

.....
A B E L L
.....
F O U N D A T I O N
.....



Photo courtesy of Jane Addams Resource Corporation

JANUARY 2025

Linda Dworak,
Director of the Maryland Philanthropy Network's
Baltimore Workforce Funders Collaborative

Expanding Apprenticeships in Maryland



The Abell Foundation
Suite 2300
111 S. Calvert Street
Baltimore, MD 21202-6174

Executive Summary

The state of Maryland has recognized the potential for registered apprenticeships to both provide a path to better-paying careers that do not require college degrees and to help employers meet their needs for workers with specialized skills. The landmark Blueprint for Maryland's Future sets an ambitious goal for 45% of Maryland students to graduate from high school with a youth apprenticeship or a certified industry credential by 2030, and although apprenticeship is more robust here than in many states, it is nowhere near that goal, with Baltimore City lagging even farther behind.

Meeting the state's goals will require a much greater understanding among the public and business leaders about the nature of apprenticeship and its potential applications in non-traditional fields, and it will require policy responses to address the particular challenges to expanding apprenticeship in Maryland generally and Baltimore City specifically.

- **Section I** offers those unfamiliar with the topic with an overview of apprenticeship, a description of its value to employers and residents, and corrections to common misconceptions about it.
- **Section II** serves as a resource for those seeking to understand the current state of apprenticeship in Maryland and Baltimore City, with data on the demographics of apprentices, the industries in which they are concentrated, and the rate at which apprentices complete their programs.
- **Section III** is geared toward policymakers with descriptions of opportunities for and challenges to the expansion of entrepreneurship, with a focus on strategies to address circumstances unique to Baltimore compared to the rest of the state or other metropolitan areas.



Key Findings

Key findings of the report include:

- **Apprenticeship is a pathway to good-paying jobs.** A state analysis in 2021 found that Marylanders who had completed apprenticeships in 2012-2013 had a median salary of \$82,900 five years later – nearly double the earnings of community college associate degree earners over the same period.
- **Apprenticeship benefits employers through lower turnover and hiring costs and increased productivity.** According to the U.S. Department of Labor, for every dollar spent on apprenticeship, employers get an average of \$1.47 back in increased productivity, reduced waste, and greater front-line innovation.
- **Apprenticeship is growing in the U.S. and Maryland.** New federal grant programs contributed to a 64% increase in the number of new apprentices between 2012 and 2021. Nationally, Maryland ranks well for apprentices as a share of its working population.
- **Still, the U.S. lags its peers.** By one estimate, the U.S. would need to increase the number of registered apprentices seven-fold to achieve the level in Germany, Canada, or the United Kingdom.
- **Apprenticeship in the U.S. remains disproportionately white and male.** Efforts to increase the diversity of registered apprentices have helped, but apprentices are still far from reflective of the nation's demographics, particularly with regard to gender. The same is true in Maryland and Baltimore City.
- **Apprenticeships remain concentrated in the building trades.** Locally and nationally, expansion of the model into high-demand industries such as health care and information technology is nascent.
- **Maryland has significant resources to support apprenticeship expansion.** The state is administering more than \$45 million in federal grants to support apprenticeship in the offshore wind industry, as well as in non-traditional sectors such as health care, transportation, information technology, and hospitality, with a particular focus on increasing apprentice diversity.
- **Poor understanding of apprenticeship is a barrier.** The benefits of apprenticeship are not well known to families or businesses, and misconceptions about the requirements

for employers are common. Both employers and potential apprentices often misconstrue apprenticeship as only for union jobs or jobs in the building and construction trades.

- **Expanding apprenticeship in Baltimore City poses specific – but surmountable – challenges, including:**

- **Transportation:** Baltimore City residents disproportionately lack valid driver's licenses, and Maryland's licensure requirements are among the strictest in the nation. High auto insurance rates are out of reach for many city residents, and the public transportation system is generally inadequate to meet the needs of apprentices.
- **Education:** Registered apprenticeships often require a high school diploma or GED, yet in high-poverty ZIP codes in Baltimore, a third or more of adults lack them. Many Baltimore City Public Schools graduates also lag the state in the literacy and numeracy skills often required by registered apprenticeships.
- **Child care:** In Baltimore, many neighborhoods with high numbers of children and lower family income are considered

child care deserts, lacking a sufficient supply of affordable and safe child care slots to meet demand.

- **Previous justice involvement:**

A legacy of racially discriminatory policing and zero-tolerance policies burden a disproportionate share of Baltimore City residents – especially Black men – with criminal records that disqualify them from many registered apprenticeship programs.

- **Policymakers can expand apprenticeship in Maryland and the opportunities for workers that come with it by:**

- **Countering employer misperceptions about apprenticeship.** Many businesses misperceive that apprenticeship is only applicable in union environments or in the building trades, and they often overestimate the costs and requirements apprenticeships place on employers.
- **Supporting apprenticeship in non-traditional sectors.** The state can support employers in developing skills-based (rather than degree-based) hiring.

- **Improving data collection and analysis.**

Maryland's outmoded state-run data system has made it difficult to monitor progress and apply lessons learned.

- **Setting realistic standards for youth apprenticeships.** Maryland needs to base its standards for activities to meet the 45% goal in the Blueprint on goals on rigorous labor market analyses related to apprenticeable careers available in proximity to high schools in each region of the state.

- **Establishing a robust public apprenticeship office in Baltimore City.**

Implementation of apprenticeship expansion is currently fragmented; a centralized approach could help to sustain employer outreach, recruitment, career prep, and retention services.

- **Learning first-hand.** Other states have benefited from taking delegations of policymakers, business leaders, and educators to witness the robust internship systems in Europe.



Photo courtesy of Baltimore Alliance for Careers in Healthcare

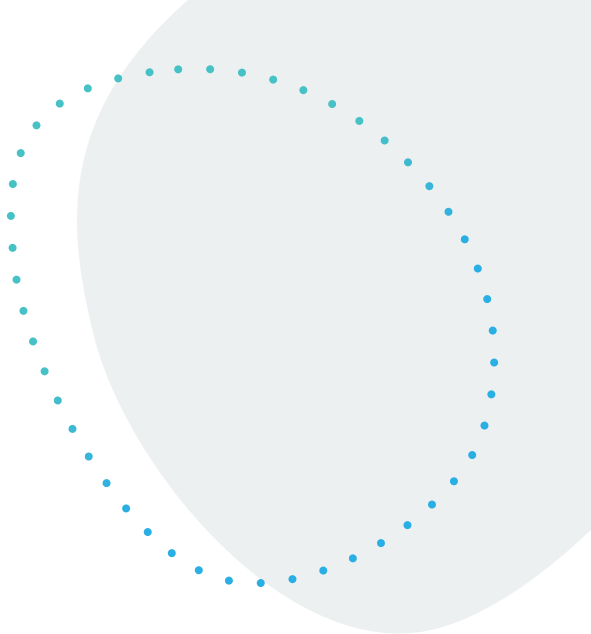


Table of Contents

Introduction	1
Part I	4
What is Apprenticeship?	4
The Value of Apprenticeships	9
Part II	14
Registered Apprenticeship in Baltimore	14
Part III	23
Opportunities for Expansion	23
Challenges for Expansion	25
Appendix: Key Terms	41
Acknowledgements	45

Introduction

Apprenticeship is a hot topic in Baltimore's workforce development and education spheres. The Maryland State Department of Labor has been aiding the rapid growth of Registered Apprenticeship Programs (RAPs) across the state while the Blueprint for Maryland's Future, the state's ambitious public school reform plan, calls for unprecedented expansion of youth apprenticeship in all public high schools. During the decade prior to the COVID-19 pandemic, the number of new apprenticeships doubled nationally, with strong growth in sectors where the model had not previously operated at scale. Today, Maryland is among the states with the highest number of active adult apprentices relative to its labor force. This growth extends to Baltimore where annual apprenticeship registrations of city residents rose from 172 in 2014 to 327 in 2023, representing a 90% increase.¹

The concept of apprenticeship is exciting because it holds the promise of simultaneously addressing the needs of workers and students for pathways to quality jobs and responding to business demand for talent in hard-to-fill occupations. In its communications about the value of apprenticeship, the U.S. Department of Labor cites data showing average starting salaries over \$80,000 for apprenticeship

completers, employment retention rates of 90%, and lifetime earnings that exceed those of peers without an apprenticeship.² And in a 2016 publication, the U.S. Department of Labor reported that for every dollar they invest in an apprentice, employers get back \$1.47 in increased productivity, reduced waste, and greater innovation.³

The basic model for apprenticeship in the United States has been in place for nearly a century. There is a clear set of definitions and rules set forth by federal and state agencies for apprenticeships. And there are multiple organizations working to distill and communicate best practices. Nevertheless, the model remains largely misunderstood or confused with other work-based models such as internships and co-ops. The key difference: a true adult Registered Apprenticeship is a paid job with built in wage progression and an expectation of employment that continues past the period of the apprenticeship.

Baltimore has an opportunity to make local adoption of apprenticeship more robust offering better opportunities for residents and industries. However, there are several important matters that must be considered for an expansion of apprenticeship models to have the most beneficial impact.

This document will reflect on the following concerns:

Equitable Participation and Outcomes

Nationally, a majority of Registered Apprentices are white and male. With the help of intentional policies and practices, the face of apprenticeship is beginning to evolve with more women and people of color engaged than ever before. In Baltimore, those enrolled in Registered Apprenticeships are more diverse than is the norm nationally, but they still do not fully reflect the city's demographics. It will be necessary to address the conditions that have limited the participation and completion by women and workers of color in apprenticeship generally and to challenge practices that maintain patterns of occupational segregation. Among these conditions are structural and systemic barriers such as transportation access, the cost and availability of child care, academic preparedness for rigorous apprenticeship programs, inhospitable work cultures, inadequate career counseling, and biased perceptions about career opportunities.

More Employers Offering Quality Opportunities

There is tremendous pressure for a rapid ramping up of the number of adult and youth apprentices in Maryland. Although Maryland ranks well among other states for the number of active apprentices, only about 6% of the civilian workforce is engaged in apprenticeship, and many more employers and workers could benefit from the model. Furthermore, the Blueprint for Maryland's Future establishes an ambitious goal of 45% of high school students completing a youth apprenticeship or

earning an industry-recognized occupational credential prior to graduation by the 2030 – 2031 school year. This is a tall order considering the very small number of high school youth that have completed apprenticeships in Maryland to date, with Baltimore City lagging even further behind. The ability of workforce systems and Local Education Agencies (LEAs) to meet the state's goals and the growing demand for apprenticeship is highly dependent on the willingness of private and public employers to shift employee recruitment and talent development strategies. Those sponsoring and approving apprenticeships are working to resist pressure to lower standards of what jobs are truly "apprenticeable" to meet quantified enrollment targets.

Expansion With an Eye Toward Long-Term Career-Building

Although it is broadly known as a paid pathway to skilled roles in the building trades, apprenticeship in the United States is beginning to reach a broader range of industry sectors within and outside of unionized workplaces. "Non-traditional" apprenticeships are expanding in industries such as healthcare, information technology, public administration, and manufacturing. Many of the sectors that are newer to apprenticeship have a longstanding bias toward traditional college education as a means of skills acquisition, particularly for middle-skill and management positions. Unless there is greater recognition of competency attained through practical learning and work experience, and/or a hybridization of apprenticeship and degree pathways, there is a risk that those who start their careers in apprenticeship may hit ceilings in career advancement. The concept of Degree Apprenticeship

is gaining favor to address this concern. New and expanded Youth Apprenticeships should be designed with an eye to longer-term career pathways that broaden, rather than narrow, a young person's future opportunities while providing autonomy and choice. This calls for approaches that connect K-12 systems, employers and colleges in collaborative apprenticeship models that augment the on-the-job learning that apprenticeship offers with career exploration, college credits, formal certifications, and exposure to degree pathways.

Clear Policies and Achievable Goals for Youth Apprenticeship

The Blueprint for Maryland's Future apprenticeship goals are massive relative to the current number of youth apprentices in the state. Meeting these goals will require robust capacity in each high school and across labor markets. Initially, the plan did not articulate a clear pathway for how to meet the challenge and lacked information about the policies that would govern this path forward. While annual statewide goals and guidance are being developed by the state's Career and Technical Education Committee, LEAs have been compelled by the timeline to move ahead, each working independently to craft models for how they will reach quickly approaching milestones. In spring 2024, new draft guidance was released, causing some LEAs, including Baltimore City Public Schools, to pause and ready themselves to pivot their emerging programs to fit more stringent career and technical education requirements. It is important to recognize that employers do not conform to the geographic jurisdictions of school districts, nor are they obligated to fulfill state education policy goals.

Without a statewide structure for collaboration and employer engagement, LEAs may find themselves at odds with one another as they compete for employer partnerships.

More Robust Systems to Guide and Manage an Expansion of Apprenticeships

The expansion of apprenticeship for adults and youth in Maryland will require resources dedicated to strengthening the systems responsible for its implementation. The Maryland Department of Labor's team is lauded broadly for the leadership and support it provides to those who engage with the system. Yet, the team is relatively small, and the charge of growing apprenticeship will demand additional capacity at the state and local levels. Improvements in data systems are needed to better monitor progress, determine what works, identify areas for improvement, and craft convincing messaging. In Baltimore, the Mayor's Office of Employment Development, Baltimore City Public Schools, nonprofit organizations, and community colleges are among those tasked with implementing this expansion. Existing capacity for apprenticeship expansion within these entities is limited. Establishing a more robust public apprenticeship office in Baltimore City could help to sustain employer outreach, recruitment, career prep, and retention services. Another solution may be the expansion of nimble intermediaries that can take on coordination of local stakeholders, engage and assist employers, administer paperwork and reporting, and lead communications with resident and business communities and employers.

Part I

What is Apprenticeship?

Apprenticeship is often confused with other types of work experience models such as internships and co-ops. But apprenticeship has a very specific definition. An apprenticeship is a job with a built-in learning component, one-to-one mentoring, and a set of milestones for advancement. **Registered Apprenticeship Programs** must include graduated pay

increases in line with learning gains and the expectation of continued employment beyond the completion of the apprenticeship. **Youth Apprenticeships** begin while a student is in high school and can lead to a career or further post-secondary education. A fuller glossary of terms related to apprenticeship can be found in the Appendix.

Registered Apprenticeship Program (RAP)

A Registered Apprenticeship Program offers a job with structured training in a specific occupation consisting of paid on-the-job training and related classroom instruction. In Maryland, Registered Apprentices are hired on as employees at the beginning of the RAP and immediately begin earning at a rate at or above minimum wage, typically around 50% of the average journeyman hourly rate of the occupation for which they are training. Under the guidance of a mentor, apprentices acquire skills and obtain industry-recognized

certifications that are tied to a progressive schedule of wage increases. Over the life of the apprenticeship, apprenticeship wages increase, gradually reaching a journeyman wage by program completion. RAPs for traditional trades occupations typically require 1:1 mentorship, but for non-traditional occupations with low safety risks, mentors can supervise 2-3 apprenticeships if approved by the Maryland Apprenticeship and Training Council. Along the way, the apprentices attain skills that are transferable across employers.

A Registered Apprenticeship is not the same as a paid internship.

Registered Apprenticeship Program	Paid internship
On-the-job learning with structured training plan for advancement into an occupation	On-the-job learning often based around entry-level job skills
Must be paired with related classroom instruction	Does not typically include integrated classroom instruction. Adult workforce programs sometimes provide paid internships upon completion of a classroom-based skills training program.
1:1 mentoring (with some ratio exceptions for non-traditional occupations)	Supervision structures vary
Wages are paid to the learner by their employer	Internships can be paid or unpaid. Typically, paid interns earn a stipend which may be paid by a third party supporting organization
Structured wage progression typically starting at 50% of the average journey person wage and concluding at a journey person wage, or as set forth by a collective bargaining agreement. Starting wage must be at or above minimum wage	Typically, a fixed stipend with no graduated increases
Apprentice is hired on day one of program with expected long-term employment after apprenticeship is completed	Sometimes referred to as a “try before you buy” model for employers to assess potential candidates. Can provide valuable work experience without an expectation of continued employment with host company after internship.
Minimum of one year. Can last as many as five years	Generally short-term (summer, semester or up to six months)
Program of study is registered with the state after approval of standards and receives oversight by state agency for program quality and accountability	No state registration process
May lead to an industry certification	May be attached to an education or training program offering an industry certification
Completers earn portable state-issued certificate of apprenticeship completion	No state-issued certificate
May lead to college credit	May lead to college credit

Youth Apprenticeship

Youth Apprenticeships are designed to provide young people with paid work experience alongside academic and technical skills development. They typically begin in high school and may extend into employment, post-secondary education, and/or a Registered Apprenticeship. States that have taken a lead in establishing youth apprenticeship programs include Wisconsin, Georgia, Colorado, North Carolina, and South Carolina. The programs look different in each state, some being run through workforce development systems, some through high school CTE programs, and others community college systems.

In developing programs to support youth apprenticeships, Maryland has relied upon a set of five core principles for high quality youth apprenticeship developed by the [Partnership to Advance Youth Apprenticeship \(PAYA\)](#), a project of New America. These five principles for high quality youth apprenticeships are:⁴

- **Career-oriented:** Learning is structured around knowledge, skills, and competencies that lead to careers with family-supporting wages.
- **Equitable:** Learning is accessible to every student, with targeted supports for those adversely impacted by long-standing inequities in our education system and labor market.
- **Portable:** Learning leads to postsecondary credentials and transferable college credit that expand options for students.
- **Adaptable:** Learning is designed collaboratively to be recognized and valued across an industry or sector.

- **Accountable:** Student, employer, and program outcomes are monitored using transparent metrics to support improvement.

The Blueprint for Maryland's Future set a goal of 45% of high school students completing the high school portion of an apprenticeship or earning an industry-recognized occupational credential prior to graduation by the 2030 – 2031 school year. In August 2024, the CTE Committee of the Governor's Workforce Development Board voted to recommend a new youth apprenticeship policy that more narrowly defines achievements toward this goal as either:

- Completion of a high school level of a Registered Apprenticeship Program (RAP), or
- Completion of a Youth Apprenticeship (YA) and earning an Industry-Recognized Credential (IRC).

The high school level of registered apprenticeship (also called a School-to-Apprenticeship model) allows high school youth ages 16 and above to begin an adult Registered Apprenticeship while still in high school and complete that apprenticeship after graduation. Related instruction provided while in high school awards credits toward graduation and is aligned with the requirements of the RAP so that some of the apprenticeship requirements are earned before graduation. The guidance states that Registered Apprenticeship is the "Gold Standard" for youth apprenticeship and encourages its adoption as the primary mechanism to fulfill the mandates of the Blueprint, but very few Maryland high school students have participated in this model to date.⁵

In the second option, high school students would complete a Youth Apprenticeship (YA) and earn an Industry Recognized Credential (IRC) prior to graduation. In Maryland, Youth Apprenticeship was first piloted in 2016 in the Frederick and Washington County schools as the Apprenticeship Maryland Program (AMP). The AMP, designed to promote high school completion, was expanded as a state-wide program within Maryland Schools' CTE structure two years later. Typically, Maryland's Youth Apprentices begin related classroom instruction during their junior year and participate in on-the-job training during the summer after their junior year and during their senior year. By offering students the opportunity to gain career exposure and

experience, YAs can lead to a variety of post-secondary pathways including entry into a Registered Apprenticeship, college enrollment, or another full-time job. Youth Apprenticeships do not include built-in wage progression, and employers are not required to retain the youth as employees upon completion. Along with the new guidance that requires a Youth Apprenticeship to be paired with an IRC to meet the Blueprint's goals, the State has added new requirements for the approval of an IRC, vastly narrowing the list of eligible credentials. The CTE Committee recognizes that a Youth Apprenticeship without an IRC can be a valuable experience for a young person but will not allow that experience to count toward the Blueprint's goals.



Preferred Option: High School Level of a Registered Apprenticeship (School to Apprenticeship Model)	Alternative Option: Youth Apprenticeship (AMP) + Industry Recognized Credential
While in high school, students enter Registered Apprenticeships typically designed for adults ages 18+ and continue with that apprenticeship after high school.	Students enter and complete Youth Apprenticeship while in high school.
Program leads to full-time employment in a specified occupation for which the apprentice is training.	Program provides career exploration, general employment, and occupational skills.
During high school, this is a paid part time job involving a minimum of 245 hours of on-the-job training ⁱ . After graduation, apprentices work a minimum of 2,000 hours (full-time) of paid work per year for up to five years.	Youth Apprentices work a minimum of 450 hours of paid work prior to graduation.
Includes at least 144 hours of related classroom instruction prior to completion of high school.	Paired with at least one-year of classroom instruction related to the eligible career track.
Employer mentors are assigned to each apprentice	Employer mentors are assigned to each apprentice.
Includes built-in wage progression starting at an approved percentage of the journeyperson wage and concluding at the average journeyperson hourly rate or as set forth through a collective bargaining agreement.	Employer pays minimum wage or higher.
Completers earn a portable state-issued certificate of apprenticeship completion as well industry certification, and, in some cases, college credits.	Student earns high school credits and must earn an approved Industry Recognized Certification to meet the goals of the Blueprint.
Program of study is registered with the state after approval of training standards by the MATC and receives oversight by state agency.	Coursework is approved by the school, employer, MATC and State Department of Labor.
As of 12/31/23, 96 Maryland high school students were enrolled in Registered Apprenticeship (School-to-Apprenticeship).	As of 12/31/23, 831 Maryland high school students were enrolled in Youth Apprenticeships.

ⁱ Some exceptions to the required number of OJT hours will need to be considered for occupations with work site age restrictions.

As of December 31, 2023, there were 831 Maryland high school students enrolled in Youth Apprenticeship through the AMP program, and 96 enrolled in Registered Apprenticeship (School-to-Apprenticeship). Around 46% of all high school apprentices were placed with public employers in the

government or education sectors. Approximately 40% of active RAs statewide have also enrolled in AMP. This number is far from the state's ambitious goals. **As of 2022, approximately 7% of Maryland students qualify toward the Blueprint's 45% goal.**⁶

The Value of Apprenticeships

In today's labor market, many employers report difficulties in identifying candidates to fill occupations that pay living wages but require technical skills. Yet there are many adults and youth in the Baltimore region who are disconnected from economic opportunity, partly due to the inadequacy of existing pathways into careers. Apprenticeship is a valuable component of a solution to the career pathway problem.

Many occupations and industry sectors are experiencing changes that will require the addition of skilled workers. For example, there is a high unmet need for skilled workers in the healthcare sector where advances in medicine and the aging of America's population are producing a rapidly growing demand for quality patient care. Meanwhile, massive investments in infrastructure, the retooling of the American energy system to meet the demands of climate change, and the increasing challenges of cyber threats will all demand large numbers of workers with technical skills. This comes at a time when the retirement of older skilled workers has accelerated as the Baby Boom generation ages, and when many workers have left jobs in search of better opportunities with increased compensation,

better work-life balance, and opportunities for growth. In 2020, the Greater Baltimore Committee worked with the Baltimore Metropolitan Council to release "Preparing for the Future," a report examining the workforce needs of the Greater Baltimore region over the next decade⁷. The report provided labor market demand projections for a set of "middle-skill" occupations that require a combination of high school diploma, certification, or associate's degree but do not require a bachelor's degree for entry. The top 20 in-demand occupations listed in the study were concentrated in the business services, construction, information technology, and healthcare industries. The report goes on to argue that traditional pathways into skilled employment do not adequately meet these labor market demands.

At the same time, over 20% of Baltimore households are below the federal poverty rate and another 30% are composed of adults who are employed in low-paying jobs that neither make ends meet nor provide opportunities to add the skills to advance.⁸ These residents have valuable talents and aspirations, but leaving a low paid job to attend unpaid training to get a marginally better one is not an option when a family's basic needs must be met.

The lack of disposable income, affordable and quality childcare, transportation, and housing prevent too many potential workers from developing skill sets to fill unmet employer demand. Moreover, the collateral impact of crippling incarceration rates leaves far too many residents with limited opportunities for work upon return to their communities.

These challenges extend to Baltimore's youth, with too many young people leaving high school without a connection to employment or post-secondary opportunities. According to the Baltimore City Youth Data Scorecard, a resource that is updated and maintained by Baltimore's Promise, college enrollment rates in both Maryland and Baltimore City declined in 2020 to the lowest percentages seen in the past five years, and in 2022, 13.4% of Baltimore's young people ages 16-24 were neither in school nor working.⁹ Similarly, a 2015 Abell report by Robert I. Lerman and Arnold Packer described chronically low graduation and employment rates for young people in Baltimore.¹⁰ The Lerman-Packer report goes on to make a convincing case for why apprenticeship is a promising strategy for addressing these concerns.

As a model that centers on paid work combined with structured skills development and built-in advancement, apprenticeship can provide value to employers offering quality employment opportunities and, simultaneously, to residents with untapped aspirations and talents.

There also is evidence that those who complete registered apprenticeships fare well in the U.S. labor market. Data derived from the Kansas

Department of Commerce and shared nationally by the U.S. Department of Labor show that 90% of apprentices retain employment after completing their programs, earning an average starting wage of \$80,000.¹¹ Another study by Mathematica looked at Registered Apprentices six and nine years after program enrollment and found that they had substantially higher rates of employment and earnings than nonparticipants.¹² And a report by the Brookings Institute concluded that Youth Apprenticeships and other work-based learning experiences in high school that include positive relationships with adults are related to better wages, benefits, weekly hours, and job satisfaction as much as a decade after completion.¹³

In November 2021, the Maryland Longitudinal Data System (MLDS) Center released an initial analysis of the workforce outcomes for individuals who completed apprenticeship in Maryland in 2012–2013. The initial findings indicated that, five years after completion, these apprentices had median quarterly wages of \$20,725, representing a median annual salary of \$82,900. This is nearly double the quarterly earnings of Maryland community college associate degree earners over the same period. It is important to note that this apprenticeship study represented a small number of individuals, 1,019, of which two-thirds were white and 96% were men, most of whom apprenticed in construction or protective services. The community college graduates represented a more diverse population (58% white and 39% male) who studied in a wide variety of career areas.¹⁴

Benefits to Employers

Employers can make the most out of apprenticeship when they view it as a workforce investment strategy. According to the U.S. Department of Labor, for every dollar spent on apprenticeship, employers get an average of \$1.47 back in increased productivity, reduced waste, and greater front-line innovation.¹⁵ A body of research further documents the advantages to employers of making apprenticeship a part of their talent pipelines. By taking on new staff through apprenticeships, employers can instill the mission and vision of the company from the start along with developing skills and competencies. Not only can apprenticeship help build a team with in-demand skills and company-specific knowledge, but it has also been shown to reduce hiring costs, increase productivity and boost employee retention. Apprenticeship can be

an effective tool for moving incumbent workers from entry- to mid-level positions, increasing diversity and inclusion in the workplace, and building internal leadership. Where the mentorship component is well developed, the employer can also benefit from increased job satisfaction and engagement of seasoned workers whose occupational expertise is recognized and rewarded, and whose knowledge can be retained even after that employee has retired or moved on from the company. In many instances, employers can benefit from tax credits and subsidies for talent development through apprenticeship.

Research released by Case Western Reserve University and the U.S. Department of Commerce described the most common benefits of apprenticeship to employers:¹⁶

Production	Workforce	Soft Skills
<ul style="list-style-type: none"> • Output during the apprenticeship at a reduced wage • Higher post-apprenticeship productivity relative to similarly tenured employees • Reduction in mistakes or errors 	<ul style="list-style-type: none"> • Reduced turnover • Pipeline of skilled employees • Better matching of employee skills and character with employer needs and firm culture • Lower recruiting costs • Development of future managers 	<ul style="list-style-type: none"> • Improved employee engagement and loyalty • Greater problem-solving and adaptability • Reduced need for supervision

Benefits to Residents

Apprenticeships pay individuals to learn portable occupational skills through hands-on experience and related classroom instruction. They allow an individual to enter a job at an entry-level and, with one-on-one mentoring, have a predetermined advancement pathway to a skilled occupation. Salary increases are built in so that apprentices start to earn more as they progress. These programs allow apprentices to build relationships with an employer as they get to know a worksite and result in both a nationally recognized certificate and ongoing employment.

Apprenticeships can also bolster educational outcomes. Some apprenticeships offer the opportunity to gain college credits along the way and to earn valuable certifications or degrees. For students enrolled in community college, college-sponsored apprenticeships can offer a more likely path to college completion by boosting income, allowing for predictable work schedules that are aligned with college instruction, and providing learning

experiences that are immediately relevant to real world skill demands. For high school students, apprenticeship programs allow youth to earn credit to meet high school graduation requirements while exploring a career and building work experience. Youth apprenticeships may provide opportunities to move directly into or continue an adult-oriented Registered Apprenticeship or full-time job.

They are believed to lead to greater academic achievement, high school completion, and a smoother transition to post-secondary employment and education.

There are benefits to workers when an apprenticeship is registered with a state or federal agency. Registered apprenticeships offer oversight that provides a common set of quality standards leading to recognized portable credentials and ensuring fair compensation and safe working conditions. There is a system in place to monitor apprenticeships and provide data on what is working.

Benefits of an Apprenticeship

- Hands-on learning and experience
- Educational persistence and high school completion (youth apprenticeships)
- Career exploration (youth apprenticeships)
- Support from a mentor
- Career advancement
- Progressively increasing wages
- Nationally recognized credentials
- Better job retention and job security
- Employee satisfaction

Apprenticeship Expansion in the US and Maryland

Significant growth and innovation in apprenticeship is occurring throughout the United States with support from a series of significant federal grant programs offered to states and employers since 2017. These investments have led to a 64% increase in the number of new apprentices nationally between 2012–2021.¹⁷ National data on Registered Apprenticeship is tracked through the Registered Apprenticeship Partners Information Database System (RAPIDS) managed by the U.S. Department of Labor. This data is made public through the website www.apprenticeship.gov. Per RAPIDS, there were 643,447 active apprentices, just over 286,000 newly registered apprentices, and 100,000 individuals completing an apprenticeship in the U.S. in Fiscal Year 2023.¹⁸

Registered Apprenticeship has been growing steadily in Maryland. In 2023, the state set new records with 4,151 new apprentices registered and 2,016 completers.¹⁹ This expansion was enabled by several federal funding initiatives designed to accelerate and expand apprenticeships and a team at the Maryland State Department of Labor that has been committed to engaging more employers, particularly in non-traditional sectors.

Nationally and in Maryland, a majority of Registered Apprentices are white and male, but with the help of intentional policies and practices, the face of apprenticeship is beginning to evolve with more women and people of color engaged than ever before. In Maryland, the portion of apprentices who are Black, Indigenous, and People of Color (BIPOC) increased by almost 76% between 2014 and

2022.²⁰ In 2023, 43% of active apprentices in Maryland were BIPOC. Women remain significantly underrepresented, but the numbers are improving. In 2014, 2% of new apprentices in Maryland were women. This rose to 11% in 2023.

Moving forward, Maryland plans to continue to prioritize apprenticeship through a plan that focuses on growth in the number of apprenticeship programs and participants, better connections with secondary and post-secondary education, and greater inclusion and outcomes for underrepresented groups.

Despite the infusion of federal dollars for apprenticeship, U.S. spending on apprenticeship programs remains small in comparison to other countries where apprenticeship models thrive. The strong impact of apprenticeship is well established in Europe, most notably in Germany and Switzerland, where it is the norm for preparation for a wide range of occupational sectors. According to an analysis by the Third Way, the United States would need to increase the number of registered apprentices to 4.3 million to reach the level of apprenticeship in other countries with market-based economies such as Germany, Canada, and the United Kingdom.²¹

Part II

Registered Apprenticeship in Baltimore

The analysis presented in this section is derived predominately from data provided directly by the Maryland Department of Labor. It is augmented by other available data sources,

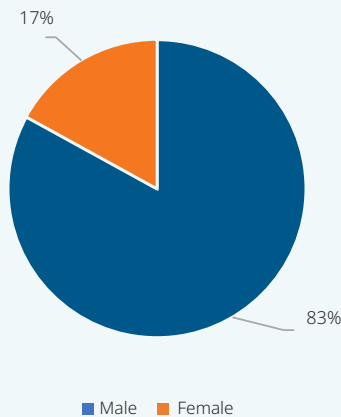
including a report by the Maryland Longitudinal Data Study Center and the U.S. Department of Labor’s apprenticeship.gov website.

Registration

Between 2017 and 2022, a cumulative total of 21,141 individuals enrolled in an apprenticeship in Maryland. Of these, 1,489 (7%) were Baltimore City residents.ⁱⁱ Among Baltimore City residents enrolled, 83% were male

and 17% female.ⁱⁱⁱ Of these same individuals, 56% were identified as Black (not Hispanic) (79% male and 21% female); 25% white (not Hispanic) (86% male, 14% female); and 14% Hispanic (95% male and 5% female.)

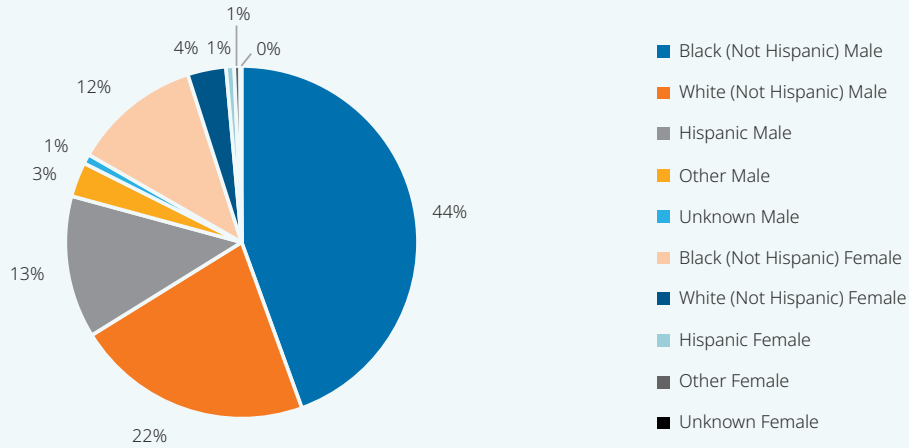
Baltimore City Residents Enrolled in an RAP (2017–2022) by Gender



ⁱⁱ The population of Baltimore is approximately 9% of the total population of the state of Maryland.

ⁱⁱⁱ Data collected by the Maryland Department of Labor regarding the gender of Registered Apprentices is limited to either “Male” or “Female.” It is generally considered best practice to include additional gender identity options to ensure inclusive and accurate analyses.

Baltimore City Residents Enrolled in an RAP (2017–2022) By Race and Gender



Youth Apprenticeship

In the 2023–2024 school year, 16 Baltimore City Public School students started apprenticeship. By the end of March, fewer than 10 remained engaged. Baltimore City Public Schools currently graduates approximately

4,300 students per year. To meet the Blueprint’s goals at current student population levels, approximately 1,900 Baltimore City seniors would need to complete school with a successful RA or YA experience.²²

Union-Affiliated Apprenticeships

Between 2017–2022, 53% (786 of 1489) of Baltimore City residents registered into an apprenticeship sponsored by joint labor-management committees or union affiliated programs. The Baltimore Electricians JATC Local Union No. 24 (130 apprentices), AFSCME LOCAL NO. 44 (99 apprentices) and the Mid-Atlantic Carpenters (81

apprentices) accounted for the largest numbers of union apprenticeship registrations. Comparatively, all Maryland branches of Associated Builders and Contractors (ABC), representing the non-union construction sector, collectively enrolled 315 Baltimore City residents (21% of all enrolled) during the same period.

Occupations

In alignment with national trends, registrations of Baltimore City apprentices remain concentrated in the building trades. Between 2017 and 2022, approximately 78% of Baltimore City apprenticeship registrations were in the building trades and infrastructure occupations, with the largest concentration (27%) in electrician apprenticeships. This is due to the long-standing tradition of apprenticeship in the trades.

The Maryland State Department of Labor has worked to increase the diversity of apprenticeship offerings by expanding opportunities in non-traditional occupations. Notably, grants to the Baltimore Alliance for Careers in Healthcare (BACH) created Maryland's first registered apprenticeships in the healthcare sector. Between 2017–2022, six apprenticeship sponsors of Baltimore residents (BACH, the 1199 SEIU League Training and Upgrading Fund, The Johns Hopkins Hospital, the University

of Maryland Medical Center, the Community College of Baltimore County, and CVS Health) collectively registered 128 apprentices in the healthcare industry, of which 57% were in patient care occupations, 27% in environmental services or building maintenance apprenticeships, 9% in a central sterile processing technician apprenticeship, and 8% trained as retail pharmacy technicians. During the same period, apprenticeships were also approved for occupations related to information technology, cyber security, telecommunications, data science and digital media. Although enrollment by Baltimore City residents in these occupations accounted for only 3% of apprenticeship registrations during this six-year period, the addition of these tracks has allowed for experimentation and initial engagement of employers in the related sectors.



Photo courtesy of Project JumpStart

**OCCUPATIONS WITH 25 OR MORE BALTIMORE CITY APPRENTICES
REGISTERED 1/1/2017-12/31/2022**

	Occupation Total	Occupation Percentage of Total
Electrician	412	27.67%
Bridge / Industrial Painter	135	9.10%
Steamfitter	77	5.19%
HVAC/R Technician	65	4.38%
Police Officer	62	4.18%
Plumber	57	3.84%
Carpenter	54	3.64%
Trade Show Carpenter	51	3.44%
Patient Care Technician	47	3.17%
Sheet Metal Worker	42	2.83%
Sprinkler Fitter	30	2.02%
Construction Craft Laborer	30	2.02%
Operating Engineer	29	1.95%
Environmental Care Supervisor	27	1.82%

Occupational Concentration by Race and Gender

The data on apprenticeship registration of Baltimore City residents over the period between 2017–2022 shows some clear patterns of occupational concentration that differ by race/ethnicity and gender. Most notably, Black (not Hispanic) males and white (not Hispanic) males were most likely to be enrolled in electrician apprenticeships, while Hispanic males were concentrated in Bridge/Industrial Painter apprenticeships and Black (not Hispanic) females were highly concentrated in healthcare occupations.

Among Black male registrants living in Baltimore City (657), 33% (221) enrolled in the electrician apprenticeship. All but one of the occupations with 15 or more Black male apprentices residing in Baltimore were in the trades.

The second largest group of Baltimore City registrants by race/ethnicity and gender during this period were white (not Hispanic) males (321 registrants). Like the group of Black (not Hispanic) males, the largest

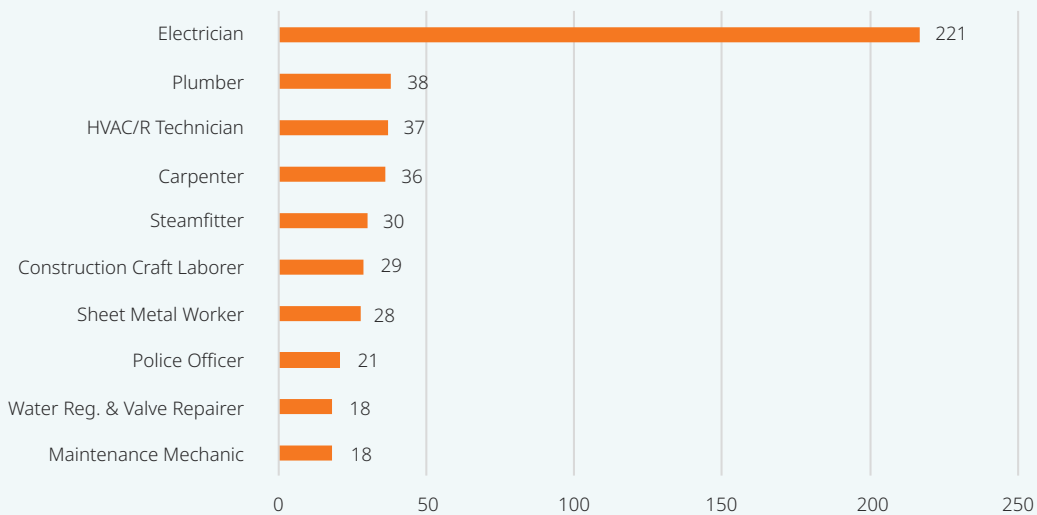
concentration of registrants in this demographic grouping was in the electrician apprenticeship program.

Among the 193 Hispanic males residing in Baltimore who were registered during this period, 128 (66%) were enrolled in a Bridge/Industrial Painter track. Another 19 Hispanic males were enrolled into the electrician apprenticeship. No other occupation had more than 10 Hispanic male apprentices from Baltimore City during this six-year period.

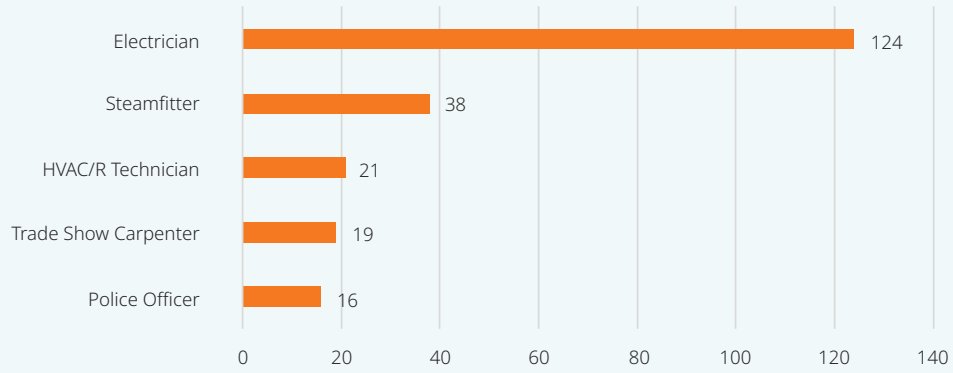
Between 2010 and 2019, women accounted for only 8.5% of all apprenticeships in the United States, and only 3.5% of construction apprenticeships.²³ Acknowledging this gap, the Maryland Department of Labor has been working to expand the number of women registered into apprenticeships. The addition

of apprenticeships in the healthcare sector has resulted in a growing number of female Black (not Hispanic) apprentices from Baltimore in each year over this period. Among all Black (not Hispanic) Baltimore women apprentices registered during this period (174), more than half (57%) were concentrated in healthcare occupations. This picture looks different for female white (not Hispanic) registrants. The smaller total number of female white (Not Hispanic) registrants from Baltimore (52) were more concentrated in traditional trades occupations including trade show carpenter or electrician, or were registered into the police apprenticeship. There appears to be an opportunity to expose and prepare more Black women to higher paid occupations in the trades.

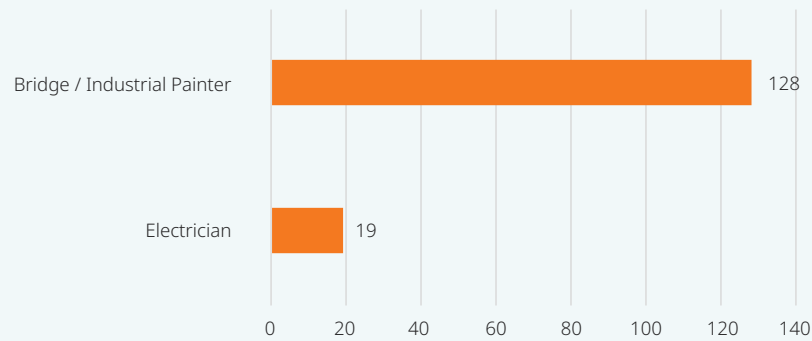
Occupations with 15 or more Baltimore City Black Male Registrants



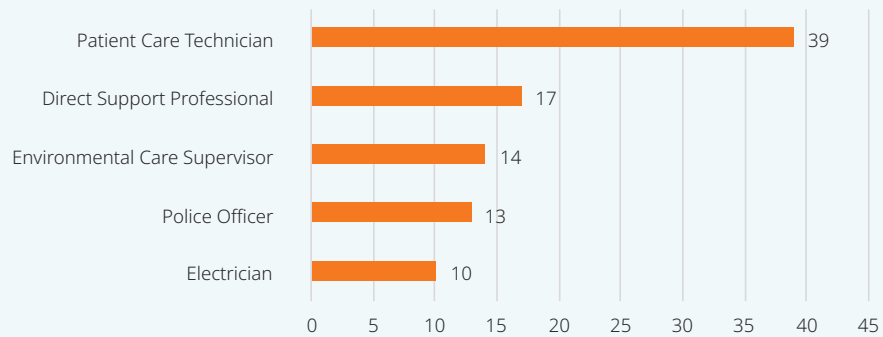
Occupations with 15 or more Baltimore City White Male Registrants



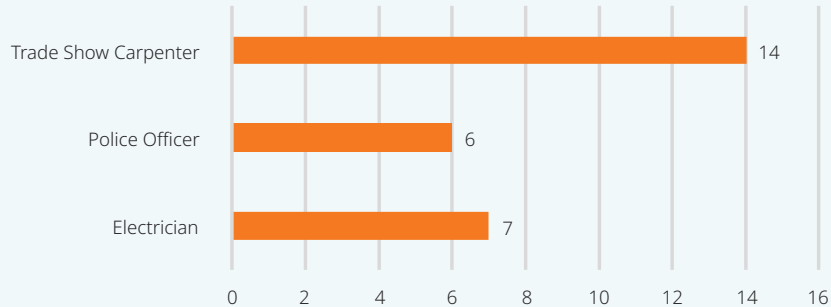
Occupations with 15 or more Baltimore City Hispanic Male Registrants



Occupations with 10 or more Baltimore City Black Female Registrants



Occupations with 5 or more Baltimore City White Female Registrants



Apprenticeship Exits

The Maryland Department of Labor asks apprenticeship sponsors to report annual exits from apprenticeship. Exits are either “cancellations,” meaning that an individual exited an apprenticeship without completing, or “completions.” Cancellations may be initiated by an individual or an employer. Due to the way that exit information is collected and managed, it is difficult to analyze the rate of completion for particular programs or for all apprentices who enrolled during a particular year. Moreover, data do not tell a complete story for individuals who exit one apprenticeship and then re-enroll in another.

The table below compares cancellation and completion data for all Maryland apprentices exiting any apprenticeship program during the period between 2017 and 2022 to that of Baltimore City apprentices, taking into account race, ethnicity, and gender. Overall,

the numbers for all groups are strong compared to national completion rates, which are 35% for all racial groups, with 33% of white apprentices completing and 24% of Black apprentices completing.²⁴ However, some disparities in outcomes are noticeable in the Maryland and Baltimore City data. During this period, 36% of Baltimore City apprenticeship exits were completions, and 64% were cancellations. This is a lower rate of completion when compared to the state where 42% of exits were completions and 58% were cancellations.

When we focus in on Baltimore City exit data by race and ethnicity, we see that exits for white (not Hispanic) apprentices were more likely to be reported as completions (44%) than for Black (not Hispanic) apprentices (36%) or for Hispanic apprentices (28%).

Annual Apprentice Exits (Cancellations and Completions) for Baltimore City and all of Maryland Apprentices 2017–2022; by gender, race, and ethnic group

	ALL MD APPRENTICES			BALTIMORE CITY		
GENDER / RACE & ETHNICITY	Cancelled	Completed	Total	Cancelled	Completed	Total
Male Total	58%	42%	18,236	64%	36%	1,283
American Indian or Alaskan	74%	26%	90	100%	0%	3
Asian or Pacific Islander	48%	52%	288	45%	55%	11
Black (Not Hispanic)	68%	32%	4,573	65%	35%	716
Hispanic	64%	36%	2,489	73%	27%	209
Information not Available	90%	10%	123	100%	0%	3
Other	69%	31%	302	78%	22%	23
White (Not Hispanic)	51%	49%	10,371	56%	44%	318
Female Total	64%	36%	1,136	59%	41%	202
American Indian or Alaskan	100%	0%	4	0%	0%	0
Asian or Pacific Islander	44%	56%	32	25%	75%	4
Black (Not Hispanic)	69%	31%	579	60%	40%	138
Hispanic	71%	29%	107	56%	44%	9
Information not Available	83%	17%	12	100%	0%	1
Other	70%	30%	33	67%	33%	9
White (Not Hispanic)	55%	45%	369	56%	44%	41
Grand Total	58%	42%	19,372	64%	36%	1,485

The Maryland Department of Labor asked program sponsors to provide a reason why apprentices across the state were “cancelled” (or in layman’s terms, didn’t complete the program) from 2016 to present. Given a drop-down set of possible answers to this question, 61% were marked as “other” with no further explanation provided. Among the remaining 39%, the top answers were: “Related Instruction classroom performance” (11%), “Related Instruction classroom absenteeism” (9%), and “On the job performance” (7%). Without more information, it is not possible to assert whether better pre-apprenticeship preparation, programmatic enhancements, workplace cultural changes, or other interventions might lead to fewer apprenticeship

cancellations. Some apprenticeship sponsors and advocates believe that cancellations are a natural weeding out of individuals for whom the apprenticed occupation is not a good fit. Others point to market fluctuations that may cause an employer to cancel an apprenticeship if there is insufficient labor demand. However, given what is known about workforce challenges in Baltimore, it is likely that a range of systemic barriers make it challenging for minoritized Baltimore City residents who reside in high-poverty neighborhoods to succeed in reaching journeyperson status. Better data about the reasons for cancellation could enhance efforts to boost completion through targeted supportive services.

Annual Apprentice Exits (Cancellations and Completions) for Baltimore City Apprentices since 2017–2022; by race and ethnic group

RACE & ETHNICITY	BALTIMORE CITY		
	Cancelled	Completed	Total
American Indian or Alaskan	100%	0%	3
Asian or Pacific Islander	40%	60%	15
Black (Not Hispanic)	64%	36%	854
Hispanic	72%	28%	218
Information not Available	100%	0%	4
Other	75%	25%	32
White (Not Hispanic)	56%	44%	359

Part III

Opportunities for Expansion

There are significant opportunities to expand apprenticeship in Baltimore due to a combination of federal and state investments, education reform policy, and collective will. Three federal programs - the Infrastructure Investment and Jobs Act (IIJA), the Inflation Reduction Act (IRA), and the CHIPS and Science Act - are expected to expand the availability of apprenticeship nationwide. The IRA requires contractors to pay prevailing wages and sets requirements for the use of apprentices to qualify for certain tax credits. IIJA and CHIPS and Science construction funds include prevailing wage and benefits standards that tip investments toward contractors that utilize apprentices. The \$6 billion Frederick Douglass Tunnel project, predominantly funded through the IIJA with additional funds from the state of Maryland, includes local and targeted hiring policies designed to ensure that Baltimore residents in target ZIP codes have access to employment on the project, including pathways into trades apprenticeships. Project funds will support expansion of pre-apprenticeship training and efforts to address systemic barriers in Baltimore. IIJA also creates opportunities by allowing states to allocate a larger portion of federal transportation dollars, particularly highway funds, to workforce development activities. As a result, the Maryland Department of Transportation is preparing to launch a significant expansion of the Maryland Highway and Capital Transit Construction Skills Training

(HCCT) Program. Additionally, Baltimore City allocated \$250,000 in American Rescue Plan Act (ARPA) dollars toward employer incentives for apprenticeship expansion while the Maryland Department of Labor is overseeing a \$23 million grant from the U.S. Department of Commerce's Economic Development Agency for workforce development and apprenticeship in support of the emerging the offshore wind sector. Finally, the anticipated rebuild of the Francis Scott Key Bridge creates an additional demand for skilled construction and infrastructure jobs with a likelihood of local and inclusive hiring obligations.

Apprenticeship is also poised for more expansion in non-traditional sectors. In August of 2024, Governor Wes Moore announced nearly \$23 million from the U.S. Department of Labor's Apprenticeship Building America initiative to connect more than 7,000 jobseekers to new apprenticeship opportunities.²⁵ Among the numerous federal grants supporting apprenticeship expansion efforts are:

- A \$2 million grant supporting a new Public Sector Apprenticeship Innovation Fund to launch RAs within state, municipal, and local governments.
- \$1.6 million in federal apprenticeship funding to support the Maryland Hospitality Management Apprenticeship Program, assisting individuals in the hospitality sector to obtain an associate degree and a management-level position.

- \$3.9 million to enable the Baltimore Alliance for Careers in Healthcare Inc. to establish the H.O.P.E. Project to serve as a registered apprenticeship hub.
- \$3.9 million granted to The University of Maryland Global Campus to create a nationally scalable model for IT pre-apprenticeships and registered apprenticeships that earn college credits toward a bachelor's degree.

Among these grants, the newly launched H.O.P.E. Project (Healthcare Opportunity Pathways for Employment) is designed to increase investment in healthcare apprenticeships and improve access among underrepresented populations and underserved communities. Through H.O.P.E., healthcare employers will be able to access financial incentives to establish new apprenticeship programs and receive technical assistance to facilitate pathways to career advancement for their existing workforce. The project is an initiative of the Baltimore Alliance for Careers in Healthcare (BACH), an employer-led intermediary that seeks to connect Baltimore residents to health care careers while addressing critical skills shortages in the sector. The H.O.P.E. Project builds upon BACH's prior work to launch Maryland's first health care apprenticeships.

Opportunities to grow youth apprenticeship are spurred by the Blueprint for Maryland's Future's college and career readiness goals. In Baltimore, key partners including the Baltimore City Public School System, the Baltimore Mayor's Office of Employment Development, and a non-profit intermediary, Baltimore's Promise, are collaborating to develop policies and implementation plans to operate youth apprenticeships at greater scale across the

system. Through a grant from the Annie E. Casey Foundation, their work together has been aided with technical assistance from CareerWise USA, a leading innovator in Youth Apprenticeship, and has led to the establishment of CareerBound. With Baltimore's Promise serving as its backbone, CareerBound aims to further build the city's infrastructure to support workforce programs for youth and young adults. CareerBound aims to serve approximately 48,300 young people by 2030: 3,000 in the Grads2Careers occupational skills training program; 300 participants earning stackable credentials; 3,500 participants in registered youth apprenticeships; and 1,500 participants in earn-as-you-learn summer preparation academic acceleration programming.²⁶ In fall 2023, the Maryland State Department of Education awarded a \$1 million grant to Baltimore's Promise to further advance infrastructure development for school-based youth apprenticeship programs in collaboration with Baltimore City Public Schools.

At the same time, state and local funds have been allocated to the expansion of career navigation supports in public schools throughout Maryland. In the 2023-2024 school year, City Schools, MOED, and BCCC placed 14 career coaches in city high schools and four career coaches in middle schools including one bilingual coach. The goal is to hire a total of 48 career coaches to allow for all city high and middle schools to have a career coach for the 2024-2025 school year. These career coaches will pilot activities that provide high school students with career awareness, exploration, and work experiences, expose students to Career and Technical Education pathways, and assist students

without post-secondary plans to identify post-secondary opportunities.

These investments are bolstered by growing public interest in apprenticeships as a career pathway to family-sustaining jobs. Within the

workforce development ecosystem, apprenticeships are considered as a viable next step after completion of short-term workforce development skills training programs that are focused on entry-level occupations.

Challenges for Expansion

The primary challenges for the expansion of adult and youth apprenticeship in Baltimore include systemic barriers to apprenticeship enrollment and completion; the need for

more employers offering quality apprenticeship opportunities; and issues related to systems coordination and alignment.

Barriers to Registered Apprenticeship Enrollment and Completion for Residents

To achieve greater equity in apprenticeship, it will be necessary to address the conditions that have limited the participation and completion by women and workers of color in apprenticeship generally and to challenge practices that maintain patterns of occupational segregation. Among these conditions are structural and systemic barriers related to transportation, child care, academic preparedness, access to career counseling, substance use, and criminal justice system involvement. Moreover, biased perceptions about career opportunities and issues related to workplace cultures can have an impact on enrollment and completion.

LACK OF ACCESS TO TRANSPORTATION:

Oftentimes, apprenticeships and related classroom instruction sites in the Baltimore region are not reasonably accessible via public transportation. In some industries, the work sites change frequently and require appren-

tices to report at the site at hours when transportation is less available. For this reason, some registered apprenticeships, particularly in the building trades, require the apprentice to have a driver's license and own a vehicle as condition of registration into apprenticeship programs. This is one of the greatest barriers to participation in apprenticeship programs for many Baltimore City residents.

Many Baltimore residents have never possessed a valid driver's license in Maryland, while others have had their driver's licenses suspended due to child support arrears and other fines and fees. And Maryland has some of the strictest requirements to obtain a license of any state. Driver's education, which is required to obtain a new license, is provided exclusively through private driving schools at a cost that is unaffordable to many residents. Moreover, many individuals do not have access to cars and licensed drivers needed to

complete the mandatory hours of supervised behind-the-wheel hours to receive a license.

After passing a driver's test, new licensees are given a provisional driver's license for 18 months. During this period, young adults under 18 cannot drive between the hours of midnight and 5 a.m. Because some employers require a fully valid driver's license to enroll in an apprenticeship, new drivers are not eligible to enroll in apprenticeship until after the 18-month provisional license period.

Moreover, the cost of car ownership is prohibitive for many. Currently, there is a national scarcity of affordable vehicles, and predatory car loans are a debt trap for many lower income earners. Auto insurance providers often use ZIP codes as a means of setting rates, resulting in significantly higher costs for residents of higher poverty neighborhoods, and auto repairs and maintenance can be very costly.

Possible Solutions:

Some approaches to addressing the transportation barriers include:

- Aid individuals to obtain licenses by providing subsidized driver's education through skills training providers, labor-management programs, employer associations, and in schools as part of youth apprenticeship and CTE programs. As an example, Baltimore Gas & Electric (BGE) has funded driver's education for a target group of high school CTE students who are preparing for careers in the utilities sector.
- Offer waivers of driver's license suspensions for individuals enrolled in workforce training or apprenticeships.
- Work to minimize the need for a car at the outset of an apprenticeship while initial skills and paid work experience are being gained. This might be achieved by:
 - Conducting coordinated placement of apprentices on jobs that are most accessible via public transit. For example, the [Baltimore Alliance for Careers in Health-care](#) works to match students with apprenticeships close to their place of residence, and Baltimore City Public Schools works to line up youth apprenticeship placements in proximity to schools.
 - Implementing short-term ride-share solutions, particularly where worksite assignments can be stabilized for longer periods of time. Employer- or union-sponsored shuttle vans could provide access to work or related instruction through centralized pick up/drop off hubs. The BWI Partnership, for example, set up a shuttle service that has helped employees and jobseekers get to and from jobs in the vicinity of Baltimore Washington International Thurgood Marshall Airport. Other models, such as the Baltimore Mayor's Office of Employment Development's Lyft pilot project and City Schools' grant-funded taxi to apprenticeship program, have provided alternative transportation solutions for some trainees and apprentices for a limited period of time.
- Increase access to vehicles through alternative financing models and by increasing the supply of quality affordable used cars. The City of Baltimore struggles to manage the inventory of abandoned and impounded automobiles. The city could work with the non-profit organization [Vehicles for Change](#) to rehabilitate these

vehicles through its automotive technician training program and then to get them to individuals in need of cars through the organization's low cost car ownership program.

- Establish an emergency car repair and maintenance fund for apprenticeships where a personal automobile is necessary.
- Support local advocacy organizations working through legislative action to address transportation barriers such as the high cost of auto insurance in high poverty neighborhoods.

HIGH SCHOOL DIPLOMA / GED REQUIREMENTS:

Many registered apprenticeships require a high school diploma or GED as a condition for enrollment. Yet over 13% of Baltimore City residents aged 25 and over lack a high school diploma. This percentage is significantly greater in ZIP codes with high poverty rates. For example, as many as 34% of residents of Southeastern Baltimore and the Westport/Mount Winans/Lakeland neighborhoods aged 25 and over do not have a high school diploma.²⁷

Possible Solutions:

Apprenticeship sponsors should be encouraged to review their requirements and remove the high school diploma prerequisite if it is not truly needed for success in the occupation. Some unions have already done this for trades apprenticeships, including the Laborers, Sheet Metal Workers, Carpenters, Painters, and Allied Trades. Where this is not possible, sponsors could work with Baltimore City Public Schools to enroll youth in School-to-Apprenticeship (STA) as a way to integrate high school diploma programs

with pre-apprenticeship and apprenticeship programs. For adults who do not have a high school diploma, sponsors could consider pathways to earn a high school degree while enrolled in an apprenticeship. This could be done in partnership with the two adult high schools in the Baltimore region: Elev8 Baltimore and the Goodwill Excel Center. As another alternative to eliminating the diploma requirement, sponsors could establish waiver options that are based on assessment of competencies that align with the apprenticeship.

OTHER ACADEMIC REQUIREMENTS:

Literacy and numeracy skills are often needed for successful completion of related classroom instruction and for performance on the work site. Some apprenticeships require applicants to complete a skills assessment prior to enrollment, most notably for math skills. However, many potential adult and youth apprentices need math brush-ups or academic remediation to meet apprenticeship and pre-apprenticeship requirements. Although trends show recent improvements in literacy and numeracy achievements for children served by Baltimore public schools, the 2023 Maryland Comprehensive Assessment Program revealed that only 6.4% of high school students enrolled in Baltimore public schools are reaching proficiency in Algebra I by the time they graduate.²⁸ Across the state, 60% of Maryland high school graduates do not meet the state's career readiness standards; 76% of African American and Hispanic students do not meet proficiency standards in English Language Arts by the time they graduate; and 10-11% of high school students do not graduate at all.²⁹

Possible Solutions:

There is a need for additional academic remediation provided through apprenticeship readiness programs. Math and literacy components must be closely aligned with apprenticeship standards in target occupations. For example, the [North America Building Trades Union \(NABTU\) Construction Skills Math Lab](#) was developed as preparation for unionized trades occupations. For individuals already enrolled in an apprenticeship, academic tutoring services can be an important program enhancement. If adequate resources are allotted, academic remediation services for individuals enrolled in pre-apprenticeship or apprenticeship could be provided by existing non-profit and community college literacy providers in partnership with sponsors. Some stakeholders in Baltimore have further proposed the idea of centralized industry-specific literacy and numeracy hubs to provide the instruction and mentoring needed for success in apprenticeship related instruction for sectors such as health-care, construction, and manufacturing.

DRUG TEST FAILURES:

Apprenticeships can require applicants to pass a drug test, including a screen for cannabis. This is particularly relevant where the employer has federal contracts, operates in regulated sectors such as healthcare, or employs individuals in occupations with on-the-job safety concerns. High rates of drug test failures among applicants keep many folks out of apprenticeship. Drug use is also a factor in non-completion of apprenticeship. These issues are likely to be compounded by confusion about requirements in light of the recent legalization of cannabis in Maryland.

Possible Solutions:

Pre-apprenticeship models should include advising and coaching of participants about drug testing requirements, particularly regarding cannabis use. This could be facilitated by the development of a directory of resources and referral options for individuals who test positive for any substance.

LACK OF ACCESS TO CHILD CARE:

Many apprenticeship programs require daytime work hours followed by evening related classroom instruction. For individuals with children at home, lack of access to child care to support these demanding schedules has been identified as one of the leading causes of low-apprenticeship completion rates. While this issue is a significant barrier for women in the trades, it also poses challenges for male workers. The Maryland Childcare Scholarship program provides eligible families with subsidies for child care. In Baltimore, many neighborhoods with high numbers of children and lower family income are considered child care deserts, lacking a sufficient supply of affordable and safe child care slots to meet demand. This lack of supply is exacerbated by the nature of many apprenticeship jobs, particularly in the building trades, where work may start earlier than most centers open, work hours are irregular, and the location of work sites changes, making them ill-matched to traditional child care center models with fixed hours of operation. Many families prefer in-home family caregiving, but care provided by friends and family is often unsubsidized, and licensed Family Childcare Centers (FCC) frequently operate without sufficient support and resources.

Possible Solutions:

Solutions to child care shortages should be designed with significant input from parents who are prospective and current apprentices to best understand their needs and to develop appropriate solutions. Systems solutions need to be addressed at a policy level that is focused on making quality care affordable and accessible statewide. This will involve efforts to strengthen neighborhood family child care center models, particularly those that are highly dependent on modest child care scholarships, and to address the structural job design and pay issues that have led to a shortage of early child care workers. In 2023, the state of Maryland began to implement some helpful reforms including the establishment of a family portal to facilitate access to child care scholarships, fast-tracking child care scholarship applications, increasing family income eligibility caps, and providing advance payments to providers. As a result, there has been a swift increase in the number of applications for scholarships. In Baltimore, the Family Tree is the local partner in the statewide Growing Opportunities in Family Childcare (GOFCC) initiative, designed to support start-up child care centers. Alongside these efforts, a few programmatic approaches that might help apprentices with child care include:

- Models for the provision of apprenticeship-related classroom training that support apprentices who are parents. This could involve providing the classroom training component during regular work hours, front-loading training prior to the on-the-job training, and/or paying apprentices for time spent in related classroom instruction. (Example: During the first two years of the IBEW Local Union 24 electrical apprenticeships, related classroom instruction is conducted during the work week.)
- Public and private child care subsidies and vouchers for apprentices. Apprenticeship sponsors can build child care subsidies into employer benefits packages through family stipends, flexible-spending accounts or expense reimbursements. Additionally public agencies can expand child care vouchers to support apprentices. In Milwaukee and New York City, Trades' Futures, an organization created by the North America's Building Trade Union, is learning from child care voucher pilots. In Oregon, child care subsidies for construction and infrastructure workers are funded with Federal State Highway funds as part of a \$3.6 million investment to diversify and support apprenticeship in highway and bridge construction.³⁰ And in California, the [Equal Representation in Construction Apprenticeship \(ERiCA\)](#) provides child care stipends and reimbursement for services through a statewide grant program. In the ERiCA program, pre-apprentices qualify for up to \$5,000 and apprentices up to \$10,000 in support. When designing these types of programs, it is critical to consider how subsidies might impact an individual's access to public benefits. California recently passed "smooth in" legislation to address benefits cliff effects for recipients of public TANF assistance.
- Establishment of early childhood educator apprenticeships. Harford Community College offers an 18-month Child Care Apprenticeship program that includes built-in wage progression and the attainment of professional certifications. Much of the related instruction is delivered through asynchronous online classes.

- Expansion of family childcare centers in communities where apprentices reside through strategies that build the administrative and business management capacity of small entrepreneurial providers. Approaches may include professional training, data and financial management software, shared services among providers, and support for capital improvements.
- Create care models that align with industry-specific needs. *Care that Works*, a coalition of unions and community groups working to expand job quality in Boston, is organizing flexible support for pre-apprentices and apprentices in construction who need “non-standard” care schedules. The group’s first pilot provides payments directly to a group of 24 childcare providers that open as early as 5 a.m. to meet the needs of parents with early morning shifts. Funds can also be used to pay for transportation to get children to and from child care centers.

PREVIOUS JUSTICE INVOLVEMENT:

Many returning citizens and people with some experience with the justice system have skills and aptitudes to make them great apprenticeship candidates but are limited by entry requirements that exclude applicants with some types of criminal records. Generally, there is a lack of community understanding about the criteria for entry into specific apprenticeships because the requirements differ by job site and apprenticeship program. In addition to providing clearer information about the degree to which prior justice system involvement might exclude applicants from apprenticeship, there is a need for services and policies that make expungement

more accessible and proactive efforts to create better pathways into apprenticeship for returning citizens.

Possible Solutions:

To reduce the barriers associated with previous justice system involvement, communities need access to clear information about which specific types of criminal records might exclude applicants from various apprenticeships. This sort of information would encourage more applicants to specific programs.

Free expungement clinics serve as an important tool to increase access to employment for individuals with some criminal records. To expand upon these opportunities, the Maryland legislature could add a “good cause” expungement provision to statute to allow the courts to expunge additional charges upon an adequate showing of good cause, such as participation in apprenticeship.

For individuals who are incarcerated, correctional education programs can provide pre-apprenticeship training and some related instruction that will prepare for immediate entry into apprenticeship programs upon release for returning citizens.

INSUFFICIENT AWARENESS OF APPRENTICESHIP OPPORTUNITIES AND THEIR VALUE:

Although the Maryland Department of Labor conducts outreach to communities through its apprenticeship navigators and posts significant information about apprenticeship on its website, many community members do not know about apprenticeships or how to access them. Real-time information about

apprenticeship openings, enrollment opportunities, and requirements is not easily accessible. There are few opportunities for adults and youth to learn about and explore careers in apprenticeable fields.

Many families hold biases about apprenticeship that lead them to consider it as an inferior alternative to pursuing a college degree. They are unaware of the payoffs of receiving free education through apprenticeship, the wage-earning opportunities of many journeyman occupations, or the possibility that an apprenticeship can be a free pathway to college degree. Moreover, there is a general misperception that apprenticeship is only for the construction trades or that it is always in a union environment.³¹

Possible Solutions:

There is a need for centralized mechanisms to collect and maintain real time public facing information about pre-apprenticeship and apprenticeship programs. With this comprehensive real-time information at hand, unions, employer associations, schools, public agencies, and intermediaries could collaborate to undertake a city-wide communication campaign to make Baltimore residents more aware of pre-apprenticeship and apprenticeship benefits and opportunities, including specific information about openings, enrollment dates and requirements, and career progression pathways. The new cadre of career counselors in the city's public schools should be trained to provide information about apprenticeships pathways to students and parents. Community organizations and American Job Centers (one-stops) serving as access points to the city's workforce services should be provided

with staff training opportunities and up-to-date information about apprenticed occupations and programs so that they can provide the best support and counseling to adult jobseekers.

INHOSPITABLE WORKPLACE CULTURES:

All apprentices have a right to work and learn at a workplace where they are safe and free from harassment and retaliation. Despite mandates that registered apprenticeships include affirmative action plans, some apprenticeship sites fail to welcome and support all workers regardless of gender, race, or sexual orientation. Experiences of sexual and racial discrimination, harassment, and retaliation in the workplace are known to lead to higher rates of non-completion of apprenticeship. These conditions may exist in highly segregated occupations where women, people of color, and LGBTQ+ individuals are not the historical norm. Workers experiencing sexual or racial harassment at their workplace may choose to resign from an apprenticeship to avoid further harm or retaliation rather than reporting issues through established channels. This makes it difficult to measure the extent of the issue or to identify and address specific problems.

Possible Solutions:

In its role overseeing apprenticeship, the Maryland Department of Labor could be resourced to provide additional assistance to help structure apprenticeship programs for diversity and inclusion. Within particular industry sectors, initiatives that empower and advocate for non-traditional employees and apprentices can help change workplace policies and cultures. For example, [Sisters in](#)

the Brotherhood is an initiative that supports female members of the United Brotherhood of Carpenters. Approaches to improving workplace cultures for equity, diversity and inclusion must incorporate worker voice in

identifying problems and co-designing solutions. This can be achieved through ongoing feedback loops and opportunities for worker participation in strategy development and managerial decision-making.

The Need for More Employers Offering Quality Opportunities

Perhaps the most important factor in expanding the number of apprenticeships in Baltimore is the degree to which employers are able and willing to take on apprentices. Expansion demands that the local economy produce enough job openings in apprenticeable occupations. These are typically middle-skill occupations that do not require a bachelor's degree but pay family sustaining wages. There are growth opportunities in sectors where employers are accustomed to the apprenticeship model and are impacted by the influx of federal dollars for construction and infrastructure. Labor shortages in the health care sector pose great opportunity for non-traditional apprenticeships but require typically large systems to shift traditional hiring and training models to allow for intensive mentoring and for incremental wage increases for skills gained on the job. For many employers, these changes will require collaboration with the unions that represent employees. Having been designated by the White House as a Tech Hub, the Baltimore region is expected to add jobs in biotechnology and information technology. The IT sector has been adopting apprenticeship models with influential companies such as Accenture, Google, LinkedIn, and Microsoft at the fore. But Baltimore's employer base consists of

a large number of small and medium-sized businesses for which the model is unfamiliar. Enrollment in apprenticeships for such companies is more likely to take place in ones and twos.

Meanwhile, the ability of Baltimore City Public Schools to meet the ambitious demands of the Blueprint is highly dependent on the capacity and willingness of private and public employers to shift talent development strategies dramatically in favor of apprenticeship programs for youth. There is little evidence that goals for the expansion of apprenticeship in high schools have been set in alignment with any rigorous labor market analyses. Those sponsoring and approving youth apprenticeships will need to resist potential pressure to lower standards of what jobs are truly "apprenticeable" in order to meet quantified enrollment targets.

EMPLOYER MISPERCEPTIONS ABOUT APPRENTICESHIP

The availability of apprenticeship slots for youth and adults is constrained by employer misperceptions about apprenticeship and a lack awareness of options available to businesses. This is particularly true in industries outside of the trades where apprenticeship

lacks a deep history. Some of these misperceptions are:

- The false notion that apprenticeship is only for workplaces represented by a union or only in the building and construction trades. The rules and terminology used in apprenticeship can reinforce this misperception. For example, the term “journeyman” is gendered and is not commonly used in healthcare, IT, or other office environments.
- The belief that registered apprenticeship is overly bureaucratic. Many employers assume that apprenticeship entails excessive paperwork and overreaching regulations. In fact, the Maryland Department of Labor has created a very streamlined reporting system and offers extensive support to employers to make processes easy to navigate. Nevertheless, for some small businesses, the task of building an apprenticeship curriculum and getting standards approved can be daunting. In these instances, group apprenticeships managed by intermediaries can serve to overcome the challenge. Registration of an apprenticeship is valuable because it builds a workforce system that can be measured and improved upon, providing employers with quality training options that are good for their businesses and for the individuals who are enrolled in training.
- The perception that the 1:1 mentor to apprentice ratio is unmanageable. In truth, employers can work with the Maryland Department of Labor to obtain waivers to the ratio rule for non-hazardous occupations, allowing for mentors to work with more than one apprentice. Moreover, there are multiple benefits to both apprentices and seasoned employees that can result from deploying experienced employees as mentors. As older workers move toward retirement, mentorship can avert a “brain drain” by passing on knowledge to new employees in a way that values and celebrates the contribution of long-time employees.
- Many employers believe that legal and safety risks bar the hiring of youth apprentices. In January 2024, the Maryland Insurance Administration issued a bulletin informing employers that age is not a factor in determining worker compensation rates in Maryland.³² Hence, insurance rates do not increase for employers of youth apprentices. Furthermore, labor laws prohibit employment discrimination against individuals with a work permit. Insurance and legal experts should be consulted to learn the facts about the employment of youth apprentices.
- The idea that apprenticeship is too costly. In fact, the State of Maryland offers a tax credit to employers for hiring apprentices and makes available additional employer financial incentives. These financial incentives vary as funding becomes available. Under certain eligibility terms, the [Maryland Business Works](#) program currently pays up to 50% of training costs up to \$4,500 per apprentice and \$40,000 per company, per program year. Depending on availability, the Apprenticeship Innovation Fund offers businesses grants of up to \$50,000 for innovative apprenticeship solutions.³³

RECRUITING AND SUPPORTING EMPLOYER PARTNERS

The Maryland Department of Labor and the Baltimore Mayor’s Office of Employment Development provide help to Baltimore

area employers to navigate the process of apprenticeship and to work through these common misperceptions. But to achieve more significant levels of employer participation in adult and youth apprenticeship, there is a need for entities to take up the cause of employer engagement.

This employer outreach function can be played by non-profit organizations, business associations, unions/JATCs, and/or community colleges serving in an intermediary role. For example, [CareerWise Colorado's](#) team includes two staff members who are responsible for recruiting employers for approximately 200 youth apprentices each year. CareerWise has expanded its model to a number of cities across the country and has been providing consulting services to Baltimore City Public Schools.

A new initiative, [Maryland Apprenticeship Connector \(MAC\)](#), was recently funded by the American Rescue Plan ESSER III to serve as an employer intermediary for youth apprenticeship in Maryland. A coalition of three Maryland nonprofits, Maryland Center for Construction Education and Innovation Inc. (MCCEI), Health Tech Alley, and Carroll Technology & Innovation Council, MAC intends to serve as a centralized hub for employers in the construction, healthcare, and IT sectors. The group is in its early stages of relationship building with seven school systems, including Baltimore City Public Schools, and hopes to play a central role in building an effective infrastructure for Youth Apprenticeship.

Howard Community College (HCC) has had marked success in engaging employers for apprenticeships for non-traditional IT and software development occupations and enrolling students that include Baltimore residents. In particular, the college has built a strong relationship with AT&T, helping the company to pursue diversity and inclusion goals in executing government contracts. To retain candidates, the company needed an approach that could shorten the lags in hiring caused by the security clearance process. HCC helped tailor an apprenticeship program that provides college instruction and paid work with benefits on non-sensitive projects while the background process is underway. The college also offers Registered Apprenticeships for other non-traditional occupations including early childhood educators, health care, hospitality and hotel management, construction management, and biomedical technology. HCC currently sponsors nine registered apprenticeship programs across 15 occupations and has registered 262 new apprentices in FY24.

Minah Woo, the college's vice president of workforce, innovation and strategic partnerships, has identified three critical characteristics of employers that engage successfully in non-traditional apprenticeship: 1) executive leaders champion a vision for talent development through apprenticeship; 2) human resource departments are creative in organizing programs and designating positions and budgets for apprenticeship; and 3) mentors play a critical role in shaping the design of the apprenticeship program from the outset.

SHIFTING MINDSETS

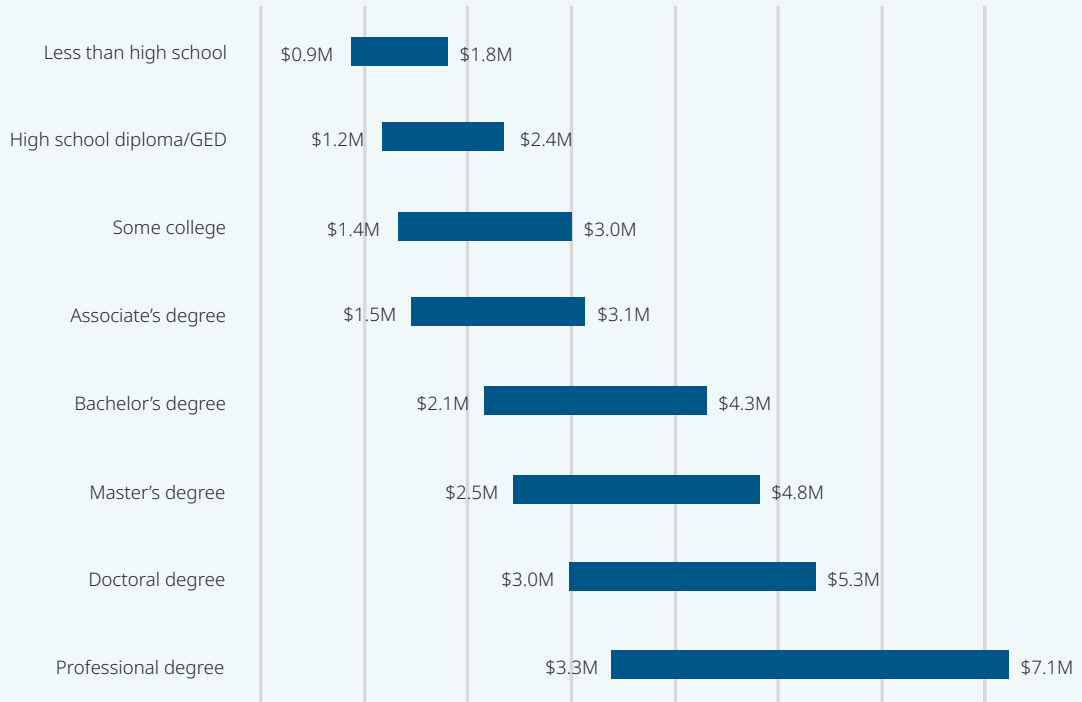
Ultimately, the expansion of inclusive and diverse apprenticeships in Baltimore will demand mindset shifts among employers. Employers must be willing to take on apprentices who face systemic barriers to participation and completion. In many instances, this means that the business community must become active in mitigating systemic barriers to employment and in taking proactive steps to address workplace challenges to access and success for non-traditional workers. Likewise, for youth apprenticeship to succeed, businesses must think of talent development as a process that begins in the K-12 system and be willing to start apprentices while they are in high school.

In some industries, particularly where apprenticeship is not a traditional practice, there is an emerging shift toward skills-based hiring practices that value competency and skill over degree requirements. Predominantly, this shift is occurring for entry-level and middle-skill positions across business sectors, opening the door for work-based learning models

like apprenticeship. Individuals who enter a business through a Registered Apprenticeship may hit a ceiling in their career ladder if degrees are required for upper-level jobs. Recognizing this risk, some employers are shifting to skills-based hiring for upper-level management and/or working with apprenticeship sponsors to connect programs to college credit and degree-earning opportunities. Degree apprenticeships are just beginning to take off in the U.S., often through community college systems where students are awarded credit for prior learning and on-the-job learning. For example, in Philadelphia, the [District 1199C Training and Upgrading Fund](#) partners with the Community College of Philadelphia (CCP) to operate a Child Development Associate (CDA) to Associate Degree Registered Apprenticeship. In this apprenticeship program, experienced childcare workers apprentice with their current employer, are awarded college credit for prior work experience, and take additional community classes to complete the program with an associate degree in early childhood education.³⁴



Lifetime Earnings by Highest Educational Attainment: Maryland



Employment data show that degrees still matter in the United States. Lifetime earnings are significantly higher for adults with a bachelor's degree or more education.³⁵ Under new hiring policies, Maryland no longer requires a bachelor's degree for almost half of state government jobs, and many private companies are following suit. But it's still unclear whether individuals will have full access to career pathways. One solution is to make sure that employees without degrees are eligible to advance into upper management positions. Another solution is to include degree earning opportunities for incumbent workers, awarding credit for competencies attained at work, and connecting apprenticeships to degrees.

Systems Coordination

There is a need for robust systems to guide and manage a local expansion of apprenticeship. In a 2022 report on apprenticeship, Annelies Goger at the Brookings Institute noted that “siloeed governance structures and funding streams between educational institutions, employer organizations, and learners has made coordination onerous and reduced alignment between available curricula, skills that employers need, and career awareness.”³⁶ In light of this challenge, strong coordination and evaluation structures are needed at the state and local levels. Stakeholders largely agree that the Maryland Department of Labor’s apprenticeship team is providing superb leadership and support. Yet the team is relatively small, and the charge of growing apprenticeship across the state will demand additional capacity.

NEED FOR BETTER DATA

The work of the MDDOL apprenticeship team is hampered by an outdated state-run data system that makes it challenging to monitor progress in real time, determine what works, identify areas for improvement, and craft convincing messaging. Maryland is among several states that have opted out of participation in US DOL’s RAPIDS data system, which is managed by a third-party vendor and lacks some of the functionality that state administrators need. In July 2023, the U.S. Department of Labor awarded a \$6.6 million State Apprenticeship Expansion grant which supports a number of expansion efforts including funding to upgrade the state’s apprenticeship data system and infrastructure. As improvements to Maryland’s apprenticeship data system are

underway, the department has been working more closely with the Maryland Longitudinal Data System (MLDS) to analyze the effectiveness of apprenticeship across the state.

ACHIEVABLE GOALS AND CLEAR POLICIES FOR YOUTH APPRENTICESHIP

The Blueprint for Maryland’s Future set an ambitious target for the number of high school students to be engaged in apprenticeship by the 2030–2031 school year. Approximately 60,000 students graduate from Maryland public high schools each year. To hit the Blueprint’s goals at current population numbers, at least 27,000 Maryland students, including approximately 1,900 Baltimore City youth, would need to complete an industry certification or apprenticeship each year. By 2030, this number is expected to reach 30,000. To understand the magnitude of the challenge, it is noteworthy that among all 2021 Maryland public school graduating seniors, only 4,086 earned an industry credential or completed a Youth Apprenticeship (3,918 earned an industry credential and 168 completed a youth apprenticeship). As noted above, in March of 2024, fewer than 10 Baltimore City students were engaged in an apprenticeship.

The Blueprint itself did not specify what would count toward the 45% goal, nor did it set specific goals for each LEA. Guidance originally scheduled to be released in late 2022 was delayed. The CTE Committee explained in its Initial Implementation Plan that these delays came after a recognition that systemic barriers limiting the scale of Youth Apprenticeship

participation to date must be understood and addressed as a first step toward meeting the 45% goal of the Blueprint.³⁷ In August 2024, the CTE Committee adopted a framework for forthcoming guidance for high school apprenticeships. As described earlier in this report, the new framework narrows the definition of activities that will meet the Blueprint's 45% goal. Statewide goals for each school year will be released after the guidance is finalized. It will be important for the CTE Committee to base these goals on rigorous labor market analyses that assess demand for apprenticeable occupations located in proximity to high schools in each region of the state. Moreover, goals will have to contend with regulatory impediments to apprenticeship for workers under the age of 18 in sectors such as healthcare where younger workers may not be authorized to provide patient care.

Although final guidance and policies are still in progress, Baltimore City Public Schools and

the other LEAs around the state have had to move ahead, each working independently to craft models for how they will reach quickly approaching milestones and meet the enormity of the scale of required expansion. At the district level, there are a range of challenging considerations such as how to adapt student schedules, ensure the availability of courses to meet requirements for Related Instruction, transport students to and from job sites, recruit employer partners, garner student and parent support for apprenticeship, and meet staffing needs.

While each LEA is putting its systems into place, it's worth noting that employers hire from across the geographic jurisdictions of school districts. Without a statewide structure for collaboration, LEAs may find themselves at odds with one another as they compete for employer partnerships. Moreover, employers may end up dealing with a myriad of models and processes for engaging youth apprentices within a single region.

Coalitions and Intermediaries to Coordinate the Work

In Baltimore, the Mayor's Office of Employment Development (MOED), Baltimore City Public Schools, unions, employer associations, and the community colleges are among those tasked with implementing apprenticeship expansion. But there is a need for additional local capacity to facilitate apprenticeship expansion.

With funding through the American Rescue Plan (ARPA), MOED recruited Baltimore residents into apprenticeship and offered businesses \$2,500 subsidies per new apprentice hired. To date, the program has incentivized 16 employers to hire 185 Baltimore apprentices.

An additional 207 individuals served through this project were placed into other employment at an average starting wage of \$17.83. Funding for this program has now been exhausted. Establishing and sustaining a more robust public apprenticeship office in Baltimore City could help increase employer outreach, recruitment, career prep, and retention services.

Coordination around apprenticeship may also be aided through the establishment and growth of nimble intermediaries such as the previously described H.O.P.E. Project and CareerBound. Apprenticeship intermediaries can take on

coordination of local stakeholders, engage and assist employers, administer paperwork and reporting, and lead communications with residents and employers.

In 2023, Baltimore was designated by the White House as a Workforce Hub,³⁸ with the goal of ensuring that high-quality, publicly funded infrastructure jobs are accessible to Baltimore City residents who reside in under-invested neighborhoods and are underrepresented in the trades. With over \$10 billion in new public investments in transportation, clean energy, and broadband expected to generate good jobs in the Baltimore region, more resources are needed for coordination functions related to apprenticeship readiness training and remediation of barriers to entry and retention of apprentices. In August 2024, the Families and Workers Fund's Powering Climate and Infrastructure Careers initiative awarded funding to the Baltimore Workforce

Funders Collaborative to support a coalition of public and private partners working together to synchronize multiple workforce projects in the climate and infrastructure sectors. This ongoing work will require continued investment to deepen coordination across multiple sectors.

There is also a need for greater coordination to meet Youth Apprenticeship expansion goals. In 2023, a \$1 million Maryland Works grant was awarded to a Baltimore coalition involving the Baltimore City Public School System, the Baltimore Mayor's Office of Employment Development, and a non-profit intermediary, Baltimore's Promise, to support infrastructure development for school-based youth apprenticeship programs. As this group continues to work to establish intermediary functions, the challenge of employer engagement remains a critical gap.

The Value of a Learning Visit

The ideas set forth for youth apprenticeship in the Blueprint are largely based on the success of European apprenticeship models. Several informants for this paper discussed the great potential benefit of a stakeholder study trip to see Switzerland's and Great Britain's apprenticeship systems in action. Policymakers, corporate executives and educational leaders from cities and regions across the U.S. have taken these trips in recent years. In 2017, Washington Gov. Jay Inslee took 45 stakeholders to Switzerland for an immersive four-day study mission to gear up for apprenticeship expansion in his state. With support from the Richard M. Fairbanks Foundation,

several groups from Indiana have traveled for similar study trips, and, as a follow up, a coalition of 100 Indiana partners are set to participate in an Implementation Lab (referred to as an iLab) facilitated by youth apprenticeship experts from the Center on Economics and Management of Education and Training Systems (CEMETS) at ETH Zurich, a Swiss public research university.³⁹ Additional study trips to Europe have been organized by Jamie Dimon as part of J.P. Morgan Chase's partnership to boost youth apprenticeship in New York City. In addition to learning about how the European models operate, study trips can serve to catalyze the momentum needed

to shift mindsets and create better buy-in into apprenticeship as a viable solution. Private philanthropic or other sources of funding

to support such a trip could have a valuable investment in the future of apprenticeship in Baltimore.



Photo courtesy of Wide Angle Productions,
a social enterprise of Wide Angle Youth Media, for Vehicles for Change

Appendix: Key Terms

The following are a set of definitions of key terms related to Registered Apprenticeship Programs:

Registered Apprenticeship Program (RAP):

A Registered Apprenticeship is a job with structured training in a specific occupation consisting of paid on-the-job training and related classroom instruction. In Maryland, Registered Apprentices are hired on as employees at the beginning of the RAP and immediately begin earning at a rate at or above minimum wage, typically starting at 50% of the average journeyman hourly rate of the occupation for which they are training. Under the guidance of a mentor, apprentices acquire skills and obtain industry-recognized certifications that are tied to a progressive schedule of wage increases. Over the life of the apprenticeship, apprenticeship wages increase, gradually reaching a journeyman wage by program completion. Employers hosting RAPs must provide 1:1 mentorship by a skilled “journeyman.” Along the way, Registered Apprentices attain skills that are transferable across employers. In Maryland, RAPs are approved by the Maryland Apprenticeship and Training Council and are registered with the State Department of Labor. Apprentices may be incumbent workers who are advancing along career pathways within a company or newly hired workers.

There are three models of a **Registered Apprenticeship (RAP)**: time-based, competency-based and hybrid. Most RAPs in Maryland are time-based.

Time-based RAP: This is the most common format for a Registered Apprenticeship Program in Maryland. A Registered Apprentice works on the job for a minimum of 2,000 hours (full-time) per year over the course of 1–5 years. During this time, the apprentice receives mentoring from a skilled journeyman and participates in at least 144 hours of related classroom instruction. During the course of the RAP, apprentices receive graduated pay increases that align with learning milestones. Upon completion, the apprentice earns at least the full prevailing wage for the occupation.

Competency-based RAP: In this model, apprentices receive scheduled wage increases after demonstrating proficiency in a list of predetermined job functions. This method tailors the time needed to advance through milestones to the individual needs of each apprentice.

Hybrid RAP: The hybrid model is a blend of time-based and competency methods where apprentices advance according to competencies gained but are required to fall within a prescribed range of hours of work and related classroom instruction based on the job requirements.

Degree Apprenticeship: Degree apprenticeships provide paid work in a career pathway and lead to an associate or bachelor’s degree.

Typically, related classroom instruction is provided by a community college. Apprentices earn academic credits for technical training, and, in some models, also earn credits for competencies earned on the job. Degree Apprenticeships have a proven track record in Great Britain where companies such as Goldman Sachs and J.P. Morgan Chase operate prestigious programs.

Journeyman: A Journeyman (also called a journeyworker or journeyman) is a worker who has attained a level of skills, abilities, and competencies recognized within an industry. Journeymen may have completed a Registered Apprenticeship or otherwise obtained the skills and work experience equivalent to that provided through a registered apprenticeship experience. This term is commonly used in the Building Trades but is less familiar in non-traditional apprenticeship sectors.

Registered Apprenticeship Program Sponsor: A Registered Apprenticeship program sponsor assumes responsibility for the design, administration, and management of a Registered Apprenticeship program. A sponsor can be the employer of the apprentice, a community college, joint apprenticeship training committee, or other entity. The primary roles of the sponsor are to: work with the state Department of Labor to develop apprenticeship standards and curricula, manage participation agreements with apprentices and employers, coordinate with employers and apprentices to ensure continuous employment, oversee training development and the provision of hands-on learning and technical instruction, and ensure compliance with state and federal apprenticeship regulations. Sponsors often

assist employers to conduct recruitment and screening of new apprentices. The sponsor can be a single business or consortium of businesses, an industry association, joint labor-management organization (typically a JATC), community college, community-based organization, or other organization.

Joint Apprenticeship and Training

Committee (JATC): Most union-affiliated RAPs are sponsored by JATCs. JATCs are committees typically comprised of a 50/50 ratio between labor and management. They administer training funds allocated as a percentage of payroll determined through collective bargaining agreements. With both labor and management at the table, the JATCs serve as intermediaries to ensure that the needs of both workers and employers are met through the program.

Apprenticeship Intermediary: There is no singular definition or required structure for an apprenticeship intermediary. Apprenticeship intermediaries can be managed by a range of types of organizations and can serve a variety of functions. These functions may include the development and administration of standards, policies, and programs; employer recruitment and guidance; direct services to apprentices including enrollment, placement, and supportive services; tracking, evaluating, and reporting; and fiscal management and fundraising. In the unionized trades, the JATCs have historically served as intermediaries. The types of organizations conducting intermediary functions can vary widely and may include non-profit organizations, business associations, labor-management partnerships, workforce boards, and/or community colleges.

Apprenticeable Occupation: Registered Apprenticeship Programs are only approved for occupations that are deemed by the Maryland Apprenticeship and Training Council as “apprenticeable.” An apprenticeable occupation is a skilled trade that meets a set of criteria including:⁴⁰

- Can be clearly identified and commonly recognized throughout an industry;
- Involves manual, mechanical, or technical skills and knowledge, which require a minimum of 2,000 hours of work and on-the-job training, not including the hours spent on related classroom instruction;
- Requires related classroom instruction supplemental to the on-the-job training; and
- Involves the development of a skill which is not restricted in application to the products of any one company, but which is broad enough to be applied in similar occupations throughout an industry.

Maryland Apprenticeship and Training Council (MATC): The MATC is a 12-member body that formulates apprenticeship policies, registers Apprenticeship Standards and agreements, determines which skilled trades are apprenticeable, and formulates and adopts standards of apprenticeship to safeguard the welfare of all apprentices. Five members of the council represent employee organizations (including one employee), five represent employers, and two are appointed from the general public. Three additional members serve on the council in a non-voting, consultant capacity. The MATC meets every other month.

Apprenticeship Standard: The “Standard” is an approved written plan outlining all terms and conditions for the recruitment, selection, employment, training, and supervision of apprentices enrolled in a specific Registered Apprenticeship Program. Standards are approved by the MATC and implemented by the Apprenticeship Sponsor.

Pre-Apprenticeship Program: A pre-apprenticeship program prepares individuals for entry into an apprenticeship. The highest quality pre-apprenticeships provide direct entry into Registered Apprenticeships through well formulated links and agreements with apprenticeship sponsors. Pre-apprenticeships may or may not include wages or stipends.

Career and Technical Education (CTE): CTE is a program of study that prepares secondary and postsecondary students for careers. High School CTE programs offer the opportunity to gain Industry-Recognized Credentials (IRCs) and credits toward graduation.

School to Apprenticeship (STA): High school youth ages 16–17 enrolled in an STA enter an adult Registered Apprenticeship while still in high school and continue after graduation. STA includes related instruction that is approved as part of the apprenticeship standard. STA apprentices register with the Maryland Apprenticeship and Training Program.

Apprenticeship Maryland Program (AMP): AMP is a Career and Technical Education (CTE) program of study implemented by the Maryland State Department of Education in partnership with the Maryland Department of Labor. Under AMP, Youth Apprenticeships

(YAs) begin in high school, providing students ages 16 or older with an opportunity to explore a career of interest and gain skills for employability. Students enrolled in AMP work a minimum of 450 hours with a certified employer and participate in related educational training through their high school. A work-based training plan is developed for each youth apprenticeship to ensure that the student gains high school credit, work experience, and industry credentials or certifications. Employers hiring AMP youth apprentices provide a mentor to each apprentice and pay a wage equal or above the minimum wage. A Youth Apprenticeship Agreement (YAA) must be signed by the employer, school, student, and parent.

Industry-recognized credential (IRC):

In Maryland, an IRC is “a formal validation of an individual’s skills and/or competencies that align with state or regional in-demand occupations and is recognized by industry and employers. It includes a certification, license, or credential that is obtained through an assessment process, is portable, and may be stackable. The IRC leads to documented positive employment outcomes, ensures

relevance to the labor market, and supports career advancement and economic development.”⁴¹ The Maryland State Department of Education and the CTE Committee produce an annual list of approved IRCs that meet with a set of agreed-upon standards.

**Blueprint for Maryland’s Future
Accountability and Implementation
Board (AIB) and the Governor’s Workforce
Development Board CTE Committee:**

The AIB, established through the Blueprint for Maryland’s Future, is tasked with creating a comprehensive implementation plan and monitoring results of the state’s education reform plan. The AIB is an independent unit of state government with authority over the Maryland State Department of Education and the State Board of Education and has power to withhold state funds from LEAs that do not comply with the Blueprint. The AIB has created a College and Technical Education (CTE) Committee managed by the Governor’s Workforce Investment Board. One of the tasks of the CTE Committee is to set goals and determine policies governing the youth apprenticeship goals set forth in the Blueprint.

Acknowledgments

We are so appreciative of the many individuals who, through a set of interviews and conversations, provided information and insights that shaped this report. In particular, the author would like to acknowledge:

The class of future Journeymen Electricians apprenticing through the IBEW Local 24 who shared their experience and insights.

The team of dedicated professionals at the **Maryland Department of Labor**, particularly Chris Maclarion, Erin Roth and Jeffrey Smith.

Associated Builders and Contractors,
Mike Henderson

Baltimore City Public Schools, Adenike Akintilo, Stanley Wolfe, and Kumasi Vines

Baltimore County Public Schools,
Michael Grubbs, Ph.D.

Baltimore Mayor's Office of Employment Development, Yvette Clark

Baltimore's Promise, Julia Baez, Tiffani Truss, and Kate Wolfson

Baltimore-D.C. Metro Building Trades Council, Greg Akerman and Nichalas "Nick" Cummings

CareerWise, Ryan Gensler and Jake Williams

Catholic Charities, Erin Finnegan-Smith

Community College of Baltimore County,
Jay Bouis

Howard Community College, Minah Woo
Humanim, Cindy Plavier Truitt and William McIntyre

International Brotherhood of Electrical Workers, Local 25 JATC, Neil Wilford

Maryland State Senate,
Senator James Rosapepe

Baltimore Alliance for Careers in Healthcare, Jermaine Johnson

Job Opportunities Task Force, Debra Carr

Maryland Business Roundtable for Education, Nona Carroll

Maryland Center for Construction Education and Innovation, Jennifer Dewees

New America, Sarah Oldmixon and Iris Palmer

NPower, Demetrius Goodwin

Our Facets, Yvette Diamond

Phase 3 Training, Anthony Roberts

Project JumpStart, Jimmy Stewart

Syracuse Build and Center State CEO,
Christopher Montgomery and Aimee Durfee

University of Maryland Medical Center,
Michael Franklin and Vanessa Rollins

Endnotes

1. Maryland Department of Labor
2. www.apprenticeship.gov
3. Zients, Jeffery and Secretary Thomas E. Perez. "ApprenticeshipUSA is Upskilling America." The Obama White House, 2016. <https://obamawhitehouse.archives.gov/blog/2016/10/21/apprenticeshipusa-upskilling-america>
4. Parton, Brent. "What is Youth Apprenticeship? Definition and Guiding Principles for High-Quality Programs." New America, 2018. <https://www.newamerica.org/education-policy/edcentral/youth-apprenticeship-definition-and-guiding-principles/>
5. "Apprenticeship for High School Students in Maryland: Framework for Apprenticeships for High School Students Under the Blueprint for Maryland's Future." CTE Committee Maryland Governor's Workforce Development Board, Spring 2024. <http://www.gwdb.maryland.gov/ctecomm/ctecomm-apprenticeshipguidancefeb2024.pdf>
6. "Apprenticeship for High School Students in Maryland: Framework for Apprenticeships for High School Students Under the Blueprint for Maryland's Future." CTE Committee Maryland Governor's Workforce Development Board, Spring 2024. <http://www.gwdb.maryland.gov/ctecomm/ctecomm-apprenticeshipguidancefeb2024.pdf>
7. "Preparing for the Future, A Regional Workforce Development Initiative." Greater Baltimore Committee. 2020.
8. United for ALICE, United Way of Central Maryland: <https://www.unitedforalice.org/maryland>
9. Baltimore City Youth Data Scorecard, Baltimore's Promise: <https://www.baltimorespromise.org/datascorecardmain>
10. Lerhman, PhD., Robert and Arnold Packer, PhD. "Youth Apprenticeship: A Hopeful Approach for Improving Outcomes for Baltimore Youth." Abell Foundation, 2015. <https://abell.org/wp-content/uploads/2022/02/ed-apprenticeship415.pdf>
11. www.apprenticeship.gov
12. Reed, Debbie, et al. "An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States." Mathematica, 2012.
13. Ross, Martha, et al. "Pathways to High-Quality Jobs for Young Adults." Brookings, 2018. <https://www.brookings.edu/articles/pathways-to-high-quality-jobs-for-young-adults/>
14. "Exploring Workforce Outcomes of Maryland Apprenticeship and Training Program Completers." Maryland Longitudinal Data System Center, 2021. <https://mldscenter.maryland.gov/ApprenticeshipReport.html>
15. Zients, Jeffery and Secretary Thomas E. Perez. "ApprenticeshipUSA is Upskilling America." The Obama White House, 2016. <https://obamawhitehouse.archives.gov/blog/2016/10/21/apprenticeshipusa-upskilling-america>
16. "The Benefits and Costs of Apprenticeship: A Business Perspective." Case Western Reserve University and U.S. Department of Commerce, 2016. <https://www.commerce.gov/sites/default/files/migrated/reports/the-benefits-and-costs-of-apprenticeships-a-business-perspective.pdf>
17. US Department of Labor: <https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2021>
18. www.apprenticeship.gov/data-and-statistics
19. Maryland Apprenticeship and Training Program Annual Report, Maryland Department of Labor. 2023. <https://labor.maryland.gov/employment/appr/apprannreport2023.pdf>
20. Maryland Apprenticeship and Training Program Annual Report, Maryland Department of Labor. 2023. <https://labor.maryland.gov/employment/appr/apprannreport2023.pdf>

21. McSwigan, Curran. "America's Apprenticeship Gap in Two Charts." Third Way, 2024. <https://www.thirdway.org/memo/americas-apprenticeship-gap-in-two-charts>
22. "Career and Technical Education: Industry Recognized Credentials. State-Approved Credentials, Approval, and Review Process and Implementation Guidebook." CTE Committee Maryland Governor's Workforce Development Board and Office of College and Career Pathways, Maryland State Department of Education. Spring 2024. <http://www.gwdb.maryland.gov/ctecomm/ctecomm-industryguidancefeb2024.pdf>
23. "Equity Snapshot: Apprenticeships in America." US Department of Education, White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity for Hispanics. <https://sites.ed.gov/hispanic-initiative/2021/11/equity-snapshot-apprenticeships-in-america/>
24. "Equity Snapshot: Apprenticeships in America." US Department of Education, White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity for Hispanics. <https://sites.ed.gov/hispanic-initiative/2021/11/equity-snapshot-apprenticeships-in-america/>
25. "Governor Moore Announces \$23 Million in Federal Funding to Expand Registered Apprenticeships and Workforce Development in Maryland." 8/20/2024. <https://governor.maryland.gov/news/press/pages/governor-moore-announces-23-million-in-federal-funding-to-expand-registered-apprenticeships-and-workforce-development-in-ma.aspx>
26. "CareerBound: An Exciting New Initiative." Baltimore's Promise. 2024.to Support Young Jobseekers
27. "Vital Signs." Baltimore Neighborhood Indicators Alliance, Jacob France Institute, University of Baltimore. <https://bniajfi.org/homepage/fullreport/>
28. 2023 Maryland School Report Card: <https://reportcard.msde.maryland.gov/Graphs/##Assessments/MathPerformance/UALG01/U/6/3/1/30/XXX/2023>
29. "Career and Technical Education (CTE) Committee Initial Phase One CTE Implementation Plan." Maryland Governor's Workforce Development Board, 2023. <https://drive.google.com/file/d/1E8qCCYHNNakL1A4hCxmnPzoyNCsNImCH/view>
30. Gale, Rebecca. "How Childcare in Oregon is Saving the Construction Trade." Early Learning Nation, 2023. <https://earlylearningnation.com/2023/01/how-child-care-in-oregon-is-saving-the-construction-trade/>
31. Goger, Annelies and Tracy Hadden Loh. "Apprenticeships for office jobs can prepare downtowns for the future of work." Brookings, 2022. <https://www.brookings.edu/articles/apprenticeships-for-office-jobs-can-prepare-downtowns-for-the-future-of-work/>
32. Maryland Insurance Administration, Bulletin 24-3:<https://insurance.maryland.gov/Insurer/Documents/bulletins/24-3-Apprenticeship-Programs-Age-Does-Not-Impact-Workers-Compensation-Rates-in-Maryland.pdf>
33. <https://labor.maryland.gov/employment/appr/apprbecomesponsor.shtml>
34. Tesfai, Lul. "Creating Pathways to College Degrees Through Apprenticeships." New America, 2019. <https://www.newamerica.org/education-policy/reports/creating-pathways-postsecondary-credentials-through-apprenticeships/>
35. Carnevale, Anthony P., et al. "The College Payoff: More Education Doesn't Always Mean More Earnings." Georgetown Center on Education and the Workforce, 2021. <https://cew.georgetown.edu/cew-reports/collegepayoff2021/#resources>
36. Goger, Annelies and Tracy Hadden Loh. "Apprenticeships for office jobs can prepare downtowns for the future of work." Brookings, 2022. <https://www.brookings.edu/articles/apprenticeships-for-office-jobs-can-prepare-downtowns-for-the-future-of-work/>

37. "Career and Technical Education (CTE) Committee Initial Phase One CTE Implementation Plan." Maryland Governor's Workforce Development Board, 2023.
38. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/11/13/fact-sheet-biden-harris-administration-holds-workforce-hub-convening-in-baltimore-announces-commitments-to-train-and-hire-local-residents-to-support-major-infrastructure-projects/>
39. <https://www.ccdaily.com/2024/03/indiana-leans-into-youth-apprenticeships/>
40. Code of Maryland Regulations, 09.12.43.04
41. "Career and Technical Education: Industry Recognized Credentials. State-Approved Credentials, Approval, and Review Process and Implementation Guidebook." CTE Committee Maryland Governor's Workforce Development Board and Office of College and Career Pathways, Maryland State Department of Education. Spring 2024. <http://www.gwdb.maryland.gov/ctecomm/ctecomm-industryguidancefeb2024.pdf>

The Abell Foundation
Suite 2300
111 S. Calvert Street
Baltimore, MD 21202-6174

.....
A B E L L
.....
F O U N D A T I O N
.....

As a private foundation focused exclusively on Baltimore City, we provide grants to nonprofit community partners, fund research to better inform civic conversation, and make catalytic investments in new businesses that offer significant social and economic benefits to the city. We believe that a community of creative problem-solvers, faced with complicated, seemingly intractable challenges is well-served by thought-provoking, research-based information and analysis. To that end, the foundation publishes background studies of select issues on the public agenda for the benefit of government officials; leaders in business, industry and academia; and the general public.

For a complete collection of Abell publications, please visit our website:
abell.org/what-we-are-learning/