



# Equity in Infrastructure: Final Presentation Fall 2022

Dec 6, 2022

# Research Team



**Siddhi Deshpande**

B.Arch Architecture  
MS Civil Engineering  
Student

Real Estate Dev., Construction, &  
Finance

Email: [sd3595@columbia.edu](mailto:sd3595@columbia.edu)



**Rajveer Gurbaxani**

BE Civil Engineering  
MS Civil Engineering  
Student

(1) Construction Engineering &  
Management  
(2) Real Estate Dev., Construction,  
& Finance

Email: [rog2115@columbia.edu](mailto:rog2115@columbia.edu)



**Alejandro**

~~Lizcano~~  
BS Civil Engineering  
MS Civil Engineering  
Student

(1) Construction Engineering &  
Management  
(2) Real Estate Dev., Construction,  
& Finance

Email: [al4370@columbia.edu](mailto:al4370@columbia.edu)



**Yuhuan Gao**

BS Civil Engineering  
MS Civil Engineering  
Student

Construction Engineering &  
Management

Email: [yg2777@columbia.edu](mailto:yg2777@columbia.edu)

# Content



- 1. Research Overview
- 1. Contracting Review
- 1. Access to Capital Review (Rajveer)
- 1. New approach to applying DBE goals to non-traditional project delivery methods (Yuhuan)
- 1. DBE fraud Schemes (Alejandro)
- 1. Next Research Steps



# 01) RESEARCH OVERVIEW

---





# Research Overview

“The Equity in Infrastructure Project (EIP) exists to improve public contracting practices by creating **more opportunities for Historically Underutilized Businesses** (HUBs) to build **generational wealth and reduce the racial wealth gap by creating more prime**, joint venture and equity contracting opportunities for these firms. Through our Pledge, EIP works to secure commitments from public agencies to increase the number, size and scope of contracts going to HUBs by **facilitating access and reducing barriers to compete for business**.”

- *Equity in Infrastructure Project* ([link](#))

## Let's Do Better Together

1%

BLACK-OWNED BUSINESS REVENUE

As a share of the revenue generated by white-owned businesses

\$2trillion

SPENT ANNUALLY

By federal, state, and local governments on goods, services and construction, making them key customers for businesses

18%

SHARE OF U.S. BUSINESSES WITH EMPLOYEES

Owned by Black, Hispanic, Asian or Native Americans

9%

SHARE OF ALL FEDERAL SPENDING IN FY2020

Spent on minority-owned small businesses

## Founding Agencies



## Supporters



# Main Challenges

1. Procurement / Contracting
2. Access to Capital
3. Certification
4. Support Services (Mentorship)
5. Engagement (Obstacles to start taking action)

## Status Quo

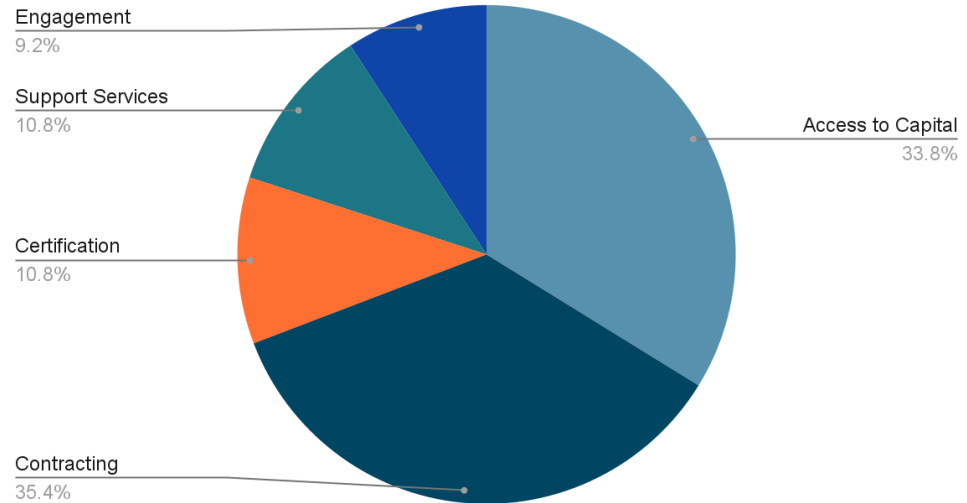
“Total revenue of Black-owned businesses in 2017 was **\$128 Billion** versus **\$11.6 Trillion** for white-owned businesses”

-(MBE HUB Whitepaper, 2021)



**Proportion** of Revenue between Black-Owned and White-Owned businesses is **1:100**

### HUB CHALLENGE AREAS








Source: AN HISTORIC OPPORTUNITY: Building Wealth for Historically Underutilized Businesses.

(MBE HUB Whitepaper, 2021)

# Solutions suggested by the MBE HUB White Paper



- |  |  |  |
|--|--|--|
| ● <b>Reform 1:</b> Support DBE Project Mobilization          |  | Credit lines and <b><u>financial resiliency</u></b>                        |
| ● <b>Reform 2:</b> Ensure Small Businesses are Paid Promptly |  | Liquidity obstacle that affect operations                                  |
| ● <b>Reforms 3:</b> Unbundle and Direct Contracting          |  | Institutional barrier obstacles  |
| ● <b>Reform 4:</b> Raise the Personal Net Worth Cap          |  | Current barrier for maintaining DBE status                                 |
| ● <b>Reform 5:</b> Unified Supplier Diversity Unit           |  | Marketplace initiative as a mechanism to make DBEs visible in the industry |

(MBE HUB Whitepaper, 2021)

**Paths: (1) Procedures, (2) Practices, and (3) Programs**

# 02) CONTRACTING REVIEW

---





# Contracting

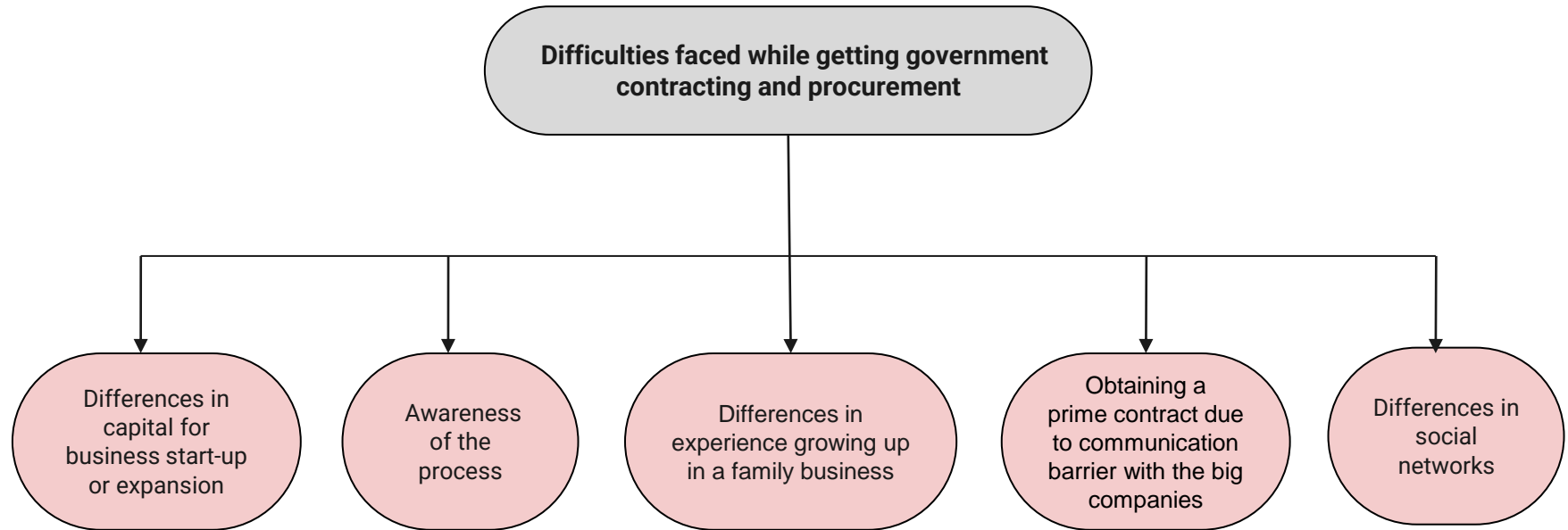
---

**Inclusive contracting** refers to the process of **creating the environment for businesses owned by people of color and/or , minority groups, women** to participate in a procurement and contracting process.

Inclusive business participation in local government procurement and contracting is **an important source of income and jobs** in communities of color and helps to **strengthen community and business partnerships.**



# Contracting



# Contracting

## Solutions



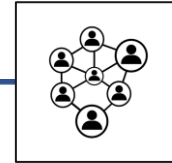
### Policy

- Establishing an overall policy that advances equity within the localized context.
- Set city goals for the number of contracts awarded to MWBEs/SMEs.



### Accessibility

- Digitize, link, and publish procurement information and data from planning to implementation.
- Establish user-friendly Online subcontracting system.

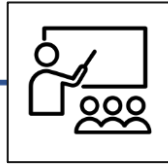


### Widen the Reach

- Get the word out about upcoming opportunities.
- Encourage and organize Prime-sub networking and social networking events.

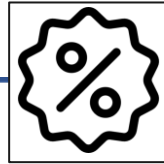
# Contracting

## Solutions



### Training

- Organise various individual coaching as well as trainings which focus on bidding and contracting.
- Mentor-Protégé program



### Bid-Discounts

- Employ an SBE bid discount policy if the contractors decides to bid on a specific project.



### Culture Change

- Implement culture of change strategies to change attitudes and awareness which will lead to changes in habit and behavior.

# 03) ACCESS TO CAPITAL REVIEW

---

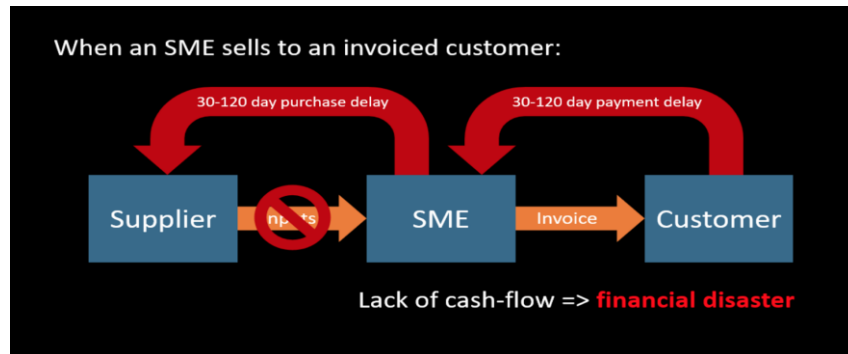




# Access to Capital

## Challenge 1 : Lags in cash flow

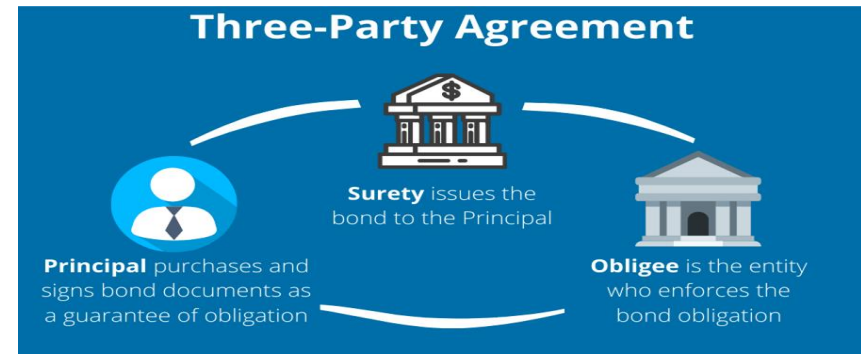
Businesses who aren't eligible for a traditional bank loan won't have the capital they need to initiate a project, and they are less likely to take on jobs that would help them grow.



(Payson Johnston, The Supply-Chain Finance Problem, May 2018 )

## Challenge 2 : Surety Bonds

Any Federal construction contract valued at **\$150,000** or more requires a surety bond when bidding or as a condition of contract award . Most State and municipal governments as well as private entities have similar requirements .



(Surety Bond Insider, July 2022)

# Access to Capital

## Challenge 3 : Access to working capital



(Investopedia, Working Capital: Formula, Components, and Limitations, Jun 2022 )

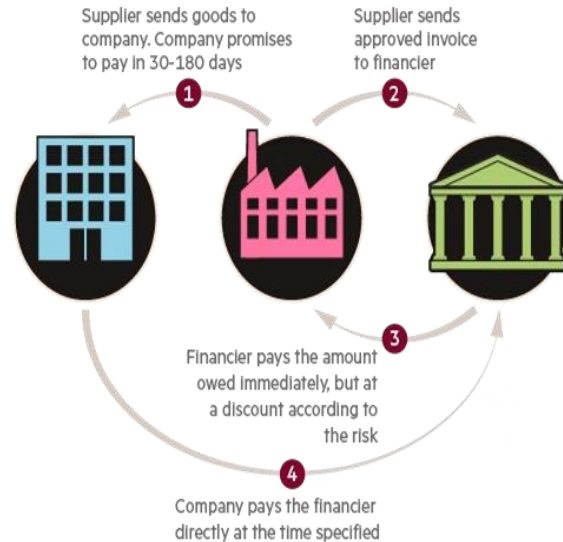
## Challenge 4 : Approval rates at CDFIs

Type	Approvals	Rejections
White Owned	208	50
Black Owned	58	36

- Minority owned firms are significantly less likely to offer business assets as collateral.
- This is a result of racial barriers to economic mobility and credit access that have contributed to a wealth gap.

# Access to Capital

## Solution 1 : Supply Chain Finance



(FT Research )

## Solution 2 : Surety Bond Resources



- The U .S . Small Business Administration (SBA) offers guarantees for surety bonds, with underwriting criteria that are more accessible than those for the general marketplace.

# Access to Capital



## Solution 3 : Non-Traditional Lending

- Contractors can partner with nonprofit lenders who offer short-term working capital loans with 90-day terms (or less).
- These types of arrangements substantially mitigate risks for both the lender and the surety company .

## Solution 4

- Better collaboration between CDFIs and larger financial institutions or Minority Depository Institutions (MDIs) could contribute to more extensive credit provision for HUBs.
- CDFIs can provide pre- and post-investment technical assistance to help potential borrowers qualify for capital
- Policymakers could subsidize CDFI operations by increasing the amount of capital made available through the CDFI fund.

# 04) DELIVERY METHODS REVIEW

---





# Equity Considerations when using: Design Build

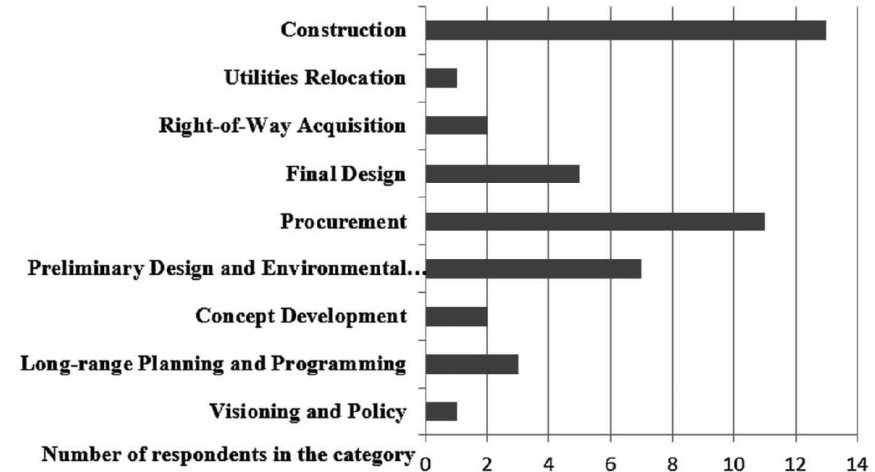
## Challenges with DB:

- **DB are lump-sum contracts.**
  - There is no guidelines on how the contractor allocates the project budget to various activities. This means the contractor could meet his DBE obligation by just contracting **with one DBE firm** for just one discipline of the project.
  - **Cost estimation in a DB contract is conceptual**, this is a vulnerability when it comes to contracting DBEs. (ROM)

Several state **DOT** focus their attention on mainly the **DBE** participation in the **construction** phase.

**DBE training** is a **key point** for bolstering **contracting** in the **infrastructure** industry for HUBs.

(Ashuri, Amekudzi-Kennedy, Amoaning-Yankson, Liang, and Cao, 2019)



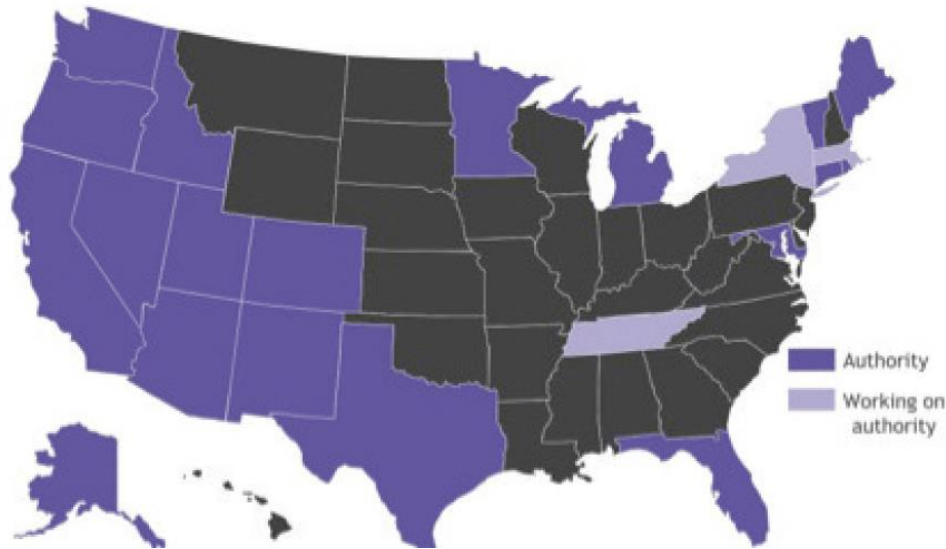
**Fig. 4.** Areas where DBE participation goals are set, applied, promoted, and/or assessed.

(Ashuri, Amekudzi-Kennedy, Amoaning-Yankson, Liang, and Cao, 2019)

**Solution:** Contract **unbundling** and better DBE contract **goal setting**.

# APPROACHES TO APPLYING DBE GOALS TO CONSTRUCTION MANAGER AT RISK AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR METHODS - NHCPR Synthesis 481 (2015)

## States DOTs with legislative authorities to use CMAR/CMGC



(NHCPR synthesis 481, Figure 4)

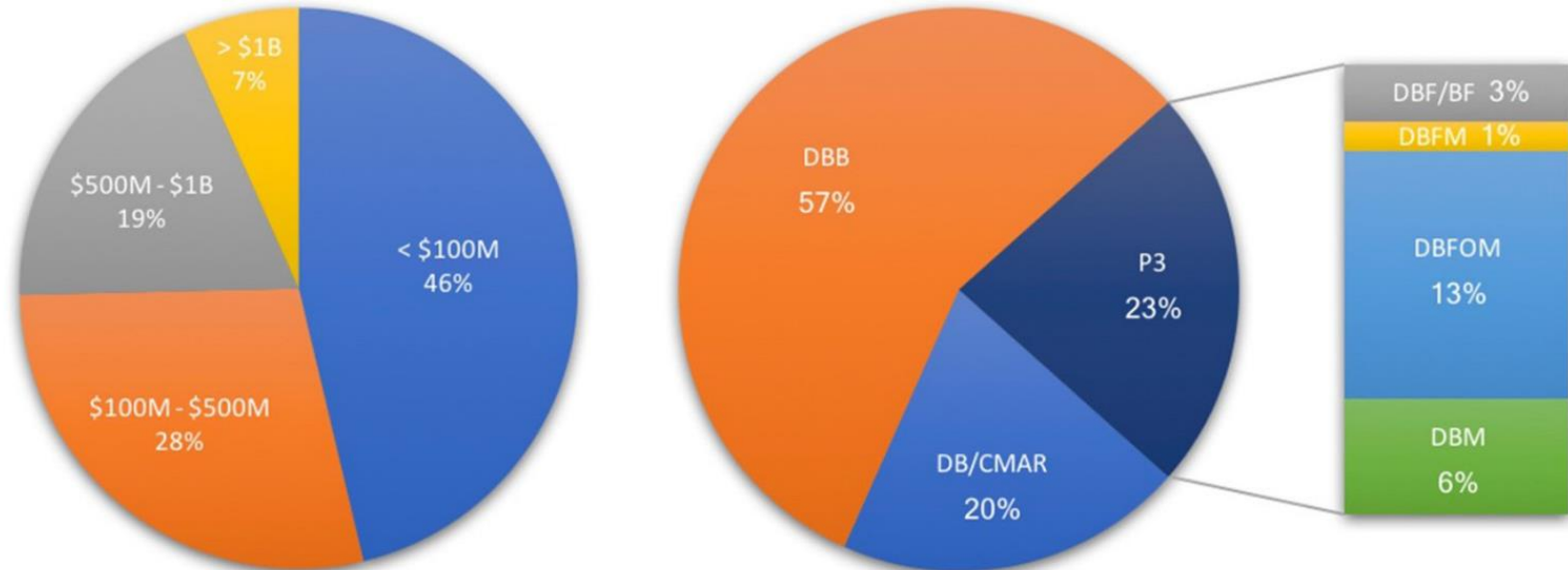
States That Have Applied DBE Contract Goals to CMAR/CMGC Projects	Use Same Methods as for Design-Bid-Build Projects	Always or Sometimes Use New Methods
Arizona		•
California		•
Colorado	•	Considering
Connecticut	•	
Michigan		•
Minnesota		•
Nevada		•
Oregon		•
Rhode Island	Unclear	
Utah		•
<b>Total</b>	<b>2</b>	<b>7</b>

(NHCPR synthesis 481, Table 5)

## Public-Private Partnership and Social Equity: An Empirical Study of the Disadvantaged Business Enterprise Program

By- Kunqi Zhang and Qingbin Cui (2021)

Project distributions by contract size and delivery method.



Source: Public-Private Partnership and Social Equity: An Empirical Study of the Disadvantaged Business Enterprise Program , Kunqi Zhang and Qingbin Cui, 2021

BF = build-finance; CMAR = construction manager at risk; DB = design-build; DBB = design-bid-build; DBF = design-build-finance; DBFM = design- build-finance-maintain; DBFOM = design-build-finance-operate-maintain; DBM = design-build-maintain; P3 = public-private partnership

## Current Practices to Set and Monitor DBE Goals on Design-Build Projects and Other Alternative Project Delivery Methods - By: David J. Keen, Lindsay Edinger, Keith Wiener, and Ed Salcedo (2015)

### Good Practices: DB Delivery Method & DBE Participation

STATE TRANSPORTATION AGENCY	DESCRIPTION
Colorado DOT	DBE commitment for prime contractors in two stages: DBE commitment for engineering firms right after the contract is awarded and later on for construction businesses.
New York State DOT	Most DBE cannot provide a quote with incomplete designs. Solution: Increase the effort to include DBEs in design.
South Carolina DOT	DBE commitment plan in the proposal and 180 days after the award the commitments.

# Public–Private Partnership and Equity



## Conclusions

- Results revealed that P3 associates with higher DBE goals than design–bid–build (DBB).
- Facing criticism that P3 contracts unfairly favor large firms, agencies implementing the delivery method and P3 proponents grapple with public acceptance.
- The PPP Social Equity study provided empirical evidence that P3 offers a suitable choice with respect to setting and fulfilling DBE goals
- Plausible explanations include P3 being associated with a larger contract size, more public attention, more potential subcontracting opportunities with design included in the package, and intensified agency desire for greater diversity in DBE subcontracts.
- DBE Participation becomes a competitive POINT BASED evaluation factor that creates an equitable environment.

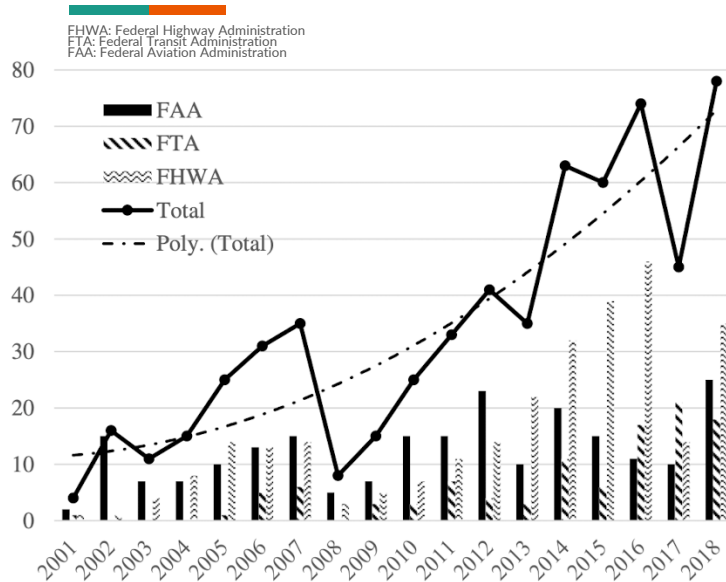


# 05) FRAUD SCHEME OVERVIEW

---



# Investigations related to DBE Fraud



**Fig. 4.** USDOT OIG's DBE fraud investigations under FHWA, FTA, and FAA.

Graph extracted from: Fraud and Abuse Schemes in the DBE Program (2020). Hongtao Dang, P.E., S.M. ASCE; and Jennifer S. Shane, Ph.D., M.ASCE. Page 5.

- Between 2009 and 2019 more than 1,000 investigations have taken place in regards to fraud in the DBE program.
- Usual investigation time: 6 months to 48 months.
- The Department of Justice (DOJ) has defined and identified two common fraud schemes in the DBE program:
  - (1) Front Scheme
  - (2) Pass-Through Scheme
- USDOT OIG has also identified the following fraud schemes:
  - (1) Fabrication
  - (2) False Claims

(Hongtao Dang and Jennifer S. Shane, 2020).

# Other Schemes and Solutions

**Table 1.** Schemes of DBE fraud investigations

Companies involved	Scheme	Total no. of investigations
WMCC, Inc. and Century Steel Erectors	Front	10
Karen Construction, Inc. and Weber Steel	Front	9
Markina Construction Corporation and Schuykill Products, Inc.	Front	9
Fairview Contracting Corporation and Perini Construction, Inc.	Front	8
MS Construction and Crossboro Construction Contracting	Front	6
V.V.S.S. Co., Inc. and BCM Industries, Inc.	Front	3
Landsite Contracting Company and Perini Construction, Inc.	Front	1
Total investigations of DBE fronts = 46		
Styx Cuthbertson Trucking Company, Inc. and Boggs Paving, Inc.	Pass-through	9
Vertech International, Inc.	Pass-through	5
Global Marine Construction Supply	Pass-through	4
HD Supply Waterworks	Pass-through	4
Rexford Albany Municipal Supply Company, Inc. and ING Civil	Pass-through	4
Markias, Inc., Alpha Painting and Construction, Inc., and Liberty Maintenance Inc.	Pass-through	3
Nuvo Construction and Sonag Company Inc.	Pass-through	3
Patton Construction, Inc.	Pass-through	3
Sanzo Ltd.	Pass-through	3
Nationwide Fence and RMD Holdings	Pass-through	2
Total investigations of pass-through schemes = 40		
MarCon Construction	Fabrication	5
Buveck Consultants, LLC	Fabrication	3
TesTech and CESO International, LLC; CESO, Inc.; CESO Testing Technology, Inc.	Fabrication	2
Total investigations of fabrications = 10		
Tri-State Construction	False Claims	3
Civil Constructors, Inc.	False Claims	3
Premier Constructors	False Claims	3
Total investigations of false claims = 9		
Various indictments by Manhattan District Attorney's Office, New York	Bribery	4
Southeast Underground and Utilities, Inc.	Bribery	2
Total investigations of bribery = 6		
Mimosa Construction Inc.	Bankruptcy	4
Total investigations of bankruptcy = 4		

Table extracted from: Fraud and Abuse Schemes in the DBE Program (2020). Hongtao Dang, P.E., S.M. ASCE; and Jennifer S. Shane, Ph.D., M.ASCE. Page 6.

## Other fraud schemes:

- False claims
- Money laundering
- Tax evasion
- Bankruptcy
- Corruption of public officials
- Wire and/or mail fraud
- Conspiracy

(Hongtao Dang and Jennifer S. Shane, 2020).

## Possible Solutions:

1. Create a unified DBE fraud database to run data analytics and bolster prevention and detection.
2. Link DBE denial and decertification to OIG investigations.
3. Mandatory anti fraud DBE training for HUB and prime contractors.
4. Generate awareness of DBE fraud in the industry. (Hongtao Dang and Jennifer S. Shane, 2020).

# 06) NEXT RESEARCH STEPS

---



# NEXT STEPS

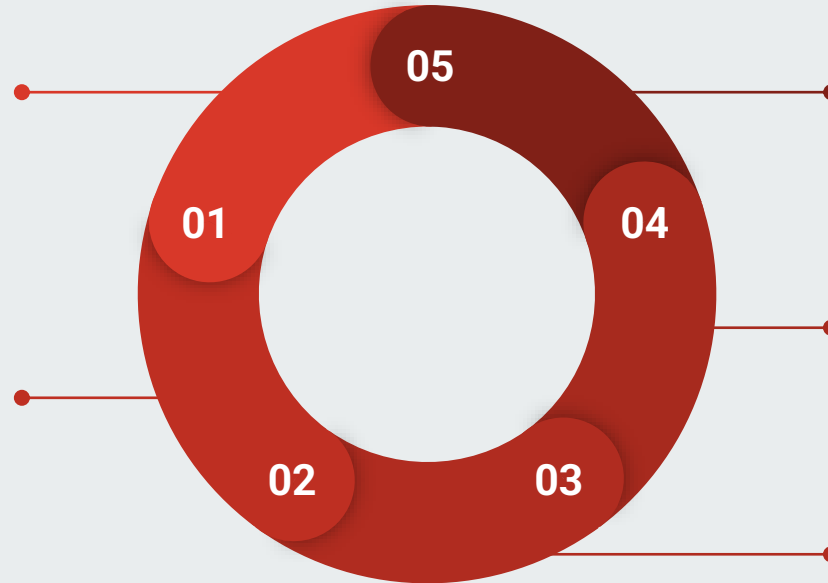
## Initiate Interview

### Preparation Process

Preparation of questionnaire and approaching HUB owners for interviews.

## Round 1 of Interviews

To delve deeper into the reality of these challenges and assess how solutions can be applied to achieve long term success. To build a database of follow up questions for round 2 interviews and survey.



## Final Conclusions

Make final conclusions about Equity in Infrastructure and recommend best practices that could benefit DBEs

## Analyze the Data and Share Initial Findings

Share and analyze our findings with the CBIPS team and compile all data

## Round 2 of Interviews + Survey

To expand the sample space and evaluate if conclusions from round 1 of interviews are peculiar to a company or applies to other HUBs as well.





Thank you



# References

1. An Historic Opportunity: Building Wealth for Historically Underutilized Businesses. (2021). Nowak Metro Finance Lab. Retrieved on Sep 08, 2022, from: <https://drexel.edu/nowak-lab/publications/reports/Building%20Wealth%20for%20Historically%20Underutilized%20Businesses/>
2. Amekudzi-Kennedy, A. (2016, April 1). Effective utilization of disadvantaged business enterprises (DBE) in alternative delivery projects: strategies and resources to support the achievement of DBE goals : Georgia DOT research project 14-42 : final report. <https://rosap.ntl.bts.gov/view/dot/31120>
3. Strategies and Resources for Government Agencies to Utilize Disadvantaged Business Enterprises in Transportation Design-Build Projects.(2019). Ashuri, Amekudzi-Kennedy, Amoaning-Yankson, Liang, and Cao. Retrieved on Oct 31, 2022 from:<https://ascelibrary.org/doi/epdf/10.1061/%28ASCE%29LA.1943-4170.0000317>
4. Contracting for Equity Best Local Government Practices that Advance Racial Equity in Government Contracting and Procurement. (2015) Tim Lohrentz, Insight Center for Community Economic Development. [https://belonging.berkeley.edu/sites/default/files/gare-contract\\_for\\_equity\\_0.pdf](https://belonging.berkeley.edu/sites/default/files/gare-contract_for_equity_0.pdf)
5. Minority-Owned Enterprises and Access to Capital from Community Development Financial Institutions, (2021) By Mels G. de Zeeuw, Victor E. da Motta, <https://www.frbsf.org/community-development/publications/community-development-investment-review/2021/may/minority-owned-enterprises-and-access-to-capital-from-community-development-financial-institutions/>
1. Opportunities to Increase Inclusion of Small Businesses in Government Contracting (2016), U.S. Department of Housing and Urban Development (Small Contractors Initiative: Bonding & Access to Capital) <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiPqNT85pT7AhXYEVkFHVVtC5MQFnoECBOQAQ&url=https%3A%2F%2Ffiles.hudexchange.info%2Fresources%2Fdocuments%2Fsmall-Contractors-Initiative-Increasing-Inclusion-of-Small-Businesses.pdf&usq=AOvVaw2RLsTIKzfjMozcMQZCch8I>
1. Approaches to applying DBE goals to CONSTRUCTION MANAGER AT RISK AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR METHODS : NHCPR Synthesis 481 (2015). From : <https://nap.nationalacademies.org/read/22112/chapter/6>