

2024-2026

**FEDERAL HIGHWAY
ADMINISTRATION
DBE METHODOLOGY &**



pennsylvania
DEPARTMENT OF TRANSPORTATION

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Executive Summary of the DBE Goal Setting Methodology

BACKGROUND

The guiding principle for determining the DBE goal is stated in 49 C.F.R. § 26.45(b):

"The goal must reflect [PennDOT's] ... determination of the level of DBE participation [PennDOT] ... would expect absent the effects of discrimination." In making this determination, PennDOT is instructed that the "overall goal must be based on demonstrable evidence of the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on DOT-assisted contracts."

The regulation requires that the overall goal be determined by a two-step process. **Table 1** provides a summary of PennDOT's DBE goal-setting process.

Table 1: Summary of PennDOT's DBE goal-setting process

PennDOT FY 2024-26 DBE Methodology		
Step-1: Base Figure	Ready, Willing & Able DBEs	<ul style="list-style-type: none"> • PennDOT prequalification/qualification/bulletins lists • Selected DBE firms from Pennsylvania UCP list
	Submarkets	<ul style="list-style-type: none"> • Construction (Primes, Subs, Suppliers) and Professional Services • Prime and Subcontractors = raw count from PennDOT prequalification lists plus selected firms from the Pennsylvania UCP list • Suppliers = Unduplicated count of firms from Supplier bulletins plus selected firms from the Pennsylvania UCP list • Professional Services = Raw counts of firms that have submitted qualification packages to ECMS plus selected firms from UCP list
Step-2: Adjustments to the Base Figure	Local Market Adjustment	Tailored geographic market(s) <ul style="list-style-type: none"> • Firms identified as women- or minority-owned in Dunn & Bradstreet; weighted by NAICS code frequency; race-neutrality measure; highest of potential or actual
	Disparity Adjustment	<ul style="list-style-type: none"> • Adjust DBE dollars for business ownership disparity adjustment
	Past Participation	<ul style="list-style-type: none"> • Adjust submarket ratios for past participation
Final Goal Calculation	Weighting	<ul style="list-style-type: none"> • Weighted ratios by market distribution of dollars
	Goal Calculation	<ul style="list-style-type: none"> • Final Submarket Goal Calculation • Final Overall Goal Calculation • Race-Neutral/Race-Conscious Projections

SUMMARY OF THE DBE GOAL CALCULATION

STEP-1 – BASE FIGURE CALCULATION (49 C.F.R. PART 26.45(C))

Per the regulations, PennDOT calculates a base figure as a measure of the availability of DBE firms relative to each of PennDOT’s four submarkets (Prime Contractors, Subcontractors, Suppliers, and Professional Services). This *DBE relative availability* ensures the goal is sufficiently narrowly tailored per the federal regulations. **Figure 1** shows the key steps to calculating the base figure. See the Detailed Discussion Section and Appendix B: Technical Addendum for more information.

KEY STEPS TO CALCULATING THE BASE FIGURE:

1. Identify all ready, willing, and able (RWA) firms (DBE firms and non-DBE firms) from PennDOT prequalification/qualification lists and bulletins.
2. Identify additional RWA DBE firms from PA UCP list.
3. Calculate the relative availability in each submarket.
4. Weight each submarket according to PennDOT expenditures.

Figure 1: Key Steps to Calculating the Base Figure

Step-1 calls for the calculation of a base figure reflecting the relative availability of DBEs to perform the work that is intended to be let within the local marketplace. This calculation ensures that the goal reflects the anticipated spending over the life of the triennial DBE goal. Figure 1 outlines the four key steps PennDOT followed to determine this percentage. First, PennDOT defined the relevant geographic **local market area** for all federally-assisted contracting. This market varies by submarket depending on the market’s contractor and expenditure history.

Next, PennDOT identified the number of **ready, willing, and able (RWA)** firms (DBEs and non-DBEs) within each submarket. This process begins using prequalification/qualification lists and bulletins, and then goes beyond these lists of known firms to include additional DBE firms from the Pennsylvania UCP (Unified Certification Program) list. Dividing the total number of **RWA DBE firms** by **all RWA firms** in the **enterprise universe (EU)**, or the total of all DBE and non-DBE firms, yielded PennDOT’s **DBE baseline ratios** for each submarket. **Figure 2** illustrates this calculation.

$$\frac{\text{RWA DBE firms}}{\text{All RWA firms (EU)}} = \text{DBE Baseline Ratio}$$

Figure 2: DBE Submarket Baseline Ratio calculation

Step-1 baseline ratios for each submarket were then weighted according to projected spending in each submarket to yield the overall **Step-1 base figure**.

STEP-2 – ADJUSTMENTS TO THE BASE FIGURE (49 C.F.R. PART 26.45(D))

Per the FHWA “Tips for Goal-Setting in the Disadvantaged Business Enterprise (DBE) Program” (TIPS), PennDOT adjusted the baseline ratio based on firms’ “size, age, [and] past experience...to account for any impact these factors might have on the capacity of firms to perform [Department] contracts.” PennDOT examined all relevant evidence in its jurisdiction to determine what adjustments to the base figure, if any, were needed to arrive at the overall goal. Based on the data and information available, PennDOT opted to incorporate three adjustments in Step-2.

ADJUSTMENTS TO THE STEP-1 BASE FIGURE INVOLVE THE FOLLOWING KEY STEPS:

1. Adjust for potential local market contracting barriers.
2. Adjust for disparity in business ownership.
3. Adjust for DBE past participation.

In the first Step-2 adjustment, PennDOT performs a local market analysis of potential or “would be” DBEs to identify submarkets where DBEs are underrepresented relative to the broader market. This analysis quantifies the effects of any discriminatory barriers that potential DBE firms may face *related to PennDOT’s contracting program*. Based on this local market analysis of potential DBEs, PennDOT may apply a **local market adjustment** to the submarket baseline ratios to account for those discriminatory effects.

In the second Step-2 adjustment, PennDOT addresses disparity concerns noted in the most recent Disparity Study (2018). As a result, PennDOT’s adjusts the dollars associated with anticipated spending for DBE firms in the overall goal calculation to address these concerns regarding disparity. This **disparity adjustment** is intended to address the barriers women- and minority-owned firms (certified DBEs as well as “would be” DBEs absent the barriers that prevent them from entering the program) face in *obtaining employment experience and forming businesses, as well as barriers in obtaining bonding, financing, and insurance*.

Finally, PennDOT compared its Disparity-Adjusted Ratio to its Past DBE Participation. The TIPS advise Departments of Transportation (DOTs) to adjust ratios up or down if the calculated ratio is different from *median past DBE participation*. The third and final Step-2 adjustment is for **DBE past participation**.

LOCAL MARKET ADJUSTMENT

PennDOT defined the relevant geographic **local market area** for all federally-assisted contracting in Step-1. As noted in Step-1, this market varies by submarket depending on the market's contractor and expenditure history. Variations also occur in the ratio of actual and potential DBEs when considering woman- and minority-owned firms that exist within the geographic market area but do not participate in PennDOT's federally-assisted contracting opportunities.

PennDOT performs an analysis of potential or "would be" DBEs to identify submarkets where DBEs are underrepresented relative to the broader market. This analysis of potential DBE quantifies the effects of any discriminatory barriers that DBE firms may face related to PennDOT's contracting program. Based on the analysis of potential DBEs, the submarket baseline ratios may be adjusted to account for those discriminatory effects.

To identify potential DBEs within the geographic market areas, PennDOT assumed that absent discrimination in PennDOT's contracting processes, the ratio of PennDOT DBE firms to all women and minority-owned (WMO) firms would be the same or higher than the ratio of PennDOT non-DBE firms to all non-WMO firms in the same geographic market. Therefore, the ratio of PennDOT non-DBE firms to all non-WMO firms is a **Measure of Race-Neutrality (MRN)**.

In order to best reflect the number of available (actual and potential) DBEs in the calculation of the goal, the higher of the PennDOT Preliminary DBE Ratio and the DBE local market ratio becomes the Baseline Ratio for each submarket. If the ratio of PennDOT DBEs to the market's WMO firms is equal to or higher than the MRN, that means PennDOT is doing a good job of recruiting and including DBEs. If the ratio is lower, efforts in the recruitment and inclusion of DBEs may need to be strengthened. **Figure 3** illustrates this logic for adjusting the Baseline Ratio for potential DBEs in each submarket.

For each Submarket if:
Preliminary Baseline Ratio > Local Market Ratio
Preliminary Baseline Ratio = Submarket Baseline Ratio
or
Local Market Ratio > Preliminary Baseline Ratio
Local Market Ratio = Submarket Baseline Ratio

Figure 3: Determining the Adjusted Baseline Ratio by Submarket

ADJUSTMENT FOR DISPARITY (49 C.F.R. PART 26.45(D)(1)(II))

In 2018 PennDOT retained the services of BBC Research & Consulting (BBC) to conduct a disparity study. This study was intended to help inform PennDOT’s implementation of the Federal Disadvantaged Business Enterprise (DBE) Program and the state’s transportation-focused Diverse Business (DB) Program. This disparity study focused on horizontal construction and construction-related engineering and professional services contracts.

The study’s results indicated that the number of DBEs would be greater absent discrimination. While the 2018 Disparity Study data is already 6 years old, it is the best available data at this writing. PennDOT is currently working on a new Disparity Study and will incorporate those findings appropriately in future inline corrections and methodology updates. For this methodology and goal, PennDOT has incorporated data from this study through a variation of their “disparity index” to help refine its goal-setting methodology. This variation adds a **disparity adjustment**, calculated from the findings of the disparity study, to the Step-1 Baseline Ratio. This disparity difference is calculated as follows:

Construction:

(Primes, Subs, and Suppliers) 17.3% - 9.3% = **8% disparity difference**

Professional Services: 15.8% - 11.3% = **4.5% disparity difference**

The Baseline Ratios for each market were adjusted for disparity and weighted according to the previous year’s expenditures. The sum of the initial Weighted Disparity-Adjusted Ratios shown in **Table 2**.

Table 2: Disparity Adjustment Calculations

Submarket	Baseline Ratio	Disparity Adjustment	Disparity Adjusted Ratio	Weight (Market Category portion of Total Expenditures)	Weighted Disparity-Adjusted Ratios
Professional Services	0.33127	1.045	0.34618	0.15013	0.05197
Prime contractors	0.05297	1.08	0.05721	0.58594	0.03352
Subcontractors	0.21893	1.08	0.23644	0.14666	0.03468
Suppliers	0.22728	1.08	0.24546	0.11727	0.02879
Notes: The numbers in this table have been rounded for display purposes		Total Expenditures 1 or 100%			0.14895 or 14.90%

**Numbers are rounded for display purposes.*

ADJUSTMENT FOR PAST PARTICIPATION

PennDOT compared its Disparity-Adjusted Ratio to its Past DBE Participation. Past participation is taken from the Uniform Report of DBE Commitments/ Awards and Payments submitted semi-annually to FHWA. The TIPS advise Departments of Transportation (DOTs) to adjust ratios up or down if the calculated ratio is different from median past DBE participation. This past participation adjustment reduced the weighted disparity-adjusted ratio for each to **0.84322** of its original calculation based on the average of the original disparity-adjusted goal and the median past participation. That factor was applied to both the Construction and Professional Services disparity-adjusted ratios to produce the final submarket goals. The **Table 3** shows how the past participation adjustment is calculated using the median past participation rates for the last five full federal fiscal years.

Table 3: Past Participation Adjustment

A	B	C	D	E
FFY	DBE Participation	Original Disparity - Adjusted Goal	Past Participation Adjusted Goal (Average B & C)	Past Participation Adjustment Factor (D/C)
2018	7.98%			
2019	10.23%			
2020	14.18%			
2021	13.61%			
2022	8.76%			
Median Past Participation	10.23%	14.90%	12.56%	0.83422

**Numbers are rounded for display purposes.*

FINAL GOAL CALCULATION (49 C.F.R. PART 26.45(E))

CONSTRUCTION MARKET GOAL

The construction market includes Primes, Subs, and Suppliers as submarkets. These individual submarket ratios were adjusted for past participation to yield a disparity & participation adjusted ratio. Then, these ratios were combined into a single, overall construction market goal. The resulting combined goal for this market is **0.09623** or **9.62%** as shown in **Table 4**. A detailed explanation of this calculation in **Appendix B**.

Table 4: Construction Market Goal Calculation

Construction Submarkets	Disparity Adjusted Ratio	Past Participation Factor	Disparity & Participation-Adjusted Ratio	Construction Submarket Weight	Weight within Market (submarket weight divided by sum of submarket weights)	Construction Weighted Ratios
Primes	0.05721	0.84332	0.04824	0.58594	0.68944	0.03326

Construction Submarkets	Disparity Adjusted Ratio	Past Participation Factor	Disparity & Participation-Adjusted Ratio	Construction Submarket Weight	Weight within Market (submarket weight divided by sum of submarket weights)	Construction Weighted Ratios
Subs	0.23644	0.84332	0.19940	0.14666	0.17257	0.03441
Suppliers	0.24546	0.84332	0.20700	0.11727	0.13798	0.02856
Total				0.84987	1.00000	0.9623 or 9.62%

**Numbers are rounded for display purposes.*

PROFESSIONAL SERVICES MARKET GOAL

Similar to the final Construction Market goal, the Professional Services ratio is adjusted for past participation to yield a disparity & participation adjusted ratio resulting in a final goal for this market of **0.29194** or **29.19%** as shown in **Table 5** below.

Table 5: Professional Services Market Goal Calculation

Professional Services Submarket	Disparity Adjusted Ratio*	Past Participation Factor	Professional Services Weighted Ratio
Professional Services	0.34618	0.84332	0.29194 or 29.19%

**Numbers are rounded for display purposes.*

FINAL OVERALL GOAL

These adjusted and weighted submarket ratios were summed, resulting in an overall goal as shown in **Table 6**. The total of all weighted ratios is the total portion of federal funds that, absent discrimination, should be spent directly or indirectly on DBE work.

Table 6: Final Overall Goal Calculation

Submarket	Disparity & Participation-Adjusted Ratio	Submarket Weightings	Adjusted & Weighted Ratios
Professional Services	0.29194	0.15013	0.04383
Prime Contractors	0.04824	0.58594	0.02827
Subcontractors	0.19940	0.14666	0.02924
Suppliers	0.20700	0.11727	0.02427
Overall Goal		1.0	0.12561 or 12.56%

**Numbers are rounded for display purposes.*

PennDOT estimates awarding an annual average of \$2,470,959,195 in contracts during the triennial period. The calculated goal represents \$310,387,055 in payments to DBEs annually.

$$\$2,470,959,195 \times 0.12561 = \$310,387,055 *$$

**The final goal represents rounded calculations.*

RACE-NEUTRAL/RACE-CONSCIOUS ALLOCATION (49 C.F.R. PART 26.45C)

Race- and gender-neutral measures are calculations that are designed to encourage the participation of all small businesses in PennDOT contracting. In contrast, race- and gender-conscious measures are designed to encourage the participation of DBEs in PennDOT contracting.

- PennDOT designated an amount equivalent to the median race-neutral attainment (0.91%) for the previous five (5) years as the race-neutral portion of the goal.
- Subtracting the race-neutral portion of the goal from the overall goal yields 11.65% for the race-conscious portion.

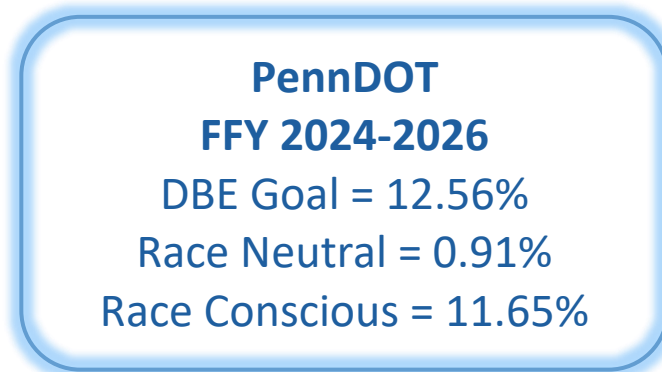


Figure 4: Final PennDOT DBE Goal

DETAILED DISCUSSION OF PENNDOT'S DBE GOAL SETTING METHODOLOGY AND RACE-NEUTRAL/RACE-CONSCIOUS PROJECTIONS

BACKGROUND

This triennial DBE goal and goal-setting methodology was developed by The Pennsylvania Department of Transportation (PennDOT) in accordance with the federal regulatory mandate as set forth in Title 49 Code of Federal Regulations (Part 26), and the guidance provided in the *Tips for Goal-Setting in the Disadvantaged Business Enterprise (DBE) Program (TIPS)* published by the U.S. Department of Transportation, Office of Small and Disadvantaged Business Utilization. While PennDOT establishes a formal DBE goal and methodology every three years, interim reviews or mid-course “inline corrections” are conducted annually to assess market conditions and to ensure that the triennial goal satisfies the objectives and regulatory requirements of the DBE program.

This document is divided into three primary sections:

1. **Overview of the Goal-Setting Process** – Provides a brief background regarding the federal regulation governing the DBE program, a summary of the process used to establish the DBE goal, and a final statement of the proposed DBE goal for FFY-2024-26.
2. **Detailed Discussion of PennDOT's DBE Goal-Setting Methods and Race-Neutral/Race-Conscious Projections** – Provides a more detailed explanation of the goal setting process, including actual steps involved in the process of the DBE goal-setting methods, including data sources, consultation & outreach, administration, implementation, and monitoring efforts, and
3. **Appendices** - Include a list of terminology and definitions, along with a technical addendum showing the calculations from which the goal was derived.

OVERVIEW OF THE GOAL-SETTING PROCESS

THE REGULATORY MANDATE (49 C.F.R. PART 26.1)

All state departments of transportation (state DOTs) are required to submit triennial overall goals for DBE participation using the two-step goal-setting process set forth in Section 26.45 of Part 26. This process is intended to address the following DBE program objectives as defined by 49 C.F.R. Part 26.1:

- Ensure nondiscrimination in the award and administration of DOT-assisted contracts in highway, transit, and airport financial assistance programs;
- Create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;

- Ensure that the DOT’s DBE program is narrowly tailored in accordance with applicable law;
- Ensure that only firms that fully meet eligibility standards are permitted to participate as DBEs;
- Help remove barriers to the participation of DBEs in DOT-assisted contracts;
- Assist in the development of firms so that they can compete successfully in the marketplace outside the DBE program; and
- Provide appropriate flexibility to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.

In keeping with the above objectives, this methodology considers relevant data in determining the level of participation that PennDOT could expect in the absence of discrimination or other socio-economic barriers. In accordance with Section 26.45 of Part 26, the DBE goal-setting process involves establishing a base figure for the relative availability of DBEs in the market; describing the evidence with which it was calculated; making adjustments to that figure to make it as precise as possible, where appropriate; and describing the evidence relied upon for such adjustments. As an extension of this process, Section 26.45 requires that state DOT’s meet the “maximum feasible portion” of its overall DBE utilization goal through *race-neutral means of facilitating race-neutral DBE participation*.

Under Part 26, goals must be established and submitted to the Federal Highway Administration (FHWA) on a triennial basis. This methodology details PennDOT’s approach for setting the overall DBE goal and maximizing race-neutral means for attainment of that goal for the federal fiscal years 2024 through 2026.

SUMMARY OF PENNDOT’S TWO-STEP GOAL-SETTING EFFORT

PennDOT’s DBE goal setting methodology employs the two-step process set forth in Section 26.45. In addition, PennDOT projected percentages of the overall goal to be attributed to both *race-neutral* and *race-conscious* means required by Sections 26.45 and 26.51. **Table 7** provides an overview of this DBE goal-setting process.

Table 7: Summary of PennDOT's DBE goal-setting process

PennDOT FY 2024-26 DBE Methodology		
Step-1: Base Figure	Ready, Willing & Able DBEs	<ul style="list-style-type: none"> • PennDOT prequalification/qualification/bulletins lists • Selected DBE firms from Pennsylvania UCP list
	Submarkets	<ul style="list-style-type: none"> • Construction (Primes, Subs, Suppliers) and Professional Services • Prime and Subcontractors = raw count from PennDOT prequalification lists plus selected firms from the Pennsylvania UCP list

		<ul style="list-style-type: none"> Suppliers = Unduplicated count of firms from Supplier bulletins plus selected firms from the Pennsylvania UCP list Professional Services = Raw counts of firms that have submitted qualification packages to ECMS plus selected firms from UCP list
Step-2: Adjustments to the Base Figure	Local Market Adjustment	Tailored geographic market(s) <ul style="list-style-type: none"> Firms identified as women- or minority-owned in Dunn & Bradstreet; weighted by NAICS code frequency; race-neutrality measure; highest of potential or actual
	Disparity Adjustment	<ul style="list-style-type: none"> Adjust DBE dollars for business ownership disparity adjustment
	Past Participation	<ul style="list-style-type: none"> Adjust submarket ratios for past participation
Final Goal Calculation	Weighting	<ul style="list-style-type: none"> Weighted ratios by market distribution of dollars
	Goal Calculation	<ul style="list-style-type: none"> Final Submarket Goal Calculation Final Overall Goal Calculation Race-Neutral/Race-Conscious Projections

STEP-1 – BASE FIGURE CALCULATION (49 C.F.R. PART 26.45(c))

Step-1 calls for "determining a base figure for the relative availability of DBEs" (49 C.F.R. § 26.45(c)). "Relative availability of DBEs" means "the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on DOT-assisted contracts" (49 C.F.R. § 26.49(b)). Per the regulations, PennDOT calculates a base figure as a measure of the availability of DBE firms relative to each of PennDOT's four submarkets (Prime Contractors, Subcontractors, Suppliers, and Professional Services). This *DBE relative availability* ensures the goal is sufficiently narrowly tailored per the federal regulations. **Figure 5** shows the key steps to calculating the base figure. See the Detailed Discussion Section and Appendix B: Technical Addendum for more information.

KEY STEPS TO CALCULATING THE BASE FIGURE:

1. Identify all ready, willing, and able (RWA) firms (DBE firms and non-DBE firms) from PennDOT prequalification/qualification lists and bulletins.
2. Identify additional RWA DBE firms from PA UCP list.
3. Calculate the relative availability in each submarket.
4. Weight each submarket according to PennDOT expenditures.

Figure 5: Key Steps to Calculating the Base Figure

DBEs perform work for PennDOT within four submarkets for which the determination was intended. These submarkets are defined below:

Professional Services ("PS") - business enterprises that perform engineering or consultant inspection of highway construction work.

Prime Contactors ("P") - business enterprises that perform highway construction work by contracting directly with PennDOT.

Subcontractors ("S") - business enterprises that perform highway construction work by only contracting with Prime Contractors.

Suppliers ("SP") - business enterprises that manufacture and/or sell materials used in the performance of highway construction work.

PENNDOT READY, WILLING, AND ABLE FIRMS

The Step-1 Base Figure calculation began by first determining the total number of PennDOT ready, willing, and able enterprise firms or units ("Enterprise Units") and the number of ready, willing, and able Disadvantaged Business Enterprise firms or units ("DBE Units") in each of the four submarket categories. The federal regulation does not contain a definition of "ready, willing, and able." However, PennDOT crafted its own definition, which was presented as part of the "Overview of the Goal Setting Process" and in **Appendix A**.

PennDOT developed a definition of "ready, willing, and able" (RWA) based on firms that demonstrate they are ready, willing, and able to bid for the types of work projected to be funded by PennDOT throughout the next three years. Firms are considered "ready" when they perform a trade, function or service that may be utilized on PennDOT's federally-assisted contracts; "willing" when they have either performed or expressed a bona fide interest in performing a function on PennDOT's federally-assisted contracts or through our PA UCP partner organizations; and "Able" when they have or plan to fulfill PennDOT's requirements to participate in the performance of its federally-assisted contracts including becoming a registered Business Partner.

Once all RWA firms have been identified, PennDOT identified those that are DBE firms and utilized that figure to calculate the relative availability of DBEs to perform federally-assisted work within each submarket.

The following steps outline the process for determining RWA firms:

1. Identify the enterprise universe (EU) of RWA firms by submarket.

Professional Services-

Firms who had submitted qualification packages to ECMS listing at least one engineering work type; or currently certified DBE firms who had submitted qualification packages listing at least one engineering work type in the last year.

Construction Prime Contractors-

- Prime firms listed on PennDOT’s prequalification list.
- Currently certified DBE firms which had performed prime contracting work in surrounding states.

Construction Subcontractors-

- Subcontractors listed on PennDOT’s prequalification list.
- Currently certified DBE firms which had been on the prequalification list within the last year.

Construction Suppliers-

- Suppliers listed in PennDOT’s bulletins 14, 15, 41, and 42.
 - DBE suppliers listed on PennDOT’s list of approved DBE Suppliers.
 - Currently certified DBE suppliers that had appeared on PennDOT’s DBE Supplier list within the last year.
 - Lists were compared to eliminate duplicates.
2. Identify all RWA DBE firms listed in PennDOT’s DBE directory as a subset of the universe of RWA firms within each submarket.
 3. Identify additional DBE firms as determined by the Pennsylvania Unified Certification Program (UCP).
 4. Eliminate any firms (DBE and non- DBE) that are:
 - Facing imminent decertification (DBEs only),
 - No longer in business, or
 - Lack the requisite requirements to perform work on PennDOT contracts.

PRELIMINARY STEP-1 BASELINE RATIOS

To calculate the Preliminary Baseline Ratios for each submarket, the number of DBE units was divided by the total number of Enterprise Units (EU) to arrive at the baseline ratio as shown in **Figure 6**.

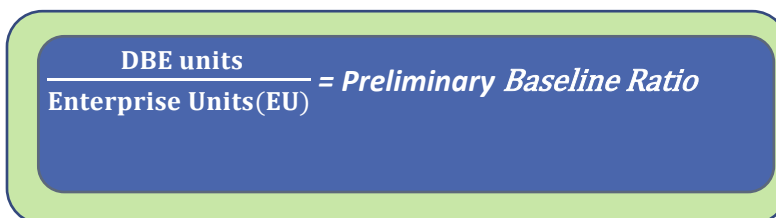

$$\frac{\text{DBE units}}{\text{Enterprise Units(EU)}} = \text{Preliminary Baseline Ratio}$$

Figure 6: Preliminary Step-1 Baseline Ratio Calculation

This provides the Step-1 preliminary baseline ratio, or the preliminary calculation of the level of DBE participation one would expect in each submarket absent the effects of discrimination. As of Step-1, this ratio shows the portion of all federal dollars that, absent discrimination, one would expect to be spent directly or indirectly on DBE work in a market category.

Step-1 calls for the calculation of a base figure reflecting the relative availability of DBEs to perform the work that is intended to be let within the local marketplace. This calculation ensures that the goal reflects the anticipated spending over the life of the triennial DBE goal. Next, PennDOT identified the number of **ready, willing, and able (RWA)** firms (DBEs and non-DBEs) within each submarket. This process begins using prequalification/qualification lists and bulletins, and then goes beyond these lists of known firms to include additional DBE firms from the Pennsylvania UCP (Unified Certification Program) list. Dividing the total number of **RWA DBE firms** by **all RWA firms** in the **enterprise universe (EU)**, or the total of all DBE and non-DBE firms, yielded PennDOT's **DBE baseline ratios** for each submarket. **Figure 7** illustrates this calculation.

$$\frac{\text{RWA DBE firms}}{\text{All RWA firms (EU)}} = \text{DBE Baseline Ratio}$$

Figure 7: DBE Submarket Baseline Ratio calculation

Step-1 baseline ratios for each submarket were then weighted according to projected spending in each submarket to yield the overall **Step-1 base figure**.

LOCAL MARKET DETERMINATION

PennDOT defined the relevant geographic **local market area** for all federally-assisted contracting. The primary local market represents that area where a substantial majority of contractors and subcontractors with which PennDOT does business are located, and the area where PennDOT spends the substantial majority of its contracting dollars. This market area is unique for each submarket identified within PennDOT's contracting practices, and varies depending on the market's contractor and expenditure history. These unique submarkets include Professional Services (PS), and Construction (C). Construction contains submarkets of Primes (P), Subcontractors (S), and Suppliers (SP).

The following steps outline PennDOT's local market is determined:

1. Determine contract activity and number of PennDOT RWA firms by state and submarket.
2. Weigh each local market and submarket based on the following:
 - *Professional Services* - The funds paid to PennDOT Professional Services in Pennsylvania and surrounding states as a percentage of all funds spent on Professional Services activity.
 - *Prime* - The face amounts of successful bids on prime contracts in Pennsylvania and surrounding states where winning bidder is located.

- *Subcontractor* - The funds paid to PennDOT Subcontractors in Pennsylvania and surrounding states) as a percentage of all funds spent on Subcontractor activity.
- *Supplier* – The number of EU Supplier firms in all states as a percentage of all EU Supplier firms in all states.

Figure 8 shows the local market area for the Professional Services (PS) submarket. This is the area where the **substantial majority (94.84%) of firms are located** or where federally-assisted funds were spent. The remaining 5.16% accounts for all other firms/dollars beyond this local market area.

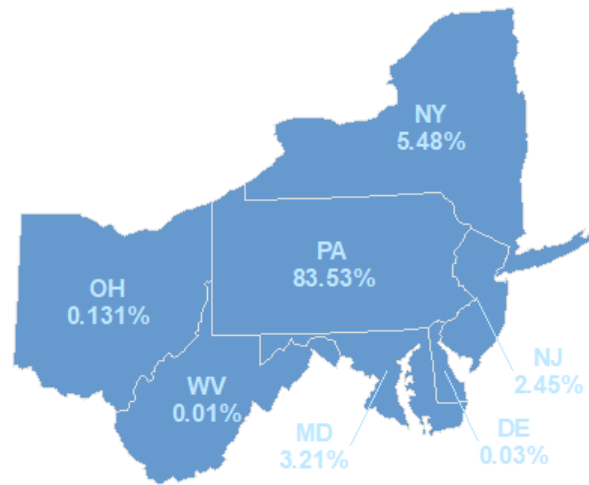


Figure 8: Local Market Area for Professional Services

RELATIVE AVAILABILITY OF DBEs BY SUBMARKET

The Step-1 baseline submarket ratios show the portion of the dollars that, absent discrimination, should be spent directly or indirectly on DBE work within each submarket. PennDOT is required to calculate an overall goal, which combines the baseline ratios of the various market categories. *A simple average would not be appropriate because federal funds were not spent equally among all market categories.* Therefore, PennDOT determined relative weights and multiplied them by each submarket’s Step-1 ratio to yield each submarket’s weighted baseline ratio.

Submarket DBE Ratio	X	Ratio of Anticipated Submarket Expenditures	=	Submarket Weighted Baseline Ratio
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Table 8 shows how DBEs from the PA UCP list are added to the DBEs from PennDOT prequalification/qualification lists and the PA Bulletin to supplement our Step-1 numbers. No surrounding state UCP lists were utilized and the impact on the base number since

corresponding non-DBE data was not available. **Table 9** shows the final Step-1 baseline ratios using these Final Step-1 DBEs.

Table 8: UCP Supplement Data

Submarket	Prequal/Qualification /Bulletin DBEs		Supplemented UCP DBEs	Final Step-1 DBEs
PS	103	+	4*	107
Prime	15	+	6**	21
Subs	292	+	6***	298
Suppliers	61	+	1†	62

*Currently certified DBE firms (PAUCP) that lacked a current qualification package, but previously had a valid qualification package showing at least one engineering work type within the last year.

** Currently certified DBE firms (PAUCP) not on the Prime Contractor Prequal list with primary NAICS codes represented in the Prime NAICS profile that have performed prime work on contracts in surrounding states (Delaware, Maryland, West Virginia, Ohio, New York, or New Jersey).

***Currently certified DBE firms (PAUCP) not on the Subcontractor Prequal list but had been on the Subcontractor Prequal list within the last year.

†Currently certified DBE firm (PAUCP) not currently listed on PennDOT's DBE supplier list but had been on PennDOT's DBE Supplier list in the last year.

Table 9: Final Step-1 Baseline Ratios

Submarket	DBE Firms	All Firms	Ratio
Professional Services	107	323	0.33127
Construction Primes	21	522	0.04023
Construction Subs	298	1,745	0.17077
Construction Suppliers	62	1,597	0.03882

*Numbers in this table have been rounded for display purposes.

SUMMARY OF STEP-1 BASE FIGURE CALCULATIONS

After the submarket ratios were calculated, the ratios were multiplied by submarket weights (w1, w2, w3, and w4) based on expenditures within that submarket. **Table 10** shows the submarket weight calculations. Further detail on these calculations is provided in the Technical Addendum in Appendix B.

Table 10: Submarket Weighting Calculations

Submarket	Calculation
Professional Services	w1 or 0.15013
Prime	w3 (0.68944) * w2 (0.84987) = 0.58594
Subcontractors	w5 (0.55569) * w4 (0.31056) * w2 (0.84987) = 0.14666
Suppliers	w6 (0.44431) * w4 (0.31056) * w2 (0.84987) = 0.11727

*Numbers in this table have been rounded for display purposes.

Then, the weighted baseline ratios were summed to yield the Step-1 Base Figure that represents the relative availability of DBEs to perform FHWA-assisted work for PennDOT. **Table 11** summarizes this step. Showing a total ratio of 0.10290. Transformed into a percentage, this calculation is the Step-1 DBE participation "base figure" or Baseline Ratio of 10.29%.

Table 11: Base Figure Calculation Results

Submarket Category	Submarket Baseline Ratio (Expected DBE portion of Market Category Expenditures)	Weight (Market Category portion of Total Expenditures)	Weighted Baseline Ratios (Expected DBE portion of Total Expenditures)
Professional Services	0.33127	0.15013	0.04973
Prime Contractors	0.04023	0.58594	0.02357
Subcontractors	0.17077	0.14666	0.02505
Suppliers	0.03882	0.11727	0.00455
Totals		1.00000	Step-1 Base Figure 0.10290 or 10.29%

**Numbers in this table have been rounded for display purposes.*

STEP-1 STRENGTHS

1. Uses a data-driven approach to identifying RWA DBE firms;
2. Incorporates additional DBE firms beyond prequal/qualification lists and bulletins;
3. Eliminates firms that are clearly not RWA.

STEP-2 – ADJUSTMENTS TO THE BASE FIGURE

Step-2 calls for PennDOT to *"examine all of the evidence available in [PennDOT's] ... jurisdiction to determine what adjustment, if any, is needed to the base figure in order to arrive at [PennDOT's] ... overall goal."* 49 C.F.R. § 26.45(d). PennDOT must indicate all changes that were made in Step-2 to the Step-1 Baseline Ratio, and the evidence relied upon for those changes. If any relevant, available evidence is not used, PennDOT must explain why that evidence was not used in the Step-2 changes. 49 C.F.R. § 26.45(f)(3).

Step-2 requires PennDOT to incorporate into the goal calculations any available evidence that will improve the accuracy of the Step-1 Base Figure in order to carry out the overall objective of determining the level of DBE participation that would occur absent the effects of discrimination and disparity. In previous methodologies, PennDOT either calculated measures of capacity or relied on DBE past participation to make Step-2 adjustments. PennDOT has received public comments in response to those methodologies expressing frustration at their complexity. Additionally, FHWA has expressed concerns that adjustments based on capacity may perpetuate past and existing discrimination. In light of these comments, PennDOT has narrowly tailored its capacity adjustments to only using past participation when it differs greatly from the overall step-2 ratio.

LOCAL MARKET ADJUSTMENT

PennDOT defined the relevant geographic **local market area** for all federally-assisted contracting in Step-1. As noted in Step-1, this market varies by submarket depending on the market's contractor and expenditure history. Variations also occur in the ratio of actual and "would be" DBEs when considering woman- and minority-owned firms that exist within the geographic market area but do not participate in PennDOT's federally-assisted contracting opportunities.

In Step-2, PennDOT conducts an analysis of this local geographic market to consider "would be" or *potential DBEs* within PennDOT's local market area. Where needed, adjustments to the submarket baseline ratios were made by incorporating potential DBEs identified within each submarket area. PennDOT's method of identifying potential DBEs uses a **data-driven approach** in order to ensure that this analysis goes beyond existing prequalification lists and past participation to best reflect the **actual availability of RWA DBE firms**. This methodology considers interest and capability, incorporating the DBE Directory as determined by the UCP as a subset of a larger list of potential DBEs. It also addresses latent barriers DBEs may encounter in contracting with PennDOT as required in 29 CFR 26.45 (d). The following steps outline the process for determining potential DBEs. Actual calculations are provided in Appendix B: Technical Addendum.

DETERMINING POTENTIAL DBE FIRMS WITHIN THE LOCAL MARKET:

To identify potential DBEs within the geographic market areas, PennDOT assumed that absent discrimination in PennDOT's contracting processes, the ratio of PennDOT DBE firms to all women and minority-owned (WMO) firms would be the same or higher than the ratio of PennDOT non-DBE firms to all non-WMO firms in the same geographic market.

1. Identify the number of **potential DBEs by submarket** within the submarket's geographic **local market area** using the appropriate NAICS code profile and the listing of all firms and woman- and minority-owned firms from Hoover's Online Database produced by Dun and Bradstreet, and then applying the measure of *race neutrality*. Multiply the number of potential DBEs by the weight assigned to that jurisdiction in the local market analysis. Absent discrimination, the ratio of DBE firms within PennDOT contracting to all women- and minority-owned firms in the local market should be identical to the ratio of PennDOT non-DBE firms to all non-women and non-minority firms within the local market generally as shown in **Figure 9**.

<u>PennDOT DBE firms</u> <i>All women & minority-owned firms</i>	=	<u>PennDOT non-DBE firms</u> <i>All non-women & non-minority-owned firms</i>
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Figure 9: Assumption of Race Neutrality

- The ratio of PennDOT non-DBE firms to all non-WMO firms is a **Measure of Race-Neutrality (MRN)**. To determine a **measure of race neutrality (MRN)** PennDOT calculates the ratio of PennDOT non-DBE firms to all non-women and non-minority firms within each submarket NAICS code profile. For the Professional Services (PS) market, the ratio of PennDOT non-DBE firms to all non-WMO firms in this market is 2.03%, as illustrated in **Figure 10**.

$\frac{\text{PennDOT non-DBE firms}}{\text{ALL non-WMO firms (EU)}} = \text{Race-Neutrality}$
$\frac{216}{10,638} = 2.03\%$

Figure 10: Determining Race Neutrality in Professional Services

- Next, PennDOT divides the number of potential DBE firms (includes actual and “would be” DBE firms) by the EU to yield the **Local Market Ratio** for each submarket. In the PS submarket, the number of PennDOT DBEs needed to equal the MRN is 64.86 yielding a Local Market Ratio of 0.169 as shown in **Figure 11**. (For a detailed explanation of this calculation, see the **Local Market Determination** section beginning on Page 13 and Tables 5-20 in the Technical Addendum.)

$\frac{\text{Potential DBE firms}}{\text{Total firms (EU)}} = \text{Local Market Ratio}$
$\frac{55}{323} = .169$

Figure 11: Professional Services Local Market Ratio

In this case, the analysis yielded a potential DBE local market ratio (0.169) that is *lower* than PennDOT’s actual ratio of DBE firms (0.33127) as shown in **Figure 12**.

$$\frac{\text{RWA DBE firms}}{\text{All RWA firms (EU)}} = \text{Preliminary Baseline Ratio}$$

$$\frac{107}{323} = .33127$$

Figure 12: Professional Services Preliminary Baseline Ratio Calculation

4. In order to best reflect the number of available DBEs in the calculation of the goal, the higher of the PennDOT Preliminary DBE Ratio and the DBE Local Market Ratio becomes the Baseline Ratio for each submarket. Comparing the number of PennDOT DBEs to the market’s WMO firms, PennDOT uses the higher of the two in the goal calculation. **Figure 13** illustrates this logic for adjusting the Baseline Ratio for potential DBEs in each submarket.

For each Submarket if:
Preliminary Baseline Ratio > Local Market Ratio
Preliminary Baseline Ratio = Submarket Baseline Ratio
 or
Local Market Ratio > Preliminary Baseline Ratio
Local Market Ratio = Submarket Baseline Ratio

Figure 13: Determining the Adjusted Baseline Ratio by Submarket

In cases where PennDOT’s actual DBE ratio is *lower* than that in the local market, the DBE ratio is adjusted upward to meet the race neutral minimum ratio. In cases where PennDOT’s DBE ratio is *higher* than that in the local market, the expected DBE ratio remains at the higher level, exceeding the race neutral minimum ratio. No adjustment is made since this ratio reflects the actual number of PennDOT DBEs relative to all firms.

Table 12: Potential DBE Ratio Comparison

Market Category	Preliminary Baseline Ratio	Local Market DBE Ratio
Professional Services	33.127%*	16.698%
Primes	4.023%	5.297%*
Subcontractor	17.077%	21.893%*
Suppliers	3.882%	22.728%*

*Number used in calculation.

In **Table 12, Professional Services**, potential DBE firms within the local market area were estimated at 54.6 (16.698%) and PennDOT RWA DBEs totaled 107 (33.127%), therefore the

higher Preliminary Baseline Ratio was used to calculate the final Step-1 Base Figure in this submarket.

For **Prime Contractors (Primes)**, the number of DBE Units and the total number of Enterprise Units were taken from prequalification records completed by the Contractors and maintained by PennDOT. DBE counts were supplemented with DBE firms certified by the PA UCP which have performed Prime contracting work in surrounding states. Potential DBE firms within the local market area were estimated at 28.0 and PennDOT RWA DBEs totaled 21. Therefore, the higher local market DBE number was used to calculate the ratio. This operation also increased the EU from 522 to 529. The baseline ratio for Prime Contractors calculated in this manner is 0.05297.

For **Subcontractors**, the number of DBE Units and the total number of Enterprise Units were taken from prequalification records completed by the Subcontractors and maintained by PennDOT. DBE counts were supplemented by including firms from the PA UCP list that had previously been prequalified to perform PennDOT subcontracting work. Potential DBE firms within the local market area were estimated at 405.6 and PennDOT RWA DBEs totaled 298 therefore the higher potential DBE number was used to calculate the ratio. This operation increased the EU from 1,745 to 1,852.6. The baseline ratio that results from dividing DBE Units by total Enterprise Units is 0.21893.

For **Suppliers**, the number of DBE Units (includes both DBE manufacturers and regular dealers) and Enterprise Units for Suppliers were taken from the DBE Directory and from PennDOT's lists of approved Suppliers: Publication 35 (Bulletin 15), Publication 41 (Bulletin 41), Publication 42 (Bulletin 42) and Publication 34 (Bulletin 14). DBEs were supplemented by identifying DBE suppliers which had previously been listed on PennDOT's DBE Supplier list and were currently listed on the PA UCP. Potential DBE firms within the local market area were estimated at 451.5 and PennDOT RWA DBEs totaled 66 therefore the higher local market DBE number was used to calculate the ratio. This operation increased the EU from 1597 to 1986.5. The baseline ratio for DBE Suppliers that results from these calculations is 0.22728.

ADJUSTMENT FOR DISPARITY

Federal DBE Guidelines encourage the incorporation of additional objective, refined, and verifiable data, if available, to consider any further adjustments necessary in the goal-setting process.

In 2018, PennDOT hired BBC Research & Consulting (BBC) to conduct a disparity study focused on PennDOT's implementation of its DBE program. The study provides additional objective, refined, and verifiable data that was considered for further adjustments in the goal setting

process. Additionally, PennDOT has committed to continually updating the disparity study so it will be a continuing resource for future methodologies.

The 2018 Disparity Study examined:

- Potential disparities in the percentage of contract dollars, including subcontract dollars, that PennDOT spent with minority- and woman-owned businesses (i.e., utilization);
- Potential disparities in the percentage of contract dollars that those businesses might be expected to receive based on their availability to perform specific types and sizes of PennDOT's prime contracts and subcontracts (i.e., availability);
- The legal framework surrounding PennDOT's implementation of the Federal DBE Program and the DB Program; and
- Local marketplace conditions for disadvantaged and diverse businesses; and Contracting practices and business programs that PennDOT currently has in place.

Recognizing that the results of the study indicated the number of DBEs would be greater absent discrimination, PennDOT used data from this study to help refine its goal-setting methodology by adding an adjustment for disparity. The study results suggest incorporating a "disparity index" as an adjustment to the baseline goal. The goal calculation divides the current availability of DBEs by the disparity index, and then scales the adjustment for a final goal. The study's approach to determining would-be DBEs differs from the approach that PennDOT uses in the Local Market Adjustment. PennDOT determined that the approach used in the study is not cost effective or sustainable, and it does not consider a geographic local market beyond Pennsylvania.

Based on these concerns, PennDOT made the decision to continue using our existing Local Market Adjustment, and modified the study's "disparity index" (Construction=17.3%, Professional Services = 15.8%) by subtracting out their "current availability" portion, leaving a *disparity difference*. PennDOT uses this disparity difference when adjusting for disparity. Subtracting the study's "current availability of DBEs" from the final calculation, PennDOT was able to identify a *disparity difference* for use in adjusting the goal to refine this methodology. The resulting calculation aims to increase the dollars/contracts awarded to DBE firms by the *difference* between the actual/potential DBEs and those "would be" DBEs absent disparity. This disparity difference is calculated as follows:

- Construction (Primes, Subs, and Suppliers): $17.3\% - 9.3\% = 8\%$ **disparity difference**
- Professional Services $15.8\% - 11.3\% = 4.5\%$ **disparity difference**

Tables 13 and 14 illustrate a sample calculation using this adjustment for the Construction and Professional Services submarkets:

Sample calculation for Construction/Construction Primes, Subs, and Supplier Submarket:

Table 13: Construction Market and Submarkets Disparity Adjustment Sample Calculation

	Units	Ratio	Dollars	Disparity Adjustment	Adjusted Dollars	Adjusted Ratio
DBE	22	0.04889	\$98	8.0%	\$106	0.0528
EU	450		\$2,000		\$2,000	

NOTE: The numbers provided are simplified for illustration purposes only. Actual numbers used in the calculation of the goal are provided in the Technical Addendum.

Sample calculation for the Construction-Related Professional Services Submarket:

Table 14: Professional Services Submarket Disparity Adjustment Sample Calculation

	Units	Ratio	Dollars	Disparity Adjustment	Adjusted Dollars	Adjusted Ratio
DBE	70	0.1556	\$311	4.5%	\$321	0.1606
EU	450		\$2,000		\$2,000	

NOTE: The numbers provided are for illustration purposes only. Actual numbers used in the calculation of the goal are provided in the Technical Addendum.

The Baseline Ratios for each market were adjusted for disparity and weighted according to the previous year's expenditures. The sum of the initial Weighted Disparity-Adjusted Ratios shown in **Table 15**.

Table 15: Disparity Adjustment Calculations

Submarket	Adjusted Baseline Ratio	Disparity Adjustment	Disparity Adjusted Ratio	Weight (Market Category portion of Total Expenditures)	Weighted Disparity Adjusted Ratios
Professional Services	0.33127	1.045	0.34618	0.15013	0.05197
Prime contractors	0.05297	1.08	0.05721	0.58594	0.03352
Subcontractors	0.21893	1.08	0.23644	0.14666	0.03468
Suppliers	0.22729	1.08	0.24546	0.11727	0.02879
<i>Note: The numbers in this table have been rounded for display purposes</i>				Total Expenditures 1 or 100%	0.14895or 14.90%

**Numbers are rounded for display purposes.*

ADJUSTMENT FOR PAST PARTICIPATION

PennDOT compared its Disparity-Adjusted Ratio to its Past DBE Participation. Past participation is taken from the Uniform Report of DBE Commitments/ Awards and Payments submitted semi-

annually to FHWA. The TIPS advise Departments of Transportation (DOTs) to adjust ratios up or down if the calculated ratio is different from median past DBE participation. This past participation adjustment reduced the disparity-adjusted weighted ratio for each to **0.84332** of its original calculation based on the average of the original disparity-adjusted goal and the median past participation. That factor was applied to both the Construction and Professional Services disparity-adjusted ratios to produce the final submarket goals. The **Table 16** shows how the past participation adjustment is calculated using the median past participation rates for the last five full federal fiscal years.

Table 16: Past Participation Adjustment

A	B	C	D	E
FFY	DBE Participation	Disparity - Adjusted Ratio	Past Participation Adjusted Ratio (Average B & C)	Past Participation Adjustment Factor (D/C)
2018	7.98%			
2019	10.23%			
2020	14.18%			
2021	13.61%			
2022	8.76%			
Median Past Participation	10.23%	14.90%	12.56%	0.84332

**Numbers are rounded for display purposes.*

FINAL GOAL CALCULATIONS

The final goal calculations alter the adjusted baseline ratios by incorporating the past participation adjustment along with the submarket weights for expenditures. Each weighted ratio represents the relevant portion of total federal funds expended in each submarket. These ratios indicate what should be directly or indirectly spent on DBE work in a specified market category.

CONSTRUCTION MARKET GOAL

The construction market includes Primes, Subs, and Suppliers as submarkets. These individual submarket ratios were adjusted for past participation to yield a disparity & participation adjusted ratio. Then, these ratios were combined into a single, overall construction market goal. The resulting combined goal for this market is **0.09623** or **9.62%** as shown in **Table 17** below. A detailed explanation of this calculation is in **Appendix B**.

Table 17: Construction Market Goal Calculation

Construction Submarkets	Disparity Adjusted Ratio	Past Participation Factor	Disparity & Participation-Adjusted Ratio	Construction Submarket Weight	Weight within Market (submarket weight divided by sum of submarket weights)	Construction Weighted Ratios
Primes	0.05721	0.84332	0.04824	0.58594	0.68944	0.03326
Subs	0.23644	0.84332	0.19440	0.14666	0.17257	0.03441
Suppliers	0.24546	0.84332	0.20700	0.11727	0.13798	0.02856
Total				0.84987	1.00000	0.09623 or 9.62%

**Numbers are rounded for display purposes.*

PROFESSIONAL SERVICES MARKET GOAL

Similar to the final Construction Market goal, the Professional Services ratio is adjusted for past participation to yield a disparity & participation adjusted ratio resulting in a final goal for this market of **0.29194** or **29.19%** as shown in **Table 18**.

Table 18: Professional Services Market Goal Calculation

Professional Services Submarket	Disparity Adjusted Ratio	Past Participation Factor	Professional Services Weighted Ratio
Professional Services	0.34618	0.84332	0.29194 or 29.19%

**Numbers are rounded for display purposes.*

FINAL OVERALL GOAL

As with the initial Weighted Disparity-Adjusted Ratios in Table 14, these adjusted and weighted submarket ratios were summed, resulting in an overall goal as shown in **Table 19**. The total of all weighted ratios is the total portion of federal funds that, absent discrimination, should be spent directly or indirectly on DBE work.

Table 19: Final Overall Goal Calculation

Submarket	Disparity & Participation-Adjusted Ratio	Submarket Weightings	Adjusted & Weighted Ratios
Professional Services	0.29914	0.15013	0.04383
Prime Contractors	0.04824	0.58594	0.02827
Subcontractors	0.19940	0.14666	0.02924
Suppliers	0.20700	0.11727	0.02427
Overall Goal		1.0	0.12561 or 12.56%

**Numbers are rounded for display purposes.*

PennDOT estimates awarding an annual average of \$2,470,959,195 in contracts during the triennial period. The calculated goal represents \$310,387,055 in payments to DBEs annually.

$$\$2,470,959,195 \times 0.12561 = \$310,387,055 *$$

**The final goal represents rounded calculations.*

RACE-NEUTRAL/RACE-CONSCIOUS PROJECTIONS

The final DBE goal established by PennDOT can be attained in two ways through race-neutral or race-conscious means. Race- and gender-neutral measures are calculations that are designed to encourage the participation of all small businesses in PennDOT contracting. Race-neutral means include situations where DBEs receive work, even though no special effort is made on the part of PennDOT or contractors to singularly engage DBEs (as noted in the Program Terms section of this document, race-neutral means are characterized by efforts designed to assist all small businesses as opposed to measures designed to benefit DBEs alone). In contrast, race- and gender-conscious measures are designed to encourage the participation of DBEs in PennDOT contracting. Race-conscious means are contract goals.

Allocating the race-conscious/race-neutral portions of the goal is a two-step process. First, PennDOT looked to its past attainment figures to establish the amount of race-neutral attainment. As shown in **Table 20**, the median race-neutral attainment over the last five years has been 0.91%. Subtracting the race-neutral portion of the goal from the overall goal yields 11.65% for the race-conscious portion.

Table 20: Race-Neutral Attainment over Previous Five Years

Year	Race-Neutral Attainment
Federal FY 2021	0.67%
Federal FY 2020	1.33%
Federal FY 2019	1.28%
Federal FY 2018	0.71%
Federal FY 2017	0.91%
Median RN Attainment	0.91%

**Numbers in this table have been rounded for display purposes*

Under Section 26.51(b), race-neutral means include providing assistance in overcoming limitations such as the inability to obtain bonding or financing by simplifying the bonding process; reducing bonding requirements; eliminating the impact of surety costs from bids; and, providing services to help DBEs and other small businesses obtain bonding and financing. Race-neutral participation includes, but is not limited to situations such as a DBE wins a prime contract through customary competitive procurement procedures; is awarded a subcontract on a prime contract that does not carry a DBE goal, or even if there is a DBE goal, wins a subcontract from a prime contractor that did not consider its DBE status in awarding the contract (e.g., a prime contractor that uses a strict low bid system to award subcontracts). Consistent with the federal regulation, PennDOT is committed to meeting the maximum feasible portion of its overall goal by using race-neutral means to facilitate DBE participation.

PennDOT will monitor the race-neutral and race-conscious goal apportionment throughout the goal period and make appropriate upward or downward adjustments.

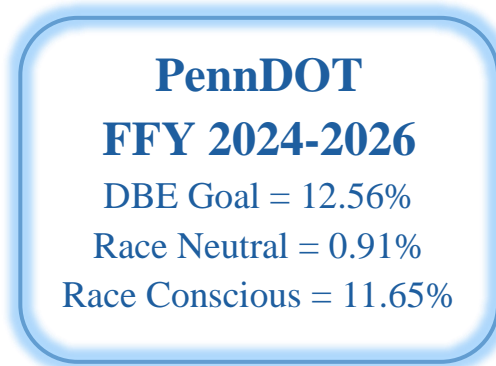


Figure 14: Final PennDOT DBE Goal

STEP2 STRENGTHS

1. Addresses latent barriers DBEs may encounter in contracting with PennDOT as required in 29 CFR 26.45 (d)
2. Eliminates adjustments for capacity
3. Suspends adjustments for DBE past participation based on ongoing review of data
4. Data is taken from internal PennDOT sources or publicly available sources except interim use of historical NAICS Code Profiles; and
5. Incorporates findings from the most recent PennDOT Disparity Study (2018).

EVIDENCE FROM RELATED FIELDS

Under Part 26, PennDOT must consider evidence from related fields that affect opportunities for DBEs to form, grow, and compete. The City of Philadelphia produced a disparity study for federal fiscal year 2018 by Econsult Solutions, Incorporated and Milligan and Company, LLC, which was released in June 2019. Since the study focused on the City of Philadelphia and its surrounding area, it is not generalizable to the Commonwealth as a whole. Nothing in the study rises to the level of support for an adjustment for this item.

As noted in the Executive Summary and the Step-2 discussion, a second study was conducted in 2018 when the PennDOT retained the services of BBC Research & Consulting (BBC). BBC was hired to conduct a disparity study to help inform its implementation of the Federal Disadvantaged Business Enterprise (DBE) Program and the state’s transportation-focused Diverse Business (DB) Program. This disparity study focuses on horizontal construction and construction-related engineering and professional services contracts. Since this study primarily analyzes PennDOT’s implementation of the Federal DBE program on FHWA-funded, it provides

additional objective, refined, and verifiable data that was considered for further adjustments in the goal setting process. PennDOT used information from this study to help refine its goal-setting methodology.

CONSULTATION AND OUTREACH EFFORTS

In accordance with Section 26.45(f), PennDOT will submit its overall goal and methodology to DOT on August 1, 2023. Consistent with the Part 26 mandate, PennDOT employs outreach efforts to collect and utilize the most refined and best available data in its marketplace. To ensure thorough analysis of this data, PennDOT avails itself of highly qualified research professionals and statistical analysts from Indiana University of Pennsylvania and the Pennsylvania State University. These research professionals are equipped to analyze and organize local market sector data from an economic, statistical, and sociological perspective. Since establishment of the goal requires this thorough analysis of available and applicable data in the local marketplace, and these professionals work with such data on a regular basis, they are an essential part of our DBE team.

PennDOT's current DBE Supportive Services Program contractor, ProRank Business Solutions Inc., assists PennDOT with the implementation of its race-neutral initiatives. This contractor retains a network of DBEs and other small businesses and provides a number of managerial, technical, and financial workshops and networking sessions throughout the Commonwealth. ProRank also assisted in the completion of the Mentor Protégé Barrier Study, leading to improvements within the Mentor Protégé Program.

PUBLIC CONSULTATION AND OUTREACH

Before establishing the overall goal, PennDOT complied with the public participation component of the goal-setting process required by Section 26.45 (g) by scheduling face-to-face, in-person consultations with minority, women's, general contractor groups. In addition, PennDOT sought input from community organizations, and other officials or organizations. These organizations are among those that could be expected to have information relative to the availability of disadvantaged and non-disadvantaged businesses; the effects of discrimination on opportunities for DBEs; and, PennDOT's efforts to establish a level playing field for the participation of DBEs in federally-assisted, transportation-related contracting.

In preparation for this submission, PennDOT scheduled, publicized, and convened a series of meetings during May of 2023. These meetings/webinars were conducted to obtain information relevant to the goal setting process through direct, interactive exchanges. They were widely publicized in order to reach as many interested stakeholders within the Commonwealth's contracting community as possible. During the meetings, PennDOT program personnel as well

as PennDOT's goal-setting consultants made every effort to solicit and to address questions about PennDOT's methodology and goal as well as other issues that arise under the DBE program.

In addition to the public consultation meetings, PennDOT employs other strategies to solicit input from its customers. PennDOT meets regularly with members of the Associated Pennsylvania Constructors (APC) and the American Council of Engineering Companies of PA (ACEC/PA) to seek input and feedback from the contracting community. For the last several years, PennDOT has held Diversity Forums across the Commonwealth, which has allowed for more face-to-face engagement with stakeholders and encouraged feedback on the DBE program.

PUBLIC NOTICE AND PUBLIC COMMENT

Following these public consultation and outreach efforts, PennDOT published a notice of the proposed overall goal methodology in the Pennsylvania Bulletin, informing the public that the methodology used to calculate the goal was available for inspection during normal business hours at PennDOT's principal office for 30 (thirty) days following the date of the notice. This notice informed the public that PennDOT would accept comments on the goals for 30 days from the date of the notice published in the Pennsylvania Bulletin, a publication recognized by the public as the location for public notices issued by executive agencies of the Commonwealth. The notice also appeared at equalopportunity.pennDOT.pa.gov, and the document was available for translation upon request.

PennDOT's overall goal submission to DOT includes a summary of information and comments received during this public participation process. Public comments received during, along with PennDOT's responses appear in Appendix C.

ADMINISTRATION, IMPLEMENTATION, AND MONITORING

Contract monitoring and adjustment are required during the course of the goal period. Following the implementation of a new overall goal, PennDOT is charged with a monitoring function relative to DBE goal commitments, and DBE goal attainments. PennDOT fulfills this mandate by collecting and analyzing data collected and reported to its Bureau of Equal Opportunity (BEO). This data is reported to BEO by impacted DBE program areas within the submarkets of PennDOT that regularly set and implement project goals.

CONTRACT GOALS AND ADJUSTMENT OF THE GOAL

PennDOT will use contract goals to meet any portion of the overall goal PennDOT does not project being able to meet using race-neutral means. Contract goals are established so that, over the period to which the overall goal applies, they will cumulatively result in meeting any portion of the overall goal that is not projected to be met through the use of race-neutral means.

- Contract goals apply on those FHWA-assisted contracts that have subcontracting possibilities.
- PennDOT may elect to not establish a goal on every contract, and the size of contract goals will be adapted to the circumstances of each such contract (e.g., type and location of work, availability of DBEs to perform the particular type of work.)
- The DBE contract goal for a specific contract may be higher or lower than that percentage level of the overall goal; depending upon other factors such as the type of work for the project; the location of the project work; and the availability of DBEs for that particular contract.
- Over the period covered by the overall goal, PennDOT must set goals that will cumulatively result in meeting any portion of its overall goal that it does not project being able to meet through the use of race-neutral means.

As part of its goal monitoring efforts, PennDOT may make adjustments to the goal in accordance with Section 26.51(f)(2) of Part 26. This provision states that if, during the course of any three-year period in which PennDOT is using contract goals, it determines that it will exceed its overall goals, it must reduce or eliminate the use of contract goals to the extent necessary to ensure that the use of contract goals does not result in exceeding the overall goal. Similarly, if PennDOT determines that it will fall short of the overall goal, it will make appropriate modifications in its use of race-neutral or race-conscious (contract) measures and adjust individual project goals to allow PennDOT meet the overall goal.

GOOD FAITH EFFORTS

PennDOT monitors good faith efforts hearings to determine their impact, if any, on project goals and the overall goal. During FFY23, only one good faith efforts hearing was held on an FHWA-funded project. In that case, it was determined the Prime Contractor had made good faith efforts to reach the goal. Given this was the only instance where a Prime Contractor was unable to reach the project goal, PennDOT elected not to adjust the overall goal based on good faith efforts hearings.

RACE NEUTRAL CONTRACTING ACTIVITIES

RACE NEUTRAL STRATEGY

PennDOT will continue to review all projects that meet the threshold for contractable work for DBE goal setting. Projects that exceed the overall race-conscious goal will have that counted toward their race-neutral participation. Future training will be provided concurrently with the SBE program pre-bids and pre-conferences for every scheduled Capital project. The Bureau of Equal Opportunity will also use the mandated pre-bid and pre-conference training to publicize and educate construction managers and prime/subcontractors on the SBE program, subcontracting opportunities, and good faith efforts to utilize small businesses. This will include a review of the SBE Directory to generate sample SBE lists by common transportation NAICS codes.

PennDOT has implemented a Small Business Supportive Services Program and a Business Development Program. Services are provided via virtual platform, telephone, email, or one-on-one consultation free-of-charge. PennDOT revitalized these services in 2020 through a new vendor, ProRank Business Solutions LLC, to provide assistance to small businesses in contracting with PennDOT, bid assistance, business planning, bonding, project management, networking, and outreach.

In January 2022, PennDOT implemented a new race-neutral strategy to support and develop small businesses through the PennDOT Small Business Resource Center, a component of PennDOT's Supportive Services Program. A variety of small businesses resources are available at <https://learn.prorankllc.com/groups/penn-dot-small-business-resources-room/>.



PennDOT's Small Business Supportive Services Center vendor, ProRank Business Services LLC, hosts ProRank Academy, a web-based learning platform for small businesses. This virtual space provides free access to networking rooms and a Project Poster (used by PennDOT primes to advertise construction and rail projects) are also available. By visiting this resource room, a small business is added to the Supportive Services monthly mailing list to receive project and event advertisements. In addition, this virtual space provides small businesses with free access to training resources such as:

- How to become DBE Certified
- Contracting 101
- US DOL Prevailing Wage Seminars
- Fair Labor Standards Act (FLSA) Compliance
- ECMS – Business Partner Registration
- Financing Alternatives
- COVID-19 Safety
- Introduction to OSHA

Information about these small business resources is promoted to the general public through quarterly outreach events, and through the PennDOT DBE Directory, Diverse Business Supportive Services Center, Small Business Supportive Center mailing list, PAUCP partner Agencies, PennDOT program areas and subrecipients, and external Industry partners. In February 2022, within the PennDOT Small Business Resource Center, an online curriculum was developed for subrecipient transit agencies that receive FTA project funds and construction managers for those projects in areas such as small business engagement, good faith effort in contracting, the DBE program, prompt payments, and other topics. PennDOT’s Bureau of Public Transportation now mandates that the subrecipient agencies and construction managers complete this curriculum training, prior to a large capital project.

RACE NEUTRAL TRAINING

PennDOT is mandating training on the DBE program for its construction managers, subrecipient transit agencies, and prime/subcontractors during the pre-bid and pre-construction phases. This training includes regulatory requirements, the importance of goal attainment, good faith effort in contracting, prompt payment, reporting, the small business enterprise (SBE) element and supportive services programs. It also includes a review of the PAUCP Directory to generate sample DBE lists by common transportation NAICS codes. The training is provided to participants, jointly by the Bureau of Equal Opportunity and the Bureau of Public Transportation.

SMALL BUSINESS ENTERPRISE (SBE) PROGRAM

PennDOT has established, as part of its DBE program, the Small Business Enterprise (SBE) program, in accordance with 49 CFR 26.39. Every PennDOT federally-assisted procurement and subcontract includes a DBE contract provision that must include the SBE provisions for recruitment, utilization, participation, counting, good faith effort, reporting, and prompt payment.

The SBE is designed to facilitate greater participation of small businesses in transportation-related procurements. This element only applies to federally-assisted transportation projects (highway, transit, and aviation). Any businesses interested in pursuing SBE certification must

meet the U.S. Small Business Administration (SBA) size standards and submit a completed application. Firms currently certified as a DBE by the Pennsylvania Unified Certification Program (PAUCP) are also listed as a SBE for purposes of federally-assisted contracts, and need not submit a separate SBE application. To become an SBE (if not a DBE), you will need to apply and be certified by PennDOT at www.dotsbe.pa.gov.

TERMINOLOGY

The following program terms, tailored to the local conditions of the Commonwealth of Pennsylvania, are consistent with 49 C.F.R. part 26 are provided for reference:

DBE – A small, for-profit business that meets the size, ownership, control, and definitional requirements of 49 C.F.R. Part 26.5 and has been certified by the UCP under the federal regulation set forth in 49 C.F.R. Part 26.

DBE DIRECTORY – A directory of certified Disadvantaged Business Enterprise (DBE) firms that are considered ready, willing, and able to perform work within their expertise on PennDOT’s federally-assisted highway projects.

DISPARITY ADJUSTMENT – an adjustment in the calculation of the overall goal based on the calculated disparity difference between actual/potential DBEs and “would be” DBEs absent discrimination.

DUNN & BRADSTREET (D&B) – The leading national business services company that maintains and provides commercial data and business information on more than 250 million companies.

ENTERPRISE UNIVERSE (EU) – All (DBE and non-DBE) ready, willing, and able firms within an established local market.

INLINE CORRECTION – An annual inline review of current data using the approved triennial methodology intended to ensure that the DBE goal reflects any potential significant changes in market conditions. Minor fluctuations do not present cause for goal adjustment. However, significant changes in market conditions from one year to the next, such as a substantial increase in anticipated expenditures or an influx on DBEs in the geographic market area may warrant such consideration.

LOCAL MARKET – PennDOT has calculated custom marketplaces for each submarket based on the following criteria:

- States where Professional Services had their primary office as designated in ECMS were weighted according to payments to firms for their services.
- States where winning Prime Contractors have their primary office as listed in ECMS weighted according to the face value of winning bids.
- States where Subcontractors have their primary office as listed in ECMS weighted according to payments to those firms for their services.
- States where Suppliers have offices as listed in PennDOT Bulletins 14, 15, 41, and 42.

LOCAL MARKET RATIO – the ratio determined, through the analysis of potential DBEs, to be the expected ratio of DBEs to non-DBEs absent discrimination based on the geographic local market analysis of identified Women and Minority-owned firms (certified DBE firms and uncertified “would be” DBE firms absent barriers to program participation).

Appendix A: TERMINOLOGY

NAICS CODE - The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

POTENTIAL DBE – Minority- or woman-owned firms that are not yet identified as RWA by PennDOT but meet the requirements for DBE certification and are currently operating within the NAICS code profiles identified as part of PennDOT’s local market.

PENNDOT – As used in this document, PennDOT refers to the Pennsylvania Department of Transportation of the Commonwealth of Pennsylvania.

PENNDOT DBEs – DBE firms that are currently identified and included in PennDOT DBE Directory and electronic contract management systems.

POTENTIAL DBEs – Estimated number of “would be” DBE firms that could be expected to bid on federally-funded highway projects in addition to PennDOT DBEs.

PRELIMINARY BASELINE RATIO – the actual ratio of identified PennDOT DBEs to all RWA firms in each of PennDOT’s submarkets.

RACE NEUTRALITY – A measure of participation in federally-funded highway projects among DBE and non-DBE firms expected in the absence of discrimination. This measure is calculated as a ratio of PennDOT non-DBE firms to all non-women and non-minority firms within a defined set of NAICS codes available in the local market.

READY, WILLING, AND ABLE (RWA) BUSINESSES/ENTERPRISES – The current universe of businesses interested, capable, and authorized to perform work on PennDOT’s federally-assisted, transportation-related contracts. *Ready* refers to those businesses that perform a trade, function or service that may be utilized on PennDOT’s federally-assisted contracts. *Willing* refers to ready businesses that have either performed or expressed a bona fide interest in performing a function on PennDOT’s federally-assisted contracts or through our PA UCP partner organizations. *Able* refers to ready and willing businesses that have or plan to fulfill PennDOT’s requirements to participate in the performance of its federally-assisted contracts including becoming a registered Business Partner. In sum, those businesses that are ready, willing, and able to perform on PennDOT’s federally assisted contracts are businesses authorized by PennDOT to participate in its federally-assisted contracts that have either expressed or demonstrated an interest in doing so.

READY, WILLING, AND ABLE (RWA) DBEs – Those businesses that meet the definition of “ready, willing, and able businesses” and that have been certified by PennDOT or any of the other entities that certify DBEs in the Commonwealth under the Commonwealth’s approved Unified Certification Program (PA UCP) as a DBE consistent with the provisions of 49 C.F.R. Part 26. In sum, PennDOT’s universe of ready, willing and able DBEs within the meaning of 49 C.F.R. Part 26, consists of certified DBEs that have either expressed or demonstrated an interest in participating in federally-assisted PennDOT contracts and have been authorized to do so.

Appendix A: TERMINOLOGY

RELATIVE AVAILABILITY OF DBEs – Consistent with 49 C.F.R. Part 26.45, “relative availability” of DBEs refers to demonstrable evidence of the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on PennDOT’s federally-assisted transportation-related contracts.

RACE-NEUTRAL MEASURES – Consistent with Section 26.5, the definitional section of the federal regulation set forth in 49 C.F.R. Part 26, PennDOT’s race-neutral measures are those designed to assist all small businesses as opposed to measures designed to benefit DBEs alone.

RACE-CONSCIOUS MEASURES – Consistent with the definitional section of the federal regulation set forth in 49 C.F.R. Part 26, PennDOT’s race-conscious measures are those that are focused exclusively on DBEs. These include traditional contract goals.

STEP-1 BASE FIGURE– The final calculated ratio upon completion of Step-1.

STEP-1 BASELINE SUBMARKET RATIO – The final calculated Step-1 ratio for each submarket. These submarket ratios are then weighted according to projected expenditures to calculate the overall Step-1 Baseline Ratio.

SUBMARKET – A smaller market category that exists within a larger market and is defined by a unique set of criteria. For purposes of this methodology, these include Technical Consultants, Service Consultants, Research Consultants, Prime Contractors, Subcontractors, and Suppliers.

UNIFIED CERTIFICATION PROGRAM (UCP) - The Unified Certification Program (UCP) allows applicants for the Disadvantaged Business Enterprise (DBE) program to apply only once for a DBE certification that will be honored by all recipients in the state.

**TECHNICAL ADDENDUM
REVIEW OF METHODS**

STEP-1 BASE FIGURE AND BASELINE RATIOS

PennDOT established initial criteria for identifying ready, willing, and able (RWA) firms in each submarket. The list of RWA firms were compared with firms on the Unified Certification Program list of DBEs to identify additional RWA DBE firms in each submarket. The total number of DBE firms divided by the total number of all firms (DBE and non-DBE) provided a baseline ratio for each submarket.

INITIAL CRITERIA BY SUBMARKET

- **Professional Services-**
 - Firms who had submitted qualification packages to ECMS listing at least one engineering work type.
 - Currently certified DBE firms who had submitted qualification packages listing at least one engineering work type in the last year.
- **Construction Prime Contractors-**
 - Prime firms listed on PennDOT’s prequalification list.
 - Currently certified DBE firms which had performed prime contracting work in surrounding states.
- **Construction Subcontractors-**
 - Subcontractors listed on PennDOT’s prequalification list.
 - Currently certified DBE firms which had been on the prequalification list within the last year.
- **Construction Suppliers-**
 - Suppliers listed in PennDOT’s bulletins 14, 15, 41, and 42.
 - DBE suppliers listed on PennDOT’s list of approved DBE Suppliers.
 - Currently certified DBE suppliers that had appeared on PennDOT’s DBE Supplier list within the last year.

**All lists were compared to eliminate duplicates.*

Table B-1: UCP Supplement Data

Submarket	Prequal/Qualification /Bulletin DBEs	Supplemented UCP DBEs	Final Step-1 DBEs
PS	103	4*	107
Prime	15	6**	21
Subs	292	6***	298
Suppliers	61	1†	62

Appendix B: TECHNICAL ADDENDUM

*Currently certified DBE firms (PAUCP) that lacked a current qualification package, but previously had a valid qualification package showing at least one engineering work type within the last year.

** Currently certified DBE firms (PAUCP) not on the Prime Contractor Prequal list with primary NAICS codes represented in the Prime NAICS profile that have performed prime work on contracts in surrounding states (Delaware, Maryland, West Virginia, Ohio, New York, or New Jersey).

***Currently certified DBE firms (PAUCP) not on the Subcontractor Prequal list but had been on the Subcontractor Prequal list within the last year.

†Currently certified DBE firm (PAUCP) not currently listed on PennDOT's DBE supplier list but had been on PennDOT's DBE Supplier list in the last year.

Table B-2: Preliminary Step-1 Baseline Ratios

Submarket	DBE Firms	All Firms	Ratio
Professional Services	107	323	0.33127
Construction Primes	21	522	0.04023
Construction Subs	298	1,745	0.17077
Construction Suppliers	62	1,597	0.03882

SUBMARKET WEIGHTINGS

Each submarket was weighted according to anticipated expenditures within that submarket.

Table B-3: Submarket Weightings

Submarket	Ratio
Professional Services	0.15013
Construction Primes	0.59298
Construction Subs	0.14666
Construction Suppliers	0.11727
Total	1.0000

Table B-4: Submarket Weights Detail

Weight	Expenditures	Ratio	Determination Criteria
w_1 and w_2 represents total PennDOT expenditures such that $w_1 + w_2 = 1$			
$w_1 = .15013$	\$370,959,194.16	PS	Professional Services Expenditures ÷ Total Expenditures
$w_2 = .84987$	\$2,100,000,000.00	C	Construction Expenditures ÷ Total Expenditures
w_3 and w_4 make up 100% of w_2 ; such that $w_3 + w_4 = 1$			
$w_3 = .68944$	\$1,536,379,239.37	P	Prime Contractor Expenditures ÷ Total Construction Expenditures
$w_4 = .31056$	\$692,052,256.08	S	Nonprime Contractor Expenditures ÷ Total Construction Expenditures
w_5 and w_6 make up 100% of w_4 ; such that $w_5 + w_6 = 1$			
$w_5 = .55569$	\$384,566,935.38	S	(Nonprime Contractor Expenditures – Supplier Expenditures**) ÷ Total Nonprime Contractor Expenditures
$w_6 = .44431$	\$307,485,320.70	SP	Supplier Expenditures ÷ Total Nonprime Contractor Expenditures

*Figures for professional services projections based on FFY 2023 letting schedules.

Appendix B: TECHNICAL ADDENDUM

*Total construction weight is an average annual figure of projected lettings over the TRIENNIAL period. Weightings for primes and subs reflect actual payments to primes and subs for CY2022 as applied to projected lettings.

*Supplier expenditures \simeq (DBE supplier \$) · (EU subcontract \$) ÷ (DBE subcontract \$)

STEP-1 BASE FIGURE

Table B-5: Submarket Expenditure Weighting Calculations

Submarket	Calculation
Professional Services	w1 or 0.15013
Prime	w3 (0.68944) * w2 (.84987) = 0.58594
Subcontractors	w5 (0.55569) * w4 (0.31056) * w2 (0.84987) = 0.14666
Suppliers	w6 (0.44431) * w4 (0.31056) * w2 (0.84987) = 0.11727

Table B-6: Step-1 Base Figure Calculation

Market Category	Baseline Ratio	Weight	Weighted Ratio
PS	0.33127	0.15013	0.04973
P	0.04023	0.58594	0.02357
S	0.17077	0.14666	0.02505
SP	0.03882	0.11727	0.00455
		1.0000	0.10290 or 10.29%

*Numbers are rounded for display purposes.

STEP-2 – ADJUSTMENTS TO THE BASE FIGURE

LOCAL MARKET ADJUSTMENT

In order to ensure that the DBE goal methodology considers potential DBE firms beyond the prequalification lists and past participation identified as initial criteria, PennDOT conducted an analysis to identify potential or would-be DBEs in each submarket. The results of this analysis provide for an adjustment in Step-2. The steps for this analysis are detailed below.

NAICS CODE PROFILE AND LOCAL MARKET DETERMINATION AND CALCULATION

PennDOT calculated local geographic areas for each submarket. The weight for each local market and submarket based on the following:

- *Professional Services* - The funds paid to PennDOT Professional Service Consultants within Pennsylvania and in surrounding states as a percentage of all funds spent for Professional Services.
- *Construction Prime Contractors*- The face amount of successful bids on prime contracts won by Pennsylvania Prime Contractors and those located in surrounding states as a percentage the sum of all winning bid face amounts.
- *Subcontractor* - The funds paid to PennDOT Pennsylvania Subcontractors and those in surrounding states as a percent of all funds spent on Subcontractor activity.

Appendix B: TECHNICAL ADDENDUM

- *Supplier* – The number of Pennsylvania Supplier firms and those in all other states as a percent of all Supplier firms.

PennDOT developed a NAICS code profile using the RWA firms in each submarket as a guide to include only those firms that are relevant. Each unique NAICS code is weighted according to the frequency of that code for each market category. This places more importance on those NAICS codes that comprise the largest segment of the market category. It also minimizes the impact of minimally related NAICS codes associated with that market category.

For each submarket, PennDOT identified the number of firms and the number of women and minority owned firms for each NAICS code in that market’s profile identified in the local market determination for that submarket. Both the number of firms and the number of women and minority owned firms were then weighted first by the frequencies in the market’s NAICS code profiles, then by the local market weightings to arrive at a potential DBE figure (the number of DBEs that should be present in the market absent discrimination). In submarkets where the potential DBE figure was higher than current PennDOT levels, PennDOT used the potential DBE figure and adjusted the EU figure accordingly. In submarkets where the potential DBE figure was lower than current PennDOT levels, no adjustment was made for potential DBEs.

Table B-7: Professional Services Local Market Geographic Weighting

State	Weighting
PA	0.83531
Surrounding States	0.11304
All Other States*	0.05165

**Not used in calculations. Numbers are rounded for display purposes.*

Table B-8: Professional Services Local Market Adjustment for All Firms by NAICS Code Frequency

NAICS Code	Frequency	Weight	Hoover’s Data		Weighted Hoover’s Data	
			PA All	Surrounding States All	PA	Surrounding States
236115	1	0.3%	31,369	130,129	97.1	402.9
237210	1	0.3%	9,902	42,617	30.7	131.9
237310	8	2.5%	2,145	6,978	53.1	172.8
332618	1	0.3%	203	499	0.6	1.5
481219	1	0.3%	132	438	0.4	1.4
488490	1	0.3%	559	2,448	1.7	7.6
522320	1	0.3%	2,156	8,698	6.7	26.9
531311	1	0.3%	2,147	10,662	6.6	33.0
531312	1	0.3%	40,268	127,536	124.7	394.8
531390	1	0.3%	272	1,218	0.8	3.8
541110	2	0.6%	16,564	76,570	102.6	474.1
541191	1	0.3%	1,358	4,080	4.2	12.6

Appendix B: TECHNICAL ADDENDUM

NAICS Code	Frequency	Weight	Hoover's Data		Weighted Hoover's Data	
			PA All	Surrounding States All	PA	Surrounding States
541310	8	2.5%	1,867	10,301	46.2	255.1
541320	5	1.5%	7,868	30,927	121.8	478.7
541330	204	63.2%	5,558	21,501	3,510.3	13,579.6
541350	2	0.6%	660	2,841	4.1	17.6
541370	9	2.8%	734	2,610	20.5	72.7
541380	2	0.6%	1,480	6,603	9.2	40.9
541420	1	0.3%	104	427	0.3	1.3
541490	3	0.9%	16,696	73,938	182.9	686.7
541511	2	0.6%	6,013	33,916	37.2	210.0
541512	6	1.9%	5,684	28,652	105.6	532.2
541611	9	2.8%	12,517	46,301	348.8	1,290.1
541614	3	0.9%	1,513	7,119	14.1	66.1
541618	3	0.9%	45,552	172,489	423.1	1,605.4
541620	18	5.6%	1,658	4,808	92.4	267.9
541690	4	1.2%	2,549	10,902	31.6	135.0
541715	1	0.3%	1,300	5,195	4.0	16.1
541720	4	1.2%	1,085	4,344	13.4	53.8
541910	2	0.6%	865	4,131	5.4	25.6
541922	1	0.3%	917	4,864	2.8	15.1
541990	1	0.3%	4,176	21,045	12.9	65.2
561110	1	0.3%	21,592	96,108	66.8	297.5
561730	1	0.3%	9,516	33,822	29.5	104.7
561990	4	1.2%	45,983	175,790	569.4	2,177.0
562910	1	0.3%	251	985	0.8	3.0
611310	2	0.6%	2,896	9,008	17.9	55.8
813312	1	0.3%	557	1,785	1.7	5.5
999990	5	1.5%	326,678	2,069,362	5,056.9	32,033.5
Total	323	100.0%	636,444	3,292,007	11,159.0	55,755.7

*Numbers are rounded for display purposes.

Table B-9: Professional Services Local Market Adjustment Women & Minority Owned (WMO) firms weighted by profile NAICS code frequency

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Surrounding States WMO	PA	Surrounding States
236115	1	0.3%	387	2543	1.2	7.9
237210	1	0.3%	93	344	0.3	1.1
237310	8	2.5%	138	633	3.4	15.7

Appendix B: TECHNICAL ADDENDUM

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Surrounding States WMO	PA	Surrounding States
332618	1	0.3%	11	38	0.0	0.1
481219	1	0.3%	11	36	0.0	0.1
488490	1	0.3%	20	162	0.1	0.5
522320	1	0.3%	43	320	0.1	1.0
531311	1	0.3%	67	402	0.2	1.2
531312	1	0.3%	145	939	0.4	2.9
531390	1	0.3%	16	76	0.0	0.2
541110	2	0.6%	746	3583	4.6	22.2
541191	1	0.3%	90	260	0.3	0.8
541310	8	2.5%	164	1113	4.1	27.6
541320	5	1.5%	156	747	2.4	11.6
541330	204	63.2%	436	2410	275.4	1,522.1
541350	2	0.6%	13	91	0.1	0.6
541370	9	2.8%	33	208	0.9	5.8
541380	2	0.6%	67	281	0.4	1.7
541420	1	0.3%	13	66	0.0	0.2
541490	3	0.9%	889	3116	8.3	28.9
541511	2	0.6%	378	3401	2.3	21.1
541512	6	1.9%	427	4262	7.9	79.2
541611	9	2.8%	707	5285	19.7	147.3
541614	3	0.9%	176	1332	1.6	12.4
541618	3	0.9%	1061	6578	9.9	61.1
541620	18	5.6%	157	639	8.7	35.6
541690	4	1.2%	235	1563	2.9	19.4
541715	1	0.3%	93	498	0.3	1.5
541720	4	1.2%	50	302	0.6	3.7
541910	2	0.6%	76	466	0.5	2.9
541922	1	0.3%	65	385	0.2	1.2
541990	1	0.3%	168	1154	0.5	3.6
561110	1	0.3%	351	2430	1.1	7.5
561730	1	0.3%	230	998	0.7	3.1
561990	4	1.2%	2382	12607	29.5	156.1
562910	1	0.3%	36	159	0.1	0.5
611310	2	0.6%	2	20	0.0	0.1
813312	1	0.3%	2	4	0.0	0.0
999990	5	1.5%	8559	18589	132.5	287.8
	323	100.0%	18693	78040	521.5	2496.2

*Numbers are rounded for display purposes.

Appendix B: TECHNICAL ADDENDUM

Table B-10: Professional Services Potential DBE Calculation

Geography	All Firms	WMO Firms	All Non-WMO Firms	PennDOT Non-DBEs (All States)	PennDOT DBEs	Unwtd. Pot. New DBEs	Wt.	Wtd. Pot. DBEs	Total DBEs	Total DBEs as % of EU	Measure of Race Neutrality
PA	11,159	521	10,638	216	76	(65.4)	0.835	(54.6)	21.4	6.6%	2.0%
Surrounding States	55,756	2,496	53,260		31	19.6	0.113	2.2	33.2	10.3%	
Total	66,915	3,018	53,260	216	107	(45.8)	0.948	(52.4)	54.6	16.9%	

*Numbers are rounded for display purposes. All PennDOT firm counts are Step-1 RWA firms.

Calculations:

- $\text{PennDOT Non-DBEs (All States)} / \text{All Non-WMO Firms (PA)} = \text{Measure of Race Neutrality}$
- $(\text{Measure of Race Neutrality} * \text{WMO Firms}) - \text{PennDOT DBEs} = \text{Unwtd. Pot. New DBEs}$
- $\text{Wt.} * \text{Unwtd. Pot. New DBEs} = \text{Wtd. Pot. DBEs}$

Table B-11: Prime Contractors Local Market Geographic Weighting

State	Weighting
PA	0.93893
Surrounding States	0.05356
All Other States*	0.00751

*Not used in calculations. Numbers are rounded for display purposes

Table B-12: Prime Contractors Local Market Adjustment for All Firms by NAICS Code Frequency

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Surrounding States All	PA	Surrounding States
115310	1	0.3%	180	387	0.5	1.0
212312	2	0.5%	121	224	0.6	1.1
212319	2	0.5%	32	98	0.2	0.5
213112	1	0.3%	709	1246	1.8	3.2
236115	11	2.8%	31369	130129	875.8	3633.0
236116	1	0.3%	2111	11144	5.4	28.3
236117	1	0.3%	396	1680	1.0	4.3
236118	1	0.3%	11382	36682	28.9	93.1
236210	10	2.5%	535	1670	13.6	42.4
237110	48	12.2%	1165	3215	141.9	391.7
237210	3	0.8%	275	978	2.1	7.4
237310	160	40.6%	2145	6978	871.1	2833.7
237990	14	3.6%	324	1696	11.5	60.3
238110	7	1.8%	2397	7857	42.6	139.6
238210	4	1.0%	7421	27685	75.3	281.1
238290	1	0.3%	237	1074	0.6	2.7
238320	14	3.6%	6166	24945	219.1	886.4

Appendix B: TECHNICAL ADDENDUM

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Surrounding States All	PA	Surrounding States
238910	20	5.1%	4240	9453	215.2	479.8
238990	12	3.0%	16369	63042	498.5	1920.1
313240	1	0.3%	12	96	0.0	0.2
324121	9	2.3%	121	427	2.8	9.8
327320	1	0.3%	764	2008	1.9	5.1
333120	1	0.3%	220	631	0.6	1.6
423320	1	0.3%	694	2709	1.8	6.9
423810	1	0.3%	712	2026	1.8	5.4
423990	1	0.3%	4685	20563	11.9	52.2
424720	1	0.3%	953	3522	2.4	8.9
444120	1	0.3%	1109	4154	2.8	10.5
484220	1	0.3%	591	2086	1.5	5.3
541330	6	1.5%	5558	21501	84.6	327.4
541340	1	0.3%	121	340	0.3	0.9
541512	1	0.3%	5684	28652	14.4	72.7
541618	3	0.8%	4552	172849	346.8	1316.1
541620	18	5.6%	157	639	8.7	35.6
561210	1	0.3%	339	1196	0.9	3.0
561320	1	0.3%	1277	4572	3.2	11.6
561499	3	0.8%	11745	59546	89.4	453.4
561720	1	0.3%	6845	27793	17.4	70.5
561730	4	1.0%	9516	33822	96.6	343.4
562910	2	0.5%	251	985	1.3	5.0
562991	1	0.3%	760	2986	1.9	7.6
562998	1	0.3%	61	201	0.2	0.5
811310	1	0.3%	3410	9500	8.7	24.1
813910	1	0.3%	2245	8691	5.7	22.0
999990	6	1.5%	326678	2069362	4974.8	31513.1
	394	100.0%	532485	2,871,376	8982.7	46271.1

*Numbers are rounded for display purposes.

Table B-13: Prime Contractors Local Market Adjustment Women & Minority Owned (WMO) firms weighted by profile NAICS code frequency

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PAWMO	Surrounding State WMO	PA	Surrounding States
115310	1	0.3%	9	21	0.0	0.1
212312	2	0.5%	4	3	0.0	0.0
212319	2	0.5%	0	4	-	0.0
213112	1	0.3%	15	51	0.0	0.1

Appendix B: TECHNICAL ADDENDUM

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PAWMO	Surrounding State WMO	PA	Surrounding States
236115	11	2.8%	387	2543	10.8	71.0
236116	1	0.3%	84	596	0.2	1.5
236117	1	0.3%	17	83	0.0	0.2
236118	1	0.3%	202	1072	0.5	2.7
236210	10	2.5%	42	175	1.1	4.4
236220	24	6.1%	315	1937	19.2	118.0
237110	48	12.2%	58	282	7.1	34.4
237120	3	0.8%	19	144	0.1	1.1
237130	1	0.3%	14	75	0.0	0.2
237210	2	0.5%	93	344	0.5	1.7
237310	160	40.6%	138	633	56.0	257.1
237990	14	3.6%	27	137	1.0	4.9
238110	7	1.8%	85	457	1.5	8.1
238210	4	1.0%	296	1774	3.0	18.0
238290	1	0.3%	24	78	0.1	0.2
238320	14	3.6%	197	911	7.0	32.4
238910	20	5.1%	218	666	11.1	33.8
238990	12	3.0%	413	2135	12.6	65.0
313240	1	0.3%	3	7	0.0	0.0
324121	9	2.3%	6	25	0.1	0.6
327320	1	0.3%	19	49	0.0	0.1
331110	1	0.3%	6	34	0.0	0.1
332311	1	0.3%	10	8	0.0	0.0
332312	1	0.3%	61	185	0.2	0.5
333120	1	0.3%	7	33	0.0	0.1
423320	1	0.3%	37	185	0.1	0.5
423810	1	0.3%	27	158	0.1	0.4
423990	1	0.3%	141	617	0.4	1.6
424720	1	0.3%	28	110	0.1	0.3
444120	1	0.3%	47	191	0.1	0.5
484220	1	0.3%	59	265	0.1	0.7
541330	6	1.5%	436	2410	6.6	36.7
541340	1	0.3%	13	37	0.0	0.1
541512	1	0.3%	427	4262	1.1	10.8
541618	3	0.8%	1061	6578	8.1	50.1
561210	1	0.3%	49	313	0.1	0.8

Appendix B: TECHNICAL ADDENDUM

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PAWMO	Surrounding State WMO	PA	Surrounding States
561320	1	0.3%	130	625	0.3	1.6
561499	3	0.8%	247	1556	1.9	11.8
561720	1	0.3%	517	2332	1.3	5.9
561730	4	1.0%	230	998	2.3	10.1
562910	2	0.5%	36	159	0.2	0.8
562991	1	0.3%	36	124	0.1	0.3
562998	1	0.3%	7	15	0.0	0.0
811310	1	0.3%	92	362	0.2	0.9
813910	1	0.3%	2	17	0.0	0.0
999990	6	1.5%	8559	18589	130.3	283.1
Total	394	100.0%	14950	54365	285.8	1073.4

*Numbers are rounded for display purposes.

Table B-14: Prime Contractors Potential DBE Calculation.

Geography	All Firms	WMO Firms	All Non-WMO Firms	PennDOT Non-DBEs (All States)	PennDOT DBEs	Unwtd. Pot. New DBEs	Wt.	Wtd. Pot. DBEs	Total DBEs	Total DBEs as % of EU	Measure of Race Neutrality
PA	8,983	286	8,697	501	12	4.5	0.939	4.2	16.2	3.1%*	5.8%
Surrounding States	46271	1,073	45,198		9	52.8	0.054	2.8	11.8	2.3%*	
Total	54,938	1,351	53,587	501	21	56.9	0.992	7.0	28.0	5.3%*	

*Reflects increase in EU from potential DBEs. Numbers are rounded for display purposes. All PennDOT firm counts are Step-1 RWA firms.

Calculations:

- $\text{PennDOT Non-DBEs (All States)} / \text{All Non-WMO Firms (PA)} = \text{Measure of Race Neutrality}$
- $(\text{Measure of Race Neutrality} * \text{WMO Firms}) - \text{PennDOT DBEs} = \text{Unwtd. Pot. New DBEs}$
- $\text{Wt.} * \text{Unwtd. Pot. New DBEs} = \text{Wtd. Pot. DBEs}$

Table B-15: Subcontractors Local Market Geographic Weighting

State	Weighting
PA	0.65711
Surrounding States	0.33748
All Other States*	0.00541

*Not used in calculations. Numbers are rounded for display purposes.

Table B-16: Subcontractors Local Market Adjustment for All Firms by NAICS Code Frequency

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Surrounding States All	PA	Surrounding States
236220	381	21.9%	4114	15784	901.3	3,458.1
237110	1	0.1%	1165	3215	0.7	1.8

Appendix B: TECHNICAL ADDENDUM

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Surrounding States All	PA	Surrounding States
237310	3	0.2%	2145	6978	3.7	12.0
238990	1	0.1%	16369	63042	9.4	36.3
423390	699	40.2%	260	877	104.5	352.5
484220	1	0.1%	591	2086	0.3	1.2
541330	242	13.9%	5558	21501	773.5	2,992.1
541370	9	0.5%	734	2610	3.8	13.5
541611	402	23.1%	12517	46301	2,893.5	10,703.3
	1739	100.0%	43453	162394	4,690.7	17,570.9

*Numbers are rounded for display purposes.

Table B-17: Subcontractors Local Market Adjustment Women & Minority Owned (WMO) firms weighted by profile NAICS code frequency

NAICS Codes	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Surrounding State WMO	PA	Surrounding State
236220	381	21.9%	315	1937	69.0	424.4
237110	1	0.1%	58	282	0.0	0.2
237310	3	0.2%	138	633	0.2	1.1
238990	1	0.1%	413	2135	0.2	1.2
423390	699	40.2%	26	103	10.5	41.4
484220	1	0.1%	59	265	0.0	0.2
541330	242	13.9%	436	2410	60.7	335.4
541370	9	0.5%	33	208	0.2	1.1
541611	402	23.1%	707	5285	163.4	1,221.7
	1739	100.0%	2185	13258	304.3	2,026.6

*Numbers are rounded for display purposes.

Table B-18: Subcontractors Potential DBE Calculation

Geography	All Firms	WMO Firms	All Non-WMO Firms	PennDOT Non-DBEs (All States)	PennDOT DBEs	Unwtd. Pot. New DBEs	Wt.	Wtd. Pot. DBEs	Total DBEs	Total DBEs as % of EU	Measure of Race Neutrality
PA	4,691	304	4,386	1,447	261	(160.6)	0.657	(105.5)	155.5	8.4%*	33.0%
Surrounding States	17,571	2,027	15,544		37	631.5	0.337	213.1	250.1	13.5%*	
Total	22,262	2,331	19,931	1,447	298	470.9	0.995	107.6	405.6	21.9%	

*Reflects increase in EU from potential DBEs. Numbers are rounded for display purposes. All PennDOT firm counts are Step-1 RWA firms.

Calculations:

- $\text{PennDOT Non-DBEs (All States)} / \text{All Non-WMO Firms (PA)} = \text{Measure of Race Neutrality}$
- $(\text{Measure of Race Neutrality} * \text{WMO Firms}) - \text{PennDOT DBEs} = \text{Unwtd. Pot. New DBEs}$
- $\text{Wt.} * \text{Unwtd. Pot. New DBEs} = \text{Wtd. Pot. DBEs}$

Appendix B: TECHNICAL ADDENDUM

Table B-19: Suppliers Local Market Geographic Weighting

State	Weighting
PA	0.72951
Rest of Nation	0.27049

**Numbers are rounded for display purposes.*

Table B-20: Suppliers Local Market Adjustment for All Firms by NAICS Code Frequency

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
111998	2	0.1%	10862	347406	14.2	455.6
115112	2	0.1%	132	7101	0.2	9.3
211120	1	0.1%	216	8364	0.1	5.5
212311	8	0.5%	55	736	0.3	3.9
212312	22	1.4%	121	1603	1.7	23.1
212313	2	0.1%	7	320	0.0	0.4
212319	5	0.3%	32	622	0.1	2.0
212321	31	2.0%	109	4642	2.2	94.4
212322	2	0.1%	10	367	0.0	0.5
213115	1	0.1%	18	361	0.0	0.2
221118	2	0.1%	2710	70833	3.6	92.9
221320	1	0.1%	417	3033	0.3	2.0
236115	9	0.6%	31369	847290	185.1	5,000.4
236116	1	0.1%	2111	69127	1.4	45.3
236210	9	0.6%	535	15074	3.2	89.0
236220	7	0.5%	4114	104023	18.9	477.5
237110	2	0.1%	1165	31058	1.5	40.7
237310	51	3.3%	2145	46446	71.7	1,553.3
237990	2	0.1%	324	13482	0.4	17.7
238110	19	1.2%	2397	76224	29.9	949.7
238120	8	0.5%	177	4599	0.9	24.1
238130	2	0.1%	3383	86727	4.4	113.7
238190	6	0.4%	175	4786	0.7	18.8
238220	1	0.1%	12582	304630	8.3	199.8
238290	2	0.1%	237	6622	0.3	8.7
238320	11	0.7%	6166	191023	44.5	1,377.9
238340	1	0.1%	951	46365	0.6	30.4
238910	16	1.0%	4240	59556	44.5	624.8
238990	24	1.6%	16369	347408	257.6	5,467.4

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
311942	1	0.1%	54	2359	0.0	1.5
312140	1	0.1%	172	4002	0.1	2.6
313210	5	0.3%	313	8682	1.0	28.5
313220	2	0.1%	49	788	0.1	1.0
313230	3	0.2%	16	383	0.0	0.8
313310	1	0.1%	81	1920	0.1	1.3
313320	1	0.1%	29	585	0.0	0.4
314910	1	0.1%	112	3283	0.1	2.2
314994	1	0.1%	37	655	0.0	0.4
315990	1	0.1%	186	6699	0.1	4.4
321113	2	0.1%	303	3894	0.4	5.1
321114	8	0.5%	68	1004	0.4	5.3
321219	3	0.2%	22	531	0.0	1.0
321992	1	0.1%	130	1861	0.1	1.2
321999	2	0.1%	353	7513	0.5	9.9
322211	1	0.1%	150	2710	0.1	1.8
322220	3	0.2%	156	3174	0.3	6.2
322299	1	0.1%	127	2092	0.1	1.4
323111	1	0.1%	3054	74726	2.0	49.0
323120	1	0.1%	269	6312	0.2	4.1
324110	3	0.2%	95	3022	0.2	5.9
324121	40	2.6%	121	2342	3.2	61.4
324122	7	0.5%	124	1680	0.6	7.7
324199	1	0.1%	19	237	0.0	0.2
325180	11	0.7%	305	8463	2.2	61.0
325194	3	0.2%	32	426	0.1	0.8
325199	4	0.3%	138	3046	0.4	8.0
325211	13	0.9%	272	5081	2.3	43.3
325220	2	0.1%	20	450	0.0	0.6
325314	1	0.1%	28	768	0.0	0.5
325320	1	0.1%	55	1800	0.0	1.2
325510	19	1.2%	194	3728	2.4	46.4
325520	19	1.2%	99	2159	1.2	26.9
325611	1	0.1%	92	2639	0.1	1.7
325998	21	1.4%	287	6212	4.0	85.5

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
326112	2	0.1%	25	333	0.0	0.4
326113	8	0.5%	76	1518	0.4	8.0
326121	1	0.1%	22	360	0.0	0.2
326122	8	0.5%	35	604	0.2	3.2
326140	1	0.1%	2	105	0.0	0.1
326150	6	0.4%	97	1972	0.4	7.8
326199	30	2.0%	767	15561	15.1	306.1
326211	1	0.1%	28	840	0.0	0.6
326220	1	0.1%	36	653	0.0	0.4
326291	1	0.1%	13	590	0.0	0.4
326299	9	0.6%	132	3083	0.8	18.2
327120	5	0.3%	141	1693	0.5	5.6
327212	1	0.1%	96	1970	0.1	1.3
327215	3	0.2%	133	2832	0.3	5.6
327310	20	1.3%	32	718	0.4	9.4
327320	42	2.8%	331	10036	9.1	276.4
327331	6	0.4%	93	1562	0.4	6.1
327332	4	0.3%	4	340	0.0	0.9
327390	51	3.3%	310	6227	10.4	208.2
327420	1	0.1%	50	1500	0.0	1.0
327991	5	0.3%	184	3200	0.6	10.5
327992	4	0.3%	70	672	0.2	1.8
327993	1	0.1%	24	496	0.0	0.3
327999	1	0.1%	20	695	0.0	0.5
331110	34	2.2%	400	4445	8.9	99.1
331210	4	0.3%	70	1006	0.2	2.6
331221	2	0.1%	137	829	0.2	1.1
331222	8	0.5%	40	773	0.2	4.1
331318	2	0.1%	93	1180	0.1	1.5
331410	3	0.2%	76	1127	0.1	2.2
331511	4	0.3%	59	760	0.2	2.0
331513	2	0.1%	42	474	0.1	0.6
331523	1	0.1%	37	715	0.0	0.5
331524	1	0.1%	58	831	0.0	0.5
332112	2	0.1%	13	256	0.0	0.3

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
332119	9	0.6%	242	4810	1.4	28.4
332312	83	5.4%	745	14284	40.5	777.4
332313	8	0.5%	186	3114	1.0	16.3
332321	1	0.1%	128	3232	0.1	2.1
332322	20	1.3%	548	11902	7.2	156.1
332323	2	0.1%	225	4638	0.3	6.1
332420	1	0.1%	94	1781	0.1	1.2
332431	1	0.1%	58	809	0.0	0.5
332510	5	0.3%	121	3517	0.4	11.5
332618	15	1.0%	203	3188	2.0	31.4
332710	25	1.6%	1781	31800	29.2	521.3
332721	1	0.1%	67	1528	0.0	1.0
332722	21	1.4%	89	1671	1.2	23.0
332811	1	0.1%	67	1166	0.0	0.8
332812	50	3.3%	306	7036	10.0	230.7
332813	6	0.4%	224	4663	0.9	18.3
332911	1	0.1%	96	1529	0.1	1.0
332913	1	0.1%	31	954	0.0	0.6
332991	1	0.1%	20	494	0.0	0.3
332994	1	0.1%	94	2325	0.1	1.5
332996	3	0.2%	98	1723	0.2	3.4
332999	7	0.5%	307	7076	1.4	32.5
333111	1	0.1%	177	5012	0.1	3.3
333120	12	0.8%	220	6171	1.7	48.6
333131	1	0.1%	99	942	0.1	0.6
333132	1	0.1%	51	2663	0.0	1.7
333514	4	0.3%	464	6248	1.2	16.4
333517	1	0.1%	206	4962	0.1	3.3
333519	2	0.1%	96	1521	0.1	2.0
333611	1	0.1%	57	1208	0.0	0.8
333613	2	0.1%	71	1055	0.1	1.4
333924	1	0.1%	208	7417	0.1	4.9
333991	1	0.1%	56	1168	0.0	0.8
333992	1	0.1%	45	951	0.0	0.6
334290	34	2.2%	71	2295	1.6	51.2

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
334416	1	0.1%	51	1158	0.0	0.8
334418	1	0.1%	86	2324	0.1	1.5
334419	3	0.2%	236	4813	0.5	9.5
334510	2	0.1%	169	3827	0.2	5.0
334511	2	0.1%	187	6865	0.2	9.0
334519	2	0.1%	261	5461	0.3	7.2
335139	1	0.1%	157	3643	0.1	2.4
335312	1	0.1%	118	2977	0.1	2.0
335313	1	0.1%	103	1776	0.1	1.2
335314	2	0.1%	172	3452	0.2	4.5
335932	3	0.2%	58	822	0.1	1.6
335999	2	0.1%	278	7289	0.4	9.6
336211	1	0.1%	101	1731	0.1	1.1
336214	1	0.1%	45	1215	0.0	0.8
336320	2	0.1%	67	2116	0.1	2.8
336330	1	0.1%	1	249	0.0	0.2
336390	1	0.1%	254	10206	0.2	6.7
336510	1	0.1%	108	1301	0.1	0.9
336611	1	0.1%	40	2071	0.0	1.4
336999	2	0.1%	62	2421	0.1	3.2
337910	1	0.1%	34	1122	0.0	0.7
339113	1	0.1%	304	6377	0.2	4.2
339940	1	0.1%	127	2709	0.1	1.8
339950	38	2.5%	1453	36933	36.2	920.3
339991	5	0.3%	86	1453	0.3	4.8
339993	3	0.2%	44	1188	0.1	2.3
339999	8	0.5%	2840	71541	14.9	375.3
423220	1	0.1%	844	25319	0.6	16.6
423310	16	1.0%	1632	44198	17.1	463.7
423320	50	3.3%	694	19972	22.8	654.8
423330	2	0.1%	245	4735	0.3	6.2
423390	10	0.7%	260	6927	1.7	45.4
423410	1	0.1%	49	1531	0.0	1.0
423430	1	0.1%	664	20827	0.4	13.7
423440	4	0.3%	1839	45615	4.8	119.6

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
423510	46	3.0%	1169	20098	35.3	606.2
423610	15	1.0%	1468	34905	14.4	343.3
423690	3	0.2%	894	26716	1.8	52.6
423710	5	0.3%	495	11711	1.6	38.4
423810	10	0.7%	712	15609	4.7	102.4
423830	15	1.0%	3346	71865	32.9	706.9
423840	10	0.7%	1441	32101	9.4	210.5
423860	1	0.1%	255	12639	0.2	8.3
423930	1	0.1%	520	9448	0.3	6.2
423990	9	0.6%	4685	123187	27.6	727.0
424130	1	0.1%	367	8839	0.2	5.8
424510	1	0.1%	249	15387	0.2	10.1
424690	10	0.7%	878	18803	5.8	123.3
424720	5	0.3%	953	24816	3.1	81.4
424910	4	0.3%	714	27038	1.9	70.9
424950	1	0.1%	238	6678	0.2	4.4
424990	2	0.1%	7596	226165	10.0	296.6
425120	4	0.3%	53	1740	0.1	4.6
441340	1	0.1%	1686	47362	1.1	31.1
444110	8	0.5%	288	6303	1.5	33.1
449210	2	0.1%	5893	155537	7.7	204.0
459130	1	0.1%	727	16903	0.5	11.1
459999	1	0.1%	15588	421504	10.2	276.4
484110	1	0.1%	11973	394894	7.9	258.9
484121	1	0.1%	2818	79871	1.8	52.4
484230	1	0.1%	257	6648	0.2	4.4
488410	1	0.1%	2400	59654	1.6	39.1
488490	1	0.1%	559	12274	0.4	8.0
493110	3	0.2%	1928	53586	3.8	105.4
512120	1	0.1%	5111	167962	3.4	110.1
518210	1	0.1%	1288	36538	0.8	24.0
523991	1	0.1%	882	47852	0.6	31.4
531190	1	0.1%	1275	42972	0.8	28.2
531312	1	0.1%	40268	946263	26.4	620.5
532490	3	0.2%	6943	205808	13.7	404.9

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
533110	1	0.1%	237	8123	0.2	5.3
541310	1	0.1%	1867	56822	1.2	37.3
541330	16	1.0%	5558	161720	58.3	1,696.7
541370	1	0.1%	734	20212	0.5	13.3
541380	1	0.1%	1480	46527	1.0	30.5
541430	2	0.1%	2157	59420	2.8	77.9
541511	3	0.2%	6013	214244	11.8	421.5
541512	1	0.1%	5684	167254	3.7	109.7
541611	7	0.5%	12517	305498	57.5	1,402.3
541618	8	0.5%	45552	1142630	239.0	5,994.1
541620	1	0.1%	1658	37607	1.1	24.7
541690	5	0.3%	2549	69740	8.4	228.7
541820	1	0.1%	893	26790	0.6	17.6
541850	2	0.1%	159	3856	0.2	5.1
541990	3	0.2%	4176	144150	8.2	283.6
551112	1	0.1%	9961	299380	6.5	196.3
551114	1	0.1%	0	0	-	-
561110	6	0.4%	21592	563963	85.0	2,218.9
561210	1	0.1%	339	8488	0.2	5.6
561320	1	0.1%	1277	31200	0.8	20.5
561499	9	0.6%	11745	401951	69.3	2,372.2
561720	1	0.1%	6845	200167	4.5	131.3
561730	2	0.1%	9516	261012	12.5	342.3
561990	9	0.6%	45983	1269405	271.4	7,491.6
562219	1	0.1%	284	5649	0.2	3.7
562920	6	0.4%	1224	26937	4.8	106.0
562991	2	0.1%	760	18628	1.0	24.4
562998	1	0.1%	61	2157	0.0	1.4
611310	1	0.1%	2896	61958	1.9	40.6
611430	1	0.1%	173	5245	0.1	3.4
621999	1	0.1%	13251	414450	8.7	271.8
721110	1	0.1%	4660	146922	3.1	96.3
722513	1	0.1%	20086	430970	13.2	282.6
811114	1	0.1%	2896	64317	1.9	42.2
811121	1	0.1%	3792	71859	2.5	47.1

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA All	Nation without PA All	PA	Nation without PA
811198	1	0.1%	1570	32797	1.0	21.5
811310	7	0.5%	3410	85529	15.7	392.6
812990	1	0.1%	5888	192821	3.9	126.4
926120	6	0.4%	481	16168	1.9	63.6
999990	28	1.8%	326678	12341976	5,998.0	226,606.8
TOTAL	1525	100.0%	848176	26037055	81016.1	279499.2

**Numbers are rounded for display purposes.*

Table B-21: Suppliers Local Market Adjustment Women & Minority Owned (WMO) firms weighted by profile NAICS code frequency

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
111998	2	0.1%	231	7402	0.3	9.7
115112	2	0.1%	5	454	0.0	0.6
211120	1	0.1%	3	180	0.0	0.1
212311	8	0.5%	4	40	0.0	0.2
212312	22	1.4%	4	35	0.1	0.5
212313	2	0.1%	1	7	0.0	0.0
212319	5	0.3%	0	31	-	0.1
212321	31	2.0%	4	262	0.1	5.3
212322	2	0.1%	1	5	0.0	0.0
213115	1	0.1%	4	23	0.0	0.0
221118	2	0.1%	30	963	0.0	1.3
221320	1	0.1%	9	85	0.0	0.1
236115	9	0.6%	387	16602	2.3	98.0
236116	1	0.1%	84	3590	0.1	2.4
236210	9	0.6%	42	1751	0.2	10.3
236220	7	0.5%	315	12394	1.4	56.9
237110	2	0.1%	58	2813	0.1	3.7
237310	51	3.3%	138	4696	4.6	157.0
237990	2	0.1%	27	1282	0.0	1.7
238110	19	1.2%	85	3656	1.1	45.6
238120	8	0.5%	22	568	0.1	3.0
238130	2	0.1%	99	2214	0.1	2.9
238190	6	0.4%	19	344	0.1	1.4

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
238220	1	0.1%	324	10424	0.2	6.8
238290	2	0.1%	24	477	0.0	0.6
238320	11	0.7%	197	6493	1.4	46.8
238340	1	0.1%	32	1102	0.0	0.7
238910	16	1.0%	218	4451	2.3	46.7
238990	24	1.6%	413	12524	6.5	197.1
311942	1	0.1%	3	236	0.0	0.2
312140	1	0.1%	3	107	0.0	0.1
313210	5	0.3%	28	843	0.1	2.8
313220	2	0.1%	2	99	0.0	0.1
313230	3	0.2%	1	29	0.0	0.1
313310	1	0.1%	5	272	0.0	0.2
313320	1	0.1%	2	42	0.0	0.0
314910	1	0.1%	12	450	0.0	0.3
314994	1	0.1%	4	72	0.0	0.0
315990	1	0.1%	25	812	0.0	0.5
321113	2	0.1%	9	105	0.0	0.1
321114	8	0.5%	0	49	-	0.3
321219	3	0.2%	0	33	-	0.1
321992	1	0.1%	5	117	0.0	0.1
321999	2	0.1%	25	492	0.0	0.6
322211	1	0.1%	3	132	0.0	0.1
322220	3	0.2%	12	273	0.0	0.5
322299	1	0.1%	9	246	0.0	0.2
323111	1	0.1%	263	6906	0.2	4.5
323120	1	0.1%	24	838	0.0	0.5
324110	3	0.2%	5	141	0.0	0.3
324121	40	2.6%	6	112	0.2	2.9
324122	7	0.5%	4	58	0.0	0.3
324199	1	0.1%	1	13	0.0	0.0
325180	11	0.7%	12	305	0.1	2.2
325194	3	0.2%	0	17	-	0.0
325199	4	0.3%	7	155	0.0	0.4
325211	13	0.9%	12	230	0.1	2.0
325220	2	0.1%	2	25	0.0	0.0
325314	1	0.1%	0	38	-	0.0

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
325320	1	0.1%	0	90	-	0.1
325510	19	1.2%	4	259	0.0	3.2
325520	19	1.2%	1	104	0.0	1.3
325611	1	0.1%	8	460	0.0	0.3
325998	21	1.4%	25	528	0.3	7.3
326112	2	0.1%	3	31	0.0	0.0
326113	8	0.5%	4	96	0.0	0.5
326121	1	0.1%	0	28	-	0.0
326122	8	0.5%	4	42	0.0	0.2
326140	1	0.1%	0	8	-	0.0
326150	6	0.4%	4	141	0.0	0.6
326199	30	2.0%	36	1149	0.7	22.6
326211	1	0.1%	0	48	-	0.0
326220	1	0.1%	3	44	0.0	0.0
326291	1	0.1%	1	49	0.0	0.0
326299	9	0.6%	6	289	0.0	1.7
327120	5	0.3%	0	133	-	0.4
327212	1	0.1%	7	238	0.0	0.2
327215	3	0.2%	13	370	0.0	0.7
327310	20	1.3%	0	11	-	0.1
327320	42	2.8%	19	313	0.5	8.6
327331	6	0.4%	3	144	0.0	0.6
327332	4	0.3%	1	27	0.0	0.1
327390	51	3.3%	22	399	0.7	13.3
327420	1	0.1%	2	84	0.0	0.1
327991	5	0.3%	8	216	0.0	0.7
327992	4	0.3%	1	21	0.0	0.1
327993	1	0.1%	1	18	0.0	0.0
327999	1	0.1%	0	64	-	0.0
331110	34	2.2%	6	240	0.1	5.4
331210	4	0.3%	1	71	0.0	0.2
331221	2	0.1%	5	36	0.0	0.0
331222	8	0.5%	3	85	0.0	0.4
331318	2	0.1%	5	52	0.0	0.1
331410	3	0.2%	0	36	-	0.1
331511	4	0.3%	2	45	0.0	0.1

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
331513	2	0.1%	3	24	0.0	0.0
331523	1	0.1%	2	31	0.0	0.0
331524	1	0.1%	2	61	0.0	0.0
332112	2	0.1%	0	17	-	0.0
332119	9	0.6%	19	385	0.1	2.3
332312	83	5.4%	61	1221	3.3	66.5
332313	8	0.5%	12	220	0.1	1.2
332321	1	0.1%	6	203	0.0	0.1
332322	20	1.3%	45	947	0.6	12.4
332323	2	0.1%	14	387	0.0	0.5
332420	1	0.1%	12	126	0.0	0.1
332431	1	0.1%	1	31	0.0	0.0
332510	5	0.3%	4	319	0.0	1.0
332618	15	1.0%	11	229	0.1	2.3
332710	25	1.6%	94	2343	1.5	38.4
332721	1	0.1%	8	152	0.0	0.1
332722	21	1.4%	2	141	0.0	1.9
332811	1	0.1%	2	69	0.0	0.0
332812	50	3.3%	15	512	0.5	16.8
332813	6	0.4%	12	342	0.0	1.3
332911	1	0.1%	5	76	0.0	0.0
332913	1	0.1%	1	60	0.0	0.0
332991	1	0.1%	1	31	0.0	0.0
332994	1	0.1%	9	159	0.0	0.1
332996	3	0.2%	8	156	0.0	0.3
332999	7	0.5%	19	617	0.1	2.8
333111	1	0.1%	5	206	0.0	0.1
333120	12	0.8%	7	308	0.1	2.4
333131	1	0.1%	2	68	0.0	0.0
333132	1	0.1%	0	103	-	0.1
333514	4	0.3%	23	425	0.1	1.1
333517	1	0.1%	7	339	0.0	0.2
333519	2	0.1%	7	99	0.0	0.1
333611	1	0.1%	2	48	0.0	0.0
333613	2	0.1%	2	49	0.0	0.1
333924	1	0.1%	15	479	0.0	0.3

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
333991	1	0.1%	2	62	0.0	0.0
333992	1	0.1%	3	96	0.0	0.1
334290	34	2.2%	4	277	0.1	6.2
334416	1	0.1%	5	114	0.0	0.1
334418	1	0.1%	6	278	0.0	0.2
334419	3	0.2%	13	521	0.0	1.0
334510	2	0.1%	7	291	0.0	0.4
334511	2	0.1%	7	415	0.0	0.5
334519	2	0.1%	24	379	0.0	0.5
335139	1	0.1%	8	313	0.0	0.2
335312	1	0.1%	9	215	0.0	0.1
335313	1	0.1%	6	179	0.0	0.1
335314	2	0.1%	8	214	0.0	0.3
335932	3	0.2%	1	40	0.0	0.1
335999	2	0.1%	19	581	0.0	0.8
336211	1	0.1%	6	133	0.0	0.1
336214	1	0.1%	3	68	0.0	0.0
336320	2	0.1%	1	130	0.0	0.2
336330	1	0.1%	0	11	-	0.0
336390	1	0.1%	6	361	0.0	0.2
336510	1	0.1%	4	64	0.0	0.0
336611	1	0.1%	4	163	0.0	0.1
336999	2	0.1%	7	151	0.0	0.2
337910	1	0.1%	2	80	0.0	0.1
339113	1	0.1%	25	783	0.0	0.5
339940	1	0.1%	17	476	0.0	0.3
339950	38	2.5%	91	3466	2.3	86.4
339991	5	0.3%	6	127	0.0	0.4
339993	3	0.2%	2	85	0.0	0.2
339999	8	0.5%	106	3696	0.6	19.4
423220	1	0.1%	63	2528	0.0	1.7
423310	16	1.0%	62	1462	0.7	15.3
423320	50	3.3%	37	1067	1.2	35.0
423330	2	0.1%	15	218	0.0	0.3
423390	10	0.7%	26	631	0.2	4.1
423410	1	0.1%	7	148	0.0	0.1

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
423430	1	0.1%	53	2518	0.0	1.7
423440	4	0.3%	44	1416	0.1	3.7
423510	46	3.0%	58	1115	1.7	33.6
423610	15	1.0%	76	2881	0.7	28.3
423690	3	0.2%	59	2275	0.1	4.5
423710	5	0.3%	27	1034	0.1	3.4
423810	10	0.7%	27	974	0.2	6.4
423830	15	1.0%	142	4033	1.4	39.7
423840	10	0.7%	70	2465	0.5	16.2
423860	1	0.1%	13	1060	0.0	0.7
423930	1	0.1%	21	438	0.0	0.3
423990	9	0.6%	141	4888	0.8	28.8
424130	1	0.1%	15	728	0.0	0.5
424510	1	0.1%	2	335	0.0	0.2
424690	10	0.7%	53	1557	0.3	10.2
424720	5	0.3%	28	929	0.1	3.0
424910	4	0.3%	27	1024	0.1	2.7
424950	1	0.1%	9	363	0.0	0.2
424990	2	0.1%	172	6209	0.2	8.1
425120	4	0.3%	5	197	0.0	0.5
441340	1	0.1%	40	1327	0.0	0.9
444110	8	0.5%	6	97	0.0	0.5
449210	2	0.1%	228	7417	0.3	9.7
459130	1	0.1%	156	3684	0.1	2.4
459999	1	0.1%	817	23265	0.5	15.3
484110	1	0.1%	288	12799	0.2	8.4
484121	1	0.1%	164	5580	0.1	3.7
484230	1	0.1%	13	603	0.0	0.4
488410	1	0.1%	66	1984	0.0	1.3
488490	1	0.1%	20	834	0.0	0.5
493110	3	0.2%	51	1655	0.1	3.3
512120	1	0.1%	60	2129	0.0	1.4
518210	1	0.1%	114	4049	0.1	2.7
523991	1	0.1%	14	678	0.0	0.4
531190	1	0.1%	74	2783	0.0	1.8
531312	1	0.1%	145	6733	0.1	4.4

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
532490	3	0.2%	70	3022	0.1	5.9
533110	1	0.1%	10	372	0.0	0.2
541310	1	0.1%	164	5353	0.1	3.5
541330	16	1.0%	436	15108	4.6	158.5
541370	1	0.1%	33	1539	0.0	1.0
541380	1	0.1%	67	2272	0.0	1.5
541430	2	0.1%	333	9701	0.4	12.7
541511	3	0.2%	378	16425	0.7	32.3
541512	1	0.1%	427	19962	0.3	13.1
541611	7	0.5%	707	30297	3.2	139.1
541618	8	0.5%	1061	41659	5.6	218.5
541620	1	0.1%	157	4743	0.1	3.1
541690	5	0.3%	235	9061	0.8	29.7
541820	1	0.1%	110	3818	0.1	2.5
541850	2	0.1%	14	375	0.0	0.5
541990	3	0.2%	168	8062	0.3	15.9
551112	1	0.1%	101	3962	0.1	2.6
551114	1	0.1%	0	0	-	-
561110	6	0.4%	351	14710	1.4	57.9
561210	1	0.1%	49	2157	0.0	1.4
561320	1	0.1%	130	4009	0.1	2.6
561499	9	0.6%	247	10802	1.5	63.7
561720	1	0.1%	517	18188	0.3	11.9
561730	2	0.1%	230	8925	0.3	11.7
561990	9	0.6%	2382	91902	14.1	542.4
562219	1	0.1%	12	194	0.0	0.1
562920	6	0.4%	32	923	0.1	3.6
562991	2	0.1%	36	1124	0.0	1.5
562998	1	0.1%	7	149	0.0	0.1
611310	1	0.1%	2	168	0.0	0.1
611430	1	0.1%	32	1254	0.0	0.8
621999	1	0.1%	341	11657	0.2	7.6
721110	1	0.1%	185	6525	0.1	4.3
722513	1	0.1%	768	16414	0.5	10.8
811114	1	0.1%	68	2259	0.0	1.5
811121	1	0.1%	95	2896	0.1	1.9

Appendix B: TECHNICAL ADDENDUM

NAICS	Frequencies	Weight	Pulled Hoover's Data		Weighted Data	
			PA WMO	Nation without PA WMO	PA	Nation without PA
811198	1	0.1%	37	981	0.0	0.6
811310	7	0.5%	92	3234	0.4	14.8
812990	1	0.1%	360	12377	0.2	8.1
926120	6	0.4%	1	28	0.0	0.1
999990	28	1.8%	8559	257554	157.1	4,728.9
TOTAL	1525	100.0%	26812	901107	237.9036	7483.3659

*Numbers are rounded for display purposes.

Table B-22: Suppliers Potential DBE Calculation

Geography	All Firms	WMO Firms	All Non-WMO Firms	PennDOT Non-DBEs (All States)	PennDOT DBEs	Unwtd. Pot. New DBEs	Wt.	Wtd. Pot. DBEs	Total DBEs	Total DBEs as % of EU	Measure of Race Neutrality
PA	8,106	238	7,868	1,535	49	(2.6)	0.730	(1.9)	47.1	2.4%*	19.5%
Rest of Nation	279,499	7,483	272,016		13	1,443.3	0.270	391.4	404.4	20.4%*	
Total	287,903	7,721	280,182	1,535	62	1,444.3	1.000	389.5	451.5	22.7%*	

*Reflects increase in EU from potential DBEs. Numbers are rounded for display purposes. All PennDOT firm counts are Step-1 RWA firms.

Calculations:

- $\text{PennDOT Non-DBEs (All States)} / \text{All Non-WMO Firms (PA)} = \text{Measure of Race Neutrality}$
- $(\text{Measure of Race Neutrality} * \text{WMO Firms}) - \text{PennDOT DBEs} = \text{Unwtd. Pot. New DBEs}$
- $\text{Wt.} * \text{Unwtd. Pot. New DBEs} = \text{Wtd. Pot. DBEs}$

Table B-23: Comparison of Baseline and Potential Ratios

Submarket	Baseline Ratio	Potential DBE Ratio
Professional Services	0.33127*	0.16898
Construction Primes	0.04023	0.05297*
Construction Subcontractors	0.17077	0.21893*
Construction Suppliers	0.03882	0.22728*

*Final figure used in calculation. Numbers are rounded for display purposes.

Table B-24: Disparity Adjustment Calculations

Submarket	Adjusted Baseline Ratio	Disparity Adjustment	Disparity Adjusted Ratio	Weight (Market Category portion of Total Expenditures)	Weighted Disparity Adjusted Ratios
Professional Services	0.33127	1.045	0.34618	0.15013	0.05197
Prime contractors	0.05293	1.08	0.05721	0.58594	0.03352
Subcontractors	0.21893	1.08	0.23644	0.14666	0.03468
Suppliers	0.22729	1.08	0.24546	0.11727	0.02879

Appendix B: TECHNICAL ADDENDUM

Submarket	Adjusted Baseline Ratio	Disparity Adjustment	Disparity Adjusted Ratio	Weight (Market Category portion of Total Expenditures)	Weighted Disparity Adjusted Ratios
<i>Note: The numbers in this table have been rounded for display purposes</i>				Total Expenditures 1 or 100%	0.14895 or 14.90%

**Numbers are rounded for display purposes.*

ADJUSTMENT FOR PAST PARTICIPATION

This past participation adjustment reduced the disparity-adjusted weighted ratio for each submarket in Table B-24 to **0.84332** of its original calculation based on the average of the original disparity-adjusted goal and the median past participation. That factor was applied to both the Construction and Professional Services disparity-adjusted ratios to produce the final submarket goals. The Table B-25 shows how the past participation adjustment is calculated using the median past participation rates for the last five full federal fiscal years.

Table B-25: Past Participation Adjustment

A	B	C	D	E
FFY	DBE Participation	Original Disparity - Adjusted Goal	Past Participation Adjusted Goal (Average B & C)	Past Participation Adjustment Factor (D/C)
2018	7.98%			
2019	10.23%			
2020	14.18%			
2021	13.61%			
2022	8.76%			
Median Past Participation	10.23%	14.90%	12.56%	0.84332

**Numbers are rounded for display purposes.*

FINAL GOAL CALCULATION

The final goal calculation adjusts the submarket goals based on past participation. The past participation adjustment reduced the disparity-adjusted ratio to 0.84332 (84.33%) of its original calculation. That factor was applied to both the Construction and Professional Services disparity-adjusted ratios to produce the final submarket goals.

CONSTRUCTION MARKET GOAL

Table B-26: Construction Market Goal Calculation

Appendix B: TECHNICAL ADDENDUM

Construction Submarkets	Disparity Adjusted Ratio	Past Participation Factor	Disparity & Participation-Adjusted Ratio	Construction Submarket Weight	Weight within Market (submarket weight divided by sum of submarket weights)	Construction Weighted Ratios
Primes	0.05297	0.84332	0.04824	0.58594	0.68944	0.03326
Subs	0.23644	0.84332	0.19940	0.14666	0.17257	0.03441
Suppliers	0.24546	0.84332	0.20700	0.11727	0.13798	0.02856
Total				0.84987	1.00000	0.09623 or 9.62%

*Numbers are rounded for display purposes.

PROFESSIONAL SERVICES MARKET GOAL

Table B-27: Professional Services Market Goal Calculation

Professional Services Submarket	Disparity Adjusted Ratio*	Past Participation Factor	Professional Services Weighted Ratio
Professional Services	0.34618	0.84332	0.29194 or 29.19%

*Numbers are rounded for display purposes.

FINAL OVERALL GOAL

For the final overall overall goal, the adjusted and weighted submarket ratios were summed, resulting in an overall goal as shown in **Table B-28**.

Table B-28: Final Overall Goal Calculation

Submarket	Disparity & Participation-Adjusted Ratio	Submarket Weightings	Adjusted & Weighted Ratios
Professional Services	0.29194	0.15013	0.04383
Prime Contractors	0.04824	0.58594	0.02827
Subcontractors	0.19940	0.14666	0.02924
Suppliers	0.20700	0.11727	0.02427
Overall Goal		1.0	0.12561 or 12.56%

*Numbers are rounded for display purposes.

PennDOT estimates awarding an annual average of \$2,470,959,195 in contracts during the triennial period. The calculated goal represents \$310,387,055 in payments to DBEs annually.

$$\$2,470,959,195 \times 0.12561 = \$310,387,055 *$$

*The final goal represents rounded calculations.

RACE-NEUTRAL/RACE-CONSCIOUS PROJECTIONS

The final DBE goal established by PennDOT can be attained through race-neutral or race conscious means. Race-neutral means include situations where DBEs receive work, even though no special effort is made on the part of PennDOT or contractors to singularly engage DBEs. Race-conscious means are contract goals.

PennDOT looked to its past attainment figures to in each submarket establish the amount of race neutral attainment and used the median race-neutral attainment figures for the last five years as its projected race-neutral attainment for the coming triennial period. This calculation yields a race-neutral participation of 0.91% and a race-conscious ratio of 11.65%

Table B-29: Race-neutral Attainment

FFY	RN Attainment
2018	0.91%
2019	0.71%
2020	1.28%
2021	1.33%
2022	0.67%
Median RN Attainment	0.91%

**Numbers are rounded for display purposes.*

SUMMARY OF PUBLIC COMMENTS AND RESPONSES

Comment: PennDOT’s FHWA DBE Goal Methodology uses data from the Hoover’s Database- a Dun & Bradstreet (D&B) product to determine the number of women and minority owned firms in its target geographic markets. The Pew Charitable Trusts has alleged D&B uses an algorithm based on the name or names of firms’ owners to predict the race/gender of firm ownership. If true should PennDOT use D&B data?

Response: The goal and methodology research team looked into this matter. D&B claims its data is pulled from a data cloud that many firms use and is regularly audited to ensure accuracy using multiple sources such as third-party evaluations and interviews.

At the Uniontown meeting, David Pinkowsky of the Small Business Administration (SBA) briefed the team and other participants on SAM, a database run by the U.S. General Services Administration (GSA) with technical support from the SBA. SAM is currently operational in a test mode. According to Pinkowsky, SAM was developed due to a data access dispute with D&B not due to any specific concerns over data validity. PennDOT concluded that the D&B database is the best data available at the current time, but PennDOT will continually monitor other products and data sources to determine which source represents the “best data” for future inline corrections and submissions.

Comment: A DBE search of ECMS can show a large list of DBE firms whose business partner registrations have expired. Since the registration can be quickly renewed, shouldn’t all those DBE firms be considered as ready, willing, and able (RWA)?

Response: PennDOT allowed DBE firms to be counted if the firm’s business partner registration had expired within one year as long as the firms met all other requirements to be RWA.

Comment: NAICS codes used in the local market analysis are not reflective of the specific submarkets being analyzed. For example, the prime and sub construction markets should only reflect construction NAICS codes.

Response: The local market analysis uses the primary NAICS codes of the RWA firms in each submarket. The codes are then weighted by frequency to minimize the impact of codes representing specialty markets and to reflect the makeup of the RWA firms. *Note: The insertion of an incorrect table in the Technical Addendum in a previous iteration may have triggered this comment. That table has now been corrected.*

Comment: Using women and minority owned businesses without regard to their size in the local market analysis is not appropriate as some of them could be firms whose owners would exceed the personal net worth cap for DBE certification.

Response: Resources available to PennDOT for goal methodology calculation and inline corrections do not permit the type of custom census needed to narrow the WMO field based on size. For example, the 2018 Disparity Study performed by BBC involved telephone interviews

Appendix C: SUMMARY OF PUBLIC COMMENTS AND RESPONSES

with over 25,000 firms. Using the D&B figures on WMO firms employs the best data available to the research team.

Comment: Increasing the goal based on the local market supplier calculation sends the wrong message. Efforts should be focused on building DBE subcontractor capacity to meet project goals.

Response: The local market analysis identifies submarkets where DBE firms already identified as RWA appear in smaller numbers than WMO firms appear in the same NAICS codes and geographic profiles in the larger economy. PennDOT's goal and methodology is data driven as the regulation requires. The numbers speak for themselves.

Comment: It is inappropriate to use data on employment, access to capital and business formation in a goal methodology. Those issues should be addressed through capacity-building issues outside of the goal methodology framework.

Response: The Tips for Goal-Setting in the Disadvantaged Business Enterprise Program published by the U.S. Department of Transportation, require PennDOT to consider the following when making a step-2 adjustment:

- past participation (the volume of work DBEs have performed in recent years) or other measure of demonstrated capacity;
- evidence from disparity studies conducted in your market area (including relevant studies commissioned by other contracting agencies in your market area);
- statistical disparities in the ability of DBEs to get financing, bonding and insurance;
- data on employment, self-employment, education and training, union apprenticeship programs; and
- any other data that would help to better measure the percentage of work that DBEs would be likely to obtain in the absence of discrimination.

Bullet points 2,3, and 4 describe the type of data used in the disparity adjustment. PennDOT operates several capacity-building programs, the small-business program, diverse business program, and the mentor-protégé program. It sees them as components of meeting the goal and helping to address existing disparities in the wider economy.

Comment: Where do the disparity adjustment figures of 8.0% for construction and 4.5% for professional services come from?

Response: Those figures come from the 2018 BBC Disparity Study. They are calculated by subtracting the disparity index for business ownership from the current availability. For construction, the figures are $17.3\% - 9.3\% = 8.0\%$. For professional services, the figures are $15.8\% - 11.3\% = 4.5\%$. These figures can be found in Figure 9-3 of the study.

Appendix C: SUMMARY OF PUBLIC COMMENTS AND RESPONSES

Comment: What are the sources for the past participation and race-neutral attainment figures used in their respective calculations?

Response: Those figures come from the Uniform Reports submitted semi-annually to FHWA for federal fiscal years 2018-2022.