June 20, 2006

Race, Sex, and Business Enterprise: Evidence from the State of Illinois and the Chicago Metropolitan Area

Prepared for the Illinois State Toll Highway Authority

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NERA Economic Consulting is an international firm of economists who understand how markets work. We provide economic analysis and advice to corporations, governments, law firms, regulatory agencies, trade associations, and international agencies. Our global team of more than 500 professionals operates in 19 offices across North and South America, Europe, Asia, and Australia. NERA provides practical economic advice related to highly complex business and legal issues arising from competition, regulation, public policy, strategy, finance, and litigation. Our more than 40 years of experience creating strategies, studies, reports, expert testimony, and policy recommendations reflects our specialization in industrial and financial economics. Because of our commitment to deliver unbiased findings, we are widely recognized for our independence. Our clients come to us expecting integrity; they understand this sometimes calls for their willingness to listen to unexpected or even unwelcome news.

NERA's employment and labor experts advise clients on a wide range of issues both inside and outside the courtroom. We have provided expert testimony on statistical issues both at the class certification phase (on issues of commonality and typicality) and at the liability phase (for class or pattern-and-practice cases). Our experts have extensive experience examining issues of statistical liability in discrimination and other wrongful termination claims. We also provide detailed statistical analyses of workforce composition to identify potential disparities in hiring, layoffs, promotions, pay, and performance assessments and have conducted studies on labor union issues and on affirmative action programs for historically disadvantaged business enterprises.

NERA Vice President Dr. Jon Wainwright is a nationally recognized expert on business discrimination and affirmative action and has testified in state and federal court on these issues. He is the author of one book, a National Bureau of Economic Research Working Paper, and numerous research studies on the subject. At NERA, Dr. Wainwright directs and conducts economic and statistical studies of discrimination for attorneys, corporations, governments, and non-profit organizations. He also directs and conducts research and provides clients with advice on adverse impact and economic damage matters arising from their hiring, performance assessment, compensation, promotion, and termination activities.

Acknowledgments

NERA is grateful to Ms. Rosalinda "Rusty" Castillo, Procurement/Construction Services Manager for the Illinois State Toll Highway Authority. This Study would not have been possible without her active encouragement, assistance, and support.

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I. Introduction and Executive Summary

A. Introduction

Like many state and local governments, the Illinois State Toll Highway Authority (ISTHA) has a commitment to including Minority-Owned Business Enterprises (MBE), Women-Owned Business Enterprises (WBE), and Disadvantaged Business Enterprises[1] (DBE) in its contracting activities. The courts have made it clear, however, that in order to implement a race- and gender-based program that is effective, enforceable and legally defensible, ISTHA must meet the judicial test of constitutional "strict scrutiny" to determine the legality of such initiatives. Strict scrutiny requires current "strong evidence" of the persistence of discrimination, and "narrowly tailored" measures to remedy that discrimination.

To assist in this assessment, ISTHA commissioned NERA Economic Consulting to examine the past and current status of MBEs, WBEs, and DBEs (collectively, "M/W/DBEs" or "M/WBEs") in ISTHA's geographic and product markets for construction, and construction-related professional service. The results of NERA's Study, summarized below, provide an important part of the record necessary to implement new and revised M/W/DBE policies that comply with the requirements of the courts and to assessing the extent to which previous and current M/W/DBE policies have assisted M/W/DBEs in participating in ISTHA's contracting and procurement activity.

We found statistical evidence of business disparities affecting M/W/DBEs in all major procurement categories and data sources we examined. Our examination included an analysis of M/W/DBE participation on ISTHA construction and professional services contracts. We also analyzed the statistical record for evidence of disparate impact in the private sector of the relevant markets.

The Study is presented in five chapters. Chapter I contains this Executive Summary and overview of the Study. The remaining Chapters address the following questions:

Chapter II: What is ISTHA's relevant geographic market and how is it defined? What are the relevant product markets and how are they defined?

Chapter III: What percentage of all businesses in ISTHA's relevant markets are owned by minorities and/or women? How are these availability estimates constructed?

Chapter IV: During the last six years, to what extent have M/W/DBEs been utilized by ISTHA and its prime contractors and how does this utilization compare to the availability of M/W/DBEs in the relevant marketplace?

Chapter V: Do minority and/or female wage and salary earners earn less than similarly situated White males? Do minority and/or female business

[1] As defined in 49 CFR §26.5.

owners earn less from their businesses than similarly situated White males? Are minorities and/or women less likely to be self-employed than similarly situated White males? How do the Chicago-area findings differ from the national findings on these questions? How have these findings changed over time?

In assessing these questions, we undertake to present a series of quantitative and qualitative analyses that compare minority and/or female outcomes to non-minority male outcomes in all of these business-related areas. The remainder of this Executive Summary provides a brief overview of each chapter and its key findings and conclusions, where applicable.

B. Defining the Relevant Markets

Chapter II describes how the relevant geographic and product markets were defined for this Study. ISTHA's records of public contracts and associated subcontracts were analyzed to determine the geographic radius around ISTHA that accounts for at least 75 percent of contract and subcontract spending over the last six years in the relevant procurement categories. These records were also analyzed to determine which detailed industry categories collectively account for at least 75 percent of contract and subcontract spending over the last six years in the relevant procurement categories. The relevant geographic and product markets were then used to focus and frame the quantitative analyses in the Study.

C. Statistical Evidence of Discrimination

The courts have held that statistical evidence of race- or gender-based disparities in business enterprise activity is a requirement for any state or local entity to adopt race-conscious or gender-conscious contracting requirements. Chapter III estimates contemporary availability levels in Illinois for M/W/DBEs in various industry groups. Chapter IV examines whether there is statistical evidence of disparity in the contracting and subcontracting activities of the ISTHA itself. Chapter V documents in considerable detail the extent of disparity facing M/W/DBEs in the private sector, where contracting and procurement activities are rarely subject to M/W/DBE requirements.

1. M/W/DBE Availability in ISTHA's Market Place

Chapter III estimates the percentage of firms in ISTHA's relevant marketplace that are owned by minorities and/or women. For each industry category, M/W/DBE availability is defined as the number of M/W/DBEs divided by the total number of businesses in ISTHA's contracting market area. Determining the total number of businesses in the relevant markets is more straightforward than determining the number of minority- or women-owned businesses in those markets. The latter task has three main parts: (1) identify all listed M/W/DBEs in the relevant market; (2) verify the ownership status of listed M/W/DBEs; and (3) estimate the number of unlisted M/W/DBEs in the relevant market.

We used Dun & Bradstreet's *MarketPlace* database to determine the total number of businesses operating in the relevant geographic and product markets. *MarketPlace* is a comprehensive

database of U. S. businesses containing over 13 million continuously updated records. We used the *MarketPlace* database to identify the total number of businesses in each four-digit Standard Industrial Classification (SIC) code to which we had anticipated assigning a product market weight. Industry weights reflect ISTHA prime contracts and associated subcontracts awarded and substantially completed during FY2000-FY2005.

While extensive, *MarketPlace* does not adequately identify all businesses owned by minorities or women. Although many such businesses *are* correctly identified in *MarketPlace*, experience has demonstrated that many are missed. For this reason, several additional steps were required to identify the appropriate percentage of M/W/DBEs in the relevant market. First, NERA completed an intensive regional search for information on minority-owned and woman-owned businesses in Illinois. Beyond the information already in *MarketPlace*, NERA collected listings of M/W/DBEs from the ISTHA itself as well as from numerous other public and private entities in and around Illinois. The M/W/DBE businesses identified in this manner are referred to as "listed" M/W/DBEs.

If the listed M/W/DBEs we identified are *all* in fact M/W/DBEs and are the *only* M/W/DBEs among all the businesses identified, then an estimate of "listed" M/W/DBE availability is simply the number of listed M/W/DBEs divided by the total number of businesses in the relevant market. However, neither of these two conditions holds true in practice and therefore this is not an appropriate method for measuring M/W/DBE availability. To deal with this "misclassification/non-classification bias," we conducted a supplementary telephone survey on a stratified random sample of firms in our baseline business population that asked them directly about the race and sex of the firm's primary owner(s). We used the results of these surveys to statistically adjust our estimates of M/W/DBE availability for misclassification by race and sex. The resulting estimates of M/W/DBE availability are presented at the end of Chapter III and are used in Chapter IV for disparity testing compared to ISTHA's own contracting and subcontracting activity over the last years. These availability figures are also averaged by their industry weights to provide guidance on aggregate (*i.e.* not contract-level) goal-setting.

Table A provides a top-level summary of the M/W/DBE availability estimates derived in this Study.

Table A. Aggregate Business Availability by Major Procurement Category (Percentages)

Procurement Category	Black	Hispanic	Asian	Native American	White Female	M/W/DBE	Non-M/W/DBE
CONSTRUCTION	*2.07*	*2.32*	*1.41*	*0.41*	*13.27*	*19.56*	*80.44*
PROFESSIONAL SERVICES	*1.70*	*1.83*	*5.78*	*0.11*	*9.33*	*19.36*	*80.64*

Source: See Tables 3.15 and 3.16.

2. M/W/DBE Public Sector Utilization in ISTHA's Contracting and Procurement Markets, 2000-2005

Chapter IV provides a quantitative overview of the extent to which ISTHA and its prime contractors and consultants have utilized M/W/DBEs between FY2000 and FY2005. To determine whether M/W/DBEs have been underutilized in the public sector we should ideally examine public expenditures that were *not* subject to any affirmative action policies. However, the ISTHA has had a voluntary affirmative action program in place for several years.

Given the presence of M/W/DBE policies, the ISTHA's own data may not show evidence of underutilization, even if such underutilization exists in the private sector. Instead, ISTHA's data, in our own view, is most useful for examining the effectiveness of its M/W/DBE policies between FY2000 and FY2005. On the other hand, of course, if actual ISTHA M/W/DBE utilization still turns out to be significantly less than M/W/DBE availability in given procurement categories, then ISTHA's data will still provide evidence of underutilization.

3. Statistical Disparities in Minority and Female Business Formation and Business Owner Earnings

Chapter V demonstrates that current M/W/DBE availability in ISTHA's geographic marketplace, as measured in Chapter III, is substantially and statistically significantly lower than those that would be expected to be observed if commercial markets operated in a race- and sex-neutral manner. This suggests that minorities and women are substantially and significantly less likely to own their own businesses as the result of discrimination than would be expected based upon their observable characteristics, including age, education, geographic location, and industry. We find that these groups also suffer substantial and significant earnings disadvantages relative to comparable White males, whether they work as employees or entrepreneurs.

Data from the Current Population Survey (CPS) and the Five Percent Public Use Microdata Samples (PUMS) from the 2000 decennial census were used to examine the incidence of minority and female business ownership (self-employment) and the earnings of minority and female business owners across the U.S. and within Illinois. The 2000 PUMS contains observations representing five percent of all U.S. housing units and the persons in them (approximately 14 million records), and provides the full range of population and housing information collected in the most recent census. Business ownership status is identified through the "class of worker" variable, which allows us to construct a detailed cross-sectional sample of individual business owners and their associated earnings. The CPS is the source of official government statistics on employment and unemployment and has been conducted monthly for over 40 years by the U.S. Census Bureau and the U.S. Department of Labor. Currently, about 56,500 households are interviewed monthly, scientifically selected on the basis of area of residence to represent the Nation as a whole, individual States, and large metropolitan areas.

Using the PUMS and the CPS we found:

For the U.S. as a whole and the economy as a whole, average annual wages for Blacks (both sexes) in 2000 were 30 percent lower than for White males who were otherwise similar in terms

of geographic location, industry, age, and education. These differences are large and statistically significant. Large, negative, and statistically significant wage disparities are also observed for Hispanics, Asians, Native Americans, and White women. These disparities are consistent with the presence of discrimination. Observed disparities for these groups range from a low of -22 percent for Hispanics to a high of -36 percent for White women. Similar results are observed when the analysis is restricted to construction and construction-related professional services (A&E). That is, large, negative, and statistically significant wage disparities are observed for all minority groups and for white women. All wage and salary disparity analyses were then repeated using interaction terms designed to specifically test whether observed disparities in ISTHA were different enough from elsewhere in the country or the economy to alter any of the basic conclusions regarding wage and salary disparity. They were not.

This analysis demonstrates that prime age minorities and women earn substantially and significantly less from their labors than their White male counterparts. Such disparities are symptoms of discrimination in the labor force that, in addition to its direct effect on workers, reduces the future availability of M/W/DBEs by stifling opportunities for minorities and women to progress through precisely those internal labor markets and occupational hierarchies that are most likely to lead to entrepreneurial opportunities. These disparities reflect more than mere "societal discrimination" because they demonstrate the nexus between discrimination in the job market and reduced entrepreneurial opportunities for minorities and women. Other things equal, these reduced entrepreneurial opportunities in turn lead to lower M/W/DBE availability levels than would be observed in a race- and sex-neutral marketplace.

Next, we analyzed race and sex disparities in business owner earnings. We observed large, negative, and statistically significant business owner earnings disparities for Blacks, Hispanics, Asians, Native Americans, and White women consistent with the presence of discrimination in these markets. Large, negative, and statistically significant business owner earnings disparities are observed in the PUMS data for the construction and A&E sector as well for all groups but Asians. The CPS construction and A&E data show large, negative and statistically significant business owner earnings disparities for Blacks and White females. Coefficients for Asians, Hispanics, and Native Americans in the CPS data were typically large and negative but not always statistically significant due to smaller sample sizes. As with the wage and salary disparity analysis, we enhanced our basic statistical model to test whether minority and female business owners in the Chicago metropolitan area differ significantly enough from business owners elsewhere in the U.S. economy to alter any of our basic conclusions regarding disparity. They did not.

As was the case for wage and salary earners, prime age minority and female entrepreneurs earn substantially and significantly less from their efforts than similarly situated White male entrepreneurs. These disparities are a symptom of discrimination in commercial markets that directly and adversely affects M/W/DBEs. Other things equal, if minorities and women cannot earn remuneration from their entrepreneurial efforts comparable to that of White males, growth rates will slow, business failure rates will increase, and as demonstrated in Chapter V, business formation rates will decrease. Combined, these phenomena result in lower M/W/DBE availability levels than would otherwise be observed in a race- and sex-neutral marketplace.

Next, we analyzed race and sex disparities in business formation. As with earnings, in almost every case we observed large, negative, and statistically significant disparities consistent with the presence of discrimination in these markets. For the economy as a whole, business formation rates for Blacks, Hispanics, Asians, Native Americans, and White women were 13-42 percent lower than the corresponding White male business formation rate. For the construction and A&E sector, business formation rates for Hispanics, Asians, Native Americans, and White women were 24-49 percent lower than the corresponding White male business formation rate. For Blacks, estimates ranged from 12-24 percent higher than the corresponding White male business formation rate.[2]

As a further check on the statistical findings in this Chapter, we present evidence from the Census Bureau's *Survey of Business Owners and Self-Employed Persons* (SBO), formerly known as the *Surveys of Minority- and Women-Owned Business Enterprises* (SMWOBE). The SBO collects and disseminates data on the number, sales, employment, and payrolls of businesses owned by women and members of racial and ethnic minority groups and has been conducted every five years since 1972. Using the SBO data we calculate the percentage of firms in Illinois in 2002 that were owned by minorities or by women and compare this to their corresponding share of sales and receipts in that year. We divide the latter by the former and multiply the product by 100 to create a disparity ratio.

Statistically significant disparity ratios of less than 100 indicate disparate impact consistent with business discrimination against minority- and female-owned firms. In Illinois, disparity ratios are quite large—less than 80 percent in all cases examined. The most severe disparities are observed among Black-owned firms.

The 2002 SBO results also reveal that minority-owned and female-owned firms use significantly more employees per dollar of sales and have significantly higher payrolls per dollar of sales than do non-minority and male-owned firms. One explanation for this observation is that these firms respond to marketplace discrimination by, among other things, employing additional inputs in the production process in the form of more labor (per unit of sales) and higher labor compensation (per unit of sales). This economically rational response to discrimination on the part of minority- and female-owned firms can, ironically, reinforce their competitive disadvantage in the public and private marketplace where lowest cost is often the determining factor in the award of contracting and procurement opportunities.[3] These additional disadvantages can then translate into even lower business owner earnings and business formation rates.

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[2] Business owner earnings for Blacks, however, remain, far lower than corresponding earnings for White male firms. See Tables 5.7–5.12.

[3] For example, the original disparity study for the City of Atlanta and Fulton County, Georgia (Brimmer and Marshall, 1990) recounted the story that one of the earliest Black-owned construction contractor/developer's in that city had to set up a White-owned real estate subsidiary to purchase land for development on his behalf because of racially restrictive deed covenants and because whites would not sell land to blacks. More contemporary examples were recounted of MBE firms having to take on White partners in order to gain access to their network of personal contact to secure private sector business, and of MBEs that had to send all-White staff out to complete sales to White customers. All of these examples could cause a M/W/DBE firm to use more labor and pay more for labor than non-MBE firms that did not face marketplace discrimination.

In summary, for the private sector statistical analyses there were 18 potential outcomes for Blacks, Hispanics, and White Females, and 12 potential outcomes for Asians and Native Americans. Measures tested were wage and salary worker earnings, business owner earnings, and business formation both in the economy as a whole and in the construction/A&E sector specifically.

For Blacks: 16 out of 18 potential outcomes were adverse and statistically significant and 2 of 18 potential outcomes were non-adverse but not significant.

For Hispanics: 17 out of 18 potential outcomes were adverse and statistically significant and 1 of 18 potential outcomes was adverse but not significant.

For White Women: 17 out of 18 potential outcomes were adverse and statistically significant and 1 of 18 potential outcomes was non-adverse but not significant.

For Asians: 9 out of 12 potential outcomes were adverse and statistically significant, 2 of 12 potential outcomes were adverse but not significant, and 1 of 18 potential outcomes was non-adverse but not significant.

For Native Americans: 10 out of 12 potential outcomes were adverse and statistically significant, 1 of 12 potential outcomes was adverse but not significant, and 1 of 12 outcomes was non-adverse but not significant.

Table B provides a summary of these key results from the regression analyses presented in Chapter V.

Table B. Summary of Private Sector Disparity Analysis Outcomes

	ALL INDUSTRIES		
	2000 PUMS	1979-91 CPS	1992-2002 CPS
	WAGE AND SALARY DISPARITIES		
BLACK	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
ASIAN	**NEG/SIG**	N/A	**NEG/SIG**
NATIVE	**NEG/SIG**	N/A	**NEG/SIG**
OTHER	**NEG/SIG**	**NEG/SIG**	N/A
WHITE FEMALE	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
	2000 PUMS	1979-1991 CPS	1992-2002 CPS
	BUSINESS OWNER EARNINGS DISPARITIES		
BLACK	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
ASIAN	POS	N/A	**NEG/SIG**
NATIVE	**NEG/SIG**	N/A	**NEG/SIG**
OTHER	**NEG/SIG**	**NEG/SIG**	N/A
WHITE FEMALE	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
	2000 PUMS	1979-1991 CPS	1992-2002 CPS
	BUSINESS FORMATION DISPARITIES		
BLACK	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**

HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
ASIAN	**NEG/SIG**	N/A	**NEG/SIG**
NATIVE	**NEG/SIG**	N/A	**NEG/SIG**
OTHER	**NEG/SIG**	POS	N/A
WHITE FEMALE	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**

Table B. Summary of Private Sector Disparity Analysis Outcomes, Cont'd

	CONSTRUCTION AND AE INDUSTRIES		
	2000 PUMS	1979-91 CPS	1992-2002 CPS
	WAGE AND SALARY DISPARITIES		
BLACK	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
ASIAN	**NEG/SIG**	N/A	**NEG/SIG**
NATIVE	POS	N/A	**NEG/SIG**
OTHER	**NEG/SIG**	**NEG/SIG**	N/A
WHITE FEMALE	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
	2000 PUMS	1979-1991 CPS	1992-2002 CPS
	BUSINESS OWNER EARNINGS DISPARITIES		
BLACK	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG**
ASIAN	**NEG**	N/A	**NEG**
NATIVE	**NEG/SIG**	N/A	**NEG**
OTHER	**NEG/SIG**	**NEG**	N/A
WHITE FEMALE	**NEG/SIG**	POS	**NEG/SIG**
	2000 PUMS	1979-1991 CPS	1992-2002 CPS
	BUSINESS FORMATION DISPARITIES		
BLACK	POS	POS	**NEG/SIG**
HISPANIC	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**
ASIAN	**NEG/SIG**	N/A	**NEG/SIG**
NATIVE	**NEG/SIG**	N/A	**NEG/SIG**
OTHER	**NEG/SIG**	**NEG/SIG**	N/A
WHITE FEMALE	**NEG/SIG**	**NEG/SIG**	**NEG/SIG**

Source: Tables 5.1–5.12, Tables 5.15–5.20.

Notes: "N/A" means category is not applicable; "SIG" means regression coefficient(s) is statistically significant ($p<0.05$, two-tailed test), *i.e.* highly unlikely to be due to random chance alone; "NEG" means regressions coefficient(s) measuring race/sex effect is negative—indicating presence of an adverse disparity; "POS" means regression coefficient(s) measuring race/sex effect is positive.