

## CHIPS R&D Education and Workforce Development (EWD) Plan Guidebook

*A resource for developing an education and workforce development plan in response to CHIPS R&D funding opportunities.*

The CHIPS and Science Act provides \$50 billion to the U.S. Department of Commerce (DOC) to strengthen and revitalize the U.S. position in semiconductor research, development, and manufacturing. CHIPS for America includes the CHIPS Program Office (CPO), responsible for semiconductor manufacturing incentives, and the CHIPS Research and Development Office (CHIPS R&D), responsible for R&D programs. Both offices sit within the DOC National Institute of Standards and Technology (NIST).

CHIPS R&D will invest \$11 billion to ensure, among other objectives, that the United States develops and maintains a robust semiconductor workforce where inventors, designers, researchers, developers, engineers, technicians, and staff can meet evolving domestic government and commercial sector needs. To help meet these objectives, Notices of Funding Opportunity (NOFOs) released by the CHIPS R&D Office will often require applicants to submit an education and workforce development (EWD) plan.

This guidebook serves as a resource for applicants responding to NOFOs requiring an EWD plan. This guidebook is supplemental to CHIPS R&D Office NOFOs and is for informational purposes only. NOFOs contain the official rules for their respective competitions. Nothing in this guidebook should be interpreted as superseding or contradicting anything in a NOFO. Any actual or perceived conflicts between this guidebook and any published CHIPS R&D NOFO must be resolved in favor of the NOFO.

### Legislative Requirements and Context

Recognizing the importance of a diverse and skilled pipeline of workers to the success of the CHIPS Act<sup>1</sup>, Congress charged DOC, and other agencies, to integrate workforce development into new R&D efforts<sup>2</sup>. Various executive orders further direct priorities for developing a robust and diverse workforce, including Executive Order 14080, *the Implementation of the CHIPS Act of 2022* (Aug. 25, 2022); Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (Jan. 20, 2021); and Executive Order 14091, *Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (Feb. 16, 2023).

DOC has further emphasized its commitment to workforce development, including through its [Workforce Development Strategy](#). Grounded in the need to develop a skilled workforce to promote and maintain U.S. leadership in technological innovation and global competitiveness, the Strategy outlines 11 principles for highly effective workforce investments. DOC and the Department of Labor also partnered to develop the [Good Jobs Principles](#), which seek to establish a shared vision of job quality.

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<sup>1</sup> DOC CHIPS activities were authorized by Title XCIX—Creating Helpful Incentives to Produce Semiconductors for America of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Pub. L. 116-283, often referred to as the CHIPS Act).

<sup>2</sup> 15 USC 4656(c)(2)(C) and 4656(f)(3).



Consistent with the objectives of Congress and the Administration, the CHIPS R&D Office seeks to fund projects with EWD activities that align with the Workforce Development Strategy and support [good jobs](#) that will benefit American workers and help sustain the domestic semiconductor industry.

## Addressing Education and Workforce Development in CHIPS R&D Funding Applications

This guide seeks to provide potential applicants with best practices and key considerations for developing an EWD plan that addresses domestic workforce needs. The CHIPS R&D Office recommends EWD plans include the following elements, where applicable:

1. Workforce Needs Assessment
2. Metrics and Milestones (SMART Targets)
3. Proven, Industry-Relevant Training
4. Demonstrated Strategic Partnerships
5. Worker Recruitment and Retention Information

While the CHIPS R&D Office encourages applicants to align their EWD plans with DOC’s Workforce Development Strategy and the Good Jobs Principles, the CHIPS R&D Office recognizes that not every principle will be applicable to every research and development project or NOFO.

### Workforce Needs Assessment

As a first step in presenting an EWD plan, the CHIPS R&D Office recommends that applicants quantify and articulate relevant workforce needs for some portion or portions of the semiconductor industry<sup>3</sup>. This workforce needs assessment can account for the skills and number of workers required to (1) meet current and expected workforce needs within a specific company and (2) contribute more broadly to a robust domestic semiconductor workforce.

*When developing EWD plans, applicants are advised to consider:*

1. The current workforce by occupation, skill set, wage, and demographics<sup>4</sup>
2. The pool of available workers with relevant or related skills, including from underserved communities
3. The projected available and demanded workforce with relevant or related skills
4. Any workforce challenges to address (e.g., current skills shortages, persistent vacancies, education and training program gaps)
5. If applicable, current barriers to filling identified skill and personnel gaps
6. Description of how the applicant will regularly update the needs assessment

### Metrics and Milestones (SMART Targets)

The DOC Workforce Development Strategy emphasizes measuring and tracking outcomes. Similarly, CHIPS R&D NOFOs often emphasize the need for SMART (specific, measurable, attainable, relevant, and time-bound) metrics and milestones, including for EWD programs. SMART targets help ensure

<sup>3</sup> The CHIPS Program Office (CPO) has published a [Workforce Development Planning Guide](#) for applicants responding to NOFOs under the CHIPS Incentives Program. Section A.6.4 (p. 94) of this Planning Guide contains a list of resources that may be used for understanding the workforce landscape.

<sup>4</sup> Sources of demographic information may include the Bureau of Labor Statistics, U.S. Census Bureau, and the Department of Education. Applicants may also want to consult with their local workforce boards.



that the applicant can evaluate, scale, or modify its EWD plan based on their level of success. SMART goals can also help demonstrate that EWD programs align with NOFO objectives, timelines, and resources.

*When developing EWD plans, applicants are advised to consider:*

1. Specific goals the applicant establishes for EWD activities, the entity designated to implement tactics to achieve those specific goals, and how the activities will be tailored to the communities they serve
2. Quantifiable metrics to demonstrate impact, such as the number of workers enrolled and trained, incumbent workers retrained or upskilled, persons placed in a job, or the percentage improvement in employee earnings and retention
3. Evidence that the organization can attain its EWD targets within the time proposed, based on factors such as available resources, past experience, or existing partnerships with proven academic or labor groups
4. Information demonstrating the relevance of the EWD activities to the funded research or to industry, consistent with the NOFO objectives and workforce needs assessment
5. Projected deadlines for achieving both final and intermediate EWD targets, with metrics for evaluating progress during the period of performance
6. A process, including resources and data, for evaluating EWD activities over time, such as a plan to report such progress to CHIPS R&D and its designated third parties, if applicable

### Proven, Industry-Relevant Training

The DOC Workforce Development Strategy emphasizes EWD activities that result in workers hired and retained, with highly effective workforce investments emphasizing: (1) employer-led programs, to connect skilled workers to quality jobs, (2) programs that lead to stackable, industry-recognized credentials, and (3) leveraging proven earn-and-learn models like registered apprenticeships. EWD proposals to CHIPS R&D NOFOs can similarly align to specific job opportunities and skills needs, consistent with the workforce needs assessment, and leverage known best practices.

*When developing EWD plans, applicants are advised to consider:*

1. Including proven training models (such as registered apprenticeships), best practices, curriculum, and pedagogy for training or up/re-skilling new, incumbent, or returning workers
2. Engaging with K-12 institutions, Career and Technical Education (CTE) providers, labor organizations, and community-based solution providers to strengthen pathways for the future R&D workforce to access careers in manufacturing, design, research, and packaging, if appropriate
3. Aligning with current or proposed industry-wide or internally developed competency standards, skill requirements, or with requirements for stackable, industry-recognized credentials or certifications
4. Efforts to support the hiring of participants that have successfully completed EWD programs by specific industry partners, into good jobs



### Demonstrated Strategic Partnerships

The Department believes that highly effective workforce investments: (1) are guided by multiple community partners, including education institutions, labor unions, community-based organizations, and economic development organizations, (2) build sustainable systems that serve employers and workers beyond the federal investment, and (3) leverage the use of other government and private funding. CHIPS R&D Office NOFOs therefore encourage applicants to develop EWD plans in collaboration with strategic partners.

*When developing EWD plans, applicants are advised to consider:*

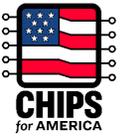
1. Outreach to underserved communities and engagement with partner institutions that deliver quality employment and training pathways, such as labor organizations, government agencies, and industry organizations, including local employers in the semiconductor or adjacent fields
2. Commitments from such partner organizations with letters of commitment describing the roles and responsibilities of each participating entity and the resources each will provide
3. Opportunities to sustain or scale successful EWD activities beyond the period of performance, including through the receipt of other Federal or non-Federal funds
4. Past, current, or pending support for the proposed and/or existing EWD efforts from other Federal entities

### Worker Recruitment and Retention Information

In assessing its own EWD efforts, DOC has committed to helping workers of all backgrounds secure good jobs, including through partnerships to recruit, develop, and retain a diverse, skilled workforce. DOC further found that workers value jobs that provide stability and security and that offering these jobs gives companies a competitive edge in hiring. In support of these efforts, the DOC Workforce Development Strategy identifies multiple principles that benefit employee recruitment and retention from all communities, including: (1) offering wrap-around services, (2) increasing educational and workforce diversity, equity, and inclusion, and (3) preparing individuals for jobs that are in demand by employers.

*When developing EWD plans, applicants are advised to consider:*

1. New or expanded opportunities for individuals to participate in the semiconductor industry workforce, including for populations underrepresented in the industry
2. Investments in supportive services such as childcare, transportation, and housing and the promotion of a safe and respectful workforce culture that prevents harassment and discrimination
3. Demonstrated links between the skills to be developed and in-demand, high-quality jobs such as those consistent with the Good Jobs Principles, which emphasizes employment likely to provide “family-sustaining benefits that promote economic security and mobility”



### ***Disclaimer***

*This guide is for informational purposes only and is intended solely to assist potential applicants in better understanding the CHIPS R&D application requirements. The guide does not, and is not intended to, supersede, modify, or otherwise alter applicable statutory or regulatory requirements or the specific requirements set forth in any CHIPS R&D Notice of Funding Opportunity (NOFO). In all cases, statutory and regulatory mandates, and the requirements set forth in the relevant NOFO, shall prevail over any inconsistencies contained in this guide.*

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