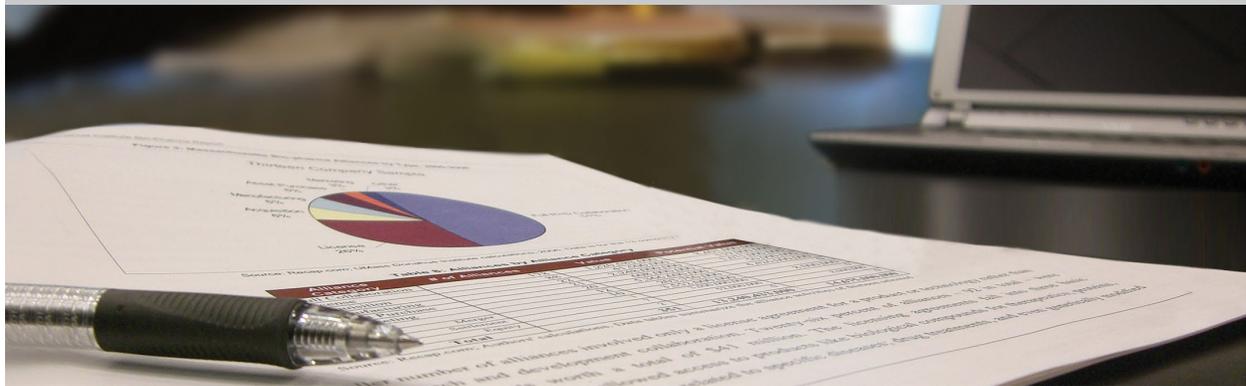


Construction-Related Trades and Union Occupations in the Greater Brockton Region

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Donahue Institute
Economic and
Public Policy Research

Construction-Related Trades and Union Occupations in the Greater Brockton Region

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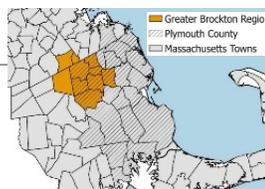
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Executive Summary

Construction and trades jobs are crucial to the Greater Brockton region. In particular, the skilled jobs in this field have good earning potential and are in high demand. The MassHire Greater Brockton Workforce Board (MHGBWB) engaged the UMass Donahue Institute (UMDI) to provide a high-level landscape assessment of the ‘trades’ sector including the demographic makeup of the workforce, employment trends, the role of unions in construction and related trades, and current barriers to individuals seeking work in union and trades occupations. The study area is the MHGBWB 10-municipality region of Greater Brockton and surrounding towns with supplemental information on the larger area.

Through mixed methods research drawing on public and proprietary data sets combined with and informed by qualitative research with local people knowledgeable about open shop and union construction and related trades work, training, and hiring, the following summary of key points about the construction-related trades industry and the occupations relevant to this field have been illustrated and further detailed in the following report:

Construction is the fourth largest industry in terms of employment in the region, it is subject to high turnover, likely due to the **temporary nature of most construction projects** as well as the weather-dependent and **physically demanding** nature of many of the relevant jobs. Most sub-parts of the industry have experienced **employment growth over the last ten years**, with the sub-industry of Building Equipment Contractors growing especially strongly.

The **market for skilled construction and trades workers is currently quite hot** and does not show signs of slackening soon. The skills for each trade are highly specialized and in demand, and employers seek experienced and licensed workers with training as well as the **transferrable or ‘soft’ skills** related to everyday **job expectations**. **Lack of awareness** of the nature and quality of construction and trades work, as well as **job openings not being very visible** and requiring networking and **word of mouth** across the many small businesses, mean that knowledge of job opportunities and career possibilities is scarce.

Meanwhile, the demographics of those currently in these occupations skews **more male and more white** than the community overall. At the same time, pending **retirements of older skilled workers** and high replacement rates mean the demand for workers in these jobs will only increase over time. More **training programs** and more exposure to **information about construction jobs and related trades careers** is needed for a larger share of the population. While there are union training programs available (apprenticeships) they require applications a year in advance and with the demand for workers as high as it is, even if every **union apprenticeship** slot were filled every year, they would not produce enough trained and skilled workers to meet the demand. More programs, if funding is available, are warranted.

The following report covers in-depth information on the construction industry and construction-related trades, with **industry and occupational analysis, demographics**, information on **unions** and a discussion of **barriers to employment in the construction industry and construction-related trades**, informed by data presented in graphs and tables, as well as quotes from local respondents noted with pseudonyms.

Introduction

Background

The MassHire Greater Brockton Workforce Board (MHGBWB) engaged the UMass Donahue Institute (UMDI) to provide a high-level landscape assessment of the construction trades sector including the demographic makeup of the workforce, employment trends, and the role of unions in the construction and related trades, and current barriers to individuals seeking work in union and trades occupations.

To develop the information needed for this research project, UMDI conducted five key informant interviews and a focus group with people with knowledge of training and hiring in the construction-related trades, including people that work in the industry and hire for construction positions, people who run trades training programs at the postsecondary level and in unions, and people who work in regional workforce and economic development organizations. All respondent names used in this report are pseudonyms, for participant confidentiality. In addition, public and proprietary data was gathered and analyzed on the demographics of the local workforce, local employment trends, and regionally active trades unions and their apprenticeship programs.

Definitions

Trades Sector

UMDI worked with MHGBWB to define the universe of the ‘trades’ sector using industries from the North American Industrial Classification System (NAICS) and occupations using the Standard Occupational Classification (SOC) system. For this project, trades and union occupations and industries are defined as relevant construction trades and truck driving.

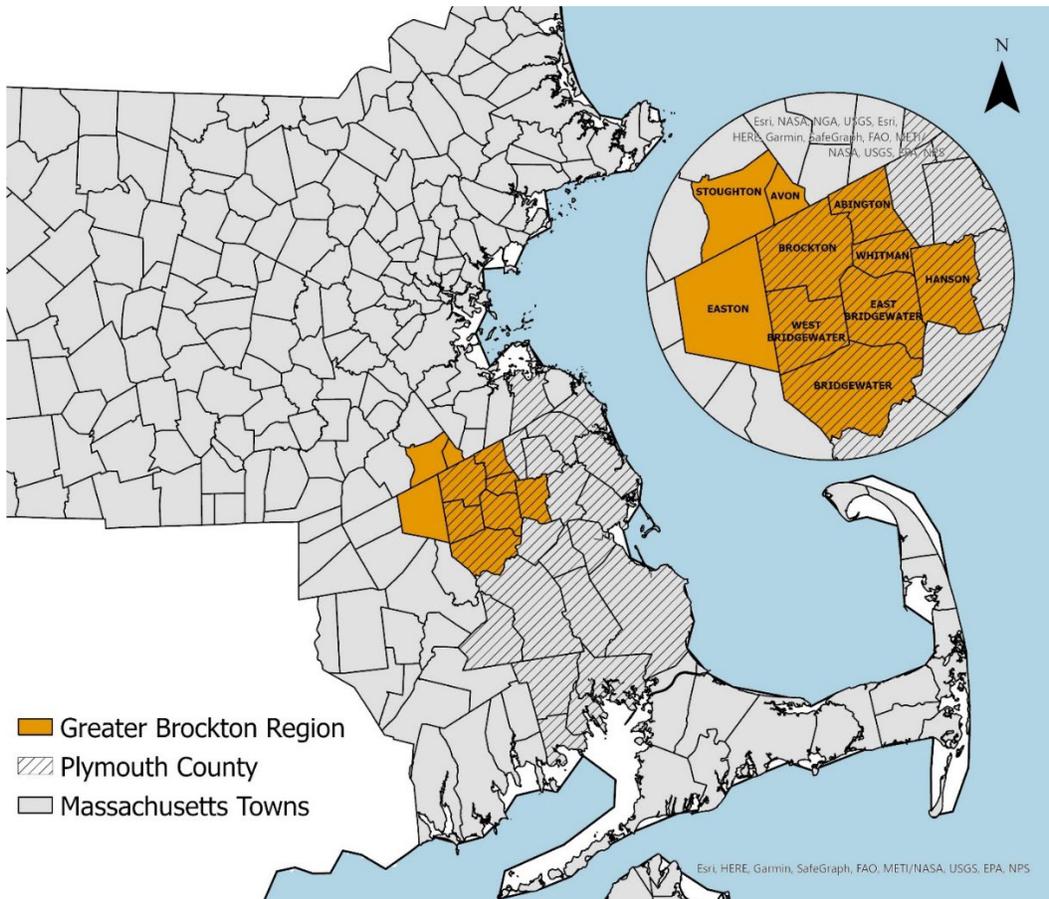
For industries, there were 12 4-digit NAICS industries identified as relevant to the study. This includes all subsectors of the Construction industry sector and two subsectors from Transportation and Warehousing that are related to trucking.

For occupations, 51 SOC occupations were identified as relevant to the study. The group includes 35 Construction and Extraction occupations; eight Transportation and Material Moving occupations; four Installation, Maintenance, and Repair occupations; two Production occupations; and two Management occupations related to construction.

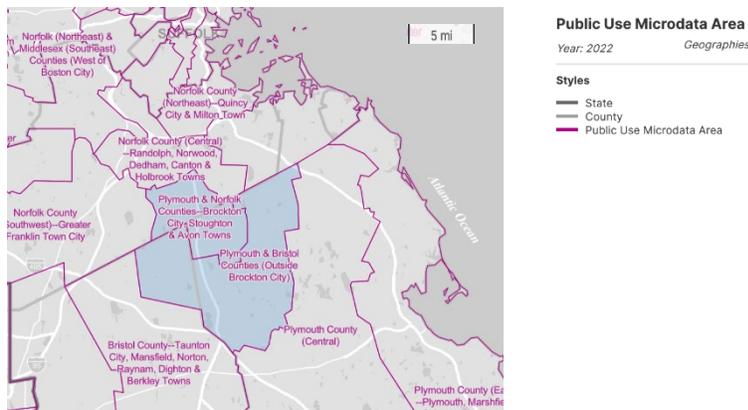
Greater Brockton Region

The Greater Brockton region is defined as the 10 municipalities that make up the Service Delivery Area (SDA) for MHGBWB. Those 10 municipalities are Abington, Avon, Bridgewater, Brockton, East Bridgewater, Easton, Hanson, Stoughton, West Bridgewater, and Whitman. Brockton is at the center of the other, smaller municipalities. This area is referred to throughout the report as Greater Brockton or the Greater Brockton region. The following map (Figure 1) highlights this area.

Figure 1: Map of 10-Municipality Greater Brockton Region



In some analyses where town level data is not available, Plymouth County is used for analysis of the broader area. In addition, some of the analysis uses the two most relevant of the Census Bureau’s Public Use Microdata Areas (PUMAs), the two PUMAs used are “Plymouth & Norfolk Counties--Brockton City, Stoughton & Avon Towns” and “Plymouth & Bristol Counties (Outside Brockton City)”.

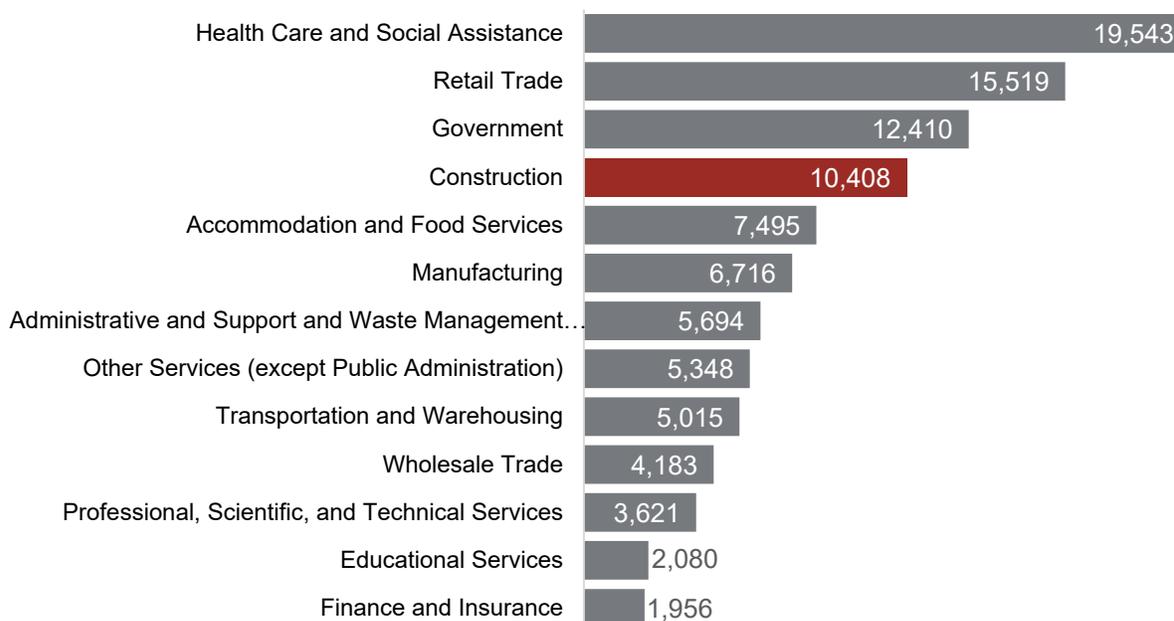


Construction-Related Trades Industry and Occupation Analysis

Industry Analysis

Construction is the fourth largest industry by number of jobs in Greater Brockton. The Construction industry makes up about 10 percent of total jobs in the Greater Brockton region, compared to only 5.3 percent of jobs statewide. There are over 10,000 jobs in the Construction industry in Greater Brockton as of 2022 (Figure 2).

Figure 2: Jobs in Greater Brockton by 2-digit NAICS Industry in 2022



Source: Lightcast, UMDI Analysis

Historical and Projected Growth of Trades Industries

To better understand industry trends for construction and trades jobs, there were 12 4-digit NAICS industries identified as construction-related ‘trades’ industries that are relevant to the study. This includes all subsectors of the Construction sector (seen in Figure 2) and two subsectors from Transportation and Warehousing that are related to trucking. Taken together, these selected 12 sub-industries have over 11,500 jobs in the Greater Brockton region (Table 1). For context, this is over 10 percent of jobs across all industries in Greater Brockton, which total over 100,000 (Figure 3). The total labor force in Greater Brockton in 2022, which includes employed and unemployed workers, was around

135,000.¹ According to data from 2020, around 90,000 employees commute out of the Greater Brockton region for work, and around 60,000 commute into the Greater Brockton region for work, for a net outflow of around 30,000 workers.

Table 1: Construction-Related Trades Jobs by NAICS Industry in Greater Brockton in 2022

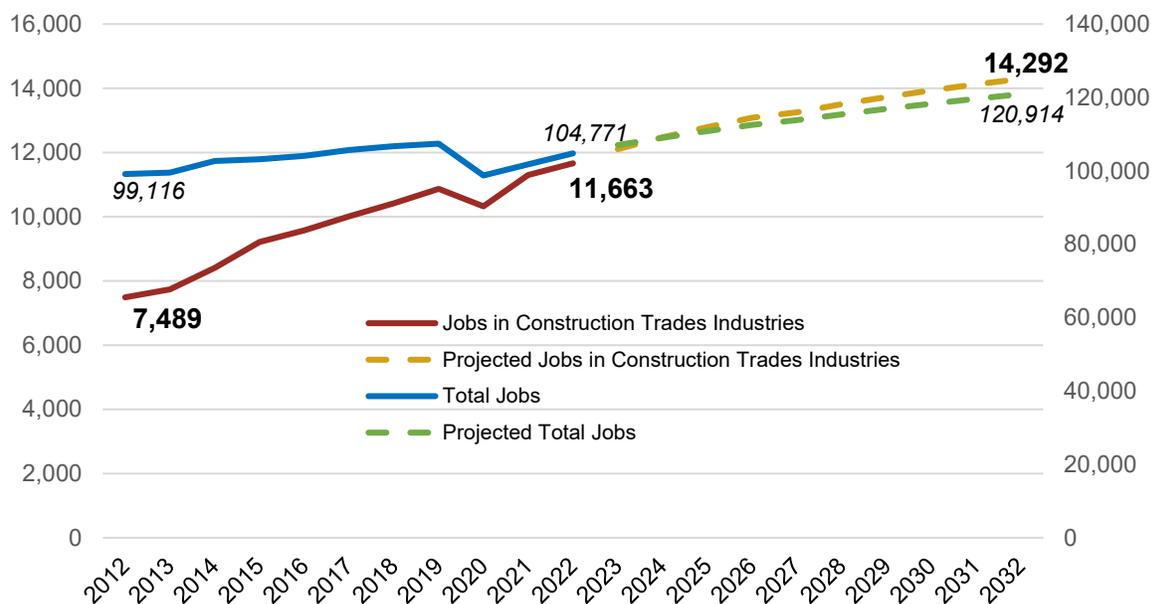
| NAICS | Description | Jobs in Greater Brockton in 2022 |
|--------------|--|----------------------------------|
| 23 | Construction | 10,408 |
| 2382 | Building Equipment Contractors | 4,141 |
| 2389 | Other Specialty Trade Contractors | 1,909 |
| 2383 | Building Finishing Contractors | 1,517 |
| 2381 | Foundation, Structure, and Building Exterior Contractors | 836 |
| 2361 | Residential Building Construction | 690 |
| 2362 | Nonresidential Building Construction | 664 |
| 2373 | Highway, Street, and Bridge Construction | 327 |
| 2371 | Utility System Construction | 215 |
| 2379 | Other Heavy and Civil Engineering Construction | 62 |
| 2372 | Land Subdivision | 47 |
| 48-49 | Transportation and Warehousing | |
| 4841 | General Freight Trucking | 779 |
| 4842 | Specialized Freight Trucking | 476 |
| | Total Jobs | 11,663 |

Source: Lightcast, UMDI Analysis

The number of jobs in these construction-related trades industries has increased by 56 percent over the past decade in Greater Brockton (Figure 3). This outpaces growth in jobs in all industries in the region, which only had a growth rate of about six percent over this same period. Growth in these sectors is expected to continue, and overall, there is a projected 23 percent growth in jobs within these building-related trades industries between 2022 and 2032 in the region. The projected growth rate of jobs in all industries in the region is about 15 percent, meaning the construction-related trades industries are projected to continue to grow at a faster rate in the region than total jobs over the next decade.

¹The labor force is the working age population living in the region employed or seeking work, while the number of jobs reflect jobs inside of the region. See Labor Force and Unemployment Data, Massachusetts Department of Economic Research, 2022; OnTheMap, US Census, 2020.

Figure 3: Historical and Projected Jobs in Construction-Related Trades Industries in Greater Brockton, 2012-2032



Source: Lightcast, UMDI Analysis

In addition to outpacing the growth of all jobs in the region, jobs in the construction-related trades industries in the Greater Brockton region have overall been growing at a faster rate than in the state over the past decade. Jobs in these industries are also projected to continue growing at a faster rate in Greater Brockton than in the state.

Some of the industry subsectors have faster growth rates than others; the Building Equipment Contractors subsector² had the highest growth in the Greater Brockton region over the past decade, with percent growth over the period. Jobs in this industry have grown at a faster rate than in the state, which had a 43 percent growth rate in the last decade overall. This subsector is also projected to continue to have a higher rate of growth of 31 percent over the next decade, through 2032. Again, this is faster than the state’s projected growth in this subsector of 21 percent (Table 2).

² The Building Equipment Contractors subsector is defined by NAICS as “establishments primarily engaged in installing or servicing equipment that forms part of a building mechanical system (e.g., electricity, water, heating, and cooling).”

Table 2: Historical and Projected Growth of Construction-Related Trades Industries in Greater Brockton and Massachusetts, 2012-2032

| Construction-Related Trades Industries (4-digit NAICS) | | Greater Brockton | | | | | Massachusetts | | | | |
|--|--|------------------|---------------|---------------|--------------------|--------------------|----------------|----------------|----------------|--------------------|--------------------|
| NAICS | Description | 2012 Jobs | 2022 Jobs | 2032 Jobs | 2012-2022 % Change | 2022-2032 % Change | 2012 Jobs | 2022 Jobs | 2032 Jobs | 2012-2022 % Change | 2022-2032 % Change |
| 2382 | Building Equipment Contractors | 2,103 | 4,141 | 5,422 | 97% | 31% | 46,344 | 66,197 | 79,837 | 43% | 21% |
| 2389 | Other Specialty Trade Contractors | 1,325 | 1,909 | 2,162 | 44% | 13% | 20,931 | 27,987 | 32,584 | 34% | 16% |
| 2383 | Building Finishing Contractors | 1,373 | 1,517 | 1,725 | 11% | 14% | 31,230 | 35,936 | 40,825 | 15% | 14% |
| 2381 | Foundation, Structure, and Building Exterior Contractors | 599 | 836 | 1,017 | 40% | 22% | 16,267 | 20,375 | 23,956 | 25% | 18% |
| 4841 | General Freight Trucking | 427 | 779 | 1,012 | 83% | 30% | 10,618 | 13,381 | 15,835 | 26% | 18% |
| 2361 | Residential Building Construction | 441 | 690 | 837 | 56% | 21% | 22,760 | 28,859 | 32,486 | 27% | 13% |
| 2362 | Nonresidential Building Construction | 426 | 664 | 823 | 56% | 24% | 12,762 | 19,031 | 23,239 | 49% | 22% |
| 4842 | Specialized Freight Trucking | 367 | 476 | 496 | 29% | 4% | 6,244 | 6,435 | 6,910 | 3% | 7% |
| 2373 | Highway, Street, and Bridge Construction | 202 | 327 | 384 | 62% | 17% | 4,392 | 5,716 | 6,461 | 30% | 13% |
| 2371 | Utility System Construction | 154 | 215 | 282 | 40% | 31% | 5,710 | 7,040 | 8,001 | 23% | 14% |
| 2379 | Other Heavy and Civil Engineering Construction | 32 | 62 | 57 | 95% | -7% | 1,698 | 1,713 | 1,610 | 1% | -6% |
| 2372 | Land Subdivision | 42 | 47 | 75 | 12% | 60% | 992 | 556 | 449 | -44% | -19% |
| | Total | 7,489 | 11,663 | 14,292 | 56% | 23% | 179,947 | 233,226 | 272,192 | 30% | 17% |

Source: Lightcast, UMDI Analysis

General Freight Trucking has also grown at a much faster rate in the Greater Brockton region than in the state. This industry subsector grew by 83 percent from 2012 to 2022 in the Greater Brockton region and grew by only 26 percent statewide (Table 2). In response to the growth of this industry in the Greater Brockton region, MHGBWB has created partnerships with transportation companies to serve the Commercial Driver's License (CDL) program. They have been running since 2016.

Historically, these construction-related trades industry subsectors have shown high rates of growth in the number of jobs and are projected to continue to grow in this region. This indicates continued and increasing demand for workers in these sectors in the Greater Brockton region.

Major Employers

Of the largest employers in the 10 towns in the Greater Brockton region, there are nine companies that are within the selected trades industries of construction and trucking that have 100 or more employees. Those companies are listed in the following table (Table 3).

Table 3: Major Employers in the Selected Trades Industries in Greater Brockton

| NAICS Code | Company name | City | Number of employees |
|------------|------------------------------|------------------|---------------------|
| 4842 | JP Noonan Transportation Inc | West Bridgewater | 250-499 |
| 2382 | Walsh Mechanical Contractors | Abington | 100-249 |
| 2361 | Callahan Construction | Bridgewater | 100-249 |
| 2372 | Claremont Co Inc | Bridgewater | 100-249 |
| 2381 | Central Ceilings Inc | South Easton | 100-249 |
| 4842 | Isaac's Moving & Storage | Stoughton | 100-249 |
| 2383 | Mats Inc Massachusetts | Stoughton | 100-249 |
| 4842 | ABF Freight System Inc | West Bridgewater | 100-249 |
| 2373 | T & K Asphalt Svc | Whitman | 100-249 |

Source: Massachusetts Department of Economic Research, UMDI Analysis

The top largest employer of this selected industry group is JP Noonan Transportation Inc, which is in the General Freight Trucking industry classification. This company has between 250-499 employees. The other eight employers on the list, most of which are in the Construction industry, have between 100-249 employees. Even though Construction is the fourth largest industry sector in Greater Brockton for employment, there are only nine companies with 100 or more employees. This suggests that there are a greater variety of smaller employers in the Construction industry.

In general, the stakeholders interviewed for this project confirmed this and said there is no one construction company in the region that workers want to work at or one where they do not want to work. One interviewee, Beth, identified a specific company that workers like. She said that this company incentivizes employees to stay through an employee share program: *“They have an employee share program, they become owners of the company. That’s an incentive. They have people that have been with their company for 13, 14, 15 years on average. So that incentive is not only do you work here, you become part owner.”*

Most interviewees did not identify specific companies that are more popular with workers than others, however, they did identify certain characteristics that workers look for in a company. One interviewee, David, who works with vocational high school students, said that trades students want to stay at companies with a career ladder and opportunities to increase their compensation as well as their skill level. He says students are looking for employers who give them on-the-job training, *“increasingly complex tasks”*, and *“somebody who is going to treat them as part of the team.”*

An overall theme in the interviews was that trades workers generally want to work at a place where they feel valued and appreciated, through compensation and through a good working environment. Beth also said that *“I think it then just goes back to an atmosphere [...] that environment of good communication, appreciation.”*

With high growth and demand for employment in these industries, employers will need to be mindful of ways to attract and retain their workers. The idea of attraction and retention of workers is analyzed further later in the report in the discussion section focused on barriers in construction-related trades occupations.

Self-Employment

Self-employment can also be prevalent in construction and trades occupations as many of these workers work as independent contractors. The Bureau of Labor Statistics (BLS) reports that one in four workers in the Construction industry is self-employed.³ This is based on national data, but this trend is also seen in Massachusetts and in Brockton.

- In the city of Brockton, around 18 percent of workers in the Construction industry are self-employed. There is a margin of error in this data of 8.5 percent so this percentage could be from around 9 to 26 percent of workers that are self-employed.
- In Plymouth County, around 21 percent of workers in the Construction industry are estimated to be self-employed. Again, there is a margin of error in this data so the range of self-employed workers could be from around 18 to 25 percent.
- In Massachusetts, about 24 percent of workers in the Construction industry are self-employed. There is a smaller margin of error in this data as the sample size is bigger, so the range of this estimate’s actual percentage could be in between 21 and 27 percent.

Brockton and Plymouth County have a slightly lower estimate of self-employment in the Construction industry than the state. However, this does not account for workers who might be paid ‘under-the-table’ or ‘off the books’. Interviewees did note that they are aware that some construction jobs are paid under-the-table, but they did not know with certainty how prevalent it is in the region, and estimates varied widely. While a precise estimate is difficult to calculate, data suggest that there is unofficial work conducted in the Construction industry paid under-the-table. This presents some issues and concerns for the labor force employed informally in this region, as they are not getting certain job protections or employee benefits. However, while most undocumented workers pay taxes and are unable to collect the benefits, there may be undocumented workers who prefer or who find that they must work under this arrangement. Some workers may prefer being paid this way because of taxes or immigration-related issues, but in general this practice would not be considered part of a good working environment because workers are not protected by insurance or certain labor laws, such as unemployment benefits, or receiving overtime pay.

As discussed in the previous section, workers prefer a working environment where they are appreciated and feel valued. Under-the-table arrangements and not abiding by labor laws infringe on the type of

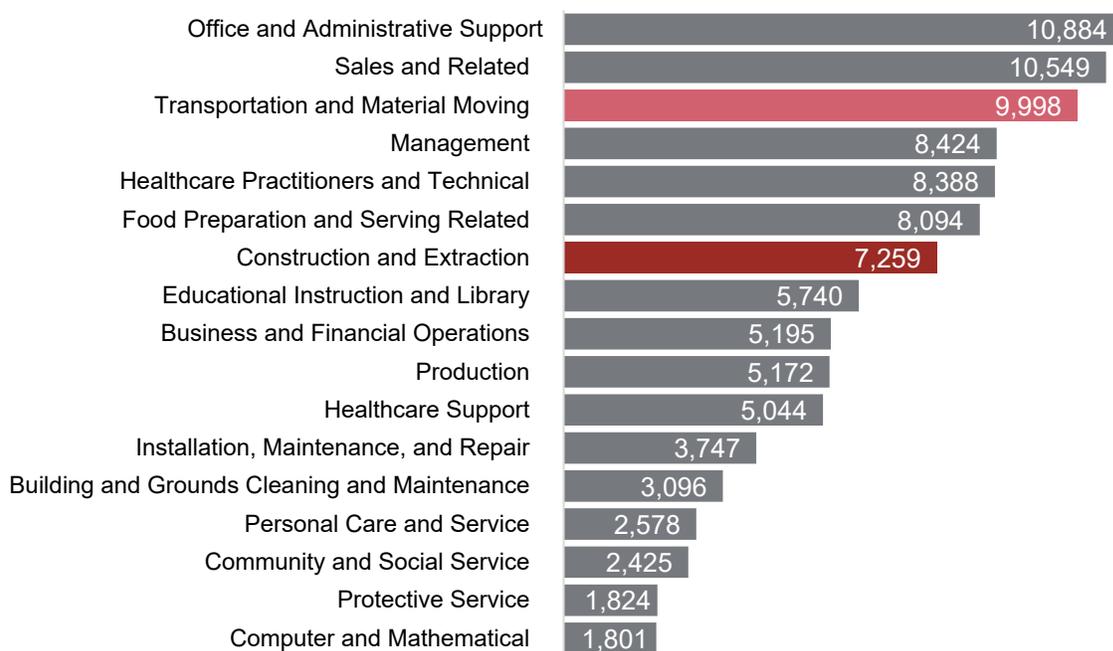
³ U.S. Bureau of Labor Statistics, 2020, <https://www.bls.gov/spotlight/2022/the-construction-industry-labor-force-2003-to-2020/home.htm>

environment where some workers would feel valued and want to stay. Retention may not matter for certain companies that only want workers for short-term projects, however, if a company does want to retain labor in this competitive labor market, then this is a practice to be aware of in the industry. Furthermore, injured workers who cannot get unemployment insurance or workplace injury-related care can contribute further to turnover in the industry.

Occupation Analysis

To better understand the workforce needs for construction-related industries, the analysis looks closely at the construction-related trades occupations that are growing and in-demand in the Greater Brockton region. There are over 7,000 jobs in Construction and Extraction occupations in the 10-municipality Greater Brockton region, which makes it the seventh largest occupation group (Figure 4). Transportation and Material Moving is the third largest occupation group with around 10,000 jobs. These groups are based on the major occupations groups from the Standard Occupational Classification (SOC) code system.

Figure 4: Jobs in Greater Brockton by SOC Major Occupational Groups, 2022



Source: Lightcast, UMDI Analysis of SOC Occupational Groups

Similar to the growth seen in the construction industries, construction occupations have also shown growth over the past decade and are projected to continue to grow and add jobs in Greater Brockton.

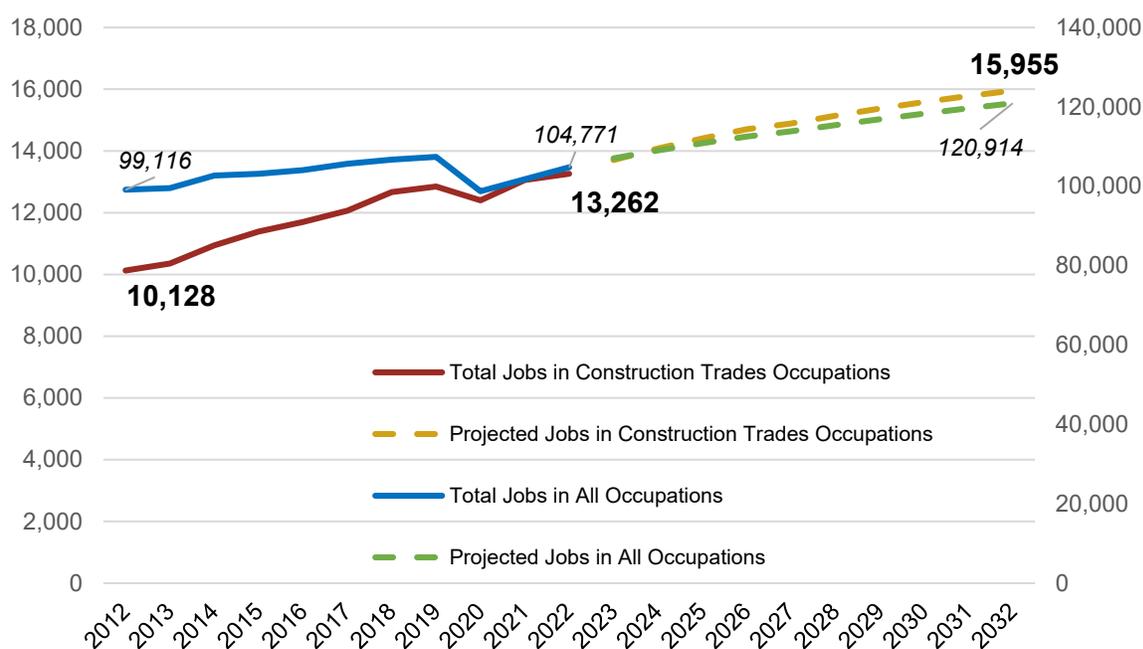
For this project, 51 SOC occupation codes were identified as construction-related ‘trades’ occupations that were relevant to the study. The group includes 35 Construction and Extraction occupations; eight Transportation and Material Moving occupations; four Installation, Maintenance, and Repair

occupations; two Production occupations; and two Management occupations related to construction. A full table of these occupations can be found in Appendix A. The following analysis mainly focuses on this group of 51 occupations.

Historical and Projected Growth of Construction-Related Trades Occupations

Of the 51 occupations selected, there are over 13,000 jobs in the Greater Brockton region as of 2022. The number of jobs has increased by 31 percent from 2012 and is projected to increase by 20 percent by 2032. This means there is an estimated 3,000 net new jobs added in the Greater Brockton region in these occupations over the next decade (Figure 5). Again, the growth in jobs in these occupations outpaces the growth in jobs in all occupations.

Figure 5: Historical and Projected Construction-Related Trades Occupations in Greater Brockton, 2012-2032



Source: Lightcast, UMDI Analysis

Most of these occupations have grown at a faster rate in Greater Brockton than in the state and are projected to continue to grow faster than in the state overall. The following table shows the construction-related trades occupations with more than 100 jobs in the Greater Brockton region, as of 2022, along with their historical and projected growth in the region and in the state. Electricians; Plumbers, Pipefitters, and Steamfitters; First-Line Supervisors of Construction Trades and Extraction Workers; Operating Engineers and Other Construction Equipment Operators; and Heavy and Tractor-Trailer Truck Drivers have had some of the highest growth rates and have high projected growth rates as well (Table 4).

Table 4: Historical and Projected Growth of Construction-Related Trades Occupations, 2012-2032

| Construction-Related Trades Occupations | | Greater Brockton | | | | | Massachusetts | | | | |
|---|---|------------------|-----------|-----------|-------------------------|-------------------------|---------------|-----------|-----------|-------------------------|-------------------------|
| SOC | Description | Jobs 2012 | Jobs 2022 | Jobs 2032 | % Change from 2012-2022 | % Change from 2022-2032 | Jobs 2012 | Jobs 2022 | Jobs 2032 | % Change from 2012-2022 | % Change from 2022-2032 |
| 53-7062 | Laborers and Freight, Stock, and Material Movers, Hand | 1,301 | 1,706 | 1,974 | 31% | 16% | 31,276 | 44,145 | 51,965 | 41% | 18% |
| 53-3032 | Heavy and Tractor-Trailer Truck Drivers | 1,140 | 1,632 | 1,919 | 43% | 18% | 25,891 | 33,334 | 38,183 | 29% | 15% |
| 53-3033 | Light Truck Drivers | 1,045 | 1,264 | 1,483 | 21% | 17% | 22,649 | 22,947 | 26,418 | 1% | 15% |
| 47-2061 | Construction Laborers | 1,058 | 1,258 | 1,488 | 19% | 18% | 25,942 | 29,424 | 34,231 | 13% | 16% |
| 47-2031 | Carpenters | 881 | 958 | 1,059 | 9% | 11% | 25,166 | 25,989 | 28,506 | 3% | 10% |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters | 519 | 928 | 1,147 | 79% | 24% | 10,909 | 16,108 | 19,029 | 48% | 18% |
| 47-2111 | Electricians | 492 | 927 | 1,244 | 88% | 34% | 15,003 | 19,824 | 24,174 | 32% | 22% |
| 47-1011 | First-Line Supervisors of Construction Trades and Extraction Workers | 470 | 766 | 935 | 63% | 22% | 12,467 | 17,109 | 20,002 | 37% | 17% |
| 11-9021 | Construction Managers | 313 | 433 | 526 | 38% | 22% | 9,073 | 11,753 | 13,982 | 30% | 19% |
| 49-9021 | Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 359 | 418 | 569 | 16% | 36% | 7,896 | 7,637 | 9,803 | -3% | 28% |
| 47-2073 | Operating Engineers and Other Construction Equipment Operators | 268 | 416 | 497 | 55% | 19% | 5,859 | 8,351 | 9,964 | 43% | 19% |
| 49-1011 | First-Line Supervisors of Mechanics, Installers, and Repairers | 309 | 370 | 434 | 20% | 17% | 9,873 | 12,055 | 13,832 | 22% | 15% |
| 47-2141 | Painters, Construction and Maintenance | 295 | 267 | 291 | -9% | 9% | 9,133 | 8,116 | 8,854 | -11% | 9% |
| 51-4121 | Welders, Cutters, Solderers, and Brazers | 143 | 187 | 224 | 31% | 20% | 3,300 | 4,275 | 4,934 | 30% | 15% |
| 47-2181 | Roofers | 108 | 150 | 171 | 39% | 14% | 2,671 | 3,101 | 3,364 | 16% | 8% |
| 47-2211 | Sheet Metal Workers | 169 | 136 | 169 | -20% | 25% | 3,534 | 2,328 | 2,750 | -34% | 18% |
| 47-2051 | Cement Masons and Concrete Finishers | 57 | 119 | 137 | 108% | 15% | 1,383 | 2,856 | 3,450 | 106% | 21% |
| 49-9099 | Installation, Maintenance, and Repair Workers, All Other | 101 | 115 | 130 | 14% | 13% | 2,871 | 3,464 | 3,975 | 21% | 15% |

Source: Lightcast, UMDI Analysis

Interviewees confirmed that these construction-related trades positions are in high demand in the region and the jobs with more skilled labor are particularly in demand and difficult to fill. Adam, who works for a development company in the region, said, *“There really is a lack of skilled labor out there right now. Just a huge lack. I mean, it’s disastrous, honestly. It’s that bad. It’s really bad. It’s really, really bad [...] We need to start training people like crazy. Retirement is a huge thing right now.”* This consensus was felt among all interviewees that there is a huge demand but a lack of supply of workers with skilled labor for construction and trades work.

David, talked about how desperate construction companies are to hire that they will hire people who don’t actually have the skills: *“I also believe it’s so much of the construction where people are so desperate to hire [...]It’s] such a tight labor market that you know, no experience [is] necessary. So, if you’ve got to carry a bucket of nails for a year...they might be hiring people who don’t have ready on-day-one skills [...] That’s where the market is right now in a lot of these areas.”*

Another interviewee, Steve, who is part of a local trade union, also talked about a desperate need for workers leading to companies hiring workers without experience or training. He said he specifically has seen this with residential solar companies where they are required by the state to have licensed electricians or apprentices installing the solar panels, but they are hiring laborers without these skills due to the high demand. He also notes that these jobs are high-paying and because they do hire with no experience, it attracts a lot of workers, especially young workers. Additionally, he says these workers are encouraged to work fast, which he believes leads to lower quality work.

“When this crazy phase started probably three, four years ago, residential solar, they were throwing a lot of money at employees. If you get 80 panels up in a day, you’ll make extra money per day. And that’s where I think a lot of the younger applicants that I’ve seen, were running towards that, and they might have a friend that’s a foreman or works for the shop. And they all get bonuses if they can bring on new employees. So, it’s a big hiring drive trying to get their friends and family to come help do it. Where they make good money, no benefits, unfortunately, from what I hear, but they make good hourly pay. And they get bonuses if they reach certain levels of installation, which I’m not a fan of [...] because typically when you ask people to work faster, you get less quality of a job if you work faster. So that’s all I’ll say on that.”

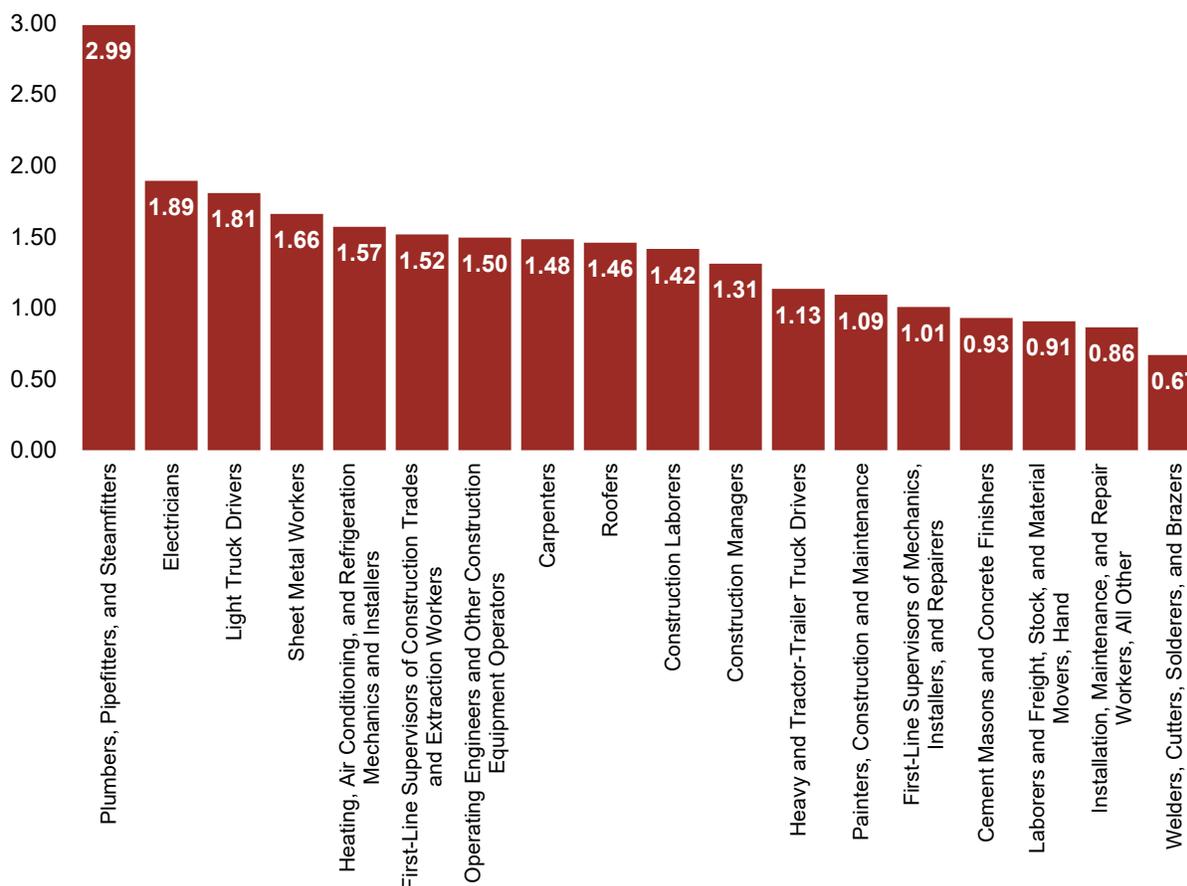
While this situation allows young workers without experience to earn money and is an opportunity to gain some experience, these types of positions are not always stable or sustainable for the long-term for workers. There are also questions around the legality and safety of this practice. Hiring laborers without training is a more temporary solution for employers and there is a need for a sustainable workforce solution to meet the current and projected workforce demand. Overall, the interviews confirmed there is an extremely high demand for skilled labor that is not being met.

Employment Concentration and Location Quotients

The majority of the selected occupations have a location quotient over one, meaning they have a higher concentration of employment in the occupation than average across the rest of the country. There are several trades occupations with high location quotients, which indicates a competitive advantage for

those occupations in the region. The occupation for Plumbers, Pipefitters, and Steamfitters has 2.99 times the concentration of employment in the Greater Brockton region than in the nation (Figure 6). Other occupations with high concentrations of employment in the region include Electricians; Light Truck Drivers; Sheet Metal Workers; Heating, Air Conditioning, and Refrigeration Mechanics and Installers; First-Line Supervisors of Construction Trades and Extraction Workers, and Operating Engineers and Other Construction Equipment Operators, among others. Many of these occupations with high location quotients are jobs which require more skilled labor and are an advantage the region could build on.

Figure 6: Employment Concentration of Construction Trades Occupations in Greater Brockton in 2022



Source: Lightcast, UMDI Analysis

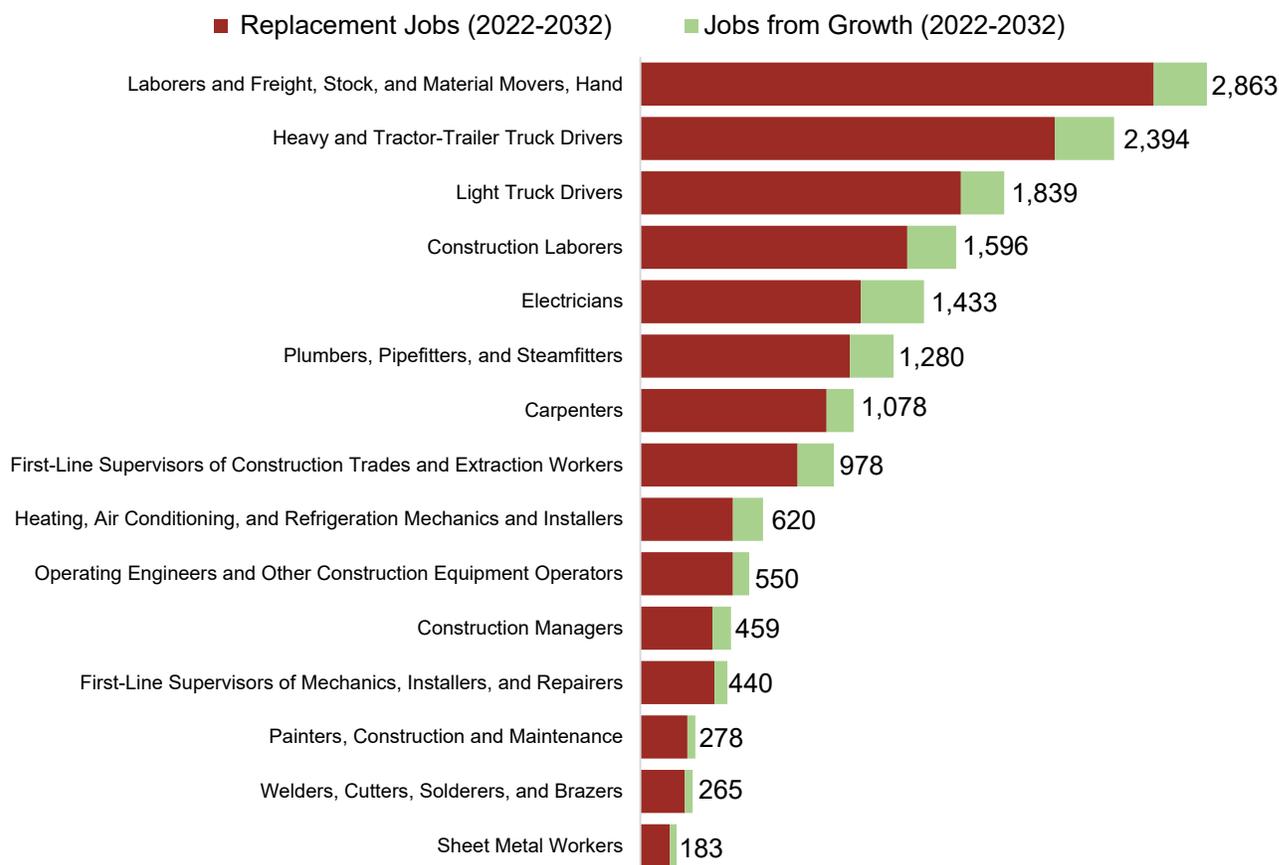
Note: Figure shows the construction-related occupations with more than 100 jobs in Greater Brockton as of 2022

Replacement Jobs and Occupational Turnover

While the construction trades occupations have experienced growth in the total number of jobs, and are projected to continue to add new jobs, there is also occupational demand from replacement jobs. Replacement jobs are the number of workers who leave an occupation, either by leaving the labor force or entering a new occupation. The following graph shows the 15 occupations from the construction-

related trades occupation group that are projected to have the most total job openings over the next decade. The total job opening figure includes replacement jobs and new jobs from growth.

Figure 7: Total Projected Job Openings for Construction-Related Trades Occupations in Greater Brockton, 2022-2032



Source: Lightcast, UMDI Analysis

High levels of replacement jobs characterize the occupations in this industry. In other words, there is a lot of turnover, and proportionately not that many new openings due to growth. For Construction Laborers, there are projections of over 1,300 replacement jobs and only around 250 new jobs from now until 2032, for a total of over 1,500 projected job openings (Figure 7). The largest occupation studied is not all construction-related, but has a similar pattern: the occupation called ‘Laborers and Freight, Stock, and Material Movers, Hand’ is estimated to have over 2,800 job openings over the next decade, and almost all of those (2,500+) are replacement jobs (also Figure 7). To put it another way, that’s a projected average of about 280 job openings per year in this occupation in the region. This replacement jobs number could be higher than the other occupations as it can be considered a more entry-level job that people move on from often. This occupation, Laborers and Freight, Stock, and Material Movers is defined as a job where workers “Manually move freight, stock, luggage, or other materials, or perform

other general labor. Includes all manual laborers not elsewhere classified.”⁴ This includes warehouse jobs for major companies like Amazon, UPS, and FedEx.⁵ Construction Laborers, Truck Drivers (Light, and Heavy Tractor-Trailer), Electricians and Plumbers, Pipeworkers, and Steamfitters also have high projections of replacement jobs over the next decade (still Figure 7). This high level of turnover is consistent with work outside the region. The high amounts of turnover in these construction-related jobs are likely mostly related to their project-based, weather-dependent nature. Some additional turnover could be due to retirement in these occupations or people leaving the occupation for other reasons. Interviewees indicated that the hard manual labor aspect of these jobs as well as the long and early hours as well as having to drive to distant sites can be deterrents for working in these jobs.

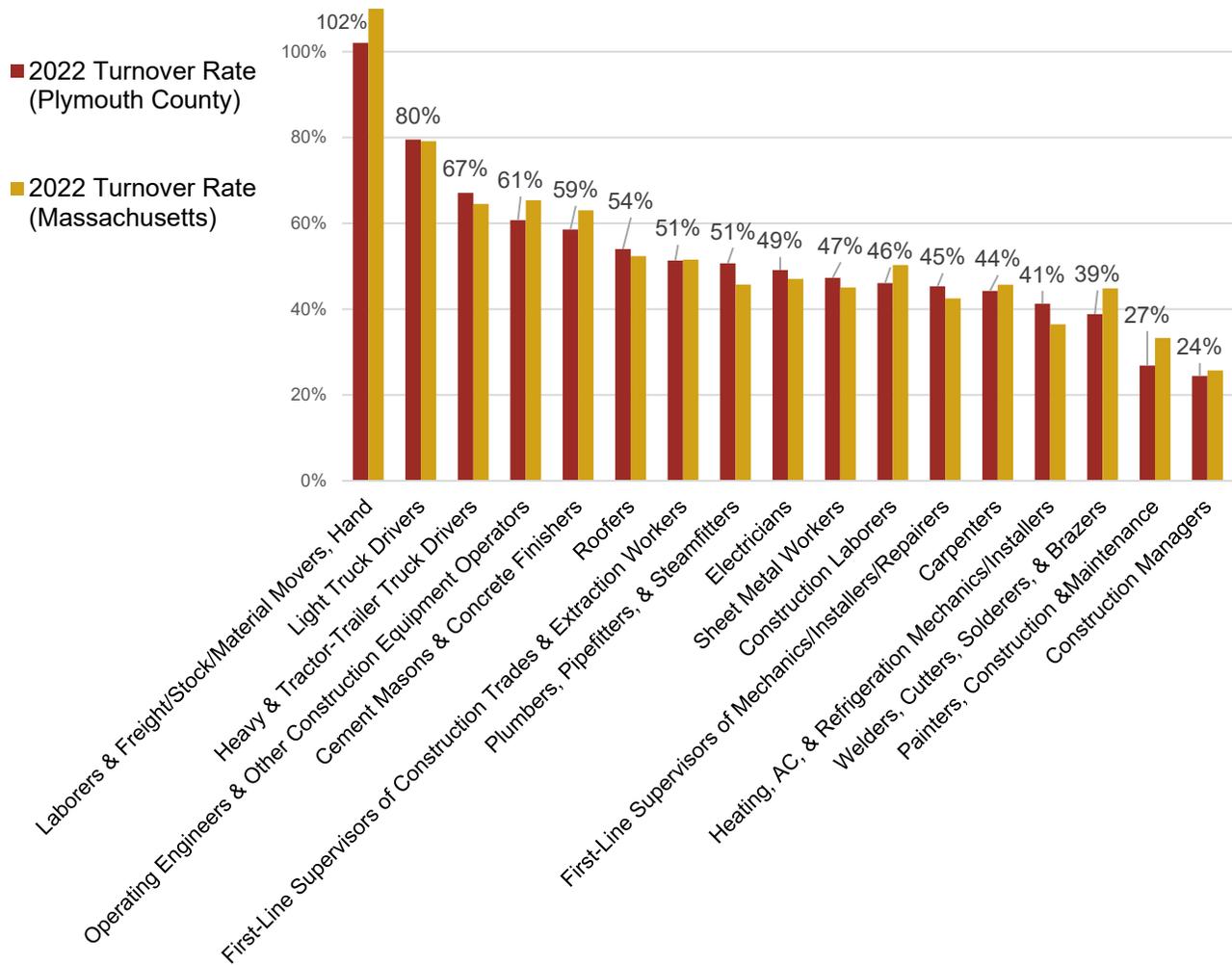
To go deeper into understanding turnover as an important part of the replacement jobs rate, in addition to people leaving an occupation entirely, there are people who leave an employer, but continue working in the same occupation. This is considered to be job turnover. Turnover rates show the number of people who leave a job out of the total size of the employment for the occupation. Rather than leaving the work altogether, as a construction job with one employer ends, or to climb the ladder, a worker may leave their old position to join a new company on a different project. Overall, these construction-related trades occupations have turnover rates of around 50 percent in Plymouth County and in the state, although this varies by each occupation (Figure 8). The lowest turnover rate of the selected occupations is for Construction Managers where only 24 percent of workers in this occupation left their job in 2022 (Figure 8). This is not surprising as the Construction Managers occupation is a higher-level position and has a higher median salary than most of these occupations. In addition, they are more likely to be retained in some inclement weather as some of their work may be conducted indoors, and companies may choose to retain construction managers more than they do laborers. The highest turnover rate is for Laborers and Freight, Stock, and Material Movers, Hand, which again is more of an entry-level position and has a lower median salary than most. This occupation has a turnover rate that is over 100 percent, meaning some workers left jobs multiple times in the year. These high turnover rates may not be surprising given the nature of construction jobs that are often short-term as well as the specific positions.

Employment expectations differ for different jobs, and these jobs have neither the lowest nor the highest turnover rates. Looking at turnover rates for other occupational groups in Plymouth County, Construction and Extraction occupations generally fall in the middle, but again this varies by individual occupations within the larger groups. For example, Architecture and Engineering occupations have a lower turnover rate of 29 percent. Food Preparation and Serving Related occupations have the highest turnover rate at 115 percent.

⁴ O*NET

⁵ Based on Lightcast job postings data for Plymouth County

Figure 8: Occupational Turnover Rates for Construction-Related Trades Occupations in 2022



Source: Lightcast, UMDI Analysis

Note: Turnover rate is calculated for Plymouth County and not for municipalities, as it is not available at the town level.

Interviewees also confirmed a few different reasons for high turnover rates including weather and seasonal effects on jobs, recessions and financial downturns and the effect on development, and employers competing for talent.

Many construction jobs take place outside and are therefore dependent on the weather. One interviewee, Jacob, described this effect and said, “It’s very weather-dependent, some trades. Winter comes, and if you’re doing asphalt out on the roadways, you’re not doing that in December, January, February, you can’t do it. So those types of people, typically, they take the layoff in the winter and do something else until the work gets done in the spring.” Another interviewee, Steve, said construction work is “feast or famine sometimes”. He explains that you can make great money and have great benefits, but there are times of unemployment like if there is two feet of snow.

In addition to weather, construction work can slow down for other reasons like a recession that might impact the number of development projects. In general, interviewees noted that turnover, and periods of unemployment, is part of construction trades work. Jacob said, *“Yeah, it’s the nature of the business [...] So, you can have gaps in your schedule, where you don’t need as many tradespeople and therefore you’ve got to lay them off. It’s par for the course in this industry.”* He also added that this is somewhere a union can help with finding employment in construction:

“It’s a little easier in a union environment, because then you just go down to the union hall, and then they will find the work for you eventually. If you’re bouncing from private employer to private employer, that’s a little bit more difficult. Now you’ve got to start the interview process again. I can see that being more cumbersome rather than having the union doing the legwork for you.”

Another respondent mentioned union workers also have fewer job opportunities in recessions as well, in part due to higher rates. However, project-based jobs ending frequently and the search for new work and disruptions in work being available due to weather is a perennial issue even outside of recession.

In addition to these outside effects on construction projects that are considered the ‘nature of the business’, employers are competing for talent in the current market and will make higher offers for workers to leave a company. This also contributes to the turnover rates. In an interview, Adam talked about the competitive hiring environment:

“They are getting higher offers from other companies to leave. I know that there are open-shop contractors that won’t even work in certain areas, because they’re afraid that the union shops are going to take their workers. It’s so extreme that they’ll even be careful about where they actually work so that others won’t take them. I don’t know exactly how that works. There’s definitely a lot of turnover. Retention of good talent is very, very difficult. It’s very expensive. I think the primary reason is that either people want to work closer to their house or they want more money.”

Overall, the interviewees were not surprised to hear about the data on the high turnover rates in construction-related trades occupations. While the outside environment will continue to affect this type of work, there could be ways to address the workforce shortages and competitive hiring market that might minimize some of this turnover.

Job Postings, Regional Demand, and Word-of-Mouth/Networking

To better understand the current demand for these occupations, the analysis looked at job postings data for construction-related trades occupations. Job postings data from Lightcast is only available at the county or state level, so for this analysis, Plymouth County is used as the region.

Over the last fiscal year (from July 2022 to June 2023), there were 3,519 unique job postings online for these 51 selected trades occupations in Plymouth County. The following table shows the top 10 posted occupations from the occupation group in the past year. The most posted occupation was for Laborers and Freight, Stock, and Material Movers, Hand, which had over 1,000 unique job postings, making up about 30 percent of the total job postings for this occupation group in the last year (Table 5).

Table 5: Top Construction-Related Occupations from Job Postings in Plymouth County, July 2022-June 2023

| Occupation (SOC) | Unique Job Postings (July 2022 – June 2023) |
|---|---|
| Laborers and Freight, Stock, and Material Movers, Hand | 1,045 |
| Heavy and Tractor-Trailer Truck Drivers | 600 |
| Light Truck Drivers | 274 |
| Construction Managers | 244 |
| Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 241 |
| First-Line Supervisors of Mechanics, Installers, and Repairers | 206 |
| Construction Laborers | 153 |
| Electricians | 140 |
| Facilities Managers | 78 |
| Carpenters | 75 |

Source: Lightcast, UMDI Analysis

Note: Data reflect job postings data for Plymouth County. Some postings result in multiple hires, and some can result in no hires.

However, a closer look at how many people are actually being hired each month shows even higher demand than the job postings. On average, companies are hiring many more workers a month than the number of job postings (see Figure 9, following, for a comparison of average monthly job postings to actual average monthly hires). For example, Construction Laborers had 110 average monthly hires compared to only 13 average monthly job postings. This pattern is seen for all of the top posted occupations and suggests that networking and word of mouth is an important route to finding jobs and hiring in these occupations. This makes it difficult to determine the demand for these occupations from online job postings alone.

Figure 9: Average Monthly Job Postings vs. Average Monthly Hires in Plymouth County



Greater Brockton Construction-Related Trades Occupations

Source: Lightcast, UMDI Analysis

Interviews with stakeholders confirmed that many of these types of trades and construction jobs are found through networking and word-of-mouth rather than posting them online. This also makes it difficult to quantify the demand through online job postings, however, interviewees confirmed that there is high demand from employers and say it is a tight labor market. One interviewee, Beth, said that all of the contractor and construction companies in the region are looking for workers: *“I go by various contractors, and they all are looking for workers [...] We have a number of contractors and construction companies around this region and everybody’s looking for them.”*

The job postings data can help show what skills are in-demand for the jobs that were posted online. The top specialized skill requested in the job postings for construction trades occupations over the past year were construction, HVAC, carpentry, project management, plumbing, and the others listed in the following table (Table 6). Interviewees also emphasized that skilled labor, such as the electrician and plumber skills is especially in demand. In an interview, Adam said, *“If you’re highly skilled like a plumber, or an electrician, that is incredibly in demand. You can hang up with me right now and you’d have a job in two minutes.”*

Table 6: Specialized Skills Requested in Job Postings for Construction-Related Trades Occupations* in Plymouth County, July 2022-June 2023

| Skills | Postings | % of Total Postings |
|----------------------|----------|---------------------|
| Construction | 390 | 24% |
| HVAC | 282 | 18% |
| Carpentry | 231 | 15% |
| Project Management | 227 | 14% |
| Plumbing | 178 | 11% |
| Renovation | 170 | 11% |
| Subcontracting | 145 | 9% |
| Hand Tools | 139 | 9% |
| Power Tool Operation | 134 | 8% |
| Painting | 124 | 8% |

Source: Lightcast, UMDI Analysis

*Note: Results exclude the occupations of Laborers and Freight, Stock, and Material Movers, Hand; Heavy and Tractor-Trailer Truck Drivers; and Light Truck Drivers, in order to focus on construction and trades related skills.

The companies posting jobs online include large companies like Sysco, Aerotek, Trinity Solar and the others listed in the following table (Table 7). While for this part of the analysis, certain occupations were removed in order to highlight construction-related trades work, even the remaining companies are not

all construction-focused, such as Sysco and Walgreens⁶. This underscores the spread-out nature of construction and trades occupations into many small companies.

Table 7: Companies with Highest Number of Job Postings for Construction-Related Trades Occupations* in Plymouth County, July 2022-June 2023

| Company | Unique Postings (Jul 2022 – Jun 2023) |
|--------------------------------------|---------------------------------------|
| Sysco | 45 |
| Aerotek | 42 |
| Trinity Solar | 32 |
| Innovative Construction Company Ltd. | 30 |
| Harbor Freight Tools | 28 |
| Walgreens Boots Alliance | 23 |
| Clean Harbors | 23 |
| Stewart Painting | 23 |
| Handyman Connection | 22 |

Source: Lightcast, UMDI Analysis

*Results exclude the occupations of Laborers and Freight, Stock, and Material Movers, Hand; Heavy and Tractor-Trailer Truck Drivers; and Light Truck Drivers.

There does not seem to be one major construction company that accounts for a majority of job postings, reflected by respondents in addition to what the largest employer data shows. David, based on his experience working at a vocational high school, said that because many of the regional construction companies are smaller, they do not have the capacity to focus on hiring and recruiting practices:

“And what I’ve learned along the way is that in our region, so many of our employers are [...] smaller employers. They don’t have a ton of employees and they probably don’t have a deep enough bench to have an HR director, or they have a training coordinator. So, these are people who are looking to hire people, but they don’t necessarily have the capacity to know where the supply might be.”

He added that their school has hired personnel to help make those employer connections and supply them with their student workers. The lower number of online job postings from construction companies is also likely because many of these companies fill jobs through networking or word-of-mouth. When asked about job postings and how construction and trades workers find out about jobs, most interviewees agreed that word-of-mouth was a major source for finding out about jobs. A local employer, Harvey, confirmed he does often hire through word-of-mouth:

“So many of the people that I’ve hired over the years [...] didn’t come through Indeed, and they didn’t come from a job board, I literally would just say to my guy, ‘Hey, we need a new carpenter, or who knows how to do A, B, and C. Who do you know?’ And then, I would get a random text message or

⁶ Removed Laborers and Freight, Stock, and Material Movers, Hand (accounted for 30 percent of all job postings) and the two next most commonly posted jobs, Heavy and Tractor-Trailer Truck Drivers; and Light Truck Drivers because they were prevalent and more related to warehousing and trucking. These types of jobs are often for companies like Amazon, UPS, FedEx, Lowe’s, etc.

a phone call. And all of a sudden, one, two, or three people would reach out and I'd be able to evaluate them."

He also said that while they post on Indeed some, they have also hired people through them stopping by the office even from sending Facebook messages. While there is high demand for construction workers, finding out about jobs can still be difficult if you do not have the right connections because so much hiring does happen through word-of-mouth. Jacob said, *"I think it's (knowing about job openings) always easy if you have a connection, or introduction. So yeah, I could see it (not having connections) being a barrier for some people."* Jacob also explained how this issue could make it especially difficult for young people to get started in trades work:

"I always focus on a younger person trying to get into trades and if you don't know who to call. And the industry doesn't do a good enough job of selling itself. So that can be scary for somebody on 'How do I introduce myself [...] who do I even begin to call at such and such a company?' So just knowing the right avenue [...] to make an introduction— I think it'd be a challenge."

With the current lack of supply of construction-related trades workers, knowing how to reach a younger pool of workers will be important in developing the trades workforce. While there are vocational high schools, people who do not or did not attend one of these schools or people who are not in school at all may not know about these opportunities. Beth said, *"I think the communication piece is a challenge of where to go, and how do they find out information...word of mouth is probably a good way, the school system now that that's back in [...] but that's if you're going to school, so if you're an out of school, I don't really know."* Other interviewees seemed to agree that anyone outside of the vocational school programs would have a more challenging time knowing how to find construction jobs. David said, *"I would not even know how to advise somebody on how to access an entry level job [...] At least if they weren't part of a vocational feeder system."* There are good processes for recruitment and hiring from the programs at the vocational high schools, but it is clear these programs aren't producing enough workers to meet the demand of employers. If these programs cannot be scaled enough to meet the demand, recruitment needs to reach people outside of those programs.

There is also some more organized recruitment for trades jobs from the trade unions in the region. Jacob pointed out that the unions are more organized with recruiting and hiring for their apprenticeship and trades work positions:

"Whereas the unions are certainly more organized (compared to private employers) and, in their targeting, to trade schools to bring in that level of apprentice, somebody that's already has some experience through their high school curriculum. I'm sure that private employers are doing the same, it's just probably not as thorough of an approach."

The union organizations might be more organized than private employers in recruiting, however, if they are mainly sourcing workers from the trades high schools, there is still a large group of potential workers that they are not reaching. Steve, who is part of one of the local unions, is aware of these issues surrounding the awareness of apprenticeship programs:

“Well, personally, everybody tells me that we’re a secret. You know, no one’s heard of the apprenticeship program. And I tell everybody, well, we don’t want to be a secret. We try to get our name out there with all the career fairs and everything we do.”

He did say that more recently he has heard from guidance counselors at regional high schools, not the vocational high schools, asking about the trades and their apprenticeship programs. Increasing awareness of these programs in places outside of vocational high schools will be important in building up this workforce.

One group of workers related to recruitment that was mentioned in interviews is the Cape Verdean population. Fred gave an example of this with a recent construction project he did with a Cape Verdean-owned company and said that they did not have any issues with recruitment because of the community connections in their population:

“We’ve just recently completed a construction project [...] he did a great job in the construction and recruiting folks, no problem of labor. It’s a Cape Verdean-owned company, so the Cape Verdean community is something that’s very familiar to him. And he clearly had mostly Cape Verdean folks working on the project.”

Harvey mentioned that there are lot of workers in the region have come from Cape Verde and Portugal and find work through the connections in their community:

“So, you have a lot of guys that come from Cape Verde and Portugal, where they’ve done all kinds of work. They understand how to do the work. But maybe they haven’t been living here as long so they’re not as familiar with either the job boards or searching on Indeed, or something like that. So, they spend much of their time asking their friends who work in the industry, ‘Hey is your company looking? Do you know if there’s a job opening?’”

Hiring in this community, however, is still dependent on connections for finding out about jobs and work, making knowledge of job openings, networking, and communication valuable to job seekers, as well as employers. As David described:

“A lot of it in our little bubble, a lot of it is based on our networking. They know we exist; they will tell us there are openings, we will have an internal job board. Some of it is word of mouth. [...] A lot of it is rather low tech. It’s not like there’s an Indeed.com for local construction [...] I do know that our people are not necessarily consulting third party websites to try to drum up. We’d be more apt to pick up the phone or send an email to people we’ve already had connections with. And that’s the network that we’re using.”

Hiring practices can also be different depending on the level of the position. Harvey said that these more informal methods are not common for more upper-level management positions. He said there are many construction companies competing for this type of talent and many of those companies have large budgets and benefit packages that he cannot compete with. He also says this type of talent is “groomed and soaked up while they’re in school” and the rest are being recruited through headhunters.

Training, Educational Requirements, and Salary

Of the 51 occupations studied, the following table shows the occupations with more than 100 jobs in the Greater Brockton region as of 2022. Around half of these top occupations require a high school diploma and a few have no formal education requirement (Table 8). Two occupations, Heavy and Tractor-Trailer Truck Drivers and Heating, Air Conditioning, and Refrigeration Mechanics and Installers, require a postsecondary nondegree award. Only one, Construction Managers, typically requires a bachelor's degree.

Table 8: Educational Requirements and Median Annual Earnings in Greater Brockton in 2022

| SOC | Description | 2022 Jobs | Median Annual Earnings | Typical Entry Level Education |
|---------|---|-----------|------------------------|-----------------------------------|
| 53-7062 | Laborers and Freight, Stock, and Material Movers, Hand | 1,706 | \$37,051 | No formal educational credential |
| 53-3032 | Heavy and Tractor-Trailer Truck Drivers | 1,632 | \$56,183 | Postsecondary nondegree award |
| 53-3033 | Light Truck Drivers | 1,264 | \$41,397 | High school diploma or equivalent |
| 47-2061 | Construction Laborers | 1,258 | \$55,394 | No formal educational credential |
| 47-2031 | Carpenters | 958 | \$57,248 | High school diploma or equivalent |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters | 928 | \$82,440 | High school diploma or equivalent |
| 47-2111 | Electricians | 927 | \$79,291 | High school diploma or equivalent |
| 47-1011 | First-Line Supervisors of Construction Trades and Extraction Workers | 766 | \$95,099 | High school diploma or equivalent |
| 11-9021 | Construction Managers | 433 | \$103,109 | Bachelor's degree |
| 49-9021 | Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 418 | \$70,721 | Postsecondary nondegree award |
| 47-2073 | Operating Engineers and Other Construction Equipment Operators | 416 | \$68,692 | High school diploma or equivalent |
| 49-1011 | First-Line Supervisors of Mechanics, Installers, and Repairers | 370 | \$77,825 | High school diploma or equivalent |
| 47-2141 | Painters, Construction and Maintenance | 267 | \$48,353 | No formal educational credential |
| 51-4121 | Welders, Cutters, Solderers, and Brazers | 187 | \$54,124 | High school diploma or equivalent |
| 47-2181 | Roofers | 150 | \$62,027 | No formal educational credential |
| 47-2211 | Sheet Metal Workers | 136 | \$76,465 | High school diploma or equivalent |
| 47-2051 | Cement Masons and Concrete Finishers | 119 | \$73,242 | No formal educational credential |
| 49-9099 | Installation, Maintenance, and Repair Workers, All Other | 115 | \$47,363 | High school diploma or equivalent |

Source: Lightcast, UMDI Analysis

*Note: The typical entry level education data come from national requirements and may differ by state or region.

Because a lot of the training for trades work is not as formal as other occupations, it can be difficult to track the supply of workers. As previously mentioned, there are vocational high schools that help supply workers in trades occupations, but other workers may enter a trades occupation through connections or other ways. However, based on the lack of supply of workers that interviewees say exists in the region, the assumption is that there are not enough workers being trained in this type of work. Adam said there should be more trade schools and focus on this type of training: *“I think that the big picture, we've been telling people that they need to go to a four-year college and go into a desk job for the last 30 years. We don't have enough trade schools [...] I think that we've done a really poor job of training the workforce.”*

The median annual salaries vary by occupation, but generally is higher with more skilled labor. The Laborers and Freight, Stock, and Material Movers occupation, which is one of the largest in the region and most in-demand, has a lower median annual salary of around \$37,000. The occupations with more skilled labor like Electricians; Plumbers, Pipefitters, and Steamfitters; Sheet Metal Workers; and Heating, Air Conditioning, and Refrigeration Mechanics and Installers, have higher median annual earnings in the 70- or 80-thousand-dollar range (Table 8). Then, not surprisingly, the supervisor and manager occupations have the highest earnings closer to the 100-thousand-dollar range.

Related to salary, a couple of interviewees did note that some companies in the construction trades industries pay employees as 1099 independent contractors or pay under-the-table in cash. If a worker is paid as a 1099 contractor, and not as a W-2 employee, they are not getting certain benefits like they are not covered by their employer under worker's compensation insurance, or they might not pay into Social Security and Medicare like they should. Adam said:

“I do see a lot of workers classified as independent contractors and not as W-2 employees, when I think they should be W-2 employees. They're clearly working for whatever company it is, and the company will hire them as a 1099. That is definitely more prevalent, too [...] The problem with that is, [...] they're not covered under workers comp insurance. Only employees (W-2) are covered under worker comp insurance.”

Jacob also talked about how companies will hire workers as 1099 contractors, and some do not *“play above boards”* by abiding by labor laws like paying time and half for working on Saturdays. While it is unclear how prevalent this practice is, it does raise an issue of fair treatment and compensation for construction-related trades workers.

An aspect to consider with compensation is benefits within construction-related trades occupations. The benefits can be different than salaried jobs that have health care and paid time off. Construction and trades workers who are part of a union receive these benefits, however, workers in private or open shop developers typically do not get benefits or paid time off. Interviewees tend to agree that the benefits are one of the biggest draws to being a union member when working in a trade. Joining a trade union also provides training and apprenticeship programs that private employers usually cannot offer.

However, as mentioned, there is generally not a lot of awareness of unions and trades work within high schools or middle schools, where students might decide they want to go to a trades high school. For

example, Steve, who is involved with a trade union in the region, said that many people don't understand the application process for the apprenticeships:

"Again, most unions, we take applications one year in advance, so my applications today are open from June to September 30. But next September of 2024 class start date. So, a lot of people came in like 'Oh, I want to start this next month.' And I said, 'Well, that's not gonna happen. You're applying for next year.' And they don't understand well, 'Why can't I start next month?' I said, 'We're already full.' There's so many people trying to get into a union program that we have to take the process just goes so long. We take them a year ahead for next year's class. And they're like, 'Wow, I don't know if could wait that long.' I said, 'Well, it's a year goes by fast.' I said, 'Before you know it, you'll if you get accepted, you'll be starting.' So I said I wouldn't throw away a good career for a year."

In addition to the application period taking a year, the apprentice programs themselves typically last four or five years, depending on the trade. Jacob said in the union programs, *"there's sequential raises every six months or so as you get through that process. And your benefits increase along the way to and after your first-year apprenticeship. So those are well structured."* While workers in these programs do get paid during training, it can still seem like a long time for training that people may not want to do if they do not understand the long-term benefits of the union apprenticeship programs. These longer apprenticeship programs also may not be appealing if there are companies willing to pay high wages to laborers with no experience or training. These workers, however, might not take into account other benefits like health insurance and retirement. Jacob explained the benefits of the union further:

"There's also pension, health care, which is incredibly important and expensive these days. As well, some of the benefits you get through the union [are] all paid for as part of your hourly rate so that that's always the hard part [...] You can maybe make the same money in the envelope in your paycheck, but you know, good health care costs \$20,000 a year for a family so your current employer is not willing to support that as a private employer. You're already behind the eight ball. Never mind the pensions are decent. When you put in 30-40 years or so, you're going to do pretty well at the end of it."

Laborers with no experience may be able to make the same amount, or potentially more than union workers due to the high demand in the market, however, they are not considering the value of health insurance and retirement benefits. They also may not be considering a career ladder and future advancement opportunities.

There is awareness of the benefits of the union and its apprenticeship programs within the trade or vocational high schools, but this information is not as well known in other schools or in the general public. David said, *"We do consider it a priority to make kids aware of what it means to belong to a union and anecdotally, students who have gone into union apprenticeship programs get some credit for what they've done here to accelerate their path forward. And they do understand that there are benefits that there are health, wage, and paid time off benefits that come with union work."*

Even when there is awareness of unions and trades work, there may not be enough capacity to train everyone who is interested. Harvey anecdotally explained how there is not enough capacity in the trade

schools as his son was trying to enter either electrical, plumbing, HVAC, or carpentry, but was waitlisted for all of those classes. He explained that he thinks there is interest from students but there is not enough training capacity:

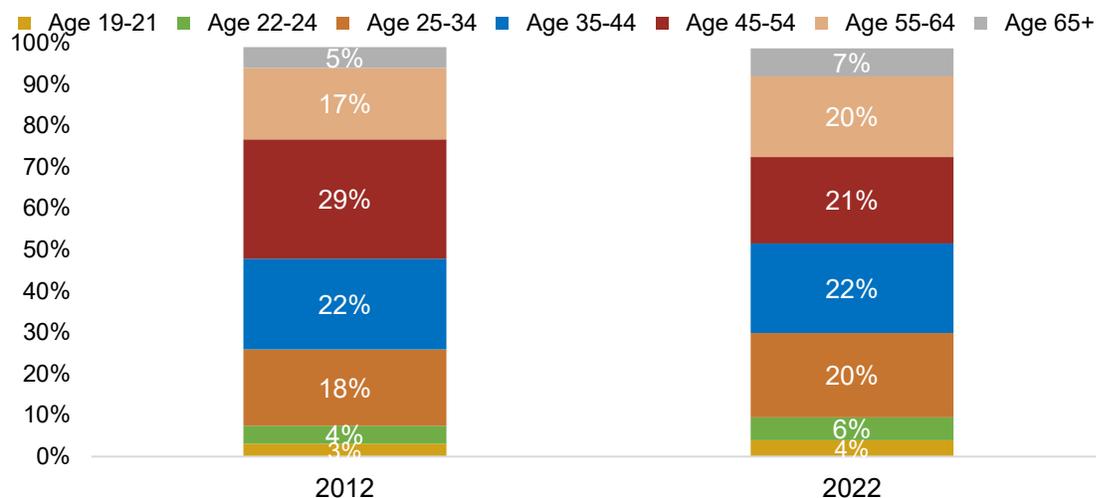
“There’s a desire by a body of young kids who want to go into these fields, because they’re hearing about all this demand. But then there’s a disconnect somehow, in the available resources to train these kids properly to get them into these roles. And so they’re being told to go to this establishment and get this training. But then when they get there, they’re told to pick something completely unrelated to what they were going for. That is an issue. I don’t know how you address it. But I think that from an employer’s side looking at that, if we could do something with that, it would help everyone tremendously.”

Workforce Demographics

The construction-related trades occupation group that was studied is dominantly white males, but diversity has increased over the past decade. The demographics data also uses Plymouth County as the region due to data availability. The majority (94%) of workers in these occupations in Plymouth County are male and only six percent are female.

The workers are fairly evenly distributed across age groups. There has been an increase in workers over 55, increasing from 22 percent to 27 percent over the past decade (Figure 10). There has also been a slight increase in younger workers over the 10-year period. The groups of workers between the ages of 19 and 24 increased from seven percent to 10 percent between 2012 and 2022. The group of workers age 25 to 34 increased from 18 percent to 20 percent over that same period. Because there are younger workers entering these occupations, the ages are more evenly distributed overall in this occupation group.

Figure 10: Age of Construction-Related Trades Occupation Group in Plymouth County

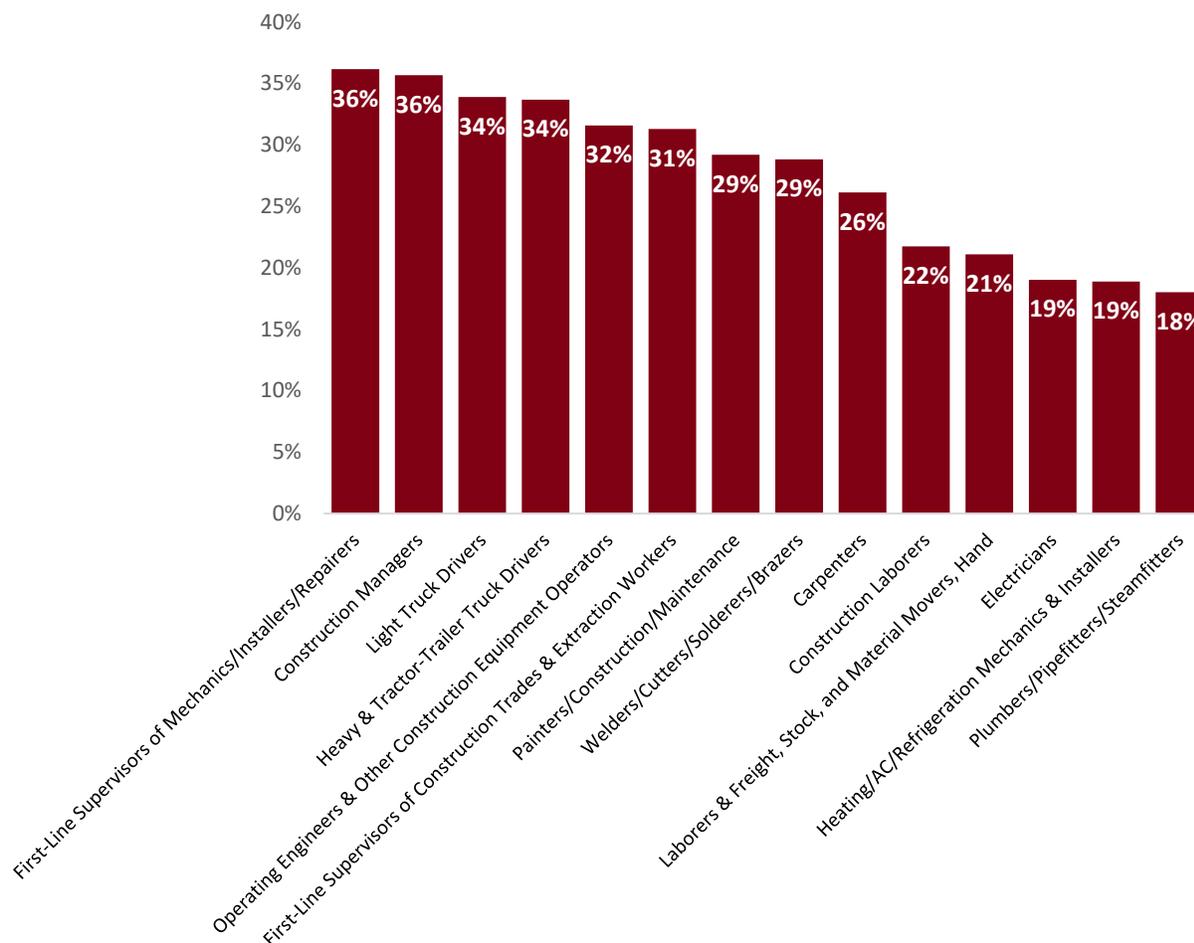


Source: Lightcast, UMDI Analysis

Looking at the occupations individually, some have an older workforce than others. The supervisor and manager occupations both have an older workforce with 36 percent of workers in those occupations age 55 and above (Figure 12). This is not surprising as workers with more experience are in these occupations. Additionally, the truck driver occupations have an older workforce. Both Light Truck Drivers and Heavy and Tractor-Trailer Truck Drivers are 34 percent age 55 and above. Almost 30 percent of workers in the Painters, Construction, Maintenance occupation and Welders, Cutters, Solderers, and Brazers occupation are also age 55 and above. These are the workers that are likely to retire in the next ten years and will need to be replaced.

There is anecdotal evidence of the workforce aging as well. In an interview, Adam said, “A lot of people are in their 60s and 70s now. They were trained back when we were training people. Now they're retiring. So, retirement is a huge factor in the labor force.”

Figure 11: Percent of Workers Age 55+ in Construction-Related Trades Occupations in Plymouth County 2022



Source: Lightcast, UMDI Analysis

As more workers reach retirement age, stakeholders expressed concerns in the interviews about younger workers not wanting to enter careers in construction trades. Jacob said from what he has seen, the population of people in the construction-related trades is aging and he doesn't think many young people want to do this type of work:

"The population of the trades people is aging, like it's trending towards the 50s. Meanwhile, demand is increasing. And I think a lot of young folks just don't want to handle what can be grueling labor at times. Sometimes it's easier because then you position yourself in front of a computer. So they gravitate towards that rather than go into a trades position. There's good money to be made if you're willing to work hard and learn."

This sentiment was expressed by several of the other interviewees as well. Most respondents believed that the nature of construction work does not attract young people because it can be hard, manual labor and it can require working long hours starting at early hours, with a lot of travel.

Additionally, Steve expressed concerns about older workers not wanting to train the younger generation because it is a specialized skill, and they are worried about job security if younger people have those same skills:

"I've seen some journeyman/older workers, they don't want to show the younger generation what to do [...] It's almost like, well, if I show you everything, I know then you're going to take my job. Why would I want to do that? And that's what I've seen a lot through my 37 years [experience]."

Steve does see this as a valid concern because he says that companies do prefer to hire younger workers right out of school. These older workers will eventually retire, however, and their greater concern is about attracting and retaining younger workers in these occupations. Beth believes that there is a difference in how younger workers think and that the construction jobs might need to figure out how to talk to and attract young people.

"There's a gap of how we think things should be. And so younger adults, while there's a decorum arriving to work on time and being prompt and things of that nature. The reality is that they don't. Coming in 20 minutes late, seems to be okay, or half hour late seems to be okay."

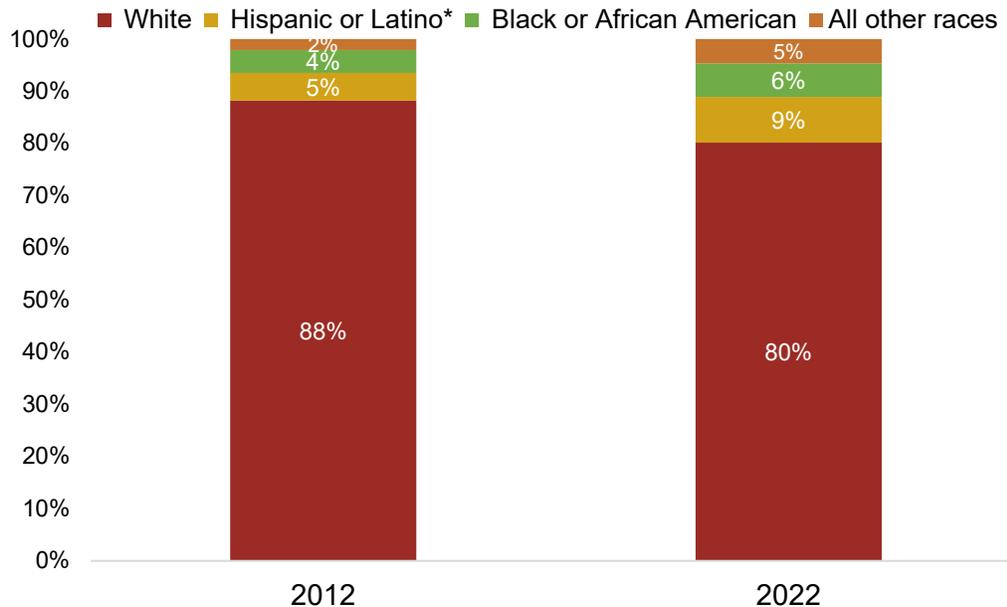
These generational differences were felt by other interviewees as well. Harvey expressed troubles he has had with younger workers:

"I mean, it's just amazing that kids or young people come into the situation a little defensive, a lot ignorant, and with no big-picture, long-term understanding of what it takes to be sustainable as a human being, especially now." The generational differences are affecting the workforce, however, there still seems to be interest from young people in this work if there is available training.

In terms of diversity in the workforce, from 2012 to 2022, the racial and ethnic diversity increased from 12 percent to 20 percent in the selected occupation group in Plymouth County. There has been growth in the share of workers who are Hispanic or Latino, Black, and other races. The largest increase was in

the share of workers who are Hispanic or Latino. As of 2022, nine percent of workers in these occupations in Plymouth County are Hispanic or Latino, compared to only five percent in 2012 (Figure 12).

Figure 12: Race and Ethnicity of Construction-Related Trades Occupation Group in Plymouth County



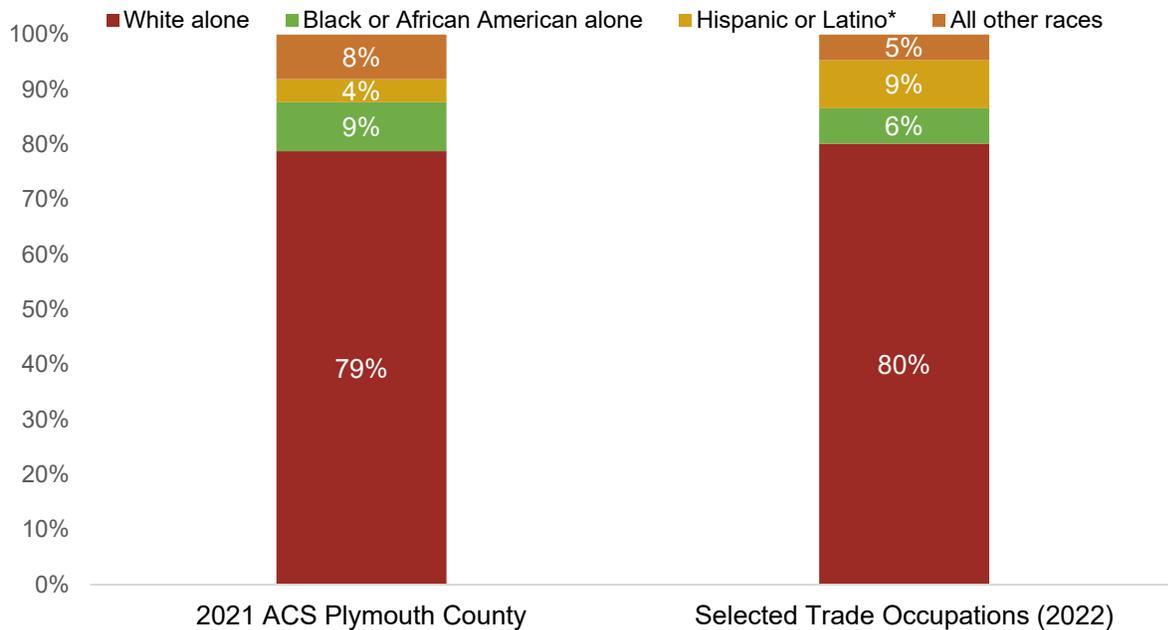
Source: Lightcast, UMDI Analysis

*Note: Hispanic or Latino category includes people of any race

Comparing the race and ethnicity of this occupation group to the race and ethnicity of Plymouth County as whole, the construction-related trades occupation group has a higher share of Hispanic or Latino workers than the general population in Plymouth County (Figure 13). The construction trades occupation group also has a lower share of Black workers and all other races than the general population. The share of white workers is about the same of the percent of the white population.

As mentioned previously, interviewees noted that Cape Verdean workers can be commonly employed in these occupations in the region. There isn't data currently Laborers and Freight, Stock, and Material Movers, Hand available with that information, however.

Figure 13: Race and Ethnicity in Construction-Related Trades Occupations vs. Total Population in Plymouth County



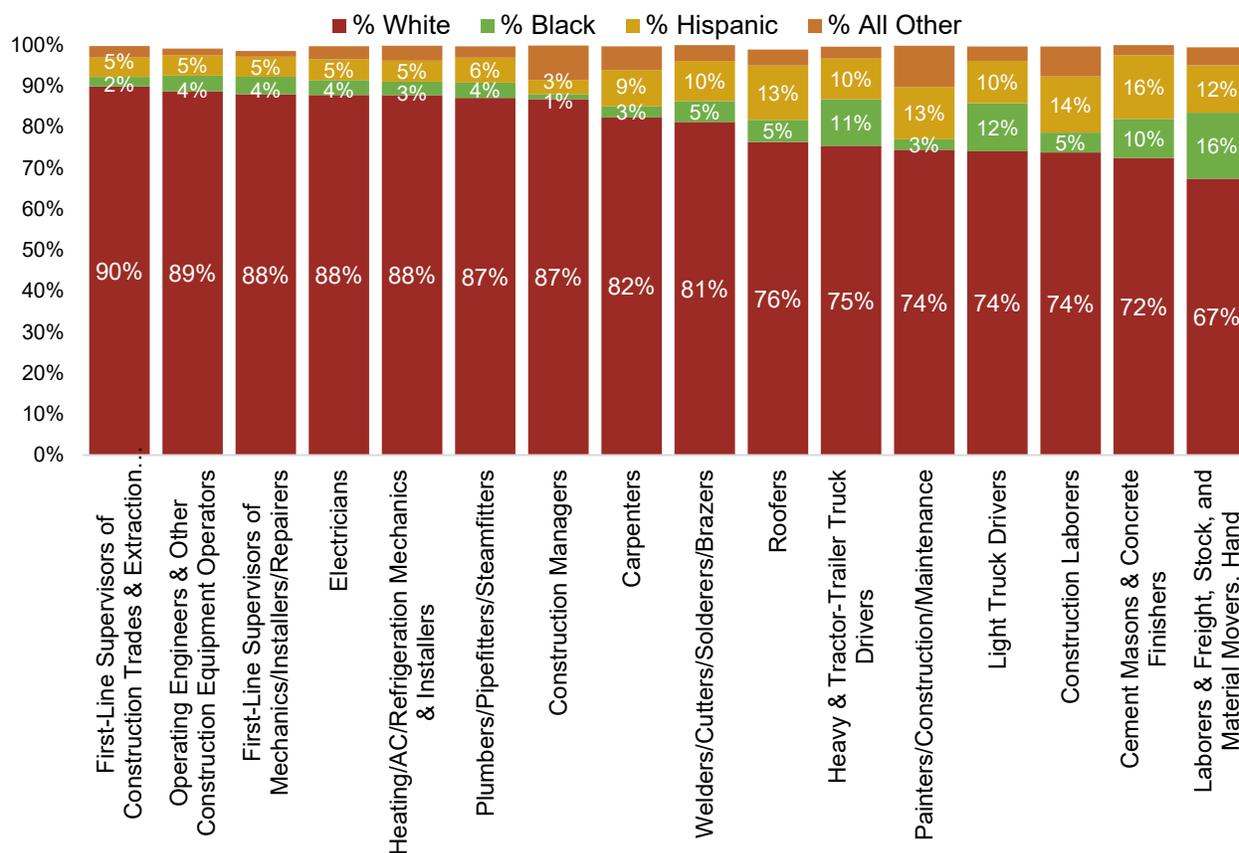
Source: Lightcast, ACS 5-YR 2021

*Note: Hispanic or Latino category includes people of any race.

Looking at the race and ethnicity by individual occupations shows that some occupations are more diverse than others. Laborers (including Construction Laborers and Laborers and Freight, Stock, and Material Movers, Hand) have a higher percent of diverse workers than most of the other selected occupations (Figure 14). As discussed in the previous section, the Laborers and Freight, Stock, and Material Movers, Hand occupation has lower annual earnings than most of the other occupations at around \$37,000. This shows the occupations with higher diversity are in lower earning occupations. Construction Laborers have slightly higher income with median earnings around \$55,000 each year, however, this is still lower than most of the higher skilled labor jobs such as electricians or plumbers.

The occupations with the lowest share of diverse workers include supervisor positions as well as those higher skill positions of electricians and plumbers. There is room to increase diversity among those higher-earning trades positions.

Figure 14: Race and Ethnicity of Construction-Related Trades Occupations (2022)



Source: Lightcast, UMDI Analysis

In an interview, Adam also mentioned the need to diversify the workforce, especially by occupation. He said, “Across the trades, you definitely see plumbing and electrical tend to be a lot more white now. Cleaners tend to be more women and/or South American. We need to start really diversifying the workforce more.” Confirming what the data is showing, he has observed that the higher-earning positions like plumbing and electrical are more white and the lower-paying positions are more diverse and have more women.

Union Organizations

In analyzing construction-related trades occupations and careers in the Greater Brockton region, an important component to consider is the trade unions and their role in this workforce and in training.

Trade Unions in Greater Brockton:

As mentioned previously, the MHGWB service area includes the towns of Abington, Avon, Bridgewater, Brockton, East Bridgewater, Easton, Hanson, Stoughton, West Bridgewater, and Whitman. Within these

towns are three unions: Boilermakers Local 29 in Avon, Roofers & Waterproofers Union Local (RUL) 33 in Stoughton, and Laborers International Local 721 in East Bridgewater. Other unions are headquartered further away but may still have some jobs locally.

Boilermakers Local 29 is the local division of the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers, and Helpers. They represent the craftsmen and women and industrial workers in heavy industry, shipbuilding, manufacturing, railroads, cement, mining, and related industries. Boilermakers are no longer active online and therefore do not appear to have an active apprenticeship program.

RUL 33 is the local chapter of the United Union of Roofers, Waterproofers, and Allied Workers. They represent the roofing and waterproofing workers. The local union is active on its general website and offers an apprenticeship, although applications for this apprenticeship are closed at the time of writing. The apprenticeship program is three years long, consisting of 450 classroom hours and 6,000 on-the-job hours. Additionally, RUL 33 is active on their benefit funds website which features fundraising efforts and scholarships.

Laborers International Union of North America (LIUNA) Local 721 is the East Bridgewater branch of the LIUNA and represents construction workers. The union is active on Facebook and offers a 2-year apprenticeship program consisting of 300+ classroom hours and 4,000 on-the-job hours. There is another branch of LIUNA in Brockton, Local 1162, which represents public workers. However, they are not active online. The New England LIUNA unions also jointly run various training courses ranging from 8 to 160 hours in length.

There are also trade unions near Brockton but located outside of the MHGBWB service area. There are 12 trade unions in the surrounding area and Boston. These include International Union of Operating Engineers (IUOE) Local 877 in Norwood, Bricklayers and Allied Craftworkers (BAC) Local 3 in Charlestown, International Brotherhood of Electrical Workers (IBEW) Local 223 in Taunton, Insulators Local 6 in Dorchester, Iron Workers (IW) Local 7 in Boston, Sheet Metal Workers (SMW) Local 17 in Dorchester, Teamsters Local 653 in South Easton, Teamsters Local 25 in Boston, Plasterers and Cement Masons Local 534 in Boston, Plumbers and Gasfitters Local 12 in Boston, Sprinklerfitters Local 550 in Dorchester, and International Union of Painters and Allied Trades District Council 35 (IUPAT DC35) in Roslindale.

In these 12 unions, there are 11 apprenticeship programs, from what can be determined based on available information online. These programs have a set number of seats and typically are only open to applicants once a year.

IBEW Local 223 is the local branch of the International Brotherhood of Electrical Workers. They represent electricians and telecommunications technicians. Local 223 offers a 5-year apprenticeship program consisting of 900 classroom hours and 8,000 on-the-job hours. IBEW Local 223 reaches many of their applicants through career fairs, educational outreach, and on-site tours. They connect with parents and guidance counselors at high schools to reach future applicants.

As one of their outreach activities, IBEW Local 223 has a partnership with a local technical high school. The school considers it a priority to make students aware of unions and benefits such as health care and paid time off. They collaborate with local trade unions so students can receive credit for participating in union apprenticeships. The local unions IBEW Local 103, IBEW Local 223, and IW Local 17 were noted as the most frequently referenced unions for construction graduates of a local technical school. Multiple members of the Iron Workers union, IW Local 17, are on the technical school's electrical advisory board.

Similar to the Iron Workers union, IBEW local 223 serves on the MassHire board and engages with high schools and those out of school, through career fairs and events, to expose 14- to 24-year-old youth to occupational choices. MassHire Greater Brockton supplements these career fairs with a career construction day, a hands-on experience for hundreds of young people each year.

Advantages and Disadvantages of Trade Unions

As discussed in the industry and occupation analysis, the trade unions are an important factor in trades careers and the related workforce in the Greater Brockton region. Overall, most interviewees discussed the advantages of joining a union such as health care and retirement benefits, training opportunities, and job security, among other benefits. Steve talked about the benefits in the union:

"So, every union member that goes to work gets [...] it's in our collective bargaining agreement... every member that goes to work as a journeyman, wireman, will be getting an annuity fund, a pension fund, an international pension fund. It's all contractor-based contribution. They get their health insurance [...] everybody's entitled to it whether they want to use it or not. And I think they'd be crazy not to have great benefits."

In addition to these job benefits, Elise talked about how the union can make a building-related career in a trades occupation seem more reputable:

"Some of the industry partners that we work with that are unionized, the security of shifts is there [...] and they're very much protective of their employees to not take away time and overtime from those folks. So I think the idea of being involved in a in a unionized environment has those benefits to people that gets them [students] to associate trade work with being reputable and viable work for the long haul for students who think that I want to work with my hands, I'm not going back to school, I'd rather work in the field, having this piece to it makes it more attractive."

She also mentions the benefits like security of shifts and having overtime. These are benefits that protect and help union employees, but there are also benefits for employers or companies that contract union workers. Several interviewees mentioned how union workers are usually known for doing higher quality work due to their higher skill level and training. Beth talked about unions as an asset in the state because of the training and quality of work: *"The care, the mentoring, the apprenticeships, all of those things when you when you call upon a union, I would say particularly within Massachusetts as being a very strong union state, that it also equates with the quality of work."*

In reference to union workers, Fred said, *"And they're really probably, in many instances better, better skilled, they have better skills, probably because they've been vetted by the union."*

Harvey also mentioned some of the benefits on the employer side in terms of being able to scale up and get more workers and ongoing training for members: *“So there are a lot of benefits in terms of [...] what the unions can offer [...] you've got the hall, you've got the ability to scale up, call up members to do certain projects, there's ongoing training, there's a nice benefits package, things of that nature.”*

However, because of the benefits they provide their workers and their higher-skilled workers, union workers can be more expensive than open shop contractors. A company must weigh the costs and benefits of hiring union or nonunion workers for a project. While union work is typically more expensive, their high-quality work might make it worth it to hire them. Fred talked about this and how the union will *“police itself”* and hold their workers to a higher standard:

“I think the perception is that if a job is completely union, that it will be a lot more expensive. However, the folks that show up, are expected to show up, will show up with their tools and some training and some backing behind the union because the union tends to police itself. If guys don't show up or they aren't doing the job correctly, or they're moonlighting too much [...] not meeting that higher standard, then they will pay the price, they won't be invited to the next job site and that type of thing.”

The cost differential seems to be the primary difference in why a project would use an open shop contractor versus a union contractor. Adam talked about how in economic downturns, union workers might actually have a more difficult time getting jobs because they are more expensive:

“[W]hen times are good, I think you probably do better in a union job. I feel like when times are not great, like the economy is in a downturn, I think it's harder for union workers to get jobs at that point because they're more expensive. So being an open shop contractor gives you more flexibility, I think.”

Working as an open shop contractor could give you more flexibility in taking jobs, but in general, it seems the union is still good for job security as they will generally help line up your next job, as long as there are more projects coming in. Steve did talk about there being a fear with workers about getting laid off in union jobs.

“Typically, from what I hear from some of them, is the fear of being laid off. So, most trade unions are like a staffing agency [...] We make great money, great benefits, but the benefit of that to our contractors is if they get a job, they need 10 employees, we have the 10 employees for them. They could call today, we'll have 10 employees on their job site tomorrow morning for them. In three months, if the job comes to an end, and they can't win any more jobs by bidding, then they need to lay the 10 off, or 3 or 4 of them, whatever.”

Harvey, an open shop builder, also talked about the differences in the benefits of union contractors and open shop. He said he has considered having his company joining the union; however, he does not think it will work for his business. His business serves a certain market that cannot afford union workers, and if they joined a union, this would price them out of this market:

“But once you join a union [...] that would also price us out of our existing market. We would not be able to service our customers anymore, because they wouldn't be able to afford it. It wouldn't be...it wouldn't work for us. There's a huge monetary commitment [...] and I don't think that they've appropriately addressed the transition from open shop to union to help ensure the successful companies that come into the union as opposed to a sink or swim environment.”

Harvey, however, emphasized that there is a need for both union and non-union labor:

“Obviously, there's a there's a role for union labor, so that's indisputable, but I wouldn't say that it's the only way to go. We've got to have more skilled labor in the open shop companies because there's a huge segment of work that is, that is not on that in the purview of union companies [...] if we have this path, where we're almost exclusively pushing young adults to go into union for the trade positions, then the open shop companies will eventually die out, and there's plenty of them that haven't survived and then that market that they were servicing, there'll be more under-serviced than they are now because I get too many phone calls from property owners who, frankly, need work to get done, can't get their calls answered, can't get anyone to provide an estimate. And then they happen to be asking for stuff that we no longer do because we grew out of it and we've transitioned into larger projects. So, there's definitely a need there for more open shop skilled labor.”

Another factor with union work that was mentioned in interviews was harassment from the unions if companies do not hire union labor. Fred talked about how some places would like to hire some open shop contractors if they're available and union contractors for other work. However, they feel that the union is not flexible and would harass them for using any non-union labor.

“When I talked to the building owners, I think they would like to have the option of having union workers in some areas where they deem it necessary [...] So, you, you might have a huge electrical union project going on, and they can't find or the union can't supply the workers so they might want to be able to go out to another group that's non-union in order to get the project moving along. And they don't want to be harassed if they do that. They also want to be able to gain efficiencies, where if they know, a sub or a contracting company that's open shop that they know does better work [...] it might be better work at 40 percent savings, and if they can count on it, they want to be able to call that in without being harassed. [...] so the harassment on the union side on job sites is a big factor that frankly drives open shops away. But also, some of the contract construction companies or building owners who could go union tend to not just they just don't want to get on to that field because they feel like it's not reversible or it's not flexible.”

Overall, the trade union organizations have an important role in the workforce for trades occupations in the Greater Brockton region. They have an important role in training workers and in employing workers, however, open shop contractors still have benefits and there seems to be a role for both types of labor. The open shop contractors, however, are lacking the skilled labor that the unions tend to have.

There is a clear shortage of skilled labor in the region, and this needs to be increased in both union organizations and open shop contractors. However, open shop contractors do not frequently have the

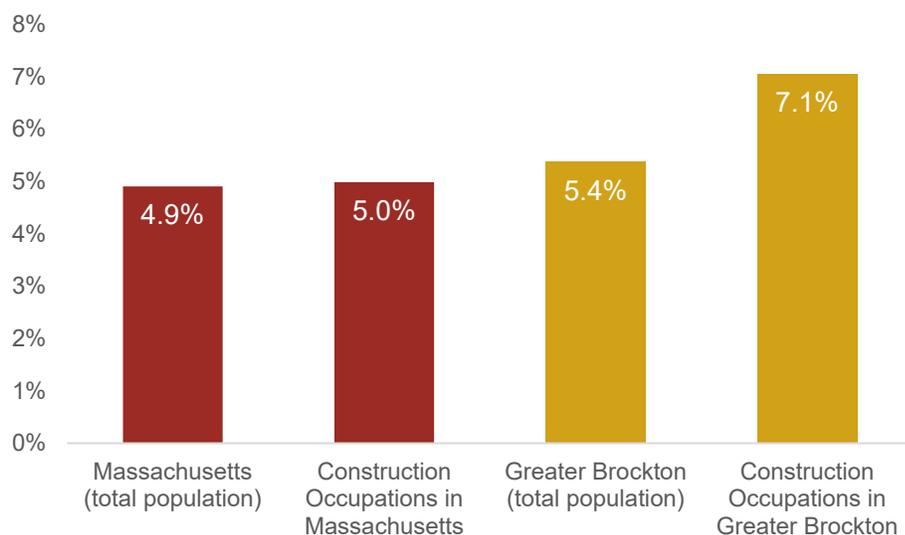
capacity or funding to train their workers. More such opportunities to have workers trained in the trades were called for by both respondents running businesses, and those involved with learning/training.

Internet and Computer Access

Another factor considered in this analysis is the percentage of construction trades workers who have access to the internet and computers. To do this, the analysis looks at the major occupation group for all Construction and Extraction occupations, not the selected occupation group used in the previous analysis. This helps to get more accurate data by including the entire major occupation group.

This analysis found that seven percent of people who work in Construction and Extraction occupations in the Greater Brockton region have no internet access at home (Figure 15). While this is a fairly low percent, it is high compared Greater Brockton overall, the state overall, and compared to people in these occupations in the entire state.

Figure 15: Percent of Population with No Internet Access, 2021

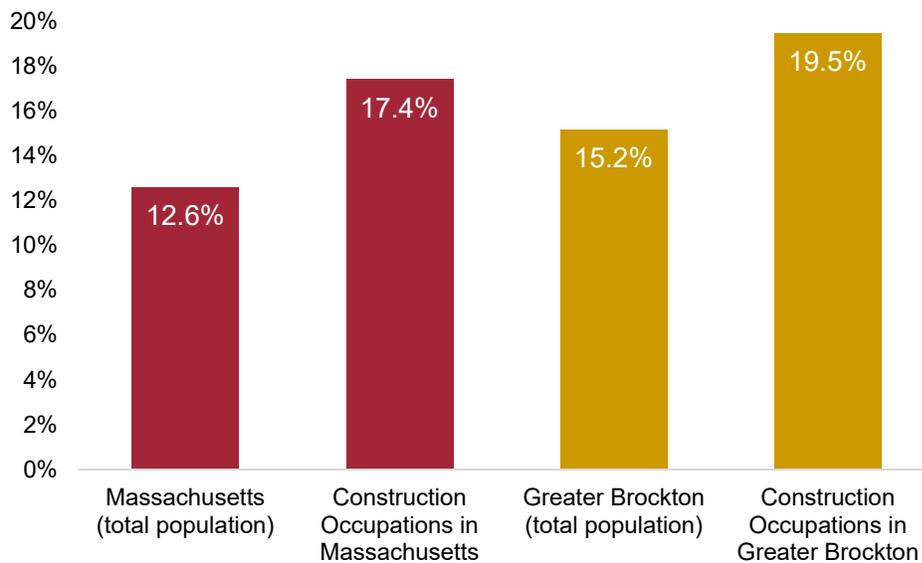


Source: ACS 5YR 2017-2021, IPUMS, UMDI Analysis

*Note: Estimates of number of people in construction occupations in the Greater Brockton region in ACS data is 8,886.

A similar trend is seen in the data for computer access. Almost 20 percent of workers in Construction and Extraction occupations in the Greater Brockton region do not have access to a laptop, desktop, or notebook computer in their house (Figure 16). This is again higher than the total population of the Greater Brockton region, where only around 15 percent of the population does not have access to a computer. It is also higher than the percentage of the state and construction workers in the state who do not have access to a computer.

Figure 16: Percent of Population with No Computer Access, 2021



Source: ACS 5YR 2017-2021, IPUMS, UMDI Analysis

*Note: Estimates of number of people in construction occupations in the Greater Brockton region in ACS data is 8,886.

**Note: Computer is defined as a laptop, desktop, or notebook computer.

While those working in construction occupations in the Greater Brockton region do not have as much access to internet or computers, interviewees did not think this is a major barrier for the occupations. At least in the entry-level positions, interviewees generally agreed that computer literacy was not as important. However, they did seem to think it could be more important as workers potentially move up to supervisor positions. Jacob said,

“I don't think [computer literacy is] a barrier at the entry level stage. But as you move into being a foreman, a lot of our job site requirements are basically on an iPad now. We can pull up all the drawings for the project. Safety Information and forms that need to be filled out daily, are all basically mobile phones or iPads, correspondence, you know, emails, text messages [...] That's how we run a lot of jobs, so that it isn't so much computer experience, but at least the ability to navigate an iPad, cell phone. So pretty simple stuff. But a lot of people do struggle with it.”

Steve expressed a similar idea saying that he did not think computer literacy was important for getting hired but it is important for promotions and moving up in a career in construction trades:

“So, getting hired? No. For promotions? Yes. So, if you're going to be just a hands-on electrician out in the field, you'll have a foreman that'll probably have an iPad. He'll have everything on his iPad, you'll be able to direct his crews on what to do daily [...] Any change orders, any changes on the drawings, the worker will not even need to know that. But as far as if you want to get promoted as a general foreman, yes, you're going to need to know the computer aspects of the trade.”

There is some value to having computer literacy in these occupations because it can help get promotions, however, it doesn't prevent you from getting into the field. David said, it is probably *"not at the top of the list"* to get hired in a construction job. Beth, however, did note that there is importance in knowing some basic computer skills: *"So I do think it's necessary nowadays, having computer skills across the board. Excel spreadsheets, budgeting, or measuring..."*

Adam also mentioned that many people use iPads in the field, but a lot of trades still use paper plans. However, he does think computer literacy will become increasingly important over the next five to 10 years.

Computers can also be a part of training. Steve did say that in the apprenticeship program in his union they do require apprentices to bring a laptop to school to use for some of their training materials. He said, *"We find it works great. In today's youth, you know everybody's on board with that."* He did not seem to have any major issues related to computers and computer literacy in his apprenticeship program.

While computer literacy was not identified as a major barrier for getting into construction occupations, it could be a barrier for advancing in that career path and should still be considered in workforce planning. Twenty percent of workers in construction occupations in the Greater Brockton region do not have access to a computer or a laptop so that could be a barrier for that population in getting promoted.

There are other barriers though that are more pressing and are described in the following section.

Discussion

Barriers to Employment in Construction-Related Trades Occupations

The quantitative data as well as the qualitative data from the interviews and focus group revealed common barriers that people face in getting into construction-related trades occupations in Greater Brockton. Some of those barriers include the marketing and awareness of these occupations, educational barriers, transportation, perception issues, language barriers, and issues with substance use. These barriers limit the construction trades workforce and working to remove these barriers can help grow and improve the workforce.

Advertising, Marketing, and Awareness

One common theme that emerged in interviews was the lack of awareness and knowledge of construction trades occupations among the general population, and particularly in high school students who could potentially work in these industries. Interviewees seemed to agree on the idea that some type of marketing or awareness campaign is needed to help potential workers better understand the trades industry and different types of jobs within the industry.

The lack of awareness extends beyond students to their families and parents as well. David talked about how an improved awareness in middle school families could help students understand their options in terms of going to a vocational school and entering a career in trades:

“One barrier is a lack of general awareness about the construction trades for middle school families. We have partnerships with some of our sending school districts but not all. Where it makes it very challenging, in my opinion, for a kid who wants to come here, a lot of them say they don't know what they want to do, but I remain convinced that [...] if there were more resources available more incentives and partnerships when kids were younger, and [also more knowledge among] parents, because their parents have certain perceptions.”

Historically, these career pathways have not been considered to be as good as getting a four-year college degree. Adam said, *“If either one of my kids wants to become an electrician, I'm going to be like, go for it...I don't know about you guys, but becoming an electrician or plumber was never something I would ever even have considered. My family is like, you're going to a four-year college.”* The issue with this perception seems to be around a lack of awareness in the potential of trades career pathways. Another interviewee agreed that the lack of knowledge among parents can affect students choosing to go into the trades:

“I've dealt with a lot of parents that [say], ‘If my son or daughter wants to be electrician, they can do that after they get to that degree.’ And I said, well, why would you do that? They can come earn a living, a great living, get a master's in electrical license, get credits towards a college degree through our program, and then they can advance a career after that. And a lot of parents don't even know about that. So that's a big breaking news thing for the parents as well. But I think the biggest

thing is that the people just don't know what they want to do for a career choice, I mean, it's hard for an 18, 19, 20-year-old to figure out with someone telling them maybe get into a trade. 'Well, what trade? How do I know where to start?'"

These interviewees say that there is still this idea among many parents that their kids need a traditional college degree. However, they are often unaware of the earning potential of jobs like an electrician and are not aware that students can actually get credit toward a college degree in trades apprenticeship programs. As seen in the wage data, electricians and plumbers both have median annual salaries of around 80 thousand, but there can still be a perception that this career path does not have as much potential as getting a college degree.

This lack of awareness around trades exists among students and parents, but also in the general community. Another interviewee, Beth, talked about the need of marketing in the community to raise awareness of careers like electricians and plumbers:

"And I think some of that was learned through Covid, when people were looking for plumbers and contractors and electricians, you couldn't find one anywhere. So that's marketing, that's educating- not just only to the workforce itself, it's to the parents and guardians and in others, and it takes more than just putting out little ads, that really means going deep into, you know, being present at a at the Cape Verdean festival or being present at the farmers market in Hanson. It's the boots on the ground. And sometimes an organization like MassHire, or the career center doesn't have the staffing levels to address those."

Similarly, David talked about how there is a need to raise awareness and to change the perception of construction and trades work among parents and families, because it's not necessarily from a lack of interest: *"I think, if they're interested and willing, there are certainly jobs available, but I think the trades suffer from PR issues that we on the supply side could be doing more to help them."* David also noted the importance of broadening the types of people aware of opportunities in this field:

"How is it that we can get families more aware and a larger demographic? That, I think, is an obstacle, quite honestly [...] our ability to message to students going into programs nontraditional for their gender [...] And I would say my answer to barriers goes back to an age range that they're not even legally able to work but I think [relates to] the seeds of 'What do they do?' 'Oh, that's dirty. Well, that's noisy.' I mean, whatever the perception is. My experience is that if there was better access to information, it should eventually yield some additional interest."

David thinks the awareness and marketing should happen with students starting around middle school because even though they can't work yet, it will affect their perception of trade careers in the future. He also references the perception around gender in that most trades are generally associated with male workers, however, there are opportunities for women in these careers as well.

Elise also talked about how there should be more targeted outreach to the female population to increase the trades workforce. She says most women probably do not understand the type of trades work that is available and there should be marketing for this population:

“Being able to sell the concept of the trade to a female who's not thought of it, but who was looking to gain some type of career pathway, that this is a viable option, because it leads to A, B, C, and other things down the line. I think it's more being careful to understand as you translate it to increasing female population that you're not going to just stay here and hammer [...] This position will lead you to this role, and that position can lead you to that role and that's across the board. But I think that that being a good selling point to females because we would see that trajectory closer than later as a pathway and being able to acknowledge and identify what that looks like so that could be sold as a marketing piece would go a long way.”

Interviewees also talked about how to reach more potential workers in the younger generation. Beth emphasized the need to communicate with young people both in school and out of school: *“But with the diminishing workforce, we need to be spending, I think a little bit more time about that. Again, multiple languages, going to places where maybe untraditional and not just going to the high schools, but going to community events and that kind of a thing.”*

In addition to perception issues and a lack of awareness about construction trades careers in general, there is a lack of awareness of the different types of trades work that is available. Many young people do not know what they want to do for a career, whether they are in school, recently graduated, or not in school. Interviewees agreed that educating young people about the different types of trades would be helpful when they are trying to decide on a career path. Steve explained how young people looking into apprenticeship programs do not know why they want to work in one trade compared to another. He said students don't know why they might pick being an electrician over being in carpentry, plumbing, brick laying, iron work, or painting.

There may be materials and resources available to students that describe these trades, however, they are not aware of the available resources. For example, a couple of interviewees pointed out that many people do not know what the career center is and how it can help them. Fred explained that an awareness campaign around the career center and the work they are already doing could be helpful:

“I think it's widely known that people are confused sometimes about what the career center is, some people call it the unemployment office, others aren't really sure when they should go on site versus be able to log in remotely. And from the surveys I've seen in the past, from an employer perspective, representing many, many businesses, 90% of the businesses aren't sure either. So, you've got [...] a lack of marketing or marketing awareness in the marketplace for people looking for employees. And I think from the employees yourself, you just heard from Harvey that some of them are not familiar with that career center term or whether it's like, ‘Gee, I'm a carpenter. That's not really my career, it's my trade’ so the wording is even different so I wonder if there might be some marketing you know that could be some type of creative awareness campaign that would help.”

Marketing and awareness are needed to help inform young people and the general community about trades careers including the potential in these careers and information on the different type of trades that are in-demand and what type of work is involved with each of them. Marketing and awareness campaigns can help address some of the issues of perception that currently exist around construction and trades jobs. Among the many things MHGBWB already does, Construction Day was mentioned

multiple times as a very good event and something well worth doing as well as finding ways to add to. Beth mentioned expanding the forms of outreach further:

“I do think that MassHire, they've been holding a construction day and is well received. But I think some of the other challenges with that is that it's a smaller group of people showing up. They don't have like 4,000 people showing up to a construction day. There are a limited number of people from each of the school districts that go to construction day.”

Transportation

Another major barrier that came up in almost every interview was with transportation. Most construction or trades workers, or people who might go into these careers, have trouble accessing transportation. This includes access to cars and public transportation. This is especially difficult in construction because jobs can be spread out across the region and the location changes.

Elise said that in her experience, transportation is the biggest reason that her students stay unemployed or have to settle for jobs locally that are not family wage sustaining. She also adds that it is difficult to figure out because the jobs are all over the region.

Some individual construction and contractor companies try to address these issues and provide transportation. Beth talked about this in her interview, saying she knows contractors and construction companies that have somebody pick up people at their homes.

Interviewees added that public transportation often doesn't help because they may not go to where the jobs are. Steve talked about this issue and how his workers may not be able to stay employed if they cannot get to work. Additionally, Jacob mentioned that transportation can especially be a barrier for the immigrant population who might not have a driver's license or reliable car.

Educational Barriers

As seen in the data and in the interviews, there is a major lack of supply in the construction and trades workforce in the region currently. There are some barriers in getting enough workers educated and trained to work in these in-demand occupations.

As discussed earlier, there are regional vocational high schools, however, they are not producing enough students to meet the regional demand. One potential solution to this is to increase the capacity of trade schools in the region. Adam talked about this idea:

“I think we need more trade schools. We need to support them financially. We need to give people scholarships. We need to pay for this stuff. I know, some of the larger contractors...A lot of these companies, because they can't find skilled labor, actually started to train people themselves.”

Some private companies can take on training themselves if they have the financial ability and the capacity to do so. However, there are many smaller construction companies and contractors in the region that likely cannot support training themselves. Harvey said, *“Operating a small business,*

oftentimes, one of the biggest hurdles we have is that we don't have the spare cash flow to support the ongoing training and education and everything else that's needed in order to bring someone in."

One overall solution to the workforce shortages is to increase funding and capacity of trade schools, however, this may be a longer-term solution that will take some time. Fred said that currently, there are kids taking seats in vocational schools who do not intend to actually go into a trades career. He believes that vocational schools should be filling their seats with students who actually plan to work in the trades:

"[One] real big concern [is] vocational schools filling their seats with kids that can pass the MCAS⁷ but can't swing a hammer, or kids that have no intention of going into the trades but are taking a seat of a kid who wants to learn the trades. It has to be addressed. The Brockton school department have ... been contemplating opening new vocational programs for kids that couldn't get into the vocational school, so they can teach them the trades. [...] Somebody has to figure that out, exactly how we stop incentivizing the vocational schools from taking kids that aren't going to go into the trades and filling those seats."

It's unclear how prevalent this issue is and how many seats are taken up by people not going into trades careers. However, this could be one way to increase the supply of workers if vocational schools try to take only students who plan to go into these careers. There are some existing programs that try to expand the training capacity of vocational programs. For example, the Career Technical Initiative is an initiative of the Workforce Skills Cabinet, administered by the Commonwealth Corporation, to address the persistent demand for workers in manufacturing and construction and construction-related trades by expanding training capacity for Massachusetts residents. The Career Technical Initiative builds capacity at high schools with designated, aligned vocational technical programs. Using existing facilities and equipment, the schools provide training on evenings and weekends to unemployed and underemployed individuals. The schools collaborate with MassHire Career Centers and Market Makers to engage employers to ensure programs meet local workforce demand, recruit students, and to place the graduates in jobs.

Another, related way to try to address this problem is to integrate more trades classes and programs in all high schools. Beth talked about this idea for Brockton High School:

"I believe that Brockton High School is looking to have trades be incorporated, because they realize they're losing Brockton as losing kids to another school outside of the district. But there has to be that blending. And I think that needs to be encouraged. That takes guidance counselors to talk about it. [...] It's educating parents or for guardians to say, this is a real job, right?"

Overall, the regional schools need to work on increasing production of students trained in trades. Adam summed up this overall issue saying, *"I think that there are not enough skilled laborers out there. I think*

⁷ Passing this 10th-grade standardized test, the Massachusetts Comprehensive Assessment System (MCAS) is currently required for graduation from any Massachusetts high school.

that the big picture, we've been telling people that they need to go to a four-year college and go into like a desk job for the last 30 years. We don't have enough trade schools."

Another barrier related to education is the amount of time that it can take to complete training in a trade. As mentioned earlier, most of the apprenticeship programs are four to five years. While these are usually paid, some people may want to skip the training and go immediately to work somewhere they can get paid more. Some students may not have the financial ability to go to school or training and want to start work immediately. Other training solutions could be to help private or open shop employers train their employees. Harvey talked about his idea and said:

"So maybe looking at how, whether it be through grant money or some other way to help small businesses create in-house training programs, or at least having someone who could come and do some sort of training or providing a grant [...] That would subsidize the on-the-job training of a new person, so that they don't feel like when they bring this person in, that they're just taking away from their cash flow, but then not being productive."

Language Barriers

Another barrier that can exist in the region is a language barrier. This can be a barrier for knowing about construction-related trades careers, knowing where to find jobs, getting a job or getting promoted. Beth mentioned that this is an issue particularly within the Greater Brockton area.

David also talked about how the language barrier affects the awareness issues and families who do not speak English as a first language may not be aware of opportunities that exist at vocational schools:

"I think families whose first language isn't English, I do believe that creates an additional barrier because if I'm not speaking English, and I don't have a lot of opportunities to know that there are pathways for my kids to get a vocational education. Our English learner numbers are lower than our ascending schools. I would punctuate that as a priority."

Language could also impact a worker's ability to get promoted and move up in a career pathway. The data show that there is more diversity in lower-paid trades positions. This could include immigrant laborers who have a more difficult time advancing in the career because of language barriers.

Job Expectations and Soft Skills

While there are perception issues with people knowing about construction trades as a career option, there are also misperceptions from people who do get into trades work and find it to be more difficult or different than they thought. For example, Steve talked about how students can be surprised at how early construction jobs might start and how far they may have to drive to reach those jobs.

"A lot of younger applicants, they don't want to have to travel [...] they're like 'Why I'd have to leave my house at 3:30! I'm not going to do that.' And I'm like, 'That's construction. You have to go where the work is.' And a lot of younger applicants are not willing to do it. They just don't want to take the time to drive, to travel."

Other interviewees agreed that students who do decide to go into the construction trades need to understand the type of work first and how hard it might be. Beth said it could help *“having people know when they're going into the industry, what could happen on a daily basis, what could happen on a weekly basis. And again, because of the demand, they're able to kind of choose, you know, whether they want to stick with it or not.”*

Elise also talked about seeing this with her students and explained that it could help to have clear messaging upfront to students about how hard and labor intensive the work is:

“So, I have a lot of students who think they want to do trade work, and then they come, and they realize it's work and then they stop showing up. So it's making sure that the message about what you're going to get yourself into, what you need to have as skills, a skill set, is important to start off from the top when students come to us in the classroom.[...] That message needs to be clear upfront as to this is what it entails, this is what expectations are, so people aren't just walking blindly in doing that. We've actually worked with MassHire on creating an aptitude test so that students get a pre-exam of this is the curriculum that you'd be looking at getting into [...] If this is something that you still want to continue in, this is the commitment of hours in the classroom and internship hours in the field. So, students have an understanding upfront of what they're getting into before they start and then stop something or go to a job site, work and then just not call - no call no show.”

There can also be misperceptions around licensing and training needed for trades jobs. Steve said he has encountered people who do not think they need to be licensed to work as an electrician for installing solar panels.

Refraining from substance use on the job was also an expectation identified as an issue for some employees, which came up as a barrier for some in the construction and trades workforce. Elise mentioned this has been an issue for some of her students:

“So, I think students and folks in general who go into the trades need to understand that marijuana is legal, yes, but you still have the drug test at certain sites. That's been an issue for some of the students that we work with as well. So those type of understanding the do's and don'ts of getting into the field, it's what we have to ingrain into students, because it's not just a matter of, 'I can't do anything else. I'll go into the trades.' There are still some limitations that students have to be aware of where it'll keep them from being able to actually get employed by certain companies.”

Beth also mentioned seeing substance use issues in trades occupations, as well as other soft skills such as timeliness and the hard work involved in the trades, some of which can be very physically demanding, requiring a lot of effort from employees. Her comments highlight potential expectation mismatches between prospective employees and employers in several areas beyond refraining from substance use:

“Data shows that the construction workers have a high rate of substance use. And that there's a correlation, [but] I don't begin to become a data analyst about that. I'm aware of hearing [...] it's a lot of work. It's timely, you got to be on time. It's grueling work, in some cases depends upon what

specifically one is doing. So that I think that [it's important to] get [...] a good education about what is the expectancy when you come in to hire."

Additional transferrable or soft skills important to employers include reliability, communication, punctuality, and responsibility, but also include an orientation to learning and a receptive attitude towards instruction or directions provided by supervisors. Harvey described it in this way:

"You can teach people how to communicate properly, but they also have to have the intention to use it, they have to want to do it. And the attitude that these guys gave was like, 'let us do everything our way. Why are you trying to teach us, preach to us, that type of thing?' And I'm like, this is how you learn and if you don't have that, if you don't have the capability to absorb on this level, how can I even think that you're the right person for this company, how do you instill that in someone before they get to us?"

There remains an open question of how to best to onboard these kinds of skills and expectations. These 'soft' employment skills, which transcend construction and related trades knowledge, connect back to being able to network to identify available opportunities and jobs as well, and are crucial to workers' successful preparation. As Fred said, there are inexperienced potential workers who have not yet had the exposure to clear job expectations, who would benefit from some way to form this understanding. However, the prescription for how to best transmit this might relate to mentorship, but is not obvious: *"I think you touched on a lot of the socio elements of this, of kids having high expectations of not realizing what it takes to actually get to a destination, they know they want to be there, but what are the steps? And maybe that's mentoring? I don't know..."*

Appendix A: Construction-Related Trades Occupation Group in Greater Brockton 2022

| SOC | Description | 2022 Jobs | Median Annual Earnings | Typical Entry Level Education (U.S.) |
|---------|--|-----------|------------------------|--------------------------------------|
| 11 | Management Occupations | | | |
| 11-3013 | Facilities Managers | 97 | \$95,548 | Bachelor's degree |
| 11-9021 | Construction Managers | 433 | \$103,109 | Bachelor's degree |
| 47 | Construction and Extraction Occupations | | | |
| 47-1011 | First-Line Supervisors of Construction Trades and Extraction Workers | 766 | \$95,099 | High school diploma or equivalent |
| 47-2011 | Boilermakers | <10 | Insf. Data | High school diploma or equivalent |
| 47-2021 | Brickmasons and Blockmasons | 90 | \$77,966 | High school diploma or equivalent |
| 47-2022 | Stonemasons | 21 | \$52,872 | High school diploma or equivalent |
| 47-2031 | Carpenters | 958 | \$57,248 | High school diploma or equivalent |
| 47-2051 | Cement Masons and Concrete Finishers | 119 | \$73,242 | No formal educational credential |
| 47-2061 | Construction Laborers | 1,258 | \$55,394 | No formal educational credential |
| 47-2071 | Paving, Surfacing, and Tamping Equipment Operators | 79 | \$51,569 | High school diploma or equivalent |

Greater Brockton Construction-Related Trades Occupations

| | | | | |
|---------|--|-----|------------|-----------------------------------|
| 47-2072 | Pile Driver Operators | <10 | Insf. Data | High school diploma or equivalent |
| 47-2073 | Operating Engineers and Other Construction Equipment Operators | 416 | \$68,692 | High school diploma or equivalent |
| 47-2081 | Drywall and Ceiling Tile Installers | 66 | \$53,129 | No formal educational credential |
| 47-2111 | Electricians | 927 | \$79,291 | High school diploma or equivalent |
| 47-2131 | Insulation Workers, Floor, Ceiling, and Wall | 90 | \$45,575 | No formal educational credential |
| 47-2132 | Insulation Workers, Mechanical | 48 | \$64,809 | High school diploma or equivalent |
| 47-2141 | Painters, Construction and Maintenance | 267 | \$48,353 | No formal educational credential |
| 47-2142 | Paperhangers | <10 | Insf. Data | No formal educational credential |
| 47-2151 | Pipelayers | 10 | \$55,087 | No formal educational credential |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters | 928 | \$82,440 | High school diploma or equivalent |
| 47-2161 | Plasterers and Stucco Masons | 26 | \$73,693 | No formal educational credential |
| 47-2171 | Reinforcing Iron and Rebar Workers | 12 | \$82,366 | High school diploma or equivalent |
| 47-2181 | Roofers | 150 | \$62,027 | No formal educational credential |
| 47-2211 | Sheet Metal Workers | 136 | \$76,465 | High school diploma or equivalent |
| 47-2221 | Structural Iron and Steel Workers | 81 | \$99,491 | High school diploma or equivalent |

Greater Brockton Construction-Related Trades Occupations

| | | | | |
|---------|---|-----|------------|-----------------------------------|
| 47-2231 | Solar Photovoltaic Installers | 42 | \$47,708 | High school diploma or equivalent |
| 47-3011 | Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters | 12 | \$50,713 | No formal educational credential |
| 47-3012 | Helpers--Carpenters | <10 | Insf. Data | No formal educational credential |
| 47-3013 | Helpers--Electricians | 74 | \$45,653 | High school diploma or equivalent |
| 47-3014 | Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons | <10 | Insf. Data | No formal educational credential |
| 47-3015 | Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters | 31 | \$46,447 | High school diploma or equivalent |
| 47-3016 | Helpers--Roofers | <10 | Insf. Data | No formal educational credential |
| 47-3019 | Helpers, Construction Trades, All Other | 28 | \$47,039 | No formal educational credential |
| 47-4011 | Construction and Building Inspectors | 80 | \$71,413 | High school diploma or equivalent |
| 47-4031 | Fence Erectors | 37 | \$43,244 | No formal educational credential |
| 47-4071 | Septic Tank Servicers and Sewer Pipe Cleaners | 33 | \$63,412 | High school diploma or equivalent |
| 47-4098 | Miscellaneous Construction and Related Workers | 19 | \$52,998 | High school diploma or equivalent |
| 49 | Installation, Maintenance, and Repair Occupations | | | |
| 49-1011 | First-Line Supervisors of Mechanics, Installers, and Repairers | 370 | \$77,825 | High school diploma or equivalent |
| 49-2022 | Telecommunications Equipment Installers and Repairers, Except Line Installers | 69 | \$72,768 | Postsecondary nondegree award |

Greater Brockton Construction-Related Trades Occupations

| | | | | |
|---------|---|-------|------------|-----------------------------------|
| 49-9021 | Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 418 | \$70,721 | Postsecondary nondegree award |
| 49-9099 | Installation, Maintenance, and Repair Workers, All Other | 115 | \$47,363 | High school diploma or equivalent |
| 51 | Production Occupations | | | |
| 51-4121 | Welders, Cutters, Solderers, and Brazers | 187 | \$54,124 | High school diploma or equivalent |
| 51-4122 | Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 22 | \$48,362 | High school diploma or equivalent |
| 53 | Transportation and Material Moving Occupations | | | |
| 53-3032 | Heavy and Tractor-Trailer Truck Drivers | 1,632 | \$56,183 | Postsecondary nondegree award |
| 53-3033 | Light Truck Drivers | 1,264 | \$41,397 | High school diploma or equivalent |
| 53-4011 | Locomotive Engineers | 41 | \$91,585 | High school diploma or equivalent |
| 53-4013 | Rail Yard Engineers, Dinkey Operators, and Hostlers | <10 | Insf. Data | High school diploma or equivalent |
| 53-4022 | Railroad Brake, Signal, and Switch Operators and Locomotive Firers | 16 | \$85,225 | High school diploma or equivalent |
| 53-4031 | Railroad Conductors and Yardmasters | 47 | \$82,414 | High school diploma or equivalent |
| 53-7062 | Laborers and Freight, Stock, and Material Movers, Hand | 1,706 | \$37,051 | No formal educational credential |
| 53-7199 | Material Moving Workers, All Other | 15 | \$37,716 | No formal educational credential |

Source: Lightcast, UMDI Analysis