University of Minnesota

NJ TRANSIT Disparity Study

Final Report Executive Summary

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ROY WILKINS CENTER FOR HUMAN RELATIONS AND SOCIAL JUSTICE
A LEADING RESEARCH CENTER DEDICATED TO FINDING RACIAL AND ETHNIC INEQUALITY SOLUTIONS

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INTRODUCTION

Purpose and Scope

New Jersey Transit (NJT) receives funds from the United States Department of Transportation (USDOT) to build operate and maintain the state's bus, rail and light rail transportation systems and the supporting equipment and infrastructure. Any state DOT receiving federal funds must implement the federal Disadvantaged Business Enterprise (DBE) program. The goals of DBE programs are to remedy past and current discrimination against disadvantaged businesses, to ensure a market in which DBEs can compete fairly for DOT-assisted contracts, improve the flexibility and efficiency of the DBE program and reduce burdens on small businesses. New Jersey Transit administers concurrent programs for small and economically disadvantaged businesses (SBEs) as well as for women and minority-owned businesses (DBEs) to ensure nondiscrimination in the award and administration of DOT-assisted contracts for its operating, administrative and capital programs in public transportation.

In general, race- and gender-based government actions are subject to high levels of scrutiny; a program must be based on strong evidence and designed to be narrow in its remedies. In *J.A. Croson v. City of Richmond* in 1989 and *Adarand Constructors, Inc. v. Pena* in 1995, the U.S. Supreme Court articulated a legal standard of strict scrutiny, requiring federal, state and local governments to provide a strong basis in evidence of on-going effects of discrimination in their relevant contracting markets as a prerequisite to operating race- and gender-conscious procurement programs.[1]

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[1] A detailed discussion of the legal case law and precedents and the methodology used in the NJT Disparity Study are discussed in the Report and fully documented in the Appendix.

Disparity studies are analytical tools for assessing the market for public contracts for evidence of discrimination, in accordance with the evidentiary tests created by the federal courts that govern DBE programs for federally assisted transportation contracts. State DOTs rely upon disparity studies as the basis for all procurement policy. The disparity study is used to assist any state DOT in meeting regulatory goal-setting requirements in conformance with strict constitutional scrutiny. Where a state's DBE program has been challenged, the disparity study is used to defend the program goals under judicial review. The federal guidelines for justification of DBE goals rely upon evidence of discrimination in the procurement market based on two measures: the estimated DBE availability and the expected DBE utilization in the absence of discrimination and the effects of the DBE program.[2]

In light of possible federal circuit court challenges to the constitutionality of DBE programs, NJT and the Roy Wilkins Center (RWC) utilize a more robust disparity study with a methodology that continues analytical inquiry where earlier availability and utilization analysis stops. The RWC methodology looks at an observed disparity and tests factors, other than discrimination, that could explain low DBE participation in procurement.

Causality analysis incorporates statistical measures of the following:

- Pre-market discrimination
- Passive discrimination
- Discrimination in credit markets
- Agency discrimination in prequalification rates
- Agency discrimination in bid success rates
- Anecdotal evidence
- Overconcentration analysis

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[2] A detailed discussion of the legal case law and precedents and the methodology used in the NJT Disparity Study are discussed in the Report and fully documented in the Appendix.

In questioning why there should be a disparity between the availability of DBEs in a defined marketplace and their expected utilization, the RWC methodology seeks to quantify the probability of all relevant factors as the cause of the disparity. Where these factors yield a low probability of explaining the disparity, the residual or only remaining explanation is discrimination. The addition of this robust causality analysis has enabled RWC disparity studies to withstand judicial scrutiny. The RWC disparity study is, therefore, an appropriate tool for goal setting in DBE programs.[3]

Background of the 2016 NJT Disparity Study

In 2002, the Roy Wilkins Center of Human Relations and Social Justice (the Roy Wilkins Center) completed "An Availability, Utilization and Decomposition Analysis of New Jersey Transit's Disadvantaged Business Enterprise Program." Since then, the Roy Wilkins Center has worked with New Jersey Transit (NJT) in observing and evaluating their annual and tri-annual Disadvantaged Business Enterprise (DBE) goals.

In early 2013, the New Jersey Transit Office of Civil Rights and Diversity Programs requested that the Roy Wilkins Center conduct a disparity study in order to examine whether there is evidence of discrimination in contracting opportunities against socially disadvantaged groups and to improve the race-conscious Disadvantaged Business Enterprise (DBE) program.

The Roy Wilkins Center presented a scope of its work to New Jersey Transit, and on June 30, 2014, the contract was signed to conduct the Disparity Study. The Roy Wilkins Center research team agreed to submit a detailed plan regarding the completion of the project and to prepare oral and written progress reports to NJT monthly. Upon completion of the study, the team submitted a

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[3] The methodology for the NJT Disparity Study is described later in the Report.

report that outlined the key findings of the study as well as recommendations pertinent to the findings. This Report summarizes the team's findings and recommendations and provides results of various quantitative and qualitative analyses performed for NJT's 2016 Disparity Study.

Framework for the Disparity Study

The major objectives of the disparity study are as follows:

- Provide an in-depth review of procurement contracting policies, procedures, and practices of New Jersey Transit to identify barriers to participation by DBEs in the procurement process.
- Determine whether disparity exists between DBEs and non-DBEs in the availability and utilization of contract awards with NJT. Additionally, determine whether there are ethnic, racial, or gender disparities in the availability and utilization of firms contracting with NJT.
- Use anecdotal evidence along with statistical evidence to delineate the status of DBEs and non-DBEs contracting with NJT, including potential explanations for any disparity identified.
- Determine if discrimination exists in prequalification, the bidding process, or awarding of contracts by NJT.
- Determine if pre-market discrimination exists in markets such credit and employment. Pre-market discrimination may hinder self-employment, small business formation and successful contracting of DBEs in public and private markets.
- Determine whether there is evidence to suggest that NJT is a passive participant in discrimination, thus exacerbating the existing disparities.
- Determine whether DBEs are "over-concentrated" in certain types of work such that it creates an undue burden on non-DBEs.
- Identify potential remedies to the findings of the disparity study that are legally and economically practical.

New Jersey Transit (NJT) provided the research team with data on prequalification, bidders, vendor, DBEs, and contract awards. The team gathered additional information on firms, including race/ethnicity, gender, and industry classification from NJT's Biztrack database and

Hoover's business database. Demographic data was acquired from the American Community Survey (ACS) and small business loan data from the Community Reinvestment Act (CRA). The team also developed and designed a web survey instrument to explore the state of DBE and non-DBE prime and subcontractors in doing business with NJT and in the private sector. Additionally, the team collected information on the contracting and purchasing policies and procedures of NJT.

In order to detect potential disparities and/or discrimination in NJT's contracting policies and procedures, the team designed relevant statistical techniques that would both identify and quantify the magnitude of any disparities and discrimination found. Statistical methods were also used to determine and document the extent of any racial, ethnic, or gender disparities in each pre-market area described above.

After collecting all the required data, performing statistical analyses and evaluating the results, the team was able to present findings about NJT procurement and contracting. The team used these findings to develop relevant and applicable recommendations for NJT to remedy the disparities and discrimination in its practices and help achieve its DBE goals. This Report summarizes the team's findings and recommendations and provides results of various quantitative and qualitative analyses performed.

THE RESULTS

The Factual Predicate for NJT's DBE Program

Croson mandates that a race-conscious procurement and contracting program must meet a strict scrutiny test.[4] The two prongs of the strict scrutiny test are: demonstration of a compelling state interest and fulfillment of narrow tailoring of the program.[5]

New Jersey Transit is able to meet its burden of demonstrating a compelling state interest through the compelling evidence provided herein of agency discrimination in specific parts of the operation of its federal and state procurement and contracting system: construction prequalification; the bidding process; and the award of prime contracts.

This report also provides the requisite evidence demonstrating that the NJT federal program is narrowly tailored in that a) it addresses disparities across all identified racial and ethnic minority groups and white women; b) the program does not discriminate against non-DBEs; and c) the subcontracting program achieves what it is designed to achieve: providing opportunities to DBEs without harming non-DBEs.

Statistical Findings of Discriminatory Disparities: The Compelling State Interest

A state or local government can establish a compelling interest in administering a race/gender conscious procurement and contracting program by providing a strong basis in evidence of ongoing discrimination. There are many approved ways of establishing this strong basis in evidence. First generation disparity studies used simple differences between the availability and

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[4] *J.A. Croson v. City of Richmond* (1989). Legal precedents are discussed more fully in the Report and in the Appendix.
[5] *Adarand Constructors, Inc. V. Pena*, 1995. Legal precedents are discussed more fully in the Report and in the Appendix.

utilization of ready, willing, and qualified minority or women-owned business enterprise (MWBE or DBE) firms as a measure of discrimination. Most economic analysts will argue that these simple differences do not necessarily measure discrimination.[6] Second and third generation disparity studies also examine passive discrimination and evidence of mitigating factors that might explain the disparities. This Report adopts the approach, common among economists, of measuring discrimination as an unexplained residual. The findings in this section of the report focus on direct, on-going discrimination in the operation of New Jersey Transit's procurement and contracting practices. It identifies specific disparities and then examines whether these disparities can be explained by relevant economic factors.

Table 1 summarizes the RWC findings of disparities in contracting awards between DBEs and non-DBEs. Panel A refers to prequalification disparities. Panel B refers to bid success rate disparities. Panel C relates to disparities in prime contract awards. Panel D reports the results of testing for disparities in subcontract awards. The Disparity Report details RWC's analysis of these observed disparities with the purpose of determining the causes of these disparities. Disparities can be explained by factors that are related to the characteristics of the firm, characteristics of the contract or other factors. RWC performs statistical analyses to test the significance one or more factors in explaining the observed disparities between DBEs and non-DBEs. Each factor will yield a measurable indicator of its significance as the cause of disparity. Once all relevant factors have been tested and their significance as a cause of disparity have been quantified, any remaining unexplained disparity is a measure of discrimination. As such, the results of *Table 1* lists observed disparities and then details whether these disparities are attributable to current agency discrimination.

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[6] Wainwright, J. and Collete Holt. *NCHRP Report 615: Guidelines for Conducting a Disparity and Availability Study for the Federal DBE Program.* Transportation Research Board of the National Academies, Washington D.C. 2009.

Table 1: Summary of Tests of Agency Discrimination

	Non-DBES (comparison group)	DBES
A. PREQUALIFICATION RATE FOR $4 M OR HIGHER	**49.82%**	**14.49%**
	(n=556)	(n=69, t=7.4101, p=0.000)
Regression coefficient relative to non-DBEs		-2.046 (n=625, p=0.000)
B. MEAN BID SUCCESS RATE OVER $4 million (dichotomous, 0,1; unit of observation = BID)	**59.70%**	**6.67%**
	(n=263)	(n=15, t=7.2414, p=0.0000)
Regression coefficient relative to non-DBEs		-0.354 (n=278,p=0.000)
C. MEAN PRIME CONTRACT AWARD AMOUNT		
FEDERAL ONLY	**$5,211,799.00**	**$911,102.20**
	(n=228)	(n=9, t= 2.8851, p=0.0043)
Regression coefficient relative to non-DBEs		-0.304 (n=237,p=0.546)
D. MEAN SUBCONTRACT AWARD AMOUNT FEDERAL FISCAL YEAR OCTOBER 2009-2013		
FEDERAL ONLY	**$268,834.50**	**$254,719.10**
	(n=226)	(n=262, t=0.1635, p=0.8702)
Regression coefficient relative to non-DBEs		1.113 (n=448 ,p=0.000)

Note: n=number observations; t=t-statistic for difference relative to non-DBEs; p=significance level

The Federal DBE program at New Jersey Transit primarily affects NJT's subcontracting program for the period examined (2005 to 2013). For this period, the team examined a total of 1023 state and federal prime contracts and 936 state and federal subcontracts. During this period

there were a total of 237 federal prime contracts and 673 federal subcontracts recorded. This information comes from multiple sources: BizTrak (New Jersey Transit Office of Business Development DBE database), New Jersey Transit Office of Business Development, New Jersey Transit Office of Procurement, Office of Capital Program and Planning (Engineering, Construction Management, Project Management, and Grant Administration departments); Local Programs and Community Mobility and Dun and Bradstreet. Federal subcontracts were not all recorded until fiscal year 2010. Therefore, some of our analysis of subcontracts is restricted to the observations from fiscal years 2010 and beyond.[7]

Table 1, Panel D shows that there were a total of 488 subcontracts awarded in fiscal years 2010 to 2013. Of that total, 262 were awarded to DBEs and 226 were awarded to non-DBEs. The average subcontract amount awarded to DBEs was $254,719.10. The average amount awarded to non-DBEs was $268,834.50. Although the average federal subcontract amount awarded to non-DBEs was larger than that awarded to DBEs by $14,115.40, it was not statistically significant. There was no finding of discrimination against DBEs in the size or dollar value of subcontract awards. The research team performed extensive regression tests to also determine whether there were differences between DBEs and non-DBEs in the value of subcontracts awarded. The team also concluded there was no discrimination against non-DBEs (in favor of DBEs) under the federal DBE subcontracting practices: awards to non-DBEs would not be statistically different from the amounts they actually received if they were treated like DBEs.

The subcontracting program showed a level playing field *among subcontractors.* Since the

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[7] The analysis performed in the body of the report measuring discrimination references a data set that includes 1,023 state and federal prime contracts and 936 state and federal subcontracts totaling $3,691,619,597. When one excludes 17 state contracts in the industries of Natural Gas (NAICS 221210) and Crude Oil (NAICS 424720), the resulting number of prime contracts is 1,016; the resulting number of subcontracts is 936; and the total dollar amount equals $2,824,623,368. Since the main discrimination results focus on federal contracts, there is no impact on the analysis herein. However, for the purposes of computing availability rates, the 221210 and 424720 NAICs codes are excluded when computing relative weights.

vast majority of NJT's contract dollars go to single prime contractors, with many awards greater than $1 million, the DBE program is primarily applicable to the market for subcontractors. The total for federal expenditures of prime contract dollars reported from 2005 to 2013 was $1,196,490,062.00. The total for federal expenditures of subcontract dollars reported from 2005 to 2013 was $ 218,839,657.27. The figures for 2010-2013 were $666,925,872.16 for prime contracts and $116,639,351.66 for subcontracts. For the period 2005-2013, only about 18.29% percent of total prime dollars are accounted for by subcontract dollars.

The discrimination shown in *Table 1*, Panels A, B, and C, relates to three aspects of prime contracting. The first aspect, reported in Panel A, involves the prequalification of firms to bid on construction contracts. The DBEs were less likely than non-DBEs to be prequalified to bid on construction contracts in excess of $4 million. The probability of being prequalified on these larger contracts was 49.82% for non-DBEs but only 14.49% for DBEs.[8] Regression analysis revealed that even accounting for size of firm, location of firm, credit risk of firm, age of firm, application year, pre-qualified construction category and procurement officer, there still remained an 88.84% percentage point gap in the prequalification rates and this difference was statistically significant at the 1 percent level.[9]

Panel B in *Table 1* refers to bidding outcomes. Most DBEs were not able to bid on large contracts. Although there were a total of 541 bidders representing 1322 prime contract bids from 2005-2013, there were only 26 DBE bidders and 108 DBE bids. There was no difference in the bid success rates for DBEs and non-DBEs across all contracts sizes. Restricting the bids analysis

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[8] In a separate analysis, the research team tested the hypothesis that these disparities could be accounted for by a small handful of procurement officers. The analysis was able to distinguish between current employees and retired or persons no longer working for NJT. Although statistically significant effects were found by controlling for particular procurement officers responsible for the bulk of the prequalification denials of DBEs, these discriminatory effects remained. Most of these officers have retired or have left NJT. See Appendix Table 1, "Agency Discrimination".

[9] In Appendix Table 2, "Agency Discrimination" we also report the results of computing the prequalification rates by gender and racial/ethnic minority groups. We find discrimination against each of the subgroups for which we are able to isolate with at least 5 observations for the subgroup.

to contracts under $4 million dollars confirmed that there was no statistically significant difference in the bid success rates, whether measured at the bid level or at the bidder (firm) level. Restricting the bid analysis to contracts over $4 million dollars revealed a completely different picture. The success rates for non-DBEs vs. DBEs were 59.70% and 6.67% when measured at the bid level and 54.50% and 0% when measured at the bidder level. These huge differences in success were all statistically significant. These differences remain even after controlling for size of firm, location of firm, credit risk of firm, age of firm, industry and the probability of being pre-qualified.

In short, DBEs essentially are prevented from bidding on large prime construction contracts because of their lack of prequalification, and for those opportunities that remain in non-construction prime contracts, they are less likely to win. The difference between the bid success rates on prime contracts among DBEs and non-DBEs cannot be explained by observed characteristics of the bids, the bidders, the type of contract, or other economically relevant factors. The analysis revealed agency discrimination in pre-qualification rates and, therefore, in the bid success rate for contracts over $4million.

Panel C of *Table 1* reports the results of estimating gaps in prime contract awards between DBEs and non-DBEs. During the entire period of 2005 and 2013 there were only 80 DBE prime contract awards. During the same period there were 943 non-DBE prime contract awards. The average DBE prime contract award was $491,209.80. The average non-DBE prime contract award was $3,540,525.00. This disparity of 720.78 percent is statistically significant. Controlling for size of firm, location of firm, credit risk of firm, age of firm, whether or not the contract was awarded after recession, contract type, procurement method, and the industry, the disparity dropped to 62.3 percent but remained statistically significant. For those industries where only the nine prime DBE contractors competed, the estimation results in a disparity of 30.4 percent. Using regression techniques that decompose the disparity into explained portions and unexplained portions, the team

found that the percentage of the unexplained gap equals 7 percent. This finding indicates discrimination against DBEs in contract awards.

Chart 1 summarizes the main results from *Table 1*, reporting the ratio of the non-DBEs to DBEs in the four areas. Each bar in the Chart references a disparity, reported as the ratio of the non-DBE outcome to the DBE outcome (the probability of non-DBEs divided by the probability of DBEs). The larger the ratio, the greater the disparity. The blue portion of the bar reports the share of the disparity that is unexplained by other factors, or the portion that is due to discrimination. The larger the blue portion, the larger the share of the disparity that is due to discrimination.

- The first bar shows ratio of the non-DBE to the DBE probability of prequalification above $4 million.
- The second bar shows the ratio of the non-DBE to DBE bid success rates measured at the bid level and at the bidder (firm) for contracts over $4 million.
- The third bar reports the ratios of the non-DBE to the DBE federal prime contract amounts for all federal prime contract awards.
- The last bar shows the ratio of non-DBE to DBEs for federal subcontract awards.

From *Table 1*, we know that the non-DBE probability of prequalification for contracts over $4 million is 49.82 percent. For DBEs, it is 14.49 percent. The ratio of the non-DBE to DBE prequalification probability for contracts over $4 million therefore is 3.44, shown in red. In other words, non-DBEs are almost three and a half times more likely to be prequalified for bidding on construction contracts than are DBEs. Of course, some of this disparity can be explained by differences in qualifications and areas of work performed by DBEs vs. non-DBEs. Estimating regression equations (found in tables 1 through 5 in Appendix "Agency Discrimination") reveals that about 11.16 percent of the gap in the non-DBE vs. DBE probabilities can be explained by relevant factors. 88.84 percent of the gap cannot be explained.

Chart 1: Non-DBE/DBE Disparity Ratios
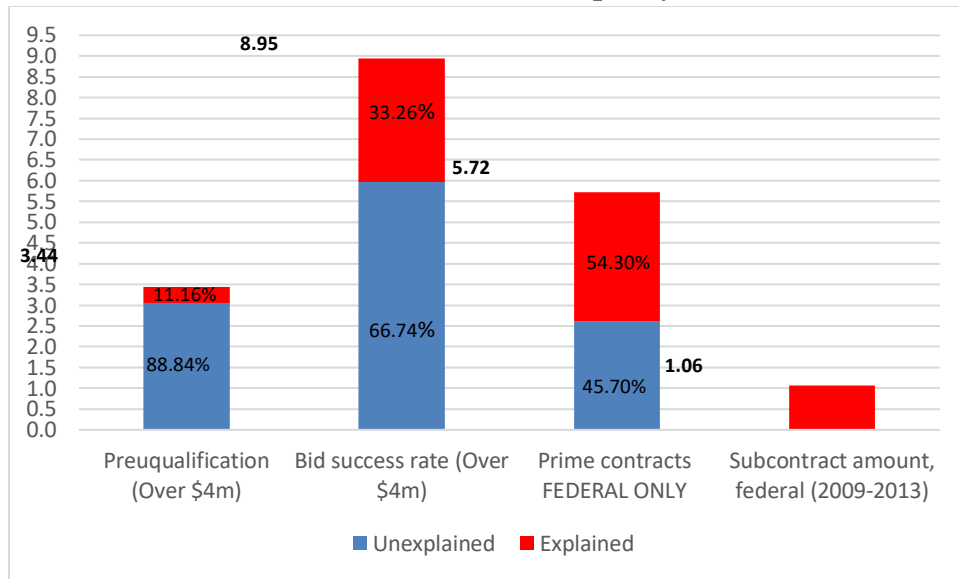
Table 1 shows that the non-DBE success rate for bidding on prime contracts over $4 million is 59.70 percent. The DBE success rate is 6.67 percent. The ratio of the non-DBE to the DBE bid success rates is 8.95: non-DBEs are almost nine times more likely to win contracts over $4 million than are DBEs. Less than a third (33.26 percent) of the gap can be explained. The remainder is unexplained.

Given the huge disparities in winning prime contracts and being prequalified to bid on larger contracts, the average prime contract awarded to DBEs was much smaller than that awarded to non-DBEs. The ratio of the average prime award to non-DBEs to the average prime award to DBEs was 5.72, with much of this disparity explained. The average subcontract awarded to non-DBEs is almost the same as that awarded to DBEs, producing a disparity ratio of 1.05.

Chart 1 shows that each of the disparity ratios exceeds one, meaning that there are worse outcomes for DBEs than for non-DBEs. In each bar, moreover, the blue shaded portion, representing the percentage of the disparity that is unexplained, is non-trivial and statistically significant. In other words, the explanatory cause for the disparity is discrimination and not other

relevant factors, such as size of firm, age of firm, credit risk of firm, type of contract, industry, or other economic factors. The discriminatory disparities in prequalification probabilities, bid success, and prime contract amounts are all aspects of current, ongoing discrimination.

These specific forms of agency discrimination provide the primary factual predicate for the first prong of the strict scrutiny test. The compelling state interest for exercising a race-conscious program rests here in the need to rectify continuing, ongoing discrimination in prime contracting, prequalification, and bid success.

Statistical Findings of Narrow Tailoring

The second prong of a strict scrutiny test is narrow tailoring. Statistical evidence can be marshalled to address three important aspects of the six common components of a narrow tailoring analysis:[10] a) the program does what it is intended to do in that it provides a remedy to discrimination against DBEs; b) the remedy does not discriminate against non-DBEs or white male-owned firms; and c) all groups represented in the federal definition of DBEs face some level of discrimination justifying their inclusion in the protected category of DBE.

Table 2 reports the size of subcontract amounts by race, gender, and ethnicity and reproduces the information from *Table 1* on the subcontract award amounts for DBEs compared to Non-DBEs. As *Table 2* shows, subcontracts were awarded to white women, African Americans, Asian Pacific Americans, sub-continental Asian Americans, and Hispanics. A residual category of

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[10] Even where there is a compelling interest supported by a strong basis in evidence, a race conscious program must be narrowly tailored to further that interest. A narrow tailoring analysis commonly involves six factors: "(1) the necessity of relief; (2) the efficacy of alternative, race-neutral remedies; (3) the flexibility of relief, including the availability of waiver provisions; (4) the relationship of the stated numerical goals to the relevant market; (5) the impact of relief on the rights of third parties; and (6) the over-inclusiveness or under-inclusiveness of the racial classification." Rothe III, 262 F.3d at 1331; see also Adarand III, 515 U.S. at 238–39; Croson, 488 U.S. at 506; *United States v. Paradise*, 480 U.S. 149, 171 (1987). In this section, the focus is on demonstrating that there is no adverse impact of the DBE subcontracting program on third parties and that there is no over or under inclusiveness of the racial classification. The relationship between the numerical goals and the relevant market is addressed in a separate availability-utilization analysis section.

DBEs exists where the race, gender, or ethnicity is missing.[11]For the period of October 1, 2009 through 2013 for which there was complete information on both non-DBEs and DBE subcontractors, the average contract award for a DBE ($254,719.10) was less than the average contract award for a non-DBE. This $14,115.4 difference was not statistically significant.

These findings show that *the remedy*, namely, the DBE subcontracting program as implemented by NJT from 2005-2013, fulfills its objective such that there is no discrimination against DBEs in the subcontracting program. These findings show that white, male-owned firms and non-DBEs were not discriminated against as a group in the implementation of the subcontracting program. And, these findings show that all subsets of the DBE category face some degree of discrimination, justifying their inclusion among those receiving the benefits of the DBE program.

Table 2 shows that each racial and gender group had lower prequalification rates than non-DBEs, lower bid success rates for contracts over $4 million, lower average sizes of prime contracts and generally statistically insignificant differences in average subcontract amounts.

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[11] Sources of data: NJT Biztrak Bidder list; Hoover D &B database; NJT Biztrak Pre-qualification list (2005–2013); NJT Biztrak Prime Contracts and Subcontracts. (2005–2013);
In both bidder list and pre-qualification list, a company is defined as DBE if this company was DBE once during the data collection year. Theoretically, a white male could own a DBE firm; however, empirically there is no white male owned DBE in the databases. In the regression analysis, robust standard error has been used. The Portuguese are classified as Hispanics in the analysis.
  In the pre-qualification file, the unit of observations is the firm's application from 2005–2013. Many firms have multiple observations in the database. In the pre-qualification regression analysis, logit model has been used. The model controls for the firm's DBE status, size, location, credit risk, age, application year, pre-qualified construction category, and procurement officer.
  In the bidder list analysis, the model controls for the firm's DBE status, size, location, credit risk, age, industry, and the probability of being pre-qualified. Natural gas, fuel, and petroleum prime contracts are kept in the database for the discrimination analysis. All of the 17 contracts are state primes. In the prime contracts analysis, the dependent variable is the natural log of contract amount and the model controls for the firm's DBE status, size, location, credit risk of firm, age, whether or not the contract was awarded after recession, contract type, procurement method and the industry.
  In the sub-contracts analysis, the dependent variable is the natural log of contract amount and the model controls for the firm's DBE status, size, location, credit risk, age, whether or not the contract was awarded after recession, contract type, procurement method, and the industry.

Table 2: Summary of Tests of Agency Discrimination by Race, Gender and Ethnicity

Non-DBES (Comparison Group)	White Females DBES	African American DBES	Asian Pacific Americans DBES	Sub-continental Asians DBE	Asian DBES	Hispanics DBES	Race/Ethnicity missing DBES
PREQUALIFICATION RATE FOR $4 M OR HIGHER							
49.82%	0.00%	0.00%	0.00%	28.57%	16.67%	32.00%	0.00%
	n=11	n=7	n=5	n=7	n=12	n=25	n=14
	t=3.2989	t=1.1167	t=2.2241	t=1.1167	t=2.2793	t=1.7451	t=3.7217
n=556	p=0.001	p=0.2646	p=0.0265	p=0.2646	p=0.0230	p=0.0815	p=0.0002
Regression coefficient relative to non-DBE	Omitted	Omitted	Omitted	0.226 n=563 p=0.765	-1.126 n=568 p=0.213	-1.354 n=581 p=0.025	Omitted
OVER 4M MEAN BID SUCCESS RATE (dichotomous, 0,1; unit of observation = BID)							
59.70%	20.00%	0.00%	0.00%	/	0.00%	0.00%	0.00%
	n=5		n=4		n=4	n=3	n=2
	t=1.7915		t= 19.6992		t=19.6992	t=19.6992	t=19.6992
(n=263)	p=0.0743	n=1	p=0.000		p=0.0000	p=0.0000	p=0.0000
Regression coefficient relative to non-DBEs	-0.602 n=268 p=0.005	/	0.331 n=267 p=0.005		-0.331 n=26 p=0.005	-0.321 n=266 p=0.161	-0.349 n=265 p=0.195
MEAN PRIME CONTRACT AWARD AMOUNT _FEDERAL ONLY_							
$5,211,799.00	$63,064.00	/	/	$1,031,790.00	$1,031,790.00	$1,457,421.00	/
n=228	n=2			n=5	n=5	n=2	
	t= 3.4890,			t=2.7992	t=2.7992	t= 2.4244	
	p=0.0006			p=0.0056	p=0.0056	p=0.0175	
Regression coefficient relative to non-DBEs	-1.008 n=230 p=0.058			0.087 n=233 p=0.915	0.087 n=233 p=0.915	-0.757 n=230 p=0.134	
MEAN SUBCONTRACT AWARD AMOUNT OCTOBER 2009-2013 _FEDERAL ONLY_							
$268,834.50	$216,037.40	$694,103.90	$205,349.60	$169,040.30	$177,156.50	$292,683.10	$84,386.80
	n=119	n=25	n=19	n=66	n=85	n=28	n=5
	t=0.5317	t=-1.0361	t= 0.4018	t=1.3002	t= 1.537	t=-0.1776	t=2.2866
n=226	p=0.5953	p=0.3100	p=0.6911	p=0.1946	p=0.2495	p=0.8598	p= 0.0279
Regression coefficient relative to non-DBEs	1.091 n=345 p=0.000	0.802 n=251 p=0.042	1.329 n=249 p=0.000	1.532 n=292 p=0.000	1.453 n=311 p=0.000	1.175 n=254 p=0.001	0.988 n=231 p=0.012

Note: n=number observations; t=t-statistic for difference relative to non-DBEs; p=significance level

Because of the small group sizes, the regression results often are statistically insignificant. The

findings support the conclusion that the program includes the appropriate groups for which the

remedy is designed and are not differentially favored relative to non-DBEs, key elements of narrow tailoring.

OVER-CONCENTRATION ANALYSIS

Per 49 C.F.R. 26.33, a recipient (governmental agency receiving FTA, FHWA or FAA funds) must take steps to address overconcentration if it is found in its program. The regulation, however, does not currently require recipients to actively assess over-concentration and there is no calculation to define over-concentration in common law. NJT requested an analysis of over-concentration in the disparity study.

The over-concentration analysis aimed at measuring the degree of concentration for DBE firms in each industrial category. The index for measuring the degree of concentration is the representation ratio. The analysis was conducted at the firm level for subcontractors only and was restricted to federal contracts only. The analysis uses the representation of DBEs in a given industry relative to DBE representation among all subcontractors to draw conclusions about over-concentration.

Method

The analysis was conducted at the firm level using the New Jersey Transit subcontractor database as its data source. Industries are categorized by the North American Industry Classification System (NAICS). Firms are identified by Duns and Bradstreet (D&B) number. In cases of missing D&B number, a unique identifier was assigned to those firms. Since NJT's original dataset provided detail at the contract level, this analysis aggregated the contracts to create a dataset at the firm level. A given firm is counted, therefore, only once in the representation ratio.[12]

The representation ratios are calculated in two versions, for probability of being a DBE

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[12] There are cases where the same firm may be counted more than once. First, if a firm has ever changed its DBE status, it will be counted for the number of times it changed DBE status. Also, if a firm has ever changed its primary NAICS codes, in analysis using its primary NAICS code, such firm will be counted for the number of times it changed primary NAICS code.

firm and the proportion of money awarded to a DBE firm. More specifically, the representation ratio for probability of being a DBE firm is defined as the ratio of a) the probability of being a DBE firm in a given industry, to b) the probability of being a DBE firm. Similarly, the representation ratio for proportion of contract amount is defined as the ratio of a) the proportion of contract amount awarded to DBE firms by industry, to b) the overall proportion of contract amount awarded to DBE firms.[13]

Results

Table 3 reports the results of computing the representation ratios for DBEs in each of the subcontracting NAICS codes. Note that the representation ratio is the ratio of the DBE share in the *jth* industry to the DBE share overall. By definition, the sum of these ratios is equal to 100 percent. Thus, in order for there to be over-concentration in one industry, there must by necessity be underrepresentation in other industries. Of the 49 industries represented, there was zero representation of DBEs in eight industries accounting for 5.87 percent of all subcontracting dollars. There were an additional five industries where DBEs were underrepresented (but with positive participation) yielding a total of 10.46 percent of total dollars. In the other subcontracting industries, the ratio of the percentage of DBEs in the industry to the percentage of DBEs among all subcontractors is greater than one.

There is no uniform legal definition of "over-concentration." However, a common notion of over-concentration is one where the difference between the representations of DBEs in the industry relative to their overall representation among subcontractors is greater than two standard deviations above the mean. This difference is commonly considered to be "excessive.[14]" In this

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[13] The analysis was conducted in two versions—using primary NAICS codes on subcontracts and using all NAICS codes on subcontracts. NAICS codes are merged using information from the D&B database. Reported here are the results using all NAICS codes reported for each subcontractor.
[14] Geyer Signal, Inc. v. Minnesota Dep't of Transp., 2014 WL 1309092 (D. Minn. 2014), appeal dismissed (8th Cir.

analysis, the mean representation ratio is 0.89; the standard deviation of the mean is 0.41.

Thus, representation ratios in excess of 1.72 would be considered "excessive." Yet, the highest representation ratio measured at the number of firms level is 1.121. This value, even at one standard deviation, is lower than the "excessive" threshold. In short, we find no evidence of "excessive" over-concentration in subcontracting.

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Table 3: Representation Ratios, Firm Level Subcontracts Only, ALL NAICS, Federal Only

NAICS	Number of Contractors Non-DBE	Number of Contractors DBE	Number of Contractors Total	Mean DBEi	DBEi/DBE	NAICS	Total Contract Amount Non-DBE	Total Contract Amount DBE	Total Contract Amount Total	Mean DBEi	DBEi/DBE
236210	0	1	1	1.000	1.121	236210	0.00	960701.00	960701.00	1.000	1.103
236220	0	1	1	1.000	1.121	236220	0.00	554380.00	554380.00	1.000	1.103
237310	1	4	5	0.800	0.897	237310	3323977.00	11394179.00	14718156.00	0.774	0.854
237990	0	1	1	1.000	1.121	237990	0.00	3660000.00	3660000.00	1.000	1.103
238110	0	2	2	1.000	1.121	238110	0.00	4880000.00	4880000.00	1.000	1.103
238120	0	3	3	1.000	1.121	238120	0.00	3275398.00	3275398.00	1.000	1.103
238160	1	0	1	0.000	0.000	238160	678043.00	0.00	678043.00	0.000	0.000
238210	0	4	4	1.000	1.121	238210	0.00	20239575.00	20239575.00	1.000	1.103
238220	0	2	2	1.000	1.121	238220	0.00	13512575.00	13512575.00	1.000	1.103
238320	0	1	1	1.000	1.121	238320	0.00	780000.00	780000.00	1.000	1.103
238330	1	0	1	0.000	0.000	238330	678043.00	0.00	678043.00	0.000	0.000
238910	0	1	1	1.000	1.121	238910	0.00	507660.00	507660.00	1.000	1.103
238990	0	2	2	1.000	1.121	238990	0.00	1774380.00	1774380.00	1.000	1.103
315240	1	0	1	0.000	0.000	315240	3323977.00	0.00	3323977.00	0.000	0.000
324122	1	0	1	0.000	0.000	324122	678043.00	0.00	678043.00	0.000	0.000
325510	1	0	1	0.000	0.000	325510	678043.00	0.00	678043.00	0.000	0.000
325520	1	0	1	0.000	0.000	325520	678043.00	0.00	678043.00	0.000	0.000
325612	1	0	1	0.000	0.000	325612	678043.00	0.00	678043.00	0.000	0.000
332312	0	1	1	1.000	1.121	332312	0.00	700000.00	700000.00	1.000	1.103
332322	0	1	1	1.000	1.121	332322	0.00	700000.00	700000.00	1.000	1.103
334111	0	1	1	1.000	1.121	334111	0.00	552815.00	552815.00	1.000	1.103
423310	0	1	1	1.000	1.121	423310	0.00	300000.00	300000.00	1.000	1.103
423610	0	2	2	1.000	1.121	423610	0.00	806000.00	806000.00	1.000	1.103
423620	0	1	1	1.000	1.121	423620	0.00	306000.00	306000.00	1.000	1.103
423690	0	1	1	1.000	1.121	423690	0.00	500000.00	500000.00	1.000	1.103
423720	0	1	1	1.000	1.121	423720	0.00	306000.00	306000.00	1.000	1.103
423850	0	1	1	1.000	1.121	423850	0.00	306000.00	306000.00	1.000	1.103

Table 3: Representation Ratios, Firm Level Subcontracts Only, ALL NAICS, Federal Only (cont'd)

NAICS	Number of Contractors					Total Contract Amount				
	Non-DBE	DBE	Total	Mean DBEi	DBEi/DBE	Non-DBE	DBE	Total	Mean DBEi	DBEi/DBE
423860	0	1	1	1.000	1.121	0.00	500000.00	500000.00	1.000	1.103
424110	0	1	1	1.000	1.121	0.00	300000.00	300000.00	1.000	1.103
443142	0	1	1	1.000	1.121	0.00	2775000.00	2775000.00	1.000	1.103
484110	0	1	1	1.000	1.121	0.00	780000.00	780000.00	1.000	1.103
541310	0	1	1	1.000	1.121	0.00	1798877.00	1798877.00	1.000	1.103
541330	1	6	7	0.857	0.961	680000.00	23149776.00	23829776.00	0.971	1.072
541340	0	1	1	1.000	1.121	0.00	1798877.00	1798877.00	1.000	1.103
541370	0	1	1	1.000	1.121	0.00	1320000.00	1320000.00	1.000	1.103
541511	1	3	4	0.750	0.841	899000.00	3707815.00	4606815.00	0.805	0.888
541512	0	2	2	1.000	1.121	0.00	3180219.00	3180219.00	1.000	1.103
541611	1	4	5	0.800	0.897	680000.00	3201993.00	3881993.00	0.825	0.910
541614	1	4	5	0.800	0.897	899000.00	2736574.00	3635574.00	0.753	0.830
541618	0	1	1	1.000	1.121	0.00	405219.00	405219.00	1.000	1.103
541690	0	1	1	1.000	1.121	0.00	261934.00	261934.00	1.000	1.103
541820	0	1	1	1.000	1.121	0.00	555866.00	555866.00	1.000	1.103
561110	0	4	4	1.000	1.121	0.00	3302049.00	3302049.00	1.000	1.103
561210	0	1	1	1.000	1.121	0.00	405219.00	405219.00	1.000	1.103
561320	0	1	1	1.000	1.121	0.00	6000000.00	6000000.00	1.000	1.103
561499	0	1	1	1.000	1.121	0.00	540000.00	540000.00	1.000	1.103
561612	0	1	1	1.000	1.121	0.00	1886976.00	1886976.00	1.000	1.103
561613	0	1	1	1.000	1.121	0.00	1886976.00	1886976.00	1.000	1.103
811191	1	0	1	0.000	0.000	899000.00	0.00	899000.00	0.000	0.000
Total	13	70	83	0.843	0.915	14773212	126509033	141282245	0.895	0.903
Overall	4	33	37	0.891891892		5581020.00	54169725.00	59750745.00	0.906594972	

UTILIZATION ANALYSIS

To comprehend best how many businesses ready, willing, and able to do business with New Jersey Transit are actually winning work from NJT, we undertook a utilization analysis, which calculated how many firms of different types are working with NJT. The utilization rate refers to the percent of award dollars spent and contracts awarded, as compared to the total dollars spent and contracts awarded, respectively. Utilization rates were calculated by various categories of data, such as DBE status, race, gender and ethnicity, funding source, type of contracts, and so on, using the data from the prime and subcontract files, which provided information on the number and size of contracts awarded.

Detailed results of the utilization analysis by different availability methods are outlined in Appendix: Utilization Analysis, Bidders List Method, Vendors List Method and Prequalification List Method. Note that NJT's sizable expenditures on fuel and gas are included in the utilization analysis discussed in this section.

Table 4 shows the DBE Utilization by type of contract. Total contract dollars amount was $3.69 billion including both prime and subcontracts during the time period. Of the contracts awarded to the prime contractors, only 1.2 percent were awarded to DBE firms while 55.9 percent of subcontract dollars were awarded to DBE firms.

Overall, 5.8 percent of total contract dollars were awarded to DBE firms. In terms of the number of contracts, however, 28.9 percent of the total contracts were awarded to DBE firms. The DBE share of award dollars was 11.3 percent if we considered federally-funded contracts only.

Table 4: **DBE Utilization Rate by Type of Contract**

	Total		DBE		Non-DBE		DBE Share	
	N	Amount	N	Amount	N	Amount	N	Amount
For both federal and state contracts								
Prime	1023	$3,378,011,399	80	$39,296,780	943	$3,338,714,618	7.8%	1.2%
Sub	936	$313,608,199	487	$175,311,112	449	$138,297,087	52.0%	55.9%
Prime and Sub	1959	$3,691,619,598	567	$214,607,893	1392	$3,477,011,705	28.9%	5.8%
Federal contracts only								
Prime	237	$1,196,490,062	9	$8,199,920	228	$1,188,290,142	3.8%	0.7%
Sub	673	$218,839,657	410	$151,509,865	263	$67,329,793	60.9%	69.2%
Prime and Sub	910	$1,415,329,719	419	$159,709,785	491	$1,255,619,934	46.0%	11.3%

Source: NJT prime and subcontracts

The breakdown of utilization by different population groups (see Appendix "Utilization", Table 2.1 for utilization rate for all contracts by race); *Table 5* shows the utilization rate by race for federal contracts, such as Asian Indian Americans, Asian-Pacific Americans, Black Americans, Hispanic Americans, and white-female Americans is the following: 7.7 percent of total dollars were awarded to white-female firms but only 4.7 percent of federally-funded contract awards. All racial groups were awarded a very small percentage of the total number of contracts and dollars. Black-owned firms were awarded 4.0 percent of contracts and 1.3 percent of total dollars, or 5.5 percent of contracts and 2.5 percent of total dollars if only federally-funded contracts were considered. Other racial groups, Asian Indian, Asian Pacific, and Hispanics, were awarded 1.8 percent, 0.6 percent, and 2.2 percent of total federally-funded award dollars, respectively.

The contracts and dollars awarded to DBE firms varied by federal fiscal year, from 7.8 percent in FY 08-09 to 16.1 percent in FY 12-13 of total federally-funded award dollars.

Table 5: Utilization Rate by Race—Federal Only

	Contract		Utilization Rate	
	N	Amount	N	Amount
Prime contracts				
Asian Indian	23	$22,460,411	2.2%	0.7%
Asian Pacific	15	$8,148,611	1.5%	0.2%
Black	21	$8,990,381	2.1%	0.3%
Hispanic	28	$13,443,689	2.7%	0.4%
White Female	77	$207,683,504	7.5%	6.1%
Unknown	65	$37,218,868	6.4%	1.1%
Grand Total	1023	$3,378,011,399		
Subcontracts				
Asian Indian	129	$26,437,798	13.8%	8.4%
Asian Pacific	43	$9,243,416	4.6%	2.9%
Black	58	$38,620,753	6.2%	12.3%
Hispanic	84	$39,110,801	9.0%	12.5%
White Female	247	$75,047,930	26.4%	23.9%
Unknown	76	$40,970,942	8.1%	13.1%
Grand Total	936	$313,608,199		
Both prime and subcontracts				
Asian Indian	152	$48,898,210	7.8%	1.3%
Asian Pacific	58	$17,392,026	3.0%	0.5%
Black	79	$47,611,133	4.0%	1.3%
Hispanic	112	$52,554,489	5.7%	1.4%
White Female	324	$282,731,434	16.5%	7.7%
Unknown	141	$78,189,810	7.2%	2.1%
Grand Total	1959	$3,691,619,598		

Source: NJT prime and subcontracts

As shown in the Appendix (Table 4.1 and Table 4.2 in "Utilization Analysis"), the team also compared the DBE utilization rates by three different recession stages, such as pre-recession (before December 2007), in recession (December 2007 through June 2009), and post-recession (after June 2009). During both pre- and in-recession periods, the DBE utilization rates were 13.5

percent and 13.9 percent, of total federally-funded award dollars while it was only 9.6 percent during the post-recession period. DBE utilization rates varied by (1) Superstorm Sandy contracts, (2) American Recovery and Reinvestment Act (ARRA) contracts, and (3) Tunnel contracts. None of contracts were state funded. The DBE utilization rates were 17.1 percent, 14.7 percent, and 5.4 percent of total award dollars, respectively.

UTILIZATION VS. AVAILABILITY ANALYSIS

Details of creating the relevant geographic market areas and defining the availability rates are provided in the body of this Report. Tables and step by step methodology are provided in the Appendix "Geographic Market Area" and "Availability Analysis". *Table 6* summarizes the results of computing the ratio of the utilization rates by geographic market area to the comparable availability rates. Note that the utilization rates are measured in share of dollars while the availability rates are measured as share of firms. The appropriate adjustment is made to the statistic computed for the binomial test for the difference between the utilization and availability rates.[15] When the ratio of utilization to availability exceeds one, there is no adverse disparity. When the ratio is less than one, there is an adverse disparity: the utilization rate falls short of the relative availability of DBEs in the market place.

Table 6 clearly shows that in all but one instance, whether using the DBE list method, the vendor's list method, the bidders' list method, the prequalification list method, or the Survey of Business Owners' method, the utilization rates fall short of the availability rates for DBEs.[16] Most of these differences are statistically significant at the most stringent levels. In short, this constitutes evidence of the type of disparity commonly used in first and second generation disparity studies to establish a factual predicate for a race and gender conscious program.

In the Appendix, there is further evidence supporting a conclusion of underutilization of African Americans, American Indians/Native Americans, Asian Pacific Americans, Hispanics, Subcontinental Asian Americans and white females.

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[15] Wainwright, J. and Collete Holt. *NCHRP Report 615: Guidelines for Conducting a Disparity and Availability Study for the Federal DBE Program.* Transportation Research Board of the National Academies, Washington D.C. 2009.
[16] The exception is the case of the Dun and Bradstreet calculation for VM1.

One can compute a composite measure of availability across all of the methods and geographic market areas and using the variation across areas and methods to compute a test statistic, one concludes once again that availability rates exceed utilization rates by a statistically significant margin.

Table 6: Utilization/Availability Disparity Analysis

Utilization Rate - Overall							
	Method	PJM-1	PJM-2	PJM-3	VJM-1	VJM-2	VJM-3	Domain
1	DBE List Method	6.8%	4.8%	4.8%	7.1%	5.6%	6.1%	All contracts
2	Bidders List Method	1.5%	1.1%	1.1%	1.0%	1.2%	1.3%	Primes only
3	Vendors List Method	6.8%	4.8%	4.8%	7.1%	5.6%	6.1%	All contracts
4	SBO Method	6.8%	4.8%	4.8%	7.1%	5.6%	6.1%	All contracts
5	Prequalification List Method	1.6%	1.5%	1.5%	1.1%	1.6%	1.5%	Construction Primes
6	D&B Method	6.8%	4.8%	4.8%	7.1%	5.6%	6.1%	All contracts

Availability Rate							
	Method	PJM-1	PJM-2	PJM-3	VJM-1	VJM-2	VJM-3	Domain
1b	DBE List Method	12.09%	10.65%	11.20%	12.94%	14.31%	13.58%	All contracts
2	Bidders List Method	9.40%	9.16%	9.47%	10.23%	9.06%	9.58%	Primes only
3	Vendors List Method	10.44%	10.89%	10.70%	8.94%	11.57%	11.60%	All contracts
4	SBO Method	24.68%	38.44%	32.69%	n.a	n.a	n.a	All contracts
5	Prequalification List Method	6.80%	4.68%	4.58%	3.46%	6.36%	6.75%	Construction Primes
6	D&B Method	7.09%	6.01%	5.90%	4.71%	7.18%	7.42%	All contracts

Disparity Ratio (U/A)							
	Method	PJM-1	PJM-2	PJM-3	VJM-1	VJM-2	VJM-3	Domain
1	DBE List Method	0.56	0.45	0.43	0.55	0.39	0.45	All contracts
2	Bidders List Method	0.14	0.12	0.12	0.11	0.14	0.14	Primes only
3	Vendors List Method	0.65	0.44	0.45	0.80	0.49	0.52	All contracts
4	SBO Method	0.27	0.12	0.15	n.a.	n.a.	n.a	All contracts
5	Prequalification List Method	0.24	0.31	0.34	0.31	0.24	0.23	Construction Primes
6	D&B Method	0.96	0.79	0.81	1.51	0.78	0.82	All contracts

Contract Amount Variation-adjusted Binomial Test (t-scores in cells)							
	Method	PJM-1	PJM-2	PJM-3	VJM-1	VJM-2	VJM-3	Domain
1	DBE List Method	-2.406	-2.722	-3.942	-2.559	-4.765	-4.350	All contracts

	Method							Domain
2	Bidders List Method	-3.516	-3.441	-4.882	-3.357	-4.484	-4.651	Primes only
3	Vendors List Method	-1.768	-2.806	-3.706	-0.943	-3.570	-3.426	All contracts
4	SBO Method	-6.138	-9.879	-11.546				All contracts
5	Prequalification List Method	-3.414	-2.131	-2.241	-1.765	-3.422	-3.713	Construction Primes
6	D&B Method	-0.180	-0.749	-0.903	1.666	-1.159	-1.016	All contracts

Contract Amount Variation-adjusted Binomial Test (Significance-levels in cells)

	Method	PJM-1	PJM-2	PJM-3	VJM-1	VJM-2	VJM-3	Domain
1	DBE List Method	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	All contracts
2	Bidders List Method	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	Primes only
3	Vendors List Method	<0.05*	<0.01*	<0.01*	<0.2	<0.01*	<0.01*	All contracts
4	SBO Method	<0.01*	<0.01*	<0.01*				All contracts
5	Prequalification List Method	<0.01*	<0.01*	<0.01*	<0.05*	<0.01*	<0.01*	Construction Primes
6	D&B Method	<0.2	<0.2	<0.2	<0.05*	<0.2	<0.2	All contracts

Note: significance-level * 0.05

ANECDOTAL EVIDENCE

The Roy Wilkins Center research team collected anecdotal evidence using multiple methods. Management Interventions, as sub-consultant for the Roy Wilkins Center, conducted in-depth focus groups and public meetings across the State of New Jersey with New Jersey business firms in the north, central and southern regions. The Roy Wilkins Center conducted two web surveys of business firms. One survey included all NJT vendors, bidders, prime contractors and subcontractors with email addresses. A second survey included all small businesses located in New Jersey with email addresses and NAICS codes in the top 10 areas where New Jersey Transit subcontracts. The survey questions and compiled results can be found in the Appendix "Survey Report". The main findings of the anecdotal evidence are:

1. *Concerns about the size of contracts.* Both DBEs and Non-DBEs complain about projects being bundled in sizes that are too big for small businesses to bid on. Many small businesses felt that it was not worth the time or effort to bid on these larger bundled projects.
2. *Cronyism and favoritism*. Firms in the focus groups alleged that successful prime contractors or subcontractors are able to obtain prime contracts or subcontracts because they have a previous connection with an agency or with the bidder. The survey results confirm this suspicion. The larger concern was whether the process is truly a competitive process.
3. *Notification of bidding process*. Firms in the focus groups and public meetings alleged that notifications were off topic to the kind of work that they conduct. They alleged that when they did receive notifications in their area of work, the turn-around time was unrealistic.

These anecdotes are consistent with the findings of the analysis of contract size and analysis of prequalification when contracts are larger than $4 million.

POLICY SIMULATIONS

New Jersey Transit's Disadvantaged Business Enterprises are most often utilized as subcontractors. Although there is no evidence of discrimination within subcontracting activities, there are wide disparities in prime contracting. Should New Jersey Transit wish to bolster the participation of DBE firms, it must consider options that directly and indirectly address DBE prime contracting. NJT should propose programs that target businesses along race-neutral measures which may, in effect, increase DBE participation. The objective of these policy simulations is to project the impact of preferential targeting of Emerging Small Business Enterprises (ESBEs) and subcontracting on DBE participation. The policy simulations were based on available historical data that were sometimes incomplete. Results of the policy simulations are intended to be a projection rather than a forecast based on current NJT policy.

These simulations are chosen to target two forms of disparity found previously in this report, namely, that there is no statistical evidence of discrimination in the subcontracting market, and that DBEs are underrepresented in the market of construction contracts that require prequalification (for contracts above $4 million). If NJT were to entertain supporting these smaller contracts, or reaching out to the subcontractors directly, they would likely see an increase in DBE contracts offered even though these programs do not target DBEs specifically. Because size and access appear to be barriers unique to DBEs, the policy simulations are designed to give DBE firms entry to the prime contract market and to enable them to build experience and relationships with other firms.

The four policy simulations considered are:
- ESBE Set-Asides for Construction Contracts
- Conversion of Large Subcontracts to Prime Contracts, with SBE Set Asides
- Aspirational DBE Prime Contracting Goals

- Subcontracting Goals on Fuel Prime Contracts

Policy Simulation 1: ESBE Construction Set Asides

Purpose

The Small Construction Business Utilization Program projects the impact of a New Jersey Transit program that would limit bidding on construction projects smaller than $4 million only to firms that meet the Small Business Enterprise (SBE) standard. A ceiling at the $4 million dollar level reflects RWC findings of no statistically significant difference between contract sizes for DBE firms and non-DBE firms. The Small Business Enterprise standard is a standard where firms of given NAICS classifications are considered SBE if they are either below a standardized revenue amount per year or below a standardized number of employees, with each standard based on the NAICS classification. Such a program would be race- and gender- neutral because the program only limits the ability to bid based on the size of the firm.

Methods

This policy simulation relies on information that is included in the contract history of New Jersey Transit from 2005 through 2013. This dataset included contract level data, including the size of the award, as well as information about the firm awarded the contract, such as the firm's NAICS code, their annual sales volume, number of employees, whether the firm has Disadvantaged Business Enterprise (DBE) status and the demographic information of the majority owner of the firm.

This simulation considers the world of firms that meet the SBE definition and are classified as a DBE. By limiting bidding to firms that meet the SBE definition, we project the percentage of contracts that would be utilized incidentally by firms with DBE status, even though the program

itself is not limited to DBEs. First, we perform this projection on the number of contracts awarded; then we perform this projection on the amount of contract dollars that are awarded.

Results

Currently, 16.57% of construction contracts that are smaller than $4 million are awarded to firms with DBE status. Because the revenue restrictions for DBE status are comparable to the restrictions for SBE status, all DBEs can also be considered SBEs. There are, however, firms that do not qualify for DBE status because they are large enough to not be considered a disadvantaged business. These firms are all non-DBEs. By limiting the bidding population to only firms with SBE status, the pool of eligible firms is restricted, but no race or gender conscious restrictions are used to make this restriction. Because DBEs represent a 19.08% share of the SBE market, limiting construction contracts to SBE firms would effectively increase the number of DBE contracts by 2.51%, assuming no other restrictions are placed on the program. If this program creates an opening in the market for new firms to replace the large, non-DBE firms (assuming that this expansion maintains the same proportionality of DBEs), this simulation projects 4 new DBE firms entering the market, or a 15% increase in the number of DBE firms in this market.

Table 7: Policy Simulation 1, Contract Count

	~DBE	DBE	Total
~SBE	23	0	**23**
SBE	123	29	**152**
Total	**146**	**29**	**175**

P(DBE&SBE)	16.57%
P(SBE)	86.86%
P(DBE|SBE)	19.08%
P(DBE)	16.57%
Change	2.51%
Market Size	175
DBE Market Share	16.57%
Projected Market DBE Share	33
Absolute Change	4
Relative Change	15.13%

Currently, 12.82% of all contract dollars are awarded to DBE firms. The majority of these small contracts are performed by Small Business Enterprises. If the Small Construction Business Utilization Program were enacted, and assuming no other changes in the contracting process, contract dollars that go toward DBE firms would increase by 2.37% to a total of 15.20% of all construction spending on projects below $4 million. If the demand for these construction projects remained the same (at $149,451,133), this policy simulation results in $22,711,328 in contracts for DBEs, an 18.52% increase in contract dollars.

Table 8. Policy Simulation 1, Contract Dollars Awarded

	~DBE	DBE	Total
~SBE	23,353,087.63	-	**23,353,087.63**
SBE	106,935,566.90	19,162,478.11	**126,098,045.01**
Total	**130,288,654.53**	**19,162,478.11**	**149,451,132.64**

P(DBE&SBE)	12.82%
P(SBE)	84.37%
P(DBE|SBE)	15.20%
Market Share Change	2.37%
P(DBE)	12.82%
DBE Sector Change	2.37%
Market Size	149,451,133
DBE Market Share	12.82%
New Market DBE Share	22,711,328
Relative Change	18.52%

Policy Simulation 2: Set Aside for Subcontractors to become Prime Contractors for Contracts over $4 Million under ESBE

Purpose

Because the subcontracting market is a more proportional representation of the DBE market, the second policy simulation suggests that large subcontracting firms should receive a set aside to treat them as if they were prime contractors. Because there is evidence of discrimination in the prime contracting market, this policy would circumvent the structural problem of relying predominantly on non-DBE prime contractors. This program targets contracts over $4 million because this size of contract is the threshold above which there is evidence of discrimination. By targeting participation in contracts over $4 million, this policy seeks to close the gap in the large contract market and allows DBEs to overcome the prequalification barrier to participation in this market currently.

Methods

This simulation filters the participation of New Jersey contracts from 2005 through 2013 to contracts above $4 million and to subcontractors. This analysis limits the subcontracting market to firms that are large enough to receive $4 million subcontracting opportunities. This ensures that firms that receive this set aside are indeed large enough to handle the scale of the contract.

Results

Currently, DBEs represent 41.18% of the large subcontracting market. Because DBEs are a relatively larger share of the SBE market, favoring SBEs in the contract bidding process would increase the DBE market to 46.67%. This would result in approximately 0.93 more DBE firms receiving contracts. Because these contracts could be treated as prime contractors, they would allow for more firms to permeate the large contract market and allow a more proportional share of contracts to be owned by DBEs. If new firms entered the market to ensure the same number of contracts, one of those new firms would be a DBE.

Table 9: Policy Simulation 2, Contract Count

	~DBE	DBE	Total
~SBE	2	0	2
SBE	8	7	15
Total	**10**	**7**	**17**

P(DBE&SBE)	41.18%
P(SBE)	88.24%
P(DBE|SBE)	46.67%
Change in %	5.49%
P(DBE)	41.18%
Change in DBE	5.49%
Market Size	17
DBE Market Share	41.18%
New Market DBE Share	7.93
Relative Change	13.33%

In terms of dollar allocation, DBEs currently represent 40.91% of the contract dollars given for projects over $4 million to subcontractors. This is smaller than the relative share of DBE contracts (41.18%), but not significantly different, supporting the position that the subcontracting market is not likely to discriminate. By encouraging SBE participation with this

policy, DBE firms would represent a 46.21% share of the contract dollars awarded for these projects. If contract demand were to remain at $113,407,849, over $6 million would newly be awarded to DBE firms.

Table 10: Policy Simulation 2, Contract Dollars Awarded

	~DBE	DBE	Total
~SBE	12,998,798		**12,998,798**
SBE	54,008,702	46,400,349.00	**100,409,051**
Total	**67,007,500**	**46,400,349.00**	**113,407,849**

P(DBE&SBE)	40.91%
P(SBE)	88.54%
P(DBE|SBE)	46.21%
Change	5.30%
P(DBE)	40.91%
Change	5.30%
Market Size	113,407,849
DBE Market Share	40.91%
New Market DBE Share	52,407,265
Relative Change	12.95%

Policy Simulation 3: Aspirational DBE Goals for Prime Contracts

Purpose

In this policy simulation, we project aspirational goals for DBE subcontracts that receive contracts over $4 million. These goals are considered aspirational because they represent the participation of the 11 sectors of the NJT contract market (defined by NAICS codes) that represent the largest share of subcontracts. The purpose of this simulation is to suppose that the sectors of the market with the highest levels of subcontracting are also going to be the sectors of the market where there is the least amount of DBE disparity. If these sectors are allowed to represent the best case scenario for expanding DBE participation, then they provide a model for what the contracting market would look like with respect to DBE participation. Because prequalification to bid on

contracts over $4 million has been a significant barrier to DBE participation in the prime contracting market, this simulation supposes that subcontractors that are large enough to handle $4 million subcontracts are treated as primes and given a pass to bid along current primes in the prime contracting market. This program is, again, proposed as a projection of a best case scenario for DBE participation.

Methods

We use the contract history database to filter subcontractors that have previously subcontracted for $4 million or more from 2005 through 2013. We also limit it to the 11 most utilized business types (as defined by NAICS codes) in the subcontractor market. These parameters provide a baseline for DBE participation in the prime contracting market. We then move the subcontractors that are large enough to receive $4 million subcontracts into the prime contracting market to create a best case scenario representation of DBE utilization. Finally, we project this aspirational representation into the rest of the business types in the market by relaxing the NAICS code restriction.

It should be noted, that although these market contract totals were formulated by using the 11 most prevalent business sectors in the subcontracting market (via NAICS codes), only 8 sectors are displayed in the tables below. The remaining 3 NAICS sectors did not have any contracts that were above $4 million. Even though these sectors might represent a relatively large share of the subcontracting market, they are of little use to this policy simulation.. The purpose of these simulations is to 1) determine a bound of effect for removing the disparity in the prequalification process for bidding on prime contracts, and 2) to reflect in the market for prime contracts the relative DBE parity that exists in the subcontracting market.

In the fractional simulation, we assume that only a percentage of the subcontracting firms

make the transition to prime contractors, in order to provide a more realistic representation of the impact of such a policy

Results

In the following chart, 'Primes + Subs' represents the prime contract market of subcontractors that were large enough to have contracts above $4 million, but were still subcontracting. The 'Primes + Subs' section is intended to represent the aspirational primes market where firms were easily able to attain prequalification to bid on prime contracts above $4 million and thereby circumvent subcontracting altogether. We find that if large subcontracters were allowed to simply enter the prime contracting market, we would see 4.22% of all prime contracting dollars go towards DBE firms. This assumes that these business sectors are representative of the market as a whole, and for our purposes, provides a best case scenario for policy implementation. A complete breakdown of spending level by NAICS code is included on Appendix "Policy Simulations").

Notice that there are currently no prime contracts that are being offered to DBE firms over the size of $4 million. These data reinforce our findings that disparity in contracting is more prominent in the prime contracting market, especially for large contracts.

When we expand the scope of our projection to the entire contracting market, we include all business sectors to include all NAICS codes. Because there were no prime contracts that were over $4 million that were offered to firms with DBE status, all changes in the prime contract market represent 100% of the DBE prime market for large contracts.

From our restricted sample of the top NAICS codes, we projected that 4.22% of prime contract dollars would go to DBEs. In the 100% simulation, we simply apply this 4.22% market share to the size of the large contract market.

In the scaled simulations, we assume that only a percentage of the projected subcontractors transition to the prime market (for example, the 10% simulation implies that DBEs will only represent 10% of 4.22% of the prime large contract market, or 0.422%).

Table 11: Policy Simulation 3, Primes

	~DBE	DBE	Total
237310	442,351,820	-	442,351,820
237990	122,937,968	-	122,937,968
238120	-	-	-
238210	-	-	-
517210	-	-	-
541330	249,033,378	-	249,033,378
236210	153,792,764	-	153,792,764
236220	48,377,971	-	48,377,971
Grand Total	**1,016,493,902**	**-**	**1,016,493,902**

Table 12: Policy Simulation 3, Subcontractors

	~DBE	DBE	Total
237310	-	5,955,349	5,955,349
237990	-	6,020,000	6,020,000
238120	-	9,260,000	9,260,000
238210	5,395,000	25,165,000	30,560,000
517210	21,883,101	-	21,883,101
541330	8,998,798	-	8,998,798
236210	-	-	-
236220	-	-	-
Grand Total	**36,276,899**	**46,400,349**	**82,677,248**

Table 13: Policy Simulation 3, Primes + Subcontractors

	~DBE	DBE	Total
237310	442,351,820	5,955,349	448,307,169
237990	122,937,968	6,020,000	128,957,968
238120	-	9,260,000	9,260,000
238210	5,395,000	25,165,000	30,560,000
517210	21,883,101	-	21,883,101
541330	258,032,176	-	258,032,176
236210	153,792,764	-	153,792,764
236220	48,377,971	-	48,377,971
Grand Total	**1,052,770,801**	**46,400,349**	**1,099,171,150**

Table 14: Policy Simulation 3, DBE Prime Market Representation

	P(DBE) Before	P(DBE) After
237310	0%	1%
237990	0%	5%
238120	0%	100%
238210	0%	82%
517210	0%	0%
541330	0%	0%
236210	0%	0%
236220	0%	0%
Grand Total	**0%**	**4%**

Table 15: Policy Simulation 3, Entire Contracting Market

Current	
Large Contract Market Share	2,925,228,433
P(DBE)	1.59%
P(DBE|Primes)	0%
P(DBE|Subs)	40.91%
Prime DBE Market Value	
Sub DBE Market Value	46,400,349
Total DBE Market Values	46,400,349
Prime Market Simulation	
(100% Simulated)	
P(DBE|Primes)	4.22%
Prime DBE Market Value	123,485,428
Change in DBE Prime Market Value	123,485,428
(10% Simulated)	
P(DBE|Primes)	0.42%
Prime DBE Market Value	12,348,543
Change in DBE Prime Market Value	12,348,543
(15% Simulated)	
P(DBE|Primes)	0.63%
Prime DBE Market Value	18,522,814
Change in DBE Prime Market Value	18,522,814
(20% Simulated)	
P(DBE|Primes)	0.84%
Prime DBE Market Value	24,697,086
Change in DBE Prime Market Value	24,697,086

Policy Simulation 4: DBE Goals on Fuel Related Purchases

Purpose

The energy sector in the tristate area is overwhelmingly run by non-DBE firms. This market includes petroleum and coal manufacturing, petroleum and petroleum product wholesalers, and natural gas distributors. Because the New Jersey Transit system heavily relies on each stage of the energy value chain, this simulation projects the impact of a small business enterprise program for the energy sector on DBE utilization.

Methods

Using the Dun and Bradstreet database, we searched for firms that currently fit the following descriptions.

NAICS Codes	Geographic Areas
221210	NJ
424720	NY
324110	PA

We then counted the number of firms that fit these descriptions and created a size chart conditional upon the firm's status as a minority- or woman-owned firm, as well as their SBE eligibility as defined by if their yearly revenues fall below $36.5 million.

Results

Currently, New Jersey Transit does not offer any contracts to DBE firms that are in the energy sector. The firms in the left column represent the available firms and is a proxy for the market for an energy related program. If NJT were to consider a program that preferred Small

Business Enterprises, the relative share of DBE firms would increase, as DBEs are more equitably distributed in the small business market.

From 2005 through 2013, $866,996,230 has been awarded for petroleum and related industries. If the 6.05 percent of DBE firms in this industry had received its proportional share, then $52,453,272.of the total spending would have been awarded to such firms. $1,473,894 would have gone to small businesses.

Table 16: Policy Simulation 4, Fuel Sector Firms

	~Minority/Women	Minority/Women	Total
Large Firm	2,144	136	**2,280**
Small Firm	30	4	**34**
Total	**2,174**	**140**	**2,314**

P(Min/Wo&BSE)	0.17%
P(SBE)	1.47%
P(Min/Wo|SBE)	11.76%
Market Share Change	11.59%
P(Min/Wo)	6.05%
Min/Wo Sector Size Change	5.71%
Market Size	2,314
Min/Wo Market Share	6.05%
New Market Min/Wo Share	272
Absolute Change	132
Relative Change	94.45%

Policy Comparisons

The purpose of this policy simulation is to project different outcomes for DBE contract utilization, provided that there are proactive measures taken to alleviate the disparity in DBE contracting in the large prime contract market. The largest payoff as reflected in *Table 17*, according to the policy simulations, would be the imposition of aspirational goals for DBE prime

contractors. The next largest impact would be through an ESBE prime contract set asides in the areas where most of the subcontracting is now conducted. Only a small gain comes from imposition of the fuel purchases goals.

Table 17: Policy Scenario Summary

Policy Simulation Number	1	2	3	4
Policy Name	ESBE Construction Set Aside	Set Aside Subcontractors to Become Prime	Aspirational DBE Goals for Prime Contracts	DBE Goals on Fuel Related Purchases
Goal of Simulation	Boost DBE participation in the prime contracting market from within	Promote large scale subcontractors to overcome the prequalification bias	Project best case for subcontractors breaking through the prime contracting market	Invest in the development in DBE contracts in a field where there currently is none
Projected returns to DBE Market	$3,548,850	$6,006,916	$12,348,543 at 10% $18,522,814 at 15% $24,697,086 at 20%	$1,473,894

RECOMMENDATIONS

Organizational

Increase OBD staffing consistent with the workflow. It is obvious from staff anecdotes and the organizational chart that the Office of Business Development is understaffed to keep up with the requirements of the federally mandated DBE program and policies and procedures of New Jersey Transit.

Increase DBE participation by race-neutral means, such as:

- Increase staffing for oversight of procurement actions that result in insufficient documentation of subcontracting activities of prime contractors;
- Review SBE program for effectiveness in a reasonable amount of time;
- Increase outreach to DBEs and SBEs when OBD staffing returns to a manageable level;
- Allow sufficient time for OBD to review the full landscape of New Jersey Transit contracting including sole source, Procurement by Exception (PBE) and contracts without federal funding;
- Consider unbundling contracts to allow small business engagement.

DBE-Program Specific

There is a need for broad changes in the operation of the DBE program to address the following specific concerns:

- Break out large contracts that inhibit the ability of small business to bid on them. There are qualified small businesses ready, willing and able to undertake smaller portions of contracts either as subcontractors or as prime contractors
- Affirmatively use certain large contracts (such as fuel distribution, that represents 20 percent of New Jersey Transit expenditures) to give Disadvantaged Business Enterprises more opportunities to compete.