The Michigan Statewide Infrastructure Workforce Plan

MICHIGAN DEPARTMENT OF
LABOR & ECONOMIC
OPPORTUNITY

Table of Contents

A Message from Governor Whitmer

Repairing, rebuilding, and reimaging Michigan's infrastructure—from roads and bridges to water and high-speed internet—is the key to growing our economy and our state. When Congress passed the Bipartisan Infrastructure Law and the Inflation Reduction Act, we came together to recognize this once-in-a-generation opportunity to modernize our infrastructure.

Today, with $16.7 billion in infrastructure funding announced for Michigan, we must seize this moment to create jobs and grow our middle class through federal and state investment. To fully capitalize on this opportunity, we must ensure our workforce is well-prepared. In April 2024, I issued Executive Directive 2024-1 to establish the Statewide Infrastructure Workforce Plan and train 5,000 new infrastructure workers by 2030.

Now, I am excited to introduce the Michigan Statewide Infrastructure Workforce Plan, one year after the release of the Michigan Statewide Workforce Plan. This plan recognizes the significant economic impact of the infrastructure industry and represents our commitment to growing Michigan's economy and middle class by creating good-paying jobs, securing investments in advanced manufacturing and energy, and improving our infrastructure.

Let's keep working together to build the infrastructure working families, small businesses, and growing communities need to succeed.

A Message from Director Corbin

Under Gov. Whitmer's leadership, LEO is proud to spearhead the Michigan Statewide Infrastructure Workforce Plan to establish a workforce that is well-prepared to meet the demands of our expanded and improved infrastructure by creating a robust pipeline of skilled workers.

In partnership with state agencies and departments — in particular the Michigan Department of Transportation (MDOT), Michigan Department for Environment, Great Lakes, and Energy (EGLE), and Michigan Infrastructure Office (MIO) — LEO has been fostering collaboration and engagement with stakeholders to define an approach for infrastructure workforce development that meets the varying needs across infrastructure industries. This approach is based on both qualitative and quantitative research, and we're confident we're preparing the workforce to meet the needs of tomorrow.

LEO's expertise in workforce development, robust partnerships with educational institutions and strong connections with industry stakeholders allow us to effectively partner across agencies to achieve the goals of the executive directive. LEO is preparing the workforce by expanding access to skills training, supporting apprenticeship programs and connecting people to in-demand careers in infrastructure and beyond. Through partnerships with employers, educators and community organizations, LEO is building pathways that help Michiganders succeed in a rapidly changing economy. Together, we are dedicated to ensuring that Michigan workers and businesses thrive, and our workforce remains among the most dynamic and capable in the nation.

Executive Summary

Michigan's Vision for its Infrastructure Workforce

Michigan is investing in a once-in-a-generation transformation of its infrastructure and needs a workforce that is ready to meet the moment. Michigan's vision is to **build a strong, robust network of state, regional, and local partners that prepares Michiganders for high-demand infrastructure careers**. As the state's leader in workforce development, LEO is aligning industry, workforce, labor, and community organizations to create a unified, statewide approach to preparing the infrastructure workforce, through the **Building Michigan's Infrastructure Workforce program** (the BMIW program).

> The need is urgent: $17 billion in infrastructure funding is estimated to sustain 70,000 total jobs including the creation of 11,000 new jobs every year through 2030[1]. At the same time, Michigan faces an aging workforce and a shortage of new, appropriately skilled workers entering the field. The ED prioritizes training of 5,000 new workers to support the needs of this growing, changing infrastructure workforce.

The BMIW program has been established to deliver the **Statewide Infrastructure Workforce Plan** (the plan), providing a strategic roadmap to meet crucial labor needs while fostering a more robust and resilient workforce for generations to come. The plan affirms the commitment of LEO and the Partnership Agencies (collectively, Program Partners) to expand access to training, remove barriers to opportunity, and ensure all Michiganders – no matter their background – can build meaningful careers in infrastructure. This plan should help fuel economic mobility, strengthen communities, and power Michigan's long-term growth.

Together, Michigan is building a future where Michigan's workforce leads the way.

The Infrastructure Workforce Opportunity

Michigan is currently undergoing an **unprecedented infrastructure transformation**, with over $17 billion in federal funding driving projects in transportation, rail and transit, clean energy, water, broadband, and more. Delivering these necessary projects on-time, on-budget and safely will require a highly skilled workforce in every region of the state, that is ready to meet infrastructure needs. This plan provides a blueprint to grow that talent pipeline, ensuring tens of thousands of Michiganders can access good-paying jobs building the state's future. This plan is grounded in a data-driven approach – drawing on labor market information, infrastructure funding analysis, workforce program assessments, stakeholder feedback, and best practices – while also accounting for the on-the-ground realities, constraints, and opportunities shaped by infrastructure projects and the unique needs of communities across the state.

The labor market analysis identifies 84 in-demand occupations across 11 infrastructure asset classes. Total labor shortages among these occupations will be approximately 70,000 jobs per year, driven by the state's baseline projections and the new jobs created by the federal infrastructure investment. Forty occupations require a post-secondary degree, On-The-Job Training (OJT) (including registered apprenticeships), prior experience, or industry recognized credentials. Other occupations not explicitly

[1] Refer to the section, Michigan's Infrastructure Workforce & Labor Market Overview, for the definitions of direct job creation and labor shortage.

requiring a certain level of education or training may also benefit from work-based learning and stackable credentialing to help develop workers' skills and increase career mobility.

> This plan provides actionable recommendations which can be deployed programmatically across state agencies, regional stakeholders, and local partners to meet the needs of Michigan job seekers, workers, and employers.

The Governor's Executive Directive

Historic infrastructure investments are underway across Michigan and decisive action is needed to ensure the state has the skilled workforce to deliver these projects, then sustain and manage infrastructure post-construction. In April 2024, Governor Whitmer's ED charged Program Partners to develop a plan addressing this urgent need. This Plan is a clear call to action built around five key goals:

1. **Implement the Plan:** Finalize Michigan's first comprehensive Statewide Infrastructure Workforce Plan (the plan) by May 1, 2025, and immediately put it into action. This unified strategy will establish clear career pathways for in-demand infrastructure jobs and open opportunities for all Michiganders across the state.

2. **Train 5,000 New Workers by 2030:** Facilitate training for 5,000 new infrastructure workers by January 1, 2030. Workers trained will earn certificates and credentials that are industry-recognized, such as U.S. Department of Labor registered apprenticeships, ensuring Michigan's workforce is qualified and ready to build and maintain roads, bridges, water systems, broadband, and more.

3. **Secure Sustainable Program Funding:** Commit up to 5% of eligible federal infrastructure program funding (including formula and discretionary funding sources) as ongoing support to infrastructure workforce development initiatives. Prioritizing the capture of workforce funding, then blending funding streams to achieve economies of scale, will ensure sustainable resources to build and maintain Michigan's skilled infrastructure workforce.

4. **Strengthen Oversight and Accountability:** Establish strong oversight and regularly monitor all infrastructure workforce efforts under the Building Michigan's Infrastructure Workforce (BMIW) program. LEO will track progress, measure results, and ensure effective funding use so that Michigan's workforce development initiatives remain transparent and on target.

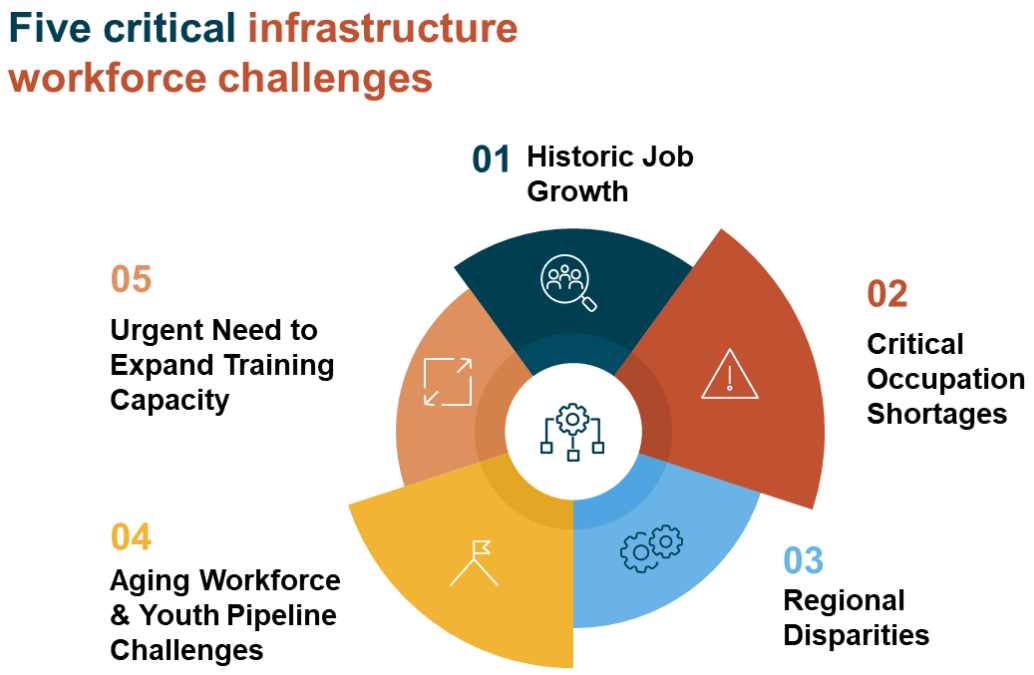
5. **Foster Interagency Collaboration:** End siloed approaches and unite efforts across government. Each Partnership Agency will appoint an infrastructure workforce lead to work closely with the BMIW program. Through this collaboration, agencies will align resources, share data, and coordinate training programs—ensuring a seamless, statewide approach to developing Michigan's infrastructure talent pipeline.

These goals underscore a ***statewide commitment to building a robust, locally representative infrastructure workforce***. The BMIW program will lead by example, delivering real results and empowering thousands of Michiganders to take part in Michigan's infrastructure revitalization.

Michigan's Critical Infrastructure Workforce Challenges

Michigan is poised to embrace economic growth through infrastructure investment, but this momentum could be slowed by a shortage of skilled labor, which may delay essential infrastructure. Labor demand estimates[2] combine projected job growth from federal infrastructure investments with long-term occupational forecasts from the Michigan Center for Data and Analytics. These projections account for new positions created by capital projects, along with replacement needs due to retirements and career shifts. Labor supply is estimated from expected inflows via education, training, apprenticeships, and the unemployed workforce.

Michigan's infrastructure investments are projected to create tens of thousands of jobs over the next decade, with clean energy and power leading at over 6,000 new jobs per year, followed closely by roads, bridges, and major project construction and broadband expansion. This increased demand underscores the need to expand and align training pipelines statewide. The following analysis outlines five critical workforce challenges that highlight the urgency of Michigan's infrastructure talent strategy – ranging from historic job growth and occupational shortages to regional disparities, an aging workforce, and the need to rapidly scale training capacity:



1. **Historic Job Growth:** Michigan's infrastructure initiative is estimated to create **approximately 11,000 new jobs each year**, representing a historic level of demand for skilled labor. This includes thousands of roles in clean energy, construction, transportation, and technology that must be filled quickly to deliver projects on schedule.

2. **Critical Occupation Shortages:** Labor market analysis identifies approximately **69 high-demand infrastructure occupations with significant shortages**. For example, Michigan needs an estimated

[2] Source: IMPLAN® model, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (data and software), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078. For more information on the IMPLAN modeling process, visit IMPLAN.com.

11,000 additional **assemblers and fabricators** and an estimated **10,000** additional **laborers and freight, stock, and material movers each year**, far outpacing current training output. Most occupations reviewed are flagged as experiencing a shortage, with only a small number listed as surplus. This signals that Michigan's workforce system must scale up supply to meet current and projected demand. Without rapid action to expand talent pipelines, bottlenecks in these trades could hinder project implementation (e.g., delay start dates) and impact project quality and worker safety, driving up project cost and increasing the likelihood of project delay or even inability to complete projects.

3. **Regional Disparities: Workforce gaps vary by region**, requiring targeted solutions. In some rural areas of Northern Michigan, critical jobs like electrician and equipment operator remain unfilled for **60+ days**, delaying local road, bridge, and broadband projects. Southeast Michigan faces the high demand for trades like truck drivers and laborers, while West Michigan needs more manufacturing, technical, and STEM talent. A one-size approach will not work – each region needs a customized plan to close its gaps.

4. **Aging Workforce & Youth Pipeline Challenges:** A large portion of Michigan's skilled trades workforce is nearing retirement[3]. Meanwhile, based on an analysis of Michigan's Department of Education data, not enough young people are entering these fields – only about **25% of Michigan high school students (112,000 in 2023) enrolled in Career and Technical Education (CTE) or skilled trades programs[4].** This combination of retiring baby boomers and limited youth engagement threatens to leave Michigan without the workforce to meet future infrastructure needs. It underscores why the plan invests heavily in K-12 career awareness and training the next generation now.

5. **Urgent Need to Expand Training Capacity:** Existing training programs and apprenticeships are not scaling fast enough to meet the demand. Estimates show **Michigan must expand its infrastructure training capacity. There is a notable shortage in high-preparation roles to support** technical infrastructure projects such as broadband, clean energy, and water systems. These roles require certifications, licenses, or apprenticeships that take time to complete, ranging from eight weeks to two years, depending on the occupation. Without immediate intervention to expand and accelerate training pipelines, these talent gaps may hinder Michigan's ability to meet federal funding benchmarks and infrastructure deployment targets**.** Key areas like broadband fiber installation, solar panel installation and repair, heavy equipment operation, and water treatment plant operations all require expanded training provision to meet the projected demand. **Without a dramatic increase in training output, Michigan risks labor shortfalls that could delay project delivery.**

[3] The National Center for Construction Education & Research, 2017.
[4] Source: Michigan Career and Technical Education Facts 2023-2024

A Programmatic Approach to Infrastructure Workforce Development

Strengthen Interagency Coordination

- **Central Coordination & Program Oversight**
- **Use Data-Driven Decision Making**
- **Align Funding for the Future**

- **Expand Apprenticeship & Training Programs**
- **Prioritize Access & Remove Barriers**
- **Implement Regional Workforce Strategies**
- **Build K-12 Infrastructure Career Pathways**

Governor's ED 2024-01
Building Michigan's Infrastructure Workforce

Strengthen Interagency Coordination

The workforce plan sets a unified direction for state government to align as it tackles the labor shortage. This interagency approach requires continuous, robust interagency coordination that is supported by LEO's central coordinating role, the use of data to support decision-making across stakeholders, and the continuous alignment of funding sources to support execution of the plan's recommendations. Here, each of these elements of interagency coordination are explained:

Central Coordination & Program Oversight

In development of the plan, a programmatic approach has been established to gather and share information across stakeholders, championed and led by LEO. An **infrastructure workforce lead** at each Partnership Agency has been identified and will continue to coordinate with LEO so that needs, programs, and funding align. LEO will leverage its workforce development skills, experience, and workforce system relationships to develop systematic approaches to infrastructure workforce development needs that complement and expand on the agency-specific efforts already underway.

Ongoing, high-level collaboration will break down silos between agencies, educators, employers, and unions. Regular dialogue and shared metrics will support alignment of stakeholders as they work towards a common goal.

Call to action: *Formalize an interagency infrastructure workforce team to drive implementation, monitor progress, and solve problems in real time. Bold leadership and transparent governance will ensure accountability for results.*

Deploy Data-Driven Decision Making

Data continues to play a crucial role in guiding the state's actions in training infrastructure workers. Labor market analyses help identify skill gaps, local labor shortages, and workforce priorities. Data analysis of workforce data, reporting, and evaluation studies helps assess program effectiveness, unveil opportunity areas, and inform continuous improvement.

The data-driven approach was supported by many training providers through stakeholder engagement.

The plan commits to **ongoing labor market analyses and transparent tracking** of outcomes. The program will expand real-time data monitoring to track job openings, training enrollments, apprenticeship completions, and project labor needs. By continuously analyzing this data and sharing data across Partnership Agencies, the BMIW program can adjust programs quickly if certain skills are falling short or if regional trends shift. Employer feedback loops will also inform program enhancements.

Call to action: *Develop a public Infrastructure Workforce Dashboard and use it to inform funding decisions, focusing investments on strategies proven by data to deliver talent where needed. Leverage MIO's existing dashboards, highlighting the workforce component of infrastructure investments, to promote alignment.*

Align Funding for Sustainability

The BMIW program will review and inventory funding opportunities to **braid**[5] **and leverage funding sources** to support the sustainability of workforce efforts on a project-by-project basis. Federal infrastructure funds including both formula and discretionary funds (from BIL, IRA, CHIPS) that include workforce development provisions will be prioritized – for example, potentially using broadband grants to fund fiber-optic technician training or water infrastructure funds for water operator registered apprenticeships. State programs like the Going PRO Talent Fund and new public-private partnerships will bring in employer and philanthropic co-investment. Over time, with appropriate consultation and preparation, additional funding can be allocated to workforce development, acknowledging agency-specific planning and funding cycles, such as the role of the State Transportation Committee in approving MDOT's five-year investment plan.

Workforce partners raised a common priority during the stakeholder engagement: to achieve and sustain success in the BMIW program, sufficient funding and resources must be provided to support program operations and ensure participants receive holistic, meaningful services.

Call to action: *Connect every available dollar (federal, state, private) to workforce needs and* ***blend funds strategically*** *– today's historic investments must build programs that last beyond the initial federal funding. By institutionalizing successful pilots and demonstrating return on investment, Michigan can secure ongoing support to keep its infrastructure workforce growing.*

[5] Braided funding is a strategy where different funding sources are coordinated to support a common purpose while maintaining their separate identities and reporting requirements. It involves multiple agencies or programs working together to provide comprehensive services more efficiently.

Four Pillars for Action

Four Pillars for Action have been identified as key strategies to address Michigan's infrastructure workforce gap. **Each pillar is accompanied by targeted actions** to ensure Michigan can recruit, train, and retain the workforce needed to modernize and sustain its infrastructure. The pillars build on agency-specific workforce development activities that are already taking place, focusing and aligning recommendations to support a state-wide, cross-sector approach with LEO's ongoing programmatic leadership. The four Pillars for Action are:

1. Expand Apprenticeship & Training Programs

Work-based learning programs are effective in increasing employment and wage outcomes, especially for job seekers facing barriers, such as justice-involved individuals and youth.

Based on Michigan's 2022 Registered Apprenticeship Report, among the Construction and Manufacturing industries, participants' median hourly wages were about $35 (approximately $73,000 annually) one-year post completion, with an employment rate of 93%.

Michigan aims to **scale up registered apprenticeships[6] pre-apprenticeships, industry recognized credentialing and other work-based learning** to meet demand for skilled trades and technicians. This includes expanding successful Registered Apprenticeship Programs (RAPs) and initiatives like MDOT's Mentor-Protégé program, rather than creating new programs from scratch. By building on what works – and extending these "earn-and-learn" models into new regions and high-demand occupations – Michigan can quickly grow the talent pool. These efforts build on efforts to increase Michigan's educational attainment rate and associated Sixty by 30 goals. By prioritizing these investments in skills-training, the program will align with existing initiatives to close the skills gap and increase opportunity and access to better jobs and careers, all while making Michigan more competitive.

Call to action: *Increase registered apprenticeship slots and training program capacity in critical infrastructure trades by leveraging industry partnerships and increased funding to enable training 5,000 new workers by 2030.*

2. Prioritize Access & Remove Barriers

WIOA Title I data show that participants with two or more barriers-to-employment had a significantly lower performance than their counterparts with one or no barriers.

There is a notable demographic imbalance in infrastructure workforce training. Among active apprentices in the construction Registered Apprenticeship programs in Fiscal Year 2024, 5% are female; 13% are people of color; 1% are individuals with disabilities.

A regionally and locally representative workforce reflecting merit-based recruitment approaches is essential to Michigan's infrastructure goals. The plan focuses on **bringing all Michiganders into the trades** and supporting their success.. This means recruiting and training women, people of color, individuals with disabilities, veterans, those who are justice-involved and others. This also calls for supporting job-seeker awareness of and access to existing services to reduce or remove barriers to employment (such as childcare, transportation, English as a Second Language (ESL) services, and case management). Programs should embed fairness and access at every step, ensuring all Michiganders can participate in the historic levels of infrastructure investment.

[6] Registered-Apprenticeships-in-Michigan-2022-Report.pdf

Call to action: *Invest in wraparound and support services and community outreach to eliminate barriers that keep qualified workers on the sidelines.*

3. Implement Regional Workforce Strategies

Surveys of regional stakeholders and workforce partners consistently found that strategies should be developed to meet the unique needs of local communities. Findings from the regional analysis and dialogue with partner agencies support this recommendation.

Michigan's labor needs vary by region, so workforce solutions should be tailored locally and reflect local infrastructure investments. The plan calls for **regional workforce initiatives** aligned to the state's ten regions to recruit, train, and support job seekers and workers. Regional strategies may focus on addressing the shortage of electricians and heavy equipment operators in rural Northern Michigan, for example, or the high demand for construction labor in Metro Detroit. State agencies should work with local Michigan Works! offices, community colleges, training and development entities, unions, and employers to target training programs and supportive services that align with both geographical needs as well as overall program goals. State agencies might also consider working with local workforce partners, such as economic development agencies, to offer holistic support and incentives to help attract talent to high-demand locations.

Call to action: *Empower regional workforce sector strategies to launch or expand localized rapid training programs and talent attraction campaigns addressing their specific infrastructure workforce needs, with a focus on expanding training programs and attracting workers to high-demand regions.*

4. Build K-12 Infrastructure Career Pathways

Workforce partners and employers in all regional stakeholder meetings voiced the priority to prepare Michigan's young learners to become part of a sustainable infrastructure talent pipeline.

This strategy is also consistent with the Governor's *Grow Michigan Together* initiative, by expanding career exposure, exploration, and experience among young learners.

Michigan should **engage students early and often in infrastructure career awareness and exploration**. The plan calls for expanding career pathways for youth. Programs may seek to expand CTE programs in K-12 schools, introduce infrastructure topics into curricula, and support **training and coaching and in areas such as OJT, pre-apprenticeships and other skilled trades related training**. Initiatives like construction career days, summer infrastructure camps, mentoring programs and school-based career pathway programming will spark student interest – and build parental confidence in the scale and relative permanence of infrastructure career opportunities that lie ahead for Michigan's youth. Other youth programs in Michigan, such as Jobs for Michigan's Graduates (JMG), Michigan Workforce Development Institute's Access for All, MUST Construction Careers and LEO's MiSTEM Network provide promising models and practices in preparing young learners for infrastructure careers. By connecting K-12 education with real-world career paths in construction, engineering, utilities, and transportation, Michigan can cultivate the next generation of skilled trades.

Call to action: *Launch a statewide infrastructure career awareness campaign in schools to inspire youth to embrace infrastructure career paths. Connect them to work-based learning opportunities through engagement. Engage not only students but also parents and educators.*

Michigan's Infrastructure Workforce & Labor Market Overview

Overview

LEO has evaluated the impact of infrastructure investments on Michigan's labor market and identified estimated labor shortages and surpluses across relevant occupations. The analysis categorized 84 identified infrastructure occupations into groups based on estimated labor shortage or surplus[7], and the education, work experience, and training requirements, to inform statewide workforce development strategies.

LEO then identified training strategies to address estimated occupational shortages, including scenarios targeting new entrants to the workforce or workers from skills-adjacent occupations with estimated labor surpluses. Each region or occupation may require unique strategies, including recruiting in other states to expand the talent pool. For occupations with greater entry requirements, more specialized, longer, and more intensive training may be required. Conversely, occupations with less entry requirements may require different customized approaches. Similarly, occupations with an estimated labor surplus may benefit from strategies to transition workers to adjacent roles with shortages. Regional strategies are essential to effectively address local labor market needs.

Findings

The analysis of the economic impact on Michigan's labor market reveals significant findings. These infrastructure projects represent substantial capital investments aimed at generating labor demand and shifting labor needs across the state. The study identified 84 occupations across 11 asset classes of infrastructure investments in Michigan, highlighting a broad and complex labor market.

The analysis estimates that over 11,000 direct jobs[8] will be created annually. When considering the total labor shortages across the 84 identified infrastructure occupations, Michigan faces a staggering gap of approximately 70,000 jobs per year that must be addressed to meet the demands of the state's infrastructure projects.

Table 1 below covers $9.9B, or 72%, of the total announced funding in Michigan under the BIL and IRA[9]. This provides a more conservative estimation of the labor demand generated by the funding injection with annual job creation estimates for each asset class[10].

[7] Labor shortage occurs when the quantity of labor demanded exceeds the quantity of labor supplied. Estimated labor shortage is calculated as the difference between quantity of labor demanded and supplied.
[8] The BMIW program will contribute to provide training to 5,000 new infrastructure workers, recognizing the total employment creation is larger than 5,000.
[9] As of September 2024. Excludes CHIPS as no Michigan-based investments were announced at that point in time under the CHIPS program.
[10] Funding amount is rounded to the nearest million.

Table 1, BIL and IRA Funding by Asset Class: Total Funding in Michigan vs. Analysis Population, and Annual Job Creation

Asset Class	Population[11]		Study Sample[12]		Annual Direct Job Creation
	No. of Grants	Funding Amount ($M)	No. of Grants	Funding Amount ($M)	
Broadband	50	$2,254	2	$1,621	1,750
Clean Energy and Power	314	$3,182	3	$2,203	3,840
Roads, Bridges, and Major Projects	79	$4,617	6	$3,397	3,090
Water	39	$785	9	$577	680
Airports, Ports, Waterways	306	$1,087	3	$743	580
Public Transit	159	$672	27	$469	360
Other Infrastructure	103	$336	8	$236	210
Safety	24	$218	3	$180	170
Passenger and Freight Rail	6	$166	2	$129	130
Environmental Remediation	52	$232	6	$165	130
Electric Vehicles	68	$236	11	$164	70
Total	**1,200**	**$13,786**	**80**	**$9,883**	**11,010**
Percent of Total	-	-	**7%**	**72%**	-

Table 2 below presents the 20 occupations anticipated to face the highest estimated labor shortage. Data from completed apprenticeships – along with postsecondary, labor inflows, and completers of Workforce Innovation and Opportunity Act (WIOA) programs – is used to derive the estimated labor supply. Labor demand is calculated as the sum of the baseline job openings forecasted by the Labor Market Information (LMI) division of the Michigan Center for Data and Analytics (MCDA) in the Department of Technology, Management & Budget (DTMB), and the estimated direct employment created by the state's infrastructure investment[13].

[11] Amount of funding announced in Michigan as of September 2024.
[12] Study sample of grants that comprise 72% of the announced funding in Michigan as of September 2024 leveraged in assessing the increased demand in labor.
[13] Unemployed persons are estimated for infrastructure related industries and occupation clusters, and this data is not accounted for as a labor supply source in the analysis.

Table 2, Infrastructure Occupations with the Highest Estimated Labor Shortage

Occupation Description	Education Req.	OJT Training Req.	Credentials Offered	Apprenticeships Offered	Estimated Labor Shortage	Estimated Unemployed Persons
Assemblers and fabricators	High school diploma or equivalent	Moderate-term OJT training	No	No	11,439	8,584
Laborers and freight, stock, and material movers	No formal educational credential	Short-term OJT training	No	No	9,994	4,308
Construction laborers	No formal educational credential	Short-term OJT training	Yes	Yes	4,377	2,410
Maintenance and repair workers, general	High school diploma or equivalent	Moderate-term OJT training	Yes	Yes	3,695	N/A
Inspectors, testers, sorters, samplers, and weighers	High school diploma or equivalent	Moderate-term OJT training	Yes	Yes	3,120	2,054
First-line supervisors of production and operating workers	High school diploma or equivalent	None	Yes	No	2,572	1,930
Industrial truck and tractor operators	No formal educational credential	Short-term OJT training	No	No	2,429	1,565
Machinists	High school diploma or equivalent	Long-term OJT training	Yes	Yes	2,128	1,644
Electricians	High school diploma or equivalent	Apprenticeship	Yes	Yes	1,949	2,234
Carpenters	High school diploma or equivalent	Apprenticeship	Yes	Yes	1,931	1,972
Cutting, punching, and press setters, tenders and operators	High school diploma or equivalent	Moderate-term OJT training	Yes	Yes	1,927	1,766

Occupation Description	Education Req.	OJT Training Req.	Credentials Offered	Apprenticeships Offered	Estimated Labor Shortage	Estimated Unemployed Persons
Industrial engineers	Bachelor's degree	None	Yes	Yes	1,680	N/A
Industrial machinery mechanics	High school diploma or equivalent	Long-term OJT training	Yes	Yes	1,604	N/A
First-line supervisors of transportation and material moving workers, except aircraft cargo handling supervisors	N/A	N/A	No	No	1,556	877
First-line supervisors of construction trades and extraction workers	High school diploma or equivalent	None	Yes	Yes	1,445	1,444
Project management specialists	N/A	N/A	Yes	No	1,364	159
Mechanical engineers	Bachelor's degree	None	Yes	No	1,280	N/A
Plumbers, pipefitters, and steamfitters	High school diploma or equivalent	Apprenticeship	Yes	Yes	1,172	1,185
First-line supervisors of mechanics, installers, and repairers	High school diploma or equivalent	None	Yes	No	1,069	N/A
Engine and other machine assemblers	High school diploma or equivalent	Moderate-term OJT training	Yes	Yes	969	631

Michigan View for Workforce Funding by Sectors

> In Michigan, $17 billion in infrastructure funding has been announced, as tracked by MIO. Of the programs that have announced funding to the state, 127 of them – representing 1,118 projects and $741 million – emphasize workforce development activities, approximately 5% of the total grant funds received by the state.

Some of the workforce activities emphasized include general skills development, OJT training, registered apprenticeships, and CTE. In some cases, workforce planning is a criterion for grant review but is not an eligible expense with grant funds and in other cases workforce activities are part of criteria for grant review and are eligible expenses.

LEO conducted further analysis of the 127 programs prioritizing workforce development activities to map these projects according to their asset class (e.g., transportation, climate and environment, broadband, clean energy, environmental remediation).

Over 85% of the funding in Michigan is announced for transportation, climate and environment, and broadband projects, of which over two thirds (67%) is formula funding, and the remaining is through discretionary programs. Through these three asset classes, there are 1,037 projects for which funding was announced through programs that prioritize workforce development activities[14]. This plan acknowledges that while funding has been announced, it may not have been obligated by Partnership Agencies and grant recipients, and therefore actual investments received by awardees may differ from those identified in the above table. Additionally, constraints (such as state-required plans which cyclically determine how and when funding will be allocated) as well as the impacts of inflation are not reflected in the above projections.

[14] The remaining nearly 15% relates to Clean Energy, Buildings, and Manufacturing; Environmental Remediation; Parks and Conservation; Other; Climate-Smart Agriculture; and Resilience.

Existing Workforce System: Needs and Opportunities

Overview

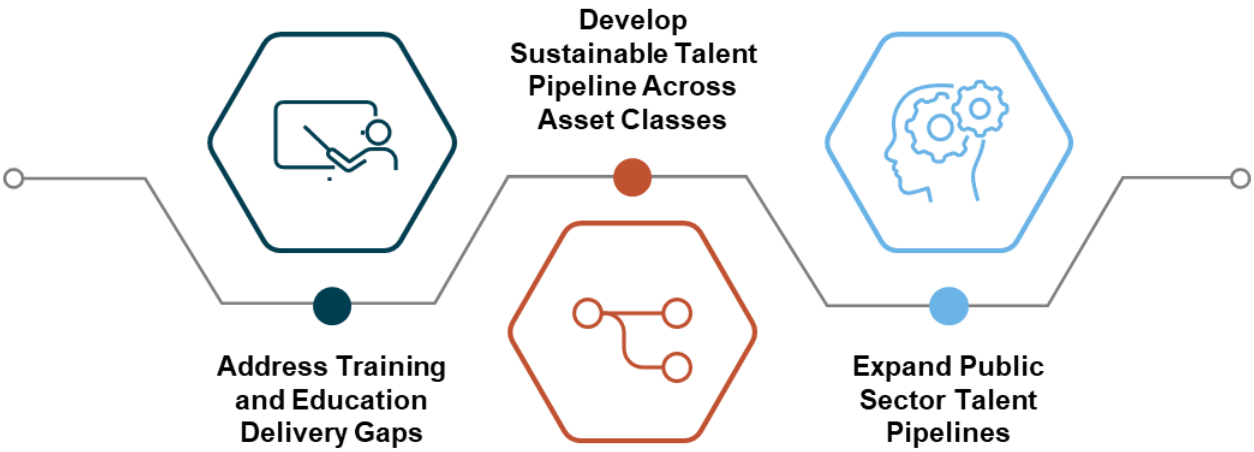
Successful workforce development programs depend on the coordinated efforts and insights of Michigan's state, regional, and local partners. To inform the development of the plan, LEO conducted structured interviews, collaborative roundtable discussions, and surveys with Partnership Agencies and a broad set of external stakeholders. These engagements surfaced challenges, shared perspectives, and identified actionable opportunities to strengthen the state's infrastructure workforce system.

This section summarizes those insights, organized by stakeholder type and engagement method. It highlights priority areas for improvement and outlines how the plan will respond to the challenges and recommendations raised by workforce stakeholders in interviews, focus groups, and surveys.

Partnership Agency Engagement

Over several months, LEO led a sustained engagement process with Partnership Agencies through one-on-one meetings, knowledge-sharing sessions, and recurring coordination calls. These efforts aimed to build collaborative relationships, exchange workforce development information, and align agency-specific activities with the broader goals of the plan.

Key opportunities identified are:



- **Address Training and Education Delivery Gaps:**
  Agencies emphasized gaps in existing training systems that limit access to infrastructure workforce opportunities. There is a need to identify and leverage underutilized education and training providers—particularly those that can serve both entry-level and incumbent workers. The BMIW program should assess these gaps and establish strategies to expand delivery models, improve accessibility, and prevent workforce attrition by supporting upskilling and career advancement. As labor shortages span all asset classes, Partnership Agencies and LEO must actively engage in workforce planning, design solutions, and align resources to deliver high quality training to meet the needs of job seekers and employers.

- **Develop Sustainable Talent Pipeline Across Asset Classes:**
  With significant current and future infrastructure investments and a substantial portion of the current workforce approaching retirement, Partnership Agencies identified a need to align resources, identify clear career pathways, and prepare Michigan's job seekers for jobs that span both the construction and maintenance of infrastructure. This approach will be reflected in grant planning, interagency coordination, and the design of future training initiatives.
- **Expand Public Sector Talent Pipelines:**
  While much of the infrastructure workforce will be employed by the private sector, public agencies face increasing competition for skilled talent. Agencies reported difficulty recruiting and retaining workers to deliver and oversee public infrastructure projects. The BMIW program should support tools and strategies to strengthen public sector workforce pipelines, including targeted recruitment, internship programs, and succession planning.

External Stakeholder Engagement

Regional Roundtable Discussion Events:

Between January and February 2025, LEO hosted five regional roundtables across Michigan to capture local workforce perspectives and regional priorities. Over 250 participants, including employers, training providers, labor unions, workforce development agencies, community organizations, and educational institutions, contributed to these sessions. Discussions were structured to surface opportunities for improvement, innovation, and collaboration across Michigan's ten regions.

Stakeholder Surveys:

LEO also distributed two surveys in coordination with stakeholder partners:

- **Exit Surveys:** Gathered immediate post-event feedback to capture additional reflections and insights from roundtable participants.
- **Stakeholder Surveys:** Collected broader input on workforce challenges, training needs, and system barriers, helping LEO identify systemic gaps and shape targeted strategies.

These engagements, as well as other interviews with industry stakeholders, confirmed the following priority needs:

- **Wraparound and Support Services:** Stakeholders emphasized the critical need for holistic wraparound services that address every stage of the workforce development pipeline, ensuring individuals receive the support necessary to train, enter, and succeed in infrastructure careers. These services extend beyond traditional job training, encompassing transportation assistance, childcare support, housing assistance, mental health resources, financial literacy coaching, and career navigation to remove barriers that disproportionately impact underserved at-risk workers.
- **Future Planning and Sustainability**: Stakeholders underscored the urgent need for proactive workforce planning and long-term sustainability strategies to ensure a steady supply of skilled workers for Michigan's infrastructure sector. As infrastructure projects expand, maintaining a resilient and adaptive workforce should require strategic investment in education, pre-apprenticeships, registered apprenticeships, and successful workforce development initiatives.
- **Youth Engagement and Education:** Stakeholders emphasized the critical need to engage young people early and introduce them to the vast career opportunities within Michigan's infrastructure sector. A proactive, industry-aligned approach to youth outreach should ensure a steady pipeline of skilled and informed future workers ready to build and maintain the state's roads, bridges, water systems, broadband networks, and clean energy infrastructure.
- **Funding for the Continuity of Workforce Programs:** Stakeholders emphasized the critical need for sustained multi-source funding to ensure the ongoing success, expansion, and scalability of Michigan's infrastructure workforce development programs. Without reliable funding, even the most effective training initiatives face challenges in meeting industry demand, supporting workers, and keeping pace with evolving technology.

From Findings to Framework

A Policy-Driven, Data-Informed Foundation

The recommendations in this plan are grounded in the ED and extensive evidence gathering. LEO led a statewide effort in response to the ED, working with Partnership Agencies and a wide array of stakeholders to incorporate on-the-ground insights into the plan. The planning team also conducted a comprehensive labor market analysis, which identified critical workforce shortages in dozens of infrastructure-related occupations and projected the creation of roughly 11,000 new infrastructure jobs annually through historic infrastructure investments[15]. In developing the plan, LEO reviewed existing workforce development programs as well, aiming to build on Michigan's strengths (e.g., successful apprenticeship and training initiatives) and scale up "existing high-performing programs" to meet skill needs.

Overarching Approach: A Customer-Centered, Demand-Driven System

As the BMIW program implements its infrastructure workforce strategy, each of the Four Pillars for Action presented below should be guided by a shared, overarching approach: building a system that is responsive to the needs of both job seekers and employers. The goal is to deliver services that meet people where they are — whether students exploring careers, adults seeking retraining, or employers needing skilled workers for time-sensitive projects. This requires rethinking not only what is offered, but also how it is delivered.

In addition to expanding programs and partnerships, Michigan should look inwardly – investing in training and capacity-building for front-line staff across state and regional agencies. This includes upskilling workforce professionals who serve as navigators, case managers, career coaches, and program administrators, ensuring they can support the infrastructure workforce system with the same urgency, flexibility, and customer focus expected by industry.

[15] See annual job projections in Table 1.

To that end, Michigan's approach will prioritize:

This human-centered, demand-driven approach ensures Michigan's infrastructure workforce system delivers real value — preparing people not just for jobs, but for long-term careers, and helping employers find the talent they need to deliver on the promise of modern infrastructure.

A Detailed Focus on the Four Pillars

Michigan's Statewide Infrastructure Workforce Plan is organized around Four Pillars for Action — strategic focus areas that frame all recommendations in this plan. As previously outlined above, each pillar represents a key dimension of the overall strategy. Together, these pillars form an integrated framework to build a skilled, robust, and future-ready infrastructure workforce for Michigan.

The following sections detail each of these pillars, the data which informed their development, the strategies they encompass, and the coordinated actions Michigan should take to ensure a workforce that can meet the demands of historic infrastructure investment and drive long-term economic opportunity.

1. Expand Apprenticeship & Training Programs

Pillar Focus: Rapidly scale up Michigan's training capacity to meet surging infrastructure job demand. This pillar calls for expanding **Registered Apprenticeships**, pre-apprenticeships, and other **work-based learning** programs across critical fields (construction trades, utilities, broadband, clean energy). By broadening these "earn-and-learn" opportunities, Michigan will equip new entrants and upskill existing workers to fill high-demand roles, all while **supporting workers to earn industry-recognized credentials**. Major initiatives under this pillar may include Registered Apprenticeship and industry recognized credential programs to fast-track skill development training for high demand water, clean energy and power, and broadband asset class occupations. These programs should be developed by LEO in partnership with industry, Partnership Agencies, labor, and education providers to ensure training aligns with infrastructure industry workforce needs. *Together, expanded apprenticeship and training programs will help achieve the ED's statewide goal of **training 5,000 new infrastructure workers by 2030**, closing talent gaps before they hinder Michigan's infrastructure rollout.*

What does the data say?

Infrastructure Investments Should Drive Historic Job Growth

LMI analysis found that Michigan's infrastructure investments should create over 11,000 new direct jobs annually, as presented in Table 1.

- The top three infrastructure direct job creators are:
  - Clean Energy and Power – 3,840 jobs annually
  - Roads, Bridges, and Major Projects – 3,090 jobs annually
  - Broadband Expansion – 1,750 jobs annually
- Additional job growth is estimated to occur through indirect and induced employment impacts, particularly in manufacturing, logistics, and administrative support sectors.

High-Preparation Occupations Require Immediate Registered Apprenticeship & Training Expansion

The LMI analysis categorizes workforce shortages into high-preparation (requiring extensive training, certifications, prior work experience, or post-secondary degrees) and low-preparation (limited to short-term training or OJT learning, no post-secondary degrees, or prior job experience).

High-preparation occupations (e.g., mechanical engineers, project managers, telecommunications line installers) require years of training, making it essential to invest in registered apprenticeships and technical education now to avoid long-term labor shortages. Forty of the 84 high-demand infrastructure occupations require OJT training, prior job experience, or credentials, highlighting the need for long-term workforce investments.

Low-preparation occupations (e.g., laborers, truck drivers, warehouse operators) can be trained more quickly, but recruitment challenges and jobsite access barriers must be addressed (e.g., transportation and childcare support).

Key Components:

- **Scale Proven Programs:** Michigan already has a strong foundation of registered apprenticeships programs. Rather than building new systems from scratch, programs will be developed to include or expand existing apprenticeships when possible to strengthen high-performing models already delivering results.

  MDOT, for example, administers a federal OJT initiative that supports workers with significant barriers-to-employment in accessing skilled highway construction roles, through employment with MDOT contractors. In parallel, Michigan's unionized building trades manage robust apprenticeship programs across key occupations like carpentry, plumbing, and electrical work—helping Michigan rank fourth nationally for active registered apprentices. Related initiatives such as MDOT's Transportation Development Recruitment Program (TDRP) provide additional on-ramps through paid internships and targeted outreach to underrepresented groups. These programs demonstrate that Michigan's established workforce development mechanisms are well-positioned to scale.

- **Broaden Earn-and-Learn Models:** Develop and expand pre-apprenticeships, OJT training, and other entry-level "earn-and-learn" opportunities that feed into apprenticeships. These programs prepare new workers (especially those without prior experience) with essential skills and safety training, creating a pathway into full apprenticeships or direct employment. Michigan already has proven and existing models such as the Michigan Workforce Development Institute and MUST Careers in Construction that could be potentially used or expanded. By growing these complementary training pathways, Michigan can help more residents quickly gain the qualifications needed to fill infrastructure jobs as investments ramp up. Additionally, focusing on K-12 training programs creates new youth apprenticeship pathways. High school juniors and seniors can be placed into pre-

employment or pre-apprenticeship in construction, IT networking, and related fields. This aligns with national best practices showing strong retention and positive employment outcomes for young apprentices.

- **Industry-Driven Program Design Leveraging Employer-Led Collaboratives (ELCs):** Expand LEO's sector strategies ELCs and establish new ELCs to focus on targeted industries such as broadband, energy and transportation workforce development. ELCs are a national best practice that engages industry (multiple employers) to identify their short- and long-term workforce needs. LEO has achieved success in workforce development through ELCs in many industries, including construction, energy, and manufacturing, which will be expanded. Partnership Agencies can collaborate with LEO, major employers and contractors, labor unions (e.g., International Brotherhood of Electrical Workers, Communications Workers of America), and national organizations (e.g., Wireless Infrastructure Association) to co-develop curricula and apprenticeship standards. ELCs support industry in developing accelerated training and talent pipelines in high-demand occupations (e.g., Commercial Driver's License (CDL) truck drivers, heavy equipment operators, broadband line installers, clean energy technicians). For critical and high demand occupations, short-term training (e.g., 4–12-week programs), could serve as a valuable pipeline for training graduates into registered apprenticeships or entry-level jobs with partnering employers. Participants could earn wages or stipends during training to lower barriers to entry. In the broadband industry, multiple tracks (e.g., fiber installer, fiber splicer, wireless tower technician) that align with occupational needs could be created. This approach could also be applied to the transportation sector, particularly where complex, large-scale capital projects are being delivered through alternate delivery models, allowing MDOT to have greater influence in the design of workforce development models at the project level. Recruitment for these trainings and employment opportunities include communities that face barriers-to-employment, providing wrap-around support services to enhance the likelihood of successful completion by all participants. It will be important that the BMIW program identify opportunities to address immediate labor shortages by rapidly preparing workers for infrastructure projects through the engagement of industry.
- **Expand Usage and Awareness of Going PRO Talent Fund Program**: LEO's Going PRO Talent Fund makes awards to employers to assist in training, developing, and retaining current and newly hired employees. Training funded by this program must lead to a credential for a skill that is transferable and recognized by industry. This program provides great flexibility to employers and employer collaboratives, allowing them to provide customized training tailored to their unique needs. Partnership Agencies should consider partnering with LEO, increase the awareness of the program and exploring opportunities to expand or target the program among business communities, and enlarge program impact across all asset classes.
- **Emphasis on Credentialing and Career Pathways:** Offer stackable, industry-recognized certifications in the training programs, such as OSHA 10/30, Certified Fiber Optic Technician, tower safety certification, and CDL. Clearly define career ladders and lattices from entry-level technician to advanced roles across occupation clusters such as in network maintenance and engineering.

2. Prioritize Access & Remove Barriers

Pillar Focus: Ensure infrastructure career opportunities are **accessible to all Michiganders** by removing barriers and prioritizing merit-based selection that is locally and regionally representative. This pillar emphasizes outreach and provision of wraparound and support services so that **all groups can participate and succeed** in training programs. Efforts include conducting recruitment in urban and rural communities that have traditionally had less access to skilled trades or are experiencing growth or a demand, and addressing practical barriers like lack of transportation, childcare, or internet access that

can prevent individuals from enrolling in or completing training. New programs should embed wrap-around support services, e.g., stipends or wages during training, childcare assistance, to boost completion rates across all demographic groups. *This pillar aligns with ED 2024-1's mandate to **ensure the plan addresses equity and removes barriers to worker participation**, so that Michigan's infrastructure workforce strategies are responsive and supportive of every Michigander.*

What does the data say?

Job Seekers and Workers Face Barriers-to-Training and -Employment

The program assessment analysis of workforce programs revealed disparities in training and employment outcomes among different demographic and geographic groups.

Participants of WIOA Title I Adult, Dislocated Worker, and Youth programs with two or more recorded barriers had a lower training completion rate, lower employment rate, and lower job retention than those who had one or no barriers.

- Participants with a justice background, disability, or veteran status show a lower employment rate than those without, for Title I Adult, DW, and Youth programs.
- In several stakeholder meetings, employers mentioned that the demographic imbalance in infrastructure jobs and training programs is prominent. This qualitative observation is supported by data. For example, the Registered Apprenticeship data[1] show that the share of active female participants in construction registered apprenticeship is 5.4% among all active participants. The same data shows that the share of participation of people of color is 12.9%. These data indicate that people of certain demographics may need intensive support to participate in training and the job market.

Barrier Removal is Critical, as Mentioned by Partnership Agencies and Regional Workforce Stakeholders

Existing workforce initiatives of Partnership Agencies, including MDOT and MIHI, emphasize the needs of communities facing barriers to employment (e.g., Michigan's Tri-Share program).

- In the regional roundtable discussions, educators, training providers, workforce operators and labor partners all agreed that, while filing the training and education gap is important, wraparound services (such as financial literacy, digital literacy, childcare, and transportation) are a crucial component in workforce solutions.
- A better linkage between training programs and wraparound services was also raised by employers, unions, educators, and training providers. .

Key Components:

- **Embedded Wraparound Support Across All Programs:** Wraparound services will be a standard feature of all infrastructure training programs. Support will follow participants throughout their training and job placement journey. Trainees will be assigned a dedicated case manager or "navigator" – typically housed within Michigan Works! or a partner organization—to help build a personalized plan addressing barriers to training and employment such as transportation, childcare, housing, and learning support.
- **Barrier-Specific Interventions:** Prioritize resources for the most common and impactful barriers, including access to reliable transportation and childcare. Explore options like transit stipends, carpool, or shuttle programs for rural trainees, and onsite or subsidized childcare support (such as the MI Tri-Share program). For English language learners, co-enroll participants in ESL and technical training programs, using Title II adult education funds to enhance accessibility.

- **Frontline Staff Training:** Identify training needs among frontline workforce staff, develop training content, and provide technical support (virtual, in-person, hybrid). The training will help ensure that Michigan's workforce professionals share an aligned vision, are equipped to service participants effectively, and carry out the important initiatives of the BMIW program.
- **Leveraging Community Resources:** Enhancing access to infrastructure workforce services can be achieved by leveraging community-based networks. This initiative would enable job seekers to easily discover, explore, and enroll in these programs and services, thereby promoting wider community engagement and expanding service reach. When communities are working on community transition plans, consultation with the Community & Worker Economic Transition Office to coordinate strategies will be conducted.
- **Targeted Outreach and Pathways:** Michigan will strengthen and expand programs that introduce youth and adults to infrastructure fields. Alongside traditional recruitment efforts, this includes and is not limited to partnerships with community-based organizations and schools to recruit women and minorities into skilled trades pre-apprenticeships; veterans' transition programs that assist former servicemembers to access utility and technical jobs; and second-chance initiatives for returning citizens interested in high demand occupations. For instance, the Workforce Development Institute's apprenticeship readiness training for women and people of color in the construction trades can be scaled up as part of this effort. LEO and MIO should also coordinate with tribal governments and rural community colleges to improve access in remote areas.
- **Removing Systemic Barriers:** Beyond individual support, Michigan is committed to addressing systemic biases and entry hurdles in infrastructure occupations. This involves reviewing program entry requirements that might unnecessarily screen out capable candidates and working with industry partners to create alternative pathways. It also entails encouraging merit-based hiring practices on infrastructure projects and promoting local leadership representation in the development of infrastructure training programs. This will help to increase the supply of talent into infrastructure roles across all demographics within the Michigan population.

3. Implement Regional Workforce Strategies

Pillar Focus: Tailor workforce solutions to Michigan's varied regional needs. The labor market and in-demand infrastructure jobs vary significantly across the state's **Prosperity Regions**, so this pillar calls for **regional workforce initiatives** that address local priorities. In stakeholder engagements, each region highlighted unique challenges – for example, rural Northern Michigan faces acute shortages of electricians and heavy equipment operators, while Metro Detroit sees extremely high demand for construction labor. To respond, the plan will empower regional partnerships (e.g., regional workforce sector strategies) to develop localized training strategies, talent attraction campaigns, and other targeted programs. By leveraging local expertise and partners (community colleges, unions, employers, economic development entities), these strategies ensure workforce development resources are deployed where they are needed most. *This regional approach reflects that **one size does not fit all** – it aligns with the ED's emphasis on coordinating with all affected agencies and adjusting the plan as needed, and it ensures each infrastructure project (in every community) has a pipeline of local workers ready to go.*

What does the data say?

Workforce Gaps Are Unevenly Distributed Across Michigan's Regions

Labor shortages vary significantly across Michigan's ten regions, highlighting the need for region-specific workforce strategies. For example, the labor market landscape in the Detroit Metro region is different from the Northern and rural Michigan regions, reflected by job postings data and demographic data.

Regional Needs and Priorities Vary

- Programmatic data (WIOA Title I Adult, Dislocated Worker, and Youth, and Title II Adult Education) show that average time-to-training and time-to-completion vary greatly across region, indicating training capacities by Michigan Works! Agencies, as well as unique needs or barriers of participants in different regions.
- Priorities differ by region. For example, stakeholders in the Detroit roundtable discussion raised the critical needs of connecting youth to RAPs and pre-apprenticeships, while the Upper Peninsula session highlighted the priority of helping individual with justice background to return to workforce.

Key Components:

- **Regional Workforce Sector Strategies:** Building on the existing Michigan Works! Agency network and regional planning bodies, the BMIW program will bring together local stakeholders to create regional collaboratives based on program or project needs. These regional sector strategy coalitions should identify priority occupations and skills needed for upcoming local infrastructure projects (for instance, a large bridge replacement or a rural broadband roll-out) and craft training and recruitment strategies to meet those needs. They should also share information on upcoming project timelines so the workforce supply can be ready. These collaboratives will assist in developing localized training programs that can better ensure infrastructure investments are deployed.
- **Talent Attraction and Retention Campaigns:** In addition to localized training and recruitment, some regions may need to attract skilled workers from outside their area (or even outside Michigan) for high-demand roles. When feasible, regional plans should include marketing Michigan's infrastructure jobs to workers willing to relocate, as well as incentives to retain skilled tradespeople (such as housing stipends for workers who move to rural towns for a project). This is especially important for sparsely populated areas with big projects but limited local workforce. Efforts may include programming from the Michigan Growth Office and/or the Michigan Economic Development Corporation (MEDC).
- **Alignment with Regional Planning Models:** This pillar aligns with and leverages federal and state programs that already operate regionally. WIOA requires regional workforce plans, which can be synced with these infrastructure efforts. Many federal infrastructure grants also encourage or require local workforce collaboration. By using these frameworks, Michigan ensures regional strategies are not ad hoc but integrated into existing structures and funding streams.

4. Build K-12 Infrastructure Career Pathways

Pillar Focus: Secure the long-term talent pipeline by engaging Michigan's youth in infrastructure careers. This pillar emphasizes early exposure, education, and experience for K–12 students to develop the next generation of skilled workers. The plan calls for engaging with CTE programs related to infrastructure (construction, engineering, IT, energy) in high schools, introducing infrastructure topics into curricula (e.g., modules on broadband technology or water systems in science classes), and creating more **work-based learning opportunities** for students – such as MICareerQuest™, high school pre-apprenticeships, skilled

trades academies, “construction career days,” summer camps, and mentorship programs with industry professionals. By sparking interest in infrastructure at an early age, Michigan can cultivate a larger and more expansive pool of young talent who should pursue these careers after graduation. This strategy aligns with the Governor’s priority of growing the middle class by opening pathways for young learners. *While the ED focuses on immediate workforce needs, this pillar complements it by ensuring* ***“clear pathways for target occupations”*** *are created for future workers as well – building a sustainable talent pipeline beyond 2030.*

What does the data say?

Youth Engagement & Education Are Key to Workforce Sustainability

Only 25% (112,000 students in 2023) of Michigan high school students enroll in skilled trades or technical programs[1]. The state’s persistent workforce shortages indicate that the pipeline is not large enough to sustain the employment demands.

- Recognizing the importance of engaging Michigan’s young learners, the BMIW program is looking to expand existing workforce initiatives to engage in-school students and help expose them to infrastructure careers.
- In every regional roundtable discussion, stakeholders shared a common theme that youth engagement and education would be key to help prepare a sustainable infrastructure talent pipeline.

Young Leaners Need Robust Support and Better Access to Training and Jobs

Programmatic data reveals gaps in training participation and outcomes between young learners and their adult counterparts.

- The Employment Rate 2nd Quarter after Exit for WIOA Title I Adult program is 87%, and Employment Rate 4th Quarter after Exit is 86%, for Program Year 2023. However, for WIOA Title I Youth program, they are 79% and 80% for the same measures[1].
- Fewer than 1% of the active apprentices in construction, utilities, and transportation RAPs are youth (16-18), indicating the need to increase training access among very young job seekers[1].

Consistent with Michigan’s Priorities

- According to the **Sixty by 30 Strategic Plan**[1], Michigan has set a goal that 60% of working-age residents to earn a certificate or college degree by 2030 – aiming to accelerate attainment to support economic growth, advance equity, and raise incomes.
- Michigan’s Statewide Infrastructure Workforce Plan emphasizes building a strong network of local, regional, and state partners to help children, students, and adults develop skills they need to thrive – from preschool to postsecondary to prosperity

Key Components:

- **Digital Infrastructure Career Dashboard:** LEO should consider launching an online Infrastructure Career Dashboard which may leverage Michigan’s Pathfinder — an interactive platform mapping career pathways by sector, including skills, credentials, and real-world job examples. The site should feature training and apprenticeship opportunities, success stories, and interactive tools for students, parents, educators, and career counselors. The dashboard should be actively promoted through digital media, school networks, and public outreach.
- **Expanding Career & Technical Education and STEM Curricula:** The BMIW program should identify opportunities to support existing Perkins Post-Secondary and CTE offerings in high schools that relate to infrastructure (e.g., construction technology, welding, electrical trades, environmental science, information technology for smart grid and broadband) to expand training, when possible, to

meet industry demands. Working with the Michigan Department of Education, school districts should be encouraged, and supported with resources, to integrate infrastructure-focused skills into their programs. Examples of this might involve new courses on renewable energy technology, bridge design, or water treatment basics, often developed with input from industry. Wherever possible, curricula should be aligned with identified workforce needs so students graduate with in-demand skills. This effort aligns with federal education funding like Perkins V, which supports CTE programs and the seamless transition into post-secondary trainings and credential attainment – the BMIW program should support and leverage funds to strengthen infrastructure career trainings in secondary and post-secondary schools.

- **High School Pre-Apprenticeships and Dual Enrollment:** The BMIW program should support the introduction of more registered apprenticeship and pre-apprenticeship programs in high schools. In practice, this means juniors or seniors can start learning a trade and earn credit or a pre-apprenticeship certificate while still in school. For example, a high school might partner with a local union or community college so that students spend part of the week at a training center learning carpentry or as electrician apprentices. Upon graduation, those students can transition directly into a full apprenticeship or skilled trades job, having already completed a portion of the training. Similarly, expanding dual enrollment and early-middle-college programs in infrastructure-related fields should let students earn college credits or technical certificates (in fields like civil engineering technology or energy technology) by the time they finish high school. These initiatives create seamless pathways from K–12 to postsecondary training or employment.
- **Career Awareness and Engagement Programs:** To inspire young people (and inform their parents and educators) about opportunities in infrastructure, the BMIW program should launch immersive career exploration programming. Examples include Construction Career Days, where students can try operating equipment or building projects under supervision, and infrastructure project site demonstrations so students can see opportunities firsthand. Mentorship programs should connect students with industry professionals for guidance and role modeling.
- **Partnerships with Educators and Industry:** Partnership Agencies and LEO should work closely with the Michigan Department of Education, the Michigan Department of Lifelong Education, Advancement, and Potential, school districts, and teachers to implement these changes. At the same time, leveraging LEO's Employer-Led Collaboratives that already have close working relationships with industry partners (construction firms, utility companies, engineering firms) to develop collaboration with schools to offer insight and resources – such as donating equipment, providing guest instructors, or sponsoring events. This public-private collaboration ensures that what is taught in schools stays relevant to the real jobs out there. It also helps break stereotypes; for instance, having a female engineer speak to a classroom can encourage more girls to consider that path.

Strengthening Interagency Coordination

Strengthening interagency coordination is critical to achieving the goals of the ED and to delivering the Four Pillars for Action. The BMIW program, led by LEO and in collaboration with Partnership Agencies, provides a structured framework for convening partners, managing day-to-day implementation of the plan, and tracking progress across agencies. Under the program, strengthening interagency coordination consists of:

1. Central Coordination & Program Oversight

The ED calls for centralized oversight by LEO, with coordination with its partners, to monitor progress across departments, break down silos and unite efforts across state government to tackle the

infrastructure workforce challenge. This mandate establishes a “Team Michigan” approach so that programs, data, and funding are aligned toward common goals. Each Partnership Agency has designated an Infrastructure Workforce Lead who works closely with LEO’s lead program staff to implement the plan and coordinate efforts. Regular interagency meetings (comprising these leads and other key stakeholders) are convened by LEO and facilitate ongoing communication, troubleshooting, and alignment of initiatives. By formalizing cooperation through LEO’s leadership, the BMIW program is beginning to eliminate duplicative efforts and ensure that programs are coordinated. *Michigan will present a unified front in developing its infrastructure talent pipeline – exactly as directed by ED 1(a)(1), which calls for the plan to be established in coordination with the Partnership Agencies.*

By aligning goals, roles, and communication across the key players, Michigan can more efficiently deploy programs and respond to workforce needs. This “no wrong door” approach means agencies share responsibility for building the talent pipeline. Successful models in one agency can be replicated by others and scaled to further emphasize construction and trade-specific components within the curriculum. For example, MDOT’s Transportation and Civil Engineering (TRAC) program could be broadened to further emphasize construction and trade-specific components within the curriculum; it may also provide a model that can be adopted by EGLE, focused on promoting interest and skills development in other sectors, such as water operations. Importantly, coordination prevents duplication and gaps. It also demonstrates a unified state-wide strategy that drives competitiveness in future grant applications.

What does the data say?

Urgent Need for All Partners to Support Workforce Training to Meet Projected Demand

Based on the current labor market projections, the existing training programs will not meet the projected demand, highlighting urgent workforce development gaps across all asset classes, including:

- Broadband & Fiber Optic Training: essential for Broadband Equity, Access, and Deployment Program (BEAD) broadband expansion.
- Clean Energy Workforce Development: training programs for solar, wind, battery storage, and EV infrastructure must scale rapidly.
- Heavy Equipment Operator Registered Apprenticeships: road and bridge projects require a larger pipeline of trained operators.
- Pipeline and Water Treatment Specialists: water infrastructure upgrades require certified operators, but training slots remain limited.

Coordination Drives Quality and Efficiency

Historically, MIHI, MDOT and EGLE have developed workforce initiatives separately to meet agency-specific needs, interfacing with LEO independently. Aligning, braiding, and expanding existing resources where appropriate – through a unified lens – will help generate synergy, ensuring labor market shortages can be effectively addressed.

Key Components:

- **Inter-agency Working Groups and Communication:** The plan calls for regular interagency workgroup meetings to share progress and coordinate actions, which are occurring through the BMIW program and led by LEO’s BMIW program staff lead. Through these, agencies will align their goals, roles, and communications – effectively operating as one team. Joint planning sessions will be held to align upcoming infrastructure project schedules with workforce training timelines (so training

programs deliver graduates right when projects need them). Communication channels will be kept open between agencies to avoid duplicating efforts. For instance, transportation and broadband projects often overlap geographically; with better information sharing to inform coordination, MDOT and MIHI can synchronize recruitment and training efforts in a region so that a pool of workers with trenching or heavy equipment skills can serve both road and fiber projects as needed. This kind of synergy is a prime example of breaking down silos to use resources efficiently.

- **Unified Advocacy and Resource Alignment:** With strong interagency coordination, the BMIW program can speak with one voice when pursuing federal support and engaging industry. Agencies will collaborate on grant applications for workforce funding, letters of support for local initiatives, and legislation or policies that could bolster workforce training. Rather than each agency approaching workforce in isolation, the BMIW program will present a cohesive front – for example, a BMIW workforce coalition – comprising public and private sector leaders – may be formed to advise on implementation and keep high-level attention on the issue. Internally, coordinated budgeting will ensure that workforce development is considered a priority in each agency's use of federal infrastructure funds.
- **Institutionalization and Policy Alignment:** Position the initiative as a core function within the BMIW program's infrastructure workforce ecosystem. Develop interagency agreements to clarify roles, share data, and sustain funding. Ensure workforce supports are embedded into the design of all future infrastructure training and placement programs funded under the ED.
- **Shared Data and Metrics:** Developing a common set of metrics and a dashboard so all agencies can see the status of workforce development efforts across sectors. The transparency of data ensures everyone is aware of progress and gaps. If one sector is lagging in training targets, the group can mobilize support from others to address it.

2. Use Data-Driven Decision Making

Guide the workforce strategy with robust data, analytics, and continuous evaluation.

The BMIW program is committed to **rigorously tracking performance metrics and labor market data** to inform decisions. By building a data-driven feedback loop, the program collaborators will know which programs are most effective, where shortages are emerging, and how workforce efforts are impacting project delivery. Key actions include developing a **public Infrastructure Workforce Dashboard** to display real-time metrics (e.g., number of workers trained, apprenticeship completions, job placements in each region), integrating data systems across agencies so that participant-level data can be aggregated, and conducting regular outcome evaluations of training programs. This aligns with ED 1(e) which requires the BMIW program to gather information and data to target workforce investments, exchanging it monthly. It also supports ED 3(b)'s mandate to monitor metrics to determine the effectiveness of this ED – including tracking funds spent, increase in workforce participation, and on-time infrastructure project delivery. *By treating data as a strategic asset, the BMIW program can continuously improve its approach, ensure accountability to federal and state goals, and allocate resources to what works best.*

What does the data say?

A Data-Driven Workforce Strategy is Essential for Long-Term Success

- The ED states that the BMIW program shall gather information and quality assurance data to determine where to increase workforce capacity and how to allocate investments among existing high-performing programs, as permitted by law.
- The LMI analysis highlights the importance of real-time labor market data in shaping workforce policies, training investments, and recruitment strategies. It also helps identify skill gaps, inform career guidance, and drive resource allocation decisions.

Tracking program progress using quantifiable metrics will help determine training effectiveness, reveal service gaps, and identify corrective actions in program design and implementation. – will help generate synergy, ensuring labor market shortages can be effectively addressed.

Key Components:

- **Real-Time Labor Market Monitoring:** The BMIW program will build out systems and leverage existing systems and programs where pertinent to **continuously track labor demand and supply** for infrastructure jobs. This involves collecting data on job postings, unemployment claims, project labor needs, apprenticeship enrollments, and more. LEO's data team (in collaboration with MIO and others) will track metrics such as how many workers are being trained in each occupation, training program completion rates, job placement rates in infrastructure fields, and regional workforce gaps. By analyzing these in real time, the BMIW program can spot shortages or bottlenecks early. For example, if data shows a rising shortfall of welders in a certain region, the BMIW program can respond by setting up an urgent training cohort there, in collaboration with industry partners and supported by rapid funding deployment, as available. This agility is crucial given the dynamic nature of both construction projects and the labor market.
- **Infrastructure Workforce Dashboard:** As a signature initiative, the BMIW program will develop a public-facing Infrastructure Workforce Dashboard. LEO and MIO will jointly develop and launch a public-facing Infrastructure Workforce Dashboard. This interactive online dashboard will provide transparent, accessible metrics on workforce development progress, including:
  - Number of individuals enrolled in infrastructure training programs
  - Number of credentials earned
  - Demographic breakdown of trainees
  - Job placements on infrastructure projects
  - Real-time job openings and regional workforce demand
  - Expenditure of workforce development fund
  - Increase in infrastructure participation
  - On-time project delivery

  The dashboard will serve as a central, publicly accessible 'single source of truth', enabling policymakers, stakeholders, and the public to monitor the progress and impact of Michigan's infrastructure workforce investments. All agencies will utilize the dashboard to visibly link infrastructure spending (roads, water systems, broadband, energy) to measurable workforce outcomes, demonstrating the return on investment in skilled jobs and community benefits.
- **Feedback Loops and Program Evaluation:** Data will be used not just for monitoring but for learning and improvement. To continually improve program effectiveness, LEO, with the support of

Partnership Agencies, will implement systematic feedback loops involving employers, training participants, and stakeholders. Employers and contractors will be regularly surveyed to assess whether state-trained workers have appropriate skills for job requirements. Participants will be asked to provide feedback on program effectiveness, job placement outcomes, and career progression. Performance data from apprenticeship programs, community colleges, and other training providers will be rigorously evaluated.

Programs demonstrating strong results—such as high job placement rates, positive employer satisfaction, and substantial wage gains—will be expanded or replicated. Conversely, programs underperforming against key benchmarks will be restructured, improved, or phased out. This commitment to evidence-based management aligns with federal accountability standards, ensuring Michigan not only meets but exceeds required outcomes for federally funded infrastructure and workforce programs. Together, these data-driven strategies will position Michigan's infrastructure workforce development efforts to remain responsive, accountable, and effective in meeting the state's evolving labor needs.

- **Adaptive Policy and Planning:** A data-driven strategy means the BMIW program will continuously adapt policies based on evidence. If certain training approaches prove especially successful (say, fast-track welding courses yield great results), those can be replicated elsewhere. Conversely, if data shows an occupation's demand has been met, focus can shift to another emerging need. Data will also guide regional strategy adjustments – for example, if one region's unemployment rises due to an unrelated factory closure, the Statewide Infrastructure Workforce Plan might pivot to retrain those dislocated workers for local infrastructure jobs. In essence, the BMIW program will treat data as a strategic asset to inform all decisions, making the workforce plan a "living plan" that evolves with economic conditions.

3. Align Funding for Sustainability

Source, braid and align funding to fully resource the infrastructure workforce initiatives and sustain them for the long term.

Michigan now works to maximize federal funding opportunities by **committing a portion of infrastructure funds to workforce training** – as directed by the ED, which permits up to **5% of new federal infrastructure project funding to be allocated for workforce development**. In addition, the BMIW program will leverage state workforce programs and existing initiatives to support infrastructure skills training. This includes seeking to blend federal, state, and private/philanthropic dollars so that effective programs can continue even after the initial federal grants wind down. By strategically aligning available funding with workforce needs and promoting more flexible use of funds, the BMIW program aims to establish a sustainable financing model for the infrastructure talent pipeline based on allowable federal .

This fulfills ED 1(b) and 1(c) – prioritizing workforce as an investment within infrastructure projects and using innovative funding strategies – and ties into ED 3(a) by ensuring centralized oversight of these funds for efficiency and 4(c) that reporting requirements remain with partnership agencies and other entities, as required by law.

Current and possible future changes in federal policy, as well as Presidential Executive Orders and policy memos, may impact the deployment of federal programs created and expanded under BIL, IRA and CHIPS. Federal and state reviews of infrastructure programs are underway at the time of drafting this report. The BMIW program will continue to monitor changes to all relevant federal funding programs including potential impacts to workforce requirements. This also includes changes in broader economic

and policy conditions that may impact the opportunity to implement the proposed workforce strategies, and the projections included in this plan, such as the projected labor demand and funding availability.

What does the data say?

Significant Opportunity to Align Resources and Improve Workforce Availability for Key Infrastructure Projects

LEO's LMI analysis identifies 76 out of the 84 analyzed occupations with labor shortages, particularly in construction, skilled trades, and telecommunications. Some of the most in-demand shortage occupations include:

- Construction Laborers – 1,070 needed annually
- Operating Engineers – 500 needed annually
- Electrical Power-Line Installers – 450 needed annually
- Telecommunications Line Installers – 190 needed annually
- Heavy Equipment Operators – 70 needed annually
- Only 1 telecommunications worker is available for every 195 job openings statewide, a critical shortage that could stall broadband deployment.

Additionally, Michigan is experiencing shortages in industrial engineers, project managers, and water treatment specialists, which could hinder clean energy and public works projects.

Key Components:

Committing a Portion of Infrastructure Funds to Workforce: The BMIW program is adopting an innovative approach by aiming to allocate up to 5% of new eligible federal infrastructure program funds toward workforce development initiatives. This means that as billions of dollars flow into roads, bridges, water systems, broadband, and clean energy projects, a small slice (potentially up to 5%) of those project budgets would be used to train the workers who build them, if federally allowable. For example, broadband grants could fund fiber-optic technician training, and water infrastructure funds could support water treatment operator apprenticeships. This not only provides substantial resources for training but also ties workforce development directly to project delivery (helping avoid labor shortfalls).

Funding on a Project-by-Project Basis: Funding for workforce development programs will be provided on a project-by-project basis. The BMIW program will aim to secure funds through individual projects to deliver workforce development programming, requiring close collaboration with project stakeholders and a proactive approach to identifying and pursuing funding opportunities that permit workforce development activities and align with the goals of the plan.

Braiding Multiple Funding Streams: Beyond federal infrastructure dollars, the BMIW program will blend federal, state, local, and private funding to support its workforce programs. Federal formula grants (e.g., WIOA workforce funds) and discretionary grants (e.g., Apprenticeship Building America or Good Jobs Challenge) will be pursued aggressively to supplement ongoing efforts. At the state level, programs such as the Going PRO Talent Fund can be targeted to infrastructure skills training. Local governments might contribute a portion of their project funds to workforce if incentivized by the state. Importantly, public-private partnerships will be leveraged: Michigan will encourage employer co-investment in talent development, so that private companies also contribute dollars or in-kind resources for apprenticeship programs, curriculum development, or equipment. Philanthropic organizations with interest in workforce

development may also be invited to fund wraparound and support services or pilot programs. By braiding these sources, the BMIW program can create stable funding streams that outlast any single grant.

Prioritizing Funding to High-Impact Programs: Aligning funding also means directing dollars to what works. The BMIW program will regularly review outcomes and ensure funding is flowing to programs and regions showing results. The plan calls for linking funding with performance – for instance, if a particular training provider has excellent job placement rates, the grant could be renewed or increased, whereas programs struggling to meet targets may be re-competed or restructured. This approach stretches limited funds further by investing in proven models. It also incentivizes continuous improvement among training providers.

Pursuing New Funding Opportunities: LEO and all Partnership Agencies should stay proactive in seeking competitive federal grants and other new funding to bolster the workforce plan. As new federal programs arise (for example, any new infrastructure workforce initiatives or discretionary grant competitions), Michigan will be ready with shovel-ready proposals aligned to the Four Pillars for Action. This unified approach to funding will help maintain capacity in critical sectors (water and energy) even beyond the life of initial grants. The state's coordinated approach and data-driven rationale make a strong case to funders that Michigan can deliver results if given additional resources. This external funding can be used to launch innovative programs or scale pilots statewide.

Leveraging Federal and State Funding: Ensure infrastructure projects integrate workforce development funding. Wherever possible, a portion of infrastructure grant funds (for roads, broadband, energy) will be set aside to train the local workers needed to carry out those projects. Michigan will also tap programs like the Going PRO Talent Fund (a state training grant for employers) to subsidize OJT training in infrastructure occupations and pursue federal sector strategies and apprenticeship grants to finance expansion. By braiding these funds, Michigan can expand training capacity without relying solely on new appropriations.

Looking to the Future

Michigan stands at a historic crossroads, with unprecedented investments creating opportunities to build both world-class infrastructure systems and world-class careers. Powered by the BMIW program, which is informed by interagency coordination and focused on the Four Pillars for Action, pathways will be created for 5,000 Michiganders to receive the necessary training to access these opportunities by 2030. Success of the program depends on sustained collaboration and robust data sharing across agencies, alongside strategic deployment of federal, state, and private funding sources to implement the actions outlined in this plan. The data-driven, regionally tailored approach outlined here aims to meet immediate workforce needs while building sustainable talent pipelines for the future.

By endeavoring to remove barriers, expand training capacity, engage youth, and align resources, the goal is to develop a skilled, robust infrastructure workforce that reflects Michigan's communities and drives Michigan's continued growth. The commitment to braid funding streams and maximize eligible infrastructure dollars for workforce development represents a critical pathway to achieving these goals at scale. Together, the efforts are not just modernizing Michigan's infrastructure – the endeavor is to create generational opportunities for Michigan workers and families while positioning the state as a national leader in infrastructure workforce development. The foundation is set; now action must be taken with urgency and purpose to advance this transformational vision through continued partnership, strategic resource allocation, and unwavering focus on results.