, Hispanic Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.7: Services (Including Professional Services) - $5,000 and Less
July 1, 2014 to June 30, 2017

Ethnicity/Gender	Services
	Purchase Orders Valued $5,000 and Less
Black Americans	*Disparity*
Asian Americans	No Disparity
Portuguese Americans	*Disparity*
Hispanic Americans	*Disparity*
American Indian/Alaskan Natives	----
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

A disparity was found in the award of services (including professional services) prime purchase orders valued between $5,000 and $130,000 to Black Americans, Portuguese Americans, Hispanic Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.8: Services (Including Professional Services) between $5,000 and $130,000, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Services
	Purchase Orders Valued Between $5,000 and $130,000
Black Americans	*Disparity*
Asian Americans	No Disparity
Portuguese Americans	*Disparity*
Hispanic Americans	*Disparity*
American Indian/Alaskan Natives	----
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

4. Goods, Commodities, and Supplies Prime Contractor Disparity Findings

Table 11.9 depicts the disparity findings for goods, commodities, and supplies purchase orders valued $5,000 and less. Table 11.10 depicts the disparity findings for goods, commodities, and supplies purchase orders between $5,000 and $80,000.

A disparity was found in the award of goods, commodities, and supplies prime purchase orders valued $5,000 and less to Black Americans, Portuguese Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.9: Goods, Commodities, and Supplies - $5,000 and Less, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Goods, Commodities, and Supplies
	Purchase Orders Valued $5,000 and Less
Black Americans	*Disparity*
Asian Americans	----
Portuguese Americans	*Disparity*
Hispanic Americans	----
American Indian/Alaskan Natives	No Disparity
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

A disparity was found in the award of goods, commodities, and supplies prime purchase orders valued between $5,000 and $80,000 to Black Americans, Portuguese Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.10: Goods, Commodities, and Supplies Between $5,000 and $80,000, July 1, 2014 to June 30, 2017

Ethnicity/Gender	Goods, Commodities, and Supplies
	Purchase Orders Valued Between $5,000 and $80,000
Black Americans	*Disparity*
Asian Americans	No Disparity
Portuguese Americans	*Disparity*
Hispanic Americans	----
American Indian/Alaskan Natives	----
Caucasian Females	*Disparity*
Minority Business Enterprises	*Disparity*
Woman Business Enterprises	*Disparity*

---- Too few contracts/available firms to determine statistical significance.

B. Subcontractor Disparity Findings

As detailed in *Chapter 4: Subcontractor Utilization Analysis*, an extensive effort was undertaken to reconstruct the subcontracts awarded by the State's construction and professional services (including architecture and engineering services) prime contractors. Although the State had comprehensive MBE/WBE subcontract records for the July 1, 2014, to June 30, 2017 study period, the non-MBE/WBE subcontract records were not maintained. A collaborative effort between the State and Mason Tillman resulted in a reconstruction of non-MBE/WBE subcontract records for the State's construction prime purchase orders. The reconstruction effort did not yield sufficient subcontract data for an analysis of the professional services subcontracts the prime contractors awarded.

1. Construction Subcontract Disparity Findings

A disparity was found in the award of construction subcontracts to Black Americans, Asian Americans, and Hispanic Americans, Caucasian females, Minority Business Enterprises, and Woman Business Enterprises.

Table 11.11: Construction - July 1, 2014 to June 30, 2017

Ethnicity / Gender	Construction
Black Americans	Disparity
Asian Americans	Disparity
Portuguese Americans	No Disparity
Hispanic Americans	Disparity
American Indian/Alaskan Natives	No Disparity
Caucasian Females	Disparity
Minority Business Enterprises	Disparity
Woman Business Enterprises	Disparity

III. Race and Gender-Conscious Remedies

The Disparity Study was commissioned to examine the State Agencies' procurement activities for any evidence of discrimination in the award of contracts to available minority and women business enterprises. Documented statistically significant disparity was evidence of discrimination in the State Agencies' contracting with MBE/WBE prime and subcontractors. Given the documented discrimination the State Agencies have a compelling interest to enhance its race-based contracting program to eliminate the discrimination.[269]

The 1989 landmark decision of *City of Richmond v. J. A. Croson Co.* (*Croson*)[270] allows local governments to enact race-conscious remedies when there is a strong basis in evidence of ongoing effects of past or present discrimination. *Croson* held, "where there is a significant statistical disparity between the number of qualified minority contractors willing and able to perform a particular service and the number of such contractors actually engaged by the locality or the locality's prime contractors, an inference of discriminatory exclusion could arise."[271]

The proposed race and gender-conscious recommendations are predicated on the disparity findings and limited to the ethnic groups that were underutilized at a statistically significant level. Recommendations also include gender-based remedies for the groups that are underutilized, albeit not at a statistically significant level. Findings of discrimination for WBEs only require statistical evidence of underutilization. Modifications to the State's current MBE/WBE Program should

[269] *Id.*

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

[271] *Id* at 509.

include the proposed prime contract race and gender-conscious bid discounts and evaluation points and subcontract goals.

A. Prime Contract Remedies

1. Bid Discounts on Construction Contracts

A five percent bid discount for evaluation purposes on construction prime purchase orders should be implemented. When applied, the bid discount would reduce the eligible bidder's price by five percent to determine the lowest responsive and responsible bidder. The maximum discount should not exceed $50,000. The groups with statistically significant underutilization would be eligible for the bid discount as listed below in Table 11.12.

Table 11.12: Groups Eligible for Construction Bid Discounts

Bid Discount – Eligible Groups
Construction
Black Americans
Portuguese Americans
Hispanic Americans
American Indian/Alaskan Natives
Caucasian Females

2. Discounts on Goods, Commodities, and Supplies Bids

A five percent bid discount for evaluation purposes on goods, commodities, and supplies purchase orders should be implemented. When applied, the bid discount would reduce the eligible bidder's price by five percent to determine the lowest responsive and responsible bidder. The discount should not exceed $50,000. The groups with statistically significant underutilization would be eligible for the bid discount as listed below in Table 11.13.

Table 11.13: Groups Eligible for Goods, Commodities, and Supplies Bid Discounts

Bid Discount – Eligible Groups
Goods, Commodities, and Supplies
Black Americans
Portuguese Americans
Caucasian Females

3. Incentive Credits for Construction-related Services

The incentive credits should apply when the evaluation is qualifications based. Ten percent of the total evaluation credits available when scoring proposals and statements of qualifications should be allocated to the ethnic groups with a disparity and the underutilized woman-owned businesses.

Incentive credits included in the evaluation criteria might counterbalance the competitive disadvantage experienced by the ethnic groups that were underutilized at a statistically significant level and the underutilized woman-owned businesses. The ethnic groups with statistically significant disparity and the underutilized woman-owned businesses that would be eligible for the evaluation points are listed in Table 11.14.

Table 11.14: Groups Eligible for Construction-related Services Evaluation Points

Evaluation Incentive Credit – Eligible Groups
Construction-related Services
Black Americans
Caucasian Females

4. Incentive Credits for Services (Including Professional Services)

Ten percent of the total evaluation credits available when scoring proposals and statements of qualifications for services (including professional services) should be allocated to the ethnic groups with a disparity and the underutilized woman-owned businesses. The ethnic groups with statistically significant disparity and the underutilized woman-owned businesses that would be eligible for the evaluation points for services (including professional services) are listed in Table 11.15.

Table 11.15: Groups Eligible for Services (Including Professional Services) Evaluation Points

Evaluation Incentive Credit – Eligible Groups
Services (Including Professional Services)
Black Americans
Portuguese Americans
Hispanic Americans
Caucasian Females

B. Subcontractor Remedies

The State should implement construction subcontract remedies for the ethnic groups that were found to have statistically significant disparity and the gender groups that were underutilized.

1. MBE/WBE Subcontract Goals on Construction Contracts

An MBE and WBE subcontractor goal should be set on construction prime contracts. An MBE goal should be applicable to the ethnic groups that had a statistically significant disparity. A separate subcontract goal should be set on construction prime contracts for WBEs since woman-owned businesses were underutilized on the State's construction subcontracts. To meet the

narrowly tailored standard, the MBE/WBE construction subcontract goal should be based on the availability levels for each eligible ethnic and gender group presented in Table 11.16 below.

Table 11.16: MBE/WBE Construction Subcontractor Availability

Group	Percent of Businesses
Black American	7.12%
Asian American	1.49%
Hispanic American	5.40%
Caucasian Females	21.81%

C. Goal Attainment Should be Submitted and Opened with the Bid

Documentation of goal attainment should be verified at bid opening. An MBE/WBE Subcontracting Utilization Plan should be submitted with the bid and opened with the bid. The plan should stipulate the eligible MBE/WBEs listed to meet the contract MBE/WBE subcontract goals and it should provide evidence the listed MBE/WBE shall perform a commercially useful function. A prime contractor who fails to meet the subcontract goal must submit good faith effort documentation with the bid to quantify the effort made to meet the subcontracting goal. If the good faith effort documentation is not submitted with the bid or the documentation is not approved, the submittal should be considered non-responsive. If no responsive bids are received the solicitation should be cancelled and re-advertised.

1. Good Faith Effort Requirements

Good faith effort criteria are necessary for bidders that fail to meet the MBE/WBE subcontracting goals to quantify their efforts to do so. The good faith effort procedure should be enhanced by mandating the requirement and assigning a value to each good faith effort element to further improve the attainment of its MBE/WBE subcontracting goal. Good faith effort elements should be quantified to determine whether or not a prime contractor has provided sufficient evidence of a good faith effort to meet the MBE/WBE subcontract goals. The maximum score should be 100 points. To be considered a responsive bidder, the prime contractor's good faith effort should be sufficient to achieve a minimum score of 80.00% of the points. The following good faith elements and point assignments are recommended:

- Advertise (5 points)

Subcontracting opportunities for MBE/WBEs should be advertised to certified MBE/WBEs in three digital or print media outlets at least twice during the two weeks prior to the bid opening, except when advertisement in print media is required, unless the solicitation waives this requirement. Examples of the media outlets include general circulation media, minority-focused media, trade association publications, or trade-related publications. The advertisement should include the project name, the name of the bidder, areas of work available for subcontracting, contact person's name and telephone number, information on the availability of plans and

specifications, date the subcontractor's written bid is due to the prime contractor, and assistance available to subcontractors in obtaining bonds, financing, and insurance.

- Outreach to Identify MBE/WBEs (15 points)

Prime contractors should communicate with MBE/WBEs through personal and frequent contact by promptly returning telephone calls and emails. Correspondence logs should list the names of the businesses, the representatives contacted, and dates of the contact. Copies of correspondence with the businesses contacted, including the responses received, should be provided. Documentation should also include facsimile transmittal confirmation slips or written confirmation of receipt by email with the date of transmission. At least three businesses should be contacted.

- Attend the Pre-bid Meeting (5 points)

Attendance at the scheduled pre-bid meetings should be mandatory to comply with the good faith effort requirement. The prime contractor's name on the pre-bid meeting sign-in sheet should serve as documentation.

- Provide Timely Written Notification (20 points)

Prime contractors should be required to solicit, in writing, subcontract bids and material quotes from relevant MBE/WBEs at least two weeks prior to the bid opening. Relevant businesses are those that could feasibly provide the goods or services required to satisfy the terms specified in the State's solicitation. When soliciting bids, quotes, and proposals, the prime contractor should provide the project name, the bidder's name, subcontract items, primary contact person's name and phone number, information on the availability of plans and specifications, and the date on which the subcontractor's written bid should be submitted to the prime contractor. Written notification should include verification of the transmission date, the recipient's name, and the company name. Documentation should also include facsimile transmittal confirmation slips or written confirmation of receipt by email with the date of transmission.

- Contact Follow-up (15 points)

Prime contractors should be required to promptly return telephone calls, facsimiles, and emails after the initial solicitation. The follow-up should consist of a telephone call or email during normal business hours at least two weeks prior to the bid opening. The prime contractor should maintain correspondence logs that list the subcontractors who were contacted, including the results of that contact. The list should also include the names of the eligible businesses and contact persons, as well as telephone numbers, dates of contact, and notes regarding the outcome of said contact. The record should also identify the scope of work for which each was asked to provide a bid.

- Identify Items of Work (15 points)

Subcontracts should be broken down into discrete items or packages that MBE/WBEs may find economically feasible to perform. The documentation should include a list with descriptions of the specific items of work solicited from eligible businesses, as well as notices and advertisements targeting MBE/WBE subcontractors.

- Negotiate in Good Faith (15 points)

Prime contractors should negotiate fairly with interested MBE/WBEs even if selection of the MBE/WBE would nominally increase costs or the contractor could self-perform the work. Prime contractors may not unjustifiably reject bids, quotes, or proposals prepared by eligible businesses based on the subcontractor's standing within its industry, or on membership in a specific group, organization, association, and/or political or social affiliation. A written statement with names, addresses, and telephone numbers of subcontractors contacted and the negotiated price and services should be submitted. This list should include dates of the negotiations and the results and document the bids received from businesses that could provide a commercially useful function.

- Assist in Securing Financing, Insurance, or Competitive Supplier Pricing (10 points)

Prime contractors should provide MBE/WBEs with technical assistance regarding plans, specifications, and requirements of the contract in a timely manner to facilitate responses to solicitations. Prime contractors may not deny a subcontract solely because a certified MBE/WBE cannot obtain a bond and should make efforts to assist interested businesses in obtaining financing, bonds, and insurance required by the State, as well as provide competitive pricing. The prime contractor should provide a written description of the type of assistance offered, the company name, contact person and telephone number, and the name of the person who provided the assistance, as well as that of the supplier that offered competitive pricing.

IV. Enhancements to the State's MBE/WBE Program

On May 9, 2013, Governor Lincoln D. Chafee signed Executive Order 13-05, *Promotion of Diversity, Equal Opportunity, and Minority Business Enterprises in Rhode Island.* Executive Order 13-05 was intended to address the changing demographics of the State's business community by maximizing the participation of minority-owned business enterprises (MBEs) in State contracts. The Director of the Department of Administration was charged with reviewing all divisions and offices responsible for facilitating equal opportunity programs pertaining to MBEs and offer recommendations to ensure the programs were effective.

Each of the State's Executive Branch Departments were required to comply with the approved recommendations and take steps to increase the participation of MBEs on their State funded contracts. The Division of Purchases Minority Business Enterprise Compliance Office was charged with identifying prime contracts and subcontracts to increase the rate of MBE participation. State Agencies were required to provide a list of potential contracting opportunities in coordination with the Office of Management, the Budget's Office of Performance Management, and the Division of Purchases Minority Business Enterprise Compliance Office by December 1, 2013. The Governor also directed the Director of the Department of Administration to submit an

annual report and include each State agency's Affirmative Action Plan to demonstrate the State's progress including MBEs in the State's procurement.

In 2014 Executive Order 13-05 authorized the implementation of the Office of Diversity, Equity and Opportunity (ODEO), a division within the Department of Administration. The State Equal Opportunity Office, the Human Resources Outreach & Diversity Office, the Minority Business Enterprise Compliance Office, and the Supplier Diversity Office (SDO) are under the auspices of the ODEO.

MBE/WBEs is defined by R.I. Gen. Laws § 37-14.1 as "a small business concern, owned and controlled by one or more Rhode Island Department of Economic Development certified minority or woman-owned business. Specific programmatic procedures to implement the recommended prime and subcontractor race and gender-conscious remedies and best management practices were written to ensure an effective implementation of an enhanced MBE/WBE program. The recommendations were set forth in the *ODEO Program and Procurement Optimization Report*.[272]

1. Augment ODEO Program Staff

An augmented MBE/WBE program staff is needed to implement the recommended prime and subcontractor race and gender-conscious remedies. The *ODEO Program and Procurement Optimization Report* also identified the need for staff experienced in horizontal/vertical construction. Roles and responsibilities of an augmented staff include:

- **Contract Compliance Specialist**: to monitor MBE/WBE contract goal compliance and investigate MBE/WBE complaints. Oversee the proper execution of MBE/WBE subcontracts and a fair and equitable administration of both MBW/WBE prime and subcontracts. The Contract Compliance Specialist must demonstrate proficiency in Microsoft Office Suite, knowledge of horizontal/vertical construction and construction-related procurement processes, the ability to work with public officials and the general public, and the ability to work with a variety of individuals with diverse interests and backgrounds.

- **Ombudsperson**: to provide dispute resolution services and direct investigations of complaints from State Agencies, as well as prime contractors and subcontractors. The Ombudsperson must demonstrate proficiency in Microsoft Office Suite, training in mediation and alternative dispute resolution methods, knowledge of horizontal/vertical construction and construction-related procurement methods, and the ability to work with a individuals with diverse interests and backgrounds.

[272] *ODEO Program and Procurement Optimization Report*, Civic Initiatives, (June 15, 2020).

2. Require Agency Specific MBE/WBE Liaison Officer

All State Agencies should adhere to Rhode Island Code of Regulations 220-RICR-80-10-2 requiring the designation of a staff MBE/WBE Liaison Officer.[273] The Officer should oversee pre-award compliance with the MWBE Program requirements stipulated in the solicitation and monitor post-contract compliance to ensure that the contract provisions are adhered to during the term of the agreement. The Officer should provide quarterly reports to ODEO documenting the State agency's MBE/WBE utilization. The Officer should certify the accuracy of each report.

3. Verify MBE/WBE Commercially Useful Function

Subcontractor participation counted toward the goal should be performed by the listed MBE/WBE subcontractors unless the State approves a substitution during the term of the contract. Contractors who do not use the listed MBE/WBE subcontractor listed in the utilization plan and fail to secure an approved substitution should not receive reimbursement for self-performing or having another contractor perform all or part of the listed MBE/WBEs work. The criteria for counting M/WBE participation should also include a commercially useful function standard. A business that performs a commercially useful function minimally does the following:

- Executes a distinct element of contract work.
- Carries out its obligation by performing, managing, and supervising the work involved.
- Performs work that is normal business practice for its industry, service, and function.
- Completes the work identified in the subcontract utilization plan

4. Revamp the Master Pricing Agreement Procurement Method

Master Pricing Agreements (MPAs) are multi-year contracts that State Agencies are authorized to use to fulfil their procurement requirements. Contractors are selected through a competitive process requiring demonstration of significant capacity, experience, and staff. Selected firms may be issued one or more purchase orders during the term of the agreement. Without further competition, State Agencies issue task orders or work orders using the contractor's purchase order as the authorization. There is no limit to the number or amount of work orders or task orders issued to a vendor that has an MPA.

The capacity requirements for the MPA does not align with the size of the task order or work order issued. Most of the task orders and work orders issued under the MPA are small. And most vendors issued an MPA receive a considerable number of task orders or work orders. The MPA procurement method effectively reduces the small contracts available for MBE/WBEs and other small businesses to perform.

[273] *ODEO Program and Procurement Optimization Report* at page 15.

5. Require MBE/WBE Subcontract Goals on Master Pricing Agreements

MBE/WBE construction subcontract goals should be applied to each MPA. The construction subcontract goal attainment should be required at the time of bid opening. Post award the goals should be met on each work order and task order issued under the MPA. The MBE/WBE Liaison Officer should monitor the goal requirement and report the findings in the quarterly reports to ODEO.

6. Implement a Sheltered Market Program

Set aside for competition among small businesses small procurement routinely issued as task orders or work orders under the MPA. A sheltered market program would allow MBE/WBEs and other small businesses to compete with similarly situated businesses for small procurements. Small contracts would include the informal construction prime contracts that do not exceed $10,000, professional services (including architecture and engineering) and the goods and services $5,000 or less in addition to contracts under $100,000 routinely issued as direct orders under the large multi-year MPA agreements.

The businesses would be prequalified using criteria aligned with size of the sheltered contracts and the awards would be made on a rotational basis. No business in the rotation would be eligible to receive a second task order until all other businesses on the list had been offered at least one task order.

7. Established Formal MBE/WBE Substitution Provisions

Substitution of an MBE/WBE listed in a prime contractor' subcontract utilization plan should be approved in writing by the project manager and ODEO. To substitute an MBE/WBE there must be due process. Conditions in which a substitution should be considered are where the subcontractor:

- Becomes insolvent.
- Fails to execute a written contract for the scope of work and price specified in the subcontractor's bid after a reasonable amount of time has been granted.
- Fails to perform the subcontract scope of work in accordance with industry standards.
- Fails to meet the agreed upon bond requirements.
- Fails to comply with the work completion schedule and disrupts the progress of the project.

A written request for substitution should be submitted to the project manager and ODEO. The subcontractor should be copied on the request. The subcontractor should be afforded a hearing to present its written or oral statement of the facts. ODEO should hold the hearing within 48 hours of receiving the request for substitution. Prior to the hearing, the ODEO should attempt to mediate the dispute. The decision reached by the project manager and ODEO should be final and binding.

If the substitution is granted, the substituted MBE/WBE should be replaced with another MBE/WBE and approved by ODEO.

8. MBE/WBE Tracking and Monitoring Standards

A subcontractor disparity analysis could not be performed on the State's construction-related contracts due to the ineffective maintenance of subcontract data by the State Agencies. A tracking and monitoring compliance system is needed to capture all subcontractors, suppliers, and truckers. The *ODEO Program and Procurement Optimization Report* identified tracking the utilization of MBE/WBE as an issue and recommended improvements. The recommendations included:[274]

- The Rhode Island Financial Accounting Financial Network System (RIFANS) should capture the subcontractors at the time of bid opening. All subcontractors, MBE/WBE and non-MBE/WBE subcontractor awards and vendor should be recorded in the system. RIFANS Supplier Portal should allow for submission of utilization reports online and online verification of payments made to subcontractors. The RIFANS Supplier Portal should also be modified to produce an automated MBE/WBE Plan data.

Monitoring should also include a monthly verification of payments to MBE/WBE subcontractors. Any approved substitutions of listed subcontractors should be reported in the monthly report.

ODEO's quarterly MBE/WBE Utilization report should document the MBE/WBE goal attainment by agency and overall, for the State. The report should present the contracts and prime contractors who did not attain the goal attainment listed in the subcontractor utilization plan. Goal attainment by department should also be included in the report.

9. MBE/WBE Quarterly Utilization Review

The prime contractor's invoice should list the cumulative payment to each MBE/WBE listed on the subcontractor utilization form. Any additional businesses added to the contract after the award must be listed on an amended subcontractor utilization form. All substitutions and removal of MBE/WBE subcontractors should be approved and reported on the amended subcontractor participation form.

A quarterly utilization review should be produced by ODEO in conjunction with each the State Agencies to measure the effectiveness of the MBE/WBE Program. Minimally, the report should analyze year-to-date MBE/WBE prime and subcontract payments, original award, and modifications to the original award. Modification by contract change orders, amendments or substitutions should be separately reported by agency. Contract-specific waivers to the subcontract goal at bid opening or failure to meet the subcontract goal during the term of the contract should also be published in the report. The report should be presented to the Director, Department of Administration at quarterly intervals and published on ODEO's website.

[274] *ODEO Program and Procurement Optimization Report* at page 16.

The fourth-quarter report should also assess year-to-date Policy activities. These should include the MBE/WBE Advisory Committee's comments and descriptions of the State's exemplary practices and achievements.

10. Prompt Payment Provisions

Prime contractors are required to pay their subcontractors within 30-days from receipt of the check from the State. The payment should be made before additional prime contractor invoice payments are issued. All prime contractor payments should be posted within 48 hours of issuance of payment, as a notice to both the prime contractor and the subcontractor that the payment was issued.

11. Dispute Resolution Standards

Dispute resolution standards should be established to allow businesses to resolve issues relating to work performance after a contract award. A dispute resolution process should apply to disputes between prime contractors and the State Agencies as well as disputes between subcontractors and prime contractors. The dispute resolution process should include provisions for an ombudsperson. The State funded ombudsperson should be assigned to the ODEO office to handle, as needed, disputes MBE/WBE experience, and to resolve them in a timely and cost-effective manner. A dispute resolution meeting should be mandatory in the event a dispute cannot be resolved by the ombudsperson within ten (10) working days.

The first step in the dispute resolution process would be the submission of an oral or written complaint by the aggrieved party to the ombudsperson. The ombudsperson would then aid the parties in resolving the dispute by investigating the claim and making initial contact with the State, the prime contractor, or subcontractor. If the dispute is not resolved through these means within ten (10) working days, the ombudsperson will assist the aggrieved party in filing a request for a dispute resolution meeting.

The meeting would be the second step in the resolution process. Neither party may involve legal representation during this initial informal process in order to avoid significant legal costs for both parties. If the parties are not able to reach a mutually agreed upon resolution through a meeting, the dispute may proceed to formal mediation or arbitration. A dispute should be taken to mediation before it can proceed to arbitration.

Arbitration is the final step to resolving a dispute. The decision reached by the arbitrator is final and binding. The parties may retain legal representation during the mediation or arbitration process.

12. Penalties for Non-Compliance

Rhode Island General Laws § 37-14.1-8 authorizes the Director of the Department of Administration to impose sanctions on contractors who are not in compliance with the MBE/WBE program requirements. The sanctions can minimally include:

- Suspension of payments.
- Termination of the contract.
- Recovery by the State of ten percent (10%) of the contract award price as liquidated damages; and
- Denial of right to participate in future projects for up to three (3) years.
-

The penalties should not be discretionary. Penalties levied against prime contractors who fail to meet the MBE/WBE program requirements, without cause, should be mandatory.

13. MBE/WBE Program Manual

The State should have an *MBE/WBE Program Manual*, which should be developed to standardize the application of the Program across the State Agencies. The manual should describe the MBE/WBE Program's updated mission, policy, and procedures and be available to all staff electronically. The requirements set forth in the manual should become standard operating procedure for each State agency. The *MBE/WBE Program Manual* should also provide staff with clear guidance on their responsibilities to track and report the participation of MBE/WBEs. The components of the Program that are integral to the procurement process should also be incorporated in the procurement training and the *State of Rhode Island Procurement Regulations*.

14. Statewide MBE/WBE Program Training

Training for each State agency should be conducted. Whenever the MBE/WBE Program is updated, a refresher training should be provided to staff. The training module should be a module in the new employee orientation packet. The training should minimally include:

- Seminars to inform staff of any changes to the MBE/WBE Program and procedures, and to promote the enhancements.
- Employee training to ensure that new employees understand the established policies and procedures. A printed copy of the *MBE/WBE Program Manual* should be provided to each new employee. The training should be conducted quarterly.
- Institutional barriers in the procurement process to expand vendor outreach and resources for advertising solicitations and contract forecasts.

15. Enhance MBE/WBE Program Outreach Strategies

Efforts to meet the MBE/WBE construction subcontract goal and achieve equity in the award of services (including professional services) contracts may be enhanced with a comprehensive outreach campaign targeting MBE/WBEs to communicate contracting opportunities, contracting procedures, and the race and gender-conscious goals and objectives of the MBE/WBE Program. Table 11.17 lists strategies and tactics that the State should employ to enhance its MBE/WBE Program outreach.

Table 11.17: MBE/WBE Program Outreach Strategies

Strategy	Tactics
Design tagline and produce banner display	• Develop tagline • Design banner with placement of existing logo and new tagline
Define design standards and a layout for a uniform appearance of procurement documents	• Revise all procurement materials to include the program logo and tagline in order to have a uniform appearance
Develop collateral print material for outreach campaign	• Produce digital brochure to reflect program changes • Develop articles and press kits
Launch outreach campaign	• Distribute press kits and press releases • Place public service announcements • Pitch campaign to broadcast media
Host semi-annual contractors' open house and other networking events	• Plan and coordinate open house events • Distribute invitations by mail, facsimile, email, and tweets • Include procurement department for each State agency in outreach events • Publicize informal contract opportunities • Distribute contract forecasts and certification forms
Distribute forecasts to targeted businesses	• Post forecasts on the website • Distribute through facsimile, email, Facebook, Twitter, and text alerts
Partner with regional agencies and organizations to disseminate program information	• Continue current agency partnerships • Develop local business and trade associations group partnerships
Conduct an annual program impact and outcome evaluation	• Establish measurable outcomes • Conduct business satisfaction surveys • Examine bidding history by agency

V. Race and Gender-Neutral Recommendations

Administrative recommendations are offered to address the barriers that market area MBE/WBEs and other small businesses encounter when trying to do business with the State.

A. Pre-Award Recommendations

1. Implement an Owner-controlled Insurance Program

The State should implement an Owner Controlled Insurance Program (OCIP) to consolidate risk management costs and reduce the burden of the insurance premium for MBE/WBEs and small business owners. Under an OCIP or "wrap-up" program, a single insurance program negotiated by the government provides coverage for the owner and the contractors and subcontractors awarded its contracts. An OCIP could be established in cooperation with other local governments for greater savings. The State and any other participating government may negotiate lower premiums than the individual contractor and would therefore benefit from the savings since the insurance costs incurred by each contractor are otherwise passed on to the client in the bid and professional fees. The OCIP could be used to allow coverages for multiple insured entities to be "wrapped up" into a single consolidated insurance program.

2. Expanded Solicitation Notification Criteria

The State's formal solicitations are advertised by posting the notice in widely circulated newspapers and/or trade journals. The publications may include minority and women focused periodicals to target ethnic and woman-owned businesses. The public notice is published for no less than seven days or no more than 28 days before the bid opening date. The 28-day limitation can be waived by the purchasing agent with a written determination for the waiver. The State should publish formal solicitations for a minimum of 21 days instead of seven.

Print media is increasingly being replaced by digital media. Publishing bidding opportunities in newspapers and trade publications can be ineffective in reaching MBE/WBEs. It has been established that searching for bidding opportunities in print media is time-consuming and tedious. Given the changes in communication styles to target outreach and maximize reach in a cost-effective way, the State should use as a standard method of communication email, Twitter, and text alerts to reach more MBE/WBEs and non-MBE/WBEs.

3. Listserv to Communicate with Certified Businesses

Listserv, an email list management software, could target emails to certified MBE/WBEs that have expressed an interest in the State's upcoming contracts and contract forecasts. It is important to ensure the solicitations emailed to a business are relevant. Therefore, the solicitations should be mailed to the businesses based on the industry codes in their profile. Listserv can disseminate low-cost communications to MBE/WBEs, ensuring that communications occur on a regular basis. The database can be easily updated to include newly certified MBE/WBEs.

4. Expand the Selection Committee for Architectural, Engineering and Consultant Services

The selection committee for architectural, engineering, and consultant services is comprised of:

- Chief Purchasing Officer or his designee, who serves as the chairman of the committee.
- Representative of the user agency.
- A public member, appointed by the Governor, whose term is concurrent with that of the Governor.

The Selection Committee should be expanded to reflect the State's ethnic and gender diversity. In addition to staff, the Committee should minimally include two minority and women voting panel members who are architecture and engineering professionals or have professional experience in a related field. The public Committee members should not be actively engaged in professional consulting or employed by a design consulting firm. A designee from ODEO should be another voting member of the Committee. State staff should be rotated off the Committee annually.

B. Post-Award Procedures

1. Pay Mobilization to Subcontractors

Project start-up costs can also be significant. A subcontractor who has limited resources and access to credit may find that start-up expenses inhibits its ability to bid on State contracts. Under circumstances in which mobilization payments are approved for the prime contractor, the subcontractor should be paid an amount equal to its participation percentage no later than five (5) business days before it is required to mobilize to perform the contracted work.

To ensure transparency, subcontractors should be notified when the prime contractor receives mobilization payments from the State. Notification should be provided through email and also published on the State's website with all other invoice payments. The prime contractor should be required to submit proof that the subcontractor's mobilization payment was made prior to the subcontractor's performance of the initial item of work.

2. Enhance Data Management System

The management of the prime contract data needed to track and verify contracts awarded and payments made needs to be improved. Oracle RIFANS, the State's financial management system, should be modified to track and monitor comprehensive prime purchase order data for construction, construction-related services, services (including professional services), and goods, commodities, and supplies. The financial system should assign one unique identifier to each solicitation and use that number in the RIFANS contract record.

All purchase orders, task orders, work orders, and modifications to the contract amount should track to the PO Master. The absence of a unique identifier for each task order/work order issued against an MPA complicates the tracking and monitoring of total payments made against an MPA. Contract records in the financial system include the unique contract number, the contract name, award amount, award date, payment amounts and dates, task order numbers, procurement type, and vendor name; however, modifications should also be captured. In addition, there should be a

field for identifying contracts awarded as MPAs. The Oracle RI-FANS system should include interface applications to communicate with the colleges and university's accounting systems for a uniform State-wide financial system.

Appendix A: Regression Analysis Technical Appendix

I. Introduction

The following technical appendix details the research conducted in this study. This technical appendix will cover the following: data collection, cleaning, modeling, and analysis. All variables hold a default value of null and are only transformed if a response has been submitted, unless otherwise noted. Table A.18 is the general information of the two types of regression conducted.

Table A.18: Regression Models

Dataset	Regression Model	Details
Public Use Microdata Sample (PUMS)	Business Ownership Model	● Dependent Variable: Business Ownership ● Type of Regression: Logistic Regression
	Business Earnings Model	● Dependent Variable: Business Earnings of Owners ● Type of Regression: Ordinary Least Squares Regression

II. PUMS Coding

A. Data Collection

1. Raw Dataset

The dataset used for the regression is the five-year United States Census Bureau Public Use Microdata Sample (PUMS) dataset covering 2013 to 2017 which is the most recent data matching the study period of this Study.

The raw PUMS dataset was retrieved from the following link:

http://www.census.gov/programs-surveys/acs/data/pums.html

2. Documentation

The PUMS Data Dictionary to support the dataset can be found here:

https://www2.census.gov/programs-surveys/acs/tech_docs/pums/data_dict/PUMS_Data_Dictionary_2013-2017.pdf

3. Merge

The PUMS datasets are segregated into two datasets by state: housing and population. These two datasets were loaded into separate tables, cleaned, and then merged together by matching the serialno variable prior to the analysis. Below is the coding combining the two datasets of population and housing. To match the dataset and the study period, all records from 2013 were scrubbed from the PUMS dataset.

SELECT [tblPopulation2013-2017].SERIALNO, [tblPopulation2013-2017].SPORDER, [tblPopulation2013-2017].PUMA, [tblPopulation2013-2017].INDP, [tblPopulation2013-2017].NAICSP, [tblPopulation2013-2017].COW, [tblHousing2013-2017].ADJINC, [tblPopulation2013-2017].SEMP, [tblPopulation2013-2017].WAGP, [tblPopulation2013-2017].AGEP, [tblPopulation2013-2017].SCHL, [tblHousing2013-2017].TEN, [tblHousing2013-2017].VALP, [tblHousing2013-2017].ADJHSG, [tblHousing2013-2017].MRGP, [tblHousing2013-2017].RNTP, [tblPopulation2013-2017].INTP, [tblPopulation2013-2017].LANX, [tblPopulation2013-2017].PAOC, [tblPopulation2013-2017].MAR, [tblPopulation2013-2017].SEX, [tblPopulation2013-2017].RAC1P, [tblPopulation2013-2017].HISP, [tblPopulation2013-2017].RAC2P, [tblPopulation2013-2017].RAC3P, [tblPopulation2013-2017].ANC, [tblPopulation2013-2017].ANC1P, [tblPopulation2013-2017].ANC2P, [tblPopulation2013-2017].PWGTP INTO [tblMergeHP2013-2017]
FROM [tblHousing2013-2017] RIGHT JOIN [tblPopulation2013-2017] ON [tblHousing2013-2017].SERIALNO = [tblPopulation2013-2017].SERIALNO;

B. Variable Classification

Table A.19 below lists the variables used in the two PUMS regression models, the business ownership model and the business earnings model. Also, included in the table are the Mason Tillman codes and the corresponding PUMS variables specific to the data dictionary.

Table A.19: Variable Name in Logistic/OLS Regression

Description	MTA Variable Name	PUMS Variable Name
Construction	c	indp
Construction-related Services	a	indp
Services	p	indp
Goods/Commodities/Supplies	g	indp
Business Owner	owner	cow
Adjusted Income	income_adj	semp, wagp, adjinc
Age	age	agep
Age-squared	agesq	agep
Education of Business Owner	edu	schl
Home Value	homevalue	valp
Interest and Dividends Adjusted	Inter_div_adj	intp, adjinc

Description	MTA Variable Name	PUMS Variable Name
Monthly Mortgage Payment	mon_pay	ten, mrgp, rntp, adjhsg
Speaks English at Home	home_eng	lanx
Having a child under six	child6	paoc
Married	married	mar
Caucasian Female	ethgen, female, caucasian	sex, rac1p
Black American	ethgen, african	rac1p
Asian American	ethgen, asian	rac1p
Hispanic American	ethgen, hispanic	hisp, rac1p
American Indian/ Alaskan Native	ethgen, native	rac1p
Portuguese American	ethgen, portuguese	anc1p, anc2p
Other Minority	ethgen, other	rac1p
Year	year	serialno

C. Geographic Area Classification

The geographic area of interest is the State of Rhode Island. As the PUMS dataset was available by state, no processing for geographic area specification was required.

D. Industry Classification

The PUMS data classifies each industry similar to the North American Industry Classification System (NAICS) codes, however, different numbers are used. All numbers and corresponding industries are provided in the PUMS 2013-2017 data dictionary. These were used in the classification of the four industries in this study.

The four industries analyzed in the geographic area are: construction, construction-related services, services including professional services (hereinafter referred to as services), and goods/commodities/supplies. Table A.20 indicates which PUMS classification numbers were used for each industry.

Table A.20: PUMS Industry Classification

Industry	PUMS Classification
Construction	770
Construction-related Services	7290
	7690
Services	6170
	6695
	7270-7280
	7370-7470

Industry	PUMS Classification
	7490-7570
	7590
	7590
	7680
	7770
	7780-7790
Goods/ Commodities/ Supplies	4090-4180
	4265-4270
	4795-4890
	5480
	6390
	7080
	7180
	8770-8870

1. c: Construction

- Flag to indicate whether the business is in the construction industry based on the PUMS industry classification

SELECT IIf([indp]=770,1,0) AS c INTO tblFinal
FROM [tblMergeHP2013-2017];

2. a: Construction-related Services

- Flag to indicate whether the business is in the construction-related services industry based on the PUMS industry classification

SELECT IIf([indp] In (7290,7690),1,0) AS a INTO tblFinal
FROM [tblMergeHP2013-2017];

3. p: Services

- Flag to indicate whether the business is in the services industry based on the PUMS industry classification

SELECT IIf(([indp] In (6170,6695,7680,7270,7280,7490,7570,7590,7770,7780,7790)) Or ([indp] Between 7370 And 7470),1,0) AS p INTO tblFinal
FROM [tblMergeHP2013-2017];

4. g: Goods/Commodities/Supplies

- Flag to indicate whether the business is in the goods/commodities/supplies industry based on the PUMS industry classification

SELECT IIf([indp] In (5480,6390,7080,7180) Or ([indp] Between 4090 And 4180) Or ([indp] Between 4265 And 4270) Or ([indp] Between 4795 And 4890) Or ([indp] Between 8770 And 8870),1,0) AS g INTO tblFinal
FROM [tblMergeHP2013-2017];

E. Coding Implemented

Below, each variable displayed in Table 2 is described. Along with the description is the SQL code used to define each variable.

1. owner: Business Owner

- Flag to indicate the respondent is a business owner labeled as below
- 6 = Self-employed in unincorporated business, professional practice, or farm
- 7 = Self-employed in incorporated business, professional practice, or farm
- If the data is missing it is assumed that the respondent is not a business owner

SELECT IIf([cow] In ("6","7"),1,0) AS owner INTO tblFinal
FROM [tblMergeHP2013-2017];

2. income_adj: Income Adjusted Accordingly by Year

- Flag to indicate income adjusted accordingly by year
- The variable semp indicates self-employment income over the past 12 months
- The variable wagp indicates wages or salary income over the past 12 months
- In the case that semp is null or 0 while wagp has a value, wagp was used
- The variable adjinc is an adjustment factor for income and earnings in dollar amounts
- The variables semp and wagp were adjusted to the dollar values in 2017 using the PUMS adjustment factor adjinc
- The variable adjinc was divided by 1,000,000 as per the instructions in the PUMS Data Dictionary

SELECT IIf((([semp] Is Null) Or ([semp]="0")) And ([wagp]<>"0"),[wagp]([adjinc]/1000000),IIf([semp] Is Null,[semp]*([adjinc]/1000000))) AS income_adj INTO tblFinal*
FROM [tblMergeHP2013-2017];

3. age: Age of Individual

- Flag to indicate the age of the individual

SELECT [tblMergeHP2013-2017].AGEP AS age INTO tblFinal
FROM [tblMergeHP2013-2017];

4. agesq: Age-squared

- Flag to indicate the age squared of the individual
- The variable agesq is used in the regression to determine if the relationship between age and the dependent variable changes over time. Age can have a positive relationship, however, as one becomes much older the relationship may decrease or become negative

SELECT [agep][agep] AS agesq INTO tblFinal*
FROM [tblMergeHP2013-2017];

5. se_corp: Incorporated Business

- Flag to indicate whether the individual is self-employed in an incorporated business

SELECT IIf([cow]="7",1,0) AS se_corp INTO tblFinal
FROM [tblMergeHP2013-2017];

6. edu: Educational Attainment

- Flag to indicate educational attainment of the individual labeled as below
- 0 = No college degree (High school or less)
- 1 = Associate's or Bachelor's degree
- 2 = Post graduate degree
- The baseline variable is no college degree

SELECT IIf([schl]="20" Or [schl]="21",1,IIf([schl]<="19",0,IIf([schl]>="22",2,Null))) AS edu
INTO tblFinal
FROM [tblMergeHP2013-2017];

7. homevalue: Property Value

- Flag to indicate the property value of the individual

SELECT IIf([ownhome]=1,[valp],IIf([ownhome]=0,0,Null)) AS homevalue INTO tblFinal
FROM [tblMergeHP2013-2017];

8. mon_pay: Monthly Payment

- Flag to indicate the monthly payment of the individual due each month for a mortgage or rented property
- The variable mrgp indicates a monthly mortgage payment
- The variable rntp indicates a monthly rent payment
- The variable adjhsg is an adjustment factor for housing in dollar amounts
- The monthly payments were adjusted to the dollar value in 2017 using the PUMS adjustment factor adjhsg
- The variable adjhsg was divided by 1,000,000 as per the instructions in the PUMS Data Dictionary
- Monthly payments were assumed to default to 0 when an individual owns a home free and clear or occupies a location free of rent

SELECT IIf([mrgp] Is Not Null,[mrgp]([adjhsg]/1000000),IIf([rntp] Is Not Null,[rntp]*([adjhsg]/1000000),IIf([ten] In ("2","4"),0,Null))) AS mon_pay INTO tblFinal*
FROM [tblMergeHP2013-2017];

9. inter_div_adj: Interest and Dividends Income

- Flag to indicate interest, dividends, and net rental income over the past 12 months
- The variable inter_div_adj was adjusted to the dollar value in 2017 using the PUMS adjustment factor adjinc

SELECT [intp][adjinc]/1000000 AS inter_div_adj INTO tblFinal*
FROM [tblMergeHP2013-2017];

10. home_eng: Individual Speaks English at Home

- Flag to indicate whether English is the only language spoken at home
- 0 = Speaks another language
- 1 = Speaks only English

SELECT IIf([lanx]="1",0,IIf([lanx]="2",1,Null)) AS home_eng INTO tblFinal
FROM [tblMergeHP2013-2017];

11. child6: Individual Has Children under the Age of Six

- Flag to indicate whether the person has children under the age of six
- If the data is missing, one assumes the individual does not have children under the age of six

SELECT IIf([paoc] In ("1","3"),1,0) AS child6 INTO tblFinal
FROM [tblMergeHP2013-2017];

12. married: Marital Status

- Flag to indicate whether the individual is married

SELECT IIf([mar]="1",1,IIf([mar] In ("2","3","4","5"),0,Null)) AS married INTO tblFinal
FROM [tblMergeHP2013-2017];

13. ethgen: Ethnicity and Gender of the Individual

- Ethnicities were classified not to overlap with one another
- 0 = Caucasian Male
- 1 = Caucasian Female
- 2 = Black American
- 3 = Asian American
- 4 = Hispanic American
- 5 = American Indian/Alaskan Native
- 6 = Portuguese American
- 7 = Other Minority
- The baseline variable is Caucasian Male
- If one was labeled multiple ethnicities by the ethnicity variables rac1p, hisp, and anc1p (or anc 2p) in the PUMS dataset, anc1p (or anc2p) indicating a Portuguese American overrides the others and thereafter hisp indicating a Hispanic American overrides rac1p

SELECT IIf([portuguese]=1,6,IIf([hispanic]=1,4,IIf(([caucasian]=1) And ([female]=0),0,IIf(([caucasian]=1) And ([female]=1),1,IIf([african]=1,2,IIf([asian]=1,3,IIf([native]=1,5,IIf([other]=1,7,Null)))))))) AS ethgen INTO tblFinal
FROM [tblMergeHP2013-2017];

a) female: Female

- Flag to indicate whether the individual is female

SELECT IIf([sex]=1,0,IIf([sex]=2,1,Null)) AS female INTO tblFinal
FROM [tblMergeHP2013-2017];

b) caucasian: Caucasian American

- Flag to indicate whether the individual is a Caucasian American

SELECT IIf([rac1p]=1,1,IIf([rac1p] Is Null,Null,0)) AS Caucasian INTO tblFinal
FROM [tblMergeHP2013-2017];

c) african: Black American

- Flag to indicate whether the individual is a Black American

SELECT IIf([rac1p]=2,1,IIf([rac1p] Is Null,Null,0)) AS African INTO tblFinal
FROM [tblMergeHP2013-2017];

d) asian: Asian American

- Flag to indicate whether the individual is an Asian American

SELECT IIf(([rac1p]=6) Or ([rac1p]=7),1,IIf([rac1p] Is Null,Null,0)) AS Asian INTO tblFinal
FROM [tblMergeHP2013-2017];

e) hispanic: Hispanic American

- Flag to indicate whether the individual is a Hispanic American

SELECT IIf([hisp] Is Null,Null,IIf([hisp]<>1,1,0)) AS Hispanic INTO tblFinal
FROM [tblMergeHP2013-2017];

f) native: American Indian/Alaskan Native

- Flag to indicate whether the individual is an American Indian or an Alaskan Native

SELECT IIf([rac1p] In (3,4,5),1,IIf([rac1p] Is Null,Null,0)) AS native INTO tblFinal
FROM [tblMergeHP2013-2017];

g) portuguese: Portuguese American

- Flag to indicate whether the individual is a Portuguese American

SELECT IIf(([anc1p]=84) Or ([anc2p]=84),1,0) AS portuguese INTO tblFinal
FROM [tblMergeHP2013-2017];

h) other: Other Minority

- Flag to indicate whether the individual is another ethnicity

SELECT IIf([rac1p]=8,1,IIf(([rac1p]=9) And ([hispanic]<>1),1,IIf([rac1p] Is Null,Null,0))) AS other INTO tblFinal
FROM [tblMergeHP2013-2017];

14. year: Survey Year

- Flag to indicate the year of the survey conducted, which is the initial four digits of the variable serialno

SELECT Left([serialno],4) AS [Year] INTO tblFinal
FROM [tblMergeHP2013-2017];

15. pwgtp: Person's Weight for Generating Statistics on Individuals

- Stratified sampling is the sampling method used and the PUMS variable to account for the weights is pwgtp. The weight was properly implemented in the regression

SELECT [tblMergeHP2013-2017].PWGTP INTO tblFinal
FROM [tblMergeHP2013-2017];

F. Output

1. Business Ownership Logistic Regression by Industry

a) Business Ownership Logistic Regression: Construction

```
. logit owner age agesq i.edu ownhome homevalue mon_pay inter_div_adj home_eng child6 married
i.ethgen i.year [pweight=pwgtp] if c==1

note: child6 != 0 predicts failure perfectly
      child6 dropped and 13 obs not used

note: 5.ethgen != 0 predicts failure perfectly
      5.ethgen dropped and 6 obs not used

Iteration 0:   log pseudolikelihood = -17240.711
Iteration 1:   log pseudolikelihood = -15468.859
Iteration 2:   log pseudolikelihood = -15387.398
Iteration 3:   log pseudolikelihood = -15386.938
Iteration 4:   log pseudolikelihood = -15386.938

Logistic regression                                     Number of obs   =       1265
                                                        Wald chi2(19)   =     112.10
                                                        Prob > chi2     =     0.0000
Log pseudolikelihood = -15386.938                       Pseudo R2       =     0.1075

------------------------------------------------------------------------------
             |               Robust
       owner |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   .1131978   .0342369     3.31   0.001     .0460946     .180301
       agesq |   -.000673   .0003316    -2.03   0.042    -.0013229   -.0000231
             |
         edu |
           1 |  -.3519121   .2101006    -1.67   0.094    -.7637016    .0598775
           2 |  -.7684573   .3886976    -1.98   0.048    -1.530291   -.0066239
             |
     ownhome |  -.4894077   .2197536    -2.23   0.026    -.9201169   -.0586985
   homevalue |   4.89e-07   2.31e-07     2.12   0.034     3.66e-08    9.42e-07
```

```
      mon_pay |   .0000839   .0001092     0.77   0.442    -.0001302     .000298
inter_div_adj |  -2.71e-06   4.26e-06    -0.64   0.524    -.0000111    5.64e-06
     home_eng |  -.2000664   .2464469    -0.81   0.417    -.6830934    .2829606
       child6 |          0  (omitted)
      married |   .1065803   .1740001     0.61   0.540    -.2344537    .4476142
              |
       ethgen |
           1  |  -1.303332   .3590049    -3.63   0.000    -2.006968   -.5996948
           2  |  -1.554174   .6161528    -2.52   0.012    -2.761812   -.3465369
           3  |   -.844303   .7974687    -1.06   0.290    -2.407313     .718707
           4  |  -1.197173   .4036496    -2.97   0.003    -1.988311   -.4060339
           5  |          0  (empty)
           6  |  -.6760718   .2437594    -2.77   0.006    -1.153831   -.1983121
           7  |  -.4610249   .5573877    -0.83   0.408    -1.553485    .6314349
              |
         year |
        2015  |   .0367452   .2234392     0.16   0.869    -.4011875     .474678
        2016  |   .1721672   .2283529     0.75   0.451    -.2753963    .6197307
        2017  |  -.0531276   .2172524    -0.24   0.807    -.4789346    .3726793
              |
        _cons |  -4.000812   .8953024    -4.47   0.000    -5.755572   -2.246051
------------------------------------------------------------------------------
```

b) Business Ownership Logistic Regression: Construction-related Services

```
. logit owner age agesq i.edu ownhome homevalue mon_pay inter_div_adj home_eng child6 married
i.ethgen i.year [pweight=pwgtp] if a==1

note: 2.ethgen != 0 predicts failure perfectly
      2.ethgen dropped and 18 obs not used

note: 3.ethgen != 0 predicts failure perfectly
      3.ethgen dropped and 6 obs not used

Iteration 0:   log pseudolikelihood = -4110.7212
Iteration 1:   log pseudolikelihood = -3372.9745
Iteration 2:   log pseudolikelihood = -3275.3396
Iteration 3:   log pseudolikelihood = -3273.3707
Iteration 4:   log pseudolikelihood = -3273.3679
Iteration 5:   log pseudolikelihood = -3273.3679

Logistic regression                                     Number of obs   =        405
                                                        Wald chi2(18)   =      51.86
                                                        Prob > chi2     =     0.0000
Log pseudolikelihood = -3273.3679                       Pseudo R2       =     0.2037

------------------------------------------------------------------------------
             |               Robust
       owner |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   .0146798   .0959568     0.15   0.878    -.1733921    .2027517
       agesq |   .0004616   .0009056     0.51   0.610    -.0013134    .0022365
             |
         edu |
           1 |  -1.238992   .5088286    -2.43   0.015    -2.236278   -.2417065
           2 |  -.6526923   .5028909    -1.30   0.194     -1.63834    .3329558
             |
     ownhome |   .0860607   .4964161     0.17   0.862     -.886897    1.059018
   homevalue |   8.81e-07   1.15e-06     0.77   0.442    -1.36e-06    3.13e-06
     mon_pay |   .0005257   .0002161     2.43   0.015     .0001022    .0009492
inter_div_adj |  -8.84e-08   .0000203    -0.00   0.997    -.0000398    .0000396
    home_eng |    .679686   .7127271     0.95   0.340    -.7172335    2.076605
      child6 |  -1.019667   .9584195    -1.06   0.287    -2.898134    .8588012
     married |   .4352258   .3602171     1.21   0.227    -.2707869    1.141238
             |
      ethgen |
           1 |   .6756173   .4337093     1.56   0.119    -.1744373    1.525672
```

```
           2  |          0  (empty)
           3  |          0  (empty)
           4  |   .1586725   .8302826     0.19   0.848    -1.468651    1.785996
           6  |  -.1664157   .8643183    -0.19   0.847    -1.860448    1.527617
           7  |   1.308045   .9888408     1.32   0.186    -.6300474    3.246137
              |
        year  |
        2015  |    -.71053   .4721743    -1.50   0.132    -1.635975    .2149147
        2016  |  -.1531521   .4488673    -0.34   0.733    -1.032916    .7266116
        2017  |   .7718991   .4662061     1.66   0.098    -.1418481    1.685646
              |
       _cons  |  -4.930791   2.929234    -1.68   0.092    -10.67198    .8104021
------------------------------------------------------------------------------
```

c) Business Ownership Logistic Regression: Services

```
. logit owner age agesq i.edu ownhome homevalue mon_pay inter_div_adj home_eng child6 married
i.ethgen i.year [pweight=pwgtp] if p==1

Iteration 0:   log pseudolikelihood = -19430.323
Iteration 1:   log pseudolikelihood = -17637.465
Iteration 2:   log pseudolikelihood = -17507.259
Iteration 3:   log pseudolikelihood =  -17505.82
Iteration 4:   log pseudolikelihood = -17505.819

Logistic regression                               Number of obs   =       1947
                                                  Wald chi2(21)   =     133.57
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -17505.819                 Pseudo R2       =     0.0990

------------------------------------------------------------------------------
             |               Robust
       owner |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   .0339297   .0322139     1.05   0.292    -.0292084    .0970679
       agesq |   2.71e-06   .0003116     0.01   0.993    -.0006081    .0006135
             |
         edu |
           1 |   .3398634   .1690234     2.01   0.044     .0085835    .6711432
           2 |   .7473145   .1762104     4.24   0.000     .4019485    1.092681
             |
     ownhome |   .2514238       .213     1.18   0.238    -.1660486    .6688961
   homevalue |   2.74e-07   1.83e-07     1.50   0.134    -8.42e-08    6.32e-07
     mon_pay |  -.0000104   .0000799    -0.13   0.897    -.0001669    .0001462
inter_div_adj |   4.79e-06   2.67e-06     1.79   0.073    -4.42e-07      .00001
    home_eng |   .1029795   .2582433     0.40   0.690    -.4031681     .609127
      child6 |   .5380473   .3015969     1.78   0.074    -.0530717    1.129166
     married |   .1478527   .1597426     0.93   0.355    -.1652371    .4609425
             |
      ethgen |
           1 |  -.1277532   .1497639    -0.85   0.394    -.4212851    .1657786
           2 |  -.3927744   .4440951    -0.88   0.376    -1.263185     .477636
           3 |  -.6658159   .5393963    -1.23   0.217    -1.723013    .3913814
           4 |  -.1871988   .3919883    -0.48   0.633    -.9554818    .5810842
           5 |     2.4873   1.610125     1.54   0.122    -.6684874    5.643087
           6 |   .0119624   .2764264     0.04   0.965    -.5298234    .5537482
           7 |  -.3283699   .6295305    -0.52   0.602    -1.562227    .9054872
             |
        year |
        2015 |  -.1934379   .1946772    -0.99   0.320    -.5749983    .1881225
        2016 |   .1521575   .1833087     0.83   0.407    -.2071209    .5114359
        2017 |   .1576485   .1966798     0.80   0.423    -.2278368    .5431337
             |
       _cons |  -3.675787   .8246303    -4.46   0.000    -5.292033   -2.059542
------------------------------------------------------------------------------
```

d) Business Ownership Logistic Regression: Goods/Commodities/Supplies

```
. logit owner age agesq i.edu ownhome homevalue mon_pay inter_div_adj home_eng child6 married
i.ethgen i.year [pweight=pwgtp] if g==1

note: child6 != 0 predicts failure perfectly
      child6 dropped and 23 obs not used

note: 5.ethgen != 0 predicts failure perfectly
      5.ethgen dropped and 1 obs not used

Iteration 0:   log pseudolikelihood = -6331.1778
Iteration 1:   log pseudolikelihood = -5550.2583
Iteration 2:   log pseudolikelihood = -5375.6126
Iteration 3:   log pseudolikelihood = -5360.0793
Iteration 4:   log pseudolikelihood = -5359.9331
Iteration 5:   log pseudolikelihood = -5359.9331

Logistic regression                                     Number of obs   =        807
                                                        Wald chi2(19)   =      53.90
                                                        Prob > chi2     =     0.0000
Log pseudolikelihood = -5359.9331                       Pseudo R2       =     0.1534

------------------------------------------------------------------------------
             |               Robust
       owner |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   .2569521   .0654976     3.92   0.000     .1285791    .3853251
       agesq |   -.002308   .0006395    -3.61   0.000    -.0035613   -.0010547
             |
         edu |
           1 |  -.0106579   .3716346    -0.03   0.977    -.7390483    .7177325
           2 |   -.348673   .7132431    -0.49   0.625    -1.746604    1.049258
             |
     ownhome |   .2837677    .443523     0.64   0.522    -.5855215    1.153057
   homevalue |   1.05e-06   7.03e-07     1.50   0.134    -3.24e-07    2.43e-06
     mon_pay |  -.0000537   .0002151    -0.25   0.803    -.0004752    .0003678
inter_div_adj |  -1.78e-06   8.73e-06    -0.20   0.838    -.0000189    .0000153
    home_eng |   .4110008   .6102172     0.67   0.501    -.7850029    1.607005
      child6 |           0  (omitted)
     married |   .2518202   .3180433     0.79   0.428    -.3715332    .8751737
             |
      ethgen |
           1 |  -1.125955   .4629797    -2.43   0.015    -2.033378   -.2185312
           2 |  -1.572276   1.045226    -1.50   0.133    -3.620881    .4763285
           3 |  -.0078101   1.314086    -0.01   0.995    -2.583371    2.567751
           4 |  -1.123822   .9661247    -1.16   0.245    -3.017392    .7697475
           5 |           0  (empty)
           6 |  -.1739708   .4119364    -0.42   0.673    -.9813512    .6334096
           7 |  -.3430974   1.124974    -0.30   0.760    -2.548006    1.861811
             |
        year |
        2015 |  -.0769936   .3997849    -0.19   0.847    -.8605577    .7065705
        2016 |  -.0107533   .4592017    -0.02   0.981     -.910772    .8892654
        2017 |   .4489171   .4753107     0.94   0.345    -.4826747    1.380509
             |
       _cons |  -9.235541   1.899814    -4.86   0.000    -12.95911   -5.511974
------------------------------------------------------------------------------
```

2. Business Earnings Ordinary Least Squares Regression by Industry

a) Business Earnings Ordinary Least Squares Regression: Construction

```
. reg income_adj age agesq se_corp i.edu ownhome homevalue mon_pay inter_div_adj home_eng
child6 married i.ethgen i.year [pweight=pwgtp] if c==1
(sum of wgt is   2.0525e+04)

Linear regression                                       Number of obs =     906
                                                        F( 22,   883) =   11.92
                                                        Prob > F      =  0.0000
                                                        R-squared     =  0.2430
                                                        Root MSE      =   41971

------------------------------------------------------------------------------
             |               Robust
  income_adj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   3744.519   725.4923     5.16   0.000     2320.628    5168.409
       agesq |  -36.74096    8.50744    -4.32   0.000    -53.43812    -20.0438
     se_corp |   18685.08   10777.08     1.73   0.083    -2466.593    39836.76
             |
         edu |
           1 |   8753.736   3957.543     2.21   0.027     986.4475    16521.02
           2 |   43292.59   17864.31     2.42   0.016     8231.127    78354.05
             |
     ownhome |   616.9284   4658.999     0.13   0.895    -8527.075    9760.932
   homevalue |   .0214425   .0135994     1.58   0.115    -.0052485    .0481334
     mon_pay |   10.04269   3.609228     2.78   0.006     2.959021    17.12635
inter_div_adj |    .053948   .1241426     0.43   0.664     -.189701     .297597
    home_eng |   9498.098   3423.157     2.77   0.006     2779.625    16216.57
      child6 |   2314.914   7709.208     0.30   0.764     -12815.6    17445.42
     married |    1090.69   4899.368     0.22   0.824    -8525.075    10706.45
             |
      ethgen |
           1 |  -17319.39   7024.178    -2.47   0.014    -31105.42   -3533.359
           2 |  -11624.64   7693.077    -1.51   0.131    -26723.49    3474.209
           3 |  -16295.23    6585.06    -2.47   0.014    -29219.42   -3371.031
           4 |  -11589.31   4195.384    -2.76   0.006     -19823.4   -3355.22
           5 |  -2405.289   10166.42    -0.24   0.813    -22358.46    17547.89
           6 |  -8038.281   3943.491    -2.04   0.042    -15777.99   -298.571
           7 |  -20026.78   6746.456    -2.97   0.003    -33267.74   -6785.824
             |
        year |
        2015 |   7100.338   5596.507     1.27   0.205     -3883.67    18084.35
        2016 |  -1699.855   4008.247    -0.42   0.672    -9566.657    6166.948
        2017 |   1199.314   3889.825     0.31   0.758    -6435.067    8833.695
             |
       _cons |  -59077.83   14014.13    -4.22   0.000    -86582.71   -31572.94
------------------------------------------------------------------------------
```

b) Business Earnings Ordinary Least Squares Regression: Construction-related Services

```
. reg income_adj age agesq se_corp i.edu ownhome homevalue mon_pay inter_div_adj home_eng
child6 married i.ethgen i.year [pweight=pwgtp] if a==1
(sum of wgt is   7.2680e+03)

Linear regression                                       Number of obs =     339
                                                        F( 21,   317) =    8.78
                                                        Prob > F      =  0.0000
                                                        R-squared     =  0.3438
                                                        Root MSE      =   45620

------------------------------------------------------------------------------
             |               Robust
  income_adj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   1745.161   1588.307     1.10   0.273    -1379.795    4870.118
       agesq |  -14.45255   18.96999    -0.76   0.447    -51.77554    22.87044
     se_corp |  -29445.88   12819.89    -2.30   0.022    -54668.69   -4223.062
             |
         edu |
           1 |   25520.15   6156.363     4.15   0.000     13407.66    37632.65
           2 |   25462.65   9918.478     2.57   0.011     5948.286    44977.01
             |
     ownhome |    3428.37   10431.19     0.33   0.743    -17094.74    23951.48
   homevalue |   .0355344   .0383161     0.93   0.354    -.0398516    .1109204
     mon_pay |   .9502826   6.682608     0.14   0.887    -12.19759    14.09815
inter_div_adj |  -.1431885   .3596423    -0.40   0.691     -.850776    .5643991
    home_eng |   24038.69     7078.8     3.40   0.001     10111.32    37966.06
      child6 |  -10188.14    6981.87    -1.46   0.145     -23924.8    3548.516
     married |   12190.35   5720.493     2.13   0.034     935.4181    23445.28
             |
      ethgen |
           1 |  -25846.78   6363.566    -4.06   0.000    -38366.94   -13326.62
           2 |  -15063.02    8379.48    -1.80   0.073    -31549.44    1423.407
           3 |   31335.83   17599.16     1.78   0.076    -3290.085    65961.75
           4 |   2141.658   9063.567     0.24   0.813    -15690.69    19974.01
           6 |   1316.049   9719.744     0.14   0.892    -17807.31    20439.41
           7 |   -16099.2   9947.982    -1.62   0.107    -35671.61    3473.213
             |
        year |
        2015 |  -9770.505   7478.174    -1.31   0.192    -24483.63    4942.621
        2016 |   4698.234   9092.683     0.52   0.606     -13191.4    22587.87
        2017 |   7373.706   7865.852     0.94   0.349    -8102.166    22849.58
             |
       _cons |  -30609.33   33787.27    -0.91   0.366    -97084.95     35866.3
------------------------------------------------------------------------------
```

c) Business Earnings Ordinary Least Squares Regression: Services

```
. reg income_adj age agesq se_corp i.edu ownhome homevalue mon_pay inter_div_adj home_eng
child6 married i.ethgen i.year [pweight=pwgtp] if p==1
(sum of wgt is   2.9033e+04)

Linear regression                                       Number of obs =    1447
                                                        F( 21,  1424) =       .
                                                        Prob > F      =       .
                                                        R-squared     =  0.3448
                                                        Root MSE      =   55149

------------------------------------------------------------------------------
             |               Robust
  income_adj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   5416.834   581.1925     9.32   0.000     4276.749    6556.92
       agesq |   -56.2443   6.404212    -8.78   0.000      -68.807    -43.6816
     se_corp |   8087.489   11553.96     0.70   0.484    -14577.12     30752.1
             |
         edu |
           1 |   22168.26   3656.192     6.06   0.000     14996.16    29340.36
           2 |   44003.85   5254.656     8.37   0.000     33696.15    54311.54
             |
     ownhome |  -4278.657   4322.642    -0.99   0.322    -12758.09    4200.773
   homevalue |   .0536054   .0135341     3.96   0.000     .0270565    .0801544
     mon_pay |   13.43918   3.715659     3.62   0.000     6.150422    20.72793
inter_div_adj |   .5169148    .307704     1.68   0.093     -.086687    1.120517
    home_eng |   6039.068   5133.836     1.18   0.240    -4031.625    16109.76
      child6 |  -14078.89   6423.658    -2.19   0.029    -26679.74   -1478.042
     married |   3979.725    3855.33     1.03   0.302    -3583.011    11542.46
             |
      ethgen |
           1 |  -20821.07    3789.02    -5.50   0.000    -28253.73   -13388.41
           2 |   -12370.3   6708.737    -1.84   0.065    -25530.37    789.7704
           3 |   12415.65   9476.336     1.31   0.190    -6173.423    31004.73
           4 |  -6393.222   7084.433    -0.90   0.367    -20290.27    7503.824
           5 |  -37624.49   4647.339    -8.10   0.000    -46740.86   -28508.12
           6 |  -13241.06   4496.345    -2.94   0.003    -22061.23   -4420.889
           7 |  -27415.29   11483.67    -2.39   0.017    -49942.02   -4888.557
             |
        year |
        2015 |   1578.988   5073.045     0.31   0.756    -8372.457    11530.43
        2016 |    -6129.3   5063.649    -1.21   0.226    -16062.31    3803.711
        2017 |  -4738.459   4461.041    -1.06   0.288    -13489.38    4012.459
             |
       _cons |  -90950.01   13620.62    -6.68   0.000    -117668.7   -64231.37
------------------------------------------------------------------------------
```

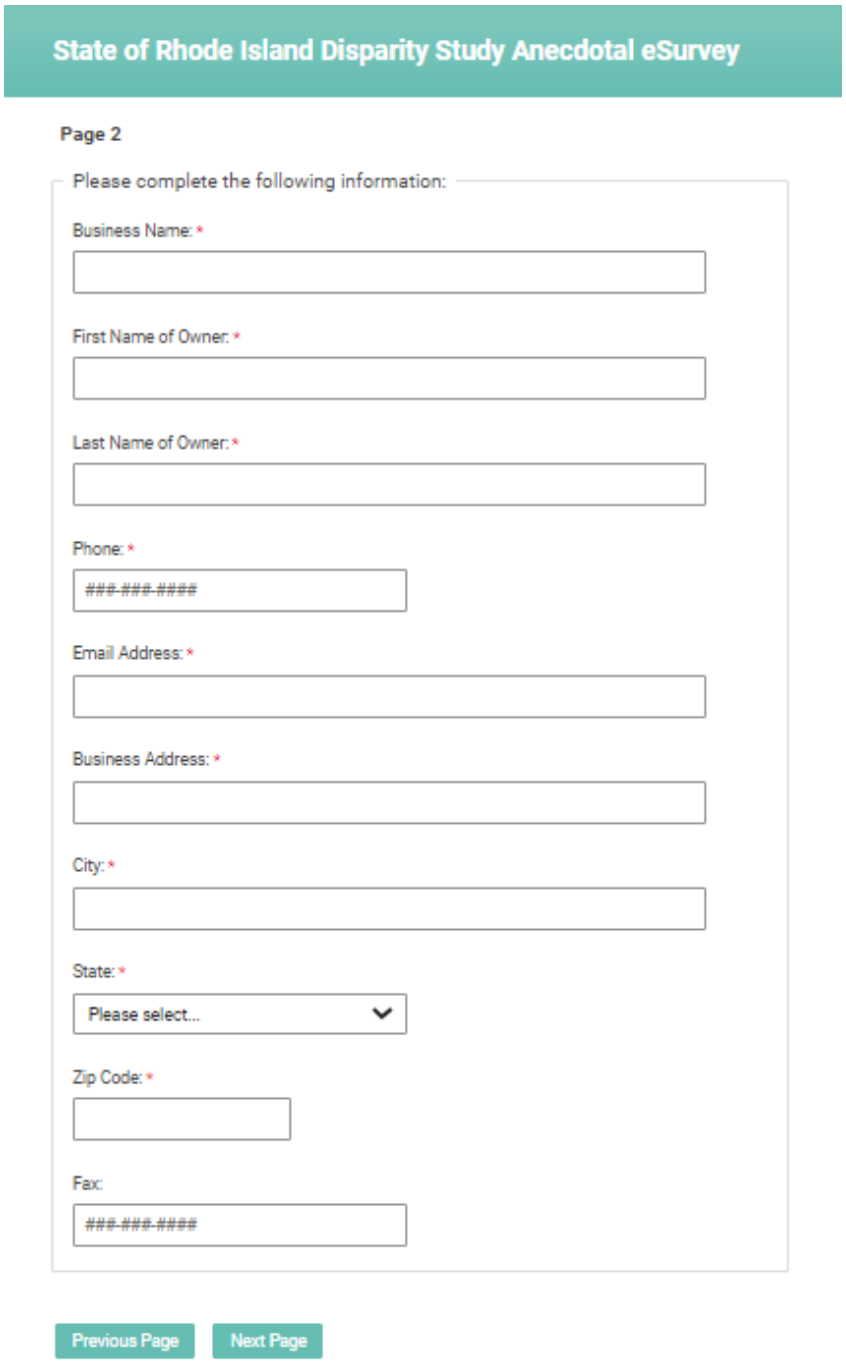
d) Business Earnings Ordinary Least Squares Regression: Goods/Commodities/Supplies

```
. reg income_adj age agesq se_corp i.edu ownhome homevalue mon_pay inter_div_adj home_eng
child6 married i.ethgen i.year [pweight=pwgtp] if pinellas==1 & g==1
(sum of wgt is   2.5649e+04)

Linear regression                                      Number of obs =    1320
                                                       F( 21,  1298) =   11.22
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.2308
                                                       Root MSE      =   37261

------------------------------------------------------------------------------
             |               Robust
  income_adj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   3661.639   351.0664    10.43   0.000     2972.919    4350.358
       agesq |  -36.36756   3.848208    -9.45   0.000    -43.91695   -28.81817
     se_corp |  -3960.359   4043.501    -0.98   0.328    -11892.87    3972.154
             |
         edu |
           1 |   11940.41   2871.293     4.16   0.000     6307.523    17573.29
           2 |   16797.77    7547.48     2.23   0.026     1991.174    31604.37
             |
     ownhome |   2080.195   2749.879     0.76   0.450      -3314.5    7474.889
   homevalue |   .0151214   .0082354     1.84   0.067    -.0010348    .0312777
     mon_pay |   15.47973   2.820828     5.49   0.000     9.945853    21.01361
inter_div_adj |   .1565756   .0703332     2.23   0.026     .0185964    .2945549
    home_eng |   252.5891   4641.856     0.05   0.957    -8853.772     9358.95
      child6 |   6101.188    5756.38     1.06   0.289     -5191.64    17394.02
     married |   3752.807   2367.715     1.58   0.113    -892.1614    8397.775
             |
      ethgen |
           1 |  -3627.426   2873.225    -1.26   0.207      -9264.1    2009.249
           2 |   -7749.77   2993.514    -2.59   0.010    -13622.43   -1877.116
           3 |  -5053.814   7257.619    -0.70   0.486    -19291.76    9184.134
           4 |  -5832.134   4522.676    -1.29   0.197    -14704.69    3040.421
           5 |  -1787.651   4668.293    -0.38   0.702    -10945.88    7370.575
           6 |  -3839.788   3719.835    -1.03   0.302    -11137.33    3457.759
             |
        year |
        2015 |  -1593.223   2998.147    -0.53   0.595    -7474.968    4288.522
        2016 |   3459.417   3144.604     1.10   0.271    -2709.646     9628.48
        2017 |   91.55665   3087.918     0.03   0.976      -5966.3    6149.413
             |
       _cons |  -65294.53    9113.24    -7.16   0.000    -83172.82   -47416.24
------------------------------------------------------------------------------
```

Appendix B: Anecdotal Questionnaire



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Please complete the following information:

Business Name: *

First Name of Owner: *

Last Name of Owner: *

Phone: *

###-###-####

Email Address: *

Business Address: *

City: *

State: *

Please select...

Zip Code: *

Fax:

###-###-####

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2. What type of services or products do you provide? *

- ○ **Construction**
- ○ **Construction-related services (architecture and engineering)**
- ○ **Services (including professional services)**
- ○ **Goods, commodities, and supplies**

3. What is the gender of the majority owner of your business? *

- ○ Male
- ○ Female
- ○ Not applicable (publicly traded, nonprofit, employee-owned, partnership, etc.)

4. What is the ethnicity of the majority owner of your business? *

- ○ Black American
- ○ Asian American
- ○ Caucasian American
- ○ Hispanic American
- ○ Portuguese American
- ○ American Indian/Alaskan Native
- ○ Not Applicable (publicly traded, nonprofit, employee-owned, partnership, etc.)
- ○ Other

Conditional

Please specify the majority owner's ethnicity. *

5. What certifications does your business have? *

- [ ] None
- [ ] Small Business Enterprise (SBE)
- [ ] Disabled Business Enterprise (DBE)
- [ ] Minority Business Enterprise (MBE)
- [ ] Woman Business Enterprise (WBE)
- [ ] Veteran Business Enterprise (VBE)
- [ ] Service Disabled Veteran-owned Business (SDVOB)
- [ ] Other

Conditional

Please specify your business' other certifications. *

6. How long has your business been in operation? *

- ○ Less than 2 years
- ○ 2 - 5 years
- ○ 6 - 10 years
- ○ 11 - 20 years
- ○ 21 - 30 years
- ○ 31 - 50 years
- ○ 51 years or longer

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7. How many bids, quotes, or proposals has your business submitted for a State of Rhode Island prime or subcontract since 2017?

Prime Contractor *	Subcontractor *
○ None	○ None
○ 1-4	○ 1-4
○ 5-9	○ 5-9
○ 10-14	○ 10-14
○ 15+	○ 15+

8. How many State of Rhode Island prime or subcontracts has your business had since 2017?

Prime Contractor *	Subcontractor *
○ None	○ None
○ 1-4	○ 1-4
○ 5-9	○ 5-9
○ 10-14	○ 10-14
○ 15+	○ 15+

9. Have you experienced any of the following when pursuing a State of Rhode Island contract since 2017?

Prime contractor asked your business to lower the price of a bid, quote, or proposal. *

○ Frequently
○ Sometimes
○ Never

Given insufficient time by the prime contractor to prepare a bid, quote, or proposal. *

○ Frequently
○ Sometimes
○ Never

Prime contractor asked your business to lower the price of a bid, quote, or proposal. *

- O Frequently
- O Sometimes
- O Never

Given insufficient time by the prime contractor to prepare a bid, quote, or proposal. *

- O Frequently
- O Sometimes
- O Never

Prime contractor listed your firm as a subcontractor and won the contract, but your services were not used. *

- O Frequently
- O Sometimes
- O Never

The State of Rhode Island required your company to meet higher performance requirements than were needed to perform the contract. *

- O Frequently
- O Sometimes
- O Never

The State of Rhode Island cancelled a contract when your company was the lowest bidder. *

- O Frequently
- O Sometimes
- O Never

The prime contractor reduced your scope of work without consulting your company. *

- O Frequently
- O Sometimes
- O Never

The prime contractor would not pay an invoice for work performed. *

- O Frequently
- O Sometimes
- O Never

The State of Rhode Island paid your invoice 60 or more days late *

- O Frequently
- O Sometimes
- O Never

The State of Rhode Island would not pay an invoice for work you provided. *

- O Frequently
- O Sometimes
- O Never

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10. Have you ever requested a debriefing with the State of Rhode Island when you were an unsuccessful bidder? *

- ○ Yes
- ○ No

Conditional

11. How many weeks after submitting the request was the debriefing scheduled? *

- ○ 1 week
- ○ 2 weeks
- ○ 3 weeks
- ○ 4 weeks
- ○ 5 weeks or longer
- ○ Never received debriefing

12. How helpful was the information provided in the debriefing for preparing a response to a future State of Rhode Island solicitation? *

- ○ Very helpful
- ○ Somewhat helpful
- ○ Not helpful
- ○ Not applicable

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Highly Used Contractors

15. Do you think that there are highly used prime contractors that the State of Rhode Island prefers to use?

- ○ Yes
- ○ No
- ○ I do not know

16. Please specify the type of special treatment that highly used contractors receive (check all that apply):

- ☐ Advanced bid or proposal notification
- ☐ Bid or proposal qualification requirements favoring large businesses (eg: years in business, prior experience with the State of Rhode Island)
- ☐ Approval of multiple change orders/amendments
- ☐ Waived project requirements (e.g.: bonding, insurance, etc.)
- ☐ Other

Conditional

Please specify other kinds of special treatment:

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Bonding

17. Have you ever applied for a bond waiver from the State of Rhode Island? *

- O Yes
- O No

18. Since July 1, 2017, have you received a bond waiver from the State of Rhode Island on a construction contract valued under $10,000? *

- O Yes
- O No
- O I don't know what a bond waiver is

19. On how many construction contracts have you received a bond waiver? *

- O 0
- O 1
- O 2-5
- O 6-10
- O 11 or more

20. If your bond waiver request was denied, what reason was given for the denial? *

NA

Are the State of Rhode Island's prime contract bonding requirements reasonable based on the project size and scope of work? *

- O Frequently
- O Sometimes
- O Never

How often have the State of Rhode Island's bonding requirements prohibited you from bidding as a prime contractor? *

- O Frequently
- O Sometimes
- O Never

How often have you been required to bond your subcontracts? *

- O Frequently
- O Sometimes
- O Never

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Pre-qualification Lists

21. Is your business pre-qualified by the State of Rhode Island to provide professional services (including architecture and engineering) or construction services?

- ○ Yes
- ○ No

22. Since July 1, 2017, has the State of Rhode Island denied your business pre-qualification status? *

- ○ Yes
- ○ No

Conditional

What reason was given for the denial? *

Conditional

23. For what type of work was your business' pre-qualification denied? *

Conditional

24. Were you given instructions on how to appeal the denial? *

- ○ Yes
- ○ No

25. Since July 1, 2017, have you bid on a contract that required your business to be pre-qualified? *

- ○ Yes
- ○ No

Conditional

26. How many contracts requiring pre-qualification has your business bid on since July 1, 2017? *

- ○ 1
- ○ 2-5
- ○ 6-10
- ○ 11 or more

27. Since July 1, 2017, have you been awarded a contract that required pre-qualification status? *

- ○ Yes
- ○ No

Conditional

28. How many contracts has your business been awarded that required pre-qualification status since July 1, 2017? *

- ○ 1
- ○ 2-5
- ○ 6-10
- ○ 11 or more

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Minority and Woman-Owned Business Enterprise Program

29. Are you currently certified as an MBE/WBE? *

- O Yes
- O No

Conditional

30. If yes, when were you certified? *

YYYY

31. Has your company benefited from the State of Rhode Island's MBE/WBE Program? *

- O Yes
- O No

32. How many contracts has your company been used as a subcontractor to meet a MBE/WBE goal? *

- O 0
- O 1
- O 2-5
- O 6-10
- O 11 or more

33. Is there an expedited MBE/WBE certification process available to respond to the State of Rhode Island proposal? *

- O Yes
- O No

34. Was your certification application expedited? *

- O Yes
- O No

Conditional

35. If no, what reason was given for not expediting your certification application? *

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