



2020 Disadvantaged Business Enterprise Disparity Study

Sound Transit

FINAL REPORT

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2020 Disadvantaged Business Enterprise Disparity Study

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Sound Transit

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CHAPTER 1.

Introduction

Sound Transit builds and operates regional transit services throughout the urban areas of Pierce, King, and Snohomish Counties of Washington, serving nearly 50 million passengers each year through various services, including Link light rail, Sounder Trains, the ST Express Bus, and soon, Bus Rapid Transit. To expand, maintain, and operate its transit system, Sound Transit has historically spent more than \$1.5 billion each year in contracting and procurement in the areas of construction, architecture and engineering, other professional services, and goods and services using a combination of state and local funds and United States Department of Transportation (USDOT) funds. As a USDOT fund recipient, Sound Transit implements the Federal Disadvantaged Business Enterprise (DBE) Program, which is designed to address any potential discrimination against DBEs—primarily against small, minority- and woman-owned businesses—in the award and administration of USDOT-funded contracts.¹

Sound Transit retained BBC Research & Consulting (BBC) to conduct a *disparity study* to help evaluate the effectiveness of its implementation of the Federal DBE Program in encouraging the participation of minority- and woman-owned businesses in its USDOT-funded contracts.² As part of the disparity study, BBC examined whether there are any *disparities* between:

- The percentage of contract and procurement dollars, including subcontract dollars, that Sound Transit awarded to minority- and woman-owned businesses during the study period (i.e., *utilization*); and
- The percentage of contract and procurement dollars that minority- and woman-owned businesses might be expected to receive based on the degree to which they are *ready, willing, and able* to perform specific types and sizes of Sound Transit’s prime contracts and subcontracts (i.e., *availability*).

Information from the disparity study will be useful to Sound Transit as it makes decisions about its implementation of the Federal DBE Program, including:

- Determining which business groups face barriers in competing for and participating in its contract and procurements;
- Setting an overall aspirational goal for the participation of DBEs in its USDOT-funded contracts (i.e., *overall DBE goal*); and
- Assessing which measures it could use to meet its overall DBE goal each year.

¹ Although small businesses owned by non-Hispanic white men can also be certified as DBEs, a very small percentage of DBEs comprise such businesses.

² BBC considered a contract to be *USDOT-funded* if it included at least \$1 of USDOT funds.

BBC introduces the 2020 Sound Transit DBE Disparity Study in three parts:

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

A. Background

The Federal DBE Program is a program designed to increase the participation of disadvantaged businesses in USDOT-funded contracts. As a recipient of USDOT funds, Sound Transit must implement the Federal DBE Program and comply with corresponding federal regulations set forth in 49 Code of Federal Regulations (CFR) Part 26.

1. Setting an overall DBE goal. As part of the Federal DBE Program, an agency is required to set an overall aspirational goal for DBE participation in its USDOT-funded contracts every three years.³ Although USDOT requires an agency to set its goal every three years, the goal is an annual goal in that the agency must monitor DBE participation in its USDOT-funded contracts each year, and if DBE participation for a particular year is less than the goal, then the agency must analyze the reasons for the difference and establish specific measures that enable it to meet the goal in the following 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* based on demonstrable evidence of the availability of DBEs to participate in its USDOT-funded contracts. Then, the agency must consider conditions in the local marketplace for disadvantaged 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*).

2. Projecting the portion of the overall DBE goal to be met through race- and gender-neutral means. According to 49 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.⁴ Race- and gender-neutral measures 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)). 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 minority- and woman-owned 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 any race-or gender-

³ <http://www.gpo.gov/fdsys/pkg/FR-2011-01-28/html/2011-1531.htm>

⁴ 49 CFR Section 26.51.

conscious measures. USDOT has outlined a number of factors for an agency to consider when making such determinations.⁵

3. Determining which groups are eligible for race- and gender-conscious measures.

If an agency determines that using race- or gender-conscious measures is appropriate, then its use of those measures must meet both components of the *strict scrutiny* standard of constitutional review:

- **Compelling government interest:** The agency must show evidence of discrimination—including statistical and anecdotal evidence—that supports the use of race- and gender-conscious measures.
- **Narrow tailoring:** The agency must demonstrate that its use of race- and gender-measures are necessary, limited, flexible, related to the marketplace, and not overly burdensome on the rights of non-DBEs.

Consistent with the narrow tailoring component of strict scrutiny, an agency must determine which racial/ethnic or gender groups are eligible to participate in any race- or gender-conscious measures. Eligibility for such measures is typically limited to 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 eligibility for the race- and gender conscious measures that it uses should be limited to only certain racial/ethnic or gender groups.

B. Study Scope

Information from the disparity study will help Sound Transit continue to encourage the participation of minority- and woman-owned businesses in its USDOT-funded contracts effectively and in a legally defensible manner, including setting its next three-year overall DBE goal.

1. Definitions of minority- and woman-owned businesses. To interpret the core analyses presented in the disparity study, it is useful to understand how the study team treated minority- and woman-owned businesses and businesses that are certified as DBEs with the Washington State Office of Minority- and Women-Owned Business Enterprises (OMWBE).

a. Minority-owned businesses. The study team focused its analyses on the minority-owned business groups that the Federal DBE Program presumes to be disadvantaged: Asian Pacific American-, Black American-, Hispanic American-, Native American-, and Subcontinent Asian American-owned businesses. BBC's definition of minority-owned businesses included businesses owned by both minority men and minority women. For example, BBC grouped results for Black American woman-owned businesses along with results for businesses owned by Black American men.

⁵ <http://www.dotcr.ost.dot.gov/Documents/Dbe/49CFRPART26.doc>

b. Woman-owned businesses. Because BBC classified minority woman-owned businesses according to their corresponding racial/ethnic groups, analyses and results pertaining to woman-owned businesses pertain specifically to non-Hispanic white woman-owned businesses.

c. DBEs. DBEs are minority- and woman-owned businesses that are certified as DBEs through OMWBE. A determination of DBE eligibility includes assessing businesses' gross revenues and business owners' personal net worth (maximum of \$1.32 million excluding equity in their home and business). Some minority- and woman-owned businesses do not qualify as DBEs because they exceed gross revenue or net worth requirements.⁶ Businesses seeking DBE certification in Washington are required to submit applications to OMWBE. The application is available online and requires businesses to submit various information, including business name, contact information, tax information, work specializations, and the race/ethnicity and gender of owners. OMWBE reviews each application for approval. The review process may involve on-site meetings and additional documentation to confirm business information.

d. Potential DBEs. Potential DBEs are minority- and woman-owned businesses that are DBE-certified or appear that they could be DBE-certified based on revenue requirements specified 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. BBC examined the availability of potential DBEs as part of helping Sound Transit calculate the base figure of its overall DBE goal.

e. Majority-owned businesses. Majority-owned businesses are businesses that are not owned by minorities or women (i.e., businesses owned by non-Hispanic white men). In core disparity study analyses, the study team coded each business as minority-, woman-, or majority-owned.

2. 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 for Sound Transit contracts and procurements. The study focused on construction, architecture and engineering, other professional services, and goods and services contracts and procurements that the agency awarded between January 1, 2016 and December 31, 2019 (i.e., the *study period*). During the study period, Sound Transit used DBE contract goals—that is, a race- and gender-conscious measure—to award many of its USDOT-funded contracts. That information is organized in the disparity study report as follows.

a. Data collection and analysis. BBC examined data from multiple sources to complete the utilization and availability analyses. In addition, the study team conducted telephone and online surveys with businesses throughout the Puget Sound region. The scope of BBC's data collection and analysis as it pertains to the utilization and availability analyses is presented in **Chapter 2**.

b. Availability analysis. BBC analyzed the percentage of minority- and woman-owned businesses that are *ready, willing, and able* to perform work on Sound Transit prime contracts and subcontracts. That analysis was based on Sound Transit data and telephone and online surveys

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

that the study team conducted with local businesses that work in industries related to the types of contracts and procurements that Sound Transit awards. BBC analyzed availability separately for each relevant business group and for different types of contracts and procurements. Results from the availability analysis are presented in **Chapter 3** and **Appendix B**.

c. Utilization analysis. BBC analyzed the dollars that Sound Transit awarded to or spent with minority- and woman-owned businesses on contracts and procurements that the agency awarded between January 1, 2016 and December 31, 2019, including on associated subcontracts.⁷ BBC analyzed utilization separately for relevant business groups and for different types of contracts. Results from the utilization analysis are presented in **Chapter 4**.

d. Disparity analysis. BBC examined whether there were any disparities between the participation of minority- and woman-owned businesses in contracts that Sound Transit awarded during the study period and the availability of those businesses for that work. BBC analyzed disparity analysis results separately for relevant business groups 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 5** and **Appendix C**.

e. Program implementation. Based on information from the availability analysis and other research, BBC provided Sound Transit with information that will help the agency implement the Federal DBE Program effectively and in a legally-defensible manner, including setting its next overall DBE goal. Information about program implementation is presented in **Chapter 6**.

C. Study Team Members

The BBC study team was made up of three firms that, collectively, possess decades of experience related to conducting disparity studies in connection with the Federal DBE Program.

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

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

3. Davis Research. Davis Research is a survey fieldwork firm based in Calabasas, California. Davis Research conducted telephone surveys and online surveys with businesses to gather information for the utilization and availability analyses.

⁷ Prime contractors—not Sound Transit—actually *award* subcontracts to subcontractors. However, for simplicity, throughout the report, BBC refers to Sound Transit as *awarding* subcontracts.

CHAPTER 2.

Data Collection

Chapter 2 provides an overview of Sound Transit contracts that BBC Research & Consulting (BBC) analyzed as part of the disparity study and describes the process that the study team used to collect prime contract and subcontract data. Chapter 2 is organized into five parts:

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

A. Collection and Analysis of Contract and Procurement Data

BBC collected the most comprehensive data available on prime contracts and subcontracts that Sound Transit awarded between January 1, 2016 through December 31, 2019 (i.e., the *study period*) in the procurement areas of construction, architecture and engineering, other professional services, and goods and services. The study team sought data on all relevant prime contracts and subcontracts, regardless of whether the businesses that performed the work were minority-or woman-owned and regardless of whether they were certified as Disadvantaged Business Enterprises (DBEs).¹

1. Prime contract data collection. Sound Transit provided BBC with electronic data on all relevant construction, architecture and engineering, other professional services, and goods and services prime contracts that the agency awarded during the study period. The agency maintains those data in its E1 financial system and B2GNow. As available, BBC collected the following information about each relevant prime contract:

- Contract or purchase order number;
- Description of work;
- Award date;
- Award amount (including change orders and amendments);
- Amount invoiced to date;
- Amount paid to date;
- Funding source (federal or state/local funding);
- Whether DBE contract goals were used to award the contract;

¹ “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.

- Prime contractor name; and
- Prime contractor identification number.

Sound Transit advised BBC on how to interpret the provided data, including how to identify unique bid opportunities and interpret invoiced and payment amounts for construction and architecture and engineering projects.²

2. Subcontract data collection. Sound Transit also provided BBC with data on subcontracts related to construction and architecture and engineering contracts that the agency awarded during the study period. The agency collects information on subcontracts through payment affidavits and progress reports that prime contractors submit as part of their monthly invoices. Sound Transit provided subcontract data for 53 prime contracts, which accounted for approximately \$4.4 billion of the contract dollars that it awarded during the study period.

In order to gather subcontract data about other relevant contracts, BBC conducted surveys with prime contractors to collect information on the subcontracts that were associated with the contracts they were awarded during the study period. BBC sent out surveys to request subcontract data associated with an additional 27 prime contracts, accounting for approximately \$267 million of the contracting dollars that the agency awarded during the study period. BBC collected the following information about each relevant subcontract as part of the survey process:

- Subcontract commitment amount;
- Amount paid on the subcontract as of December 31, 2019;
- Description of work;
- Subcontractor name; and
- Subcontractor contact information.

After the first round of surveys, BBC sent reminder emails to unresponsive prime contractors and worked with Sound Transit to contact remaining unresponsive prime contractors. Through the survey effort, BBC collected subcontract data associated with more than \$46 million of contracting dollars that Sound Transit awarded during the study period.

3. Contracts included in study analyses. The study team collected information on 688 relevant prime contract elements and 565 associated subcontracts that Sound Transit awarded during the study period in the areas of construction, architecture and engineering, other professional services, and goods and services, representing approximately \$6.4 billion of contracting dollars. Figure 2-1 presents dollars by relevant contracting area for the prime contracts and subcontracts that the study team included in its analyses. Approximately 83

² Many of Sound Transit's construction and architecture and engineering projects are "phased" projects for which subcontractors are selected during each phase of the project rather than at the time of contract award. To accurately reflect subcontract amounts on those contracts, BBC examined current invoiced and current contract amounts, respectively, rather than original award amounts.

percent of those contract dollars were associated with Federal Transit Administration (FTA)-funded contracts and procurements.³

**Figure 2-1.
Contracts and dollars
included in the study**

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

Source:
Sound Transit contract and procurement data.

Contract Type	Contract elements	Dollars (in thousands)
Construction	638	\$ 4,935,612
Architecture and engineering	281	\$ 998,497
Other professional services	88	\$ 222,600
Good and services	246	\$ 203,289
Total	1,253	\$ 6,359,998

4. Prime contract and subcontract amounts. For each construction and architecture and engineering contract element included in the study team’s analyses, BBC analyzed dollars that each prime contractor and subcontractor invoiced to Sound Transit during the study period. For other professional services and goods and services contract elements, BBC analyzed the dollars that Sound Transit awarded to each prime contractor during the study period and the dollars that the prime contractor awarded to any subcontractors.

- If a contract did not include any subcontracts, BBC attributed the entire award amount or amount invoiced during the study period to the prime contractor.
- If a contract included subcontracts, BBC calculated subcontract amounts as the total amount awarded to or invoiced by each subcontractor during the study period. BBC then calculated the prime contract amount as the total award amount or amount invoiced during the study period less the sum of dollars awarded to or invoiced by all subcontractors.

B. Collection of Vendor Data

Sound Transit provided BBC with information about prime contractors and subcontractors that had done business with the agency during the study period. The study team also collected information about prime contractors and subcontractors through national business listings, certification lists, telephone and online surveys, and other sources. BBC compiled the following information on businesses that participated in relevant Sound Transit contracts and subcontracts during the study period:

- Business name;
- Physical addresses, phone numbers, and email addresses;
- Ownership status (i.e., whether each business was minority- or woman-owned);
- Ethnicity of ownership (if minority-owned);
- DBE certification status; and
- Primary lines of work.

³ The study team considered a contract to be FTA-funded if it included at least \$1 of FTA funding.

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

- Sound Transit contract and vendor data;
- Washington State Office of Minority and Women’s Business Enterprises Directory of Certified Firms;
- Washington State Department of Transportation DBE directory;
- Small Business Administration certification and ownership lists, including 8(a) Historically Underutilized Business Zone and self-certification lists;
- Dun & Bradstreet (D&B) business listings and other business information sources;
- Telephone and online surveys that the study team conducted with business owners and managers as part of the utilization and availability analyses; and
- Business websites.

BBC collected all vendor information in 2020.

C. Relevant Geographic Market Area

BBC used Sound Transit’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 relevant contracting dollars during the study period went to businesses with locations in King, Pierce, and Snohomish counties in Washington, indicating that those counties 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 those three counties.

D. Relevant Types of Work

For each prime contract and subcontract, BBC determined the *subindustry* that best characterized the business’s primary line of work (e.g., railroad construction). BBC identified subindustries based on Sound Transit contract data, telephone and online surveys that the study team 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 2-2 presents the dollars that the study team examined in the various construction, architecture and engineering, other professional services, and goods and services subindustries that were included in core disparity study analyses.

BBC combined related subindustries that accounted for relatively small percentages of total contracting dollars into four “other” subindustries—“other construction services,” “other construction materials,” “other goods,” and “other services.” For example, the contracting dollars that Sound Transit awarded for “glass and glazing work” represented less than 1 percent of total contract and procurement dollars that BBC examined in the study. BBC combined “glass and glazing work” with other construction services subindustries that also accounted for relatively small percentages of total dollars and were somewhat dissimilar to other subindustries into the “other construction services” subindustry.

**Figure 2-2.
Contract dollars by
subindustry**

Note:

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

Source:

BBC from Sound Transit contract
and procurement data.

Industry	Total (in Thousands)
Construction	
Railroad construction	1,847,309
Highway, street, and bridge construction	1,378,235
Building construction	880,166
Electrical work	142,937
Concrete work	123,266
Rebar and reinforcing steel	106,935
Elevator goods and services	75,941
Concrete, asphalt, sand, and gravel products	74,103
Plumbing and HVAC	59,888
Other construction services	50,332
Excavation, drilling, wrecking, and demolition	39,096
Electrical equipment and supplies	33,235
Landscape services	31,983
Traffic control and safety	25,767
Insulation, drywall, and weatherproofing	20,619
Other construction materials	10,909
Fencing, guardrails, barriers, and signs	10,677
Water, sewer, and utility lines	10,609
Painting, striping, and marking	8,815
Heavy construction equipment rental	4,788
Total construction	\$4,935,610
Architecture and engineering	
Architecture and engineering	523,446
Construction management	284,380
Transportation planning services	90,959
Environmental services	70,083
Surveying and mapmaking	19,954
Testing and inspection	6,082
Landscape architecture	3,591
Total architecture and engineering	\$998,495
Other professional services	
Business services and consulting	94,956
IT and data services	67,072
Real estate management	48,653
Human resources and job training services	11,920
Total other professional services	\$222,601

**Figure 2-2 (continued).
Contract dollars by
subindustry**

Note:

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

Source:

BBC from Sound Transit contract and procurement data.

Industry	Total (in Thousands)
Goods and services	
Security guard services	158,981
Security and safety materials	8,941
Communications equipment	8,559
Office equipment	8,474
Other goods	5,388
Advertising goods	4,061
Cleaning and janitorial services	3,339
Food and catering	2,752
Other services	1,545
Printing, copying, and mailing	1,220
Uniforms and apparel	28
Industrial chemicals	1
Total goods and services	\$203,289
GRAND TOTAL	\$6,359,995

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:

- Sound Transit awarded to government agencies, utility providers, hospitals, schools, or other nonprofit organizations (\$522,000 of associated contracting dollars);
- Were classified in subindustries that reflected *national markets* (i.e., subindustries dominated by large, national businesses) or were classified in subindustries for which Sound Transit awarded the majority of contracting dollars to businesses located outside of the relevant geographic market area (\$891 million of associated contracting dollars);⁴
- Were classified in subindustries which often include pass-through dollars (e.g., real estate or legal services; \$44 million of associated contracting dollars); and
- Were classified in subindustries not typically included in a disparity study or account for small proportions of contracting dollars (\$5 million of associated contracting dollars).⁵

E. Agency Review Process

Sound Transit reviewed BBC’s contracting and procurement data several times during the study process. BBC met with Sound Transit staff to review the data collection process, information that the study team gathered, and summary results and incorporated Sound Transit’s feedback into the final disparity study databases and analyses.

⁴ Examples of such industries include software, computers, and transportation vehicles.

⁵ Examples of industries not typically included in a disparity study include non-commercial research, subscription services, health services, and lodging.

CHAPTER 3.

Availability Analysis

BBC Research & Consulting (BBC) analyzed the availability of minority- and woman-owned businesses that are *ready, willing, and able* to perform on Sound Transit’s construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts.¹ Chapter 3 describes the availability analysis in six parts:

- A. Overview;
- B. Availability surveys;
- C. Availability database;
- D. Availability calculations;
- E. Availability results; and
- F. Base figure for overall DBE goal.

Appendix B provides supporting information related to the availability analysis.

A. Overview

BBC examined the availability of minority- and woman-owned businesses for Sound Transit prime contracts and subcontracts to inform the agency’s implementation of the Federal Disadvantaged Business Enterprise (DBE) Program. Results from the availability analysis served two primary purposes:

- They informed Sound Transit’s next overall aspirational goal for DBE participation in its United States Department of Transportation (USDOT)-funded contracts and procurements;² and
- They served as benchmarks against which to compare the participation of minority- and woman-owned businesses in Sound Transit contracts and procurements as part of the disparity analysis, allowing BBC to determine whether any minority- or woman-owned business groups are *underutilized* relative to their availability for Sound Transit work.

The availability analysis focused on specific areas of work (i.e., *subindustries*) related to the types of construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts that Sound Transit awarded during the *study period*, which was defined as January 1, 2016 through December 31, 2019. The prime contracts and

¹ “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.

² BBC considered a contract to be USDOT-funded if it included at least one dollar of USDOT funding.

subcontracts that Sound Transit awarded during the study period served as a proxy for the contracts and procurements that Sound Transit will award in the future.

BBC began the analysis by identifying the specific subindustries in which Sound Transit spends the majority of its contracting dollars as well as the geographic area in which the majority of the businesses that perform work for Sound Transit are located, which BBC determined is King, Pierce, and Snohomish Counties in Washington (i.e., *relevant geographic market area*, or *RGMA*). Once BBC identified the subindustries and geographic market area relevant to Sound Transit contracting and procurement, the study team conducted extensive surveys to develop a representative, unbiased, and statistically valid database of potentially available businesses located in the RGMA 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 the region. 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. It allowed BBC to estimate the availability of minority- and woman-owned businesses for Sound Transit work in an accurate, statistically valid manner.

B. Availability Surveys

The study team conducted telephone and online surveys with representatives of local businesses to identify businesses that are potentially available for Sound Transit's construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts. BBC began the survey process by compiling an extensive and unbiased *phone book* of all types of relevant businesses—that is, not only those businesses that are minority- and woman-owned but businesses of all ownerships—that are located in the RGMA and perform work in relevant subindustries. BBC developed the phone book based primarily on information from Dun & Bradstreet (D&B) Marketplace listings, which is accepted as the most comprehensive and unbiased source of business listings in the nation. 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 Sound Transit awarded during the study period. BBC obtained listings on 4,871 local businesses that do work in relevant subindustries. BBC did not have working phone numbers for 1,260 of those businesses but attempted availability surveys with the remaining 3,611 businesses.

1. Availability survey information. Availability surveys covered many topics about each business, including:

- Status as a private business (as opposed to a 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 Sound Transit;

- Ability to do work in different parts of the RGMA;
- Largest prime contract or subcontract bid on or performed in the previous five years; and
- Race/ethnicity and gender of ownership.

2. Potentially available businesses. BBC considered local businesses to be potentially available for Sound Transit prime contracts or subcontracts if they reported possessing *all* of the following characteristics:

- Being a private business;
- Working in subindustries relevant to Sound Transit’s construction, architecture and engineering, other professional services, and goods and services contracts or procurements;
- Having bid on or performed relevant work in either the public sector or private sector in the past five years; and
- Being interested in participating in Sound Transit contracts or procurements.³

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

- The roles in which they work (i.e., as prime contractor, subcontractors, or both); and
- The largest contracts they bid on or performed in the past five years.

C. Availability Database

After conducting availability surveys, BBC developed a database of information about local businesses that are potentially available for Sound Transit prime contracts and subcontracts, which allowed the study team to develop an accurate assessment of businesses that are *ready, willing, and able* to perform work for the agency. Figure 3-1 presents the percentage of businesses in the *availability database* that were minority- or woman-owned. The study team’s analysis included 432 businesses that are potentially available for specific construction, architecture and engineering, other professional services, and goods and services contracts and procurements that Sound Transit awards. As shown in Figure 3-1, of those businesses, 26.2 percent were minority- or woman-owned. The information in Figure 3-1 reflects a simple count of businesses with no analysis of their availability for specific Sound Transit contracts. Thus, it represents only a first step toward analyzing the availability of minority- and woman-owned businesses for Sound Transit work.

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 Sound Transit contracts and procurements. Those estimates represent the percentage of dollars that minority- and woman-

³ That information was gathered separately for prime contract and subcontract work.

owned businesses would be expected to receive based on their availability for specific types and sizes of Sound Transit construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts.

Figure 3-1.
Percentage of businesses in the availability database that were minority- or woman-owned

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

Source:
 BBC availability analysis.

Business group	Availability %
Non-Hispanic white woman-owned	10.4 %
Asian Pacific American-owned	3.5 %
Black American-owned	3.9 %
Hispanic American-owned	4.2 %
Native American-owned	2.5 %
Subcontinent Asian American-owned	1.6 %
Total Minority- and Woman-owned	26.2 %

BBC used a contract-by-contract matching approach to estimate availability for Sound Transit contracts and procurements. Only a portion of the businesses in the availability database was considered potentially available for any given prime contract or subcontract (referred to generally as a *contract element*). BBC identified the specific characteristics of each contract element—including type of work and contract size—and then took the following steps to calculate the availability of minority- and woman-owned businesses for each one:

1. For each contract element, BBC identified businesses in the availability database that reported that they:
 - Are interested in performing work in that particular role for that specific type of work for Sound Transit; and
 - Have bid on or performed work of that size in the past five years.
2. BBC then counted the number of minority-owned businesses, woman-owned businesses, and businesses owned by non-Hispanic white men in the availability database that met the criteria specified in Step 1.
3. BBC translated the numeric availability of businesses for the contract element into percentage availability.

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 for Sound Transit work, both overall and separately for each racial/ethnic and gender group. Figure 3-2 provides an example of how BBC calculated availability for a specific subcontract associated with a construction prime contract that Sound Transit awarded during the study period.

E. Availability Results

BBC estimated the availability of minority- and woman-owned businesses for the 1,253 construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts that Sound Transit awarded between January 1, 2016 and December 31, 2019.

1. All contracts. Figure 3-3 presents overall, dollar-weighted availability estimates by racial/ethnic and gender group for Sound Transit contracts and procurements. Overall, the availability of minority- and woman-owned businesses for Sound Transit contracts and procurements is 8.2 percent, meaning that one would expect those businesses to

receive 8.2 percent of the contract and procurement dollars that Sound Transit awards based on the degree to which they are ready, willing, and able to perform that work. Native American-owned businesses (3.4%), Hispanic American-owned businesses (2.0%), and Black American-owned businesses (1.3%) exhibited the highest levels of availability for Sound Transit work.

Figure 3-3.
Overall availability estimates by racial/ethnic and gender group

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 C-2 in Appendix C.

Source:

BBC availability analysis.

Figure 3-2.
Example of the availability calculation for a Sound Transit subcontract

On a contract that Sound Transit awarded in 2016, the prime contractor awarded a subcontract worth \$2.8 million for traffic control in King County. To determine the overall availability of minority- and woman-owned businesses for that subcontract, BBC identified businesses in the availability database that:

- Indicated that they perform traffic control work;
- Reported bidding on work of similar or greater size in the past; and
- Reported being interested in working as a subcontractor for Sound Transit.

The study team found 42 businesses in the availability database that met those criteria. Of those businesses, 11 were minority- or woman-owned. Thus, the availability of minority- and woman-owned businesses for the subcontract was 26.2 percent (i.e., $11/42 \times 100 = 26.2$).

Business group	Availability %
Non-Hispanic white woman-owned	1.0 %
Asian Pacific American-owned	0.4 %
Black American-owned	1.3 %
Hispanic American-owned	2.0 %
Native American-owned	3.4 %
Subcontinent Asian American-owned	0.0 %
Total Minority-owned	7.1 %
Total Minority- and Woman-owned	8.2 %

2. Funding source. Sound Transit's implementation of the Federal DBE Program applies specifically to the agency's Federal Transit Administration (FTA)-funded contracts and procurements. In addition, Sound Transit used DBE contract goals—a *race- and gender-conscious* measure—to award many of its FTA-funded contracts and procurements during the study period. Prime contractors could meet those goals by either making subcontracting commitments with certified DBEs or with certified Small Business Enterprises if they were unable to successfully partner with DBEs. In contrast, Sound Transit did not use any race- or gender-conscious measures to award locally-funded contracts, because Revised Code of Washington (RCW) 49.60.400 prevents the agency from using such measures unless compelled

to do so by federal law. As a result, it is instructive to examine availability analysis results separately for the agency’s FTA-funded and locally-funded work.

Figure 3-4 presents availability estimates separately for FTA-funded and locally-funded contracts and procurements that Sound Transit awarded during the study period. As shown in Figure 3-4, the availability of minority- and woman-owned businesses considered together is higher for Sound Transit’s locally-funded contracts and procurements (12.5%) than for its FTA-funded contracts and procurements (7.4%). That result may be due to the fact that the locally-funded contracts and procurements that the agency awarded during the study period were smaller, on average, than the FTA-funded contracts and procurements that it awarded, resulting in them being more accessible to small businesses, including many minority- and woman-owned businesses (average size for locally-funded contracts = \$4.1 million; average size for FTA-funded contracts = \$5.3 million).

Figure 3-4.
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 and results by group, see Figures C-11 and C-12 in Appendix C.

Source:
BBC availability analysis.

Business group	Funding source	
	FTA-funded	Locally-funded
Non-Hispanic white woman-owned	1.0 %	1.4 %
Asian Pacific American-owned	0.4 %	0.5 %
Black American-owned	1.3 %	1.4 %
Hispanic American-owned	1.8 %	3.2 %
Native American-owned	2.9 %	5.9 %
Subcontinent Asian American-owned	0.0 %	0.1 %
Total Minority-owned	6.4 %	11.2 %
Total Minority- and Woman-owned	7.4 %	12.5 %

3. Contract goal status. Sound Transit used DBE contract goals to award many—but not all—of its FTA-funded contracts and procurements during the study period but did not use any race- or gender conscious measures to award its locally-funded contracts and procurements because of RCW 49.60.400. It is instructive to examine availability analysis results separately for work that Sound Transit awards with the use of DBE contract goals (*goals contracts*) and work that the agency awards without the use of such goals (*no goals contracts*). As shown in Figure 3-5, the availability of minority- and woman-owned businesses for no goals contracts (11.7%) was substantially higher than for goals contracts (5.9%), which may again reflect the relatively large size of FTA-funded contracts and procurements that Sound Transit awarded during the study period, most of which the agency awarded with the use of DBE contract goals.

Figure 3-5.
Availability estimates
by contract goal status

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 C-13 and C-14 in Appendix C.

Source:

BBC availability analysis.

Business group	Goal status	
	Goals	No goals
Non-Hispanic white woman-owned	0.7 %	1.5 %
Asian Pacific American-owned	0.3 %	0.6 %
Black American-owned	0.9 %	2.0 %
Hispanic American-owned	1.4 %	2.9 %
Native American-owned	2.5 %	4.6 %
Subcontinent Asian American-owned	0.0 %	0.1 %
Total Minority-owned	5.2 %	10.2 %
Total Minority- and Woman-owned	5.9 %	11.7 %

4. 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. As shown in Figure 3-6, the availability of minority- and woman-owned businesses considered together is lower for Sound Transit prime contracts (3.5%) than subcontracts (22.9%).

Figure 3-6.
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 and results by group, see Figures C-7 and C-8 in Appendix C.

Source:

BBC availability analysis.

Business group	Contract role	
	Prime contracts	Subcontracts
Non-Hispanic white woman-owned	0.5 %	2.6 %
Asian Pacific American-owned	0.1 %	1.4 %
Black American-owned	0.6 %	3.5 %
Hispanic American-owned	0.3 %	7.5 %
Native American-owned	2.0 %	7.8 %
Subcontinent Asian American-owned	0.0 %	0.1 %
Total Minority-owned	3.0 %	20.4 %
Total Minority- and Woman-owned	3.5 %	22.9 %

5. Industry. BBC also examined availability analysis results separately for Sound Transit’s construction, architecture and engineering, other professional services, and goods and services contracts and procurements to determine whether availability of minority- and woman-owned businesses for agency work differs by industry. As shown in Figure 3-7, the availability of minority- and woman-owned businesses considered together was highest for other professional services contracts (14.3%) and lowest for construction contracts (6.9%).

Figure 3-7.
Availability estimates by industry

Business group	Industry			
	Construction	Architecture and engineering	Other professional services	Goods and services
Non-Hispanic white woman-owned	0.5 %	3.2 %	2.4 %	1.2 %
Asian Pacific American-owned	0.4 %	0.5 %	0.0 %	2.7 %
Black American-owned	1.0 %	1.8 %	8.5 %	0.0 %
Hispanic American-owned	2.2 %	0.0 %	3.5 %	4.9 %
Native American-owned	2.8 %	7.4 %	0.0 %	0.9 %
Subcontinent Asian American-owned	0.0 %	0.2 %	0.0 %	0.0 %
Total Minority-owned	6.4 %	9.9 %	12.0 %	8.5 %
Total Minority- and Woman-owned	6.9 %	13.1 %	14.3 %	9.7 %

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 C-3, C-4, C-5, and C-6 in Appendix C.

Source: BBC availability analysis.

F. Base Figure for Overall DBE Goal

As part of the Federal DBE Program, an agency is required to set an overall aspirational goal for DBE participation in its USDOT-funded contracts and procurements every three years. The first step in calculating an overall DBE goal is establishing a base figure. BBC calculated a base figure for Sound Transit’s next overall DBE goal using the same availability approach described above except that the 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 FTA-funded prime contracts and subcontracts. BBC’s approach to calculating Sound Transit’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 3-8 presents BBC’s base figure calculations by relevant racial/ethnic and gender group. Those results indicate that the availability of potential DBEs for Sound Transit’s FTA-funded contracts and procurements is 5.0 percent. Sound Transit might consider 5.0 percent as the base figure for its overall goal for DBE participation, assuming that the types and sizes of FTA-funded contracts and procurements that the agency awards in the time period that the goal will cover are similar to the types and sizes of FTA-funded contracts and procurements that the agency awarded during the study period.

Figure 3-8.
Base figure for Sound Transit’s overall DBE goal

a. Potential DBE group	Industry component				f. Total
	b. Construction	c. Architecture and engineering	d. Other Professional Services	e. Goods and Services	
Non-hispanic white woman-owned	0.5 %	3.2 %	1.9 %	1.2 %	1.0 %
Asian Pacific American-owned	0.3 %	0.5 %	0.0 %	2.7 %	0.4 %
Black American-owned	0.1 %	2.2 %	8.7 %	0.0 %	0.7 %
Hispanic American-owned	1.8 %	0.0 %	0.0 %	0.0 %	1.4 %
Native American-owned	1.7 %	0.0 %	0.0 %	0.9 %	1.4 %
Subcontinent Asian American-owned	0 %	0.2 %	0.0 %	0.0 %	0 %
Total minority-owned	4.0 %	2.9 %	8.7 %	3.7 %	4.0 %
Total potential DBEs	4.5 %	6.0 %	10.6 %	4.9 %	5.0 %

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 C-15, C-16, C-17, C-18, and C-19 in Appendix C.

BBC applied the following weights to availability within each industry to calculate the total base figure: construction = 0.78, architecture and engineering = 0.14; other professional services = 0.04, and goods and services = 0.04. Those weights were based on the proportion of total FTA-funded contracting dollars for which each industry accounted during the study period.

Source: BBC availability analysis.

1. Differences from overall availability. The availability of potential DBEs for Sound Transit’s FTA-funded work (5.0%) is lower than the overall availability of minority- and woman-owned businesses that is presented in Figure 3-3 (8.2%). 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 potential DBE certification.

In addition, the study team’s analyses for calculating the base figure for Sound Transit’s overall DBE goal only included Sound Transit’s FTA-funded contracts and procurements, which tended to be larger in size than the agency’s locally-funded contracts and procurements. The calculations for the overall availability of minority- and woman-owned businesses included both FTA- and locally-funded contracts and procurements.

2. Additional steps before Sound Transit determines its overall DBE goal. Sound Transit must consider whether to make a *step-2 adjustment* to the base figure as part of determining its next overall DBE goal. Step-2 adjustments can be upward or downward, but there is no requirement for Sound Transit to make a step-2 adjustment as long as the agency can explain what factors it considered and why no adjustment was warranted. Chapter 6 discusses factors that Sound Transit might consider relevant to making a step-2 adjustment.

CHAPTER 4.

Utilization Analysis

Chapter 4 presents information about the participation of minority- and woman-owned businesses in construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts that Sound Transit awarded between January 1, 2016 and December 31, 2019 (i.e., the *study period*).¹ BBC Research & Consulting (BBC) measured the participation of minority- and woman-owned businesses in Sound Transit contracting in terms of *utilization*—the percentage of prime contract and subcontract dollars that Sound Transit awarded to those businesses during the study period. For example, if 5 percent of Sound Transit prime contract and subcontract dollars went to woman-owned businesses on a particular set of contracts, participation of woman-owned businesses for that set of contracts and procurements would be 5 percent. The study team measured the participation of minority- and woman-owned businesses in Sound Transit work regardless of whether they were certified as Disadvantaged Business Enterprises (DBEs).

A. All Contracts

Figure 4-1 presents the percentage of total dollars that minority- and woman-owned businesses received on relevant construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts that Sound Transit awarded during the study period. As shown in Figure 4-1, minority- and woman-owned businesses considered together received 8.8 percent of the relevant contract and procurement dollars that Sound Transit awarded during the study period. Less than one-half of those dollars—4.3 percent—went to minority- and woman-owned businesses that were certified as DBEs. The groups that exhibited the highest levels of participation were woman-owned businesses (3.5%), Asian Pacific American-owned businesses (1.8%), and Hispanic American-owned businesses (1.4%).

B. Funding Source

Sound Transit’s implementation of the Federal DBE Program applies specifically to its Federal Transit Administration (FTA)-funded contracts and procurements. In addition, the agency used DBE contract goals—a *race- and gender-conscious* measure—to award many FTA-funded contracts and procurements during the study period. Prime contractors could meet those goals by either making subcontracting commitments with certified DBEs or with certified Small Business Enterprises if they are unable to successfully partner with DBEs. In contrast, the agency did not use any race- or gender-conscious measures to award locally-funded contracts, because Revised Code of Washington (RCW) 49.60.400 prevents it from using such measures unless compelled to do so by federal law. As a result, it is instructive to examine the participation of minority- and woman-owned businesses separately for FTA- funded and locally-funded work.

¹ “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.

Figure 4-1.
Utilization results
for all contracts and
procurements

Note:

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

For more detail, see Figure C-2 in Appendix C.

Source:

BBC utilization analysis.

Business group	Utilization %
Minority- and Woman-owned	
Non-Hispanic white woman-owned	3.5 %
Asian Pacific American-owned	1.8 %
Black American-owned	1.3 %
Hispanic American-owned	1.4 %
Native American-owned	0.5 %
Subcontinent Asian American-owned	0.3 %
Total Minority-owned	5.3 %
Total Minority- and Woman-owned	8.8 %
DBE-certified	
Non-Hispanic white woman-owned	1.0 %
Asian Pacific American-owned	1.0 %
Black American-owned	0.5 %
Hispanic American-owned	1.1 %
Native American-owned	0.3 %
Subcontinent Asian American-owned	0.3 %
Total DBE-certified Minority-owned	3.3 %
Total DBE-certified	4.3 %

Figure 4-2 shows that the participation of minority- and woman-owned businesses considered together was higher in Sound Transit’s locally-funded work (18.1%) than in its FTA-funded work (6.9%). That result may be due to the fact that the locally-funded contracts and procurements that Sound Transit awarded during the study period were smaller, on average, than its FTA-funded contracts and procurements, resulting in them being more accessible to small businesses, including many minority- and woman-owned businesses (average size for locally-funded contracts = \$4.1 million; average size for FTA-funded contracts = \$5.3 million).

Figure 4-2.
Utilization analysis
results by funding source

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 C-11 and C-12 in Appendix C.

Source:

BBC utilization analysis.

Business group	Founding source	
	FTA-funded	Locally-funded
Non-Hispanic white woman-owned	3.0 %	6.0 %
Asian Pacific American-owned	0.7 %	7.4 %
Black American-owned	1.0 %	2.7 %
Hispanic American-owned	1.5 %	0.7 %
Native American-owned	0.4 %	1.1 %
Subcontinent Asian American-owned	0.3 %	0.2 %
Total Minority-owned	3.9 %	12.1 %
Total Minority- and Woman-owned	6.9 %	18.1 %

C. Contract Goal Status

As described above, Sound Transit used DBE contract goals to award many of its FTA-funded contracts and procurements during the study period but did not use any goals or other race- or gender-conscious measures to award its locally-funded contracts and procurements because of RCW 49.60.400. It is instructive to compare the participation of minority- and woman-owned businesses separately for contracts and procurements that Sound Transit awarded with the use of goals (*goals contracts*) and contracts and procurements that Sound Transit awarded without the use of goals (*no goals contracts*).

Figure 4-3 presents utilization analysis results separately for goals and no goals contracts. The participation of minority- and woman-owned businesses considered together was higher for Sound Transit’s no goals contracts (11.5%) than for goals contracts (6.9%), which may again reflect the relatively large size of the FTA-funded contracts that Sound Transit awarded during the study period, most of which the agency awarded with the use of DBE contract goals. Although utilization analysis results for goals and no-goals contracts provide preliminary information about outcomes for minority- and woman-owned businesses in Sound Transit in the absence of race- and gender-conscious measures, it is important to make such comparisons while accounting for differences in availability between those contract sets. BBC made those comparisons as part of the disparity analysis, the results of which are presented in Chapter 5.

Figure 4-3.
Utilization analysis
results by contract goal status

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 C-13 and C-14 in Appendix C.

Source:

BBC utilization analysis.

Business group	Goal status	
	Goals	No goals
Non-Hispanic white woman-owned	3.3 %	3.8 %
Asian Pacific American-owned	0.8 %	3.3 %
Black American-owned	0.7 %	2.3 %
Hispanic American-owned	1.6 %	1.0 %
Native American-owned	0.4 %	0.5 %
Subcontinent Asian American-owned	0.1 %	0.6 %
Total Minority-owned	3.6 %	7.7 %
Total Minority- and Woman-owned	6.9 %	11.5 %

D. Contract Role

Many minority- and woman-owned businesses are small businesses, and thus, often work as subcontractors. In addition, Sound Transit’s use of DBE contract goals on FTA-funded contracts is primarily designed to encourage the participation of minority- and woman-owned businesses in subcontracts, so the use of those goals is less likely to affect outcomes on prime contracts. For those reasons, it is useful to examine utilization analysis results separately for prime contracts and subcontracts. Figure 4-4 presents those results. As shown in Figure 4-4, the participation of minority- and woman-owned businesses considered together was in fact higher in subcontracts (29.4%) that Sound Transit awarded during the study period than in prime contracts (2.2%). Among other factors, that result could be due to the fact that subcontracts tend to be smaller in size than prime contracts, and thus may be more accessible to minority- and woman-owned businesses. In addition, it could be due to Sound Transit’s use of DBE contract goals to award

many of its contracts during the study period, which are primarily designed to encourage the participation of minority- and woman-owned businesses in subcontracts.

Figure 4-4.
Utilization analysis
results by contract role

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 C-7 and C-8 in Appendix C.

Source:

BBC utilization analysis.

Business group	Contract role	
	Prime contracts	Subcontracts
Non-Hispanic white woman-owned	0.8 %	12.0 %
Asian Pacific American-owned	1.1 %	4.0 %
Black American-owned	0.1 %	5.1 %
Hispanic American-owned	0.2 %	5.1 %
Native American-owned	0.0 %	2.0 %
Subcontinent Asian American-owned	0.0 %	1.2 %
Total Minority-owned	1.4 %	17.4 %
Total Minority- and Woman-owned	2.2 %	29.4 %

E. Industry

BBC also examined utilization analysis results separately for Sound Transit’s construction, architecture and engineering, other professional services, and goods and services contracts and procurements to determine whether the participation of minority- and woman-owned businesses for agency work differs by industry. As shown in Figure 4-5, the participation of minority- and woman-owned businesses considered together was highest for Sound Transit’s architecture and engineering contracts (19.4%) and lowest for goods and services procurements (2.8%).

Figure 4-5.
Utilization analysis results by industry

Business group	Industry			
	Construction	Architecture and engineering	Other professional services	Goods and services
Non-Hispanic white woman-owned	3.2 %	5.2 %	4.6 %	0.9 %
Asian Pacific American-owned	0.7 %	7.6 %	1.4 %	0.0 %
Black American-owned	1.3 %	1.9 %	0.0 %	0.2 %
Hispanic American-owned	0.7 %	4.2 %	3.3 %	1.7 %
Native American-owned	0.6 %	0.3 %	0.0 %	0.0 %
Subcontinent Asian American-owned	0.3 %	0.3 %	0.0 %	0.0 %
Total Minority-owned	3.6 %	14.2 %	4.7 %	1.9 %
Total Minority- and Woman-owned	6.8 %	19.4 %	9.3 %	2.8 %

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 C-3, C-4, C-5, and C-6 in Appendix C.

Source: BBC utilization analysis.

F. Concentration of Dollars

BBC analyzed whether the contracting dollars that Sound Transit awarded to each relevant group of minority- and woman-owned businesses during the study period were spread across a relatively large number of businesses or were concentrated with relatively few businesses. The study team assessed that question by calculating:

- The number of different businesses within each group to which Sound Transit awarded contracting dollars during the study period; and
- The number of different businesses within each group that accounted for 75 percent of the group’s total contracting dollars during the study period.

Figure 4-6 presents those results for each relevant business group. Most notably, whereas Sound Transit awarded contracting dollars to 17 Black American-owned businesses during the study period, three of them (or, 17.6%) accounted for 75 percent of those dollars. One Black American-owned business accounted for 58 percent of those dollars by itself. Similarly, whereas Sound Transit awarded contracting dollars to 15 Asian Pacific American-owned businesses during the study period, three of them (or, 20.0%) accounted for 75 percent of those dollars. One Asian Pacific American-owned business accounted for 44 percent of those dollars by itself.

Figure 4-6.
Concentration of contracting dollars that went to minority- and woman-owned businesses

Source:
 BBC utilization analysis.

Business group	Utilized businesses	Businesses accounting for 75% of dollars	
		Number	Percent
Non-Hispanic white woman-owned	42	9	21.4%
Asian Pacific American-owned	15	3	20.0%
Black American-owned	17	3	17.6%
Hispanic American-owned	13	3	23.1%
Native American-owned	8	4	50.0%
Subcontinent Asian American-owned	3	1	33.3%

CHAPTER 5.

Disparity Analysis

As part of the disparity analysis, BBC Research & Consulting (BBC) compared the actual participation, or *utilization*, of minority- and woman-owned businesses in prime contracts and subcontracts that Sound Transit awarded between January 1, 2016 and December 31, 2019 (i.e., the *study period*) with the percentage of contract dollars that those businesses might be expected to receive based on their *availability* for that work.¹ Results from the disparity analysis will inform Sound Transit’s implementation of the Federal Disadvantaged Business Enterprise (DBE) Program. The analysis focused on construction, architectural engineering, other professional services, and goods and services contracts and procurements that Sound Transit awarded. Chapter 5 presents the disparity analysis in three parts:

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

A. Overview

BBC expressed both participation and availability as percentages of the total dollars associated with a particular set of contracts or procurements, and 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 and availability. That is, the participation of a particular business group is in line with its availability. A disparity ratio of less than 100 indicates a *disparity* between participation and availability. That is, the group is considered to have been underutilized relative to its availability. Finally, a disparity ratio of less than 80 indicates a *substantial disparity* between participation and availability. That is, the group is considered to have been *substantially underutilized* relative to its availability. Many courts have considered substantial disparities as *inferences of discrimination* against particular business groups, and they often serve as justification for organizations to use relatively aggressive measures—such as *race- and gender-conscious* measures—to address corresponding barriers.²

¹ “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.

² For example, see *Rothe Development Corp v. U.S. Dept of Defense*, 545 F.3d 1023, 1041; *Engineering Contractors Association 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).

The disparity analysis results that BBC presents in Chapter 5 summarize detailed results that are presented in Appendix C. Each table in Appendix C presents disparity analysis results for a different set of contracts. For example, Figure 5-1, which is identical to Figure C-2 in Appendix C, presents disparity analysis results for all Sound Transit contracts and procurements that BBC examined as part of the study considered together. Appendix C includes analogous tables for different subsets of contracts and procurements including:

- Construction, architecture and engineering, other professional services, and goods and services;
- Prime contracts and subcontracts; and
- Federal Transit Administration (FTA)- and locally-funded contracts.

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

A review of Figure 5-1 helps to introduce the calculations and format of all of the disparity analysis tables in Appendix C. As shown in Figure 5-1, 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 DBEs.
- Row (3) presents results for all non-Hispanic white woman-owned businesses, regardless of whether they were certified as DBEs.
- Row (4) presents results for all minority-owned businesses, regardless of whether they were certified as DBEs.
- Rows (5) through (10) present results for businesses of each relevant racial/ethnic group, regardless of whether they were certified as DBEs.
- Rows (11) through (19) present utilization analysis results for businesses of each relevant racial/ethnic and gender group that were certified as DBEs.

1. Utilization analysis results. Each disparity analysis table includes the same columns of information:

- 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 5-1, BBC analyzed 1,253 contract elements that Sound Transit awarded during the study period. The value presented in column (a) for each business group represents the number of contract elements in which businesses of that particular group participated. For example, as shown in row (6) of column (a), Black American-owned businesses participated in 51 prime contracts and subcontracts that the agency awarded during the study period.

Figure 5-1.
Example of a disparity analysis table from Appendix C (same as Figure C-2 in Appendix C)

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	1,253	\$6,359,998	\$6,359,998				
(2) Minority and woman-owned businesses	334	\$557,157	\$557,157	8.8	8.2	0.5	106.3
(3) Non-Hispanic white woman-owned	136	\$221,648	\$221,648	3.5	1.0	2.5	200+
(4) Minority-owned	198	\$335,510	\$335,510	5.3	7.2	-1.9	73.2
(5) Asian Pacific American-owned	57	\$115,764	\$115,764	1.8	0.4	1.4	200+
(6) Black American-owned	51	\$83,059	\$83,059	1.3	1.3	0.0	97.3
(7) Hispanic American-owned	43	\$87,240	\$87,240	1.4	2.0	-0.6	68.5
(8) Native American-owned	35	\$30,206	\$30,206	0.5	3.4	-2.9	14.0
(9) Subcontinent Asian American-owned	12	\$19,240	\$19,240	0.3	0.0	0.3	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	211	\$270,473	\$270,473	4.3			
(12) Non-Hispanic white woman-owned DBE	60	\$60,829	\$60,829	1.0			
(13) Minority-owned DBE	151	\$209,643	\$209,643	3.3			
(14) Asian Pacific American-owned DBE	52	\$62,002	\$62,002	1.0			
(15) Black American-owned DBE	40	\$33,321	\$33,321	0.5			
(16) Hispanic American-owned DBE	34	\$72,849	\$72,849	1.1			
(17) Native American-owned DBE	17	\$22,256	\$22,256	0.3			
(18) Subcontinent Asian American-owned DBE	8	\$19,215	\$19,215	0.3			
(19) Unknown minority-owned DBE	0	\$0					

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

* 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 5) accounted for 25 percent of total minority-owned business dollars (column b, row 4), then 25 percent of column b, row 9 would be added to column b, row 5 and the sum would be shown in column c, row 5.

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 5-1, BBC examined approximately \$6.4 billion for the entire set of contract elements. The dollar totals include both prime contracts and subcontracts 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. For example, as shown in row (6) of column (b), Black American-owned businesses received approximately \$83 million of the prime contracts and subcontracts that Sound Transit awarded during the study period.
- 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. Unknown minority-owned businesses were allocated to minority subgroups proportional to the known total dollars of those groups. However, as shown in row (10), there were no minority-owned businesses with unknown race/ethnicity that were awarded contract or procurement dollars during the study period, so the values in columns (b) and (c) are identical.
- 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. For example, for Black American-owned businesses, the study team divided \$83 million by \$6.4 billion and multiplied by 100 for a result 1.3 percent, as shown in row (6) of column (d).

2. Availability results. Column (e) of Figure 5-1 presents the availability of each relevant group for all contract elements that BBC 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. For example, as shown in row (6) of column (e), the availability of Black American-owned businesses for Sound Transit work is 1.3 percent.

3. 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 for Sound Transit work is to subtract the participation percentage from the availability percentage. Column (f) of Figure 5-1 presents the percentage point difference between participation and availability for each relevant racial/ethnic and gender group. For example, as presented in row (6) of column (f) of Figure 5-1, the participation of Black American-owned businesses in Sound Transit contracts was nearly identical to their availability for that work, so the difference is 0.0 percentage points.

4. Disparity indices. BBC also calculated a disparity index for each relevant racial/ethnic and gender group. Column (g) of Figure 5-1 presents the disparity index for each group. For example, as reported in row (6) of column (g), the disparity index for Black American-owned businesses was approximately 97, indicating that Black American-owned businesses actually received approximately \$0.97 for every dollar that they might be expected to receive based on their availability for the prime contracts and subcontracts that Sound Transit awarded during the study period. For disparity indices exceeding 200, BBC reported an index of “200+.” When there

was no participation and no availability for a particular group for a particular set of contracts, BBC reported a disparity index of “100,” indicating parity.

B. Disparity Analysis Results

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

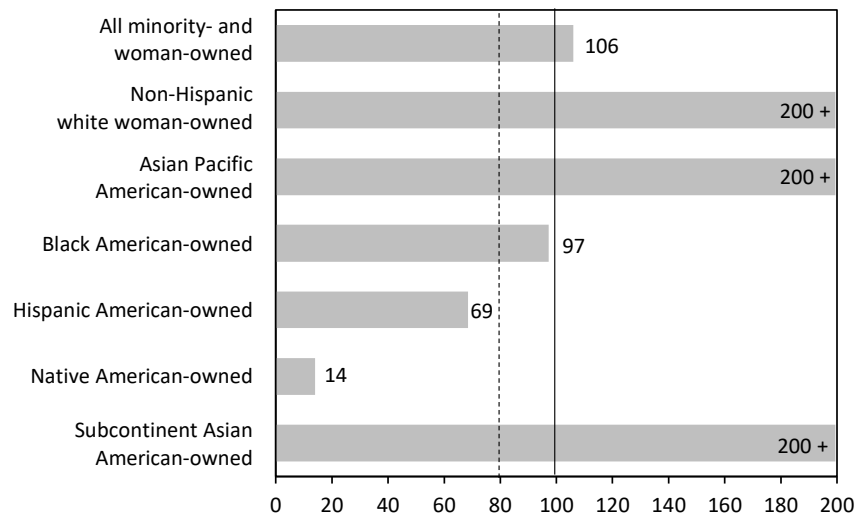
1. All contracts. Figure 5-2 presents disparity indices for all relevant prime contracts and subcontracts that Sound Transit awarded during the study period. The line down the center of the graph shows a disparity index level of 100, which indicates parity between participation and availability. Disparity 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, indicating a substantial disparity. As shown in Figure 5-2, minority- and woman-owned businesses considered together did not show a disparity between their participation and availability for Sound Transit contracts and procurements (disparity index of 106). However, three individual groups did show disparities:

- Black American-owned businesses exhibited a disparity between participation and availability, but it was not substantial (disparity index of 97).
- Hispanic American owned-businesses exhibited a substantial disparity between participation and availability (disparity index of 69).
- Native American-owned businesses exhibited a substantial disparity between participation and availability (disparity index of 14).

Figure 5-2.
Disparity analysis
results for all contracts
and procurements

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

Source:
BBC disparity analysis



2. Funding source. Sound Transit’s implementation of the Federal DBE Program applies specifically to the agency’s FTA-funded contracts and procurements. In addition, Sound Transit used DBE contract goals—a *race- and gender-conscious* measure—to award many of its FTA-funded contracts and procurements during the study period. Prime contractors could meet those goals by either making subcontracting commitments with certified DBEs or by making subcontracting commitments with certified Small Business Enterprises if they are unable to

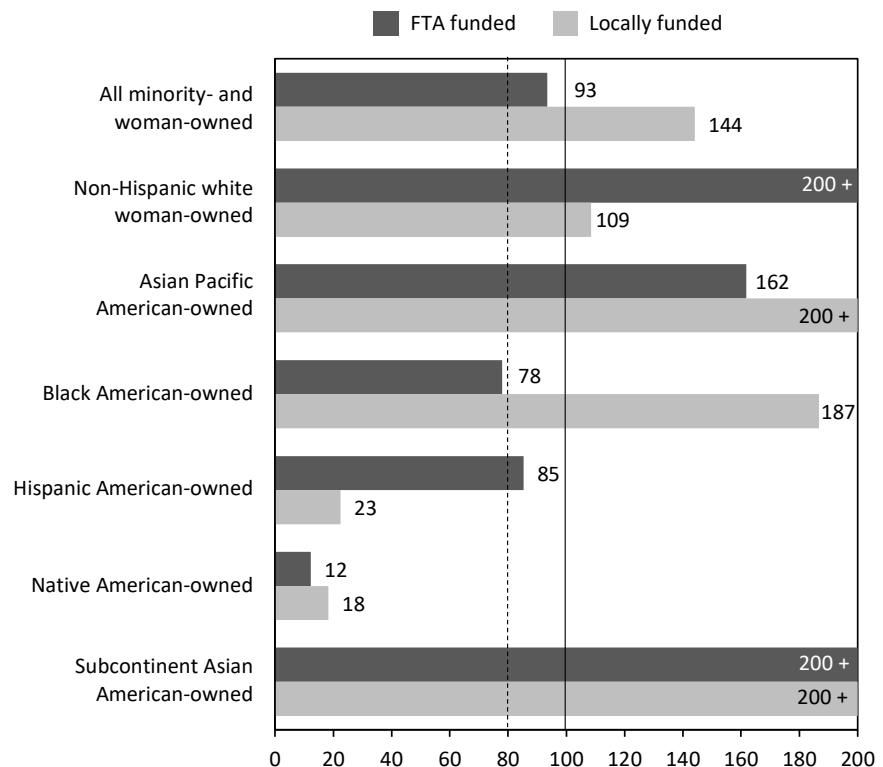
successfully partner with DBEs. In contrast, the agency did not use any race- or gender-conscious measures to award locally-funded work, because Revised Code of Washington (RCW) 49.60.400 prevents it from doing so unless required by federal law. For those reasons, it is instructive to examine disparities between participation and availability separately for Sound Transit’s FTA-funded and locally-funded contracts and procurements. As shown in Figure 5-3, minority- and woman-owned businesses considered together showed a disparity for FTA-funded contracts and procurements, but it was not substantial (disparity index of 93). Minority- and woman-owned businesses considered together did not exhibit a disparity for locally-funded contracts (disparity index of 144). However, certain racial/ethnic groups showed substantial disparities depending on the contract set:

- Black American-owned businesses did not exhibit a disparity for locally-funded work (disparity index of 114), but they did exhibit a substantial disparity for FTA-funded work (disparity index of 78).
- Hispanic American-owned businesses did not exhibit a substantial disparity for FTA-funded work (disparity index of 85), but they did exhibit a substantial disparity for locally-funded work (disparity index of 23).
- Native American-owned businesses exhibited a substantial disparity for both FTA-funded work (disparity index of 12) and locally-funded work (disparity index of 18).

Figure 5-3.
Disparity analysis
results by funding
source

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 C-11 and C-12 in
Appendix C.

Source:
BBC disparity analysis.



3. Contract goal status. As described above, Sound Transit used DBE contract goals to award many of its FTA-funded contracts and procurements during the study period but did not use any race- or gender conscious measures to award locally-funded contracts or procurements because of RCW 49.60.400. It is instructive to examine disparity analysis results separately for contracts

and procurements that Sound Transit awards with the use of DBE contract goals (*goals contracts*) and contracts and procurements that the agency awards without the use of goals (*no goals contracts*). That comparison provides important information about outcomes for minority- and woman-owned businesses in Sound Transit contracting in the absence of race- and gender-conscious measures as well as the efficacy of such measures in encouraging the participation of those businesses. As shown in Figure 5-4, minority- and woman-owned businesses considered together did not show a disparity for either goals contracts (disparity index of 117) or no goals contracts (disparity index of 99). However, certain racial/ethnic groups showed substantial disparities depending on the contract set:

- Black American-owned businesses did not exhibit a disparity for no goals contracts (disparity index of 114), but they did exhibit a substantial disparity for goals contracts (disparity index of 73).
- Hispanic American-owned businesses did not exhibit a disparity for goals contracts (disparity index of 118), but they did exhibit a substantial disparity for no goals contracts (disparity index of 35).
- Native American-owned businesses exhibited a substantial disparity for both goals contracts (disparity index of 17) and no goals contracts (disparity index of 12).

Figure 5-4.
Disparity analysis
results by contract goal
status

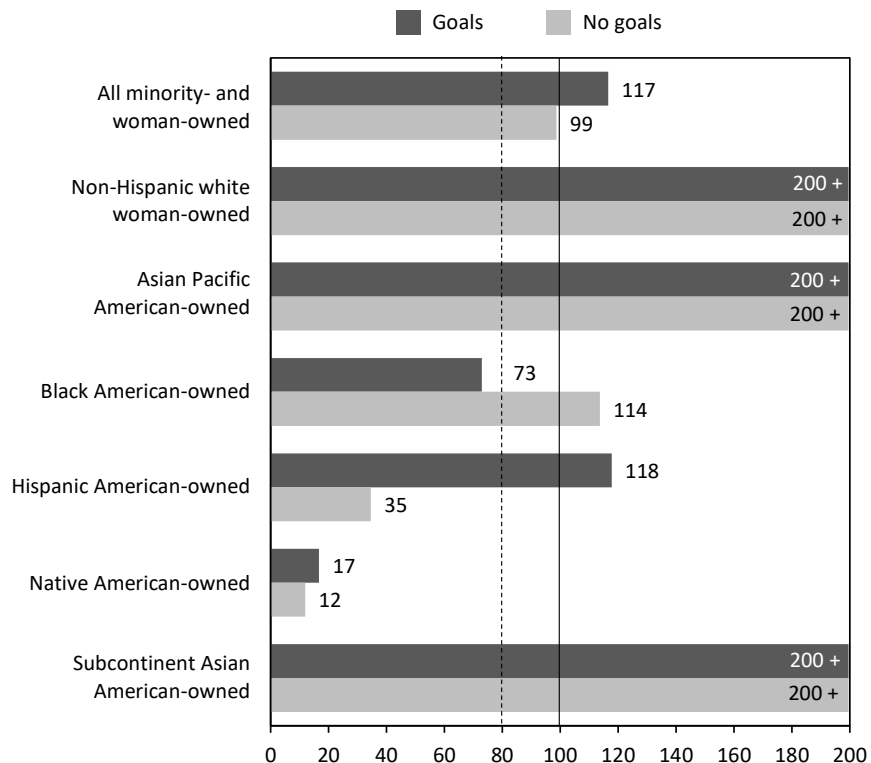
Note:

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 C-13 and C-14 in Appendix C.

Source:

BBC disparity analysis.



4. Contract role. Many minority- and woman-owned businesses are small businesses and thus often work as subcontractors. In addition, Sound Transit’s use of DBE contract goals on FTA-funded contracts is primarily designed to encourage the participation of minority- and woman-owned businesses in subcontracts, so the use of those goals is less likely to affect outcomes on prime contracts. For those reasons, it is useful to examine disparity analysis results separately

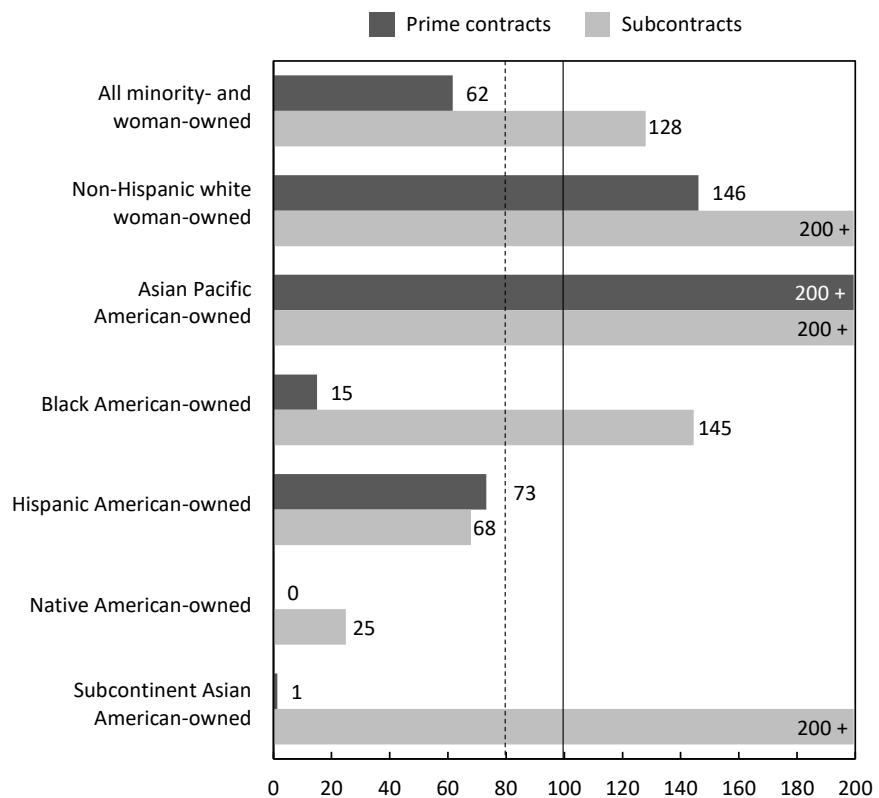
for prime contracts and subcontracts. As shown in Figure 5-5, minority- and woman-owned businesses considered together showed a substantial disparity for prime contracts (disparity index of 62) but did not show a disparity for subcontracts (disparity index of 128). Disparity analysis results for individual groups differed between prime contracts and subcontracts:

- Black American-owned businesses (disparity index of 15), Hispanic American-owned business (disparity index 73), Native American-owned businesses (disparity index of 0), and Subcontinent Asian American-owned businesses (disparity index of 1) exhibited substantial disparities for prime contracts.
- Hispanic American-owned businesses (disparity index of 68) and Native American-owned businesses (disparity index of 25) exhibited substantial disparities for subcontracts.

Figure 5-5.
Disparity analysis
results by contract role

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 C-7 and C-8 in Appendix C.

Source:
BBC disparity analysis.



5. Industry. BBC also examined disparity analysis results separately for Sound Transit’s construction, architecture and engineering, other professional services, and goods and other services contracts and procurements to determine whether disparities between participation and availability differ by work type. As shown in Figure 5-6, minority- and woman-owned businesses considered together showed a substantial disparity for other professional services (disparity index of 65) and goods and services (disparity index of 28) but not for construction (disparity index of 99) or architecture and engineering (disparity index of 149). Disparity analysis results for individual groups differed by industry:

- Hispanic American-owned businesses (disparity index of 32) and Native American-owned businesses (disparity index of 20) exhibited substantial disparities for construction.

- Native American-owned businesses (disparity index of 3) exhibited a substantial disparity for architecture and engineering.
- Black American-owned businesses (disparity index of 0) and Native American-owned businesses (disparity index of 0) exhibited substantial disparities for other professional services.
- Non-Hispanic white woman-owned businesses (disparity index of 71), Asian Pacific American-owned businesses (disparity index of 0), Hispanic American-owned businesses (disparity index of 34), and Native American-owned businesses (disparity index of 1) exhibited substantial disparities for goods and services.

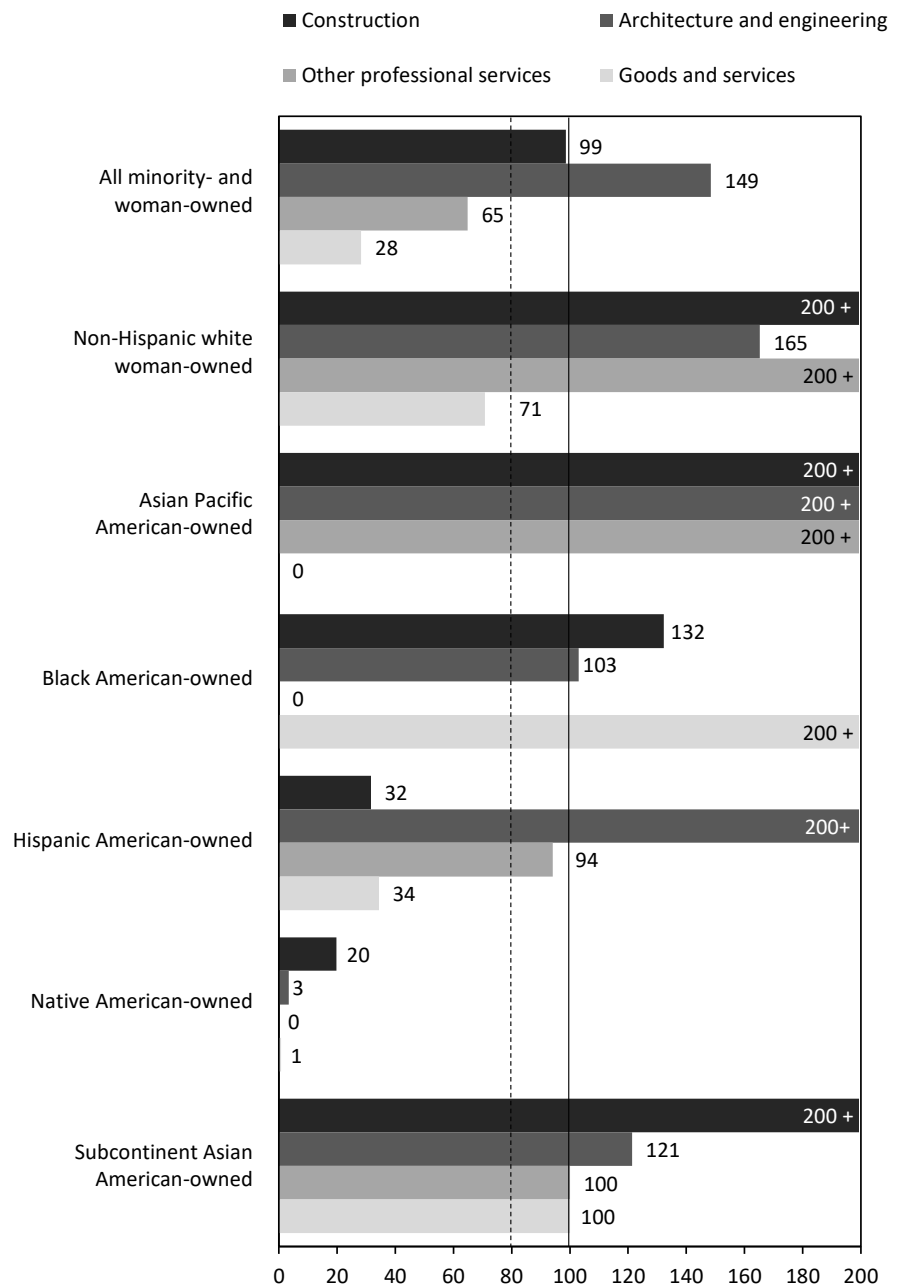
Figure 5-6.
Disparity analysis
results by industry

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 Figure C-3, C-4, C-5, and C-6 in Appendix C.

Source:
BBC 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 one can consider to be statistically reliable or real. BBC used a process that relies on repeated, random simulations to examine the statistical significance of disparity analysis results that is referred to as a *Monte Carlo* analysis.

1. Overview of Monte Carlo. BBC used a Monte Carlo approach to randomly “select” businesses to win each individual contract element that were included in the disparity study. For each contract element, the availability analysis provided information on individual businesses that are available to perform that contract element based on type of work, contractor role, contract size, and other factors. 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 contract set. 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 Monte Carlo simulations represents the number of simulations out of 1 million that produced simulated participation that was equal to 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 the disparity index to be statistically significant at the 90 percent confidence level.

2. Results. BBC assessed the statistical significance of observed disparities for two contract sets: all contracts considered together and prime contracts, because, in terms of dollars, it was the largest set of contracts that Sound Transit awarded without the use of race- and gender-conscious measures.

a. All contracts. As shown in the top panel of Figure 5-7, substantial disparities that BBC observed for all relevant contracts that Sound Transit awarded during the study period were statistically significant for the following groups:

- Minority-owned businesses considered together; and
- Native American-owned businesses.

Figure 5-7.
Statistical significance of disparity analysis results based on Monte Carlo simulations

Contract set and business group	Disparity index	Number of simulations out of 1 million that replicated observed utilization	Probability of observed disparity occurring due to "chance"
All contracts			
Minority-owned and woman-owned	106	N/A	N/A
Non-Hispanic white woman-owned	200+	N/A	N/A
Minority-owned	73	23,710	2.4 %
Asian Pacific American-owned	200+	N/A	N/A
Black American-owned	97	511,292	51.1 %
Hispanic American-owned	69	62,597	6.3 %
Native American-owned	14	0	< 0.1 %
Subcontinent Asian American-owned	200+	N/A	N/A
Prime contracts			
Minority-owned and woman-owned	62	107,927	10.8 %
Non-Hispanic white woman-owned	146	N/A	N/A
Minority-owned	47	40,342	4.0 %
Asian Pacific American-owned	200+	N/A	N/A
Black American-owned	15	3,869	0.3 %
Hispanic American-owned	73	256,700	3.0 %
Native American-owned	0	0	< 0.1 %
Subcontinent Asian American-owned	1	36,514	3.6 %

b. Prime contracts. As shown in the bottom panel of Figure 5-7, substantial disparities that BBC observed for prime contracts that Sound Transit awarded during the study period were statistically significant for the following groups:

- Minority-owned businesses considered together;
- Black American-owned businesses;
- Hispanic American-owned businesses;
- Native American-owned businesses; and
- Subcontinent Asian American-owned businesses.

CHAPTER 6.

Summary and Considerations

Sound Transit retained BBC Research & Consulting (BBC) to conduct a *disparity study* to help refine the organization’s implementation of the Federal Disadvantaged Business Enterprise (DBE) Program as it relates to its Federal Transit Administration (FTA)-funded contracts and procurements. The Federal DBE Program is designed to address any potential discrimination against DBEs—primarily small, minority- and woman-owned businesses—in the award and administration of contracts and procurements that include United States Department of Transportation (USDOT) funds. Sound Transit can use information from the disparity study in various ways to refine its implementation of the Federal DBE Program, but most importantly, to:

- A. Set its next overall DBE goal;
- B. Identify business groups that face substantial barriers in its contracting; and
- C. Consider refinements to its contracting processes.

A. Overall DBE Goal

As part of the Federal DBE Program, an agency is required to set an overall aspirational goal for DBE participation in its USDOT-funded contracts and procurements every three years. Although USDOT requires an agency to set its goal every three years, the goal is an *annual* goal in that the agency must monitor DBE participation in its USDOT-funded work every year, and if DBE participation for a particular year is less than the goal, then the agency must analyze the reasons for the difference and establish specific measures that enable it 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* based on demonstrable evidence of the availability of DBEs to participate in the agency’s USDOT-funded work. Then, the agency must consider conditions in the local marketplace for disadvantaged 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*). Agencies are only required to *consider* making step 2 adjustments to their base figures based on appropriate factors, which they must document in their goal submissions to USDOT. Agencies are not required to make step-2 adjustments if the information they consider does not warrant them.

1. Base figure. Consistent with federal guidance and relevant case law, BBC calculated a base figure using the same *custom census* approach described in Chapter 3 to estimate the availability of *potential DBEs*—that is, minority- and woman-owned businesses that are DBE-certified or appear they could be DBE- certified according to revenue requirements specified in 49 Code of Federal Regulations Part 26.65—for FTA-funded projects that Sound Transit *anticipates* awarding in federal fiscal years (FFYs) 2021 and 2022. Figure 6-1 presents a list of those projects, which total \$1.04 billion and Sound Transit and BBC disaggregated into 453 expected prime contract and subcontract elements.

Figure 6-1.
Projects Sound Transit anticipates awarding in FFYs 2021 and 2022

Project	Estimated cost
Federal Way Link Extension Design Build F200	\$ 514,080,000
Downtown Redmond Link Extension (DRLE) Design-Build- Construction Services	\$ 266,309,885
Northlink and Eastlink Systems N830/E750	\$ 81,817,852
Hilltop Link Extension T100	\$ 43,318,000
Lynnwood Link Extension Design Build L200	\$ 35,258,903
Design-Build Project Management Services for Federal Way Link Extension	\$ 31,775,696
Lynnwood Link Extension Construction L300	\$ 22,754,652
Lynnwood CMC	\$ 20,777,375
Architecture and Engineering Services Federal Way to Tacoma Dome Link Extension	\$ 15,016,971
Contract for On-Call Architecture and Engineering Consultant Services	\$ 8,684,091
Northgate Link Extension Construction Management	\$ 3,964,942
Lynnwood Link Preconstruction Systems L800	\$ 267,639
Total	\$ 1,044,026,007

Source: Sound Transit.

Figure 6-2 presents BBC's base figure calculations by relevant racial/ethnic and gender group. As shown in Figure 6-1, the availability of potential DBEs for the FTA-funded prime contracts and subcontracts that Sound Transit anticipates awarding in FFYs 2021 and 2022 is 7.5 percent. Sound Transit might consider 7.5 percent as the base figure for its overall goal for DBE participation, assuming that the types and sizes of FTA-funded contracts and procurements that the agency awards during FFYs 2021 and 2022 do not change substantially.

Figure 6-2.
Base figure for Sound Transit's overall DBE goal

a. Potential DBE group	Industry component				
	b. Construction	c. Architecture and engineering	d. Other Professional Services	e. Goods and Services	f. Total
Non-Hispanic white woman-owned	1.5 %	3.1 %	1.1 %	0.2 %	2.1 %
Asian Pacific American-owned	0.7 %	0.3 %	1.3 %	0.4 %	0.6 %
Black American-owned	0.5 %	1.8 %	2.5 %	0.4 %	1.1 %
Hispanic American-owned	2.8 %	0.0 %	0.0 %	1.8 %	1.5 %
Native American-owned	4.1 %	0.0 %	0.2 %	0.3 %	2.2 %
Subcontinent Asian American-owned	0.1 %	0.1 %	0.0 %	0.0 %	0.1 %
Total minority-owned	8.2 %	2.2 %	4.0 %	2.9 %	5.4 %
Total potential DBEs	9.7 %	5.3 %	5.1 %	3.1 %	7.5 %

Note: Numbers rounded to nearest tenth of 1 percent and thus may not sum exactly to totals. BBC applied the following weights to availability within each industry to calculate total availability: construction = 0.52, architecture and engineering = 0.42 other professional services = 0.04, and goods and services = 0.02. The weights were based on the proportion of total FTA-funded contracting dollars for which each industry is anticipated to account during the time period that the new goal will cover.

Source: BBC availability analysis.

2. Step 2 adjustment. The Federal DBE Program requires Sound Transit to consider making a step 2 adjustment to its base figure as part of setting its next overall DBE goal to ensure that its

goal accurately reflects current conditions in the local marketplace. 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:

- a. Current capacity of DBEs to perform work, as measured by the volume of work DBEs have performed in recent years;
- b. Information related to employment, self-employment, education, training, and unions;
- c. Any disparities in the ability of DBEs to access financing, bonding, and insurance; and
- d. Other relevant data.¹

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

a. Current capacity of DBEs to perform agency work. USDOT’s “Tips for Goal-Setting” suggests that agencies should examine data on past DBE participation in their USDOT-funded contracts and procurements in recent years to determine whether adjustments to their base figures are necessary. USDOT further suggests that an agency should take the median level of annual DBE participation for those years and average it with its base figure and potentially consider the result as its overall DBE goal.² Figure 6-3 presents participation of certified DBEs in Sound Transit’s FTA-funded contracts and procurements for FFYs 2017 through 2019, based on the agency’s FTA-approved Uniform Reports of DBE Awards or Commitments and Payments. As shown in Figure 6-3, median DBE participation in FTA-funded contracts and procurements for FFYs 2017 through 2019 was 18.14 percent, supporting an *upward adjustment* to the agency’s base figure.

Figure 6-3.
Past participation of DBEs in FTA-funded contracts and procurements, FFYs 2017-2019

FFY	DBE participation
2017	22.85 %
2018	18.14 %
2019	17.79 %

Source:
 Sound Transit Uniform Reports of DBE Awards or Commitments and Payments.

b. Information related to employment, self-employment, education, training, and unions. BBC used regression analyses to investigate whether race/ethnicity or gender affects rates of self-employment (i.e., business ownership) among individuals working in relevant industries in the relevant geographic market area. The regression analyses allowed BBC to examine those effects while statistically controlling for various personal characteristics that are ostensibly race- and gender-neutral, including education, homeownership, marital status, income, and age. Figure 6-4

¹ 49 CFR Section 26.45.

² Section III (A)(5)(a) in USDOT’s “Tips for Goal-Setting in the Federal Disadvantaged Enterprise (DBE) Program.” <https://www.transportation.gov/osdbu/disadvantaged-business-enterprise/tips-goal-setting-disadvantaged-business-enterprise>

presents the groups that showed statistically significant disparities in business ownership for each relevant industry.

Figure 4.
Racial and gender groups that show statistically significant disparities in business ownership, by industry

Industry	Group	Regression Coefficient
Construction	Black American	-1.01
	Hispanic American	-0.27
	Women	-0.39
Architecture and engineering	Asian Pacific American	-0.50
	Women	-0.27
Other professional services	Asian Pacific American	-0.42
	Subcontinent Asian American	-0.74
Goods	None	N/A

Source: BBC Research & Consulting from 2014-2018 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 4:

- Black Americans and Hispanic Americans working in the local construction industry are significantly less likely to own business than non-Hispanic whites, even after controlling for various race-neutral personal characteristics. In addition, non-Hispanic white women working in the local construction industry are significantly less likely to own business than men, even after controlling for various gender-neutral personal characteristics.
- Asian Pacific Americans working in the local architecture and engineering industry are significantly less likely to own business than non-Hispanic whites, even after controlling for various race-neutral personal characteristics. In addition, women working in the local architecture and engineering industry are significantly less likely to own business than men, even after controlling for various gender-neutral personal characteristics.
- Asian Pacific Americans and Subcontinent Asian Americans working in the local other professional services industry are significantly less likely to own business than non-Hispanic whites, even after controlling for various race-neutral personal characteristics.

BBC analyzed the specific impact that disparities in business ownership have on the base figure. To do so, BBC estimated the availability of potential DBEs for the contracts and procurements Sound Transit anticipates awarding in FFYs 2021 and 2022 if minorities and women owned businesses at the same rate as non-Hispanic white men who shared similar personal characteristics. Figure 6-5 presents the results of the analysis, which is referred to a *but for* analysis, because it estimates the availability of potential DBEs but for continuing effects of past race- and gender-based discrimination. The rows and columns of Figure 6-5 present the following information:

- i. Current availability.* Column (a) presents the availability of potential DBEs by group and industry for the FTA-funded contracts and procurements that Sound Transit anticipates awarding in FFYs 2021 and 2022. Before any adjustment, the availability of potential DBEs for that work is 7.5 percent, as shown in row (37) of column (a).
- ii. Disparity indices for business ownership.* For each group that is significantly less likely than non-Hispanic whites and men to own businesses, BBC simulated business ownership rates if they owned businesses at the same rate as non-Hispanic white men who share the same personal characteristics. To simulate business ownership rates for minorities and women, BBC took the following steps: 1) BBC performed a probit regression analysis predicting business ownership including only workers in the dataset who were non-Hispanic white men; and 2) BBC then used the coefficients from that model and the mean personal characteristics of individual racial and gender groups working in the industry to simulate business ownership for each group that was significantly less likely than non-Hispanic white men to own businesses.

BBC 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 (2) of column (b), Black Americans own construction businesses at 17 percent of the rate that one might expect for non-Hispanic white men who share similar personal characteristics.

- iii. Availability after initial adjustment.* Column (c) presents availability estimates by 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. BBC only adjusted availability for those groups that are significantly less likely than similarly-situated non-Hispanic white men to own businesses.
- iv. Availability after scaling to 100 percent.* Column (d) shows adjusted availability estimates that BBC rescaled so that the sum of the availability estimates equaled 100 percent for each industry. BBC rescaled 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 row (9) for construction, row (18) for architecture and engineering, row (27) for other professional services, and row (36) for goods and services—and multiplying by 100. For example, the rescaled adjusted availability estimate for Black American-owned construction businesses shown in row (2) of column (d) was calculated in the following way: $(2.8\% \div 105.6\%) \times 100 = 2.8$ percent.

Figure 6-5.
Availability for Sound Transit work adjusted for business ownership disparities

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**
Construction					
(1) Asian Pacific American	0.7 %	n/a	0.7 %	0.7 %	
(2) Black American	0.5	17	2.8	2.7	
(3) Hispanic American	2.8	54	5.1	4.8	
(4) Native American	4.1	n/a	4.1	3.9	
(5) Subcontinent Asian American	0.1	n/a	0.1	0.1	
(6) White woman	<u>1.5</u>	<u>61</u>	<u>2.4</u>	<u>2.3</u>	
(7) Potential DBEs	9.7 %	n/a	15.3 %	14.5 %	7.57 %
(8) All other businesses ***	<u>90.3</u>	<u>n/a</u>	<u>90.3</u>	<u>85.5</u>	
(9) Total	100.0 %	n/a	105.6 %	100.0 %	
Architecture and engineering					
(10) Asian Pacific American	0.3 %	42	0.6 %	0.6 %	
(11) Black American	1.8	n/a	1.8	1.8	
(12) Hispanic American	0.0	n/a	0.0	0.0	
(13) Native American	0.0	n/a	0.0	0.0	
(14) Subcontinent Asian American	0.1	n/a	0.1	0.1	
(15) White woman	<u>3.1</u>	<u>75</u>	<u>4.1</u>	<u>4.1</u>	
(16) Potential DBEs	5.3 %	n/a	6.7 %	6.6 %	2.74 %
(17) All other businesses ***	<u>94.7</u>	<u>n/a</u>	<u>94.7</u>	<u>93.4</u>	
(18) Total	100.0 %	n/a	101.4 %	100.0 %	
Other professional services					
(19) Asian Pacific American	1.3 %	46	2.7 %	2.7 %	
(20) Black American	2.5	n/a	2.5	2.5	
(21) Hispanic American	0.0	n/a	0.0	0.0	
(22) Native American	0.2	n/a	0.2	0.2	
(23) Subcontinent Asian American	0.0	20	0.0	0.0	
(24) White woman	<u>1.1</u>	<u>n/a</u>	<u>1.1</u>	<u>1.1</u>	
(25) Potential DBEs	5.1 %	n/a	6.5 %	6.4 %	0.28 %
(26) All other businesses	<u>94.9</u>	<u>n/a</u>	<u>94.9</u>	<u>93.6</u>	
(27) Total	100.0 %	n/a	101.5 %	100.0 %	
Goods and services					
(28) Asian Pacific American	0.4 %	n/a	0.4 %	0.4 %	
(29) Black American	0.4	n/a	0.4	0.4	
(30) Hispanic American	1.8	n/a	1.8	1.8	
(31) Native American	0.3	n/a	0.3	0.3	
(32) Subcontinent Asian American	0.0	n/a	0.0	0.0	
(33) White woman	<u>0.2</u>	<u>n/a</u>	<u>0.2</u>	<u>0.2</u>	
(34) Potential DBEs	3.1 %	n/a	3.1 %	3.1 %	0.05 %
(35) All other businesses	<u>96.9</u>	<u>n/a</u>	<u>96.9</u>	<u>96.9</u>	
(36) Total	100.0 %	n/a	100.0 %	100.0 %	
(37) TOTAL	7.5 %	n/a		n/a	10.64 %

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

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

** Components of the base figure were calculated as the value after adjustment and scaling to 100%, multiplied by the percentage of total anticipated dollars in each industry (construction = 0.52, architecture and engineering = 0.42, other professional services = 0.04, and goods and services = 0.02).

*** All other businesses included majority-owned businesses and minority- and woman-owned businesses that were not potential DBEs.

Source: BBC Research & Consulting and Sound Transit data.

v. **Components of goal.** Column (e) shows the component of the total base figure attributed to adjusted minority- and woman-owned availability 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, row (16) for architecture and engineering, row (25) for other professional services, and row (34) for goods and services—and multiplying it by the proportion of total FTA-funded contract dollars for which each industry is anticipated to account (i.e., 0.52 for construction, 0.42 for architecture and engineering, 0.04 for other professional services, and 0.02 for goods and services). For example, BBC took the 14.5 percent adjusted availability estimate for construction, as shown in row (7) of column (d), and multiplied it by 0.52 for a result of 7.6 percent (see row (7) of column (e)). The values in column (e) were then summed to equal the availability of potential DBEs for FTA-funded contracts and procurements Sound Transit anticipates awarding in FFYs 2021 and 2022, adjusted for barriers in business ownership—**10.6 percent**—as shown in the bottom row of column (e). The adjusted availability figure of 10.6 percent also supports an *upward adjustment* to the base figure.

c. **Disparities in the ability of DBEs to get financing, bonding, and insurance.** In 2019, Sound Transit commissioned analyses of barriers that minority- and woman-owned businesses face in financing, bonding, and insurance. (BBC did not conduct those analyses.) Results from those analyses indicated that small businesses are more likely than other businesses to be denied commercial bank loans, even after accounting for various business characteristics. That disparity could have substantial impacts on minority- and woman-owned businesses, because most minority- and woman-owned businesses are small in size. Any barriers that small businesses face in accessing financing could depress the availability of minority- and woman-owned businesses for contracting work with government agencies such as Sound Transit. Thus, analyses related to access to financing also support an *upward adjustment* to the base figure.

d. **Other factors.** USDOT suggests that federal fund recipients also examine “other factors” when determining whether to make step-2 adjustments to their base figures. Analyses that Sound Transit commissioned in 2019 also provided evidence that minority- and woman-owned businesses are less successful than other businesses:

- Minority- and woman-owned businesses make up approximately 8 percent of businesses in the local marketplace but account for less than 3 percent of business revenue in the region.
- Sound Transit is less likely to award prime contracts to Black American-owned businesses compared to businesses owned by non-Hispanic white Americans, even after accounting for various business characteristics that are ostensibly race-neutral such as size, bonding capacity, and qualifications.
- Black American-owned businesses and Asian Pacific American-owned businesses are more likely to have never performed on Sound Transit prime contracts or subcontracts compared to businesses owned by non-Hispanic white Americans, even after accounting for various business characteristics that are ostensibly race-neutral.
- Subcontinent Asian American-owned businesses and DBEs in general tend to win smaller contracts and procurements in the local marketplace compared to businesses owned by

non-Hispanic white Americans, even after accounting for various business characteristics that are ostensibly race- and gender-neutral.

All of the above results support an *upward adjustment* to the base figure.

B. Business Groups that Face Substantial Barriers

The crux of the disparity study was a series of comparisons between the actual participation of minority- and woman-owned businesses in Sound Transit contracts and procurements with their estimated availability for that work. BBC expressed both participation and availability as percentages of the total dollars associated with a particular set of contracts or procurements, and then calculated a *disparity index* by dividing participation by availability and multiplying by 100. A disparity index of 100 indicated an exact match between participation and availability for a particular group for a particular contract set (referred to as *parity*). A disparity index of less than 100 indicated a disparity between participation and availability. A disparity index of less than 80 indicated a *substantial* disparity between participation and availability, which is often taken by the courts as an *inference of discrimination* against a particular business group and often serves as justification for organizations to use relatively aggressive measures—such as DBE contract goals—to address corresponding barriers.

The following business groups exhibited the following substantial disparities for key sets of contracts and procurements that Sound Transit awarded during the study period.

- Hispanic- American-owned businesses and Native American-owned businesses exhibited substantial disparities on many key contract sets, including all contracts and procurements considered together; contracts and procurements Sound Transit awarded without the use of DBE goals; and prime contracts, which the agency awarded without the use of any race- or gender-conscious measures.
- Black American-owned businesses exhibited substantial disparities on several key contract sets, including FTA-funded contracts and procurements; contracts and procurements Sound Transit Awarded with the use of DBE goals; and prime contracts, which the agency awarded without the use of any race- or gender-conscious measures.
- Subcontinent Asian American-owned businesses exhibited substantial disparities on prime contracts, which the agency awarded without the use of any race- or gender-conscious measures.
- Non-Hispanic white woman-owned businesses and Asian Pacific American-owned businesses exhibited substantial disparities on goods and services procurements.

Sound Transit should consider information about substantial disparities when making decisions about which business groups would be considered eligible to participate in any race- or gender-conscious measures that the agency decides to use.

C. Considerations for Refinement

Sound Transit should review study results and other relevant information when making decisions about its implementation of the Federal DBE Program. BBC also presents the following potential considerations that Sound Transit could make in connection with its implementation of

the Federal DBE Program and encouraging the participation of minority- and woman-owned businesses in its contracts and procurements. Sound Transit should consult closely with internal leadership and legal counsel to ensure that any program refinements it considers are consistent with agency objectives, available resources, relevant case law, and federal and state regulations.

1. Overall DBE goal. Results from the disparity study can be helpful to Sound Transit in setting its next overall DBE goal. The availability analysis indicated that Sound Transit's base figure for its next overall DBE goal should be 7.5 percent, based on the availability of potential DBEs for the agency's anticipated FTA-funded contracts and procurements. BBC's analyses as well as other information to which Sound Transit has access indicated that an upward adjustment to the base figure might be appropriate to account for the current capacity of DBEs to perform work on Sound Transit's FTA-funded work and barriers that minorities, women, and minority- and woman-owned businesses face in the marketplace. Sound Transit should consider that and other information in setting its next overall DBE goal.

2. DBE contract goals. During the study period, Sound Transit used DBE contract goals to award many of its FTA-funded contracts and procurements, which is a race- and gender-conscious measure. Despite the use of those goals, disparity analysis results indicate that all relevant DBE groups showed substantial disparities on various sets of contract. In particular, on contracts that Sound Transit awarded without the use of race- and gender-conscious measures—prime contracts and other contracts and procurements that were awarded without the use of DBE contract goals—four groups showed substantial disparities: Black American-owned businesses, Hispanic American-owned businesses, Native American-owned businesses, and Subcontinent Asian American-owned businesses. Based on those results, Sound Transit should consider continuing its use of DBE contract goals. To ensure that its implementation of the Federal DBE Program is consistent with the *strict scrutiny standard* of constitutional review and *narrow tailoring*, Sound Transit should consider limiting the use of DBE contract goals to those groups for which compelling *inferences of discrimination* exist.

3. Unbundling large contracts. The size of Sound Transit contracts and procurements has increased substantially over the past 10 years, which likely reduced the availability of minority- and woman-owned businesses for that work. As an illustration of the impact of contract size on availability, BBC analyzed the availability of minority- and woman-owned businesses separately for Sound Transit contracts and procurements worth \$1 million or more and contracts and procurements worth less than \$1 million. That comparison showed that whereas the availability of minority- and woman-owned businesses for contracts and procurements worth \$1 million or more was only 7.8 percent, their availability for contracts and procurements worth less than \$1 million was 29.7 percent. Sound Transit representatives have indicated that they are aware of the issue and are taking steps to explore the possibility of unbundling contracts and procurements into several smaller pieces. Doing so would result in that work being more accessible to all small businesses, including many minority- and woman-owned businesses.

4. Prime contract opportunities. Overall, disparity analysis results indicated substantial disparities for most racial/ethnic groups on the prime contracts that Sound Transit awarded during the study period. The agency maintains a Small Public Works Roster, which serves as a list of businesses qualified and interested in performing Sound Transit public works projects worth less than \$200,000. To qualify for the Small Public Works Roster, businesses must meet

the revenue thresholds of the United States Small Business Administration's guidelines to be eligible to bid on those projects. Sound Transit also executes Limited Public Works Projects, which are with worth less than \$35,000 that are exempt from certain requirements of the Small Public Works Roster. Sound Transit should consider increasing its use of both the Small Public Works Roster and Limited Public Works Projects to further encourage the participation of small business, including many minority- and woman-owned businesses, as prime contractors. Doing so might help address some of the disparities that exist on prime contracts.

5. Using different subcontractors. The disparity study indicated that the vast majority of contracting dollars that Sound Transit awarded to minority- and woman-owned businesses during the study period were largely concentrated with a relatively small number of businesses. Sound Transit could consider encouraging prime contractors to use subcontractors and suppliers with which they have never worked. For example, Sound Transit might ask prime contractors to document and submit their efforts to identify and team with businesses with which they have not worked in the past as part of their bids and proposals.

6. Data collection. Sound Transit maintains data on the prime contracts and procurements that it awards, and those data are generally well-organized and comprehensive. The agency also maintains comprehensive subcontract information on its construction and architecture and engineering contracts. However, Sound Transit does not maintain comprehensive subcontract information on the other professional services and goods and services procurements that it awards. The agency should consider collecting comprehensive data on *all* subcontracts regardless of contract type. Collecting data on all subcontracts will help ensure that Sound Transit is able to monitor the participation of minority- and woman-owned businesses as accurately as possible.

APPENDIX A.

Definitions of Terms

Appendix A defines terms that are useful to understanding the 2020 Sound Transit Disadvantaged Business Enterprises Disparity Study report.

49 Code of Federal Regulations (CFR) Part 26

49 CFR Part 26 are the federal regulations that set forth the Federal Disadvantaged Business Enterprise Program. The objectives of 49 CFR Part 26 are to:

- Ensure nondiscrimination in the award and administration of United States Department of Transportation-assisted contracts;
- Create a level playing field on which Disadvantaged Business Enterprises can compete fairly for United States Department of Transportation-assisted contracts;
- Ensure that the Federal Disadvantaged Business Enterprise Program is narrowly tailored in accordance with applicable law;
- Ensure that only businesses that fully meet eligibility standards are permitted to participate as Disadvantaged Business Enterprises;
- Help remove barriers to the participation of Disadvantaged Business Enterprises in United States Department of Transportation-assisted contracts;
- Promote the use of Disadvantaged Business Enterprises in all types of United States Department of Transportation-funded contracts and procurements;
- Assist in the development of businesses so that they can compete outside of the Federal Disadvantaged Business Enterprise Program; and
- Provide appropriate flexibility to agencies implementing the Federal Disadvantaged Business Enterprise Program.

Availability Analysis

An availability analysis assesses the percentage of dollars that one might expect a specific group of businesses to receive on contracts or procurements that a particular organization awards. The availability analysis in this report is based on the match between various characteristics of potentially available businesses and prime contracts and subcontracts that Sound Transit awarded during the study period.

Business

A business is a for-profit enterprise, including sole proprietorships, corporations, professional corporations, limited liability companies, limited partnerships, limited liability partnerships, and any other partnerships. The definition includes the headquarters of the business as well as all its other locations, as applicable.

Business Listing

A business listing is a record in a database of business information. A single business can have multiple listings (e.g., when a single business has multiple locations that are listed separately).

Compelling Governmental Interest

As part of the strict scrutiny standard of constitutional review, a government organization must demonstrate a compelling governmental interest in remedying past identified discrimination in order to implement race- or gender-conscious measures. An organization that uses race- or gender-conscious measures as part of a contracting program has the initial burden of showing evidence of discrimination—including statistical and anecdotal evidence—that supports the use of such measures. The organization must assess such discrimination within its own relevant geographic market area.

Consultant

A consultant is a business that performs professional services contracts.

Contract

A contract is a legally binding relationship between the seller of goods or services and a buyer. The study team sometimes uses the term *contract* synonymously with *procurement*.

Contract Element

A contract element is either a prime contract or subcontract.

Contractor

A contractor is a business that performs construction contracts.

Control

Control means exercising management and executive authority of a business.

Custom Census Availability Analysis

A custom census availability analysis is one in which researchers attempt surveys with potentially available businesses working in the local marketplace to collect information about key business characteristics. Researchers then take survey information about potentially available businesses and match them to the characteristics of prime contracts and subcontracts that an organization actually awarded during the study period to assess the percentage of dollars that one might expect a specific group of businesses to receive on contracts or procurements that the organization awards. A custom census availability approach is accepted in the industry as the preferred method for conducting availability analyses, because it takes several different factors into account, including businesses' primary lines of work and their capacity to perform on an organization's contracts.

Disadvantaged Business Enterprise (DBE)

A DBE is a business that is owned and controlled by one or more individuals who are socially and economically disadvantaged according to requirements set forth in 49 CFR Part 26. DBEs

must be certified as such through the Washington State Office of Minority- and Women's Business Enterprises. The following groups are presumed to be socially and economically disadvantaged according to the Federal DBE Program:

- a) Asian Pacific Americans;
- b) Black Americans;
- c) Hispanic Americans;
- d) Native Americans;
- e) Subcontinent Asian Americans; and
- f) Women of any race or ethnicity.

Disparity

A disparity is a difference or gap between an actual outcome and some benchmark. In this report, the term *disparity* refers specifically to a difference between the participation of a specific group of businesses in state contracting and the estimated availability of the group for that work.

Disparity Analysis

A disparity analysis examines whether there are any differences between the participation of a specific group of businesses in government contracting and the estimated availability of the group for that work.

Disparity Index

A disparity index is computed by dividing the actual participation of a specific group of businesses in government contracting by the estimated availability of the group for that work and multiplying the result by 100. Smaller disparity indices indicate larger disparities.

Dun & Bradstreet (D&B)

D&B is the leading global provider of lists of business establishments and other business information for specific industries within specific geographical areas (for details, see www.dnb.com).

Federal Transit Administration (FTA)

The FTA is one of 10 modal administrations within the United States Department of Transportation. It provides financial and technical assistance to local public transportation systems, like Sound Transit.

Firm

See *business*.

Industry

An industry is a broad classification for businesses providing related goods or services (e.g., *construction* or *other professional services*).

Inference of Discrimination

An inference of discrimination is quantitative or qualitative evidence of discrimination in the marketplace against particular business groups. Government organizations often use an inference of discrimination as justification for the use of relatively strong measures—such as race- or gender-conscious measures—to address barriers affecting those groups.

Local Marketplace

See relevant geographic market area.

Locally-funded Contract

State-funded contracts are contracts or procurements that are wholly funded by state or local sources. That is, they do not include any United States Department of Transportation funds.

Majority-owned Business

A majority-owned business is a for-profit business that is at least 51 percent owned and controlled by non-Hispanic white men.

Minority

A minority is an individual who identifies with one of the following racial/ethnic groups: Asian Pacific American, Black American, Hispanic American, Native American, Subcontinent Asian American, or another non-white race or ethnicity.

Minority-owned Business

A minority-owned business is a business with at least 51 percent ownership and control by individuals who identify themselves with one of the following racial/ethnic groups: Asian American, Black American, Hispanic American, Native American, or Subcontinent Asian American, or another non-white race or ethnicity. The study team considered businesses owned by minority men and minority women as minority-owned businesses. A business does not have to be certified as a DBE to be considered a minority-owned business in this study.

Narrow Tailoring

As part of the strict scrutiny standard of constitutional review, a government organization must demonstrate that its use of race- and gender-conscious measures is narrowly tailored. There are several factors that a court considers when determining whether the use of such measures is narrowly tailored, including:

- a) The necessity of such measures and the efficacy of alternative, race- and gender-neutral measures;
- b) The degree to which the use of such measures is limited to those groups that suffer discrimination in the local marketplace;

- c) The degree to which the use of such measures is flexible and limited in duration, including the availability of waivers and sunset provisions;
- d) The relationship of any numerical goals to the relevant business marketplace; and
- e) The impact of such measures on the rights of third parties.

Non-response Bias

Non-response bias occurs in survey research when participants' responses to survey questions theoretically differ from the potential responses of individuals who did not participate in the survey.

Participation

See utilization.

Potential DBE

A potential DBE is a minority- or woman-owned business that is DBE-certified or appears that it could be DBE-certified based on revenue requirements specified as part of the Federal DBE Program.

Prime Consultant

See prime contractor.

Prime Contract

A prime contract is a contract between a prime contractor, or prime consultant, and an end user, such as Sound Transit.

Prime Contractor

A prime contractor is a business that performs prime contracts directly for end users, such as Sound Transit.

Procurement

See contract.

Project

A project refers to a construction, architecture and engineering, other professional services, or goods and services endeavor that Sound Transit bid out during the study period. A project could include one or more prime contracts and corresponding subcontracts.

Race- and Gender-conscious Measures

Race- and gender-conscious measures are contracting measures that are specifically designed to increase the participation of minority- and woman-owned businesses. Businesses owned by members of certain racial/ethnic groups might be eligible for such measures but other businesses would not. Similarly, businesses owned by women might be eligible for such

measures but businesses owned by men would not. An example of race- and gender-conscious measures is an organization's use of DBE participation goals on individual contracts.

Race- and Gender-neutral Measures

Race- and gender-neutral measures are measures that are designed to remove potential barriers for all businesses—or all small or emerging businesses—attempting to do work with an organization, regardless of the race/ethnicity or gender of the owners. Race- and gender-neutral measures may include assistance in overcoming bonding and financing obstacles, simplifying bidding procedures, providing technical assistance, establishing programs to assist start-ups, and other methods open to all businesses, regardless of the race/ethnicity or gender of the owners.

Rational Basis

Government organizations that implement contracting programs that rely only on race- and gender-neutral measures to encourage the participation of 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.

Relevant Geographic Market Area (RGMA)

The RGMA is the geographic area in which the businesses to which state agencies award most of their contracting dollars are located. The RGMA is also referred to as the *local marketplace*. Case law related to contracting programs and disparity studies requires disparity study analyses to focus on the RGMA. The RGMA for the disparity study is King, Pierce, and Snohomish Counties in Washington.

Sound Transit

Sound Transit builds and operates regional transit services throughout the urban areas of Pierce, King, and Snohomish Counties of Washington, serving nearly 50 million passengers each year through various services, including Link light rail, Sounder trains, the ST Express Bus, and soon, Bus Rapid Transit. The agency operates through a combination of state and local funds and United States Department of Transportation funds.

Statistically Significant Difference

A statistically significant difference refers to a quantitative difference for which there is a 0.95 or 0.90 probability that chance can be correctly rejected as an explanation for the difference (meaning that there is a 0.05 or 0.10 probability, respectively, that chance in the sampling process could correctly account for the difference).

Strict Scrutiny

Strict scrutiny is the legal standard that a government organization's use of race- and gender-conscious measures must meet to be considered constitutional. Strict scrutiny is the highest

threshold for evaluating the legality of race- and gender-conscious measures short of prohibiting them altogether. Under the strict scrutiny standard, an organization must:

- a) Have a compelling governmental interest in remedying past identified discrimination or its present effects; and
- b) Establish that the use of any such measures is narrowly tailored to achieve the goal of remedying the identified discrimination.

An organization's use of race- and gender-conscious measures must meet both the compelling governmental interest and the narrow tailoring components of the strict scrutiny standard for it to be considered constitutional.

Study Period

The study period is the time period on which the study team focused for the utilization, availability, and disparity analyses. Sound Transit had to have awarded a contract during the study period for the contract to be included in the study team's analyses. The study period for the disparity study was January 1, 2016 through December 31, 2019.

Subconsultant

See *subcontractor*.

Subcontract

A subcontract is a contract between a prime contractor or prime consultant and another business selling goods or services to the prime contractor or prime consultant as part of a larger contract.

Subcontractor

A subcontractor is a business that performs services for prime contractors as part of larger contracts.

Subindustry

A subindustry is a specific classification for businesses providing related goods or services within a particular industry (e.g., *highway and street construction* is a subindustry of *construction*).

Substantial Disparity

A substantial disparity—a disparity index of 80 or less—indicates that actual participation of a specific business group is 80 percent or less of the group's estimated availability. A substantial disparity is considered an *inference of discrimination* in the marketplace against particular business groups. Government organizations often use substantial disparities as justification for the use of relatively strong measures—such as race- or gender-conscious measures—to address barriers affecting those groups.

United States Department of Transportation (USDOT)

USDOT is a federal cabinet department of the United States government that oversees federal highway, air, railroad, maritime, and other transportation administration functions. FTA is a USDOT modal administration.

USDOT-funded Contract

A USDOT-funded contract or procurement is any contract or procurement funded in whole or in part with USDOT financial assistance, including loans. In this study, the study team uses the term “USDOT-funded contract” synonymously with “FTA-funded contract.”

Utilization

Utilization refers to the percentage of total dollars that were associated with a particular set of contracts that went to a specific group of businesses. The study team uses the term *utilization* synonymously with *participation*.

Vendor

A vendor is a business that sells goods either to a prime contractor or prime consultant or to an end user, such as Sound Transit.

Washington State Office of Minority and Women’s Business Enterprises (OMWBE)

OMWBE is Washington’s Unified Certified Authority for DBE certification. OMWBE is responsible for certifying eligible businesses and maintains a statewide electronic directory of certified DBEs in Washington. OMWBE also has statewide responsibility for certifying businesses as minority-owned business enterprises, woman-owned business enterprises, and Airport Concessions Disadvantaged Business Enterprises.

Woman-owned Business

A woman-owned business is a business with at least 51 percent ownership and control by non-Hispanic white women. A business does not have to be certified as a DBE to be considered a woman-owned business. (The study team considered businesses owned by minority women as minority-owned businesses.)

APPENDIX B.

Availability Analysis Approach

BBC Research & Consulting (BBC) used a *custom census* approach to analyze the availability of minority- and woman-owned businesses for construction, architecture and engineering, other professional services, and goods and services prime contracts and subcontracts that Sound Transit awards.¹ Appendix B expands on the information presented in Chapter 3 to describe:

- A. Overview;
- B. Representative businesses;
- C. Availability survey instrument;
- D. Survey execution; and
- E. Additional considerations.

A. Overview

BBC worked with Customer Research International (CRI) and Davis Research to conduct telephone and online surveys with businesses throughout Sound Transit’s *relevant geographic market area*, which BBC identified as King, Pierce, and Snohomish Counties in Washington. Businesses that CRI and Davis Research surveyed were businesses with locations in the relevant geographic market area that the study team identified as doing work in fields closely related to the types of contracts and procurements that Sound Transit awarded between January 1, 2016 and December 31, 2019 (i.e., *the study period*). The study team began the survey process by determining the work specializations, or *subindustries*, for each relevant Sound Transit prime contract and subcontract and identifying 8-digit Dun & Bradstreet (D&B) work specialization codes that best corresponded to those subindustries. The study team then collected information about local businesses that D&B listed as having their primary lines of business within those work specializations. As part of the survey effort, the study team attempted to contact 4,871 local businesses that perform work relevant to Sound Transit contracting and procurement and was able to successfully contact 1,150 of those businesses, 547 of which completed availability surveys.

B. Representative Businesses

The objective of BBC’s availability approach was not to collect information about each and every business that is operating in the relevant geographic market area. Instead, it was to collect information from a large, unbiased subset of local businesses that appropriately represents the entire relevant business population. That approach allowed BBC to estimate the availability of minority- and woman-owned businesses for Sound Transit work in an accurate, statistically valid manner. In addition, BBC did not design the research effort so that the study team would

¹ “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.

contact every local business possibly performing construction, architecture and engineering, other professional services, and goods and services work. Instead, BBC determined the types of work specializations that were most relevant to Sound Transit contracting and procurement in terms of the percentage of total dollars the agency awarded during the study period and contacted businesses that D&B listed as having their primary lines of business within those work specializations for surveys.

Figure B-1 lists the 8-digit work specialization codes within construction, architecture and engineering, other professional services, and goods and other services that were most related to the contract and procurement dollars that Sound Transit awarded during the study period and that BBC examined as part of the availability analysis. The study team grouped those specializations into distinct *subindustries*, which are presented as headings in Figure B-1.

C. Availability Survey Instrument

BBC created an availability survey instrument to collect information from local businesses working in industries relevant to Sound Transit contracts and procurements. As an example, the survey instrument that the study team used with construction businesses is presented at the end of Appendix B. BBC modified the construction survey instrument slightly for use with businesses working in other industries in order to reflect terms more commonly used in those industries. (e.g., BBC substituted the words “prime contractor” and “subcontractor” with “prime consultant” and “subconsultant” when surveying professional services businesses.)

1. Survey structure. The availability survey included 14 sections, and CRI and Davis Research attempted to cover all sections with each business that they successfully contacted and was willing to complete a survey.

a. Identification of purpose. The surveys began by identifying Sound Transit as the survey sponsor and describing the purpose of the study. (e.g., “Sound Transit is conducting a survey to develop a list of companies interested in providing construction-related services to Sound Transit and other public agencies in the Seattle area.”)

b. Verification of correct business name. The surveyor verified that he or she had reached the correct business. If the business name was not correct, surveyors asked if the respondent knew how to contact the correct business. CRI or Davis Research then followed up with the correct business based on the new contact information (see areas “X” and “Y” of the availability survey instrument).

c. Verification of for-profit business status. The surveyor asked whether the organization was a for-profit business as opposed to a government or nonprofit organization (Question A2). Surveyors continued the survey with businesses that responded “yes” to that question.

d. Confirmation of main lines of business. Businesses confirmed their main lines of business according to D&B (Question A3a). If D&B’s work specialization codes were incorrect, they described their main lines of business (Questions A3b). Businesses were also asked to identify the other types of work that they perform beyond their main lines of business (Question A3c). BBC coded information on main lines of business and additional types of work into appropriate 8-digit D&B work specialization codes.

Figure B-1.
Subindustries and work specializations included in the availability analysis

Industry Code	Industry Description	Industry Code	Industry Description
Architecture and Engineering			
Architectural and engineering		Landscape architecture	
87110202	Mechanical engineering	07810201	Landscape architects
87110400	Construction and civil engineering	07810203	Landscape planning services
87110402	Civil engineering		
87110404	Structural engineering	Surveying and mapmaking	
87119901	Acoustical engineering	73890801	Mapmaking or drafting, including aerial
87119905	Electrical or electronic engineering	87130000	Surveying services
87120100	Architectural engineering		
Construction management		Testing and inspection	
87419902	Construction management	47850200	Transportation inspection services
87420402	Construction project management consultant	47850202	Inspection services connected with transportation
Environmental Services		Transportation planning services	
87489905	Environmental consultant	87420410	Transportation consultant
		87480204	Traffic consultant
Construction			
Building construction		Electrical work	
15419905	Industrial buildings, new construction, nec	17310300	Communications specialization
15419909	Renovation, remodeling and repairs: industrial buildings	17310401	Access control systems specialization
15420000	Nonresidential construction, nec	17319903	General electrical contractor
15420100	Commercial and office building contractors		
17910000	Structural steel erection	Elevator goods and services	
Concrete, asphalt, and related products		17969901	Elevator installation and conversion
29510000	Asphalt paving mixtures and blocks	35340000	Elevators and moving stairways
32720303	Concrete products, precast, nec	35340100	Elevators and equipment
50329901	Aggregate	50840803	Elevators
		76992501	Elevators: inspection, service, and repair
Concrete work		Excavation, drilling, wrecking, and demolition	
17410101	Foundation building	16110203	Grading
17710103	Guniting contractor	17940000	Excavation work
17719901	Concrete pumping	17950000	Wrecking and demolition work
17719904	Foundation and footing contractor	17959902	Demolition, buildings and other structures
17959901	Concrete breaking for streets and highways		
Electrical equipment and supplies		Fencing, guardrails, barriers, and signs	
50630000	Electrical apparatus and equipment	16110100	Highway signs and guardrails
		17999912	Fence construction

Figure B-1.
Subindustries and work specializations included in the availability analysis (continued)

Industry Code	Industry Description	Industry Code	Industry Description
Construction (Continued)			
Heavy construction equipment rental		Other construction services	
35310000	Construction machinery	17419905	Marble masonry, exterior construction
50820300	General construction machinery and equipment		
50820303	Cranes, construction	Painting, striping, and marking	
		17210200	Commercial painting
		17210300	Industrial painting
Highway, street, and bridge construction		Railroad construction	
16110000	Highway and street construction	16290200	Railroad and subway construction
16110204	Highway and street paving contractor	16290202	Railroad and railway roadbed construction
16119901	General contractor, highway and street construction	47890400	Railroad maintenance and repair services
16220000	Bridge, tunnel, and elevated highway construction		
16290000	Heavy construction, nec		
Insulation, drywall, and weatherproofing		Rebar and reinforced steel	
17420000	Plastering, drywall, and insulation	33120405	Structural shapes and pilings, steel
17420100	Plaster and drywall work	34419901	Building components, structural steel
17420200	Acoustical and insulation work	34490101	Bars, concrete reinforcing: fabricated steel
17990200	Coating, caulking, and weather, water, and fireproofing	50510216	Steel
17990206	Fireproofing buildings		
17990209	Waterproofing	Water, sewer, and utility lines	
07829903	Landscape contractors	16230203	Telephone and communication line construction
		17310302	Fiber optic cable installation
		17990208	Insulation of pipes and boilers

Figure B-1.
Subindustries and work specializations included in the availability analysis (continued)

Industry Code	Industry Description	Industry Code	Industry Description
Goods and Services			
Advertising goods		Security and safety materials (continued)	
39930000	Signs and advertising specialties	50630501	Alarm systems, nec
		50630502	Burglar alarm systems
Cleaning and janitorial services		50659903	Security control equipment and systems
73499902	Cleaning service, industrial or commercial	59990101	Alarm signal systems
Office equipment		Security guard services	
57129904	Office furniture	73810100	Guard services
		73810102	Burglary protection service
Other services		73810104	Protective services, guard
76992209	Pumps and pumping equipment repair	73810105	Security guard service
Printing, copying, and mailing		Uniforms and apparel	
27520900	Publication printing, lithographic	23260100	Work uniforms
27590000	Commercial printing, nec	56990100	Uniforms and work clothing
		56990102	Uniforms
Security and safety materials		56990103	Work clothing
36690100	Emergency alarms	72130204	Uniform supply
36690101	Burglar alarm apparatus, electric	72180203	Industrial uniform supply
36990502	Security control equipment and systems		
Other Professional Services			
Business services and consulting		IT and data services	
73110000	Advertising agencies	73730102	Systems engineering, computer related
87210100	Auditing services	73730200	Systems integration services
Human resources and job training		Real estate management	
73610100	Placement agencies	65319901	Appraiser, real estate
		73891401	Appraisers, except real estate
		87420406	Real estate consultant

e. Locations and affiliations. The surveyor asked business owners or managers if their businesses had other locations (Question A4). The study team also asked business owners if their businesses were subsidiaries or affiliates of other businesses (Questions A5 and A6).

f. Past bids or work with government agencies and private sector organizations. The surveyor asked about bids and work on past government and private sector contracts, either as prime contractors or subcontractors (Questions B1 and B2).²

g. Interest in future work. The surveyor asked about businesses' interest in future work with Sound Transit or other government or public agencies in the Seattle area, either as prime contractors or subcontractors (Questions B3, B4, B5, and B6).³

h. Geographic area. The surveyor asked whether businesses perform work or serve customers in Pierce County, King County, or Snohomish County (Questions C1, C2, and C3).

i. Year established. The surveyor asked businesses to identify the approximate year in which they were established (Question D1).

j. Largest contracts. The study team asked businesses about the value of the largest contracts on which they had bid on or been awarded during the past five years. (Question D2).

k. Ownership. The surveyor asked whether businesses were at least 51 percent owned and controlled by minorities or women (Questions E1 and E2). If businesses indicated they were minority-owned, they were also asked about the race/ethnicity of the business's ownership (Question E3). The study team confirmed that information through several other data sources, including:

- The Washington State Office of Minority & Women's Business Enterprises' directory of DBE-certified businesses;
- Sound Transit vendor data;
- Sound Transit review; and
- Information from D&B and other sources.

l. Business revenue. The surveyor asked about businesses' size in terms of their revenues (Question F1).

m. Potential barriers in the marketplace. The surveyor asked open-ended questions concerning working in the region and general insights about conditions in the local marketplace (Question G1).

n. Contact information. The survey concluded with questions about the participant's name and position with the organization (Questions H1 and H2).

² Goods and services businesses were asked questions about subcontract work.

³ Goods and services businesses were asked questions about subcontract work.

D. Survey Execution

CRI and Davis Research conducted all availability surveys in 2020. The firms made multiple attempts at during different times of the day and on different days of the week to reach each business. CRI and Davis Research attempted to survey a company representative such as the owner, manager, or other officer who could provide accurate and detailed responses to survey questions.

1. Businesses that the study team successfully contacted. Figure E-2 presents the disposition of the 4,871 businesses that the study team attempted to contact for availability surveys and how that number resulted in the 1,150 businesses that the study team was able to successfully contact.

Figure B-2.
Disposition of attempts to survey businesses

Source:
BBC availability analysis.

Disposition	Number of Establishments
Beginning list	4,871
Less duplicate phone numbers	40
Less non-working phone numbers	913
Less wrong number/business	307
Unique business listings with working phone numbers	3,611
Less no answer	2,314
Less could not reach appropriate staff member	138
Less language barriers	9
Establishments successfully contacted	1,150

a. Non-working or wrong phone numbers. Some of the listings that CRI and Davis Research attempted to contact were:

- Duplicate phone numbers (40 listings);
- Non-working phone numbers (913 listings); or
- Wrong numbers for the desired businesses (307 listings).

Some non-working phone numbers and wrong numbers resulted from businesses going out of business or changing their names and phone numbers between the time that D&B listed them and the time that the study team attempted to contact them.

b. Working phone numbers. As shown in Figure B-2, there were 3,611 businesses with working phone numbers that CRI and Davis Research attempted to contact. They were unsuccessful in contacting many of those businesses for various reasons:

- There was no answer after eight attempts at different times of the day and on different days of the week for 2,314 businesses.
- They could not reach an appropriate staff member after eight attempts at different times of the day on different days of the week for 138 businesses.
- They could not conduct the availability survey due to language barriers for nine businesses.

Thus, CRI and Davis Research were able to successfully contact 1,150 businesses.

2. Businesses included in the availability database. Figure B-3 presents the disposition of the 1,150 businesses that CRI and Davis Research successfully contacted and how that number resulted in the 432 businesses that the study team included in the availability database and considered potentially available for Sound Transit work.

**Figure E-3.
Disposition of successfully contacted businesses**

Source:
BBC availability analysis.

Disposition	Number of Establishments
Establishments successfully contacted	1,150
Less establishments not interested in discussing availability	600
Less unreturned fax/online surveys	3
Establishments that completed surveys	547
Less not a for-profit business	1
Less line of work outside of study scope	3
Less no interest in future work	104
Less multiple establishments	7
Establishments potentially available for entity work	432

a. Businesses not interested in discussing availability for Sound Transit work. Of the 1,150 businesses that the study team successfully contacted, 600 businesses were not interested in discussing their availability for Sound Transit work and an additional three businesses did not return fax or online surveys after requesting them. In total, 547 successfully contacted businesses completed availability surveys.

b. Businesses available for Sound Transit work. BBC deemed only a portion of the businesses that completed availability surveys as available for the prime contracts and subcontracts that Sound Transit awarded during the study period. The study team excluded many of the businesses that completed surveys from the availability database for various reasons:

- BBC excluded one business that indicated that it was not a for-profit business.
- BBC excluded three businesses that indicated that their main lines of business were outside of the study scope.
- BBC excluded 104 businesses that reported not being interested in either prime contract or subcontract opportunities with Sound Transit or other government agencies in the region.
- Seven businesses represented different locations of the same businesses. Prior to analyzing results, BBC combined responses from multiple locations of the same business into a single data record.

After those exclusions, BBC compiled a database of 432 businesses that were considered potentially available for Sound Transit work.

c. Coding responses from multi-location businesses. Responses from different locations of the same business were combined into a single summary data record according to several rules:

- If representatives from any of the locations reported bidding or working on a contract within a particular subindustry, BBC considered the business to have bid or worked on a contract in that subindustry.
- BBC combined the different roles of work (i.e., prime contractor or subcontractor) that locations of the same business reported into a single response-corresponding to the appropriate subindustry. For example, if the representative from one location reported that the business works as a prime contractor and the representatives from another location reported that it works as a subcontractor, then the study team considered the business as available for both prime contracts and subcontracts within the relevant subindustry.⁴
- BBC considered the largest contract that representatives from any locations of the same business reported having bid or worked on as the business' relative capacity (i.e., the largest contract for which the business could be considered available).
- BBC coded businesses as minority- or woman-owned if representatives from a majority of its establishments reported such status.

E. Additional Considerations

BBC made several additional considerations related to measuring availability to ensure that availability for Sound Transit work were accurate and appropriate.

1. Providing representative estimates of business availability. The purpose of the availability analysis was to provide precise and representative estimates of the percentage of Sound Transit contracting dollars for which minority- and woman-owned businesses are ready, willing, and able to perform. The availability analysis did not provide a comprehensive listing of every business that could be available for Sound Transit work and should not be used in that way. Federal courts have approved BBC's approach to measuring availability, including the Ninth Circuit Court of Appeals. In addition, federal regulations around minority- and woman-owned business programs recommend similar approaches to measuring availability for organizations implementing business assistance programs.

2. Using a custom census approach to measuring availability. Federal guidance around measuring the availability of minority- and woman-owned businesses recommends dividing the number of minority- and woman-owned businesses in an organization's certification directory by the total number of businesses in the marketplace (for example, as reported in United States Census data). As another option, organizations could use a list of prequalified businesses or a bidders list to estimate the availability of minority- and woman-owned businesses for its prime contracts and subcontracts. The primary reason why BBC rejected such approaches when measuring the availability of businesses for Sound Transit work is that dividing a simple count of certified businesses by the total number of businesses is that such an approach undercounts

⁴ Goods and services businesses were asked questions about subcontract work.

the existence of minority- and woman-owned businesses and does not account for business characteristics that are crucial to estimating availability accurately.

The methodology that BBC used in this study takes a *custom census* approach to measuring availability and adds several layers of refinement to a simple count. For example, the availability surveys that the study team conducted provided data on qualifications, relative capacity, and interest in Sound Transit work, which allowed BBC to take a more detailed approach to measuring availability. Court cases involving implementations of minority- and woman-owned business programs have approved such approaches to measuring availability.

3. Selection of specific subindustries. Defining subindustries based on specific work specialization codes (e.g., D&B industry codes) is a standard step in analyzing businesses in an economic sector. Government and private sector economic data are typically organized according to such codes. As with any such research, there are limitations when choosing specific D&B work specialization codes to define sets of establishments to be surveyed. For example, it was not possible for BBC to include all businesses possibly doing work in relevant industries without conducting surveys with nearly every business located in the relevant geographic market area. In addition, some industry codes are imprecise and overlap with other business specialties. Some businesses span several types of work, even at a very detailed level of specificity. That overlap can make classifying businesses into single main lines of business difficult and imprecise. When the study team asked business owners and managers to identify their main lines of business, they often gave broad answers. For those and other reasons, BBC collapsed work specialization codes into broader subindustries to classify businesses more accurately in the availability database.

4. Response reliability. Business owners and managers were asked questions that may be difficult to answer, including questions about their revenues. For that reason, the study team collected corresponding D&B information for their establishments and asked respondents to confirm that information or provide more accurate estimates. Further, respondents were not typically asked to give absolute figures for difficult questions such as revenue and capacity. Rather, they were given ranges of dollar figures. BBC explored the reliability of survey responses in a number of ways.

a. Certification and business lists. BBC reviewed data from the availability surveys in light of information from other sources such as vendor information that the study team collected from Sound Transit. For example, certification databases include data on the race/ethnicity and gender of the owners of certified businesses. The study team compared survey responses concerning business ownership with such information.

b. Contract data. BBC examined Sound Transit contract data to further explore the largest contracts and subcontracts awarded to businesses that participated in the availability surveys for the purposes of assessing capacity. BBC compared survey responses about the largest contracts that businesses bid on or performed with actual Sound Transit contract data.

c. Sound Transit review. Sound Transit reviewed contract and vendor data that the study team collected and compiled as part of the study analyses and provided feedback regarding its accuracy.

DRAFT Availability Survey Instrument [Construction]

Hello. My name is [interviewer name] from Customer Research International/Davis Research. We are calling on behalf of Sound Transit. Sound Transit provides bus, light rail, and commuter train services to King, Pierce, and Snohomish counties. This is not a sales call. Sound Transit is conducting a survey to develop a list of companies interested in providing construction-related services to Sound Transit and other public agencies in the Seattle area. The survey should take between 10 and 15 minutes to complete. Who can I speak with to get the information that we need from your firm?

[AFTER REACHING AN APPROPRIATELY SENIOR STAFF MEMBER, THE INTERVIEWER SHOULD RE-INTRODUCE THE PURPOSE OF THE SURVEY AND BEGIN WITH QUESTIONS]

[IF ASKED, THE INFORMATION DEVELOPED IN THESE INTERVIEWS WILL ADD TO EXISTING DATA ON COMPANIES INTERESTED IN WORKING WITH SOUND TRANSIT]

X1. I have a few basic questions about your company and the type of work you do. Can you confirm that this is [firm name]?

1=RIGHT COMPANY – **SKIP TO Y4**

2=NOT RIGHT COMPANY

99=REFUSE TO GIVE INFORMATION – **TERMINATE**

Y1. What is the name of this firm?

1=VERBATIM

Y2. Can you give me any information about [new firm name]?

1=Yes, same owner doing business under a different name – **SKIP TO Y4**

2=Yes, can give information about named company

3=Company bought/sold/changed ownership

98=No, does not have information – **TERMINATE**

99=Refused to give information – **TERMINATE**

Y3. Can you give me the complete address or city for [new firm name]?

[NOTE TO INTERVIEWER - RECORD IN THE FOLLOWING FORMAT]:

. STREET ADDRESS

. CITY

. STATE

. ZIP

1=VERBATIM

Y4. Do you work for [firm name / new firm name]?

1=YES

2=NO - TERMINATE

A2. Let me confirm that [firm name / new firm name] is a for-profit business, as opposed to a non-profit organization, a foundation, or a government office. Is that correct?

1=Yes, a business

2=No, other - TERMINATE

A3a. Let me also confirm what kind of business this is. The information we have from Dun & Bradstreet indicates that your main line of business is [SIC Code description]. Is that correct?

[NOTE TO INTERVIEWER – IF ASKED, DUN & BRADSTREET OR D&B, IS A COMPANY THAT COMPILES INFORMATION ON BUSINESSES THROUGHOUT THE COUNTRY]

1=Yes - SKIP TO A3c

2=No

98=(DON'T KNOW)

99=(REFUSED)

A3b. What would you say is the main line of business at [firm name/new firm name]?

[NOTE TO INTERVIEWER – IF RESPONDENT INDICATES THAT FIRM'S MAIN LINE OF BUSINESS IS "GENERAL CONSTRUCTION" OR GENERAL CONTRACTOR," PROBE TO FIND OUT IF MAIN LINE OF BUSINESS IS CLOSER TO BUILDING CONSTRUCTION OR HIGHWAY AND ROAD CONSTRUCTION.]

1=VERBATIM

A3c. What other types of work, if any, does your business perform?

[ENTER VERBATIM RESPONSE]

1=VERBATIM

97=(NONE)

A4. Is this the sole location for your business, or do you have offices in other locations?

1=Sole location

2=Have other locations

98=(DON'T KNOW)

99=(REFUSED)

A5. Is your company a subsidiary or affiliate of another firm?

1=Independent – **SKIP TO B1**

2=Subsidiary or affiliate of another firm

98=(DON'T KNOW) – **SKIP TO B1**

99=(REFUSED) – **SKIP TO B1**

A6. What is the name of your parent company?

1=VERBATIM

98=(DON'T KNOW)

99=(REFUSED)

B1. Next, I have a few questions about your company's role in doing construction, maintenance, or design-related related work. During the past five years, has your company submitted a bid or received an award for any part of a contract—either in the public sector or the private sector—as either a prime contractor or subcontractor?

[NOTE TO INTERVIEWER – THIS INCLUDES PUBLIC OR PRIVATE SECTOR WORK OR BIDS]

1=Yes

2=No – **SKIP TO B3**

98=(DON'T KNOW) – **SKIP TO B3**

99=(REFUSED) – **SKIP TO B3**

B2. Were those bids or awards to work as a prime contractor, a subcontractor, a trucker/hauler, a supplier, or any other roles?

[MULTIPUNCH]

- 1=Prime contractor
- 2=Subcontractor
- 3=Trucker/hauler
- 4=Supplier (or manufacturer)
- 5= Other - SPECIFY _____
- 98=(DON'T KNOW)
- 99=(REFUSED)

B3. Please think about future construction, maintenance, or design-related work as you answer the following few questions. Is your company *interested* in working with government or public agencies in the greater Seattle area?

- 1=Yes
- 2=No – SKIP to C1a
- 98=(DON'T KNOW) – SKIP to C1a
- 99=(REFUSED) – SKIP to C1a

B4. Is your company *interested* in working with government or public agencies in the Seattle area as a prime contractor; a subcontractor/trucker/supplier; or both?

[MULTIPUNCH]

- 1=Prime contractor
- 2=Subcontractor
- 3=Trucker/hauler
- 4=Supplier (or manufacturer)
- 98= (DON'T KNOW)
- 99=(REFUSED)

B5. Is your company *interested* in working with Sound Transit specifically in the future?

- 1=Yes – SKIP TO C1a
- 2=No
- 98=(DON'T KNOW) – SKIP TO C1a
- 99=(REFUSED) – SKIP TO C1a

B6. Please tell me why your company is not interested in future work with Sound Transit.

[ENTER VERBATIM RESPONSE]

1=VERBATIM

C1a. Now I'm interested in the geographic areas in which your company serves customers. Is your company able to do work or serve customers in Pierce County, which includes Tacoma?

1=Yes

2=No

98=(DON'T KNOW)

99=(REFUSED)

C1b. Is your company able to do work or serve customers in King County, which includes Seattle, Bellevue, and Federal Way?

1=Yes

2=No

98=(DON'T KNOW)

99=(REFUSED)

C1c. Is your company able to do work or serve customers in Snohomish County, which includes Everett and Lynnwood?

1=Yes

2=No

98=(DON'T KNOW)

99=(REFUSED)

D1. About what year was your firm established?

1=NUMERIC (1600-2020)

9998 = (DON'T KNOW)

9999 = (REFUSED)

D2. What was the largest prime contract or subcontract that your company bid on or was awarded during the past five years? This includes contracts not yet complete and contracts in either the public sector or private sector.

[NOTE TO INTERVIEWER - READ CATEGORIES IF NECESSARY]

- | | |
|--|--|
| 1=\$100,000 or less | 9=More than \$20 million to \$50 million |
| 2=More than \$100,000 to \$250,000 | 10=More than \$50 million to \$100 million |
| 3=More than \$250,000 to \$500,000 | 11= More than \$100 million to \$200 million |
| 4=More than \$500,000 to \$1 million | 12=\$200 million or greater |
| 5=More than \$1 million to \$2 million | 97=(NONE) |
| 6=More than \$2 million to \$5 million | 98=(DON'T KNOW) |
| 7=More than \$5 million to \$10 million | 99=(REFUSED)/(NO BIDS OR AWARDS) |
| 8=More than \$10 million to \$20 million | |

E1. My next questions are about the ownership of the business. A business is defined as woman-owned if more than half—that is, 51 percent or more—of the ownership and control is by women. By this definition, is *[firm name / new firm name]* a woman-owned business?

- 1=Yes
- 2=No
- 98=(DON'T KNOW)
- 99=(REFUSED)

E2. A business is defined as minority-owned if more than half—that is, 51 percent or more—of the ownership and control is by Black American, Asian American, Hispanic American, or Native American. By this definition, is *[firm name / new firm name]* a minority-owned business?

- 1=Yes
- 2=No – **SKIP TO F1**
- 98=(DON'T KNOW) – **SKIP TO F1**
- 99=(REFUSED) – **SKIP TO F1**

E3. Would you say that the minority group ownership of your company is mostly Black American, Asian-Pacific American, Subcontinent Asian American, Hispanic American, or Native American?

1=Black American

2=Asian Pacific American (persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia(Kampuchea),Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Common-wealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong)

3=Hispanic American (persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race)

4=Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians)

5=Subcontinent Asian American (persons whose Origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal, or Sri Lanka)

6=(OTHER - SPECIFY) _____

98=(DON'T KNOW)

99=(REFUSED)

F1. What was the average annual gross revenue of your company, including all locations over the last three years? Would you say ...

[READ LIST]

1=Less than \$1 Million

6=\$16.6 Million - \$19.5 Million

2=\$1.1 Million - \$6 Million

7=\$19.6 Million - \$22 Million

3=\$6.1 Million - \$8 Million

8=\$22.1 Million - \$24 Million

4=\$8.1 Million - \$12 Million

9=\$24.1 Million or more

5=\$12.1 Million - \$16.5 Million

98= (DON'T KNOW)

99= (REFUSED)

G1. Do you have any thoughts to share regarding general marketplace conditions in the greater Seattle area, starting or expanding a business in your industry, or obtaining work?

1=VERBATIM (PROBE FOR COMPLETE THOUGHTS)

97=(NOTHING/NONE/NO COMMENTS)

98=(DON'T KNOW)

H1. What is your name?

1=VERBATIM NAME

H2. What is your position at [*firm name / new firm name*]?

1=Receptionist

2=Owner

3=Manager

4=CFO

5=CEO

6=Assistant to Owner/CEO

7=Sales manager

8=Office manager

9=President

9=(OTHER - SPECIFY) _____

99=(REFUSED)

99=(REFUSED)

Thank you very much for your participation. If you have any questions or concerns, please contact Beverly Cobb Zahir, Small Business Program Manager for Sound Transit, at 206-689-4974 or beverly.cobbzahir@soundtransit.org.

APPENDIX C.

Disparity Analysis Results

Table	Factor					Analysis of potential DBEs
	Contract area	Contract role	Contract size	Funding	Goals	
F-2	All industries	Prime contracts and subcontracts	N/A	Federal and local	Goals and no-goals	No
F-3	Construction	Prime contracts and subcontracts	N/A	Federal and local	Goals and no-goals	No
F-4	Architecture and engineering	Prime contracts and subcontracts	N/A	Federal and local	Goals and no-goals	No
F-5	Other professional services	Prime contracts and subcontracts	N/A	Federal and local	Goals and no-goals	No
F-6	Goods and services	Prime contracts and subcontracts	N/A	Federal and local	Goals and no-goals	No
F-7	All industries	Prime contracts	Large and small	Federal and local	Goals and no-goals	No
F-8	All industries	Subcontracts	N/A	Federal and local	Goals and no-goals	No
F-9	All industries	Prime contracts	Large	Federal and local	Goals and no-goals	No
F-10	All industries	Prime contracts	Small	Federal and local	Goals and no-goals	No
F-11	All industries	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	No
F-12	All industries	Prime contracts and subcontracts	N/A	Local	N/A	No
F-13	All industries	Prime contracts and subcontracts	N/A	Federal and local	Goals	No
F-14	All industries	Prime contracts and subcontracts	N/A	Federal and local	No-goals	No
F-15	All industries	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	Yes
F-16	Construction	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	Yes
F-17	Architecture and engineering	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	Yes
F-18	Other professional services	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	Yes
F-19	Goods and services	Prime contracts and subcontracts	N/A	Federal	Goals and no-goals	Yes

Figure C-2.
Time period: 01/01/2016 - 12/31/2019
Contract area: All industries
Contract role: Prime contracts and subcontracts
Funding source: Federal and Local

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	1,253	\$6,359,998	\$6,359,998				
(2) Minority and woman-owned businesses	334	\$557,157	\$557,157	8.8	8.2	0.5	106.3
(3) Non-Hispanic white woman-owned	136	\$221,648	\$221,648	3.5	1.0	2.5	200+
(4) Minority-owned	198	\$335,510	\$335,510	5.3	7.2	-1.9	73.2
(5) Asian Pacific American-owned	57	\$115,764	\$115,764	1.8	0.4	1.4	200+
(6) Black American-owned	51	\$83,059	\$83,059	1.3	1.3	0.0	97.3
(7) Hispanic American-owned	43	\$87,240	\$87,240	1.4	2.0	-0.6	68.5
(8) Native American-owned	35	\$30,206	\$30,206	0.5	3.4	-2.9	14.0
(9) Subcontinent Asian American-owned	12	\$19,240	\$19,240	0.3	0.0	0.3	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	211	\$270,473	\$270,473	4.3			
(12) Non-Hispanic white woman-owned DBE	60	\$60,829	\$60,829	1.0			
(13) Minority-owned DBE	151	\$209,643	\$209,643	3.3			
(14) Asian Pacific American-owned DBE	52	\$62,002	\$62,002	1.0			
(15) Black American-owned DBE	40	\$33,321	\$33,321	0.5			
(16) Hispanic American-owned DBE	34	\$72,849	\$72,849	1.1			
(17) Native American-owned DBE	17	\$22,256	\$22,256	0.3			
(18) Subcontinent Asian American-owned DBE	8	\$19,215	\$19,215	0.3			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-3.

Time period: 01/01/2016 - 12/31/2019

Contract area: Construction

Contract role: Prime contracts and subcontracts

Funding source: Federal and Local

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	638	\$4,935,612	\$4,935,612				
(2) Minority and woman-owned businesses	160	\$336,639	\$336,639	6.8	6.9	-0.1	98.6
(3) Non-Hispanic white woman-owned	64	\$157,468	\$157,468	3.2	0.5	2.7	200+
(4) Minority-owned	96	\$179,171	\$179,171	3.6	6.4	-2.8	56.8
(5) Asian Pacific American-owned	18	\$36,474	\$36,474	0.7	0.4	0.4	200+
(6) Black American-owned	31	\$64,064	\$64,064	1.3	1.0	0.3	132.3
(7) Hispanic American-owned	17	\$34,618	\$34,618	0.7	2.2	-1.5	31.6
(8) Native American-owned	21	\$27,646	\$27,646	0.6	2.8	-2.3	19.8
(9) Subcontinent Asian American-owned	9	\$16,370	\$16,370	0.3	0.0	0.3	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	94	\$148,753	\$148,753	3.0			
(12) Non-Hispanic white woman-owned DBE	22	\$33,518	\$33,518	0.7			
(13) Minority-owned DBE	72	\$115,235	\$115,235	2.3			
(14) Asian Pacific American-owned DBE	17	\$35,783	\$35,783	0.7			
(15) Black American-owned DBE	24	\$15,336	\$15,336	0.3			
(16) Hispanic American-owned DBE	12	\$28,044	\$28,044	0.6			
(17) Native American-owned DBE	13	\$19,709	\$19,709	0.4			
(18) Subcontinent Asian American-owned DBE	6	\$16,362	\$16,362	0.3			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-4.
Time period: 01/01/2016 - 12/31/2019
Contract area: Architecture and engineering
Contract role: Prime contracts and subcontracts
Funding source: Federal and Local

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	281	\$998,497	\$998,497				
(2) Minority and woman-owned businesses	134	\$194,194	\$194,194	19.4	13.1	6.3	148.5
(3) Non-Hispanic white woman-owned	48	\$52,124	\$52,124	5.2	3.2	2.1	165.3
(4) Minority-owned	86	\$142,070	\$142,070	14.2	9.9	4.3	143.1
(5) Asian Pacific American-owned	38	\$76,118	\$76,118	7.6	0.5	7.1	200+
(6) Black American-owned	19	\$18,582	\$18,582	1.9	1.8	0.1	103.0
(7) Hispanic American-owned	22	\$41,954	\$41,954	4.2	0.0	4.2	200+
(8) Native American-owned	4	\$2,547	\$2,547	0.3	7.4	-7.1	3.4
(9) Subcontinent Asian American-owned	3	\$2,870	\$2,870	0.3	0.2	0.1	121.4
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	101	\$108,410	\$108,410	10.9			
(12) Non-Hispanic white woman-owned DBE	25	\$20,570	\$20,570	2.1			
(13) Minority-owned DBE	76	\$87,840	\$87,840	8.8			
(14) Asian Pacific American-owned DBE	34	\$23,047	\$23,047	2.3			
(15) Black American-owned DBE	16	\$17,985	\$17,985	1.8			
(16) Hispanic American-owned DBE	20	\$41,409	\$41,409	4.1			
(17) Native American-owned DBE	4	\$2,547	\$2,547	0.3			
(18) Subcontinent Asian American-owned DBE	2	\$2,853	\$2,853	0.3			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-5.
Time period: 01/01/2016 - 12/31/2019
Contract area: Other professional services
Contract role: Prime contracts and subcontracts
Funding source: Federal and Local

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	88	\$222,600	\$222,600				
(2) Minority and woman-owned businesses	23	\$20,713	\$20,713	9.3	14.3	-5.0	64.9
(3) Non-Hispanic white woman-owned	20	\$10,268	\$10,268	4.6	2.4	2.3	195.9
(4) Minority-owned	3	\$10,444	\$10,444	4.7	12.0	-7.3	39.2
(5) Asian Pacific American-owned	1	\$3,172	\$3,172	1.4	0.0	1.4	200+
(6) Black American-owned	0	\$0	\$0	0.0	8.5	-8.5	0.0
(7) Hispanic American-owned	2	\$7,272	\$7,272	3.3	3.5	-0.2	94.1
(8) Native American-owned	0	\$0	\$0	0.0	0.0	0.0	0.0
(9) Subcontinent Asian American-owned	0	\$0	\$0	0.0	0.0	0.0	100.0
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	14	\$9,914	\$9,914	4.5			
(12) Non-Hispanic white woman-owned DBE	13	\$6,742	\$6,742	3.0			
(13) Minority-owned DBE	1	\$3,172	\$3,172	1.4			
(14) Asian Pacific American-owned DBE	1	\$3,172	\$3,172	1.4			
(15) Black American-owned DBE	0	\$0	\$0	0.0			
(16) Hispanic American-owned DBE	0	\$0	\$0	0.0			
(17) Native American-owned DBE	0	\$0	\$0	0.0			
(18) Subcontinent Asian American-owned DBE	0	\$0	\$0	0.0			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-6.
Time period: 01/01/2016 - 12/31/2019
Contract area: Goods and services
Contract role: Prime contracts and subcontracts
Funding source: Federal and Local

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	246	\$203,289	\$203,289				
(2) Minority and woman-owned businesses	17	\$5,612	\$5,612	2.8	9.7	-7.0	28.3
(3) Non-Hispanic white woman-owned	4	\$1,787	\$1,787	0.9	1.2	-0.4	70.8
(4) Minority-owned	13	\$3,824	\$3,824	1.9	8.5	-6.6	22.1
(5) Asian Pacific American-owned	0	\$0	\$0	0.0	2.7	-2.7	0.0
(6) Black American-owned	1	\$414	\$414	0.2	0.0	0.2	200+
(7) Hispanic American-owned	2	\$3,396	\$3,396	1.7	4.9	-3.2	34.4
(8) Native American-owned	10	\$14	\$14	0.0	0.9	-0.9	0.8
(9) Subcontinent Asian American-owned	0	\$0	\$0	0.0	0.0	0.0	100.0
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	2	\$3,396	\$3,396	1.7			
(12) Non-Hispanic white woman-owned DBE	0	\$0	\$0	0.0			
(13) Minority-owned DBE	2	\$3,396	\$3,396	1.7			
(14) Asian Pacific American-owned DBE	0	\$0	\$0	0.0			
(15) Black American-owned DBE	0	\$0	\$0	0.0			
(16) Hispanic American-owned DBE	2	\$3,396	\$3,396	1.7			
(17) Native American-owned DBE	0	\$0	\$0	0.0			
(18) Subcontinent Asian American-owned DBE	0	\$0	\$0	0.0			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-7.
Time period: 01/01/2016 - 12/31/2019
Contract area: All industries
Contract role: Prime contracts
Funding source: Federal and Local

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	688	\$4,820,771	\$4,820,771				
(2) Minority and woman-owned businesses	78	\$105,255	\$105,255	2.2	3.5	-1.4	61.6
(3) Non-Hispanic white woman-owned	47	\$37,366	\$37,366	0.8	0.5	0.2	146.1
(4) Minority-owned	31	\$67,889	\$67,889	1.4	3.0	-1.6	46.7
(5) Asian Pacific American-owned	2	\$53,840	\$53,840	1.1	0.1	1.0	200+
(6) Black American-owned	7	\$4,665	\$4,665	0.1	0.6	-0.5	15.0
(7) Hispanic American-owned	7	\$9,203	\$9,203	0.2	0.3	-0.1	73.2
(8) Native American-owned	11	\$170	\$170	0.0	2.0	-2.0	0.2
(9) Subcontinent Asian American-owned	4	\$11	\$11	0.0	0.0	0.0	1.4
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	34	\$30,065	\$30,065	0.6			
(12) Non-Hispanic white woman-owned DBE	21	\$20,198	\$20,198	0.4			
(13) Minority-owned DBE	13	\$9,866	\$9,866	0.2			
(14) Asian Pacific American-owned DBE	1	\$3,172	\$3,172	0.1			
(15) Black American-owned DBE	6	\$4,654	\$4,654	0.1			
(16) Hispanic American-owned DBE	4	\$1,881	\$1,881	0.0			
(17) Native American-owned DBE	1	\$156	\$156	0.0			
(18) Subcontinent Asian American-owned DBE	1	\$3	\$3	0.0			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-8.
Time period: 01/01/2016 - 12/31/2019
Contract area: All industries
Contract role: Subcontracts
Funding source: Federal and Local

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	565	\$1,539,227	\$1,539,227				
(2) Minority and woman-owned businesses	256	\$451,903	\$451,903	29.4	22.9	6.4	128.0
(3) Non-Hispanic white woman-owned	89	\$184,282	\$184,282	12.0	2.6	9.4	200+
(4) Minority-owned	167	\$267,621	\$267,621	17.4	20.4	-3.0	85.4
(5) Asian Pacific American-owned	55	\$61,924	\$61,924	4.0	1.4	2.6	200+
(6) Black American-owned	44	\$78,395	\$78,395	5.1	3.5	1.6	144.5
(7) Hispanic American-owned	36	\$78,037	\$78,037	5.1	7.5	-2.4	68.0
(8) Native American-owned	24	\$30,036	\$30,036	2.0	7.8	-5.9	25.0
(9) Subcontinent Asian American-owned	8	\$19,229	\$19,229	1.2	0.1	1.1	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	177	\$240,408	\$240,408	15.6			
(12) Non-Hispanic white woman-owned DBE	39	\$40,631	\$40,631	2.6			
(13) Minority-owned DBE	138	\$199,777	\$199,777	13.0			
(14) Asian Pacific American-owned DBE	51	\$58,830	\$58,830	3.8			
(15) Black American-owned DBE	34	\$28,667	\$28,667	1.9			
(16) Hispanic American-owned DBE	30	\$70,968	\$70,968	4.6			
(17) Native American-owned DBE	16	\$22,100	\$22,100	1.4			
(18) Subcontinent Asian American-owned DBE	7	\$19,212	\$19,212	1.2			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-9.
Time period: 01/01/2016 - 12/31/2019
Contract area: All industries
Contract role: Prime contracts
Funding source: Federal and Local

Large contracts

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	131	\$4,781,129	\$4,781,129				
(2) Minority and woman-owned businesses	18	\$100,781	\$100,781	2.1	3.3	-1.2	64.6
(3) Non-Hispanic white woman-owned	11	\$33,338	\$33,338	0.7	0.4	0.3	166.4
(4) Minority-owned	7	\$67,443	\$67,443	1.4	2.8	-1.4	49.6
(5) Asian Pacific American-owned	2	\$53,840	\$53,840	1.1	0.1	1.0	200+
(6) Black American-owned	2	\$4,464	\$4,464	0.1	0.6	-0.5	14.6
(7) Hispanic American-owned	3	\$9,139	\$9,139	0.2	0.2	0.0	80.2
(8) Native American-owned	0	\$0	\$0	0.0	1.9	-1.9	0.0
(9) Subcontinent Asian American-owned	0	\$0	\$0	0.0	0.0	0.0	0.0
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	9	\$28,238	\$28,238	0.6			
(12) Non-Hispanic white woman-owned DBE	5	\$18,735	\$18,735	0.4			
(13) Minority-owned DBE	4	\$9,503	\$9,503	0.2			
(14) Asian Pacific American-owned DBE	1	\$3,172	\$3,172	0.1			
(15) Black American-owned DBE	2	\$4,464	\$4,464	0.1			
(16) Hispanic American-owned DBE	1	\$1,867	\$1,867	0.0			
(17) Native American-owned DBE	0	\$0	\$0	0.0			
(18) Subcontinent Asian American-owned DBE	0	\$0	\$0	0.0			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-10.
Time period: 01/01/2016 - 12/31/2019
Contract area: All industries
Contract role: Prime contracts
Funding source: Federal and Local

Small contracts

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	557	\$39,642	\$39,642				
(2) Minority and woman-owned businesses	60	\$4,474	\$4,474	11.3	37.4	-26.1	30.2
(3) Non-Hispanic white woman-owned	36	\$4,028	\$4,028	10.2	14.0	-3.8	72.7
(4) Minority-owned	24	\$446	\$446	1.1	23.4	-22.3	4.8
(5) Asian Pacific American-owned	0	\$0	\$0	0.0	2.8	-2.8	0.0
(6) Black American-owned	5	\$200	\$200	0.5	1.5	-1.0	33.2
(7) Hispanic American-owned	4	\$65	\$65	0.2	3.0	-2.8	5.5
(8) Native American-owned	11	\$170	\$170	0.4	15.5	-15.0	2.8
(9) Subcontinent Asian American-owned	4	\$11	\$11	0.0	0.7	-0.7	3.9
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	25	\$1,827	\$1,827	4.6			
(12) Non-Hispanic white woman-owned DBE	16	\$1,464	\$1,464	3.7			
(13) Minority-owned DBE	9	\$364	\$364	0.9			
(14) Asian Pacific American-owned DBE	0	\$0	\$0	0.0			
(15) Black American-owned DBE	4	\$190	\$190	0.5			
(16) Hispanic American-owned DBE	3	\$15	\$15	0.0			
(17) Native American-owned DBE	1	\$156	\$156	0.4			
(18) Subcontinent Asian American-owned DBE	1	\$3	\$3	0.0			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-11.

Time period: 01/01/2016 - 12/31/2019

Contract area: All industries

Contract role: Prime contracts and subcontracts

Funding source: Federal

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	994	\$5,296,275	\$5,296,275				
(2) Minority and woman-owned businesses	238	\$364,836	\$364,836	6.9	7.4	-0.5	93.4
(3) Non-Hispanic white woman-owned	95	\$158,078	\$158,078	3.0	1.0	2.0	200+
(4) Minority-owned	143	\$206,757	\$206,757	3.9	6.4	-2.5	60.8
(5) Asian Pacific American-owned	39	\$36,713	\$36,713	0.7	0.4	0.3	161.8
(6) Black American-owned	33	\$54,797	\$54,797	1.0	1.3	-0.3	78.0
(7) Hispanic American-owned	36	\$79,559	\$79,559	1.5	1.8	-0.3	85.3
(8) Native American-owned	27	\$18,627	\$18,627	0.4	2.9	-2.5	12.3
(9) Subcontinent Asian American-owned	8	\$17,061	\$17,061	0.3	0.0	0.3	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	153	\$207,246	\$207,246	3.9			
(12) Non-Hispanic white woman-owned DBE	46	\$56,094	\$56,094	1.1			
(13) Minority-owned DBE	107	\$151,151	\$151,151	2.9			
(14) Asian Pacific American-owned DBE	37	\$36,016	\$36,016	0.7			
(15) Black American-owned DBE	25	\$19,880	\$19,880	0.4			
(16) Hispanic American-owned DBE	28	\$65,219	\$65,219	1.2			
(17) Native American-owned DBE	11	\$12,983	\$12,983	0.2			
(18) Subcontinent Asian American-owned DBE	6	\$17,054	\$17,054	0.3			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-12.

Time period: 01/01/2016 - 12/31/2019

Contract area: All industries

Contract role: Prime contracts and subcontracts

Funding source: Local

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	259	\$1,063,723	\$1,063,723				
(2) Minority and woman-owned businesses	96	\$192,322	\$192,322	18.1	12.5	5.5	144.1
(3) Non-Hispanic white woman-owned	41	\$63,569	\$63,569	6.0	1.4	4.6	200+
(4) Minority-owned	55	\$128,752	\$128,752	12.1	11.2	0.9	108.5
(5) Asian Pacific American-owned	18	\$79,051	\$79,051	7.4	0.5	6.9	200+
(6) Black American-owned	18	\$28,263	\$28,263	2.7	1.4	1.2	186.7
(7) Hispanic American-owned	7	\$7,681	\$7,681	0.7	3.2	-2.5	22.5
(8) Native American-owned	8	\$11,579	\$11,579	1.1	5.9	-4.9	18.3
(9) Subcontinent Asian American-owned	4	\$2,178	\$2,178	0.2	0.1	0.1	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	58	\$63,227	\$63,227	5.9			
(12) Non-Hispanic white woman-owned DBE	14	\$4,735	\$4,735	0.4			
(13) Minority-owned DBE	44	\$58,492	\$58,492	5.5			
(14) Asian Pacific American-owned DBE	15	\$25,987	\$25,987	2.4			
(15) Black American-owned DBE	15	\$13,441	\$13,441	1.3			
(16) Hispanic American-owned DBE	6	\$7,631	\$7,631	0.7			
(17) Native American-owned DBE	6	\$9,273	\$9,273	0.9			
(18) Subcontinent Asian American-owned DBE	2	\$2,161	\$2,161	0.2			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-13.

Time period: 01/01/2016 - 12/31/2019

Contract area: All industries

Contract role: Prime contracts and subcontracts

Funding source: Federal and Local

Goals

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	349	\$3,785,642	\$3,785,642				
(2) Minority and woman-owned businesses	139	\$260,332	\$260,332	6.9	5.9	1.0	116.5
(3) Non-Hispanic white woman-owned	48	\$123,172	\$123,172	3.3	0.7	2.5	200+
(4) Minority-owned	91	\$137,160	\$137,160	3.6	5.2	-1.5	70.2
(5) Asian Pacific American-owned	30	\$30,190	\$30,190	0.8	0.3	0.5	200+
(6) Black American-owned	20	\$24,926	\$24,926	0.7	0.9	-0.2	72.9
(7) Hispanic American-owned	25	\$61,175	\$61,175	1.6	1.4	0.2	117.7
(8) Native American-owned	14	\$16,113	\$16,113	0.4	2.5	-2.1	16.7
(9) Subcontinent Asian American-owned	2	\$4,756	\$4,756	0.1	0.0	0.1	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	100	\$150,358	\$150,358	4.0			
(12) Non-Hispanic white woman-owned DBE	27	\$34,310	\$34,310	0.9			
(13) Minority-owned DBE	73	\$116,049	\$116,049	3.1			
(14) Asian Pacific American-owned DBE	29	\$29,499	\$29,499	0.8			
(15) Black American-owned DBE	14	\$15,304	\$15,304	0.4			
(16) Hispanic American-owned DBE	19	\$54,106	\$54,106	1.4			
(17) Native American-owned DBE	9	\$12,383	\$12,383	0.3			
(18) Subcontinent Asian American-owned DBE	2	\$4,756	\$4,756	0.1			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-14.

Time period: 01/01/2016 - 12/31/2019

Contract area: All industries

Contract role: Prime contracts and subcontracts

Funding source: Federal and Local

No goals

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	904	\$2,574,356	\$2,574,356				
(2) Minority and woman-owned businesses	195	\$296,825	\$296,825	11.5	11.7	-0.1	98.7
(3) Non-Hispanic white woman-owned	88	\$98,475	\$98,475	3.8	1.5	2.4	200+
(4) Minority-owned	107	\$198,350	\$198,350	7.7	10.2	-2.5	75.4
(5) Asian Pacific American-owned	27	\$85,575	\$85,575	3.3	0.6	2.7	200+
(6) Black American-owned	31	\$58,134	\$58,134	2.3	2.0	0.3	113.6
(7) Hispanic American-owned	18	\$26,065	\$26,065	1.0	2.9	-1.9	34.6
(8) Native American-owned	21	\$14,093	\$14,093	0.5	4.6	-4.1	11.9
(9) Subcontinent Asian American-owned	10	\$14,484	\$14,484	0.6	0.1	0.5	200+
(10) Unknown minority-owned	0	\$0					
(11) Minority-owned or woman-owned DBE	111	\$120,115	\$120,115	4.7			
(12) Non-Hispanic white woman-owned DBE	33	\$26,520	\$26,520	1.0			
(13) Minority-owned DBE	78	\$93,595	\$93,595	3.6			
(14) Asian Pacific American-owned DBE	23	\$32,504	\$32,504	1.3			
(15) Black American-owned DBE	26	\$18,017	\$18,017	0.7			
(16) Hispanic American-owned DBE	15	\$18,743	\$18,743	0.7			
(17) Native American-owned DBE	8	\$9,872	\$9,872	0.4			
(18) Subcontinent Asian American-owned DBE	6	\$14,459	\$14,459	0.6			
(19) Unknown minority-owned DBE	0	\$0					

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.

*Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Source: BBC Research & Consulting Disparity Analysis.

Figure C-15.
 Time period: 01/01/2016 - 12/31/2019
 Contract area: All industries
 Contract role: Prime contracts and subcontracts
 Funding source: Federal

Analysis of potential DBEs

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	994	\$5,296,275	\$5,296,275				
(2) Minority and woman-owned businesses					5.0		
(3) Non-Hispanic white woman-owned					1.0		
(4) Minority-owned					4.0		
(5) Asian Pacific American-owned					0.4		
(6) Black American-owned					0.7		
(7) Hispanic American-owned					1.4		
(8) Native American-owned					1.4		
(9) Subcontinent Asian American-owned					0.0		
(10) Unknown minority-owned							

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.
 *Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-16.
 Time period: 01/01/2016 - 12/31/2019
 Contract area: Construction
 Contract role: Prime contracts and subcontracts
 Funding source: Federal

Analysis of potential DBEs

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	492	\$4,154,297					
(2) Minority and woman-owned businesses					4.5		
(3) Non-Hispanic white woman-owned					0.5		
(4) Minority-owned					4.0		
(5) Asian Pacific American-owned					0.3		
(6) Black American-owned					0.1		
(7) Hispanic American-owned					1.8		
(8) Native American-owned					1.7		
(9) Subcontinent Asian American-owned					0.0		
(10) Unknown minority-owned							

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.
 *Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-17.
 Time period: 01/01/2016 - 12/31/2019
 Contract area: Architecture and engineering
 Contract role: Prime contracts and subcontracts
 Funding source: Federal

Analysis of potential DBEs

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	205	\$723,115	\$723,115				
(2) Minority and woman-owned businesses					6.0		
(3) Non-Hispanic white woman-owned					3.2		
(4) Minority-owned					2.9		
(5) Asian Pacific American-owned					0.5		
(6) Black American-owned					2.2		
(7) Hispanic American-owned					0.0		
(8) Native American-owned					0.0		
(9) Subcontinent Asian American-owned					0.2		
(10) Unknown minority-owned							

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.
 *Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-18.
Time period: 01/01/2016 - 12/31/2019
Contract area: Other professional services
Contract role: Prime contracts and subcontracts
Funding source: Federal

Analysis of potential DBEs

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	72	\$217,222					
(2) Minority and woman-owned businesses					10.6		
(3) Non-Hispanic white woman-owned					1.9		
(4) Minority-owned					8.7		
(5) Asian Pacific American-owned					0.0		
(6) Black American-owned					8.7		
(7) Hispanic American-owned					0.0		
(8) Native American-owned					0.0		
(9) Subcontinent Asian American-owned					0.0		
(10) Unknown minority-owned							

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.
 *Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.

Figure C-19.
 Time period: 01/01/2016 - 12/31/2019
 Contract area: Goods and services
 Contract role: Prime contracts and subcontracts
 Funding source: Federal

Analysis of potential DBEs

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	225	\$201,641					
(2) Minority and woman-owned businesses					4.9		
(3) Non-Hispanic white woman-owned					1.2		
(4) Minority-owned					3.7		
(5) Asian Pacific American-owned					2.7		
(6) Black American-owned					0.0		
(7) Hispanic American-owned					0.0		
(8) Native American-owned					0.9		
(9) Subcontinent Asian American-owned					0.0		
(10) Unknown minority-owned							

Note: Numbers are rounded to the nearest thousand dollars or tenth of 1 percent. "Woman-owned" refers to non-Hispanic white woman-owned businesses.
 *Unknown minority-owned businesses and unknown minority-owned DBEs were allocated to minority and DBE 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. In addition, column c was adjusted for the sampling weights for the contract elements that the Agency awarded.