

# Infrastructure Investment & Jobs Act

The Critical Importance of Career and Technical  
Education (CTE) in Rebuilding America



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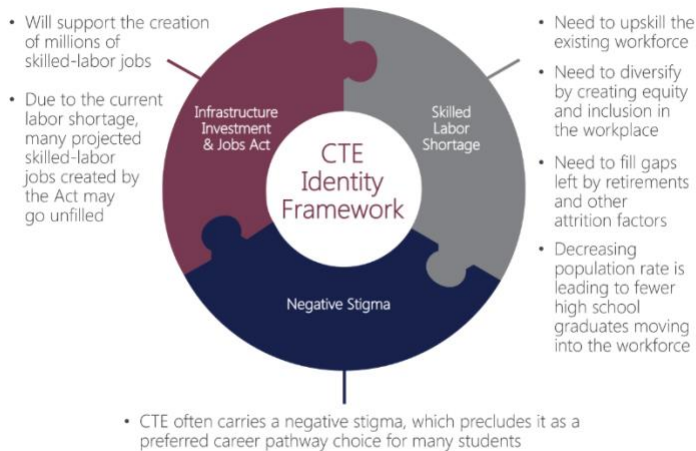
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## Blueprint for Rebuilding America

A unique confluence of factors affecting the U.S. economy today provides a dynamic opportunity to highlight the key role career and technical education (CTE) can play in ensuring U. S. economic growth, national security, and talent pipeline development. This paper examines those relationships and the impact the Infrastructure Investment and Jobs Act will have on the critical skilled labor shortage the U.S. is already experiencing due to retirements, the reduction in the overall population rate, and the shift in demographics of workers. These factors are filtered



through a diversity, equity, and inclusion lens to demonstrate the need for expanding career and technical education in America at both the secondary and postsecondary levels, and in recruiting more non-traditional and underserved populations including women, minorities, veterans, immigrants, and others to expand the talent pool.

Historically, CTE has carried a negative stigma as being lesser than preparation for college. This paper addresses the need to reinvent CTE's

image to attract new students and upskill current workers. Changing the negative stigma can change how people think about CTE and expand career pathways into high-skill, high-wage, in-demand jobs for people of all colors, backgrounds, and abilities. The time to act is now. We must have skilled workers in the talent pipeline to ensure the U.S. remains a force in the world economy.

## Infrastructure Investment and Jobs Act will Create Millions of New Jobs

On November 15, 2021, President Biden signed the Infrastructure Investment and Jobs Act, the largest infrastructure bill to clear Congress since 2015 with \$550 billion in new federal spending over the next five years.<sup>i</sup> At the signing, the President shared his vision: "This law is a blue-collar blueprint to rebuild America. It leaves no one behind. And it marks an inflection point that we face as a nation."<sup>ii</sup> The bipartisan infrastructure deal will rebuild America's roads, bridges, and rails; expand the availability of clean drinking water; ensure every American has access to high-speed internet, and tackle the climate crisis. It will strengthen supply chains by making improvements in the nation's transportation systems and drive the creation of good-paying jobs and economic growth.<sup>iii</sup>

While the focus of the Act is on traditional infrastructure, several categories of investments will benefit schools and workforce development directly. A total of \$65 billion will be invested in broadband, including grants to increase connectivity to underserved and high-cost areas. Digital Equity Grants will require states to ensure equitable access to high-speed internet and training for adult populations to use internet-capable devices to apply for jobs. Workforce development grants will focus on clean energy jobs, promote career opportunities in the transportation sector, and launch a new Commercial Vehicle Apprenticeship pilot program in driving commercial

vehicles. Complementary legislation, the Build Back Better Agenda, is intended to invest in the human infrastructure via the budget reconciliation process. These domestic priorities related to human infrastructure are necessary, at least in part, to prepare the skilled workforce needed to make the vision of the bipartisan infrastructure framework a success.<sup>iv</sup>

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*The Enactment of the Infrastructure Investment and Jobs Act will help connect 14 million Americans to broadband, provide clean drinking water for 10 million families, upgrade our energy grid, and grow our economy. It is the single largest investment in bridges since the construction of the Interstate Highway System and the single largest investment in innovation, efficiency, and resiliency to address climate change in U.S. history.*

*Suzanne Clark, U.S. Chamber of Commerce President & CEO*

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## CTE Can Play a Pivotal Role

The Infrastructure Investment and Jobs Act elevates the role career and technical education (CTE) can play in rebuilding America. For the past twenty years, CTE educators have raised the quality of instruction and mapped out clear pathways for students to move seamlessly from high school CTE classes into related post-secondary coursework and careers. Today's cutting-edge, rigorous, and relevant career and technical education prepares youth and adults for high-wage, high-skill, in-demand jobs in established and emerging industries. Structured CTE models have been linked to increased college matriculation and completion rates, as well as positive labor market outcomes—including higher earnings—for students who head directly into the workforce.<sup>v</sup>

The Infrastructure Investment and Jobs Act is expected to significantly expand career opportunities for graduates of career and technical education programs. The legislation is also likely to provide enhanced work-based learning experiences for CTE students, as the unprecedented labor market imbalance is forcing employers to consider a range of strategies to fill job vacancies. For some, this means raising wages or changing entry requirements for jobs. For others—especially those in industries facing structural shifts due to new technologies or massive waves of impending retirements—it's increasingly necessary to identify new sources of talent and to rethink how to train and retrain employees in a quickly evolving labor market.<sup>vi</sup> The explosion of interest in “grow your own” strategies, such as work-based learning and apprenticeship, exemplify the increased interest in alternative models.

Using the National Career Clusters Framework developed in 1996 by the U.S. Department of Education, the Office of Vocational and Adult Education (OVAE) now the Office of Career, Technical, and Adult Education (OCTAE), the National School-to-Work Office (NSTWO), and the National Skill Standards Board (NSSB),<sup>vii</sup> ASHLIN Management Group conducted an analysis of the legislation and determined direct references to nearly every career cluster and to 34 out of 79 career pathways (see [16 CTE Career Clusters Table](#)). The legislation has the potential to significantly impact both job opportunities and work-based learning experiences in the following:



**CTE Clusters  
Directly Aligned  
with  
Infrastructure Act**

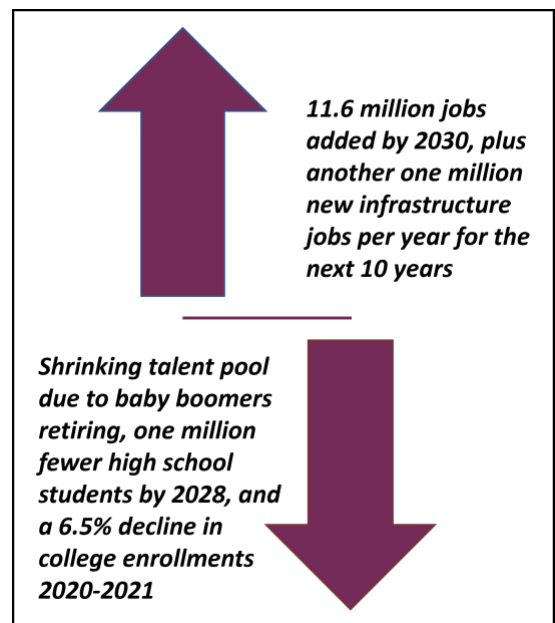
- Agriculture, Food, & Natural Resources
- Architecture and Construction
- Arts, A/V Technology, & Communications
- Business Management & Administration
- Finance
- Government & Public Administration
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections, & Security
- Manufacturing
- Science, Technology, Engineering, & Mathematics
- Transportation, Distribution, & Logistics

In response to the passage of the Act, federal and state agencies have already begun to plan and organize for effective implementation. Secondary and post-secondary educational institutions, apprenticeship entities, and workforce boards will play key roles in providing the skilled workers needed to realize the aggressive objectives set by the legislation. Graduates of these institutions and organizations are likely to be in high demand, given the increased investments across numerous sectors of the economy and the projected job growth.

## The Major Challenge

A critical question looms. **Will there be enough skilled workers available to meet the demands of the infrastructure package?** America is already facing a significant skilled labor shortage. According to lead economists at JPMorgan Chase, the level of unfilled positions as a proportion of the workforce is unprecedented and widespread - 50 percent higher than peak levels in previous business cycles and spread across almost every sector of the economy. The rate of workforce growth has declined sharply, falling almost 75 percent over the past decade. And, as the baby boomer generation retires, masses of highly skilled workers are leaving the workforce.<sup>viii</sup>

In fact, by 2030 the labor force participation rate is projected to decline, from 61.7 percent in 2020 to 60.4 percent due to the aging of the baby boomer generation, a continuation of the declining trend in men's participation, and a slight decline in women's participation.<sup>ix</sup> U.S. demographics are also shifting. The number of high school graduates is flat — and in some cases declining — because of lower birth rates some 20 years ago - so the trend of fewer students coming from high school is not going away any time soon.<sup>x</sup>



At the same time, according to the Bureau of Labor Statistics, total jobs are projected to grow from 153.5 million to 165.4 million over the 2020–30 decade, an increase of 11.9 million jobs. The Infrastructure Act alone is anticipated to add an additional 800,000 to one million jobs **annually** to that number.

Combined, these factors create significant labor pool shortages across all industry areas, especially in industries such as construction, manufacturing, telecommunications, transportation and warehousing, and technology, where the Infrastructure Act will create large numbers of job openings.



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*The growing gap between the number of critical infrastructure jobs and the number of skilled workers available to fill them will grow significantly over the next ten years unless we seize the opportunity and expand the CTE pipeline.*

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## Expanding the CTE Pipeline

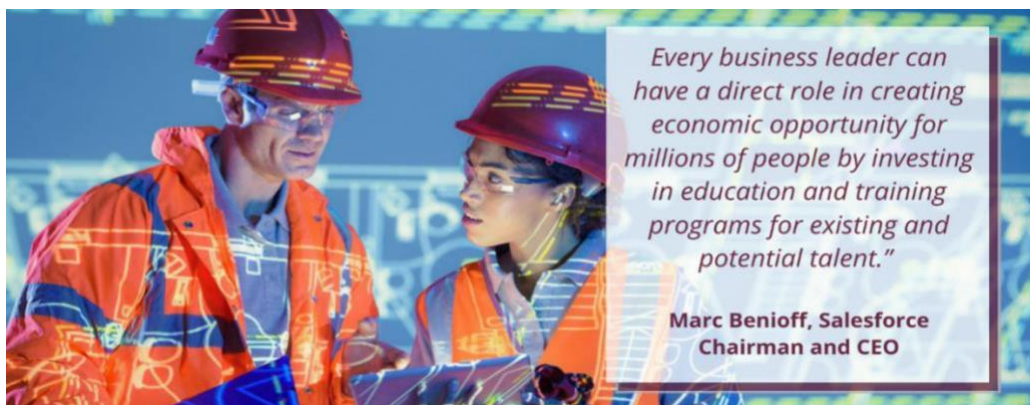
Multiple factors are facilitating the opportunity to expand the CTE pipeline. While listed as separate factors, in fact, they are interrelated. To realize the vision of the Infrastructure Investment and Jobs Act, the CTE pipeline must be expanded to include greater numbers of:

- **Underserved populations.** With fewer youth graduating from high school, employers will need to look to women, veterans, individuals with disabilities, etc. to fill job openings.
- **Minority and foreign-born individuals.** Alongside the shifts seen across the labor market, the composition of the American workforce is rapidly changing. According to the 2015 U.S. Census projections, by 2044 more than half of all Americans are projected to belong to a minority group and by 2060 nearly one in five of the nation's total population is projected to be foreign-born.
- **Secondary students participating in “earn and learn” models.** Interest is growing on the part of students and employers to build real-life, applied learning into their educational experiences, including internships, work-based learning, and apprenticeship. These students can also find value in CTE offerings that support and enhance their interest in hands-on learning.
- **Post-secondary students enrolled in technical skills training programs.** According to the Georgetown Center on Education and the Economy, the burden of workforce preparation has shifted from secondary to postsecondary education. Only about 20 percent of today's recent high school graduates have good jobs directly out of high school, and three in four of these are young men. As a result, the vast majority of high school graduates cannot become career-ready without postsecondary education and training.<sup>xi</sup>

Policymakers and thought leaders must not only embrace the diversity inherent in expanding the CTE pipeline but must actively foster inclusion and strive for equity across the American workforce. Diversity, Equity, and Inclusion (DEI) initiatives have become a focus across the country with the growing recognition that cultural and gender diversity influence how teams develop solutions, tackle challenges, manage crises, and function in general. According to a recent survey by The Manufacturing Institute and Deloitte, companies with a diverse workforce have experienced increased productivity, better organizational management, and have been shown to have a competitive advantage in the industry.<sup>xii</sup> Building a more diverse and inclusive culture is paramount to maintaining an edge in the global market.

The intentional, data-driven recognition and removal of barriers to equal opportunity for all Americans are fundamental to a thriving and secure national workforce. An expanded, innovative, and diverse workforce will thrive when more students and CTE stakeholders are exposed to positively oriented messaging about the value of jobs including jobs created through the

Infrastructure Investment and Jobs Act. Training content and resources must support stakeholders' efforts to reorient their messaging and expand their reach such that previously overlooked, disenfranchised, stigmatized, and underserved populations are invited, respected, valued, and positively and inclusively represented in messaging activities. These efforts will in turn positively impact the identified need to bring more women, ethnic and racial minorities, and other underrepresented populations into the workforce, bringing the goals of infrastructure-focused legislation to fruition.



## The CTE Identity Framework: Actionable Solutions Now

The time has come to bring CTE to the forefront as a primary solution to the workforce needs of the American economy. To do this, we must shift the education axis toward career and technical education. Students, parents, counselors, businesses, and educational leaders must embrace CTE graduates as highly focused, highly engaged learners and workers with a unique blend of job-ready skills and collaborative academic experience. CTE must become a primary, aspirational pathway that expands the number of skilled workers available to fill jobs and help transform communities through economic empowerment and increased intellectual capital. As the United States continues to become more diverse and the full impact of the Infrastructure Act is implemented, expanding career opportunities for all populations is one of America's best opportunities to develop a robust talent pipeline to close the skills gap.

In response to the challenge, ASHLIN Management Group developed a research-based [CTE Identity Framework](#) based on fieldwork completed under contract from the US Department of Education, Office of Career, Technical, and Adult Education. In cooperation with the Association for Career and Technical Education (ACTE), ASHLIN released [Addressing the Need for a National CTE Identity Framework: A Blueprint for the Next Generation of High-Quality CTE in March 2021](#).<sup>xiii</sup> The intent of the Framework is to facilitate a new identity for CTE that will emphasize the dignity of work and the pride associated with jobs critical to the growth of the economy. As a nation, we need to replace the pervasive negative stigma with positive images of high-quality CTE as a primary path towards good jobs, not an alternative path associated with concepts of "lesser" and "menial." The CTE Identity Framework can serve as a keystone for this effort.

A National CTE Identity Framework brings awareness and "message discipline" to how career technical educators and supporters talk about and present CTE. This messaging will eradicate the old stereotype and, over time, replace it with a new, more aspirational identity. Such discipline and awareness are a necessary first step to correct social biases that impede students and other potential adult workers from entering and thriving in CTE programs and graduating into self-



supporting careers. The Infrastructure Investment and Jobs Act provides the opportunity for CTE graduates to be valued as a new breed of “essential workers.”

The Framework can also support efforts to enhance Diversity, Equity, and Inclusion (DEI). Measures that address DEI and accessibility are inherently the primary drivers of any successful strategy to address the critical workforce shortages resulting from the systemic negative biases and misperceptions that the CTE Identity Framework has been developed to mitigate. Expanding the CTE pipeline to include people of color, women, foreign-born, veterans, and individuals with disabilities will be essential to tap into our nation's full potential and open new career pathways for American workers.

Adjusting messaging using the CTE Identity Framework will help businesses meet their DEI mission by affirming possibilities for good jobs and economic empowerment to a larger, more diverse pool of candidates.



The next critical step is to disseminate the CTE Identity Framework across stakeholder groups and to train organizations and individuals to use it. Continuous support and monitoring of efforts will be essential when evaluating the impact of a shift in approach and attitude. The timing is perfect. The requirements of the Infrastructure Investment and Jobs Act necessitate major investments in CTE. As additional resources are invested in CTE and related strategies such as apprenticeship, it is critical that the messaging reflects the fact that CTE helps drive economic growth by producing a skilled workforce. These skilled workers will be well-prepared to make valuable contributions to employers and communities.

## Message Discipline through Supported Interventions

*Now is the time to launch broad-based adoption of the CTE Identity Framework*

The passage of the Infrastructure Investment and Jobs Act sets the stage for the Framework to become a critical keystone to expand the CTE pipeline of graduates who can help fuel an expanding economy. CTE educators and stakeholders must be trained to use the CTE Framework to create a “why it is we do what we do” narrative to serve as a template and lens by which to think about how CTE is portrayed. The Framework is an internal document to help create and clearly articulate the compelling reasons why people would want to be part of CTE.

It is NOT a specific tactic, tagline, or campaign – these are its outputs. Similarly, it is NOT a marketing scheme, a directive, or a strategy meant to replace or supplant stakeholders’ current messaging efforts. It is a clarifying language to present the powerful message that CTE is valuable and helps to build the economy.

Below is an example of how the CTE Identify Framework can be applied to an organization's messaging. Many organizations use facts and data to communicate the "what" regarding labor market information. However, weaving those same facts through the lens of the CTE Identity Framework presents a more compelling message of the "why."

**Figure 2: Original Messaging vs. Vetted Messaging Using the CTE Identity Framework**

Original Messaging from a Career Counselor	Vetted Messaging from a Career Counselor
<p><i>"Good thing Sheila enrolled in the construction apprenticeship program. At least now she has a job and can earn a living. She would have never been accepted to a college program."</i></p>	<p><i>"Sheila made a great choice enrolling in a construction apprenticeship program. She is earning a living wage while learning the skills needed to be successful as a bridge-builder. She is on a career pathway that opens doors to additional postsecondary education that can lead to a degree in construction or engineering, giving her even more options. And, she is able to care for her family and look forward to a bright future."</i></p>

To realize this type of shift in communication and perception, key stakeholders who value this goal must help launch and support several strategic interventions. Merely disseminating the CTE Framework to interested parties will not achieve the type of national and systemic impact envisioned. Several sample strategies for operationalizing the CTE Identity Framework are suggested below, but we invite the CTE stakeholder community to develop others. The CTE Identity Framework can be used as a tool to inspire a generation of young people to enter occupations so essential to building the infrastructure and the economy.

### Sample interventions for stakeholders might include:

- Attend a high-level, interactive online seminar that provides an overview of the CTE Identity Framework to learn how it can be used by organizations and individuals to create message discipline.
- Participate in a series of synchronous and asynchronous training sessions on the CTE Identity Framework.
- Complete a self-assessment tool to examine current practices regarding CTE messaging. Do communications reinforce an identity for CTE that is aligned with the Framework?
- Analyze existing marketing materials to determine opportunities to better align messaging as described in the CTE Identity Framework.
- Conduct ongoing monitoring of messaging materials; collect feedback; collect data on rates of engagement and who is participating; establish benchmarks and analyze data against those benchmarks.
- Share examples of realigned marketing materials.

## Call to Action

We face a once-in-a-generation culmination of challenges, pressures, and opportunities. President Biden's plan to rebuild America's infrastructure, provide clean water and high-speed internet to every American, and tackle the climate crisis relies upon innovation and investment in a host of technological solutions. Solving these critical technological challenges requires the





expertise of technicians. Filling the skilled labor gap is paramount to our nation's success in overcoming these obstacles. Engaging underserved and non-traditional students in CTE pathways positively addresses challenges surrounding diversity, equity, inclusion, and accessibility and helps to alleviate the skilled labor shortage.

Given the impact of the Infrastructure Act on the labor market, ***now is the time to act toward preparing the necessary talent pipeline***. The public consciousness must be flooded with consistent and positive messaging that extols the benefits of the many pathways and opportunities within career and technical education. [The CTE Identity Framework](#) can serve as a pivotal tool and resource for making the vital shift to an aspirational CTE image. Instructional staff and leaders in high schools, technical schools, apprenticeship programs, colleges, and universities can embrace the Framework to increase CTE enrollments by attracting new students from diverse backgrounds. Employers can use the Framework as a lens for encouraging potential new hires and current workers to take advantage of tuition reimbursement and attend community college career technical training to build skills while on the job.

Launching interventions that apply the CTE Identity Framework, and doing so alongside systemic, data-driven approaches to fostering diversity, equity, and inclusion across the workforce will be critical to achieving the goals envisioned for a robust economy grounded in a strong and secure national infrastructure.

For more information or to share your ideas for applying the CTE Identity Framework, please visit <https://www.ashlininc.com/blog/category/workforce-development/>.



## References

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