



# **2018 Disparity Study**

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**Pennsylvania Department of  
Transportation**

**FINAL REPORT**

**Final Report**

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# 2018 Disparity Study

**Prepared for**

Pennsylvania Department of Transportation

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# CHAPTER ES.

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## Executive Summary

# CHAPTER 1.

## Introduction

The Pennsylvania Department of Transportation (PennDOT) oversees programs and policies that affect highways, public transportation, airports, railroads, ports, and waterways throughout Pennsylvania. As a United States Department of Transportation (USDOT) funding recipient, PennDOT implements the Federal Disadvantaged Business Enterprise (DBE) Program. The Federal DBE Program is designed to ensure nondiscrimination in the award and administration of DOT-funded contracts, remove barriers, level the playing field, and assist with firm development for socially and economically disadvantaged businesses.<sup>1</sup> In addition, PennDOT implements the state’s transportation-focused Diverse Business (DB) Program. The DB program encourages prime contractors to make a good faith effort to include disadvantaged businesses; minority-owned businesses; woman-owned businesses; and service-disabled veteran- and veteran-owned businesses in state-funded transportation contracts.

PennDOT retained BBC Research & Consulting (BBC) to conduct a *disparity study* to help evaluate the effectiveness of its implementation of both the Federal DBE Program and state DB Program in an effort to determine whether discrimination or its effects exist in PennDOT contracting. This disparity study focuses on horizontal construction and construction-related engineering and professional services contracts. As a result, the study primarily analyzes PennDOT’s implementation of the Federal DBE program on FHWA-funded contracts.

As part of the disparity study, BBC examined whether there are any disparities between:

- The percentage of contract dollars—including subcontract dollars—that PennDOT spent with minority- and woman-owned businesses during the study period (i.e., *utilization*); and
- The percentage of contract dollars that those businesses might be expected to receive based on their availability to perform specific types and sizes of PennDOT’s prime contracts and subcontracts (i.e., *availability*).<sup>2</sup>

BBC also assessed other quantitative and qualitative information related to:

- The legal framework surrounding PennDOT’s implementation of the Federal DBE Program and the state’s transportation-focused DB Program;
- Local marketplace conditions for disadvantaged and diverse businesses; and
- Contracting practices and business assistance programs that PennDOT currently has in place.

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<sup>1</sup> 49 C.F.R. 26

<sup>2</sup> For disparity study analyses, BBC measured the availability and utilization of all minority- and woman-owned businesses regardless of size and revenue.

There are several reasons the disparity study will be useful to PennDOT:

- The disparity study provides an independent review of the participation minority- and woman-owned businesses in PennDOT contracting, which will be valuable to PennDOT and external stakeholders;
- Information from the disparity study will be useful to PennDOT as it makes decisions about its implementation of the Federal DBE Program and the state's transportation-focused DB Program;
- The disparity study provides insights into how to increase contracting opportunities for minority- and woman-owned businesses; and other disadvantaged and diverse businesses; and
- Organizations that have successfully defended their implementations of programs like the Federal DBE Program and the state's transportation-focused DB Program in court have typically relied on information from disparity studies.

BBC introduces the PennDOT disparity study in three parts:

- A. Background;
- B. Study scope; and
- C. Study team members.

## **A. Background**

PennDOT implements the Federal DBE Program and the state's transportation-focused DB Program to encourage the participation of disadvantaged businesses in its USDOT-funded contracts and diverse businesses in its state-funded contracts, respectively. The disparity study includes information that is relevant to refining PennDOT's implementation of both programs.

**Federal DBE Program.** The Federal DBE Program is a program designed to ensure nondiscrimination in the award and administration of DOT-funded contracts, remove barriers, level the playing field, and assist with firm development for socially and economically disadvantaged businesses. As a recipient of USDOT funds, PennDOT must implement the Federal DBE Program and comply with corresponding federal regulations.

**Setting an overall goal for DBE participation.** As part of the Federal DBE Program, PennDOT is required to develop and submit a triennial goal and methodology to the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA). Those goal and methodology documents must be tailored to the contracts funded by each modal agency. Although an agency is required to set a goal every three years, the overall DBE goal is an annual goal in that the agency must monitor DBE participation in its USDOT-funded contracts every year. If DBE participation for a particular year is less than the overall DBE goal, then the agency must analyze the reasons for the difference and establish specific measures that enable the agency to meet the goal in the next year.

The Federal DBE Program describes the steps an agency must follow in establishing its overall DBE goal. To begin the goal-setting process, an agency must develop a base figure, grounded in

demonstrable evidence, of the availability of DBEs to participate in the agency's USDOT-funded contracts. Then, the agency must consider conditions in the local marketplace for minority- and woman-owned businesses and make an upward, downward, or no adjustment to its base figure as it determines its overall DBE goal (referred to as a *step-2* adjustment).

**Projecting the portion of the overall DBE goal to be met through race- and gender-neutral means.** According to 49 Code of Federal Regulations (CFR) Part 26, an agency must meet the maximum feasible portion of its overall DBE goal through the use of *race- and gender-neutral program measures*.<sup>3</sup> Race- and gender-neutral measures are measures that are designed to encourage the participation of all businesses—or all small businesses—in an agency's contracting (for examples of race- and gender-neutral measures, see 49 CFR Section 26.51(b)). Participation in such measures is not limited to socially and economically disadvantaged businesses or to certified DBEs. If an agency cannot meet its goal solely through the use of race- and gender-neutral measures, then it must consider also using *race- and gender-conscious program measures*. Race- and gender-conscious measures are designed to specifically encourage the participation of socially and economically disadvantaged businesses in an agency's contracting (e.g., using DBE goals on individual contracts). The Federal DBE Program requires an agency to project the portion of its overall DBE goal that it will meet through race- and gender-neutral measures and the portion that it will meet through race- or gender-conscious measures. USDOT has outlined a number of factors for an agency to consider when making such determinations.<sup>4</sup>

**Determining whether all groups will be eligible for race- and gender-conscious measures.** If an agency determines that race- or gender-conscious measures—such as DBE contract goals—are appropriate for its implementation of the Federal DBE Program, then it must also determine which racial/ethnic or gender groups are eligible for participation in those measures. Eligibility for such measures is limited to only those racial/ethnic or gender groups for which compelling evidence of discrimination exists in the local marketplace. USDOT provides a waiver provision if an agency determines that its implementation of the Federal DBE Program should only include certain racial/ethnic or gender groups in the race- or gender-conscious measures that it uses.

**Implementation.** PennDOT uses a combination of race- and gender-neutral and race- and gender-conscious measures to meet the objectives of the DBE program. It applies DBE contract goals to its USDOT-funded contracts. Prime contractors can meet those goals by either making subcontracting commitments with certified DBE subcontractors within seven days of bid submission, or by documenting sufficient good faith efforts toward achieving the established subcontracting goals. PennDOT also uses various race- and gender-neutral measures to meet the objectives of the DBE program, including technical assistance; outreach to small businesses; a small-business set-aside program; prompt payment policies; designating a PennDOT official to supervise the agency's diversity effort; and reporting the percentage of dollars that disadvantaged businesses receive on agency contracting (for more detail see Chapter 8). In addition, PennDOT has established the Disadvantaged Business Enterprise Supportive Services

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<sup>3</sup> 49 CFR Section 26.51.

<sup>4</sup> <http://www.dotcr.ost.dot.gov/Documents/Dbe/49CFRPART26.doc>



(DBE SS) Program, which provides training, assistance, and services to DBE businesses. Cheyney University administers PennDOT's DBE Supportive Services Program.

**DB Program.** PennDOT's Diverse Business Program was implemented in October 2014 for state-funded transportation and professional services contracts.<sup>5</sup> The Diverse Business Program for Pennsylvania Transportation entities includes the following agencies: PennDOT, the PA Turnpike Commission, SEPTA, and all other transit organizations. Title 74 and 75 in Section 303 of the Pennsylvania Consolidated Statutes require prime contractors to make a good faith effort to solicit diverse business subcontractors for state-funded transportation and professional services contracts. Section 303 defines diverse businesses as disadvantaged businesses (DBE); minority-owned businesses; woman-owned businesses; and service-disabled veteran- and veteran-owned businesses. PennDOT uses various race- and gender-neutral measures to meet the objectives of the DB program, including contracting language that encourages the use of diverse businesses; requiring prime contractors to report the diverse businesses that they are using as part of contracts; designating a PennDOT official to supervise the agency's diversity effort; and reporting the percentage of dollars that diverse businesses receive on agency contracting. In addition, PennDOT has established the Diverse Business Supportive Services (DB SS) Program, which provides training, assistance, and services to DB businesses. Cheyney University administers the DB Supportive Services Program in addition to the DBE Supportive Services Program.

## B. Study Scope

Information from the disparity study will help PennDOT continue to encourage the participation of minority- and woman-owned businesses, and other disadvantaged and diverse businesses, in state-funded and FHWA-funded contracts. In addition, information from the study will help the agency implement the Federal DBE Program and state's transportation-focused DB Program in a legally-defensible manner.

**Relevant business groups.** In general, BBC focused its analyses on whether barriers or discrimination based on various factors, including race/ethnicity and gender, affected the participation of businesses in PennDOT contracts or procurements, regardless of whether those businesses were, or could be, certified as DBEs or DBs. Analyzing the participation and availability of businesses regardless of certification status allowed BBC to assess whether barriers affect business success based specifically on the race/ethnicity and gender of the owners and independent of certification status. To interpret the core analyses presented in the disparity study, it is useful to understand how the study team defines the various groups of businesses that are the focus of the Federal DBE Program, the state's transportation-focused DB Program, and the disparity study.

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<sup>5</sup> It was created in accordance with Act 89 of 2013.

**Figure 1-1.**  
**Definition of potential DBEs**

To help PennDOT calculate its overall DBE goal, BBC did not include the following types of minority- and woman-owned businesses in its definition of potential DBEs:

- Minority- and woman-owned businesses that have graduated from the DBE Program and have not been recertified;
- Minority- and woman-owned businesses that are not currently DBE-certified but that have applied for DBE certification through the Pennsylvania UCP and have been denied; and
- Minority- and woman-owned businesses that are not currently DBE-certified that appear to have average annual revenues over the most recent three years so high as to deem them ineligible for DBE certification.

At the time of this study, the overall revenue limit for DBE certification was \$23,980,000 based on a three-year average of gross receipts. There were lower revenue limits for specific subindustries according to the United States Small Business Administration (SBA) small business size standards. Only a few minority- and woman-owned businesses appeared to have exceeded those revenue limits based on information that they provided as part of availability surveys. The revenue categories that the study team used to classify firms reflect recent changes to the Table of Small Business Size Standards published by the SBA.

Business owners must also meet USDOT personal net worth limits for their businesses to qualify for DBE certification. The personal net worth of business owners was not available as part of this study and thus was not considered when determining potential DBE status.

**Minority- and woman-owned businesses.** BBC analyzed business outcomes for socially and economically disadvantaged businesses, which were defined as businesses owned by Asian Pacific Americans, Black Americans, Hispanic Americans, Native Americans, Subcontinent Asian Americans, or women of any race/ethnicity. To avoid any double-counting, BBC classified minority woman-owned businesses with their corresponding minority groups. (For example, Black American woman-owned businesses were classified, along with businesses owned by Black American men, as Black American-owned businesses.) Thus, *woman-owned businesses* in this report refers to non-Hispanic white woman-owned businesses.

**Certified DBEs.** Certified DBEs are businesses owned by socially and economically disadvantaged individuals specifically certified as DBEs through the Pennsylvania Unified Certification Program (UCP). A determination of DBE eligibility includes assessing businesses' gross revenues and business owners' personal net worth (maximum of \$1.32 million excluding equity in a home and in the business). Some socially and economically disadvantaged businesses do not qualify as DBEs because of gross revenue or net worth requirements.<sup>6</sup>

**Potential DBEs.** *Potential DBEs* are socially and economically disadvantaged businesses that are DBE-certified or appear that they could be DBE-certified based on revenue requirements described in 49 CFR Part 26 (regardless of actual certification). The study team did not count businesses that have been decertified or have graduated from the DBE Program as potential DBEs in this study. BBC examined the availability of potential DBEs as part of helping PennDOT calculate the base figure of its overall DBE goal. Figure 1-1 provides further explanation of BBC's definition of potential DBEs.

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<sup>6</sup> Businesses owned by non-Hispanic white men can be certified as DBEs if those businesses meet the requirements in 49 CFR Part 26.

**Majority-owned businesses.** Majority-owned businesses are businesses that are not owned by minorities or women.

**Analyses in the disparity study.** The disparity study examined whether there are any disparities between the participation and availability of minority- and woman-owned businesses on PennDOT contracts. The study focused on horizontal construction and construction-related engineering and professional services contracts that PennDOT awarded between July 1, 2011 and June 30, 2016 (i.e., the study period). In addition to the core utilization, availability, and disparity analyses, the disparity study also includes:

- A review of legal issues surrounding PennDOT’s implementation of the Federal DBE Program and the state’s transportation-focused DB Program;
- An analysis of local marketplace conditions for disadvantaged and diverse businesses;
- An assessment of PennDOT’s contracting practices and business assistance programs; and
- Other information for PennDOT to consider as it refines its implementation of the Federal DBE Program and state’s transportation-focused DB Program.

That information is organized in the disparity study report in the following manner:

**Legal framework and analysis.** The study team conducted a detailed analysis of relevant federal regulations, case law, state law, and other information to guide the methodology for the disparity study. The analysis included a review of federal and state requirements concerning PennDOT’s implementation of the Federal DBE Program and the state’s transportation-focused DB Program. The legal framework and analysis for the study is summarized in **Chapter 2** and presented in detail in **Appendix B**.

**Marketplace conditions.** BBC conducted quantitative analyses examining the success of disadvantaged individuals and disadvantaged and diverse businesses in local contracting industries. BBC compared business outcomes for disadvantaged individuals and disadvantaged and diverse businesses to outcomes for majority individuals and majority-owned businesses. In addition, the study team collected qualitative information about potential barriers that disadvantaged and diverse businesses face in Pennsylvania through public meetings and in-depth interviews. Information about marketplace conditions is presented in **Chapter 3**, **Appendix C**, and **Appendix D**.

**Data collection and analysis.** BBC examined data from multiple sources to complete the utilization and availability analyses. In addition, the study team conducted telephone surveys with thousands of businesses throughout Pennsylvania. The scope of the study team’s data collection and analysis as it pertains to the utilization and availability analyses is presented in **Chapter 4**.

**Availability analysis.** BBC analyzed the percentage of woman- and minority-owned businesses that are *ready, willing, and able* to perform on PennDOT prime contracts and subcontracts. That analysis was based on PennDOT data and telephone surveys that the study team conducted with thousands of Pennsylvania businesses that work in industries related to the types of contracting dollars that PennDOT awards. BBC analyzed availability separately for businesses owned by

specific minority groups and women, and for different types of contracts. Results from the availability analysis are presented in **Chapter 5** and **Appendix E**!

**Utilization analysis.** BBC analyzed contract dollars that PennDOT spent with woman- and minority-owned businesses on contracts that the agency awarded between July 1, 2011 and June 30, 2016. Those data included information about associated subcontracts. Note that PennDOT applied DBE contract goals to many of those contracts. BBC analyzed utilization separately for businesses owned by specific minority groups and women, and for different types of contracts. Results from the utilization analysis are presented in **Chapter 6**.

**Disparity analysis.** BBC examined whether there were any disparities between the utilization of woman- and minority-owned businesses on contracts that PennDOT awarded during the study period and the availability of those businesses for that work. BBC analyzed disparity analysis results separately for businesses owned by specific minority groups and women, and for different types of contracts. The study team also assessed whether any observed disparities were statistically significant. Results from the disparity analysis are presented in **Chapter 7** and **Appendix F**.

**Program measures.** BBC reviewed the measures that PennDOT uses to encourage the participation of disadvantaged and diverse businesses in its contracting as well as measures that other organizations in Pennsylvania use. That information is presented in **Chapter 8**.

**Overall DBE goal.** Based on information from the availability analysis and other research, BBC provided PennDOT with information that will help the agency set its overall DBE goal, including the base figure and consideration of a *step-2* adjustment. Information about PennDOT's overall DBE goal is presented in **Chapter 9**.

**Program implementation.** BBC reviewed PennDOT's contracting practices and its Federal DBE and state transportation-focused DB program measures. BBC provided guidance and recommendations related to decisions that PennDOT could make to refine its implementation of the Federal DBE Program and state transportation-focused DB Program. Those considerations are presented in **Chapter 10**.

## **C. Study Team Members**

The BBC study team was made up of ten firms which, collectively, possess decades of experience related to conducting disparity studies in connection with state and local business programs.

**BBC (prime consultant).** BBC is a Denver-based disparity study and economic research firm. BBC had overall responsibility for the study and performed all of the quantitative analyses.

**Always Busy Consulting (ABC).** ABC is a Black American woman-owned professional services firm based in Pittsburgh, Pennsylvania. ABC conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Kairos Development Group (Kairos).** Kairos is a woman-owned consulting firm based in Philadelphia, Pennsylvania. Kairos conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Milligan & Company (Milligan).** Milligan is a minority veteran-owned small business based in Philadelphia, Pennsylvania. Milligan helped collect and compile electronic and hardcopy data related to PennDOT contracts and procurements. The firm also helped review PennDOT's contracting practices, policies, and business programs.

**Powell Law.** Powell Law is a Black American woman-owned law firm based in Harrisburg, Pennsylvania. Powell Law conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Ritzman Law.** Ritzman Law is a Black American, veteran, woman-owned general practice law firm based in Harrisburg, Pennsylvania. Ritzman Law reviewed contracting practices and procedures that PennDOT uses to award contracts; legal issues related to business programs in the state; and various sections of the draft and final disparity study reports.

**National Gay and Lesbian Chamber of Commerce (NGLCC).** NGLCC is the largest global nonprofit advocacy organization dedicated to expanding economic opportunities and advancements for LGBT people. NGLCC advised on the study team's research efforts with the LGBT community and helped facilitate community engagement efforts.

**Customer Research International (CRI).** CRI is a Subcontinent Asian American-owned survey fieldwork firm based in San Marcos, Texas. CRI conducted telephone surveys with thousands of businesses located in Pennsylvania to gather information for the utilization and availability analyses.

**Holland & Knight.** Holland & Knight is a law firm with offices throughout the country. Holland & Knight conducted the legal analysis that provided the basis for this study.

**Keen Independent Research (Keen Independent).** Keen Independent is an Arizona-based research firm. Keen Independent helped manage the in-depth interview process as part of the study team's qualitative analyses of marketplace conditions.

# CHAPTER 1.

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## Introduction

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The Pennsylvania Department of Transportation (PennDOT) oversees programs and policies that affect highways, public transportation, airports, railroads, ports, and waterways throughout Pennsylvania. As a United States Department of Transportation (USDOT) funding recipient, PennDOT implements the Federal Disadvantaged Business Enterprise (DBE) Program. The Federal DBE Program is designed to ensure nondiscrimination in the award and administration of DOT-funded contracts, remove barriers, level the playing field, and assist with firm development for socially and economically disadvantaged businesses.<sup>1</sup> In addition, PennDOT implements the state’s transportation-focused Diverse Business (DB) Program. The DB program encourages prime contractors to make a good faith effort to include disadvantaged businesses; minority-owned businesses; woman-owned businesses; and service-disabled veteran- and veteran-owned businesses in state-funded transportation contracts.

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- B. Study scope; and
- C. Study team members.

## **A. Background**

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**Setting an overall goal for DBE participation.** As part of the Federal DBE Program, PennDOT is required to develop and submit a triennial goal and methodology to the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA). Those goal and methodology documents must be tailored to the contracts funded by each modal agency. Although an agency is required to set a goal every three years, the overall DBE goal is an annual goal in that the agency must monitor DBE participation in its USDOT-funded contracts every year. If DBE participation for a particular year is less than the overall DBE goal, then the agency must analyze the reasons for the difference and establish specific measures that enable the agency to meet the goal in the next year.

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demonstrable evidence, of the availability of DBEs to participate in the agency's USDOT-funded contracts. Then, the agency must consider conditions in the local marketplace for minority- and woman-owned businesses and make an upward, downward, or no adjustment to its base figure as it determines its overall DBE goal (referred to as a *step-2* adjustment).

**Projecting the portion of the overall DBE goal to be met through race- and gender-neutral means.** According to 49 Code of Federal Regulations (CFR) Part 26, an agency must meet the maximum feasible portion of its overall DBE goal through the use of *race- and gender-neutral program measures*.<sup>3</sup> Race- and gender-neutral measures are measures that are designed to encourage the participation of all businesses—or all small businesses—in an agency's contracting (for examples of race- and gender-neutral measures, see 49 CFR Section 26.51(b)). Participation in such measures is not limited to socially and economically disadvantaged businesses or to certified DBEs. If an agency cannot meet its goal solely through the use of race- and gender-neutral measures, then it must consider also using *race- and gender-conscious program measures*. Race- and gender-conscious measures are designed to specifically encourage the participation of socially and economically disadvantaged businesses in an agency's contracting (e.g., using DBE goals on individual contracts). The Federal DBE Program requires an agency to project the portion of its overall DBE goal that it will meet through race- and gender-neutral measures and the portion that it will meet through race- or gender-conscious measures. USDOT has outlined a number of factors for an agency to consider when making such determinations.<sup>4</sup>

**Determining whether all groups will be eligible for race- and gender-conscious measures.** If an agency determines that race- or gender-conscious measures—such as DBE contract goals—are appropriate for its implementation of the Federal DBE Program, then it must also determine which racial/ethnic or gender groups are eligible for participation in those measures. Eligibility for such measures is limited to only those racial/ethnic or gender groups for which compelling evidence of discrimination exists in the local marketplace. USDOT provides a waiver provision if an agency determines that its implementation of the Federal DBE Program should only include certain racial/ethnic or gender groups in the race- or gender-conscious measures that it uses.

**Implementation.** PennDOT uses a combination of race- and gender-neutral and race- and gender-conscious measures to meet the objectives of the DBE program. It applies DBE contract goals to its USDOT-funded contracts. Prime contractors can meet those goals by either making subcontracting commitments with certified DBE subcontractors within seven days of bid submission, or by documenting sufficient good faith efforts toward achieving the established subcontracting goals. PennDOT also uses various race- and gender-neutral measures to meet the objectives of the DBE program, including technical assistance; outreach to small businesses; a small-business set-aside program; prompt payment policies; designating a PennDOT official to supervise the agency's diversity effort; and reporting the percentage of dollars that disadvantaged businesses receive on agency contracting (for more detail see Chapter 8). In addition, PennDOT has established the Disadvantaged Business Enterprise Supportive Services

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<sup>3</sup> 49 CFR Section 26.51.

<sup>4</sup> <http://www.dotcr.ost.dot.gov/Documents/Dbe/49CFRPART26.doc>

(DBE SS) Program, which provides training, assistance, and services to DBE businesses. Cheyney University administers PennDOT's DBE Supportive Services Program.

**DB Program.** PennDOT's Diverse Business Program was implemented in October 2014 for state-funded transportation and professional services contracts.<sup>5</sup> The Diverse Business Program for Pennsylvania Transportation entities includes the following agencies: PennDOT, the PA Turnpike Commission, SEPTA, and all other transit organizations. Title 74 and 75 in Section 303 of the Pennsylvania Consolidated Statutes require prime contractors to make a good faith effort to solicit diverse business subcontractors for state-funded transportation and professional services contracts. Section 303 defines diverse businesses as disadvantaged businesses (DBE); minority-owned businesses; woman-owned businesses; and service-disabled veteran- and veteran-owned businesses. PennDOT uses various race- and gender-neutral measures to meet the objectives of the DB program, including contracting language that encourages the use of diverse businesses; requiring prime contractors to report the diverse businesses that they are using as part of contracts; designating a PennDOT official to supervise the agency's diversity effort; and reporting the percentage of dollars that diverse businesses receive on agency contracting. In addition, PennDOT has established the Diverse Business Supportive Services (DB SS) Program, which provides training, assistance, and services to DB businesses. Cheyney University administers the DB Supportive Services Program in addition to the DBE Supportive Services Program.

## B. Study Scope

Information from the disparity study will help PennDOT continue to encourage the participation of minority- and woman-owned businesses, and other disadvantaged and diverse businesses, in state-funded and FHWA-funded contracts. In addition, information from the study will help the agency implement the Federal DBE Program and state's transportation-focused DB Program in a legally-defensible manner.

**Relevant business groups.** In general, BBC focused its analyses on whether barriers or discrimination based on various factors, including race/ethnicity and gender, affected the participation of businesses in PennDOT contracts or procurements, regardless of whether those businesses were, or could be, certified as DBEs or DBs. Analyzing the participation and availability of businesses regardless of certification status allowed BBC to assess whether barriers affect business success based specifically on the race/ethnicity and gender of the owners and independent of certification status. To interpret the core analyses presented in the disparity study, it is useful to understand how the study team defines the various groups of businesses that are the focus of the Federal DBE Program, the state's transportation-focused DB Program, and the disparity study.

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<sup>5</sup> It was created in accordance with Act 89 of 2013.

**Figure 1-1.**  
**Definition of potential DBEs**

To help PennDOT calculate its overall DBE goal, BBC did not include the following types of minority- and woman-owned businesses in its definition of potential DBEs:

- Minority- and woman-owned businesses that have graduated from the DBE Program and have not been recertified;
- Minority- and woman-owned businesses that are not currently DBE-certified but that have applied for DBE certification through the Pennsylvania UCP and have been denied; and
- Minority- and woman-owned businesses that are not currently DBE-certified that appear to have average annual revenues over the most recent three years so high as to deem them ineligible for DBE certification.

At the time of this study, the overall revenue limit for DBE certification was \$23,980,000 based on a three-year average of gross receipts. There were lower revenue limits for specific subindustries according to the United States Small Business Administration (SBA) small business size standards. Only a few minority- and woman-owned businesses appeared to have exceeded those revenue limits based on information that they provided as part of availability surveys. The revenue categories that the study team used to classify firms reflect recent changes to the Table of Small Business Size Standards published by the SBA.

Business owners must also meet USDOT personal net worth limits for their businesses to qualify for DBE certification. The personal net worth of business owners was not available as part of this study and thus was not considered when determining potential DBE status.

**Minority- and woman-owned businesses.** BBC analyzed business outcomes for socially and economically disadvantaged businesses, which were defined as businesses owned by Asian Pacific Americans, Black Americans, Hispanic Americans, Native Americans, Subcontinent Asian Americans, or women of any race/ethnicity. To avoid any double-counting, BBC classified minority woman-owned businesses with their corresponding minority groups. (For example, Black American woman-owned businesses were classified, along with businesses owned by Black American men, as Black American-owned businesses.) Thus, *woman-owned businesses* in this report refers to non-Hispanic white woman-owned businesses.

**Certified DBEs.** Certified DBEs are businesses owned by socially and economically disadvantaged individuals specifically certified as DBEs through the Pennsylvania Unified Certification Program (UCP). A determination of DBE eligibility includes assessing businesses' gross revenues and business owners' personal net worth (maximum of \$1.32 million excluding equity in a home and in the business). Some socially and economically disadvantaged businesses do not qualify as DBEs because of gross revenue or net worth requirements.<sup>6</sup>

**Potential DBEs.** *Potential DBEs* are socially and economically disadvantaged businesses that are DBE-certified or appear that they could be DBE-certified based on revenue requirements described in 49 CFR Part 26 (regardless of actual certification). The study team did not count businesses that have been decertified or have graduated from the DBE Program as potential DBEs in this study. BBC examined the availability of potential DBEs as part of helping PennDOT calculate the base figure of its overall DBE goal. Figure 1-1 provides further explanation of BBC's definition of potential DBEs.

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<sup>6</sup> Businesses owned by non-Hispanic white men can be certified as DBEs if those businesses meet the requirements in 49 CFR Part 26.

**Majority-owned businesses.** Majority-owned businesses are businesses that are not owned by minorities or women.

**Analyses in the disparity study.** The disparity study examined whether there are any disparities between the participation and availability of minority- and woman-owned businesses on PennDOT contracts. The study focused on horizontal construction and construction-related engineering and professional services contracts that PennDOT awarded between July 1, 2011 and June 30, 2016 (i.e., the study period). In addition to the core utilization, availability, and disparity analyses, the disparity study also includes:

- A review of legal issues surrounding PennDOT’s implementation of the Federal DBE Program and the state’s transportation-focused DB Program;
- An analysis of local marketplace conditions for disadvantaged and diverse businesses;
- An assessment of PennDOT’s contracting practices and business assistance programs; and
- Other information for PennDOT to consider as it refines its implementation of the Federal DBE Program and state’s transportation-focused DB Program.

That information is organized in the disparity study report in the following manner:

**Legal framework and analysis.** The study team conducted a detailed analysis of relevant federal regulations, case law, state law, and other information to guide the methodology for the disparity study. The analysis included a review of federal and state requirements concerning PennDOT’s implementation of the Federal DBE Program and the state’s transportation-focused DB Program. The legal framework and analysis for the study is summarized in **Chapter 2** and presented in detail in **Appendix B**.

**Marketplace conditions.** BBC conducted quantitative analyses examining the success of disadvantaged individuals and disadvantaged and diverse businesses in local contracting industries. BBC compared business outcomes for disadvantaged individuals and disadvantaged and diverse businesses to outcomes for majority individuals and majority-owned businesses. In addition, the study team collected qualitative information about potential barriers that disadvantaged and diverse businesses face in Pennsylvania through public meetings and in-depth interviews. Information about marketplace conditions is presented in **Chapter 3**, **Appendix C**, and **Appendix D**.

**Data collection and analysis.** BBC examined data from multiple sources to complete the utilization and availability analyses. In addition, the study team conducted telephone surveys with thousands of businesses throughout Pennsylvania. The scope of the study team’s data collection and analysis as it pertains to the utilization and availability analyses is presented in **Chapter 4**.

**Availability analysis.** BBC analyzed the percentage of woman- and minority-owned businesses that are *ready, willing, and able* to perform on PennDOT prime contracts and subcontracts. That analysis was based on PennDOT data and telephone surveys that the study team conducted with thousands of Pennsylvania businesses that work in industries related to the types of contracting dollars that PennDOT awards. BBC analyzed availability separately for businesses owned by

specific minority groups and women, and for different types of contracts. Results from the availability analysis are presented in **Chapter 5** and **Appendix E**!

**Utilization analysis.** BBC analyzed contract dollars that PennDOT spent with woman- and minority-owned businesses on contracts that the agency awarded between July 1, 2011 and June 30, 2016. Those data included information about associated subcontracts. Note that PennDOT applied DBE contract goals to many of those contracts. BBC analyzed utilization separately for businesses owned by specific minority groups and women, and for different types of contracts. Results from the utilization analysis are presented in **Chapter 6**.

**Disparity analysis.** BBC examined whether there were any disparities between the utilization of woman- and minority-owned businesses on contracts that PennDOT awarded during the study period and the availability of those businesses for that work. BBC analyzed disparity analysis results separately for businesses owned by specific minority groups and women, and for different types of contracts. The study team also assessed whether any observed disparities were statistically significant. Results from the disparity analysis are presented in **Chapter 7** and **Appendix F**.

**Program measures.** BBC reviewed the measures that PennDOT uses to encourage the participation of disadvantaged and diverse businesses in its contracting as well as measures that other organizations in Pennsylvania use. That information is presented in **Chapter 8**.

**Overall DBE goal.** Based on information from the availability analysis and other research, BBC provided PennDOT with information that will help the agency set its overall DBE goal, including the base figure and consideration of a *step-2* adjustment. Information about PennDOT's overall DBE goal is presented in **Chapter 9**.

**Program implementation.** BBC reviewed PennDOT's contracting practices and its Federal DBE and state transportation-focused DB program measures. BBC provided guidance and recommendations related to decisions that PennDOT could make to refine its implementation of the Federal DBE Program and state transportation-focused DB Program. Those considerations are presented in **Chapter 10**.

## **C. Study Team Members**

The BBC study team was made up of ten firms which, collectively, possess decades of experience related to conducting disparity studies in connection with state and local business programs.

**BBC (prime consultant).** BBC is a Denver-based disparity study and economic research firm. BBC had overall responsibility for the study and performed all of the quantitative analyses.

**Always Busy Consulting (ABC).** ABC is a Black American woman-owned professional services firm based in Pittsburgh, Pennsylvania. ABC conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Kairos Development Group (Kairos).** Kairos is a woman-owned consulting firm based in Philadelphia, Pennsylvania. Kairos conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Milligan & Company (Milligan).** Milligan is a minority veteran-owned small business based in Philadelphia, Pennsylvania. Milligan helped collect and compile electronic and hardcopy data related to PennDOT contracts and procurements. The firm also helped review PennDOT's contracting practices, policies, and business programs.

**Powell Law.** Powell Law is a Black American woman-owned law firm based in Harrisburg, Pennsylvania. Powell Law conducted in-depth interviews with Pennsylvania businesses as part of the study team's qualitative analyses of marketplace conditions.

**Ritzman Law.** Ritzman Law is a Black American, veteran, woman-owned general practice law firm based in Harrisburg, Pennsylvania. Ritzman Law reviewed contracting practices and procedures that PennDOT uses to award contracts; legal issues related to business programs in the state; and various sections of the draft and final disparity study reports.

**National Gay and Lesbian Chamber of Commerce (NGLCC).** NGLCC is the largest global nonprofit advocacy organization dedicated to expanding economic opportunities and advancements for LGBT people. NGLCC advised on the study team's research efforts with the LGBT community and helped facilitate community engagement efforts.

**Customer Research International (CRI).** CRI is a Subcontinent Asian American-owned survey fieldwork firm based in San Marcos, Texas. CRI conducted telephone surveys with thousands of businesses located in Pennsylvania to gather information for the utilization and availability analyses.

**Holland & Knight.** Holland & Knight is a law firm with offices throughout the country. Holland & Knight conducted the legal analysis that provided the basis for this study.

**Keen Independent Research (Keen Independent).** Keen Independent is an Arizona-based research firm. Keen Independent helped manage the in-depth interview process as part of the study team's qualitative analyses of marketplace conditions.

# **CHAPTER 2.**

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## **Legal Analysis**

## CHAPTER 2.

# Legal Analysis

The Pennsylvania Department of Transportation (PennDOT) implements the Federal Disadvantaged Business Enterprise (DBE) Program. The Federal DBE Program is designed to ensure nondiscrimination in the award and administration of DOT-funded contracts, remove barriers, level the playing field, and assist with firm development for socially and economically disadvantaged businesses.<sup>1</sup> In addition, PennDOT implements the state's transportation-focused Diverse Business (DB) Program. The DB program encourages the participation of disadvantaged businesses; minority-owned businesses; woman-owned businesses; and service-disabled veteran- and veteran-owned businesses in state-funded transportation contracts.

In carrying out these programs, PennDOT relies solely on various *race- and gender-neutral measures* as part of the state's transportation-focused DB Program, and a combination of *race- and gender-neutral* and *race- and gender-conscious measures* as part of the Federal DBE Program. Race- and gender-neutral measures are measures that are designed to encourage the participation of all small businesses in an organization's contracting, regardless of the race/ethnicity or gender of businesses' owners. In contrast, race- and gender-conscious measures are designed to specifically encourage the participation of socially and economically disadvantaged businesses in the organization's contracting (e.g., DBE participation goals on individual contracts).

PennDOT's use of DBE goals on individual USDOT-funded contracts is considered a race- and gender-conscious measure. Prime contractors can meet DBE contract goals by either making subcontracting commitments with certified DBE subcontractors at the time of bid or by showing that they made all reasonably possible good faith efforts to meet the goals but could not do so. It is instructive to review legal standards surrounding their use in case the agency decides that continuing to use such measures is appropriate in the future.

### **Programs that Rely Only on Race- and Gender-Neutral Measures**

Government organizations that implement contracting programs that rely only on race- and gender-neutral measures to encourage the participation of small businesses, regardless of the race/ethnicity or gender of business owners, must show a *rational basis* for their programs. Showing a rational basis requires organizations to demonstrate that their contracting programs are rationally related to a legitimate government interest. It is the lowest threshold for evaluating the legality of government contracting programs. When courts review programs based on a rational basis, only the most egregious violations lead to programs being deemed unconstitutional. PennDOT implements the state's transportation-focused DB Program in a wholly race- and gender-neutral manner.

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<sup>1</sup> 49 C.F.R. 26



## Programs that Rely on Race- and Gender-Neutral and Race- and Gender-Conscious Measures

The United States Supreme Court has established that contracting programs that include both race- and gender-neutral and race- and gender-conscious measures must meet the *strict scrutiny* standard of constitutional review.<sup>2</sup> PennDOT uses both race- and gender-neutral and race- and gender-conscious measures as part of its implementation of the Federal DBE Program. In contrast to a rational basis, the strict scrutiny standard presents the highest threshold for evaluating the legality of government contracting programs short of prohibiting them altogether. The two key United States Supreme Court cases that established the strict scrutiny standard for such programs are:

- The 1989 decision in *City of Richmond v. J.A. Croson Company*, which established the strict scrutiny standard of review for race-conscious programs adopted by state and local governments;<sup>3</sup> and
- The 1995 decision in *Adarand Constructors, Inc. v. Peña*, which established the strict scrutiny standard of review for federal race-conscious programs.<sup>4</sup>

Under the strict scrutiny standard, a government organization must show a *compelling governmental interest* to use race- and gender-conscious measures and ensure that its use of race- and gender-conscious measures is *narrowly tailored*. A program that fails to meet either component is unconstitutional.

**Compelling governmental interest.** A government organization must demonstrate a *compelling governmental interest* in remedying past identified discrimination in order to implement race- and gender-conscious measures. An organization that uses race- and gender-conscious measures as part of a socially and economically disadvantaged business program has the initial burden of showing evidence of discrimination, including statistical and anecdotal evidence, that supports the use of such measures. Organizations cannot rely on national statistics of discrimination in an industry to draw conclusions about the prevailing market conditions in their own regions. Rather, they must assess discrimination within their own relevant market areas.<sup>5</sup> It is not necessary for a government organization itself to have discriminated against minority- or woman-owned businesses for it to act. In *City of Richmond v. J.A. Croson Company*, the Supreme Court found, “if [the organization] could show that it had essentially become a ‘passive participant’ in a system of racial exclusion practiced by elements of the local construction industry ... [i]t could take affirmative steps to dismantle such a system.”

**Narrow tailoring.** In addition to demonstrating a compelling governmental interest, a government organization must also demonstrate that its use of race- and gender-conscious

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<sup>2</sup> Certain Federal Courts of Appeals apply the *intermediate scrutiny* standard to gender-conscious programs. Appendix B describes the intermediate scrutiny standard in detail.

<sup>3</sup> *City of Richmond v. J.A. Croson Company*, 488 U.S. 469 (1989).

<sup>4</sup> *Adarand Constructors, Inc. v. Peña*, 515 U.S. 200 (1995).

<sup>5</sup> See e.g., *Concrete Works, Inc. v. City and County of Denver* (“Concrete Works I”), 36 F.3d 1513, 1520 (10th Cir. 1994).

measures is *narrowly tailored*. There are a number of factors that a court considers when determining whether the use of such measures is narrowly tailored, including:

- The necessity of such measures and the efficacy of alternative, race- and gender-neutral measures;
- The degree to which the use of such measures is limited to those groups that actually suffer discrimination in the local marketplace;
- The degree to which the use of such measures is flexible and limited in duration, including the availability of waivers and sunset provisions;
- The relationship of any numerical goals to the relevant business marketplace; and
- The impact of such measures on the rights of third parties.<sup>6</sup>

**Meeting the strict scrutiny standard.** Many government organizations have used information from disparity studies as part of determining whether their contracting practices are affected by race- or gender-based discrimination and ensuring that their use of race- and gender-conscious measures is narrowly tailored. Specifically, organizations have assessed evidence of any disparities between the participation and availability of minority- and woman-owned businesses for their contracts and procurements. In *City of Richmond v. J.A. Croson Company*, the United States Supreme Court held that, “[w]here there is a significant statistical disparity between the number of qualified minority contractors willing and able to perform a particular service and the number of such contractors actually engaged by the locality or the locality’s prime contractors, an inference of discriminatory exclusion could arise.” Lower court decisions since *City of Richmond v. J.A. Croson Company* have held that a compelling governmental interest must be established for each racial/ethnic and gender group to which race- and gender-conscious measures apply.

Many programs have failed to meet the strict scrutiny standard because they have failed to meet the compelling governmental interest requirement, the narrow tailoring requirement, or both. However, many other programs have met the strict scrutiny standard and courts have deemed them to be constitutional. Appendix B provides detailed discussions of the case law related to those programs.

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<sup>6</sup> See, e.g., *AGC, SDC v. Caltrans*, 713 F.3d at 1198-1199; *Rothe*, 545 F.3d at 1036; *Western States Paving*, 407 F.3d at 993-995; *Sherbrooke Turf*, 345 F.3d at 971; *Adarand VII*, 228 F.3d at 1181; *Eng’g Contractors Ass’n*, 122 F.3d at 927 (internal quotations and citations omitted).

# **CHAPTER 3.**

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## **Marketplace Conditions**

## CHAPTER 3.

# Marketplace Conditions

Historically, there have been myriad legal, economic, and social obstacles that have impeded minorities and women from acquiring the human and financial capital necessary to start and operate successful businesses. Barriers such as slavery, racial oppression, segregation, race-based displacement, and labor market discrimination have produced substantial disparities for minorities and women, the effects of which are still apparent today. Those barriers have limited opportunities for minorities in terms of both education and workplace experience.<sup>1,2,3,4</sup> Similarly, many women have been restricted to either being homemakers or taking gender-specific jobs with low pay and little chance for advancement.<sup>5</sup>

In the 19<sup>th</sup> and early 20<sup>th</sup> centuries, minorities in Pennsylvania faced barriers that were similar to those that minorities faced nationwide. Pennsylvania's Black American population grew considerably, but discriminatory treatment was nonetheless common for minorities in Pennsylvania. Black Americans were forced to live in racially-segregated neighborhoods, send their children to segregated schools, and use separate facilities at area restaurants and cultural institutions. Disparate treatment also extended into the labor market. Although opportunities in the workplace attracted people to Pennsylvania, unemployment rates for Black Americans exceeded those for non-Hispanic whites. Black Americans were concentrated in low-wage work in domestic services and general labor with few opportunities for advancement.<sup>6,7</sup>

In the middle of the 20<sup>th</sup> century, many legal and workplace reforms opened up new opportunities for minorities and women nationwide. *Brown v. Board of Education*, *The Equal Pay Act*, *The Civil Rights Act*, and *The Women's Educational Equity Act* outlawed many forms of race- and gender-based discrimination. Workplaces adopted formalized personnel policies and implemented programs to diversify their staffs.<sup>8</sup> Those reforms increased diversity in workplaces and reduced educational and employment disparities for minorities and women.<sup>9, 10, 11, 12</sup> However, despite those improvements, minorities and women continue to face barriers—such as incarceration, residential segregation, and disproportionate family responsibilities—that have made it more difficult to acquire the human and financial capital necessary to start and operate businesses successfully.<sup>13, 14, 15</sup>

Federal courts and the United States Congress have considered barriers that minorities, women, and minority- and woman-owned businesses face in a local marketplace as evidence for the existence of race- and gender-based discrimination in that marketplace.<sup>16, 17, 18</sup> The United States Supreme Court and other federal courts have held that analyses of conditions in a local marketplace for minorities, women, and minority- and woman-owned businesses are instructive in determining whether agencies' implementations of minority- and woman-owned business programs are appropriate and justified. Those analyses help agencies determine whether they are *passively participating* in any race- or gender-based discrimination that makes it more difficult for minority- and woman-owned businesses to successfully compete for their contracts. Passive participation in discrimination means that agencies unintentionally perpetuate race- or

gender-based discrimination simply by operating within discriminatory marketplaces. Many courts have held that passive participation in any race- or gender-based discrimination establishes a *compelling governmental interest* for agencies to take remedial action to address that discrimination.<sup>19, 20, 21</sup>

The study team conducted quantitative and qualitative analyses to assess whether minorities, women, and minority- and woman-owned businesses face any barriers in the Pennsylvania construction, architecture and engineering, professional services, and goods and services industries. The study team also examined the potential effects that any such barriers have on the formation and success of minority- and woman-owned businesses and on their participation in and availability for contracts that the Pennsylvania Department of Transportation (PennDOT) awards. The study team examined local marketplace conditions primarily in four areas:

- **Human capital**, to assess whether minorities and women face barriers in education, employment, or gaining managerial experience;
- **Financial capital**, to assess whether minorities and women face barriers in wages, homeownership, personal wealth, or access to financing;
- **Business ownership** to assess whether minorities and women own businesses at rates that are comparable to that of non-Hispanic white men; and
- **Success of businesses** to assess whether minority- and woman-owned businesses have outcomes that are similar to those of businesses owned by non-Hispanic white men.

The information in Chapter 3 comes from existing research in the area of race- and gender-based discrimination as well as from primary research that the study team conducted on current marketplace conditions. Data sources include the U.S. Census Bureau, U.S. Consumer Financial Protection Bureau, the U.S. Small Business Administration, and the study team's in-depth interviews with business owners in the Pennsylvania marketplace.<sup>22</sup> Additional quantitative and qualitative analyses of marketplace conditions are presented in Appendix C and Appendix D, respectively.

## A. Human Capital

Human capital is the collection of personal knowledge, behavior, experience, and characteristics that make up an individual's ability to perform and succeed in particular labor markets. Human capital factors such as education, business experience, and managerial experience have been shown to be related to business success.<sup>23, 24, 25, 26</sup> Any race- or gender-based barriers in those areas may make it more difficult for minorities and women to work in relevant industries and prevent some of them from starting and operating businesses successfully.

**Education.** Barriers associated with educational attainment may preclude entry or advancement in certain industries because many occupations require at least a high school diploma, and some occupations, such as those in professional services, require at least a four-year college degree. In addition, educational attainment is a strong predictor of both income and personal wealth, which are both shown to be related to business formation and success.<sup>27, 28</sup> Nationally, minorities lag behind non-Hispanic whites in terms of both educational attainment and the quality of education that they receive.<sup>29, 30</sup> Minorities are far more likely than non-

Hispanic whites to attend schools that do not provide access to core classes in science and math.<sup>31</sup> In addition, Black Americans are more than three times more likely than non-Hispanic whites to be expelled or suspended from high school.<sup>32</sup> For those and other reasons, minorities are far less likely than non-Hispanic whites to attend college, enroll at highly- or moderately selective four-year institutions, and earn college degrees.<sup>33</sup>

Educational outcomes for minorities in Pennsylvania are similar to those for minorities nationwide. The study team’s analyses of the Pennsylvania labor force indicate that certain minority groups are far less likely than non-Hispanic whites to earn a college degree. Figure 3-1 presents the percentage of Pennsylvania workers that have earned a four-year college degree by racial/ethnic and gender group. As shown in Figure 3-1, Black American, Hispanic American, and Native American workers in Pennsylvania are substantially less likely than non-Hispanic white workers to have four-year college degrees.

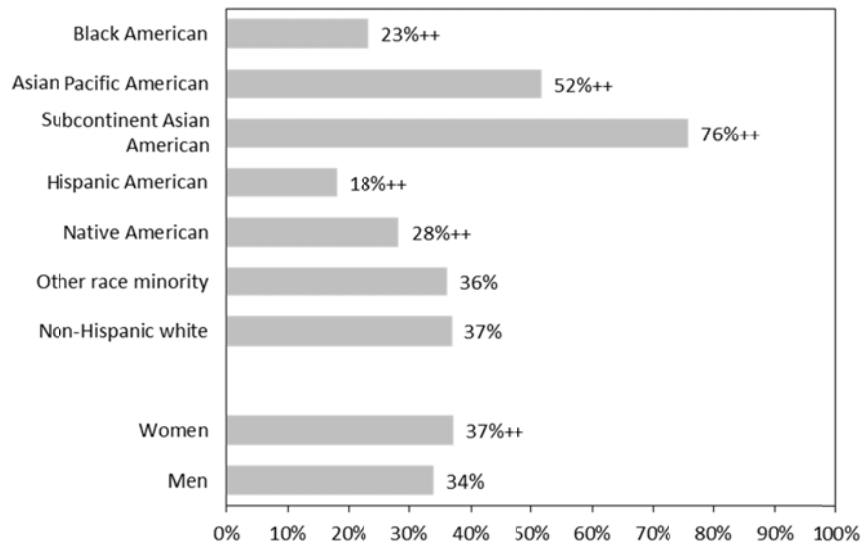
**Figure 3-1.**  
**Percentage of all workers 25 and older with at least a four-year degree, Pennsylvania, 2012-2016**

Note:

++ Denotes that the difference in proportions between the minority group and non-Hispanic whites (or between women and men) is statistically significant at the 95% confidence level.

Source:

BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center:  
<http://usa.ipums.org/usa/>.

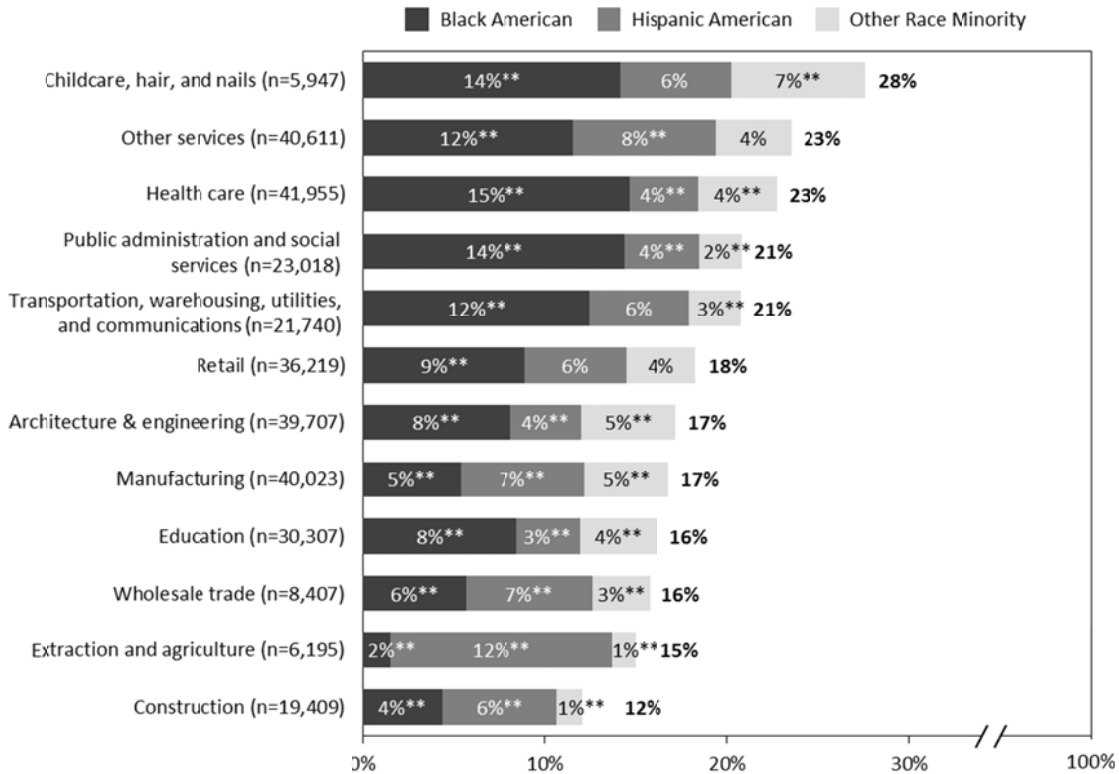


**Employment and management experience.** An important precursor to business ownership and success is acquiring relevant work and management experience. Any barriers that limit minorities, women, and other disadvantaged groups from acquiring that experience could prevent them from starting and operating related businesses in the future.

**Employment.** On a national level, prior industry experience has been shown to be an important indicator for business ownership and success. However, minorities and women are often unable to acquire relevant work experience. Minorities and women are sometimes discriminated against in hiring decisions, which impedes their entry into the labor market.<sup>34, 35, 36</sup> When employed, minorities and women are often relegated to peripheral positions in the labor market and to industries that exhibit already high concentrations of minorities or women.<sup>37, 38, 39, 40, 41</sup> In addition, minorities are incarcerated at a higher rate than non-Hispanic whites in Pennsylvania and nationwide, which contributes to a number of labor difficulties, including difficulties finding jobs and relatively slow wage growth.<sup>42, 43, 44, 45</sup> Figure 3-2 presents the representation of

minority workers in various Pennsylvania industries. As shown in Figure 3-2, the industries with the highest representations of minority workers are childcare, hair, and nails; other services; and healthcare. The industries with the lowest representations of minority workers are wholesale trade, extraction and agriculture, and construction.

**Figure 3-2.**  
**Percent representation of minorities in various industries, Pennsylvania, 2012-2016**



Note: \*, \*\* Denotes that the difference in proportions between minority workers in the specified industry and all industries is statistically significant at the 90% and 95% confidence levels, respectively.

The representation of minorities among all Pennsylvania workers is 10% for Black Americans, 6% for Hispanic Americans, 4% for other race minorities, and 20% for all minorities considered together.

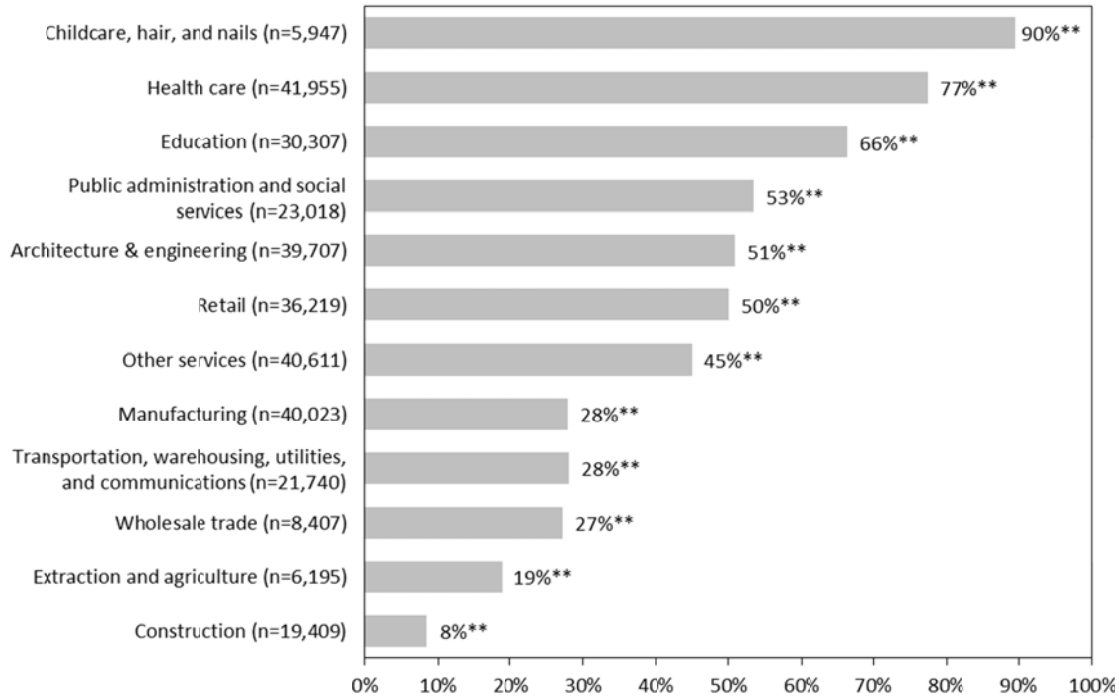
'Other race minority' includes Subcontinent Asian Americans, Asian Pacific Americans, Native Americans, and other races.

Workers in the finance, insurance, real estate, legal services, accounting, advertising, architecture, management, scientific research, and veterinary services industries were combined to one category of 'architecture and engineering;' Workers in the rental and leasing, travel, investigation, waste remediation, arts, entertainment, recreation, accommodations, food services, and select other services were combined into one category of 'other services;' Workers in child day care services, barber shops, beauty salons, nail salons, and other personal services were combined into one category of 'childcare, hair, and nails.'

Source: BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Figure 3-3 presents the representation of woman workers in various Pennsylvania industries. The industries with the highest representations of women workers are childcare, hair, and nails; healthcare; and education. The Pennsylvania industries with the lowest representations of women workers are wholesale trade, extraction and agriculture, and construction.

**Figure 3-3.**  
**Percent representation of women in various industries, Pennsylvania, 2012-2016**



Note: \*, \*\* Denotes that the difference in proportions between women workers in the specified industry and all industries is statistically significant at the 90% and 95% confidence levels, respectively.

The representation of women among all Pennsylvania workers is 48%.

Workers in the finance, insurance, real estate, legal services, accounting, advertising, architecture, management, scientific research, and veterinary services industries were combined to one category of 'architecture and engineering;' Workers in the rental and leasing, travel, investigation, waste remediation, arts, entertainment, recreation, accommodations, food services, and select other services were combined into one category of 'other services;' Workers in child day care services, barber shops, beauty salons, nail salons, and other personal services were combined into one category of 'childcare, hair, and nails.'

Source: BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

**Management experience.** Managerial experience is an essential predictor of business success. However, race-and gender-based discrimination remains a persistent obstacle to greater diversity in management positions.<sup>46, 47, 48</sup> Nationally, minorities and women are far less likely than non-Hispanic white men to work in management positions.<sup>49, 50</sup> Similar outcomes appear to exist for minorities and women in Pennsylvania. The study team examined the concentration of minorities, women, and other disadvantaged individuals in management positions in the Pennsylvania construction, professional services, architecture and engineering, and goods and general services industries.



**Figure 3-4.**  
**Percentage of workers who worked as managers in each study-related industry, Pennsylvania, 2012-2016**

Pennsylvania	Construction	Architecture & Engineering	Professional Services	Goods & Services
<b>Race/ethnicity</b>				
Black American	5.0 % **	1.4 % *	1.5 % **	1.9 % **
Asian Pacific American	13.5 %	2.9 %	2.5 % **	3.9 %
Subcontinent Asian American	4.0 % †	3.6 %	9.1 % **	5.3 %
Hispanic American	3.5 % **	2.8 %	2.1 % **	1.9 % **
Native American	4.7 %	2.3 %	1.6 %	3.5 %
Non-Hispanic white	7.4 %	4.5 %	6.0 %	3.8 %
<b>Gender</b>				
Women	5.5 % **	2.8 % **	4.1 % **	2.8 % **
Men	7.2 %	5.0 %	6.6 %	4.0 %

Note: \*, \*\* Denotes that the difference in proportions between the minority group and non-Hispanic whites, or between women and men, is statistically significant at the 90% and 95% confidence levels, respectively.

† Denotes that statistically significant differences in proportions were not reported due to small sample sizes.

Source: BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

As shown in Figure 3-4:

- Compared to non-Hispanic whites, smaller percentages of Black Americans and Hispanic Americans work as managers in the Pennsylvania construction industry.
- Compared to non-Hispanic whites, a smaller percentage of Black Americans work as managers in the Pennsylvania architecture and engineering industry.
- Compared to non-Hispanic whites, smaller percentages of Black Americans, Asian Pacific Americans, and Hispanic Americans work as managers in the Pennsylvania professional services industry.
- Compared to non-Hispanic whites, smaller percentages of Black Americans and Hispanic Americans work as managers in the Pennsylvania goods and services industry.
- Compared to men, a smaller percentage of women work as managers in the Pennsylvania construction, architecture and engineering, professional services, and goods and services industries.

**Intergenerational business experience.** Having a family member who owns a business and works in that business is an important predictor of business ownership and business success. Such experiences help entrepreneurs gain access to important opportunity networks; obtain knowledge of best practices and business etiquette; and receive hands-on experience in helping to run businesses. However, at least nationally, minorities have substantially fewer family members who own businesses, and both minorities and women have fewer opportunities to be involved with those businesses.<sup>51, 52</sup> That lack of experience makes it more difficult for minorities and women to subsequently start their own businesses and operate them successfully.

## B. Financial Capital

In addition to human capital, financial capital has been shown to be an important indicator of business formation and success.<sup>53, 54, 55</sup> Individuals can acquire financial capital through many sources, including employment wages, personal wealth, homeownership, and financing. If race- or gender-based discrimination exists in those capital markets, minorities and women may have difficulty acquiring the capital necessary to start, operate, or expand businesses.

**Wages and income.** Wage and income gaps between minorities and non-Hispanic whites and between women and men are well-documented throughout the country, even when researchers have statistically controlled for various factors that are ostensibly unrelated to race and gender.<sup>56, 57, 58</sup> For example, national income data indicate that, on average, Black Americans and Hispanic Americans have household incomes that are less than two-thirds those of non-Hispanic whites.<sup>59, 60</sup> Women have also faced consistent wage and income gaps relative to men. Nationally, the median hourly wage of women is still only 84 percent the median hourly wage of men.<sup>61</sup> Such disparities make it difficult for minorities and women to use employment wages as a source of business capital.

BBC observed wage gaps in Pennsylvania consistent with gaps that researchers have observed nationally. Figure 3-5 presents mean annual wages for Pennsylvania workers by race/ethnicity and gender. As shown in Figure 3-5:

- Black Americans, Hispanic Americans, Native Americans, and other race minorities earn substantially less than non-Hispanic whites; and
- Women earn substantially less than men.

BBC also conducted regression analyses to assess whether wage disparities for minorities and women exist even after accounting for various race- and gender-neutral factors such as age, education, and family status. Those analyses indicated that being Black American, Asian Pacific American, Subcontinent Asian American, Hispanic American, or Native American was associated with substantially lower earnings than being non-Hispanic white, even after accounting for various race- and gender-neutral factors. Similarly, being a woman was associated with lower earnings than being a man (for details, see Figure C-10 in Appendix C).

**Figure 3-5.**  
**Mean annual wages,**  
**Pennsylvania, 2012-2016**

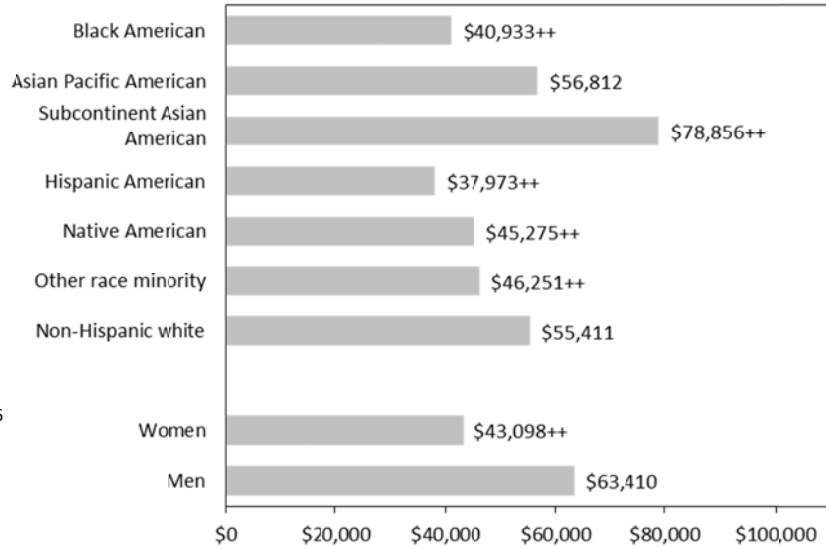
Note:

The sample universe is all non-institutionalized, employed individuals aged 25-64 that are not in school or self-employed.

++ Denotes statistically significant differences from non-Hispanic whites (for minority groups), and from men (for women) at the 95% confidence level.

Source:

BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.



**Personal wealth.** Another important potential source of business capital is personal wealth. As with wages and income, there are substantial disparities between minorities and non-Hispanic whites and between women and men in terms of personal wealth.<sup>62, 63</sup> For example, in 2010, Black Americans and Hispanic Americans across the country exhibited average household net worth that was 5 percent and 1 percent that of non-Hispanic whites, respectively. In Pennsylvania and nationwide, approximately one-quarter of Black Americans and Hispanic Americans are living in poverty, approximately double the rate for non-Hispanic whites.<sup>64</sup> Wealth inequalities also exist for women relative to men. For example, nationally, the median wealth of non-married women is approximately one-third that of non-married men.<sup>65</sup>

**Homeownership.** Homeownership and home equity have been shown to be key sources of business capital.<sup>66, 67</sup> However, minorities appear to face substantial barriers nationwide in owning homes. For example, Black Americans and Hispanic Americans own homes at less than two-thirds the rate of non-Hispanic whites.<sup>68</sup> Discrimination is at least partly to blame for those disparities. Research indicates that minorities continue to be given less information on prospective homes and have their purchase offers rejected because of their race.<sup>69, 70</sup> Minorities who own homes tend to own homes that are worth substantially less than those of non-Hispanic whites and also tend to accrue substantially less equity.<sup>71, 72</sup> Differences in home values and equity between minorities and non-Hispanic whites can be attributed, at least in part, to the depressed property values that tend to exist in neighborhoods with a higher percentage of minority homeowners.<sup>73, 74</sup>

Minorities appear to face homeownership barriers in Pennsylvania that are similar to those observed nationally. BBC examined homeownership rates in Pennsylvania for relevant racial/ethnic groups. As shown in Figure 3-6, racial minority groups in Pennsylvania exhibit homeownership rates that are significantly lower than that of non-Hispanic whites.

**Figure 3-6.**  
**Home ownership rates,**  
**Pennsylvania, 2012-2016**

Note:  
 The sample universe is all households.  
 ++ Denotes statistically significant differences from non-Hispanic whites at the 95% confidence level.

Source:  
 BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

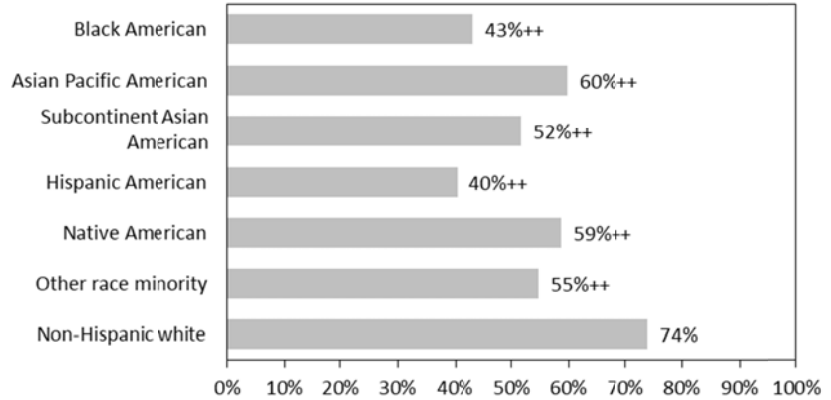
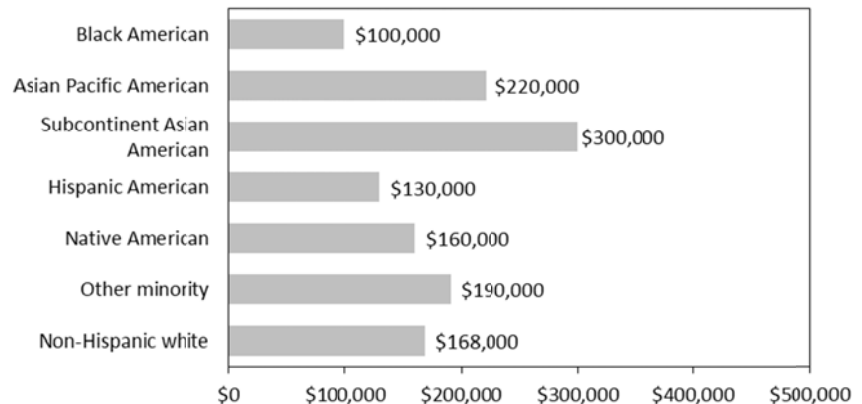


Figure 3-7 presents median home values among homeowners of different racial/ethnic groups in Pennsylvania. Consistent with national trends, Black Americans and Hispanic Americans own homes that, on average, are worth substantially less than those of non-Hispanic whites.

**Figure 3-7.**  
**Median home values,**  
**Pennsylvania, 2012-2016**

Note:  
 The sample universe is all owner-occupied housing units.

Source:  
 BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.



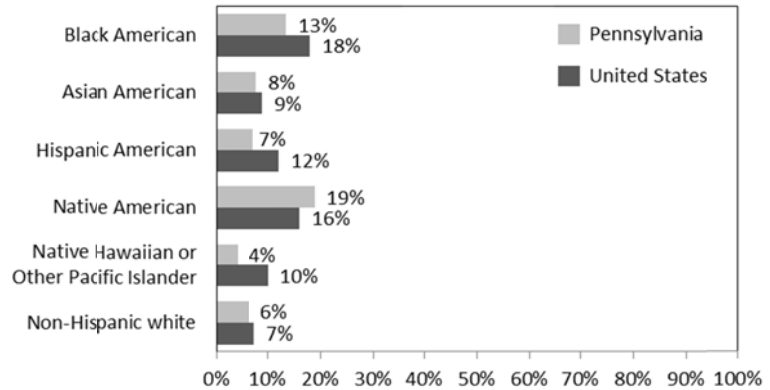
**Access to financing.** Minorities and women face many barriers in trying to access credit and financing, both for home purchases and for business capital. Researchers have often attributed those barriers to various forms of race- and gender-based discrimination that exist in credit markets.<sup>75, 76, 77, 78, 79, 80</sup> The study team summarizes results related to difficulties that minorities, women, minority-owned businesses, and woman-owned businesses face in the home credit and business credit markets.

**Home credit.** Minorities and women continue to face barriers when trying to access credit to purchase homes. Examples of such barriers include discriminatory treatment of minorities and women during the pre-application phase and disproportionate targeting of minority and women borrowers for subprime home loans.<sup>81, 82, 83, 84, 85</sup> Race- and gender-based barriers in home credit markets, as well as the recent foreclosure crisis, have led to decreases in homeownership among minorities and women and have eroded their levels of personal wealth.<sup>86, 87, 88, 89</sup>

To examine how minorities fare in the home credit market relative to non-Hispanic whites, the study team analyzed home loan denial rates for high-income households by race/ethnicity. The study team analyzed those data for Pennsylvania and the United States as a whole. As shown in Figure 3-8, Black Americans, Asian Americans, Hispanic Americans, and Native Americans

exhibit higher home loan denial rates than non-Hispanic whites in the United States and in Pennsylvania in particular. In addition, the study team’s analyses indicate that certain minority groups in Pennsylvania are more likely than non-Hispanic whites to receive subprime mortgages (for details, see Figure C-15 in Appendix C).

**Figure 3-8.**  
**Denial rates of conventional purchase loans for high-income households, Pennsylvania, 2016**



Note:

High-income borrowers are those households with 120% or more of the HUD area median family income (MFI).

Source:

FFIEC HMDA data 2007 and 2016. The raw data extract was obtained from the Consumer Financial Protection Bureau HMDA data tool: <http://www.consumerfinance.gov/hmda/explore>.

**Business credit.** Minority- and woman-owned businesses face substantial difficulties accessing business credit. For example, during loan pre-application meetings, minority-owned businesses are given less information about loan products, are subjected to more credit information requests, and are offered less support than their non-Hispanic white counterparts.<sup>90</sup> Researchers have shown that Black American-owned businesses and Hispanic American-owned businesses are more likely to forego submitting business loan applications and are more likely to be denied business credit when they seek loans, even after accounting for various race- and gender-neutral factors.<sup>91, 92, 93</sup> In addition, women are less likely to apply for credit and receive loans of less value when they do.<sup>94, 95</sup> Without equal access to business capital, minority- and woman-owned businesses must operate with less capital than businesses owned by non-Hispanic white men and must rely more on personal capital.<sup>96, 97, 98, 99</sup>

### C. Business Ownership

Nationally, there has been substantial growth in the number of minority- and woman-owned businesses in recent years. For example, from 2007 to 2012, the number of woman-owned businesses increased by 27 percent, the number of Black American-owned businesses increased by 35 percent, and the number of Hispanic American-owned businesses increased by 46 percent.<sup>100</sup> Despite the progress that minorities and women have made with regard to business ownership, important barriers in starting and operating businesses remain. Black Americans, Hispanic Americans, and women are still less likely to start businesses than non-Hispanic white men.<sup>101, 102, 103, 104</sup> In addition, although rates of business ownership have increased among minorities and women, they have been unable to penetrate all industries evenly. Minorities and women disproportionately own businesses in industries that require less human and financial capital to be successful and that already include large concentrations of individuals from disadvantaged groups.<sup>105, 106, 107</sup> The study team examined rates of business ownership in the Pennsylvania construction, architecture and engineering, professional services, and goods and services industries by race/ethnicity and gender.

**Figure 3-9.**  
**Business ownership rates in study-related industries, Pennsylvania, 2012-2016**

Pennsylvania	Construction	Architecture & Engineering	Professional Services	Goods & Services
<b>Race/ethnicity</b>				
Black American	21.5 %	10.4 % **	7.0 % **	1.5 % **
Asian Pacific American	26.8 %	18.0 %	14.3 %	13.8 % **
Subcontinent Asian American	24.8 % †	5.9 % **	5.0 % **	16.7 % **
Hispanic American	16.2 % **	5.8 % **	9.9 % **	2.7 % **
Native American	20.6 %	31.1 %	23.4 %	2.2 % **
Other Race Minority	15.0 % †	0.0 % †	27.3 %	6.3 %
Non-Hispanic white	24.2 %	15.9 %	17.6 %	4.5 %
<b>Gender</b>				
Women	12.6 % **	12.7 % **	12.3 % **	2.8 % **
Men	24.5 %	16.6 %	19.2 %	5.3 %
<b>All individuals</b>	<b>23.5 %</b>	<b>15.3 %</b>	<b>15.5 %</b>	<b>4.4 %</b>

Note: \*, \*\* Denotes that the difference in proportions between the minority group and non-Hispanic whites, or between women and men, is statistically significant at the 95% confidence level.

† Denotes that statistically significant differences in proportions were not reported due to small sample sizes.

Source: BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata samples. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

As shown in Figure 3-9:

- Hispanic Americans exhibit lower rates of business ownership than non-Hispanic whites in the Pennsylvania construction industry.
- Black Americans, Subcontinent Asians Americans, and Hispanic Americans exhibit lower rates of business ownership than non-Hispanic whites in the Pennsylvania architecture and engineering industry.
- Black Americans, Subcontinent Asian Americans, and Hispanic Americans exhibit lower rates of business ownership than non-Hispanic whites in the Pennsylvania professional services industry.
- Black Americans, Hispanic Americans, and Native Americans exhibit lower rates of business ownership than non-Hispanic whites in the Pennsylvania goods and services industry.
- Women exhibit lower rates of business ownership than men in the Pennsylvania construction, architecture and engineering, professional services, and goods and services industries.

BBC also conducted regression analyses to determine whether differences in business ownership rates exist between minorities and non-Hispanic whites and between women and men even after statistically controlling for various factors such as income, education, and family status. The study team conducted those analyses separately for each relevant industry. Figure 3-10 presents the factors that were significantly and independently related to business ownership for each relevant industry.

**Figure 3-10.**  
**Statistically significant relationships between race/ethnicity, gender, and business ownership in study-related industries, Pennsylvania, 2012-2016**

Source:

BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata samples. The raw data extract was obtained through the IPUMS program of the MN Population Center: <http://usa.ipums.org/usa/>.

Industry and Group	Coefficient
<b>Construction</b>	
Hispanic American	-0.1616
Women	-0.5592
<b>Architecture and Engineering</b>	
Hispanic American	-0.4077
Subcontinent Asian American	-0.5469
Women	-0.1134
<b>Professional Services</b>	
Black American	-0.2535
Other minority group	-0.6392
Subcontinent Asian American	-0.6645
Women	-0.2406
<b>Goods and Services</b>	
Black American	-0.2609
Asian Pacific American	-0.6537
Subcontinent Asian American	-0.8044
Women	-0.2843

As shown in Figure 3-10, even after accounting for various relevant factors:

- Being Hispanic American was associated with lower rates of business ownership in the Pennsylvania construction and architecture and engineering industries.
- Being Subcontinent Asian American was associated with lower rates of business ownership in the Pennsylvania architecture and engineering, professional services, and goods and services industries.
- Being Asian Pacific American was associated with lower rates of business ownership in the Pennsylvania goods and services industry.
- Being Black American was associated with lower rates of business ownership in the Pennsylvania professional services industry.
- Being a woman was associated with lower rates of business ownership in Pennsylvania in all study-related industries.

Thus, disparities in business ownership rates between minorities and non-Hispanic whites and between women and men are not completely explained by differences in relevant factors such as income, education, and family status. Disparities in business ownership rates exist for several groups in all relevant industries even after accounting for such factors.

## **D. Business Success**

There is a great deal of research indicating that, nationally, minority- and woman-owned businesses fare worse than businesses owned by non-Hispanic white men. For example, Black Americans, Native Americans, Hispanic Americans, and women exhibit higher rates of moving from business ownership to unemployment than non-Hispanic whites and men. In addition, minority- and woman-owned businesses have been shown to be less successful than businesses

owned by non-Hispanic whites and men, using a number of different indicators such as profits, closure rates, and business size.<sup>108, 109, 110</sup> The study team examined data on business closure, business receipts, and business owner earnings to further explore the success of minority- and woman-owned businesses in Pennsylvania.

**Business closure.** The study team examined the rates of closure among Pennsylvania businesses by the race/ethnicity and gender of the owners. Figure 3-11 presents those results. As shown in Figure 3-11, Black American-owned businesses, Asian American-owned businesses, and Hispanic American-owned businesses in Pennsylvania appear to close at higher rates than non-Hispanic white-owned businesses. In addition, woman-owned businesses in Pennsylvania appear to close at higher rates than businesses owned by men. Increased rates of business closure among minority- and woman-owned businesses may have important effects on their availability for government contracts in Pennsylvania.

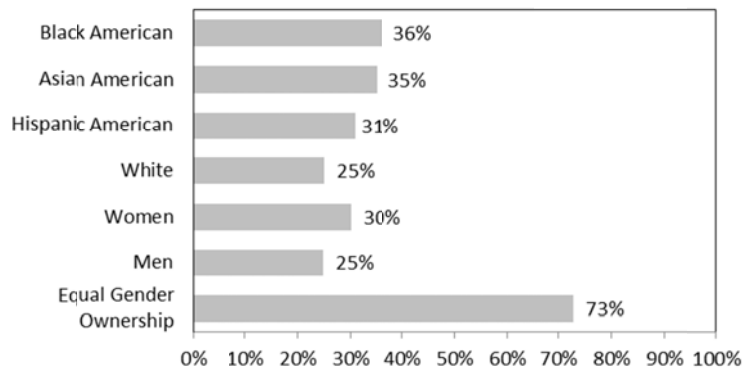
**Figure 3-11.**  
**Rates of business closure,**  
**Pennsylvania, 2002-2006**

Note:

Data include only non-publicly held businesses.

Equal Gender Ownership refers to those businesses for which ownership is split evenly between women and men.

Statistical significance of these results cannot be determined because sample sizes were not reported.



Source:

Lowrey, Ying. 2010. "Race/Ethnicity and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C..

Lowrey, Ying. 2014. "Gender and Establishment Dynamics, 2002-2006." U.S. Small Business Administration Office of Advocacy. Washington D.C.

**Business receipts.** BBC also examined data on business receipts to assess whether minority- and woman-owned businesses in Pennsylvania earn as much as businesses owned by non-Hispanic whites or business owned by men, respectively. Figure 3-12 shows mean annual receipts for Pennsylvania businesses by the race/ethnicity and gender of owners. Those results indicate that, in 2012, all relevant minority groups in Pennsylvania showed lower mean annual business receipts than businesses owned by non-Hispanic whites. In addition, woman-owned businesses in Pennsylvania showed lower mean annual business receipts than businesses owned by men.



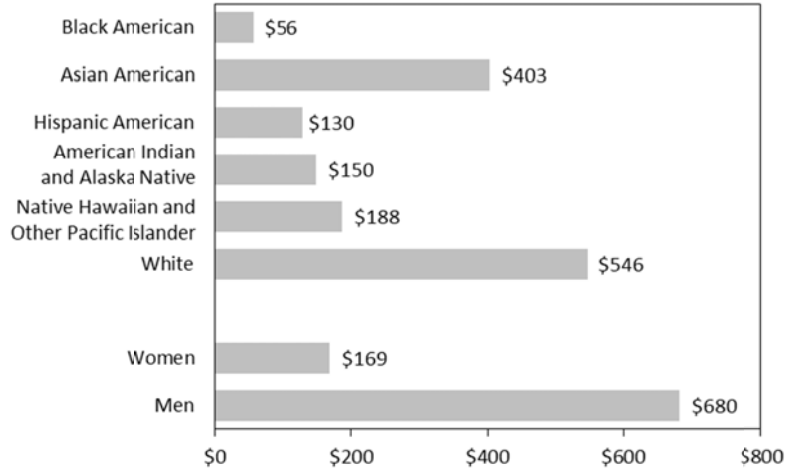
**Figure 3-12.**  
**Mean annual business**  
**receipts (in thousands),**  
**Pennsylvania, 2012**

**Note:**

Includes employer and non-employer firms. Does not include publicly-traded companies or other firms not classifiable by race/ethnicity and gender.

**Source:**

2012 Survey of Business Owners, part of the U.S. Census Bureau's 2012 Economic Census.



**Business owner earnings.** The study team analyzed business owner earnings to assess whether minorities and women in Pennsylvania earn as much from the businesses that they own as non-Hispanic whites and men do. As shown in Figure 3-13, Black Americans, Hispanic Americans, and Native Americans earned less on average from their businesses than non-Hispanic whites earned from their businesses. In addition, women in Pennsylvania earned less from their businesses than men earned from their businesses. BBC also conducted regression analyses to determine whether earnings disparities in Pennsylvania exist even after statistically controlling for various relevant factors such as age, education, and family status. The results of those analyses indicated that being a Black American woman was associated with substantially lower business owner earnings in Pennsylvania (for details, see Figure C-32 in Appendix C).

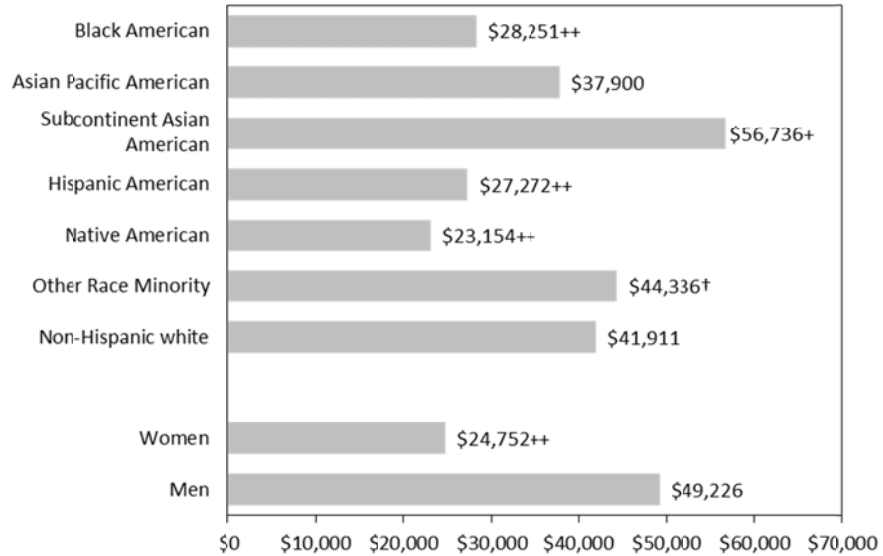
**Figure 3-13.**  
**Mean annual**  
**business owner**  
**earnings,**  
**Pennsylvania, 2012-**  
**2016**

Note:

The sample universe is business owners age 16 and over who reported positive earnings. All amounts in 2016 dollars.

++ Denotes statistically significant differences from non-Hispanic whites (for minority groups) or from men (for women) at the 95% confidence level.

† Denotes that statistically significant differences were not reported due to small sample sizes.



Source:

BBC Research & Consulting from 2012-2016 ACS 5% Public Use Microdata sample. The raw data extract was obtained through the IPUMS program of the MN Population Center:  
<http://usa.ipums.org/usa/>.

## E. Summary

BBC's analyses of marketplace conditions indicate that minorities, women, minority-owned businesses, and woman-owned businesses face substantial barriers nationwide and in Pennsylvania. Existing research, as well as primary research that the study team conducted, indicate that disparities exist in terms of acquiring human capital, accruing financial capital, owning businesses, and operating successful businesses. In many cases, there is evidence that those disparities exist even after accounting for various relevant factors such as age, income, education, and family status. There is also evidence that many disparities are due, at least in part, to discrimination.

Barriers in the marketplace likely have important effects on the ability of minorities and women to start businesses in the relevant Pennsylvania industries of construction, architecture and engineering, professional services, and goods and services, as well as affecting their ability to operate those businesses successfully. Any difficulties that those groups face in starting and operating businesses may reduce their availability for government agency work and may also reduce the degree to which they are able to successfully compete for government contracts. In addition, the existence of barriers in the Pennsylvania marketplace indicates that government agencies in the state are passively participating in discrimination that makes it more difficult for certain businesses to successfully compete for their contracts. Many courts have held that passive participation in any discrimination establishes a compelling governmental interest for agencies to take remedial action to address such discrimination.

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- <sup>14</sup>Charles, Camille Zubrinsky. 2003. "The Dynamics of Racial Residential Segregation." *Annual Review of Sociology* 29:167–207.
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- <sup>16</sup>*Adarand VII*, 228 F.3d at 1167–76; see also *Western States Paving*, 407 F.3d at 992 (Congress "explicitly relied upon" the Department of Justice study that "documented the discriminatory hurdles that minorities must overcome to secure federally funded contracts"); *Midwest Fence Corp. v. U.S. DOT, Illinois DOT, et al.*, 2015 WL 1396376, *appeal pending*.
- <sup>17</sup>*Adarand VII*, 228 F.3d. at 1168-70; *Western States Paving*, 407 F.3d at 992; see *DynaLantic*, 885 F.Supp.2d 237; *Midwest Fence Corp. v. U.S. DOT, Illinois DOT, et al.*, 2015 WL 1396376, *appeal pending*; *Geyer Signal*, 2014 WL 130909297 at \*14.
- <sup>18</sup>*Adarand VII* at 1170-72; see *DynaLantic*, 885 F.Supp.2d 237; *Geyer Signal*, 2014 WL 1309092 at \*14.
- <sup>19</sup>*City of Richmond v. J.A. Croson Co.*, 488 U.S. 469 (1989).
- <sup>20</sup>*Concrete Works of Colo., Inc. v. City and County of Denver*, 36 F.3d 1513, 1524 (10th Cir. 1994).
- <sup>21</sup>*Rothe Development Corp v. U.S. Dept of Defense*, 545 F.3d 1023, 1041.
- <sup>22</sup> Because this chapter relies on external data sources such as the U.S. Census Bureau, the analyses presented do not always overlap with the disparity study period: July 1, 2011 through June 30, 2016.
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- <sup>31</sup> U.S. Department of Education Office for Civil Rights. 2014a. *College and Career Readiness*. Washington D.C.: U.S. Department of Education. Retrieved January 3, 2015 (<http://www2.ed.gov/about/offices/list/ocr/docs/crdc-college-and-career-readiness-snapshot.pdf>).
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# **CHAPTER 4.**

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## **Collection and Analysis of Contract Data**



# CHAPTER 4.

## Collection and Analysis of Contract Data

Chapter 4 provides an overview of the policies that the Pennsylvania Department of Transportation (PennDOT) uses to award contracts; the contracts that the study team analyzed as part of the disparity study; and the process that the study team used to collect relevant prime contract and subcontract data.<sup>1</sup> Chapter 4 is organized into six parts:

- A. Overview of contracting policies;
- B. Collection and analysis of contract data;
- C. Collection of vendor data;
- D. Relevant geographic market area;
- E. Relevant types of work; and
- F. Agency review process.

### A. Overview of Contracting Policies

PennDOT oversees programs and policies affecting highways, urban and rural public transportation, airports, railroads, ports, and waterways in Pennsylvania. Nearly three-quarters of PennDOT's annual budget is invested in the maintenance, restoration, and expansion of Pennsylvania's state and local highways system and bridge infrastructure.

PennDOT's procurement is generally governed by the *Commonwealth Procurement Code (62 Pa C.S.)* and Title 23 of the United States Code. PennDOT's procurement can be divided into two main areas, which are informed by different procurement authorities and policies: horizontal construction and all other goods, facilities projects, and non-construction related services.<sup>2</sup> This disparity study and its analyses focused on PennDOT's horizontal construction and construction-related engineering and professional services contract dollars during the study period. These data were obtained from PennDOT's Engineering and Construction Management System (ECMS), and from Walsh Construction for PennDOT's largest public-private partnership project to-date, The Rapid Bridge Replacement Project (RBR P3).

**Horizontal Construction.** PennDOT has the authority to act as the purchasing agency for its bridge, highway, dam, airport, railroad or other transportation-related heavy construction projects.<sup>3</sup> Thus, PennDOT is responsible for awarding horizontal construction and construction-

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<sup>1</sup> The terms "contract" and "procurement" are used interchangeably in this report unless otherwise noted.

<sup>2</sup> BBC recognizes that the procurement policies and authorities governing PennDOT contracting are complex. Thus, this chapter is designed to provide an overview of the PennDOT contracting policies that are most relevant to the procurement data BBC collected for this disparity study and its analyses.

<sup>3</sup> 62 Pa.C.S. § 301(c)(1).

related engineering and professional services contracts for state and USDOT-funded projects. PennDOT maintains the majority of data on these contracts in its ECMS.

**Horizontal Construction Contracts.** PennDOT follows a specific bid solicitation process for its highway and other horizontal construction projects. Each quarter, PennDOT publishes a six-month schedule of highway construction contracting opportunities on ECMS. Prospective bidders can access all highway bid documents and review specific project plans and specifications through the ECMS website. For complex projects, potential bidders are notified of the time and place of a pre-bid conference so that they may attend and seek additional information about the contract being awarded. Potential bidders can also submit questions about bid packages through ECMS. PennDOT accepts bids from prime contractors that are pre-qualified and are Registered Business Partners through the agency. In order to perform work on a PennDOT construction project, a business must be prequalified under PennDOT regulations.<sup>4</sup> The prequalification process requires contractors to provide information related to their financial ability, adequacy of plant and equipment, experience and organization.

Bidders must download the Expedite software and a project-specific Electronic Bid System file from ECMS. Then, bidders must complete bid packets using Expedite and submit their completed bids through ECMS. Bids must be received before the date and time of the deadline stated in the bid package. PennDOT opens all bids on the solicitation due date and reviews all bids for responsiveness. The agency then reviews all eligible bids and awards the contract to the lowest responsive and responsible bidder.

**Construction-related engineering and professional services contracts.** PennDOT is also responsible for awarding construction-related engineering and professional services contracts for its horizontal construction projects. PennDOT advertises for professional services contracts. All advertisements for current and future planned projects are posted on ECMS, and outline the scope of the project and desired qualifications. Consultants then submit a Statement of Interest for each project for which they want to be considered. In order to be considered for professional services contracts, consultants must have registered and described their qualifications in ECMS prior to submitting a Statement of Interest.

Consultants for construction-related engineering and professional services contracts are selected based upon their qualifications. Specifically, through its standard selection procedure, PennDOT scores all Statements of Interest for projects, and then selects a minimum of three best-qualified firms to submit technical proposals that outline how they plan to perform the proposed work. The finalists are then ranked based an evaluation of their technical proposals, including the firm's technical merit; use of subconsultants; proposed project management and delivery structure; and past performance. The highest ranked firm is then asked to provide a price proposal. As long as the selected consultant's proposal is acceptable, a contract is executed. For all design-related professional services projects, PennDOT is required to establish a selection committee of five architects, engineers, or other professionals with engineering and construction expertise.

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<sup>4</sup> 67 Pa. Code § 457

Once PennDOT selects a consultant for a professional services contract, the agency enters into either a project-specific or open-ended agreement with the business. A project-specific agreement is enacted when a project's scope of services and timeline are clearly defined (e.g. engineering work for a bridge). In contrast, open-ended project agreements are used when consultants are needed to provide certain services on an "as-needed" basis without a specific determination of how or when PennDOT might require those services. Once PennDOT determines those details, the agency creates specific work orders associated with an open-ended agreement. A subset of professional services agreements are project-specific, open-ended agreements. In those cases, PennDOT clearly defines the project for which services are needed but has not defined the exact scope of services required.

**Emergency horizontal construction contracts.** PennDOT is authorized to determine when USDOT-funded and state projects merit emergency purchases. When the need arises for a consultant to perform work and the emergency request is approved by the appropriate official, PennDOT is required to select a consultant who is the best qualified and available.<sup>5</sup> PennDOT maintains a written record of the process.

**Sole source contracts.** PennDOT allows for the procurement of horizontal construction-related professional services on a sole source basis, if the procurement meets at least one of the following conditions:

- Only a single source is capable of providing the services;
- Competition determined inadequate after solicitation of a number of sources;
- Federal or state regulations specifically exempt use of a competitive procedure; or
- Not enough time to award the contract on a competitive basis.

PennDOT provides additional guidance on its horizontal construction contracting processes to vendors interested in doing business with the agency in *PUB 408 and PUB 93*.<sup>6,7</sup>

**Other procurements.** The Department of General Services (DGS) retains purchasing authority for the majority of PennDOT's goods, facilities projects, and non-construction related services, unless DGS delegates that authority.<sup>8</sup> PennDOT is currently delegated purchasing authority for a number of vertical construction facilities projects. Those contract dollars were not analyzed as part of this disparity study.

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<sup>5</sup> PennDOT may elect to call a prequalified contractor or if time permits competitively bid a contract.

<sup>6</sup> Policy and Procedures for the Administration of Consultant Agreements. Pennsylvania Department of Transportation PUB 93 (3-18). Available online at <http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%2093.pdf>.

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<sup>8</sup> *The Commonwealth Procurement Code* authorizes the Department of General Services (DGS) to carry out and act as purchasing agency on all goods, services, design, and construction activities for the Commonwealth of Pennsylvania unless DGS delegates that authority. Memorandum of Understanding (MOU) #BB05192015 outlines some of the specific procurement responsibilities that DGS has delegated to PennDOT.

## B. Collection and Analysis of Contract Data

BBC Research & Consulting (BBC) collected contracting and vendor data from PennDOT's Bureau of Project Delivery and Bureau of Equal Opportunity divisions to serve as the basis of key disparity study analyses, including the utilization, availability, and disparity analyses. All contracting and vendor data came from PennDOT's ECMS software except for contract data about RBR P3. The study team collected the most comprehensive set of data that was available on prime contracts and subcontracts that PennDOT awarded during the study period (i.e., July 1, 2011 through June 30, 2016).<sup>9</sup> BBC sought data that included information about prime contractors, subcontractors, and suppliers, regardless of the race/ethnicity and gender of their owners or their statuses as small disadvantaged businesses. The study team collected data on transportation-related construction and engineering and professional services prime contracts and subcontracts that PennDOT awarded during the study period. The study team's analyses included contracts worth \$10,000 or more.<sup>10</sup>

**Prime contract data.** PennDOT provided the study team with electronic data on horizontal construction and related engineering and professional services prime contracts from their ECMS software, including state construction project records, state consulting agreement records, local construction project records, and local consulting agreement records. In addition, PennDOT provided contract data for its largest public-private partnership project to date, the RBR P3. Contract data for RBR P3 is managed by the project's prime contractor, Walsh Construction.

BBC collected the following information about each relevant horizontal construction and construction-related engineering and professional services prime contract:

- Contract number;
- Description of work;
- Award date;
- Award amount (including change orders and amendments);
- Amount paid-to-date;
- Location of work (PennDOT District);
- Prime contractor name; and
- Prime contractor identification number.

PennDOT staff advised the study team on how to interpret the ECMS and RBR P3 data that the agency provided, including how to identify unique contracts.

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<sup>9</sup> BBC collected and analyzed subcontractor and supplier contract dollars. In the report, all references to "subcontracts" include supplier contracts.

<sup>10</sup> Procurements of \$10,000 or more accounted for more than 99 percent of all in-scope PennDOT contract and procurement dollars during the study period.

**Subcontract data collection.** PennDOT also provided the study team with electronic data from ECMS on subcontracts that the agency awarded during the study period. All subcontract data was related to the horizontal construction and engineering and professional services prime contracts BBC collected from PennDOT. BBC collected the following information about each relevant subcontract:

- Associated prime contract number;
- Amount paid on the subcontract as of June 30, 2016;
- Amount awarded on the subcontract;
- Description of work; and
- Subcontractor name.

**Contracts included in study analyses.** BBC collected information on 5,023 prime contracts and 33,938 associated subcontracts that PennDOT awarded during the study period in the areas of horizontal construction and construction-related engineering and professional services. Those contracts accounted for \$12.54 billion of PennDOT contracting dollars during the five-year study period. Figure 4-1 presents dollars by relevant contracting area for the prime contracts and subcontracts that the study team included in its analyses.

**Figure 4-1.**  
**Number of PennDOT contracts included in the study**

Note:

Numbers rounded to nearest dollar and thus may not sum exactly to totals.

Source:

BBC Research from PennDOT ECMS and RBR P3 contract data.

Contract Type	Number of Contract Elements	Dollars (Thousands)
Horizontal construction	32,149	\$10,341,898
Construction-related engineering and professional services	<u>6,812</u>	<u>\$2,202,619</u>
<b>Total</b>	<b>38,961</b>	<b>\$12,544,517</b>

**Prime contract and subcontract amounts.** Because of the nature of the ECMS and RBR P3 data, BBC based its analyses on contract award amounts and contract paid-to-date amounts, depending on contract type. For PennDOT’s state-level consulting agreements (from ECMS) and the Rapid Bridge Replacement (RBR) project, BBC used the amounts paid-to-date to the prime contractor as of June 30, 2016. If the contract included subcontracts, the study team calculated subcontract amounts as the total amount paid to each subcontractor. BBC then calculated the prime contract amount as the total amount paid to the prime contractor less the sum of dollars paid to all subcontractors. If a contract did not include any subcontracts, the study team attributed the entire paid amount to the prime contractor.

Where amount paid-to-date was not available, BBC examined the dollars that PennDOT awarded to each prime contractor and subcontractor. BBC used award amount in the analysis of all state-level construction contracts, local construction contracts, and local consulting agreements in the ECMS data. If a contract included subcontracts, the study team calculated subcontract amounts as the total amount awarded to each subcontractor. BBC then calculated the prime contract amount as the total award amount less the sum of dollars awarded to all subcontractors. If a

contract did not include any subcontracts, the study team attributed the entire award amount to the prime contractor.

### **C. Collection of Vendor Data**

PennDOT maintains data on all vendors who have performed work on PennDOT contracts. The study team compiled the following information on businesses that participated in PennDOT horizontal construction and construction-related engineering and professional services contracts and procurements during the study period:

- Business name;
- Addresses and phone numbers;
- Ownership status (i.e., whether each business was minority- or woman-owned);
- Ethnicity of ownership (if minority-owned);
- Disadvantaged business enterprise (DBE) or disadvantaged business (DB) certification status;
- Primary line of work;
- Business size; and
- Year of establishment.

BBC relied on a variety of sources for vendor information, including:

- PennDOT contract and vendor data from ECMS;
- PennDOT United Certification Program DBE list;
- City of Philadelphia Office of Economic Opportunity certification list;
- Small Business Administration certification and ownership lists, including 8(a) HUBZone and self-certification lists;
- Dun & Bradstreet (D&B) business listings and other business information sources;
- Telephone surveys that the study team conducted with business owners and managers as part of the utilization and availability analyses;
- Business websites; and
- Reviews that PennDOT conducted of study information.

### **D. Relevant Geographic Market Area**

The study team used PennDOT's contracting and vendor data to help determine the relevant geographic market area—the geographical area in which the agency spends the substantial majority of its contracting dollars—for the study. The study team's analysis showed that 94 percent of PennDOT's horizontal construction and construction-related engineering and professional services contracting dollars during the study period went to businesses with locations in Pennsylvania, indicating that Pennsylvania should be considered the relevant

geographic market area for the study. BBC's analyses—including the availability analysis and quantitative analyses of marketplace conditions—focused on Pennsylvania.

## **E. Relevant Types of Work**

For each prime contract and subcontract, the study team determined the *subindustry* that best characterized the business's primary line of work (e.g., heavy construction). BBC identified 51 subindustries based on PennDOT contract data; telephone surveys that BBC conducted with prime contractors and subcontractors; business certification lists; D&B business listings; and other sources. BBC developed subindustries based in part on 8-digit D&B industry classification codes. Figure 4-2 presents the dollars that the study team examined in the various horizontal construction and construction-related engineering and professional services subindustries that BBC included in its analyses.

**Figure 4-2.  
PennDOT contract  
dollars by subindustry**

Note:  
Numbers rounded to nearest dollar  
and thus may not sum exactly to  
totals.

Source:  
BBC Research & Consulting from  
PennDOT ECMS and RBR P3 contract  
data.

Industry	Total (in Thousands)
<b>Horizontal Construction</b>	
Heavy construction	\$5,504,614
Concrete and related products	\$1,529,816
Structural steel and building construction	\$545,609
Excavation	\$393,819
Fencing, guardrails and signs	\$353,348
Concrete work	\$331,799
Electrical work	\$269,074
Painting	\$246,658
Trucking, hauling and storage	\$229,911
Other construction services	\$161,858
Water, sewer, and utility lines	\$113,451
Structural metals	\$108,666
Electrical equipment and supplies	\$103,614
Other construction materials	\$101,212
Residential construction	\$93,270
Landscape services	\$69,642
Flagging services	\$48,191
Heavy construction equipment	\$46,203
Petroleum and petroleum products	\$27,765
Dam and marine construction	\$16,952
Plumbing and HVAC	\$12,792
Wrecking and demolition work	\$12,485
Railroad construction	\$6,942
Masonry, drywall and stonework	\$6,087
Roofing	\$3,645
Other goods	\$1,554
Security guard services	\$490
Industrial chemicals	\$452
Industrial equipment and machinery	\$373
Safety equipment	\$370
Cleaning and janitorial services	\$337
Office equipment	\$270
Vehicle parts and supplies	\$256
Automobiles	\$234
Other services	\$127
Communications equipment	\$10
<b>Total construction</b>	<b>\$10,341,898</b>



**Figure 4-2. (Continued)  
PennDOT contract  
dollars by subindustry**

Note:  
Numbers rounded to nearest dollar  
and thus may not sum exactly to  
totals.

Source:  
BBC Research & Consulting from  
PennDOT contract data.

Industry	Total (in Thousands)
<b>Construction-Related Engineering and Professional Services</b>	
Engineering	\$1,311,139
Construction management	\$652,416
Environmental services and transportation planning	\$124,462
Architectural and design services	\$48,004
Real estate management	\$14,595
Testing services	\$13,301
Human resources and job training services	\$10,719
Surveying and mapmaking	\$9,357
Business services and consulting	\$7,243
IT and data services	\$3,308
Finance and accounting	\$3,222
Advertising, marketing and public relations	\$3,001
Scientific and market research	\$1,051
Other professional services	\$635
Legal services	\$163
<b>Total professional services</b>	<b>\$2,202,619</b>
<b>Total</b>	<b>\$12,544,517</b>

The study team combined related subindustries that accounted for relatively small percentages of total contracting dollars into four “other” construction-related subindustries: “other construction services,” “other professional services,” “other goods,” and “other services.” For example, the contracting dollars that PennDOT awarded to contractors for “miscellaneous rehabilitation work” represented less than 1 percent of the total PennDOT contract dollars that BBC examined in the study. BBC combined “miscellaneous rehabilitation work” with other construction subindustries that also accounted for relatively small percentages of total contracting dollars and that were relatively dissimilar to other subindustries into the “other construction services” subindustry.

There were also contracts that were categorized in various subindustries that BBC did not include as part of its analyses, because they are not typically analyzed as part of disparity studies. BBC did not include contracts in its analyses that:

- PennDOT awarded to other government agencies, nonprofit organizations, banks, or individuals (\$113 million of associated contract dollars);
- Accounted for small proportions of PennDOT’s contracting dollars (\$6.57 million of associated contract dollars); or
- Could not be classified into a particular subindustry (\$1.7 million of associated contract dollars).

## **F. Agency Review Process**

PennDOT reviewed BBC’s prime contract and subcontract data several times during the study process. The BBC study team met with PennDOT staff to review the data collection process, contract and vendor information that the study team gathered from ECMS and Walsh Construction, and summary results. BBC incorporated PennDOT’s feedback in the final contract and vendor data that the study team used as part of the disparity study.

# CHAPTER 5.

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## Availability Analysis

# CHAPTER 5.

## Availability Analysis

BBC Research & Consulting (BBC) analyzed the availability of minority- and woman-owned businesses that are ready, willing, and able to perform on Pennsylvania Department of Transportation's (PennDOT's) horizontal construction and construction-related engineering and professional services contracts.<sup>1</sup> Chapter 5 describes the availability analysis in seven parts:

- A. Purpose of the availability analysis;
- B. Potentially available businesses;
- C. Businesses in the availability database;
- D. Availability calculations;
- E. Availability results;
- F. Base figure for overall DBE goal; and
- G. Implications for DBE contract goals.

Appendix E provides supporting information related to the availability analysis.

### A. Purpose of the Availability Analysis

BBC examined the availability of minority- and woman-owned businesses for PennDOT prime contracts and subcontracts to inform the agency's implementation of the Federal Disadvantaged Business Enterprise (DBE) Program and the state's transportation-focused Diverse Business (DB) Program.<sup>2</sup> In addition, BBC used availability analysis results as inputs in the disparity analysis. In the disparity analysis, BBC compared the percentage of PennDOT contract dollars that went to minority- and woman-owned businesses during the study period (i.e., *participation* or *utilization*) to the percentage of dollars that one might expect those businesses to receive based on their availability for specific types and sizes of PennDOT prime contracts and subcontracts (i.e., *availability*).<sup>3</sup> Comparisons between participation and availability allowed the study team to determine whether any relevant business groups were *underutilized* during the study period relative to their availability for PennDOT work (for details, see Chapter 7).

### B. Potentially Available Businesses

BBC's availability analysis focused on specific areas of work (i.e., subindustries) related to the types of prime contracts and subcontracts that PennDOT awarded during the study period. BBC began the availability analysis by identifying the specific subindustries in which PennDOT

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<sup>1</sup> "Woman-owned businesses" refers to non-Hispanic white woman owned businesses. Information and results for minority woman-owned businesses are included along with their corresponding racial/ethnic groups.

<sup>2</sup> For disparity study analyses, BBC measured the availability and utilization of all minority- and woman-owned businesses regardless of size and revenue.

<sup>3</sup> The study period for the disparity study was July 1, 2011 through June 30, 2016.

spends most of its contracting dollars (i.e., *relevant work types*) as well as the geographic areas in which the majority of the businesses with which PennDOT spends those contracting dollars are located (i.e., *relevant geographic market area*).<sup>4</sup>

Once BBC identified PennDOT's relevant subindustries and its relevant geographic market area, the study team conducted extensive surveys to develop a representative, unbiased, and statistically-valid database of potentially available businesses located in the relevant geographic market area that perform work within relevant subindustries. The objective of the availability survey was not to collect information from each and every relevant business that is operating in the local marketplace. It was to collect information from an unbiased subset of the business population that appropriately represents the entire relevant business population operating in Pennsylvania. That method of examining availability is referred to as a *custom census* and has been accepted in federal court as the preferred methodology for conducting availability analyses. BBC's approach allowed the study team to estimate the availability of minority- and woman-owned businesses in an accurate, statistically-valid manner.

**Overview of availability surveys.** The study team conducted telephone surveys with business owners and managers to identify Pennsylvania businesses that are potentially available for PennDOT prime contracts and subcontracts.<sup>5</sup> BBC began the survey process by compiling a comprehensive and unbiased *phone book* of all types of Pennsylvania businesses—that is, not only those businesses that are minority or woman-owned but *all* businesses—that perform work in relevant subindustries. BBC developed that phone book primarily based on information from Dun & Bradstreet (D&B) Marketplace.<sup>6</sup> BBC collected information about all business establishments listed under 8-digit work specialization codes (as developed by D&B) that were most related to the contracts that PennDOT awarded during the study period. BBC obtained listings on 28,507 Pennsylvania businesses that do work in relevant subindustries. However, BBC did not have working phone numbers for 3,506 of those businesses. BBC attempted availability surveys with the remaining 25,001 business establishments.

**Availability survey information.** The BBC project team conducted telephone surveys with the owners or managers of the identified business establishments. Survey questions covered many topics about each business including:

- Status as a private business (as opposed to a public agency or nonprofit organization);
- Status as a subsidiary or branch of another company;
- Primary lines of work;
- Role as a contractor (i.e., prime contractor, subcontractor, or both);
- Interest in performing work for PennDOT;
- Largest prime contract or subcontract bid on or performed in the previous five years;

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<sup>4</sup> BBC identified the relevant geographic market area for the disparity study as the entire state of Pennsylvania.

<sup>5</sup> The study team offered business representatives the option of completing surveys via fax or e-mail if they preferred not to complete surveys via telephone.

<sup>6</sup> D&B Marketplace is accepted as the most comprehensive and unbiased source of business listings in the nation.

- Year of establishment; and
- Race/ethnicity and gender of ownership.

**Potentially available businesses.** BBC considered businesses to be potentially available for PennDOT prime contracts or subcontracts if they reported having a location in Pennsylvania and reported possessing *all* of the following characteristics:

- Being a private business (as opposed to a nonprofit organization);
- Having performed work relevant to PennDOT contracts or procurements;
- Having bid on or performed relevant work in either the public sector or private sector in Pennsylvania in the past five years;
- Being able to perform work or serve customers in the geographical area in which the work took place; and
- Being interested in performing PennDOT work.

BBC also considered the following information about businesses to determine if they were potentially available for specific prime contracts and subcontracts that PennDOT awards:

- The role in which they work (i.e., as a prime contractor, subcontractor, or both);
- The largest contract they bid on or performed in the past five years; and
- The year in which they were established.

### C. Businesses in the Availability Database

After conducting availability surveys with thousands of local businesses, BBC developed a database of information about businesses that are potentially available for PennDOT contracts and procurements. Information from the database allowed BBC to develop an accurate assessment of businesses that are ready, willing, and able to perform work for PennDOT. Figure 5-1 presents the percentage of businesses in the *availability database* that were minority-, woman-, and veteran-owned. The study team’s analysis included 1,872 businesses that are potentially available for specific prime contracts and subcontracts that PennDOT awards. As shown in Figure 5-1, 26.4 percent of those businesses were minority- or woman-owned. The information in Figure 5-1 reflects a simple *head count* of businesses with no analysis of their availability for specific PennDOT contracts and procurements. Thus, it represents only a first step toward analyzing the availability of minority- and woman-owned businesses for PennDOT work.

**Figure 5-1.**  
**Percentage of businesses in the availability database that were minority- and woman-owned**

Note:  
 Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.

Source:  
 BBC Research & Consulting availability analysis.

Business group	Availability %
Asian Pacific American-owned	1.1 %
Black American-owned	3.9 %
Hispanic American-owned	1.5 %
Native American-owned	0.5 %
Subcontinent Asian American-owned	1.0 %
Non-Hispanic white woman-owned	<u>18.3 %</u>
<b>Total Minority- and Woman-owned</b>	<b>26.4 %</b>

## D. Availability Calculations

BBC analyzed information from the availability database to develop dollar-weighted estimates of the availability of minority- and woman-owned businesses for PennDOT contracts and procurements. Those estimates represent the percentage of contracting dollars that minority- and woman-owned businesses would be expected to receive based on their availability for specific types and sizes of PennDOT prime contracts and subcontracts.

**Steps to calculating availability.** BBC used a bottom up, contract-by-contract matching approach to calculate availability. Only a portion of the businesses in the availability database was considered potentially available for any given PennDOT prime contract or subcontract. BBC first examined the characteristics of each specific prime contract or subcontract (referred to generally as a *contract element*), including type of work, location of work, contract size, and contract date. BBC then identified businesses in the availability database that perform work of that type, in that role (i.e., as a prime contractor or subcontractor), in that location, of that size, and that were in business in the year that PennDOT awarded the contract element.

BBC identified the specific characteristics of each prime contract and subcontract that the study team examined as part of the disparity study and then took the following steps to calculate availability for each contract element:

1. For each contract element, the study team identified businesses in the availability database that reported that they:
  - Are interested in performing horizontal construction or construction-related engineering and professional services work in that particular role for that specific type of work for PennDOT;
  - Are able to serve customers in the geographical area in which the work took place;
  - Have bid on or performed work of that size in the past five years; and
  - Were in business in the year that PennDOT awarded the contract element.
2. The study team then counted the number of minority-owned businesses, woman-owned businesses, and businesses owned by non-Hispanic white men (i.e., *majority-owned businesses*) in the availability database that met the criteria specified in Step 1.
3. The study team translated the numeric availability of businesses for the contract element into percentage availability.

BBC repeated those steps for each contract element that the study team examined as part of the disparity study. BBC multiplied the percentage availability for each contract element by the dollars associated with the contract element, added results across all contract elements, and divided by the total dollars for all contract elements. The result was dollar-weighted estimates of the availability of minority- and woman-owned businesses, both overall and separately for each relevant business group. Figure 5-2 provides an example of how BBC calculated availability for a specific subcontract associated with a construction prime contract that PennDOT awarded during the study period.

**Improvements on a simple head count of businesses.** BBC used a custom census approach to calculating the availability of minority- and woman-owned businesses for PennDOT work rather than using a simple head count of those businesses (e.g., simply calculating the percentage of all Pennsylvania businesses that are minority- or woman-owned). There are several important ways in which BBC's custom census approach to measuring availability is more precise than completing a simple head count.

**BBC's approach accounts for type of work.** Federal regulations suggest calculating availability based on businesses' abilities to perform specific types of work. For example, the United States Department of Transportation (USDOT) gives the following example in "Tips for Goal-Setting in the Disadvantaged Business Enterprise (DBE) Program:"

*If 90 percent of an agency's contracting dollars is spent on heavy construction and 10 percent on trucking, the agency would calculate the percentage of heavy construction businesses that are [minority- or woman-owned] and the percentage of trucking businesses that are [minority- or woman-owned], and weight the first figure by 90 percent and the second figure by 10 percent when calculating overall [minority- and woman-owned business] availability.<sup>7</sup>*

The BBC study team took type of work into account by examining 60 different subindustries related to horizontal construction and construction-related engineering and professional services as part of estimating availability for PennDOT prime contracts and subcontracts.

**BBC's approach accounts for interest in relevant prime contract and subcontract work.** The study team collected information on whether businesses are interested in working as prime contractors, subcontractors, or both on PennDOT work (in addition to considering several other factors related to PennDOT prime contracts and subcontracts such as contract types, sizes, and locations). Businesses had to indicate that they are interested in performing such work for

**Figure 5-2.  
Example of the availability calculation  
for a PennDOT subcontract**

On a contract that PennDOT awarded in 2015, the prime contractor awarded a subcontract worth \$64,377 for heavy construction. To determine the overall availability of minority- and woman-owned businesses for that subcontract, the study team identified businesses in the availability database that:

- a. Were in business in 2015;
- b. Indicated that they performed heavy construction;
- c. Reported bidding on work of similar or greater size in the past;
- d. Reported being able to work or serve customers statewide (where the work was performed); and
- e. Reported qualifications and interest in working as a subcontractor on PennDOT projects.

The study team found 49 businesses in the availability database that met those criteria. Of those businesses, eight were minority- or woman-owned businesses. Thus, the availability of minority- and woman-owned businesses for the subcontract was 16 percent (i.e.,  $8/49 \times 100 = 16$ ).

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<sup>7</sup> Tips for Goals Setting in the Disadvantaged Business Enterprise (DBE) Program, <http://www.osdbu.dot.gov/dbeprogram/tips.cfm>.

PennDOT in order to be considered potentially available for PennDOT contracts and procurements.

**BBC’s approach accounts for the relative capacity of businesses.** BBC considered the size—in terms of dollar value—of the prime contracts and subcontracts that a business bid on or received in the previous five years (i.e., *relative capacity*) when determining whether to count that business as available for a particular contract element. BBC considered whether businesses had previously bid on or received at least one contract of an equivalent or greater dollar value. BBC’s approach is consistent with many recent, key court decisions that have found relative capacity measures to be important to measuring availability (e.g., *Associated General Contractors of America, San Diego Chapter vs. California Department of Transportation, et al.*,<sup>8</sup> *Western States Paving Company v. Washington State DOT*,<sup>9</sup> *Rothe Development Corp. v. U.S. Department of Defense*,<sup>10</sup> and *Engineering Contractors Association of S. Fla. Inc. vs. Metro Dade County*<sup>11</sup>).

**BBC’s approach generates dollar-weighted results.** BBC examined availability on a contract-by-contract basis and then dollar-weighted the results for different sets of contract elements. Thus, the results of relatively large contract elements contributed more to overall availability estimates than those of relatively small contract elements. BBC’s approach is consistent with relevant case law and federal regulations including USDOT’s “Tips for Goal-Setting in the Disadvantaged Business Enterprise (DBE) Program,” which suggests a dollar-weighted approach to calculating availability.

## E. Availability Results

BBC estimated the availability of minority- and woman-owned businesses for the 38,961 relevant prime contracts and subcontracts that PennDOT awarded between July 1, 2011 through June 30, 2016.

**Overall.** Figure 5-3 presents overall dollar-weighted availability estimates by relevant business group for PennDOT contracts. Overall, the availability of minority- and woman-owned businesses for PennDOT’s horizontal construction and construction-related engineering and professional services contracts and procurements is 10.4 percent. Non-Hispanic white woman-owned businesses (8.2%), Black American-owned businesses (0.8%), and Hispanic American-owned businesses (0.7%) exhibited the highest availability percentages among all groups.

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<sup>8</sup> *AGC, San Diego Chapter v. California DOT*, 2013 WL 1607239 (9th Cir. April 16, 2013).

<sup>9</sup> *Western States Paving Co. v. Washington State DOT*, 407 F.3d 983 (9th Cir. 2005), cert. denied, 546 U.S. 1170 (2006).

<sup>10</sup> *Rothe Development Corp. v. U.S. Department of Defense*, 545 F.3d 1023 (Fed. Cir. 2008).

<sup>11</sup> *Engineering Contractors Association of S. Fla. Inc. vs. Metro Dade County*, 943 F. Supp. 1546 (S.D. Fla. 1996).



**Figure 5-3.**  
**Overall availability estimates**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail and results by group, see Figure F-2 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Availability %
Asian Pacific American-owned	0.3 %
Black American-owned	0.8 %
Hispanic American-owned	0.7 %
Native American-owned	0.1 %
Subcontinent Asian American-owned	0.2 %
Non-Hispanic white woman-owned	8.2 %
<b>Total Minority- and Woman-owned</b>	<b>10.4 %</b>

**Contract role.** Many minority- and woman-owned businesses are small businesses, and thus, often work as subcontractors. Because of that tendency, it is useful to examine availability estimates separately for prime contracts and subcontracts. Figure 5-4 presents results for minority- and woman-owned businesses. As shown in Figure 5-4, the availability of minority- and woman-owned businesses considered together is lower for PennDOT prime contracts (6.0%) than for PennDOT subcontracts (21.3%). Among other factors, those results could be due to the fact that subcontracts tend to be much smaller in size than prime contracts. As a result, subcontracts are often more accessible than prime contracts to minority- and woman-owned businesses.

**Figure 5-4.**  
**Availability estimates by contract role**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail, see Figures F-7 and F-8 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Contract role	
	Prime contracts	Subcontracts
Asian Pacific American-owned	0.3 %	0.3 %
Black American-owned	0.1 %	2.4 %
Hispanic American-owned	0.4 %	1.5 %
Native American-owned	0.1 %	0.1 %
Subcontinent Asian American-owned	0.2 %	0.3 %
Non-Hispanic white woman-owned	4.8 %	16.6 %
<b>Total Minority- and Woman-owned</b>	<b>6.0 %</b>	<b>21.3 %</b>

**Results by funding source.** PennDOT implements the Federal DBE Program to encourage the participation of minority- and woman-owned businesses in Federal Highway Administration (FHWA)-funded contracts and the DB Program to encourage the participation of disadvantaged and diverse businesses in state-funded contracts. As a result, it is instructive to examine availability analysis results separately for PennDOT’s FHWA-funded contracts and state-funded contracts.<sup>12</sup> Figure 5-5 presents those results. As shown in Figure 5-5, the availability of minority- and woman-owned businesses considered together is somewhat higher for PennDOT’s FHWA-funded contracts (10.6%) than for its state-funded contracts (9.6%).

<sup>12</sup> The study team considered a contract to be FHWA-funded if it included at least one dollar of FHWA funding.

**Figure 5-5.**  
**Availability estimates by funding source**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail, see Figures F-22 and F-23 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Funding	
	FHWA	State
Asian Pacific American-owned	0.3 %	0.3 %
Black American-owned	0.8 %	0.6 %
Hispanic American-owned	0.7 %	0.7 %
Native American-owned	0.1 %	0.1 %
Subcontinent Asian American-owned	0.2 %	0.2 %
Non-Hispanic white woman-owned	8.4 %	7.7 %
<b>Total Minority- and Woman-owned</b>	<b>10.6 %</b>	<b>9.6 %</b>

**Results by industry.** BBC examined availability analysis results separately for PennDOT’s horizontal construction and construction-related engineering and professional services contracts and procurements. As shown in Figure 5-6, the availability of minority- and woman-owned businesses considered together is highest for PennDOT’s professional services contracts (15.1%) and lowest for its construction contracts (9.3%).

**Figure 5-6.**  
**Availability estimates by industry**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail, see Figures F-5, and F-6 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Industry	
	Horizontal construction	Construction-related engineering and professional services
Asian American-owned	0.1 %	1.6 %
Black American-owned	0.5 %	2.0 %
Hispanic American-owned	0.7 %	1.0 %
Native American-owned	0.0 %	0.6 %
Subcontinent Asian American-owned	0.0 %	1.4 %
Non-Hispanic white woman-owned	8.1 %	8.6 %
<b>Total Minority- and Woman-owned</b>	<b>9.3 %</b>	<b>15.1 %</b>

**Results by time period.** BBC examined the availability of minority- and woman-owned businesses separately for contracts and procurements that PennDOT awarded in the *early study period* (i.e., July 1, 2011 – December 31, 2013) and the *late study period* (i.e., January 1, 2014 – June 30, 2016) to determine whether the types and sizes of contracts that PennDOT awarded across the study period changed over time, which in turn would affect availability. As shown in Figure 5-7, the availability of minority- and woman-owned businesses considered together is similar between the early (10.6%) and late (10.1%) study periods.

**Figure 5-7.**  
**Availability estimates by time period**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail and results by group, see Figure F-3 and F-4 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Time period	
	Early	Late
Asian Pacific American-owned	0.4 %	0.3 %
Black American-owned	0.9 %	0.7 %
Hispanic American-owned	0.8 %	0.7 %
Native American-owned	0.1 %	0.1 %
Subcontinent Asian American-owned	0.3 %	0.2 %
Non-Hispanic white woman-owned	8.2 %	8.2 %
<b>Total Minority- and Woman-owned</b>	<b>10.6 %</b>	<b>10.1 %</b>

## F. Base Figure for Overall DBE Goal

As part of the Federal DBE Program, every three years, an agency is required to set an overall goal for DBE participation in its FHWA-funded contracts. Establishing a base figure is the first step in calculating an overall goal for DBE participation in PennDOT’s FHWA-funded contracts. BBC calculated the base figure using the same availability database and approach described above except that calculations only included *potential* DBEs—that is, minority- and woman-owned businesses that are DBE-certified or appear that they could be DBE-certified based on revenue requirements described in 49 Code of Federal Regulations Part 26—and only included FHWA-funded prime contracts and subcontracts. BBC’s approach to calculating PennDOT’s base figure is consistent with:

- Court-reviewed methodologies in several states including Washington, California, Illinois, and Minnesota;
- Instructions in the Final Rule effective February 20, 2011 that outline revisions to the Federal DBE Program; and
- USDOT’s “Tips for Goal-Setting in the Disadvantaged Business Enterprise (DBE) Program.”

Figure 5-8 presents BBC’s base figure calculations by relevant racial/ethnic and gender group. Those results indicate that the availability of potential DBEs for PennDOT’s FHWA-funded transportation contracts is 9.7 percent. PennDOT might consider 9.7 percent as the base figure for its overall goal for DBE participation, assuming that the types, sizes, and locations of FHWA-funded contracts that the agency awards in the time period that the goal will cover are similar to the types of FHWA-funded contracts that the agency awarded during the study period.

**Figure 5-8.**  
**Base figure calculations**

Note:  
Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.  
For more detail and results by group, see Figure F-31 in Appendix F.

Source:  
BBC Research & Consulting availability analysis.

Business group	Availability %
Asian Pacific American-owned	0.3 %
Black American-owned	0.7 %
Hispanic American-owned	0.7 %
Native American-owned	0.1 %
Subcontinent Asian American-owned	0.2 %
Non-Hispanic white woman-owned	7.6 %
<b>Total Minority- and Woman-owned</b>	<b>9.7 %</b>

**Differences from overall availability.** The availability of potential DBEs for FHWA-funded contracts is lower than the overall availability of minority- and woman-owned businesses that is presented in Figure 5-3. BBC’s calculation of the overall availability of minority- and woman-owned businesses includes three groups of minority- and woman-owned businesses that the study team did not count as potential DBEs when calculating the base figure:

- Minority- and woman-owned businesses that graduated from the DBE Program (that were not recertified);
- Minority- and woman-owned businesses that are not currently DBE-certified but that applied for DBE certification and have been denied; and
- Minority- and woman-owned businesses that are not currently DBE-certified that reported annual revenues over the most recent three years that were so high as to deem them ineligible for DBE certification.

In addition, the study team’s analyses for calculating the base figure for PennDOT’s overall DBE goal only included FHWA-funded prime contracts and subcontracts. The calculations for the overall availability of minority- and woman-owned businesses presented in Figure 5-3 included both FHWA- and state-funded prime contracts and subcontracts.

**Additional steps before PennDOT determines its overall DBE goal.** PennDOT must consider whether to make a step-2 adjustment to the base figure as part of determining its overall DBE goal. Step-2 adjustments can be upward or downward, but there is no requirement for PennDOT to make a step-2 adjustment as long as the agency can explain what factors it considered and why no adjustment was warranted. Chapter 9 discusses factors that PennDOT might consider in deciding whether to make a step-2 adjustment to the base figure.

## **G. Implications for Any DBE Contract Goals**

If PennDOT determines that the use of DBE contract goals is appropriate in the future, it might use information from the availability analysis when setting any DBE contract goals. It might also use information from a current DBE directory, a current bidders list, or other sources that could provide information about the availability of minority- and woman-owned businesses to participate in particular contracts. The Federal DBE Program provides agencies that use DBE contract goals with flexibility in how they set those goals. DBE goals on some contracts might be higher than the overall DBE goal. In contrast, DBE goals on other contracts might be lower than the overall DBE goal. In addition, there may be some FHWA-funded contracts for which setting DBE contract goals would not be appropriate.

# **CHAPTER 6.**

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## **Utilization Analysis**

# CHAPTER 6.

## Utilization Analysis

Chapter 6 presents information about the participation of minority- and woman-owned businesses in horizontal construction and construction-related engineering and professional services contracts and procurements that the Pennsylvania Department of Transportation (PennDOT) awarded between July 1, 2011 and June 30, 2016.<sup>1</sup> Chapter 6 is organized in two parts:

- A. Overview of utilization analysis; and
- B. Utilization analysis results.

### A. Overview of Utilization Analysis

BBC Research & Consulting (BBC) measured the participation of minority- and woman-owned businesses in PennDOT contracting in terms of *utilization*—the percentage of prime contract and subcontract dollars that those businesses received on PennDOT prime contracts and subcontracts during the study period. For example, if 5 percent of PennDOT prime contract and subcontract dollars went to woman-owned businesses on a particular set of contracts, utilization of woman-owned businesses for that set of contracts would be 5 percent.

As a United States Department of Transportation (USDOT) fund recipient, PennDOT implements the Federal Disadvantaged Business Enterprise (DBE) Program. USDOT requires PennDOT to submit reports about the participation of DBE-certified minority- and woman-owned businesses in its Federal Highway Administration (FHWA)-funded contracts twice each year (typically in June and December). BBC's analysis of the participation of minority- and woman-owned businesses in PennDOT contracting went beyond what the agency currently reports to USDOT in two key ways:

- BBC counted the participation of all minority- and woman-owned businesses in its analysis, regardless of whether they were certified as DBEs; and
- BBC examined the participation of minority- and woman-owned businesses in both FHWA- and state-funded contracts, not only in FHWA-funded contracts.<sup>2</sup>

### B. Utilization Analysis Results

BBC measured the participation of minority- and woman-owned businesses in relevant contracts that PennDOT awarded during the study period. BBC included all minority and woman-owned businesses in the analysis, regardless of their certification status. The study team

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<sup>1</sup> "Woman-owned businesses" refers to *non-Hispanic white woman owned* businesses. Information and results for minority woman-owned businesses are included along with their corresponding racial/ethnic groups.

<sup>2</sup> For disparity study analyses, BBC measured the availability and utilization of all minority- and woman-owned businesses regardless of size and revenue.

also measured participation separately for minority- and woman-owned businesses that were DBE-certified.

**Overall.** Figure 6-1 presents the percentage of contract dollars that minority- and woman-owned businesses received on contracts that PennDOT awarded during the study period (including both prime contracts and subcontracts). As shown in Figure 6-1, overall, minority- and woman-owned businesses considered together received 11.5 percent of the relevant contract dollars that PennDOT awarded during the study period. Most of those dollars—7.1 percent—went to certified DBEs (as shown in the bottom panel of Figure 6-1). Non-Hispanic white woman-owned businesses (8.5%) and Hispanic American-owned businesses (0.9%) exhibited higher levels of participation on PennDOT contracts than all other relevant groups.

**Figure 6-1.**  
**Overall utilization results**

Note:  
Numbers rounded to nearest tenth of 1 percent. Numbers may not add to totals.  
For more detail, see Figure F-2 in Appendix F.

Source:  
BBC Research & Consulting utilization analysis.

Utilization	
<b>Minority- and Woman-owned</b>	
Asian Pacific American-owned	0.6 %
Black American-owned	0.7 %
Hispanic American-owned	0.9 %
Native American-owned	0.2 %
Subcontinent Asian American-owned	0.5 %
Non-Hispanic white woman-owned	<u>8.5 %</u>
<b>Total Minority- and Woman-owned</b>	<b>11.5 %</b>
<b>DBEs</b>	
Asian Pacific American-owned	0.4 %
Black American-owned	0.6 %
Hispanic American-owned	0.9 %
Native American-owned	0.2 %
Subcontinent Asian American-owned	0.3 %
Non-Hispanic white woman-owned	<u>4.6 %</u>
<b>Total DBEs</b>	<b>7.1 %</b>

**Contract role.** Many minority- and woman-owned businesses are small businesses, and thus, often work as subcontractors. Because of that tendency, it is useful to examine utilization results separately for prime contracts and subcontracts. Figure 6-2 presents results for minority- and woman-owned businesses. As shown in Figure 6-2, the participation of minority- and woman-owned businesses considered together was in fact much higher in PennDOT subcontracts (29.1%) than prime contracts (4.5%).

**Figure 6-2.**  
**Utilization results by contract role**

Note:  
Numbers rounded to nearest tenth of 1 percent. Numbers may not add to totals.  
For more detail, see Figures F-7 and F-8 in Appendix F.

Source:  
BBC Research & Consulting utilization analysis.

Business group	Contract role	
	Prime contracts	Subcontracts
Asian Pacific American-owned	0.1 %	2.1 %
Black American-owned	0.1 %	2.1 %
Hispanic American-owned	0.1 %	3.0 %
Native American-owned	0.0 %	0.8 %
Subcontinent Asian American-owned	0.1 %	1.5 %
Non-Hispanic white woman-owned	4.1 %	19.7 %
<b>Total Minority- and Woman-owned</b>	<b>4.5 %</b>	<b>29.1 %</b>

**Funding source.** PennDOT implements the Federal DBE Program to encourage the participation of socially and economical disadvantaged minority- and woman-owned businesses in FHWA-funded contracts and the state’s DB Program to encourage the participation of diverse businesses, including minority- and woman-owned businesses, in state-funded contracts. Thus, it is instructive to examine utilization analysis results separately for PennDOT’s FHWA-funded contracts and state-funded contracts.<sup>3</sup> Figure 6-3 presents those results. As shown in Figure 6-3, the participation of minority- and woman-owned businesses considered together was higher in PennDOT’s FHWA-funded contracts (12.4%) than state-funded contracts (9.2%).

**Figure 6-3.**  
**Utilization results by funding source**

Note:  
Numbers rounded to nearest tenth of 1 percent. Numbers may not add to totals.  
For more detail, see Figures F-22 and F-23 in Appendix F.

Source:  
BBC Research & Consulting utilization analysis.

Business group	Funding	
	FHWA	State
Asian Pacific American-owned	0.7 %	0.5 %
Black American-owned	0.7 %	0.6 %
Hispanic American-owned	0.9 %	0.9 %
Native American-owned	0.3 %	0.2 %
Subcontinent Asian American-owned	0.4 %	0.5 %
Non-Hispanic white woman-owned	9.4 %	6.4 %
<b>Total Minority- and Woman-owned</b>	<b>12.4 %</b>	<b>9.2 %</b>

**Industry.** BBC examined utilization results separately for PennDOT’s horizontal construction and construction-related engineering and professional services contracts and procurements. As shown in Figure 6-4, the participation of minority- and woman-owned businesses considered together was highest in PennDOT’s construction-related engineering and professional services contracts (15.2%) and lowest in horizontal construction contracts (10.7%).

<sup>3</sup> The study team considered a contract to be FHWA-funded if it included at least one dollar of FHWA funding.



**Figure 6-4.**  
**Utilization results by industry**

Note:

Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.

For more detail and results by group, see Figures F-5 and F-6 in Appendix F.

Source:

BBC Research & Consulting utilization analysis.

Business group	Industry	
	Horizontal construction	Construction-related engineering and professional services
Asian Pacific American-owned	0.6 %	0.8 %
Black American-owned	0.8 %	0.2 %
Hispanic American-owned	0.8 %	1.3 %
Native American-owned	0.3 %	0.1 %
Subcontinent Asian American-owned	0.1 %	2.3 %
Non-Hispanic white woman-owned	8.1 %	10.4 %
<b>Total Minority- and Woman-owned</b>	<b>10.7 %</b>	<b>15.2 %</b>

**Time period.** BBC also examined the participation of minority- and woman-owned businesses separately for contracts and procurements that PennDOT awarded in the *early study period* (i.e., July 1, 2011 – June 30, 2014) and the *late study period* (i.e., July 1, 2014 – June 30, 2016) to determine whether their participation in PennDOT contracts changed over time. As shown in Figure 6-5, the participation of minority- and woman-owned businesses when considered together was similar in the early (11.5%) and late (11.5%) study periods.

**Figure 6-5.**  
**Utilization results by time period**

Numbers rounded to nearest tenth of 1 percent. Numbers may not add to totals.

For more detail, see Figures F-3 and F-4 in Appendix F.

Source:

BBC Research & Consulting utilization analysis.

Business group	Time period	
	Early	Late
Asian Pacific American-owned	0.7 %	0.6 %
Black American-owned	0.7 %	0.7 %
Hispanic American-owned	0.9 %	1.0 %
Native American-owned	0.2 %	0.2 %
Subcontinent Asian American-owned	0.6 %	0.4 %
Non-Hispanic white woman-owned	8.4 %	8.6 %
<b>Total Minority- and Woman-owned</b>	<b>11.5 %</b>	<b>11.5 %</b>

**Concentration of dollars.** BBC analyzed whether the dollars that each relevant group of minority- and woman-owned businesses received on PennDOT contracts during the study period were spread across a relatively large number of different businesses or were concentrated within a relatively small number of businesses. The study team assessed that question by calculating:

- The number of different businesses within each relevant group that received contracting dollars during the study period; and
- The number of different businesses within each relevant group that accounted for 75 percent of the group's total contracting dollars during the study period.

Figure 6-6 presents those results. Overall, 347 different minority- and woman-owned businesses participated in PennDOT contracts during the study period. 60 of those businesses, or 17.3 percent of all utilized minority- and woman-owned businesses, accounted for 75 percent of the total contracting dollars that minority- and woman-owned businesses received during the study period.

**Figure 6-6.**  
**Concentration of dollars that went to minority- and woman-owned businesses**

Business group	Utilized businesses	Number of businesses accounting for 75% of dollars	% of businesses accounting for 75% of dollars
Asian Pacific American-owned	15	4	26.7%
Black American-owned	43	8	18.6%
Hispanic American-owned	20	5	25.0%
Native American-owned	6	2	33.3%
Subcontinent Asian American-owned	23	7	30.4%
Non-Hispanic white woman-owned	<u>236</u>	<u>34</u>	<u>14.4%</u>
<b>Total Minority- and Woman-owned</b>	<b>347</b>	<b>60</b>	<b>17.3%</b>

Note: The sum of utilized businesses by group is not equal to total utilized minority- and woman-owned businesses, because four minority-owned businesses that received work during the study period were of unknown race/ethnicity.

Source: BBC Research & Consulting utilization analysis.

# CHAPTER 7.

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## Disparity Analysis

# CHAPTER 7.

## Disparity Analysis

The disparity analysis compared the participation of minority- and woman-owned businesses in contracts that the Pennsylvania Department of Transportation (PennDOT) awarded between July 1, 2011 and June 30, 2016 (i.e., the study period) to what those businesses might be expected to receive based on their availability for that work. The analysis focused on horizontal construction and construction-related engineering and professional services contracts and procurements. Chapter 7 presents the disparity analysis in four parts:

- A. Overview;
- B. Disparity analysis results; and
- C. Statistical significance.

### A. Overview

As part of the disparity analysis, BBC Research & Consulting (BBC) compared the actual participation of minority- and woman-owned businesses in PennDOT prime contracts and subcontracts with the percentage of contract dollars that those businesses might be expected to receive based on their availability for that work.<sup>1</sup> BBC expressed both actual participation and availability as percentages of the total dollars associated with a particular set of contracts (e.g., 5% participation compared with 4% availability). BBC then calculated a *disparity index* to help compare participation and availability results across relevant business groups and contract sets using the following formula:

$$\frac{\% \text{ participation}}{\% \text{ availability}} \times 100$$

A disparity index of 100 indicates *parity* between actual participation, or *utilization*, and availability. That is, participation of a particular business group was largely in line with its availability. A disparity index of less than 100 indicates a *disparity* between participation and availability. That is, a particular business group was *underutilized* relative to its availability. Finally, a disparity index of less than 80 indicates a *substantial* disparity between participation and availability. That is, a particular business group was substantially underutilized relative to its availability.<sup>2</sup>

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<sup>1</sup> “Woman-owned businesses” refers to non-Hispanic white woman owned businesses. Information and results for minority woman-owned businesses are included along with their corresponding racial/ethnic groups.

<sup>2</sup> Many courts have deemed disparity indices below 80 as being *substantial* and have accepted such outcomes as evidence of adverse conditions for a particular business group (e.g., see *Rothe Development Corp v. U.S. Dept of Defense*, 545 F.3d 1023, 1041; *Eng’g Contractors Ass’n of South Florida, Inc. v. Metropolitan Dade County*, 122 F.3d at 914, 923 (11th Circuit 1997); and *Concrete Works of Colo., Inc. v. City and County of Denver*, 36 F.3d 1513, 1524 (10th Cir. 1994). See Appendix B for additional discussion of those and other cases.

The disparity analysis results that BBC presents in Chapter 7 summarize detailed results tables that are presented in Appendix F. Each table in Appendix F presents disparity analysis results for a different set of contracts. For example, Figure 7-1, which is identical to Figure F-2 in Appendix F, presents disparity analysis results for all PennDOT contracts that BBC examined as part of the study. Appendix F includes analogous tables for different subsets of contracts including:

- Horizontal construction and construction-related engineering and professional services contracts;
- Prime contracts and subcontracts; and
- Contracts that PennDOT awarded in different study period years.

The heading of each table in Appendix F provides a description of the subset of contracts that BBC analyzed for that particular table.

A review of Figure 7-1 helps to introduce the calculations and format of all of the disparity analysis tables in Appendix F. As illustrated in Figure 7-1, the disparity analysis tables present information about each relevant business group in separate rows:

- “All businesses” in row (1) pertains to information about all businesses regardless of the race/ethnicity and gender of their owners.
- Row (2) presents results for all minority- and woman-owned businesses considered together, regardless of whether they were certified as Disadvantaged Business Enterprises (DBEs) or Diverse Businesses (DBs).
- Row (3) presents results for all non-Hispanic white woman-owned businesses, regardless of whether they were certified as DBEs or DBs.
- Row (4) presents results for all minority-owned businesses, regardless of whether they were certified as DBEs or DBs.
- Rows (5) through (10) present results for businesses of each individual racial/ethnic group, regardless of whether they were certified as DBEs or DBs.

**Utilization results.** Each disparity analysis table includes the same columns and rows:

- Column (a) presents the total number of prime contracts and subcontracts (i.e., contract elements) that BBC analyzed as part of the contract set. As shown in row (1) of column (a) of Figure 7-1, BBC analyzed 38,961 contract elements. The value presented in column (a) for each individual business group represents the number of contract elements in which businesses of that particular group participated (e.g., as shown in row (6) of column (a), Black American-owned businesses participated in 679 prime contracts and subcontracts).

**Figure 7-1.**  
**Example of a disparity analysis table from Appendix F (same as Figure F-2 in Appendix F)**

Business Group	(a) Number of contract elements	(b) Total dollars (thousands)	(c) Estimated total dollars (thousands)*	(d) Utilization percentage	(e) Availability percentage	(f) Utilization - Availability	(g) Disparity index
(1) All businesses	38,961	\$12,544,517	\$12,544,517				
(2) Minority and woman-owned businesses	12,840	\$1,438,081	\$1,438,081	11.5	10.4	1.1	110.7
(3) Non-Hispanic white woman-owned	9,978	\$1,071,806	\$1,071,806	8.5	8.2	0.4	104.6
(4) Minority-owned	2,862	\$366,275	\$366,275	2.9	2.2	0.7	133.6
(5) Asian Pacific American-owned	571	\$77,220	\$78,417	0.6	0.3	0.3	181.8
(6) Black American-owned	679	\$83,343	\$84,635	0.7	0.8	-0.1	87.6
(7) Hispanic American-owned	646	\$114,454	\$116,228	0.9	0.7	0.2	129.2
(8) Native American-owned	302	\$30,012	\$30,478	0.2	0.1	0.1	200+
(9) Subcontinent Asian American-owned	518	\$55,654	\$56,517	0.5	0.2	0.2	187.9
(10) Unknown minority-owned	146	\$5,593					
(11) DBE-certified	10,015	\$890,234	\$890,234	7.1			
(12) Non-Hispanic white woman-owned	7,642	\$569,372	\$573,610	4.6			
(13) Minority-owned DBE	2,301	\$314,286	\$316,625	2.5			
(14) Asian Pacific American-owned DBE	427	\$55,958	\$56,375	0.4			
(15) Black American-owned DBE	539	\$74,369	\$74,922	0.6			
(16) Hispanic American-owned DBE	596	\$111,263	\$112,091	0.9			
(17) Native American-owned DBE	299	\$29,847	\$30,069	0.2			
(18) Subcontinent Asian American-owned DBE	440	\$42,849	\$43,168	0.3			

Note: Numbers are rounded to the nearest thousand dollars or tenth of one percent. "Woman-owned" refers to non-Hispanic white woman-owned.

\* Unknown minority-owned businesses were allocated to minority subgroups proportional to the known total dollars of those groups. For example, if total dollars of Black American-owned businesses (column b, row 6) accounted for 25 percent of total minority-owned business dollars (column b, row 4), then 25 percent of column b, row 10 would be added to column b, row 6 and the sum would be shown in column c, row 6.

Source: BBC Research & Consulting disparity analysis.

- Column (b) presents the dollars (in thousands) that were associated with the set of contract elements. As shown in row (1) of column (b) of Figure 7-1, BBC examined approximately \$12.5 billion for the entire set of contract elements. The dollar totals include both prime contract and subcontract dollars. The value presented in column (b) for each individual business group represents the dollars that the businesses of that particular group received on the set of contract elements (e.g., as shown in row (5) of column (b), Black American-owned businesses received approximately \$83.3 million).
- Column (c) presents the dollars (in thousands) that were associated with the set of contract elements after adjusting those dollars for businesses that BBC identified as minority-owned but for which specific race/ethnicity information was not available. The dollar totals include both prime contract and subcontract dollars.
- Column (d) presents the participation of each business group as a percentage of total dollars associated with the set of contract elements. BBC calculated each percentage in column (d) by dividing the dollars going to a particular group in column (c) by the total dollars associated with the set of contract elements shown in row (1) of column (c), and then expressing the result as a percentage (e.g., for Black American-owned businesses, the study team divided \$84.6 million by \$12.5 billion and multiplied by 100 for a result of 0.7%, as shown in row (5) of column (d)).
- The bottom half of Figure 7-1 presents utilization results for minority- and woman-owned businesses that were DBE-certified.

**Availability results.** Column (e) of Figure 7-1 presents the availability of each relevant business group for all contract elements that the study team analyzed as part of the contract set. Availability estimates, which are represented as percentages of the total contracting dollars associated with the set of contracts, serve as benchmarks against which to compare the participation of specific groups for specific sets of contracts (e.g., as shown in row (5) of column (e), the availability of Black American-owned businesses is 0.8%).

**Differences between participation and availability.** The next step in analyzing whether there was a disparity between the participation and availability of minority- and woman-owned businesses is to subtract the availability percentage from the participation percentage. Column (f) of Figure 7-1 presents the percentage point difference between participation and availability for each relevant racial/ethnic and gender group. For example, as presented in row (5) of column (f) of Figure 7-1, the participation of Black American-owned businesses in PennDOT contracts was 0.1 percentage points less than their availability.

**Disparity indices.** It is sometimes difficult to interpret absolute percentage differences between participation and availability. Therefore, BBC also calculated a disparity index for each relevant racial/ethnic and gender group. Column (g) of Figure 7-1 presents the disparity index for each relevant racial/ethnic and gender group. For example, as reported in row (5) of column (g), the disparity index for Black American-owned businesses was approximately 88, indicating that Black American-owned businesses actually received approximately \$.88 for every dollar that they might be expected to receive based on their availability for prime contracts and subcontracts that PennDOT awarded during the study period.

When BBC’s calculations showed a disparity index exceeding 200, BBC reported an index of “200+.” A disparity index of 200+ means that participation was more than twice as much as availability for a particular group for a particular set of contracts.

## B. Disparity Analysis Results

BBC measured disparities between the participation and availability of minority- and woman-owned businesses for various sets of contracts that PennDOT awarded during the study period.

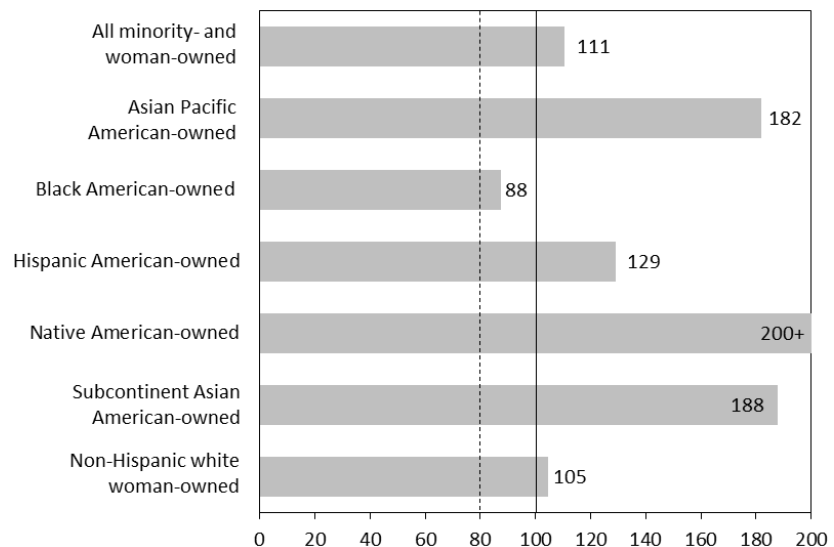
**Overall.** Figure 7-2 presents disparity indices for all relevant prime contracts and subcontracts that PennDOT awarded during the study period. The line down the center of the graph shows a disparity index level of 100, which indicates parity between participation and availability. Disparity indices of less than 100 indicate disparities between participation and availability (i.e., underutilization). For reference, a line is also drawn at a disparity index level of 80, because some courts use 80 as the threshold for what indicates a substantial disparity.

As shown in Figure 7-2, overall, the participation of minority- and woman-owned businesses in contracts that PennDOT awarded during the study period was largely in line with what one might expect based on the availability of those businesses for that work. The disparity index of 111 indicates that minority- and woman-owned businesses received approximately \$1.11 for every dollar that they might be expected to receive based on their availability for the relevant prime contracts and subcontracts that PennDOT awarded during the study period. Disparity analysis results by individual racial/ethnic and gender group indicated that the only group to show a disparity was Black American-owned business (disparity index of 88), but that disparity was higher than the threshold of being considered substantial. Note that PennDOT used DBE contract goals to award most of its contracts during the study period, so the results presented in Figure 7-2 are reflective of the use of those goals. It is important to examine outcomes for minority- and woman-owned businesses on PennDOT contracts to which such race- and gender-conscious program measures did not apply.

**Figure 7-2.**  
**Disparity indices by group**

Note:  
For more detail, see Figure F-2 in  
Appendix F.

Source:  
BBC Research & Consulting disparity  
analysis.





**Contract role.** Subcontracts tend to be much smaller in size than prime contracts. As a result, subcontracts are often more accessible than prime contracts to minority- and woman-owned businesses. Thus, it might be reasonable to expect better outcomes for minority- and woman-owned businesses on subcontracts than on prime contracts. In addition, PennDOT’s use of DBE contract goals during the study period applied most directly to minority- and woman-owned businesses in subcontracts rather than prime contracts. Thus, disparity analysis results for prime contracts represent outcomes for minority- and woman-owned businesses on contracts that were awarded in a *race- and gender-neutral environment*. Those results are particularly relevant to decisions that PennDOT must make regarding its use of race- and gender-conscious measures.

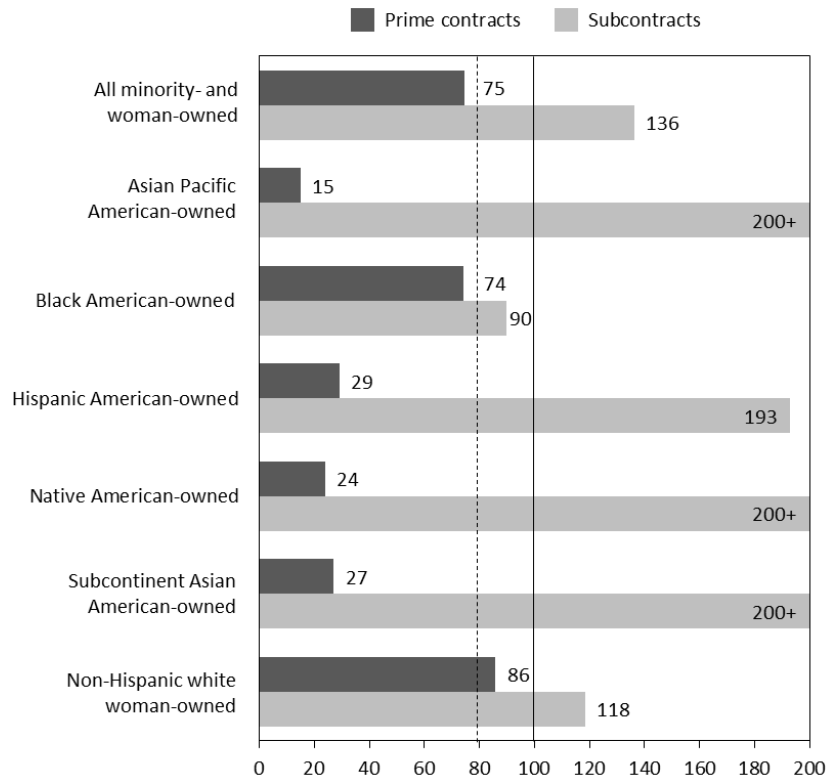
Figure 7-3 presents disparity indices separately for prime contracts and subcontracts. As shown in Figure 7-3, minority- and woman-owned businesses considered together showed a substantial disparity for prime contracts (disparity index of 75) but not for subcontracts (disparity index of 136). Results for individual groups indicated that:

- All groups showed substantial disparities on prime contracts except for non-Hispanic white woman-owned businesses, who showed a disparity that was close to being considered substantial (disparity index of 86).
- Only Black American-owned businesses showed a disparity on subcontracts (disparity index of 90), but that disparity was higher than the threshold of being considered substantial.

**Figure 7-3.**  
**Disparity indices for**  
**prime contracts and**  
**subcontracts**

Note:  
 For more detail, see Figures F-7 and F-8 in Appendix F.

Source:  
 BBC Research & Consulting  
 disparity analysis.

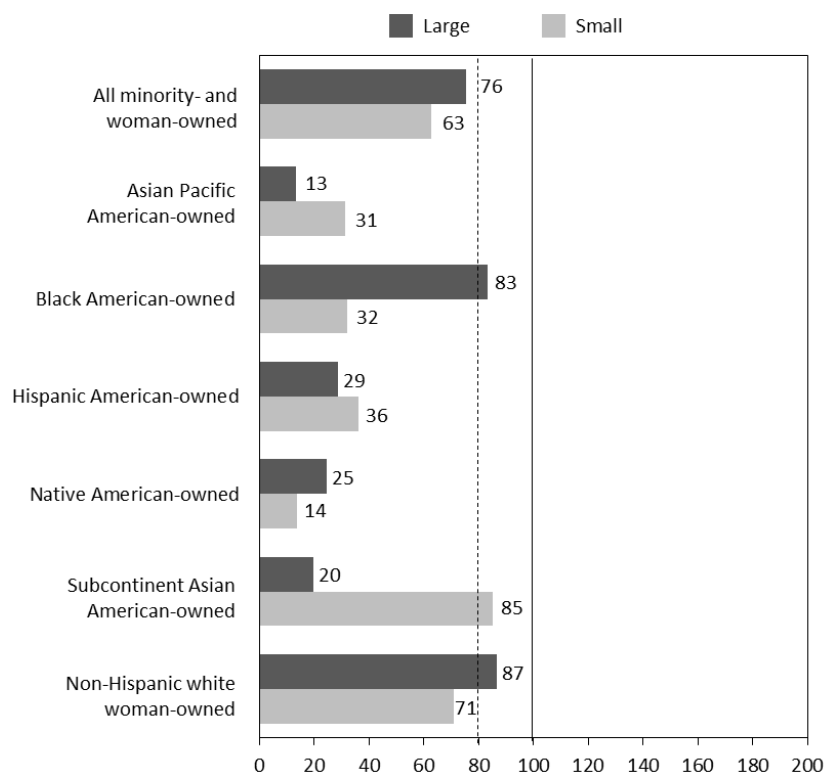


**Contract size.** BBC further examined outcomes for minority- and woman-owned businesses on prime contracts by comparing disparity analysis results for *large* and *small* prime contracts that PennDOT awarded during the study period to assess whether disparity analysis results for prime contracts varied by contract size. *Large* prime contracts were defined as contracts worth more than \$500,000, and *small* prime contracts were defined as contracts worth \$500,000 or less. Figure 7-4 presents those results.

**Figure 7-4.**  
**Disparity indices for large and small prime contracts**

Note:  
For more detail, see Figures F-20 and F-21 in Appendix F.

Source:  
BBC Research & Consulting disparity analysis.



Overall, minority- and woman-owned businesses exhibited a substantial disparity for both large prime contracts (disparity index of 76) and small prime contracts (disparity index of 63). There were several key differences in disparities by contract size and group:

- All racial/ethnic and gender groups showed substantial disparities for large prime contracts except Black American-owned businesses (disparity index of 83) and non-Hispanic white woman-owned businesses (disparity index of 87). Both of those disparities were close to the threshold of being considered substantial.
- All racial/ethnic and gender groups showed substantial disparities for small prime contracts except Subcontinent Asian American-owned businesses (disparity index of 85). However, that disparity is close to the threshold of being considered substantial.

**Funding source.** PennDOT implements the Federal DBE Program to ensure nondiscrimination in the award and administration of USDOT-funded contracts, remove barriers, level the playing field, and assist with capacity-building for socially and economically disadvantaged businesses.<sup>3</sup>

<sup>3</sup> 49 C.F.R. Part 26

As a result, it is instructive to examine availability analysis results separately for PennDOT’s FHWA-funded contracts and state-funded contracts.<sup>4</sup> Figure 7-5 presents disparity analysis results separately for FHWA- and state-funded contracts. As shown in Figure 7-5, minority- and woman-owned businesses considered together showed a disparity for state-funded contracts (disparity index of 96) but not for FHWA-funded contracts (disparity index of 116). Results for individual groups indicated that:

- The only individual racial/ethnic or gender group to show a disparity for FHWA-funded contracts was Black American-owned businesses (disparity index of 86). That disparity was close to the threshold of being considered substantial.
- Black American-owned businesses (disparity index of 99) and non-Hispanic white woman-owned businesses (disparity index of 84) showed a disparity for state-funded contracts. The disparity for Black American-owned businesses was higher than the threshold for being considered substantial while the disparity for non-Hispanic white woman-owned businesses was close to the threshold.

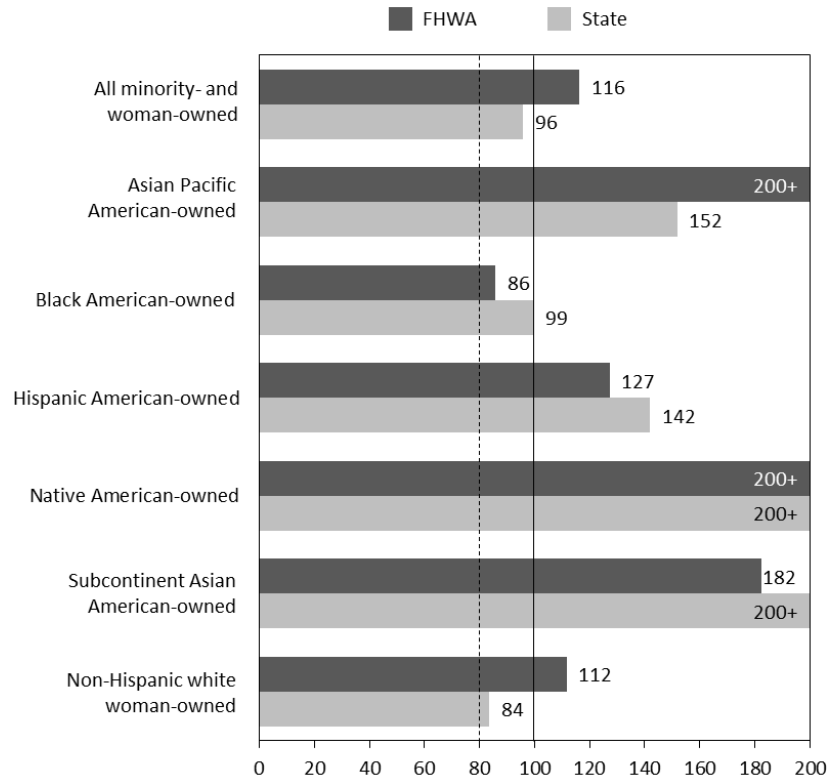
**Figure 7-5.**  
**Disparity analysis results**  
**by funding source**

Note:

For more detail, see Figures F-22 and F-23 in Appendix F.

Source:

BBC Research & Consulting disparity analysis.



**Industry.** BBC examined disparity analysis results separately for PennDOT’s horizontal construction and construction-related engineering and professional services contracts, so that PennDOT can use that information to implement the Federal DBE Program appropriately for each relevant contracting area. Figure 7-6 presents disparity indices for each relevant contracting area. Disparity analyses results differed by contracting area and group:

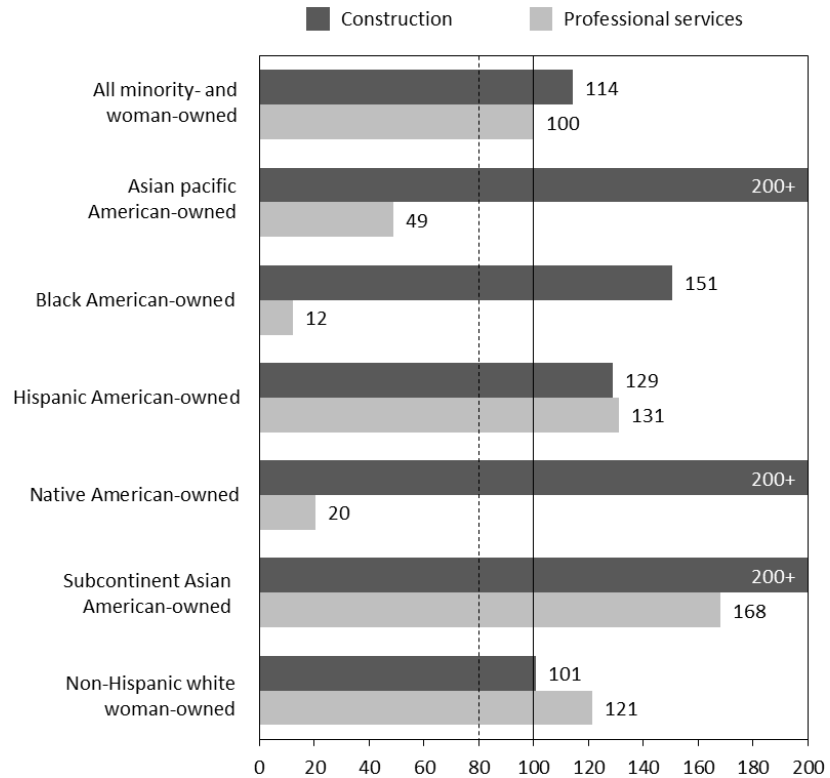
<sup>4</sup> The study team considered a contract to be FHWA-funded if it included at least one dollar of FHWA funding.

- Minority- and woman-owned businesses considered together did not show a disparity on construction contracts (disparity index of 114) nor did any individual racial/ethnic or gender groups.
- Minority- and woman-owned businesses considered together did not show a disparity on professional services contracts (disparity index of 100). However, Asian Pacific American-owned business (disparity index of 49), Black American-owned businesses (disparity index of 12), and Native American-owned businesses (disparity index of 20) all showed substantial disparities.

**Figure 7-6**  
**Disparity analysis results**  
**by relevant industry**

Note:  
 For more detail, see Figures  
 F-5 and F-6 in Appendix F.

Source:  
 BBC Research & Consulting  
 disparity analysis.

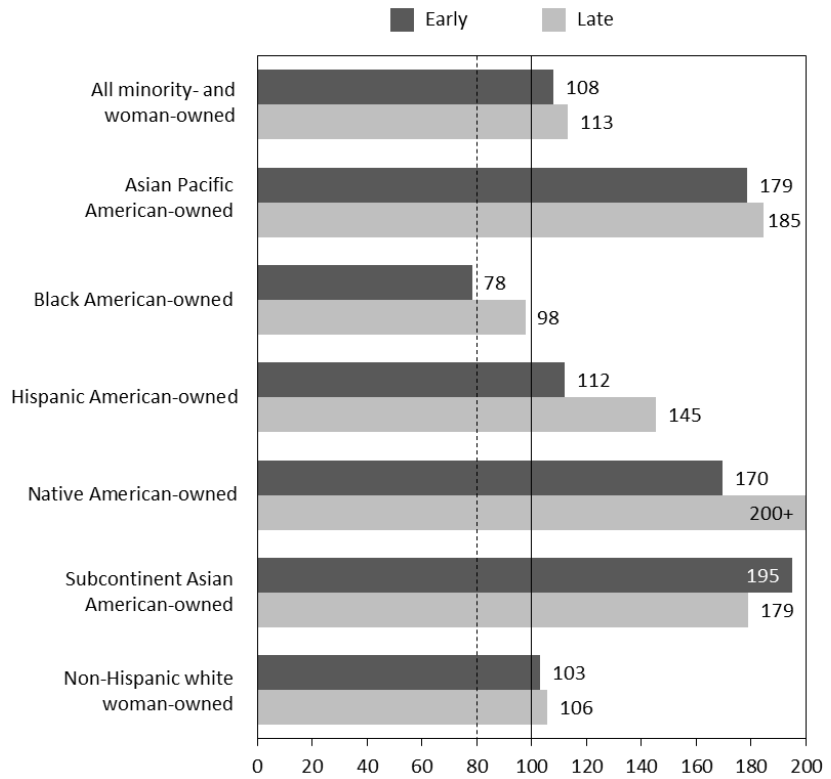


**Time period.** BBC also examined disparity analysis results separately for two separate time periods: July 1, 2011 through December 31, 2013 (*early study period*) and January 1, 2014 through June 30, 2016 (*late study period*). That information might help PennDOT determine whether there were different outcomes for minority- and woman-owned businesses as the country moved further and further from the economic downturn that began in 2008. Figure 7-7 presents disparity indices separately for the early and late study periods. As shown in Figure 7-7, minority- and woman-owned businesses considered together did not show substantial disparities for contracts that PennDOT awarded in the early study period (disparity index of 108) or in the late study period (disparity index of 113). However, Black American-owned businesses showed a substantial disparity for contracts that PennDOT awarded in the early study period (disparity index of 78) and a disparity for contracts awarded in the late study period (disparity index of 98).

**Figure 7-7.**  
**Disparity indices for**  
**early and late study**  
**period**

Note:  
 For more detail, see Figures F-3 and F-4 in Appendix F.

Source:  
 BBC Research & Consulting  
 disparity analysis.



### C. Statistical Significance

Statistical significance tests allow researchers to test the degree to which they can reject random chance as an explanation for any observed quantitative differences. In other words, a statistically significant difference is one that can be considered to be reliable or *real*.

**Monte Carlo analysis.** BBC used an algorithm that relies on repeated, random simulations to examine the statistical significance of disparity analysis results. That approach is referred to as a *Monte Carlo* analysis. Figure 7-8 describes how the study team used Monte Carlo to test the statistical significance of disparity analysis results.

**Figure 7-8.**  
**Monte Carlo Analysis**

BBC used a Monte Carlo approach to randomly select businesses to *win* each individual contract element that the study team included in its analyses. For each contract element, BBC's availability database provided information on individual businesses that are available for that contract element based on type of work, contractor role, and contract size. BBC assumed that each available business had an equal chance of winning the contract element, so the odds of a business from a certain group winning it were equal to the number of businesses from that group available for it divided by the total number of businesses available for it. The Monte Carlo simulation then randomly chose a business from the pool of available businesses to win the contract element.

The Monte Carlo simulation repeated the above process for all contract elements in a particular contract set. The output of a single Monte Carlo simulation for all contract elements in the set represented the simulated participation of minority- and woman-owned businesses for that set of contract elements. The entire Monte Carlo simulation was then repeated 1 million times for each contract set. The combined output from all 1 million simulations represented a probability distribution of the overall participation of minority- and woman-owned businesses if contracts were awarded randomly based only on the availability of relevant businesses working in the local marketplace.

The output of the Monte Carlo simulations represents the number of simulations out of 1 million that produced simulated participation that was equal or below the actual observed participation for each racial/ethnic and gender group and for each set of contracts. If that number was less than or equal to 25,000 (i.e., 2.5% of the total number of simulations), then BBC considered the corresponding disparity index to be statistically significant at the 95 percent confidence level. If that number was less than or equal to 50,000 (i.e., 5.0% of the total number of simulations), then BBC considered that disparity index to be statistically significant at the 90 percent confidence level.

**Results.** BBC used Monte Carlo analysis to test whether the disparities that the study team observed on all contracts considered together, prime contracts, and no-goals contracts were statistically significant. BBC identified substantial disparities for minority- and woman-owned businesses considered together and for certain racial/ethnic and gender groups considered separately on those contract sets. Examining whether disparities are statistically significant is particularly instructive for no-goal contracts and prime contracts, because they provide information about outcomes for minority- and woman-owned businesses in the absence of PennDOT's use of race- and gender-conscious measures.

Figure 7-9 presents results from the Monte Carlo analysis as they relate to the statistical significance of disparities that the study team observed on prime contracts. We tested statistical significance for all minority- and woman-owned businesses considered together and separately for non-Hispanic white woman-owned businesses and for all minority-owned businesses considered together.

**Figure 7-9.**  
**Monte Carlo simulation results for disparity analysis results**

Race/Ethnicity and Gender	Disparity Index	Number of simulation runs out of one million that replicated observed utilization	Probability of observed disparity occurring due to "chance"
<b>Total minority-/woman-owned</b>	75	2,638	0.3 %
White woman-owned	86	120,456	12.0 %
<b>Total minority-owned</b>	29	0	<0.1 %
Asian Pacific American-owned	15	3	<0.1 %
Black American-owned	74	140,123	14.0 %
Hispanic American-owned	29	40	<0.1 %
Native American-owned	24	1,558	0.2 %
Subcontinent Asian American-owned	27	68	<0.1 %

Note: Numbers rounded to nearest tenth of 1 percent.  
 Numbers may not add to totals due to rounding.

Source: BBC Research & Consulting.

As shown in Figure 7-9, results from the Monte Carlo analysis indicated that the disparities on prime contracts for all minority- and woman-owned businesses, all minority-owned businesses, Asian Pacific American-owned businesses, Hispanic American-owned businesses, Native American-owned businesses, and Subcontinent Asian American-owned businesses were statistically significant at the 95 percent confidence level.

## D. Case Study Analysis

BBC completed a case study analysis to assess whether characteristics of PennDOT's bid and proposal evaluation processes help to explain any of the disparities that the study team observed for prime contracts. BBC analyzed bid and proposal information on construction-related engineering and professional services contracts that PennDOT awarded during the study period.

**Professional services.** BBC examined proposal information for a sample of 50 construction-related engineering and professional services contracts that PennDOT awarded during the study period. In total, PennDOT received 795 proposals for those contracts.

**Number of proposals from minority- and woman-owned businesses.** Minority- and woman-owned businesses submitted 68 of the 795 proposals (9%) that the study team examined:

- Forty-two proposals (5% of all proposals) came from minority-owned businesses (12 different businesses); and
- Twenty-six proposals (3% of all proposals) came from white woman-owned businesses (12 different businesses).

Of the engineering and professional services-focused business owners and managers that indicated in availability surveys that their companies are interested in competing as prime contractors on public contracts, 10 percent represented minority-owned businesses and 21

percent represented white woman-owned businesses. Those percentages are higher than the percentage of minority-owned businesses and white woman-owned businesses that submitted proposals on PennDOT's engineering and professional services contracts during the study period.

**Success of bids.** BBC also examined the percentage of proposals that minority- and woman-owned businesses submitted that resulted in contract awards. As shown in Figure 7-10, 2 percent of the proposals that minority-owned businesses submitted resulted in contract awards, which was lower than the percent of proposals that majority-owned businesses submitted that resulted in contract awards (6%). Of the proposals that white woman-owned businesses submitted, 19 percent resulted in contract awards, higher than the percent of proposals that majority-owned businesses submitted that resulted in contract awards.

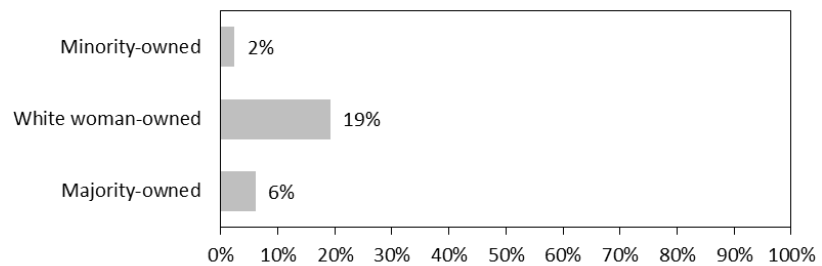
**Figure 7-10.**  
**Percentage of bids on professional services contracts that resulted in contract awards**

Note:

Based on an analysis of 795 bids on 50 professional services contracts.

Source:

BBC Research & Consulting from PennDOT ECMS contracting data.





# **CHAPTER 8.**

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## **Program Measures**

## CHAPTER 8.

# Program Measures

As a United States Department of Transportation (USDOT) recipient, the Pennsylvania Department of Transportation (PennDOT) implements the Disadvantaged Business Enterprise (DBE) Program that applies to federal-aid highway dollars expended on federally-assisted contracts. The DBE Program is made available to small business concerns owned and controlled by socially and economically disadvantaged individuals. According to the Federal Highway Administration the DBE Program was established to “ensure nondiscrimination in the award and administration of DOT-assisted contracts, help remove barriers to the participation of DBEs in DOT-assisted contracts, and assist the development of firms that can compete successfully in the marketplace outside of the DBE program.”<sup>1</sup>

As part of meeting the *narrow tailoring* requirement of the strict scrutiny standard of constitutional review, organizations that implement disadvantaged business programs must meet the maximum feasible portion of overall annual minority- and woman-owned business participation goals using race- and gender-neutral measures. If an agency cannot meet its overall goals using race- and gender-neutral measures alone, then it can also consider using race- and gender-conscious measures.

Race- and gender-neutral measures are designed to encourage the participation of all businesses—or, all small businesses—in an organization’s contracting. In contrast, race- and gender-conscious measures are designed to specifically encourage the participation of socially and economically disadvantaged minority- and woman-owned businesses in an organization’s contracting (e.g., using contract goals on individual contracts).

PennDOT’s Diverse Business (DB) Program was created in accordance with Act 89 of 2013, and implemented in October 2014 for state-funded transportation and professional services contracts. The DB Program applies to multiple Pennsylvania Transportation entities including: PennDOT, the PA Turnpike Commission, Southeastern Pennsylvania Transportation Authority (SEPTA), and all other transit organizations. The DB Program requires contractors to make a good faith effort to solicit diverse business subcontractors for state-funded transportation and professional services contracts.<sup>2</sup> Pennsylvania law defines “diverse businesses” as disadvantaged business (DBE), minority-owned business, woman-owned business, service-disabled veteran-owned and veteran-owned business.<sup>3</sup> This program uses race- and gender-neutral measures for participation.

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<sup>1</sup> 49 CFR Part 26.

<sup>2</sup> 74 PA C.S. Section 303.

<sup>3</sup> *Ibid.*

BBC Research & Consulting (BBC) reviewed the measures that PennDOT currently uses to encourage the participation of small, disadvantaged, and diverse businesses in its contracting. In addition, BBC reviewed race- and gender-neutral measures that other organizations in Pennsylvania use. That information is instructive because it allows an assessment of the measures that PennDOT is currently using in addition to an assessment of additional measures that the organization could consider using in the future. BBC reviewed PennDOT's program measures in three parts:

- A. Race and gender-neutral measures;
- B. Race and gender-conscious measures; and
- C. Other organizations' program measures.

## **A. Race- and Gender-Neutral Measures**

PennDOT uses various race- and gender-neutral measures to encourage the participation of all small businesses in its contracting. PennDOT uses the following types of race- and gender-neutral measures as part of its implementation of the DBE and DB Programs:

- Small business set-aside pilot program;
- Outreach efforts;
- Prompt payment; and
- Technical assistance.

**Small business set-aside pilot program.** PennDOT has introduced a small business set-aside pilot program for Small Business Enterprises (SBE) to compete as prime contractors for federally-assisted preliminary engineering and final design agreements. For the pilot program, PennDOT districts will identify projects for the preliminary engineering and final design of non-complex box culvert or single span bridge replacements. Six projects will be chosen from across the state and deemed as small business set-aside projects. The pilot program will begin in federal fiscal year 2018 (October 1) and will run to project completion. Based on the measurable outcomes, PennDOT may expand the set-aside programs to include other contracting opportunities.

**Outreach efforts.** Each year, PennDOT participates in several outreach efforts designed to support business development and solicit input and feedback from the business community about its contracting processes.

**Trade association events.** Each year, PennDOT meets with members of key business associations, including: the Associated Pennsylvania Constructors (APC), the American Council of Engineering Companies of Pennsylvania (ACEC/PA), Constructors Association of Western Pennsylvania (CAWP), and Pennsylvania Diversity Coalition (PADC), to seek input and feedback from the contracting community.

**Public hearings.** PennDOT convenes meetings to solicit feedback about its program implementation plans for the DBE program. For example, PennDOT holds meetings across the state during the development of the methodology and goals triennial plan. These meetings are

for PennDOT stakeholders including trade associations and all members of the contracting and consulting communities.

**Diversity forums.** PennDOT hosts daylong networking and business development events focused on building small business capacity and participation in PennDOT contracting. For example, in 2017, PennDOT convened contracting forums in Philadelphia, Pittsburgh, and Harrisburg focused on increasing small business participation and diversity in PennDOT's heavy construction contracting. Prime contractors, subcontractors, and PennDOT representatives attended those events, which included networking opportunities and technical assistance sessions on navigating the Engineering and Construction Management System (ECMS); and business development. PennDOT has two consulting services-focused diversity forums planned for 2018.

**Stakeholder Advisory Council.** In 2017, PennDOT formed an Advisory Council made up of key stakeholders that meet quarterly. The Advisory Council provides a forum to engage DBEs and other business owners in increased communication regarding PennDOT's small business development initiatives. Participants include trade associations, PA Turnpike representatives, university representatives, small business owners, DBE-certified business owners, and PennDOT representatives. Advisory Council members serve two-year terms.

**Other business development events.** PennDOT participates in business development events organized by minority business associations, universities, and organizational partners across Pennsylvania. Such events have been held at the Enterprise Center in Philadelphia and the Northeastern Pennsylvania Alliance in Scranton. PennDOT presents information about contracting opportunities, particularly about contracting opportunities for small businesses at these events. In addition, through its business support services partner, Cheyney University, PennDOT participates in various annual informational presentations and events with other certifying agencies that are part of the Pennsylvania Unified Certification Program. Cheyney University's DBE Supportive Services provides up to four networking events per federal fiscal year for firms who do business with or are looking to do business with PennDOT.

**Prompt payment.** PennDOT follows the Commonwealth of Pennsylvania's (Commonwealth's) procurement code regarding the timeliness of payment. The Commonwealth requires all state agencies to pay contractors for projects within 45 days of completing their project work and submitting invoices.<sup>4</sup> In addition, the procurement code requires that prime contractors pay all subcontractors within 14 days of when the prime contractor receives payment for services from the agency.<sup>5</sup> PennDOT has developed additional prompt payment requirements. PennDOT will make payments to prime contractors for certified completed work within 30 days. Prime contractors are then required to pay subcontractors within seven days of receipt of a current estimate and final payments from PennDOT, provided the terms and conditions of the applicable

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<sup>4</sup> Pennsylvania Procurement Handbook, Part 1, Chapter 18.

<sup>5</sup> *Ibid.*

subcontract have been reasonably met. Prime contractors must report such payments using the ECMS.<sup>6,7</sup>

**Technical assistance.** PennDOT works with local partners, chambers of commerce, and universities across Pennsylvania to provide technical support and other training resources to small business owners interested in working on transportation-related projects.

**Supportive Services Centers at Cheyney University.** In partnership with PennDOT, Cheyney University manages DB, DBE, and SBE supportive services programs. The DB, DBE, SBE programs are designed to assist small, disadvantaged, and diverse business development and training to increase capacity and participation in contracting with PennDOT.

**Training workshops at business development events.** PennDOT, through Cheyney University, conducts workshops across Pennsylvania designed to help small business owners understand how to do business on transportation-related projects. Those workshops cover topics such as becoming a certified DB or DBE and researching PennDOT contracting opportunities. At the workshops PennDOT also provides information about the main types of procurement processes that the agency uses and any upcoming contracting opportunities. PennDOT also highlights any changes to the procurement procedures to encourage the participation of diverse and disadvantaged businesses. PennDOT hosts the workshops with a variety of partners including local chambers of commerce and business development organizations.

**Certification assistance.** PennDOT provides one-on-one assistance to small business owners that want to certify as DBs or DBEs in Pennsylvania. PennDOT offers that assistance via telephone and through in-person training.

## **B. Race- and Gender-Conscious Measures**

PennDOT currently uses race- and gender-conscious measures to award many of its contracts, including DBE contract goals to award USDOT-funded contracts. Prime contractors can meet those goals by either making subcontracting commitments with certified DBE subcontractors within seven days of bid acceptance or by documenting sufficient good faith efforts toward achieving the established subcontracting goals. If prime contractors fail to meet DBE contract goals through subcontracting commitments or fail to show sufficient good faith efforts, PennDOT may deem their bids unresponsive and reject them.

## **C. Other Organizations' Program Measures**

In addition to the race- and gender-neutral measures that PennDOT currently uses, there are a number of race- and gender-neutral measures that other governmental and non-governmental organizations in Pennsylvania use to encourage the participation of small and small diverse business participation. Figure 8-1 provides examples of those measures.

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<sup>6</sup> Policy and Procedures for the Administration of Consultant Agreements. Pennsylvania Department of Transportation PUB 93 (3-18). Available online at <http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%2093.pdf>.

<sup>7</sup> Specifications. Pennsylvania Department of Transportation. PUB 408/2016. Available online at [http://www.dot.state.pa.us/public/PubsForms/Publications/Pub\\_408/408\\_2016/408\\_2016\\_5/408\\_2016\\_5.pdf](http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/408_2016/408_2016_5/408_2016_5.pdf)

**Figure 8-1.**  
**Examples of race- and gender-neutral measures that other Pennsylvania organizations use**

Type	Examples of Program Measures
<b>Statewide Neutral Measure Programs</b>	
<b>Advocacy and Outreach</b>	<p>The <b>Pennsylvania Chamber of Business and Industry</b> serves as the frontline advocate for business on Capitol Hill in Harrisburg. Through lobbying, testifying, developing key relationships, grassroots activities, and tracking regulations, the organization promotes pro-business legislation and fights against efforts that may serve as barriers to local businesses.</p> <p>The <b>PA Turnpike Commission</b> conducts community outreach events, and partners with other business organizations - such as the Diversity and Inclusion Professionals of Central Pennsylvania, the Harrisburg Regional Chamber of Commerce, and The Enterprise Center - to share information about the agency's bidding opportunities. The agency's website also advertises bid opportunities.</p> <p><b>Penn State University (PSU)</b> works with partners such as the National Minority Supplier Development Council, the Southern Alleghenies Planning and Development Commission, and the Philadelphia Minority Business Development Agency to provide information about how to identify and bid on contract opportunities with the University. In addition, PSU partners with business associations including the Pennsylvania Small Business Development Centers (SBDCs) to provide seminars that explain how to successfully complete bids and proposals for PSU contract opportunities. PSU also hosts annual trade fairs each spring with approximately 50 minority- and woman-owned businesses. The purpose of the trade fairs is for suppliers to network with end-users of goods and services at the University.</p> <p>The <b>Pennsylvania Housing Financing Agency</b> conducts outreach to small companies by attending business and procurement fairs to generate greater awareness about the agency's contracting opportunities. In addition, the agency provides self-help tutorials for small businesses to help them learn how to develop successful bids and proposals, and manage contracts.</p>
<b>Capital, Bonding, and Insurance</b>	<p><b>D&amp;H Distributing</b> is an international company with its corporate headquarters in Harrisburg, Pennsylvania. The company occasionally offers different terms and financial credit to small businesses.</p>
<b>Technical Assistance</b>	<p><b>Slippery Rock University (SRU)</b> is a state-funded institution of higher education that posts contracting opportunities larger than \$20,000 to the Pennsylvania State System of Higher Education's eProcurement exchange: <a href="https://passhe.procurement.com/home">https://passhe.procurement.com/home</a>. Businesses must register with the ProcureWare portal to participate in contracting. Once registered, business owners and representatives can then access "Help" tutorials about how to develop and submit bids and proposals through the online portal.</p> <p>Congress authorized the <b>Procurement Technical Assistance Program (PTAP)</b> to expand the number of businesses capable of participating in government contracting. Administered by the Defense Logistics Agency, PTAP provides matching funds through cooperative agreements with state and local governments and non-profit organizations for the establishment of <b>Procurement Technical Assistance Centers (PTACs)</b> to provide procurement assistance. There are 13 PTACs located throughout Pennsylvania. They help businesses secure government contracts. PTAC counselors help businesses determine their suitability for government contracts, secure necessary business registrations, pursue small business certifications, market themselves, research procurement histories, network, identify bid opportunities, prepare proposals, and resolve contract performance issues.</p>

**Figure 8-1. (Continued)**  
**Examples of race- and gender-neutral measures that other Pennsylvania organizations use**

Type	Examples of Program Measures
<b>Statewide Neutral Measure Programs (Continued)</b>	
<b>Technical Assistance (Continued)</b>	Small businesses in all 67 of Pennsylvania's counties are served by <b>Pennsylvania Small Business Development Centers (SBDCs)</b> . Businesses can access the SBDC in the county in which their business is located. SBDCs provide consulting services and educational programs to entrepreneurs looking to start or grow their small businesses. SBDC consultants work with entrepreneurs in confidential, one-on-one sessions to help them with a range of business issues, including testing new business propositions, shaping business plans, and investigating funding opportunities.
<b>Prompt Payment</b>	<p>The <b>PA Turnpike Commission</b> pays prime contractors within 30 days of receiving an invoice for services rendered, and requires the prime to pay its subcontractors within 5 days of receiving payment from the agency.</p> <p>The <b>County of York</b> issues payments to contractors within 30 days of receiving an invoice for services rendered. If the contractor elects to be paid using the County's business credit card, then county officials can pay the contractor in three days via the agency's Net Payment system.</p>
<b>Regional Neutral Measures Programs</b>	
<b>Advocacy and Outreach</b>	<p>The Greater Philadelphia Hispanic Chamber of Commerce Small Business Development &amp; Education (SBDE) Program is an umbrella program that addresses the needs of Hispanic American business owners and corporations working in emerging markets. The SBDE's purpose is to connect members with new business opportunities to help them realize their local, regional, national, and international growth opportunities; provide education, research findings, and information to help individuals adopt best business practices; and provide meaningful opportunities for Hispanic business leaders and employees to influence public policy by engaging with public officials.</p> <p>The <b>African American Chamber of Commerce (AACC)</b> is an advocacy group for minority-owned businesses in the Delaware Valley and Southeastern Pennsylvania. Its purpose is to enhance the growth and effectiveness of Black American-owned businesses in the Delaware Valley and, thereby, improve the economic conditions within the community. Its primary goal is to further the interests of businesses by responding to the needs of the business community and increasing economic opportunities for Black American-owned businesses.</p> <p>The <b>Asian American Chamber of Commerce of Greater Philadelphia (AACCGP)</b> promotes and fosters relationships between the Asian American community and private and public sector businesses. The organization also promotes education programs geared towards increasing awareness about the availability of Asian American-owned businesses.</p> <p><b>Pennsy Supply Inc.</b> provides advocacy and outreach to the small business community by conducting seminars to discuss their contracting opportunities for smaller businesses.</p>
<b>Capital, Bonding, and Insurance</b>	<p>The <b>Kutztown Small Business Development Center (SBDC)</b> has personal connections with more than 50 different lending institutions and lenders in Central and Eastern Pennsylvania. The organization helps business owners structure their loan requests to expedite the approval process. SBDC also lowers the overall cost of borrowing, and identifies hidden fees in lender disclosure documents. Kutztown SBDC employs former commercial lenders to help prepare financial projections, and provides a list of documents necessary for the business loan application process. The organization also helps business owners prepare for discussions with lenders by aiding them with budget projections, business plans, and pitches.</p> <p>The <b>Greater Philadelphia Hispanic Chamber of Commerce SBDE Program</b> helps Hispanic American-owned businesses access capital and provides a variety of lending products ranging from microloans to real estate and traditional lending.</p>

**Figure 8-1. (Continued)**  
**Examples of race- and gender-neutral measures that other Pennsylvania organizations use**

Type	Examples of Program Measures
<b>Regional Neutral Measures Programs (Continued)</b>	
<b>Capital, Bonding, and Insurance (Continued)</b>	<p>The <b>Community First Fund</b> provides financing to both start-up and growth stage small businesses. Their key focus is to ensure that capital is invested in the underserved communities that need it the most, especially the cities and towns that face challenges with poverty and unemployment. Their goal is to facilitate economic and employment growth through focused, socially-responsible lending.</p> <p>The <b>Susquehanna Service Corps of Retired Executives (SCORE)</b> serves Adams, Cumberland, Dauphin, Perry, and York Counties. It offers business assistance, and helps facilitate the distribution of grant money received by other entities to businesses in its service area.</p> <p><b>First National Bank</b> conducts seminars throughout the Pittsburgh area to explain bonding processes to business owners, and explain how contractors can become bonded.</p>
<b>Mentor-Protégé Programs</b>	<p>The <b>Susquehanna SCORE</b> is a nonprofit partner with the United States Small Business Administration that offers free business mentoring and low or no-cost workshops.</p> <p>The <b>Kutztown SBDC</b> business consultants come from a variety of industries and have attained professional degrees and years of practical business experience. They have the expertise and insight to mentor business owners in areas such as evaluating or refining business plans; incorporating new technology; conducting market research; identifying funding sources; understanding regulatory requirements; and weighing sales opportunities or franchise options.</p>
<b>Technical Assistance</b>	<p>The <b>Greater Philadelphia Hispanic Chamber of Commerce SBDE Program</b> offers educational programming to retail, restaurants, and entrepreneurial ventures just starting out, including help learning English and establishing business accounting systems. For more established Hispanic American-owned businesses, the SBDE focuses on increasing minority-owned business participation by providing support to business owners seeking certification and pursuing contract acquisition.</p> <p>The <b>AACC - Supplier Development Program</b> focuses annually on addressing key areas that contribute to African American business failure; helping grow businesses that can hire within their communities, and meeting the needs of businesses looking to improve and grow their supplier diversity spend.</p> <p>The <b>AACCGP</b> provides technical assistance and support for newly founded and growing Asian American-owned businesses. For example, the organization conducts educational sessions on business plans, cash flow analyses, marketing, obtaining start-up capital, and obtaining working capital. In addition, the organization provides technical support related to certification with various Pennsylvania organizations.</p> <p><b>Pitt Ohio</b> is a supply chain solutions company that provides technical assistance to local businesses in the Pittsburgh area that want to submit bids and proposals.</p> <p>The <b>Kutztown SBDC</b> offers existing businesses and early-stage entrepreneurs access to no-cost confidential consulting services and learning opportunities. Funding support and resources are provided through a cooperative agreement with the United States Small Business Administration, the Commonwealth of Pennsylvania through the Department of Community &amp; Economic Development, and through support from Kutztown University.</p>



**Figure 8-1. (Continued)**  
**Examples of race- and gender-neutral measures that other Pennsylvania organizations use**

Type	Examples of Program Measures
<b>City or Local Neutral Measures Program</b>	
<b>Advocacy and Outreach</b>	<p>The <b>Housing Authority of the City of Pittsburgh (HACP)</b> promotes its contracting opportunities at local events hosted by other organizations. The purpose of these outreach efforts is to encourage vendors to register on the HACP webpage for future contracting opportunities. For example, HACP will participate in the 2018 business development open house sponsored by the Allegheny County Department of Minority, Women, and Disadvantaged Enterprise and the Southwestern Pennsylvania Commission.</p> <p>The <b>Philadelphia Housing Authority (PHA)</b> partners with the local Asian, Hispanic, and minority business chambers of commerce to conduct outreach events. The agency's Affirmative Action Contract Compliance program promotes the development of certified Minority-owned and Woman-owned Business Enterprises (MBE/WBEs). The program maximizes the participation of certified MBE/WBEs in PHA contracts and subcontracts.</p> <p>The <b>City of Harrisburg</b> provides outreach to potential contractors through its "Doing Business in the City" initiative in order to improve the financial stability of businesses in the region. Its outreach initiatives include providing a forum for small businesses to learn about contracting opportunities with the City. The City has also developed a directory of potential contractors that includes information about the services that they provide and their status as disadvantaged businesses.</p> <p>The <b>City of Pittsburgh</b> provides outreach to small businesses at community events in order to encourage them to register with the City's business supplier list, and receive notices about contracting opportunities. The list is also forwarded to prime contractors so that they can reach out to sub-contractors about potential contracting opportunities.</p>
<b>Capital, Bonding, and Insurance</b>	<p>The <b>Housing Authority of the City of Pittsburgh</b> waives bonding requirements for some smaller projects to encourage small business participation.</p> <p>The <b>City of Harrisburg</b> tries to make its procurement process easier for smaller businesses by allowing certain policies to be more lenient. For example, small sole proprietorships that are contracted to work on small projects may have less stringent bonding and insurance requirements than contractors that work on larger projects.</p> <p>The <b>City of Pittsburgh</b> recently removed its bonding requirements for master (prime) contracts to make it easier for small businesses to engage in City contracting.</p>
<b>Mentor-Protégé Programs</b>	<p>The <b>PHA</b> facilitates opportunities for networking between subcontractors and prime contractors, often leading to mentor-protégé relationships.</p>
<b>Technical Assistance</b>	<p>The <b>Jump Start Incubator of Berks County</b> provides technical services to newly-established businesses through one-on-one counseling sessions and planned workshop seminars. . It helps them create short-term and long-term planning strategies, and market their services.</p> <p><b>HACP</b> provides technical support to small businesses by hosting a "How to Do Business Workshop." They use "dummy" bid responses to teach vendors how to successfully respond to requests for proposals (RFPs) and invitations for bid (IFBs).</p> <p>The <b>City of Allentown</b> offers technical assistance via telephone to small companies throughout the bidding and contracting processes. The City also just completed a survey in partnership with the local chamber of commerce to better understand the needs of small businesses.</p>

**Figure 8-1. (Continued)**  
**Examples of race- and gender-neutral measures that other Pennsylvania organizations use**

Type	Examples of Program Measures
<b>City or Local Neutral Measures Program (Continued)</b>	
<b>Prompt Payment</b>	<p><b>HACP</b> makes payments within 30 days of receiving invoices from prime contractors, or sooner if possible.</p> <p><b>PHA</b> pays prime contractors within 30 days of receiving invoices, and requires that prime contractors pay subcontractors within 7 days of receiving an agency payment.</p> <p>The <b>City of Allentown</b> uses a prompt payment system that ensures contractor invoices are processed within 30 days.</p> <p>The <b>University of Pennsylvania</b> ensures prompt payment to small businesses. The University pays contractors within approximately three days of them submitting their invoices.</p> <p>The <b>City of Pittsburgh</b> issues payments promptly to contractors through its Electronic Distributing Invoice system. Payments are typically issued within 30 to 45 days upon receipt of contractor invoices.</p>

# CHAPTER 9.

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Overall DBE Goal

# CHAPTER 9.

## Overall DBE Goal

As part of its implementation of the Federal Disadvantaged Business Enterprise (DBE) Program, the Pennsylvania Department of Transportation (PennDOT) is required to set an overall goal for DBE participation in its Federal Highway Administration (FHWA)-funded contracts.<sup>1</sup> Agencies that implement the Federal DBE Program must develop overall DBE goals every three years. However, the overall DBE goal is an *annual* goal in that an agency must monitor DBE participation in its FHWA-funded contracts every year. If DBE participation for a particular year is less than the overall DBE goal, then the agency must analyze the reasons for the difference and establish specific measures to enable it to meet the goal in the next year.

PennDOT must prepare and submit a Goal and Methodology document to FHWA that presents its overall DBE goal that is supported by information about the steps that the agency took to develop the goal. In 2017, PennDOT developed an overall DBE goal for FHWA-funded contracts for federal fiscal years (FFYs) 2018 through 2020. The agency established an overall DBE goal of 9.38 percent for that time period. PennDOT indicated to FHWA that it planned to meet the goal through the use of a combination of race- and gender-neutral and race- and gender-conscious program measures.

PennDOT may choose to update its goal for FFYs 2018 through 2020 based on results from this disparity study. Chapter 9 provides information that PennDOT might consider as part of updating its overall DBE goal. Chapter 9 is organized in two parts that are based on the two-step process that 49 Code of Federal Regulations (CFR) Part 26.45 outlines for agencies to set their overall DBE goals:

- A. Establishing a base figure; and
- B. Considering a step-2 adjustment.

### A. Establishing a Base Figure

Establishing a base figure is the first step in calculating an overall goal for DBE participation in PennDOT's FHWA-funded transportation contracts. For the purposes of establishing a base figure, the availability analysis was limited to the availability of *potential DBEs*—minority- and woman-owned businesses that are currently DBE-certified or appear that they could be DBE-certified based on revenue requirements described in 49 CFR Part 26.65—for FHWA-funded prime contracts and subcontracts that PennDOT awarded during the study period. Figure 9-1 presents the availability of potential DBEs for the FHWA-funded construction; professional services; and goods and support services prime contracts and subcontracts that PennDOT awarded during the study period. As show in Figure 9-1, potential DBEs might be expected to

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<sup>1</sup> BBC considered any contract with at least \$1 of FHWA funding as an "FHWA-funded contract" and includes the total value of the contract in its pool of total FHWA-funded contracting dollars.

receive 9.7 percent of PennDOT’s FHWA-funded prime contract and subcontract dollars based on their availability for that work. PennDOT might consider 9.7 percent as the base figure for its overall DBE goal if the agency anticipates that the types, sizes, and locations of FHWA-funded contracts that it will award in the future will be similar to the FHWA-funded contracts that it awarded during the study period.

**Figure 9-1.**  
**Availability components of the base figure**  
**(based on availability of potential DBEs for FHWA-funded transportation contracts)**

Business group	Industry		Total
	Horizontal construction	Construction-related engineering and professional services	
Asian Pacific American-owned	0.5	1.5	0.3
Black American-owned	0.1	1.5	0.7
Hispanic American-owned	0.0	0.9	0.7
Native American-owned	0.7	0.6	0.1
Subcontinent Asian American-owned	0.0	1.1	0.2
Non-Hispanic white woman-owned	8.0	5.7	7.6
<b>Total Minority- and Woman-owned</b>	<b>9.3</b>	<b>11.3</b>	<b>9.7</b>

Note: Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals.

Source: BBC Research & Consulting availability analysis.

The total base figure calculation reflects a weight of 0.81 for horizontal construction contracts; and 0.19 for construction-related engineering and professional services contracts based on the volume of FHWA-funded contract dollars that PennDOT awarded during the study period. If PennDOT expects that the distributions of FHWA-funded construction; and construction-related engineering and professional services contract dollars will change substantially in the future, the agency might consider applying different weights to the corresponding base figure components.

## B. Considering a Step-2 Adjustment

The Federal DBE Program requires PennDOT to consider a potential step-2 adjustment to its base figure as part of determining its overall DBE goal. PennDOT is not required to make a step-2 adjustment as long as it considers appropriate factors and explains its decision in its Goal and Methodology document. The Federal DBE Program outlines several factors that an agency must consider when assessing whether to make a step-2 adjustment to its base figure:

1. Current capacity of DBEs to perform work, as measured by the volume of work DBEs have performed in recent years;
2. Information related to employment, self-employment, education, training, and unions;
3. Any disparities in the ability of DBEs to get financing, bonding, and insurance; and
4. Other relevant data.<sup>2</sup>

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<sup>2</sup> 49 CFR Section 26.45.

BBC Research & Consulting (BBC) completed an analysis of each of the above step-2 factors. Much of the information that BBC examined was not easily quantifiable but is still relevant to PennDOT as it determines whether to make a step-2 adjustment.

**1. Current capacity of DBEs to perform work, as measured by the volume of work DBEs have performed in recent years.** The United States Department of Transportation's (USDOT's) "Tips for Goal-Setting" suggests that agencies should examine data on past DBE participation in their USDOT-funded contracts in recent years. USDOT further suggests that agencies should choose the median level of annual DBE participation for those years as the measure of past participation:

*Your goal setting process will be more accurate if you use the median (instead of the average or mean) of your past participation to make your adjustment because the process of determining the median excludes all outlier (abnormally high or abnormally low) past participation percentages.<sup>3</sup>*

BBC's analysis of DBE participation in PennDOT's FHWA-funded contracts during the study period indicates DBE participation of 8.0 percent, which supports a downward adjustment to PennDOT's base figure. If PennDOT were to adjust its base figure based on DBE participation information from the disparity study, it might consider taking the average of the 9.7 percent base figure and the 8.0 percent DBE participation, yielding a potential overall DBE goal of 8.9 percent.

**2. Information related to employment, self-employment, education, training, and unions.** Chapter 3 summarizes information about conditions in the local contracting industry for minorities; women; and minority- and woman-owned businesses. Additional information about quantitative and qualitative analyses of conditions in the local marketplace are presented in Appendices C and D. BBC's analyses indicate that there are barriers that certain minority groups and women face related to human capital, financial capital, and business ownership in the Pennsylvania contracting industry. Such barriers may decrease the availability of minority- and woman-owned businesses to perform the FHWA-funded contracts that PennDOT awards, which supports an upward adjustment to PennDOT's base figure.

Although it may not be possible to quantify the effects that barriers in human capital, financial capital, and business success may have on the availability of minority- and woman-owned businesses in the local marketplace, the effects of barriers in business ownership can be quantified. BBC used regression analyses to investigate whether race/ethnicity and gender are related to rates of business ownership among workers in the local contracting industry. The regression analyses allowed BBC to examine those relationships while statistically controlling for various race- and gender-neutral personal characteristics including education and age. (Chapter 3 and Appendix C provide details about BBC's regression analyses.) The regression analyses revealed that, even after accounting for various personal characteristics:

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<sup>3</sup> Section III (A)(5)(c) in USDOT's "Tips for Goal-Setting in the Federal Disadvantaged Enterprise (DBE) Program."  
<http://www.osdbu.dot.gov/DBEProgram/tips.cfm>

- Being Hispanic American was associated with a lower likelihood of business ownership in the construction industry. In addition, being a woman was associated with a lower likelihood of business ownership in the Construction industry.
- Being Subcontinent Asian American or Hispanic American was associated with a lower likelihood of business ownership in the construction-related engineering and professional services industry. In addition, being a woman was associated with a lower likelihood of business ownership in this industry.

BBC analyzed the impact that barriers in business ownership would have on the base figure if the groups of minorities and women that exhibited statistically significant disparities in rates of business ownership owned businesses at the same rate as comparable non-Hispanic white men. The results of that analysis—sometimes referred to as a *but for* analysis, because it estimates the availability of minority- and woman-owned businesses *but for* the effects of race- and gender-based discrimination—are presented in Figure 9-3.

The *but for* analysis included the same contracts that the study team analyzed to determine the base figure (i.e., FHWA-funded prime contracts and subcontracts that PennDOT awarded during the study period). The weights for each industry were based on the proportion of FHWA-funded contract dollars that PennDOT awarded in each industry during the study period (i.e., 0.81 weight for construction and a 0.19 weight for professional services). In that way, BBC determined a potential adjustment to PennDOT’s base figure that attempted to account for race- and gender-based barriers in business ownership in the local contracting industry.

The rows and columns of Figure 9-3 present the following information from BBC’s *but for* analysis:

- a. **Current availability.** Column (a) presents the current availability of potential DBEs by racial/ethnic and gender group and by industry, as also presented in Figure 9-1. Each row presents the percentage availability for each racial/ethnic and gender group. Combined, the current availability of potential DBEs for PennDOT’s FHWA-funded contracts is 9.7 percent, as shown in row (19) of column (a).
- b. **Disparity indices for business ownership.** For each group that is significantly less likely than similarly-situated non-Hispanic white men to own construction and engineering businesses, BBC simulated business ownership rates if those groups owned businesses at the same rate as non-Hispanic white men who share similar race- and gender-neutral personal characteristics.

To simulate business ownership rates if minorities and women owned businesses at the same rate as non-Hispanic white men in a particular industry, BBC took the following steps: 1) BBC performed a probit-regression analysis predicting business ownership including only workers who were non-Hispanic white men in the dataset; and 2) the study team then used the coefficients from that model and the mean personal characteristics of individual minority groups (or non-Hispanic white women) working in the industry (i.e., personal characteristics, indicators of educational attainment, and indicators of personal financial resources and constraints) to simulate business ownership for each group.

The study team then calculated a business ownership disparity index for each group by dividing the observed business ownership rate by the simulated business ownership rate and then multiplying the result by 100. Values of less than 100 indicate that, in reality, the group is less likely to own businesses than what would be expected for non-Hispanic white men who share similar personal characteristics. Column (b) presents disparity indices related to business ownership for the different racial/ethnic and gender groups. For example, as shown in row (4) of column (b), Hispanic Americans own construction businesses at 73 percent of the rate that they would be expected to own construction businesses if they were non-Hispanic white men with similar personal characteristics.

- c. Availability after initial adjustment.** Column (c) presents availability estimates by racial/ethnic and gender group and by industry after initially adjusting for statistically significant disparities in business ownership rates. BBC calculated those estimates by dividing the current availability in column (a) by the disparity index for business ownership in column (b) and then multiplying by 100. Note that BBC only made adjustments for those groups that are significantly less likely than similarly-situated non-Hispanic white men to own businesses.
- d. Availability after scaling to 100 percent.** Column (d) shows adjusted availability estimates that the study team re-scaled so that the sum of the availability estimates equaled 100 percent for each industry. BBC re-scaled the adjusted availability estimates by taking each group's adjusted availability estimate in column (c) and dividing it by the sum of availability estimates shown under "Total" in column (c)—in row (9) for construction and row (18) for engineering and professional services. For example, the scaled availability estimate for non-Hispanic white woman-owned construction businesses shown in row (6) of column (d) was calculated in the following way:  $(17.4\% \div 109.6\%) \times 100 = 15.8$  percent.
- e. Components of goal.** Column (e) shows the component of the total base figure attributed to the adjusted availability of minority- and woman-owned businesses for each industry. BBC calculated each component by taking the total availability estimate shown under "Potential DBEs" in column (d)—in row (7) for construction and row (16) for engineering and professional services—and multiplying it by the proportion of total FHWA-funded contract dollars for which each industry accounts (i.e., 0.81 for construction, 0.19 for engineering and professional services). For example, BBC used the 17.3 percent shown in row (7) of column (d) for construction and multiplied it by 0.81 for a result of 14 percent (see row (7) of column (e)). The values in column (e) were then summed to equal the overall base figure adjusted for barriers in business ownership—17 percent, as shown in the bottom row (row 19) of column (e).



**Figure 9-3.**  
**Potential step-2 adjustment to base figure considering disparities in rates of business ownership**

Industry and group	a. Current availability	b. Disparity index for business ownership	c. Availability after initial adjustment*	d. Availability after scaling to 100%	e. Components of base figure**
<b>Construction</b>					
(1) Black American	0.5 %	n/a	0.5 %	0.5 %	
(2) Asian Pacific American	0.1	n/a	0.1	0.1	
(3) Subcontinent Asian American	0.0	n/a	0.0	0.0	
(4) Hispanic American	0.7	73	0.9	0.9	
(5) Native American	0.0	n/a	0.0	0.0	
(6) White woman	8.0	46	17.4	15.8	
(7) Potential DBEs	9.3 %	n/a	18.9 %	17.3 %	14.0 %
(8) All other businesses ***	90.7	n/a	90.7	82.7	
(9) <b>Total</b>	<b>100.0 %</b>	n/a	<b>109.6 %</b>	<b>100.0 %</b>	
<b>Professional services</b>					
(10) Black American	1.5 %	63	2.4 %	2.3 %	
(11) Asian Pacific American	1.5	n/a	1.5	1.4	
(12) Subcontinent Asian American	1.1	35	3.2	3.1	
(13) Hispanic American	0.9	n/a	0.9	0.9	
(14) Native American	0.6	n/a	0.6	0.6	
(15) White woman	5.7	71	8.0	7.6	
(16) Potential DBEs	11.3 %	n/a	16.6 %	15.8 %	3.0 %
(17) All other businesses	88.7	n/a	88.7	84.2	
(18) <b>Total</b>	<b>100.0 %</b>	n/a	<b>105.3 %</b>	<b>100.0 %</b>	
(19) <b>TOTAL</b>	<b>9.7 %</b>	n/a		n/a	<b>17.0 %</b>

Note: \* Initial adjustment is calculated as current availability divided by the disparity index.

\*\* Components of base figure calculated as value after adjustment and scaling to 100% multiplied by percentage of total FHWA-funded contract dollars in that category (construction is 81%; and professional services is 19%).

\*\*\* All other businesses include majority-owned business and minority- and woman-owned businesses that are not potential DBEs.

Source: BBC Research & Consulting.

Based on information related to business ownership alone, PennDOT might consider adjusting the base figure upward to 17 percent.

### 3. Any disparities in the ability of DBEs to get financing, bonding, and insurance.

BBC's analysis of access to financing, bonding, and insurance also revealed quantitative and qualitative evidence that minorities; women; and minority- and woman-owned businesses in Pennsylvania do not have the same access to those business inputs as non-Hispanic white men and businesses owned by non-Hispanic white men (for details, see Chapter 3 and Appendices C and D). Any barriers to obtaining financing, bonding, and insurance might limit opportunities for minorities and women to successfully form and operate businesses in the Pennsylvania contracting marketplace. Any barriers that minority- and woman-owned businesses face in obtaining financing, bonding, and insurance would also place those businesses at a disadvantage in competing for PennDOT's FHWA-funded prime contracts and subcontracts. Thus, information from the disparity study about financing, bonding, and insurance also supports an upward step-2 adjustment to PennDOT's base figure.

**4. Other factors.** The Federal DBE Program suggests that federal fund recipients also examine “other factors” when determining whether to make step-2 adjustments to their base figures.<sup>4</sup>

**Success of businesses.** There is quantitative evidence that certain groups of minority- and woman-owned businesses are less successful than businesses owned by non-Hispanic white men and face greater barriers in the marketplace, even after accounting for race- and gender-neutral factors. Chapter 3 summarizes that evidence and Appendix C presents corresponding quantitative analyses. There is also qualitative evidence of barriers to the success of minority- and woman-owned businesses, as presented in Appendix D. Some of that information suggests that discrimination on the basis of race/ethnicity and gender adversely affects minority- and woman-owned businesses in the local contracting industry. Thus, information about the success of businesses also supports an upward step-2 adjustment to PennDOT’s base figure.

**Evidence from disparity studies conducted within the jurisdiction.** USDOT suggests that federal fund recipients also examine evidence from disparity studies conducted within their jurisdictions when determining whether to make adjustments to their base figures. While conducting a disparity study for PennDOT, BBC also conducted a disparity study for the Commonwealth of Pennsylvania’s Department of General Services (DGS). However, DGS’ contracts differ substantially in terms of size and type from the FHWA-funded contracts that PennDOT awarded during the study period. Therefore, PennDOT should exercise caution in using information from DGS’ disparity study in determining whether to make an adjustment to its base figure.

**Summary.** Taken together, the quantitative and qualitative evidence that the study team collected as part of the disparity study may support a step-2 adjustment to the base figure as PennDOT considers setting its overall DBE goal. As noted in USDOT’s “Tips for Goal-Setting:”

*If the evidence suggests that an adjustment is warranted, it is critically important to ensure that there is a rational relationship between the data you are using to make the adjustment and the actual numerical adjustment made.*<sup>5</sup>

Based on information from the disparity study, there are reasons why PennDOT might consider an upward adjustment to its base figure:

- PennDOT might adjust its base figure upward to account for barriers that minorities and women face in human capital and owning businesses in the local contracting industry. Such an adjustment would correspond to a “determination of the level of DBE participation you would expect absent the effects of discrimination.”<sup>6</sup>
- PennDOT might also adjust its base figure in light of evidence of barriers that affect minorities; women; and minority- and woman-owned businesses in obtaining financing, bonding, and insurance and evidence that certain groups of minority- and woman-owned

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<sup>4</sup> 49 CFR Section 26.45.

<sup>5</sup> USDOT. “Tips for Goal-Setting in the Federal Disadvantaged Enterprise (DBE) Program.” <http://www.osdbu.dot.gov/DBEProgram/tips.cfm>.

<sup>6</sup> 49 CFR Section 26.45 (b).

businesses are less successful than comparable businesses owned by non-Hispanic white men.

There are also reasons why PennDOT might consider a downward adjustment to its base figure. BBC's analysis of DBE participation in PennDOT's FHWA-funded contracts also indicates DBE participation (8.0%) that is lower than the base figure. If PennDOT were to adjust its base figure based on DBE participation information from the disparity study, it might consider taking the average of the 9.7 percent base figure and the 8.0 percent past DBE participation for an overall DBE goal of 8.9 percent.

USDOT regulations clearly state that an agency such as PennDOT is required to review a broad range of information when considering whether it is necessary to make a step-2 adjustment—either upward or downward—to its base figure. However, *Tips for Goal-Setting* states that an agency such as PennDOT is not required to make an adjustment as long as it can explain what factors it considered and can explain its decision in its Goal and Methodology document.

# **CHAPTER 10.**

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## **Program Implementation**

# CHAPTER 10.

## Program Implementation

Chapter 10 reviews information relevant to the Pennsylvania Department of Transportation's (PennDOT's) implementation of specific components of the Federal Disadvantaged Business Enterprise (DBE) Program for Federal Highway Administration (FHWA)-funded contracts. In addition, Chapter 10 presents considerations that the agency should make as it works to refine its implementation of the DBE Program. Chapter 10 is presented in two parts:

- A. Elements of the Federal DBE Program; and
- B. Additional Considerations.

### A. Elements of the Federal DBE Program

Regulations presented in 49 Code of Federal Regulations (CFR) Part 26 and other documents offer agencies guidance related to implementing the Federal DBE Program. Key requirements of the program are described below in the order that they are presented in 49 CFR Part 26.<sup>1</sup>

**Reporting to DOT – 49 CFR Part 26.11 (b).** PennDOT must periodically report DBE participation in its FHWA-funded contracts to the United States Department of Transportation (USDOT). PennDOT tracks DBE and non-DBE participation in its federally-funded contracts at the time of award, based on award amounts to prime contractors and commitment amounts to subcontractors. With regard to payment data, PennDOT maintains information on amounts that it pays to prime contractors, and prime contractors are expected to enter information about payments that they make to subcontractors into PennDOT's Engineering and Construction Management System (ECMS). PennDOT should consider taking steps to ensure that prime contractors enter information about payments to subcontractors into ECMS in a complete and accurate manner on all contracts, potentially as a condition of receiving payment.

**Bidders list – 49 CFR Part 26.11 (c).** As part of its implementation of the Federal DBE Program, PennDOT has developed and maintains a bidders list of businesses that are interested in bidding on its contracts. PennDOT updates its bidders list triennially by surveying businesses who have registered as business partners through ECMS. The bidders list includes the following information about each potential bidder:

- Business name;
- Address;
- DBE certification status;
- Age of business; and
- Annual gross receipts.

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<sup>1</sup> Because only certain portions of the Federal DBE Program are discussed in Chapter 10, PennDOT should refer to the complete federal regulations when considering its implementation of the program.

PennDOT should continue to ensure that its bidders list is current and includes all relevant information for businesses bidding or proposing on the agency's FHWA-funded prime contracts and subcontracts.

**Information from availability surveys.** As part of the availability analysis, the study team collected information about local businesses that are potentially available for different types of PennDOT prime contracts and subcontracts. As appropriate, PennDOT should consider using that information to augment its current bidders list.

**Maintaining comprehensive vendor data.** In order to effectively track the participation of minority- and woman-owned businesses in its contracts, PennDOT should consider continuing to improve the information that it collects on the ownership and certification status of businesses that participate in its prime contracts and subcontracts. PennDOT should consider maintaining information about businesses' DBE certification statuses (e.g., active or expired) by calendar year. PennDOT should also consider collecting information on the race/ethnicity and gender of business owners regardless of DBE certification status. As appropriate, PennDOT can use business information that the study team collected as part of the disparity study to augment its vendor data.

**Prompt payment – 49 CFR Part 26.29.** PennDOT follows the prompt payment requirements that are specified in the Commonwealth of Pennsylvania's procurement code, but has developed its own prompt payment policies.<sup>2</sup> PennDOT will make payments to prime contractors for certified completed work within 30 days. Prime contractors are then required to pay subcontractors within seven days of receipt of a current estimate and final payments from PennDOT, provided the terms and conditions of the applicable subcontract have been reasonably met. Prime contractors must report such payments using the ECMS.<sup>3,4</sup>

Qualitative information collected as part of in-depth interviews and public meetings that the study team conducted indicated that many businesses are generally dissatisfied with the timeliness of payment by primes on public sector contracts. Business owners described challenges with slow payment and the degree to which they rely on consistent cash flow to stay in business. PennDOT should consider reviewing its enforcement of prompt payment policies to ensure subcontractors are being paid promptly by prime contractors.

**DBE directory – 49 CFR Part 26.31.** PennDOT is one of five certifying agencies that is part of the Pennsylvania Unified Certification Program (PAUCP). A searchable directory of all certified DBEs is available through the PAUCP website.<sup>5</sup> The directory contains the following information about each certified business: business name, address, owner name, phone number, email

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<sup>2</sup> Pennsylvania Procurement Handbook, Part 1, Chapter 18. The Pennsylvania procurement code requires state agencies to pay prime contractors within 45 days of the agency approving an invoice. In addition, the procurement code requires that prime contractors pay all subcontractors within 14 days of when the prime contractor receives payment for services from the agency.

<sup>3</sup> Policy and Procedures for the Administration of Consultant Agreements. Pennsylvania Department of Transportation PUB 93 (3-18). Available online at <http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%2093.pdf>.

<sup>4</sup> Specifications. Pennsylvania Department of Transportation. PUB 408/2016. Available online at [http://www.dot.state.pa.us/public/PubsForms/Publications/Pub\\_408/408\\_2016/408\\_2016\\_5/408\\_2016\\_5.pdf](http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/408_2016/408_2016_5/408_2016_5.pdf)

<sup>5</sup> <https://www.dotsbe.pa.gov/PAUCPWeb/paucp/viewHome.do>.

address, website, industry code, industry type, a description of the work the firm has been certified to perform, and its geographical location.

Qualitative information that the study team collected through in-depth interviews and public meetings indicated that many business owners and managers viewed DBE certification as advantageous for getting work on public sector contracts. However, many of those business owners felt they were still up against a closed network of contractors who typically work together on PennDOT contracts. PennDOT should review the ways it can create networking and contracting opportunities for DBEs and ensure that contractors comply with DBE contract goals. PennDOT might also consider creating more opportunities for prime contractors to identify potential DBE subcontractors. PennDOT could consider linking project solicitations on ECMS to the DBE directory so prospective bidders can easily locate qualified DBEs that might be interested in participating in those contracts as subcontractors.

**Overconcentration – 49 CFR Part 26.33.** Agencies implementing the Federal DBE Program are required to report and take corrective measures if they find that DBEs are so overconcentrated in certain work areas as to unduly burden non-DBEs working in those areas. Such measures may include:

- Developing ways to assist DBEs to move into nontraditional areas of work;
- Varying the use of DBE contract goals; and
- Working with contractors to find and use DBEs in other industry areas.

BBC investigated potential overconcentration in PennDOT contracts. There were eight specific subindustries in which certified DBEs accounted for 50 percent or more of total subcontract dollars for contracts awarded between July 1, 2011 and June 30, 2016 based on contract data that the study team received from PennDOT:

- Structural metals (98%);
- Real estate management (97%);
- Petroleum and petroleum products (94%);
- Human resources and job training services (83%);
- Surveying and mapmaking (79%);
- Other construction-related goods (74%);
- Testing services (68%); and
- Landscape services (50%).

The above figures are based only on subcontract dollars and so do not include work that prime contractors self-performed in those areas. If the study team had included self-performed work in those analyses, the percentages for which DBEs accounted would likely have decreased. In addition, the above figures are based on both FHWA- and state-funded contracts and would likely differ if limited to only FHWA-funded contracts. PennDOT should consider reviewing similar information and continuing to monitor the above types of work for potential overconcentration in the future.

**Business development programs – 49 CFR Part 26.35 and mentor-protégé programs – 49 CFR Appendix D to Part 26.** Business Development Programs (BDPs) are programs that are designed to assist DBE-certified businesses in developing the capabilities to compete for work independent of the Federal DBE Program. PennDOT offers a number of BDPs for potential and current DBEs including:

- The DBE Supportive Services Program, through Cheyney University, which offers technical and management assistance to certified DBEs; and
- A Comprehensive Business Development Program (CBPD), through which PennDOT offers assistance to a limited number of DBEs and helps them develop comprehensive business plans. The CBPD helps DBEs understand their market potential, set specific business development goals, and address any barriers to receiving contracts, such as financial limitations.

Qualitative information that the study team collected through in-depth interviews and public meetings indicated that many business owners find industry-focused networking events hosted by agencies like PennDOT very useful, because those events allow them to meet potential prime contractors with which to partner in the future. Several business owners also expressed interest in a mentor-protégé program, which PennDOT does not currently operate. PennDOT should continue to communicate with certified DBEs to ensure that its BDPs provide specialized assistance that is tailored to the needs of developing businesses in the Pennsylvania marketplace and throughout PennDOT's 11 districts. The agency might also consider exploring the development of a mentor-protégé program.

**Responsibilities for monitoring the performance of program participants – 49 CFR Part 26.37 and 49 CFR Part 26.55.** The Final Rule effective February 28, 2011 revised requirements for monitoring the work that prime contractors commit to DBE subcontractors at contract award (or through contract modifications) and enforcing that those DBEs actually perform that work. The Final Rule states that prime contractors can only terminate DBEs for “good cause” and with written consent from the awarding agency. In addition, 49 CFR Part 26.55 requires agencies to only count the participation of DBEs that are performing commercially useful functions (CUFs) on contracts toward meeting DBE contract goals and overall DBE goals. PennDOT uses several monitoring and enforcement mechanisms to ensure that DBEs actually perform work that is committed to them and that DBEs perform CUFs, including:

- Review of DBE commitments, DBE subcontracts, and DBE payments for highway construction and consultant agreement contracts tracked in ECMS;
- Review of contractor compliance with DBE requirements, including CUF policies, as part of general compliance reviews of construction contractors;
- DBE Monthly Monitoring Reports that monitor DBE goal attainment and are submitted to the Bureau of Equal Opportunity;
- DBE Field Agent reviews of monthly progress reports from each of PennDOT's Engineering Districts, which detail DBE participation; and



- On-site compliance reviews of highway construction projects, during which PennDOT's DBE Field Agent reviews DBE subcontracts, payments, and completed CUF reports and evaluates any DBEs working on-site that day.

PennDOT should consider reviewing the requirements set forth in 49 CFR Part 26.37(b), 49 CFR Part 26.55, and in the Final Rule to ensure that its monitoring and enforcement mechanisms are consistent with federal regulations and best practices.

**Fostering small business participation – 49 CFR Part 26.39.** When implementing the Federal DBE Program, PennDOT must include measures to structure contracting requirements to facilitate competition by small businesses. 49 CFR Part 26.39 states that agencies should be “taking all reasonable steps to eliminate obstacles to their participation, including unnecessary and unjustified bundling of contract requirements that may preclude small business participation in procurements as prime contractors or subcontractors.”<sup>6</sup> The Final Rule effective February 28, 2011 added a requirement for agencies to foster small business participation in their contracting. It required agencies to submit a small business participation plan to USDOT. USDOT identifies the following potential strategies for fostering small business participation:

- Establishing a race- and gender-neutral small business set-aside for prime contracts under a stated amount (e.g., \$1 million);
- Identifying alternative acquisition strategies and structuring procurements to facilitate the ability of consortia or joint ventures comprising small businesses, including DBEs, to compete for and perform prime contracts; and
- Unbundling large contracts to allow small businesses more opportunities to bid for smaller contracts.

PennDOT currently implements a comprehensive small business program as part of its implementation of the Federal DBE program. PennDOT certifies firms that meet the definition of a small business as Small Business Enterprises (SBEs). In the fall of 2018, PennDOT will launch a small business set-aside program for some state-funded technical consulting contracts worth less than \$100,000. In addition, PennDOT supports the SBE Supportive Services Center at Cheyney University, which provides technical assistance to help all small businesses grow and thrive. Finally, PennDOT publicizes a list of potential prime contractor bidders for agency projects to allow SBEs to contact the bidders and offer quotes. The Bureau of Equal Opportunity tracks SBE commitments and attainments and reports those numbers using the same methods it uses as part of the Federal DBE program.

Qualitative data that the study team collected through in-depth interviews and public meetings indicated that many businesses supported the use of small business set-asides and unbundling large contracts. PennDOT might consider ways in which it can expand its use of set-asides on FHWA-funded contracts. PennDOT should also continue to make efforts to unbundle large contracts into smaller contracts. Those efforts might increase small business participation in PennDOT contracts. PennDOT might also consider other ways to increase small business participation, such as waiving prequalification requirements for relatively small contracts.

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<sup>6</sup> 49 CFR Part 26.39(a).

Chapter 8 of the report outlines many of PennDOT's current and planned race- and gender-neutral program measures and provides examples of measures that other organizations in Pennsylvania have implemented. PennDOT should review that information and consider implementing any additional measures that the agency deems to be effective. PennDOT should also review legal and budgetary issues in considering different measures.

**Prohibition of DBE quotas and set-asides for DBEs unless in limited and extreme circumstances – 49 CFR Part 26.43.** DBE quotas are prohibited under the Federal DBE Program, and DBE set-asides can only be used in extreme circumstances. PennDOT does not use DBE quotas or set-asides as part of its implementation of the Federal DBE Program.

**Setting overall DBE goals – 49 CFR Part 26.45.** In the Final Rule effective February 28, 2011, USDOT changed how often agencies that implement the Federal DBE Program are required to submit their overall DBE goals. As discussed in Chapter 1, agencies such as PennDOT now need to develop and submit their overall DBE goals every three years. Chapter 9 uses data and results from the disparity study to provide PennDOT with information that could be useful in updating its current overall DBE goal or setting its next overall DBE goal.

**Analysis of reasons for not meeting overall DBE goal – 49 CFR Part 26.47(c).** Another addition to the Federal DBE Program made under the Final Rule effective February 28, 2011 requires agencies to take the following actions if their DBE participation for a particular fiscal year is less than their overall DBE goal for that year:

- Analyze the reasons for the difference in detail; and
- Establish specific steps and milestones to address the difference and enable the agency to meet the goal in the next fiscal year.

**Need for separate accounting for the participation of potential DBEs.** In accordance with guidance in the Federal DBE Program, BBC's analysis of the overall DBE goal in the disparity study includes DBEs that are currently certified as well as minority- and woman-owned businesses that could *potentially* be DBE-certified based on revenue standards (i.e., *potential DBEs*).<sup>7</sup> Agencies can explore whether one reason they have not met their overall DBE goals is because they are not counting the participation of potential DBEs. USDOT might then expect an agency to further encourage potential DBEs to become DBE-certified as one way of closing the gap between reported DBE participation and its overall DBE goal. In order to have the information to explore that possibility, PennDOT should consider:

- Developing a system to collect information on the race/ethnicity and gender of the owners of all businesses, not just certified DBEs, participating as prime contractors or subcontractors in FHWA-funded contracts;
- Developing internal reports for the participation of all minority- and woman-owned businesses in FHWA-funded contracts; and

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<sup>7</sup> Note that minority- and woman-owned businesses that could be DBE-certified but that are not currently certified are counted as part of calculating the overall DBE goal. However, the participation of those businesses is not counted as part of PennDOT's DBE participation reports to FHWA.

- Continuing to track participation of certified DBEs on FHWA-funded contracts, per USDOT reporting requirements.

**Other steps to evaluate how PennDOT might better meet its overall DBE goal.** Analyzing the participation of potential DBEs is one step among many that PennDOT might consider taking when examining any differences between DBE participation and its overall DBE goal. PennDOT must also establish specific steps and milestones to correct any problems it identifies to enable it to better meet its overall DBE goal in the future.<sup>8</sup>

**Maximum feasible portion of goal met through race- and gender-neutral program measures – 49 CFR Part 26.51(a).** As presented in Chapter 9, PennDOT must meet the maximum feasible portion of its overall DBE goal through the use of race- and gender-neutral program measures. PennDOT must project the portion of its overall DBE goal that could be achieved through such measures.

**Use of DBE contract goals – 49 CFR Part 26.51(d).** The Federal DBE Program requires agencies to use race- and gender-conscious measures, such as DBE contract goals, to meet any portion of their overall DBE goals that they do not project being able to meet using race- and gender-neutral measures. Based on information from the disparity study and other available information, PennDOT should assess whether the continued use of DBE contract goals is necessary in the future to meet any portion of its overall DBE goal. USDOT guidelines on the use of DBE contract goals, which are presented in 49 CFR Part 26.51(e), include the following guidance:

- DBE contract goals may only be used on contracts that have subcontracting possibilities;
- Agencies are not required to set DBE contract goals on every FHWA-funded contract;
- During the period covered by the overall DBE goal, an agency must set DBE contract goals so that they will cumulatively result in meeting the portion of the overall DBE goal that the agency projects being unable to meet through race- and gender-neutral measures;
- An agency's DBE contract goals must provide for participation by all DBE groups eligible to participate in race- and gender-conscious measures and must not be subdivided into group-specific goals; and
- An agency must maintain and report data on DBE participation separately for contracts that include and do not include DBE contract goals.

If PennDOT determines that the continued use of DBE contract goals on FHWA-funded contracts is appropriate, then it should also evaluate which DBE groups should be considered eligible for those goals. If PennDOT decides to consider only certain DBE groups (e.g., groups that PennDOT determines to be *underutilized* DBEs) as eligible to participate in DBE contract goals, it must submit a waiver request to FHWA.

Some individuals participating in in-depth interviews and public meetings made comments related to the use of race- and gender-conscious measures such as DBE contract goals:

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<sup>8</sup> 49 CFR Part 26.47(c)(2).

- Several minority- and woman-owned businesses commented that race- and gender-conscious measures help their businesses get a “foot in the door” with prime contractors. Some minority- and woman-owned businesses indicated that the Federal DBE program was the biggest factor helping their businesses compete in otherwise “tough” fields with closed networks of contractors.
- Some business owners viewed race- and gender-conscious measures as a disadvantage to other small businesses in the marketplace because the measures result in agencies awarding contracts to businesses that are “not always qualified” to do the work. Many interviewees also indicated that they are aware of fraudulent DBEs that are taking advantage of DBE certification and contract goals to win work.
- Many participants indicated that PennDOT’s current use of race- and gender-conscious measures does not encourage prime contractors to make anything more than perfunctory good faith efforts in order to comply with the program. For example, several business owners detailed how their businesses were included on proposed project teams as DBEs but that they were never given work once a contract was awarded.
- Some interviewees also expressed concerns about PennDOT’s lack of effective monitoring and enforcement of DBE contract goals once contracts are awarded.

PennDOT should consider those comments if it determines that it is appropriate to use DBE contract goals on FHWA-funded contracts in the future.

**Flexible use of any race- and gender-conscious measures – 49 CFR Part 26.51(f).**

State and local agencies must exercise flexibility in any use of race- and gender-conscious measures such as DBE contract goals. For example, if PennDOT determines that DBE participation exceeds its overall DBE goal for a fiscal year, it must reduce its use of DBE contract goals to the extent necessary. If it determines that it will fall short of the overall DBE goal in a fiscal year, then it must make appropriate modifications in the use of race- and gender-neutral and race- and gender-conscious measures to allow it to meet its overall DBE goal in the following year. If PennDOT observes increased DBE participation (relative to availability) on contracts to which race- and gender-conscious measures do not apply, the agency might consider changing its projection of how much of its overall DBE goal it can achieve through the use of race- and gender-neutral measures in the future.

**Good faith efforts procedures – 49 CFR Part 26.53.** USDOT has provided guidance for agencies to review good faith efforts, including materials in Appendix A of 49 CFR Part 26. PennDOT’s current implementation of the Federal DBE Program outlines the good faith efforts process that it uses for DBE contract goals. The Final Rule effective February 28, 2011 updated requirements for good faith efforts when agencies use DBE contract goals. PennDOT requires contractors to submit documentation of their good faith efforts and written confirmation in the event that bidders’ efforts to include sufficient DBE participation were unsuccessful. Factors that PennDOT considers in evaluating good faith efforts include:

- Whether a bidder made efforts to solicit DBE participation through all reasonable and available means, including whether solicitations were advertised at least 15 calendar days prior to the bid due date to allow DBEs to respond;

- Whether a bidder has selected portions of work to be performed by DBEs or has broken out portions of work into more feasible units in order to increase the likelihood that the DBE goal will be achieved;
- Whether a bidder provided interested DBEs with adequate information about project plans, specifications, and requirements in a timely manner;
- Whether a bidder has negotiated in good faith with interested DBEs in an effort to facilitate DBE participation;
- Whether a bidder used sound reasoning to determine if a DBE was not adequately qualified to perform the proposed work;
- Whether a bidder made efforts to assist interested DBEs in obtaining required bonding, lines of credit, or insurance;
- Whether a bidder made efforts to assist interested DBEs in obtaining required equipment, supplies, or materials; and
- Effectively using the services of community groups representing minorities and women, contractor groups, PennDOT's DBE and SBE Support Services Centers, and other business assistance resources to identify interested DBEs.

PennDOT does not consider perfunctory efforts to be good faith efforts. Determining the sufficiency of bidders' good faith efforts is at PennDOT's discretion and the use of quantitative formulas is not required. PennDOT should review 49 CFR Part 26.53, the Final Rule, and relevant case law to ensure that its good faith efforts procedures are consistent with federal regulations.

**Counting DBE participation – 49 CFR Part 26.55.** 49 CFR Part 26.55 describes how agencies should count DBE participation and evaluate whether bidders have met DBE contract goals. Federal regulations also give specific guidance for counting the participation of different types of DBE suppliers and trucking companies. 49 CFR Part 26.11 presents guidance related to submitting Uniform Reports of DBE Awards or Commitments and Payments. PennDOT currently tracks participation for certified DBEs but not for uncertified minority- and woman-owned businesses. As discussed above, in addition to tracking the participation of certified DBEs, PennDOT should consider developing procedures to consistently track participation of all minority- and woman-owned businesses and potential DBEs in the contracts that it awards. Those efforts will help PennDOT better track the effectiveness of its efforts to encourage DBE participation and businesses that could become DBE certified in the future. If applicable, PennDOT should also consider collecting important information regarding any shortfalls in annual DBE participation, including preparing participation reports for all minority- and woman-owned businesses (not only those that are DBE-certified). In addition to the information it already maintains, PennDOT should also consider collecting and using the following information:

- Databases that BBC developed as part of the disparity study;
- Contractor/consultant registration documents from all businesses working with PennDOT as prime contractors or subcontractors, including information about the race/ethnicity and gender of business owners;

- Prime contractor and subcontractor participation on agency contracts;
- Subcontractor participation data for all tiers and suppliers and for all businesses regardless of race/ethnicity, gender, or certification status;
- Payment data for prime contractors and subcontractors; and
- Descriptions of the areas of contracts in which subcontractors worked.

**DBE certification – 49 CFR Part 26 Subpart D.** PennDOT is one of five agencies responsible for DBE certification in Pennsylvania through the PAUCP. PennDOT’s certification process is designed to comply with 49 CFR Part 26, Subpart D. As PennDOT continues to work with certified DBEs, the agency should consider ensuring that it continues to certify all groups that the Federal DBE Program presumes to be socially and economically disadvantaged in a manner that is consistent with federal regulations.

Many business owners and managers participating in in-depth interviews and public meetings commented on the DBE certification process. Some business owners felt that the certification process was reasonable and relatively easy to complete. However, other business owners were highly critical of the certification process. A number of business owners reported that the process was difficult to understand, very time consuming, and required extensive paperwork. Appendix D provides additional details about business owners’ experiences with and perceptions of DBE certification. PennDOT appears to follow federal regulations concerning DBE certification, which requires collecting and reviewing considerable information from program applicants. However, the agency might consider interviewees’ concerns and research other ways to make the certification process easier for potential DBEs.

**Monitoring changes to the Federal DBE Program.** Federal regulations related to the Federal DBE Program change periodically, such as with the DBE Program Implementation Modifications Final Rule issued on October 2, 2014 and the Final Rule issued on February 28, 2011. PennDOT should continue to monitor such developments and ensure that the agency’s implementation of the Federal DBE Program is in compliance with federal regulations. Other transportation agencies’ implementations of the Federal DBE Program are under review in federal district courts. PennDOT should also continue to monitor court decisions in those and other relevant cases (for details, see Appendix B).

## **B. Additional Considerations**

Based on disparity study results and the study team’s review of PennDOT’s contracting practices and program measures, BBC provides additional considerations that PennDOT should make as it works to refine its implementation of the Federal DBE Program and the state’s transportation-focused Diverse Business (DB) Program. In making those considerations, PennDOT should also assess whether additional resources or changes in state law or internal policy may be required.

**Consolidation of programs.** There appears to be substantial confusion among members of the business community regarding the Federal DBE Program, the DB Program, the Commonwealth of Pennsylvania’s Department of General Service’s (DGS’s) Small Diverse Business (SDB) Program, and DGS’s Small Business (SB) Program. The similarity of the objectives and names of the DBE, DB SDB, and SB Programs proves to be challenging for many

businesses attempting to work with PennDOT (and DGS). Although PennDOT must implement the Federal DBE Program separately for its USDOT-funded contracts, the agency might consider ways to work with the Commonwealth to consolidate its DB Program with DGS's SDB and SB Programs. Doing so might help encourage businesses to become certified, adhere to program requirements, and engage with both agencies. It might also reduce the amount of monitoring that PennDOT and DGS must undertake as part of all four programs.

**Overall DBE goal.** As part of implementing the Federal DBE goal, PennDOT must set an overall aspirational goal for DBE participation in its USDOT-funded contracts every three years. The agency last set an overall DBE goal of 9.38 percent that covers federal fiscal years 2018-2020. Information from the availability analysis indicates that the overall availability of *potential DBEs*—that is, minority- and woman-owned businesses that are DBE-certified or appear that they could be DBE-certified based on revenue requirements described in 49 Code of Federal Regulations Part 26—for PennDOT's USDOT-funded prime contracts and subcontracts is 9.7 percent, which is very similar to PennDOT's current overall DBE goal of 9.38 percent. PennDOT should consider using information from the availability analysis and other analyses in the disparity study, such as information about current marketplace conditions, to either adjust its current overall DBE goal or set its next one. Chapter 9 discusses factors that PennDOT might consider in deciding how to set its next overall DBE goal.

**Subcontract opportunities.** Overall, minority- and woman-owned businesses did not show disparities on the subcontracts that PennDOT awarded during the study period, in no small part because the agency uses DBE contracting goals in awarding many of its contracts, which appears to be an effective measure to encourage the participation of minority- and woman-owned businesses. However, subcontracting accounted for a relatively small percentage of the total contracting dollars that PennDOT awarded during the study period. To increase the number of subcontract opportunities, PennDOT could consider implementing a program that requires prime contractors to subcontract a certain amount of project work as part of their bids and proposals. For specific types of contracts where subcontracting or partnership opportunities might exist, PennDOT could set a minimum percentage of work to be subcontracted based on the type of work involved, the size of the project, and other factors. Prime contractors would then have to meet or exceed this threshold in order for their bids to be considered responsive.

If PennDOT were to implement such a program, it should include flexibility provisions such as a good faith efforts process.

**DBE contract goals.** As part of the Federal DBE Program, PennDOT uses DBE contract goals on many individual contracts that it awards to encourage the participation of minority- and woman-owned businesses. Prime contractors bidding on those contracts must either meet the goals by making subcontracting commitments to disadvantaged businesses or by requesting good faith effort waivers. PennDOT reviews waiver requests and will grant waivers if prime contractors demonstrate good faith efforts towards compliance with the goals. If prime contractors do not meet the goals through subcontracting commitments and do not submit acceptable good faith effort waivers, then PennDOT may reject their bids.

Based on disparity analysis results, PennDOT should consider continuing its use of DBE contract goals in the future and potentially extending the use of contract goals to its state-funded

contracts as well. Results indicated that not only are the use of those goals effective in encouraging the participation of minority- and woman-owned businesses, but when such goals are not applicable—for example, on prime contracts that PennDOT awarded during the study period—all relevant racial groups show substantial disparities. (Non-Hispanic white woman-owned businesses exhibited a disparity that was close to the threshold of being considered substantial.) PennDOT should consider disparity analysis results for various contract sets to ensure its future use of contract goals is appropriate and narrowly tailored.

**DBE certification.** Many businesses participating in in-depth interviews and public meetings commented on the difficulties and time requirements associated with PennDOT’s certification process. In fact, representatives of some minority- and woman-owned businesses reported that they were not certified, because they perceived the process as too difficult and time consuming. Appendix D provides various insights from business owners that have considered DBE certification or that have gone through the certification process. PennDOT might consider researching ways to make the certification process easier for potential DBEs. Improving PennDOT’s certification process will likely require new policies, additional staff, and resources. PennDOT might consider partnering with a consulting firm that specializes in certification processes if it is interested in making substantial improvements.

**Unbundling large contracts.** In general, minority- and woman-owned exhibited reduced availability for relatively large contracts that PennDOT awarded during the study period. In addition, as part of in-depth interviews, several minority- and woman-owned businesses reported that the size of contracts often serves as a barrier to their success (for details, see Appendix D). PennDOT should consider making efforts to unbundle prime contracts and even subcontracts. For example, the City of Charlotte, North Carolina encourages prime contractors to unbundle subcontracting opportunities into smaller contract pieces that are more feasible for small, minority-, and woman-owned businesses to work on and accepts such attempts as good faith efforts. Such measures would result in PennDOT work being more accessible to small businesses, which in turn might increase opportunities for minority- and woman-owned businesses and result in greater participation in PennDOT contracting.

**Bidding procedures.** As part of in-depth interviews and public meetings that the study team conducted, several business owners indicated that PennDOT bidding procedures could be confusing, cumbersome, or not well documented. PennDOT should consider ways in which it can streamline bidding procedures to reduce burdens for small businesses, including many minority- and woman-owned businesses, that are potentially interested in pursuing PennDOT work. In addition, many business owners commented that prime contractors regularly engage in bid shopping and eliminate or substitute subcontractors from their project teams after contract award. To help prevent such practices, PennDOT should consider requiring prime contractors to list all major subcontractors and suppliers as part of their bids on its contracts and instituting policies that require prime contractors to obtain PennDOT approval to change any subcontractors or scopes of work after contract award.

**Prime contract opportunities.** Disparity analysis results indicated substantial disparities for all relevant racial groups on the prime contracts that PennDOT awarded during the study period. (Non-Hispanic white woman-owned businesses exhibited a disparity that was close to the threshold of being considered substantial.) Those disparities existed on both large prime



contracts and small prime contracts. PennDOT is in the process of implementing a potential remedy to address these disparities: a small business set-aside program. PennDOT has introduced a pilot program for Small Business Enterprises (SBE) to compete as prime contractors for federally-assisted preliminary engineering and final design agreements. For the pilot program, PennDOT Districts will identify projects for the preliminary engineering and final design of non-complex box culvert or single span bridge replacements. Six projects will be chosen from across the state and deemed as small business set-aside projects. The pilot program will begin in federal fiscal year 2018 (October 1) and will run to project completion. Based on the measurable outcomes, PennDOT may expand the set-aside programs to include other contracting opportunities. PennDOT should also consider establishing a medium-sized business set-aside program that would involve setting aside certain prime contracts exclusively for medium-sized business bidding. Doing so would increase prime contracting opportunities and encourage business success for small businesses, including many minority- and woman-owned businesses, that have grown in size and capacity. If PennDOT establishes such a program, it would have to ensure that the program meets all applicable legal standards, including establishing a *rational basis* for the program.

**Prequalification.** Prequalification can serve as a substantial barrier to small businesses, including many minority- and woman-owned businesses, that are trying to compete for government contracts. PennDOT should consider reviewing its prequalification processes and the industries to which those processes apply to ensure that they are appropriate and that the agency's prequalification processes are not serving as an undue burden to minority- and woman-owned businesses. In addition, PennDOT should consider reinforcing its construction prequalification unit to address its current backlog. Some businesses noted that it can take several months for businesses to become prequalified and receive approved work class codes. PennDOT should consider auditing the unit routinely to improve efficiency.

**Growth monitoring.** Along with working to improve its contracting and vendor data systems, PennDOT might also consider collecting data on the impact that the DBE and DB Programs have on minority- and woman-owned business growth over time. Doing so would require PennDOT to collect baseline information on minority- and woman-owned businesses—such as revenue, number of locations, number of employees, and employee demographics—and then continue to collect that information from each firm on an annual basis. Such metrics would allow PennDOT to assess whether the programs are helping diverse businesses grow and help refine measures that PennDOT uses as part of the DBE and DB Programs.

**Networking and outreach.** PennDOT hosts and participates in many networking and outreach events that include information about marketing, the DBE certification process, doing business with PennDOT, and available bid opportunities. PennDOT should consider continuing those efforts but might also consider broadening its efforts to include more partnerships with local trade organizations and other public agencies. PennDOT might also consider creating a consortium of local organizations and public agencies that would jointly host quarterly outreach and networking events and training sessions for businesses seeking public sector contracts. In addition, PennDOT should consider ways that it can better leverage technology to network more effectively with businesses throughout Pennsylvania, such as making use of online procurement fairs, webinars, conference calls, and other tools to provide outreach and technical assistance.

**Future disparity studies.** The 2018 PennDOT disparity study focused on FHWA-funded horizontal construction and construction-related engineering and professional services contracts. PennDOT should consider conducting future disparity studies that examine transportation contracts funded by the Federal Aviation Administration (FAA) and the Federal Transit Administration (FTA).