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TRANSITION IMPACT PROJECT

RIVER ROUGE CAREER AND TECHNOLOGY CENTER ROADMAP

FINAL REPORT

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Chapter 1

Project Context and Planning Framework

Chapter at a Glance

Purpose

This chapter establishes the planning context, purpose, and framework for the River Rouge Career & Workforce Innovation Center (RRCWIC). It describes the economic and workforce conditions that prompted this initiative, outlines the methodology used to develop this strategic roadmap, and introduces the planning principles that guide the recommendations presented throughout the report.

This report was produced as part of Phase 3 of the Michigan Vehicle Technology Transition Impact Project (MiVTTP). MiVTTP is a partnership between the Economic Growth Institute and Michigan Clean Cities. It is funded in part by the U.S. Department of Energy Office of Energy Efficiency & Renewable Energy (DE-FOA-0002611) and is supported by the Michigan Treasury and the Michigan Office of Future Mobility and Electrification (OFME).

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Key Questions Addressed

- Why is the River Rouge Career & Workforce Innovation Center needed?
- What workforce and economic trends are influencing this initiative?
- How was this roadmap developed?
- What planning principles guide the recommendations?
- How should this roadmap be used by project partners?

1.1 Project Context

The City of River Rouge, in partnership with the University of Michigan Economic Growth Institute through the **Michigan Vehicle Technology Transition Impact Project (MiVTTP)**, is developing a strategic roadmap to guide the planning, implementation, and long-term sustainability of the **River Rouge Career & Workforce Innovation Center (RRCWIC)**.

This initiative responds to significant changes occurring throughout the Detroit Metro Prosperity Region's economy. Advances in advanced manufacturing, vehicle electrification, clean energy, automation, digital technologies, artificial intelligence (AI), healthcare innovation, and infrastructure modernization are transforming the knowledge and skills required across nearly every industry sector.

At the same time, employers increasingly report difficulty recruiting workers who possess both technical competencies and the adaptable skills necessary to succeed in rapidly changing work environments. Many occupations now require workers who can continuously learn new technologies while effectively applying communication, problem-solving, collaboration, and digital skills throughout their careers.

These workforce challenges coincide with changing learner expectations. High school students, adult learners, incumbent workers, career changers, and dislocated workers increasingly seek educational opportunities that are flexible, career-connected, and responsive to their individual goals and life circumstances.

These conditions present River Rouge with an opportunity to develop a Career & Workforce Innovation Center that not only prepares learners for today's high-demand occupations but also creates a sustainable framework for responding to future workforce needs.

Accordingly, this roadmap focuses on practical strategies that strengthen Career and Technical Education, expand employer partnerships, support workforce development, and improve educational access while leveraging the existing strengths of regional education and workforce partners.

1.2 Purpose and Scope of this Roadmap

The purpose of this roadmap is to provide an evidence-based planning framework for the development and implementation of the River Rouge Career & Workforce Innovation Center.

Rather than prescribing individual educational programs, this report presents strategic recommendations that can guide decision-making as the Center evolves over time. The recommendations are intended to assist River Rouge and its partners in establishing educational priorities, strengthening employer engagement, identifying partnership opportunities, and developing implementation strategies that respond to documented workforce demand.

Consistent with the objectives of the MiVTTP initiative, the roadmap emphasizes:

- alignment with labor market demand for Detroit Metro Prosperity Region 10;
- career pathways supporting high-wage, high-skill, and high-demand occupations;
- employer engagement in program design and work-based learning;
- partnerships among K–12 education, postsecondary institutions, employers, workforce agencies, and community organizations;
- educational models that support both youth and adult learners;
- implementation strategies that can evolve as workforce needs change.

The roadmap is intended to serve as a planning resource for local government, educational institutions, employers, workforce organizations, community partners, and potential funding agencies that will participate in developing and sustaining the Center.

Consistent with the objectives of the Michigan Vehicle Technology Transition Impact Project (MiVTTP), this Strategic Roadmap fulfills the project's planning objectives by providing a comprehensive framework for the development of the River Rouge Career & Workforce Innovation Center. The recommendations presented throughout this report are intended to guide future decision-making related to career pathway development, employer engagement, educational partnerships, facility planning, workforce programming, governance, and phased implementation. Rather than prescribing a fixed operational model, the roadmap establishes a flexible planning framework that can be refined over time as workforce needs, economic conditions, funding opportunities, and community priorities evolve.

Figure 1.1 illustrates the River Rouge Career & Workforce Innovation Center as a collaborative regional hub that connects education, employers, workforce agencies, economic development organizations, government partners, and community organizations to strengthen talent development and regional economic competitiveness.

FIGURE 1.1 River Rouge Career & Workforce Innovation Center Conceptual Model

The River Rouge Career & Workforce Innovation Center will serve as a regional hub that connects education, industry, workforce, and community partners to create seamless pathways from learning to high-wage, high-skill, in-demand careers.



Source: Developed by the Workforce Intelligence Network (WIN) for the River Rouge Career & Workforce Innovation Center Strategic Roadmap.

Note: This conceptual model illustrates the key partners and relationships that will support the Center's mission and advance regional workforce success.

1.3 Planning Methodology

Recommendations presented throughout this report were developed through the integration of multiple planning activities and evidence sources.

These include:

- labor market analysis of Detroit Metro Prosperity Region 10;
- employer workforce trends;
- stakeholder engagement conducted throughout the planning process;
- Career and Technical Education (CTE) research and best practices;

- workforce development literature;
- economic development priorities;
- Registered Apprentices and work-based learning models;
- review of innovative educational delivery practices.

Rather than relying upon a single source of information, recommendations were evaluated against documented workforce demand, implementation feasibility, regional partnership capacity, and alignment with the objectives of the Michigan Vehicle Technology Transition Impact Project.

This approach provides a practical planning framework that balances innovation with realistic implementation strategies.

Analytic Methodology

The recommendations presented throughout this Strategic Roadmap were developed using an integrated planning methodology that combined quantitative labor market analysis with qualitative stakeholder input, policy review, and evidence from national workforce and Career and Technical Education research. Rather than relying on any single data source, the planning process evaluated multiple forms of evidence to identify areas where workforce demand, regional economic priorities, educational capacity, and implementation feasibility converged.

The analysis considered a broad range of quantitative indicators, including projected employment growth, replacement demand, industry concentration, occupational wages, employer job-posting activity, educational attainment, demographic trends, and regional economic forecasts. These data were supplemented by stakeholder engagement with employers, educational institutions, workforce organizations, community representatives, and economic development partners to ensure that the recommendations reflected both documented labor market conditions and practical implementation considerations.

Recommendations were further evaluated using four planning criteria:

- Alignment with documented workforce demand and regional economic priorities;
- Ability to support multiple learner populations through flexible educational pathways;
- Capacity to leverage existing educational, workforce, and employer partnerships; and
- Long-term adaptability in response to technological, demographic, and economic change.

This analytic approach emphasizes strategic planning rather than program prescription. The resulting recommendations are intended to provide an evidence-informed framework that can guide future investment, partnership development, educational programming, and phased implementation while remaining responsive to evolving workforce needs.

Like all strategic planning efforts, this analysis has limitations. Labor market projections, economic forecasts, employer demand, public policy, funding availability, and technological advancements are inherently dynamic and may change over time. Likewise, job-posting analytics represent employer hiring activity rather than total labor demand, and stakeholder input reflects the perspectives of participants engaged during the planning process. Accordingly, the recommendations contained in this report should be viewed as a strategic framework based on the best available evidence at the time of analysis rather than fixed or prescriptive solutions. The framework is intended to support ongoing planning and should be periodically reviewed and updated as labor market conditions, educational capacity, and regional priorities evolve. While future conditions will undoubtedly evolve, the integrated methodology used in this study provides a sound and adaptable foundation for guiding long-term workforce, education, and economic development investments in the River Rouge community.

Geographic Framework for Labor Market Analysis

The labor market analysis conducted for this Strategic Roadmap began with an assessment of the workforce, educational, demographic, and economic conditions specific to the City of River Rouge. This local analysis identified important workforce challenges and opportunities, including educational attainment, labor force participation, population characteristics, and barriers affecting residents' access to education and employment. While these findings establish the local need for expanded Career and Technical Education opportunities, they also demonstrate that River Rouge functions as part of the much larger Detroit metropolitan labor market, where residents routinely commute across municipal boundaries for education and employment.

For that reason, the primary labor market analysis presented throughout this report is based on the **Detroit Metro Prosperity Region**, which encompasses the broader regional economy served by employers, educational institutions, workforce development organizations, and transportation networks. This regional perspective more accurately reflects where employment opportunities exist, where employers recruit talent, and where graduates of the proposed Career & Workforce Innovation Center are most likely to obtain employment.

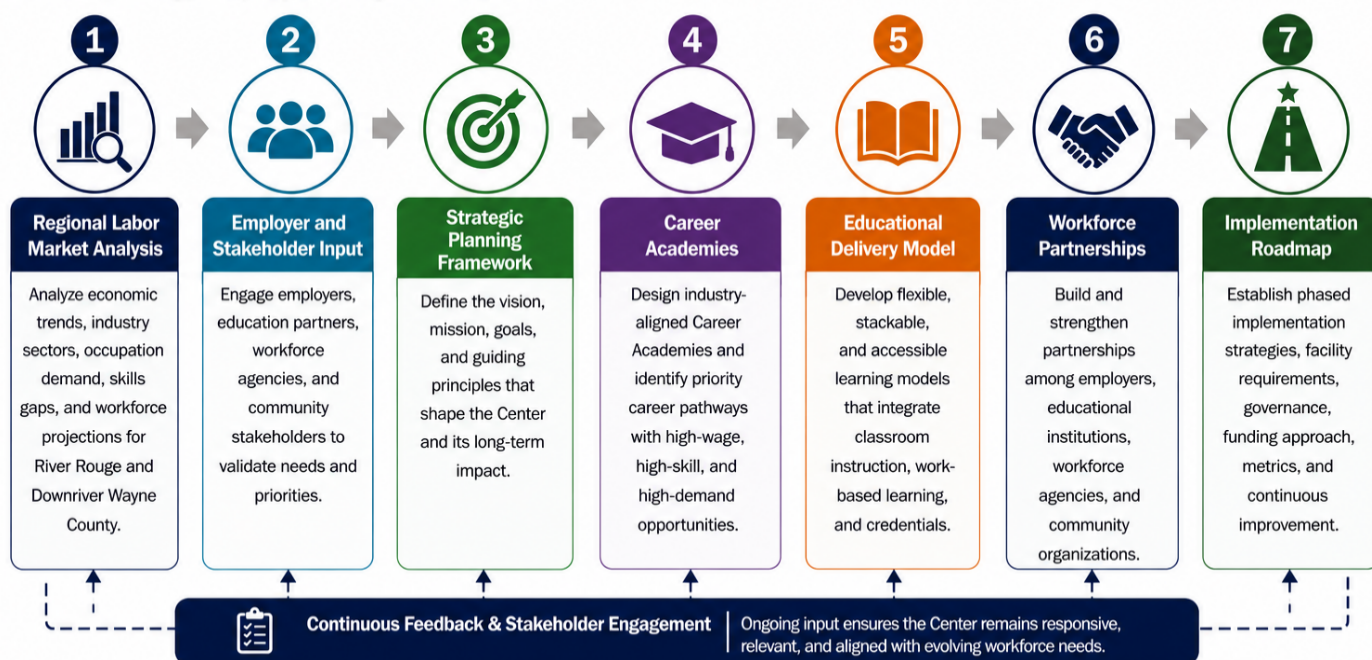
Accordingly, the Center is envisioned as **locally anchored and regionally connected**. It is intended to address the specific workforce development needs of River Rouge residents while preparing learners for careers throughout the Detroit metropolitan economy. This dual perspective ensures that program recommendations respond to local community priorities while remaining aligned with documented regional workforce demand, employer hiring needs, and long-term economic development trends.

Figure 1.2 illustrates the evidence-based planning process used to develop the recommendations presented throughout this Strategic Roadmap. The framework demonstrates how labor market analysis, stakeholder engagement, research, and strategic planning informed the recommended educational model, partnership framework, and implementation strategy.

1.4 Vision for the River Rouge Career & Workforce Innovation Center

FIGURE 1.2
Strategic Planning Framework for the
River Rouge Career & Workforce Innovation Center

A data-informed, employer-driven planning process that guides the development of career-focused education and training pathways aligned with regional workforce needs.



Source: Developed by the Workforce Intelligence Network (WIN) for the River Rouge Career & Workforce Innovation Center Strategic Roadmap.

Note: This framework illustrates the key steps in the strategic planning process used to develop the recommendations in this report.

The River Rouge Career & Workforce Innovation Center is envisioned as a regional hub for career and workforce education that connects education, employers, workforce development organizations, and community partners in preparing individuals for high-demand careers.

The Center should provide educational opportunities that are responsive to changing labor market needs while supporting learners at multiple stages of their educational and career journey. Programming should be accessible to secondary students, adult learners, incumbent workers, career changers, and employers seeking customized workforce training.

Rather than duplicating existing educational programs, the Center should strengthen coordination among regional partners, expand career-connected learning opportunities, and create clear pathways leading to industry-recognized credentials, postsecondary education, Registered Apprentices, and employment.

This vision reflects both current workforce needs and the long-term objective of creating a flexible educational system capable of adapting to future economic and technological change.

1.5 Guiding Planning Principles

The recommendations presented throughout this roadmap are guided by three planning principles that support long-term sustainability while remaining responsive to employer and learner needs.

Employer Responsiveness

Educational programming should be informed by documented labor market demand and meaningful employer engagement. Employers should participate in validating competencies, identifying emerging skill requirements, supporting work-based learning, and advising on instructional priorities.

Flexible Learner Pathways

Educational opportunities should support multiple learner populations through flexible pathways that include dual enrollment, industry-recognized credentials, certificates, associate degree pathways, Registered Apprentices, and lifelong learning opportunities.

Continuous Improvement and Innovation

The Center should establish processes for regularly evaluating labor market trends, employer feedback, learner outcomes, and emerging technologies so that educational programming remains current and responsive over time.

1.6 Organization of the Roadmap

The chapters that follow move intentionally from analysis and strategic planning to program design, implementation, and long-term sustainability.

- **Chapter 2 – Labor Market and Economic Analysis** examines local and regional workforce conditions, industry trends, occupational demand, wages, replacement needs, and educational implications that should guide development of the Center.

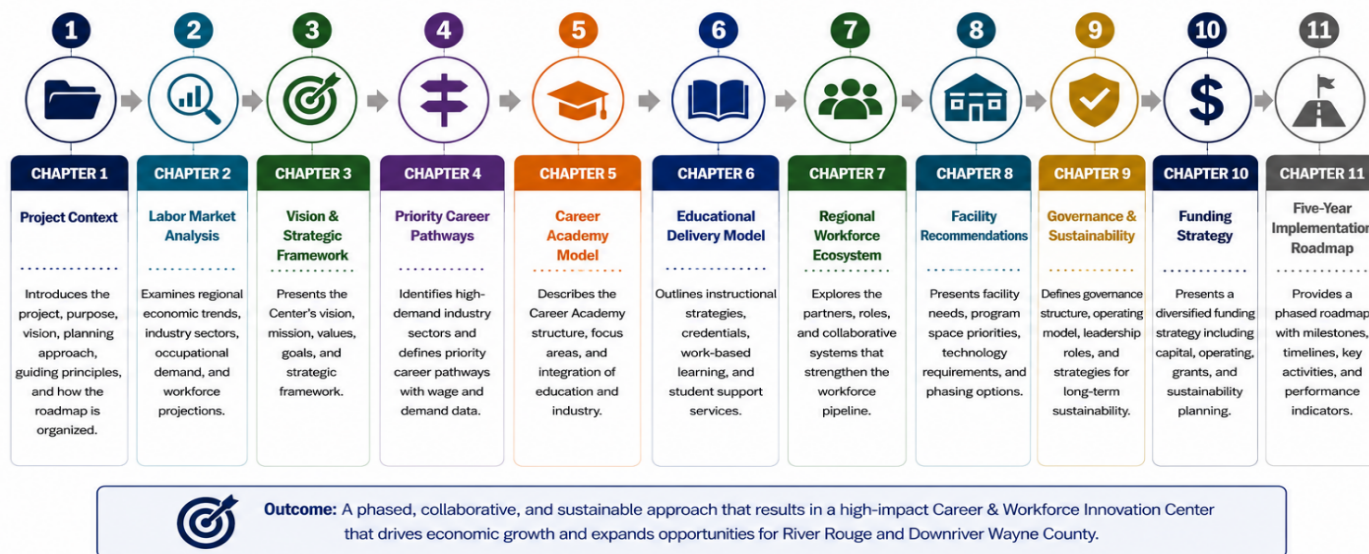
- **Chapter 3 – Vision and Strategic Framework** establishes the Center’s vision, mission, guiding principles, strategic goals, and long-term operating framework.
- **Chapter 4 – Career Pathway Framework and Educational Model** presents the employer-led talent development ecosystem, WIN K–12 Career Immersion Program, regional career pathway framework, WIN Industry Career Profiles, Durable Skills Advantage Curriculum, and River Rouge Graduate framework.
- **Chapter 5 – Career Academy Model** describes the six recommended Career Academies, their representative career pathways, partnership ecosystems, and shared foundational competencies.
- **Chapter 6 – Educational Delivery Model and Workforce Learning Pathways** outlines flexible instructional strategies, competency-based learning, blended delivery, technology-enabled education, stackable credentials, industry credentials, employer engagement, and program-planning considerations.
- **Chapter 7 – Regional Workforce Ecosystem and Partnership Framework** defines the roles of educational institutions, employers, workforce organizations, government agencies, accrediting and licensing bodies, community partners, and strategic and program-level employer leadership.
- **Chapter 8 – Facility Recommendations** presents a flexible, technology-enabled facility model that emphasizes adaptable instructional spaces, selective laboratory development, blended learning, and strategic use of shared regional assets.
- **Chapter 9 – Governance and Organizational Sustainability** establishes the recommended governance structure, organizational responsibilities, decision-making processes, quality-assurance practices, risk-management strategies, and continuous-improvement framework.
- **Chapter 10 – Funding and Investment Strategy** presents a diversified funding strategy involving local investment, millage, public funding, employer participation, postsecondary partnerships, philanthropy, and phased capital and operating investments.
- **Chapter 11 – Conclusion and Roadmap for Implementation** brings the recommendations together through a phased implementation roadmap, defines the conditions and outcomes that should characterize success, and presents the final call to action.

Together, these chapters provide a comprehensive framework for developing a Career & Workforce Innovation Center that is locally anchored, regionally connected, employer-led, educationally innovative, financially sustainable, and responsive to evolving workforce needs.

Figure 1.3 illustrates the organization of this Strategic Roadmap and the logical progression of the planning process used to develop recommendations for the River Rouge Career & Workforce Innovation Center. The report is intentionally structured to move from understanding River Rouge's workforce and economic conditions to identifying strategic opportunities, developing educational and workforce recommendations, establishing partnership and governance frameworks, and outlining funding and phased implementation strategies. Each chapter builds upon the preceding analysis, creating an integrated, evidence-based roadmap that supports informed decision-making and provides a practical framework for implementation.

FIGURE 1.3 Organization of the Strategic Roadmap

The Strategic Roadmap is organized into eleven chapters that build a clear pathway from understanding community needs to implementing a world-class Career & Workforce Innovation Center in River Rouge.



Source: Developed by the Workforce Intelligence Network (WIN) for the River Rouge Career & Workforce Innovation Center Strategic Roadmap.

Note: This figure provides an overview of the report structure and the flow of information presented throughout the Strategic Roadmap.

1.7 Strategic Recommendation

Recommendation

Develop the River Rouge Career & Workforce Innovation Center as a collaborative regional resource that aligns education, workforce development, employer engagement, and community partnerships around documented labor market demand.

Implementation should be guided by the principles of employer responsiveness, flexible learner pathways, and continuous improvement while leveraging existing educational assets and strengthening collaboration among regional partners. These principles provide the planning framework that informs the recommendations presented throughout this roadmap.

Chapter 2

Labor Market and Economic Analysis

Chapter at a Glance

This chapter analyzes labor market conditions within the Detroit Metro Prosperity Region to identify the industries, occupations, workforce trends, and educational strategies that should guide the development of the River Rouge Career & Workforce Innovation Center.

A separate community and labor market analysis prepared by WIN Research Specialists examines River Rouge-specific demographic, socioeconomic, employment, educational attainment, job-posting, skill, and credential data. Selected findings from that analysis are summarized in this chapter. The complete River Rouge Community and Labor Market Analysis, including community demographics, educational attainment, labor-force participation, employer demand, skills, and credentials, is provided in **Appendix A: River Rouge Community and Labor Market Analysis**.

The two analyses serve complementary purposes. The River Rouge analysis establishes the local need for accessible workforce education and learner support, while the regional analysis identifies the scale of employment opportunity, employer demand, educational partnerships, and resources necessary to sustain a comprehensive Career & Workforce Innovation Center.

Key Questions Addressed

- What local workforce and socioeconomic conditions affect River Rouge residents?
- Why must the Center be planned within a broader regional labor market?
- Which regional industries and occupations offer the strongest opportunities?
- What educational and partnership strategies should guide the Center?

2.1 Local Need and Regional Opportunity

The River Rouge Career & Workforce Innovation Center is rooted in the educational and economic needs of the River Rouge community. A local analysis prepared by WIN Research Specialists found that River Rouge has a population of approximately 7,000 residents and a comparatively small municipal labor market. The analysis also identified significant opportunities to increase labor-force participation, educational attainment, access to industry credentials, and connections to family-sustaining employment.

Among the working-age population included in the analysis, 49.4 percent were employed, 6.4 percent were unemployed and actively seeking work, and 44.2 percent were not participating in the labor force. More than one-fifth of adults age 25 and older had not completed high school, while 43.7 percent held a high school diploma or equivalent and 21.9 percent had attended college without earning a degree. These findings support the need for accessible adult education, short-term credentials, apprenticeships, learner supports, and clearly articulated pathways into postsecondary education and employment.

Local job-posting data also identify demand related to transportation, logistics, electrical work, industrial maintenance, engineering technology, safety, environmental compliance, and durable workplace skills. However, the number of postings is modest because River Rouge represents a small labor market. The local analysis therefore recommends supplementing municipal data with broader Wayne County or Detroit metropolitan labor market information when making long-term workforce and program decisions.

This distinction is central to the planning of the Center. River Rouge provides a compelling location and community mission, but the Center cannot be designed solely around jobs located within the city. A comprehensive Center requires access to a larger pool of employers, learners, educational partners, clinical and work-based learning sites, apprenticeship sponsors, instructors, equipment, and public and philanthropic resources. Planning at the regional level expands the range of viable career pathways and strengthens the likelihood that programs can be launched, sustained, and adapted over time.

Accordingly, the River Rouge Career & Workforce Innovation Center should be planned as a community-based asset serving a broader regional workforce ecosystem. This chapter therefore uses the Detroit Metro Prosperity Region as the primary labor market geography for identifying sustainable career pathways and long-term workforce opportunities. The River Rouge analysis informs decisions related to access, recruitment, equity, supportive services, and community benefit, while the regional analysis informs industry selection, occupational demand, program scale, employer partnerships, and long-term sustainability. Additional River Rouge-specific demographic, socioeconomic, employment, educational attainment, skill, credential, and employer-demand findings are presented in **Appendix A**.

Figure 2.1 illustrates the planning framework used throughout this chapter, demonstrating how the local needs identified in River Rouge are connected to the employers, educational partners, career opportunities, and resources of the Detroit Metro Prosperity Region.

FIGURE 2.1

PLANNING FRAMEWORK FOR THE RIVER ROUGE CAREER & WORKFORCE INNOVATION CENTER

From Local Need to Regional Opportunity

A regionally scaled strategy that connects local needs with regional assets, employer demand, and workforce opportunities to guide the development of the River Rouge Career & Workforce Innovation Center.



Source: WIN Research Specialists (2025); U.S. Census Bureau (2023); Michigan Center for Data and Analytics (2025); SEMCOG (2023).

Note: This framework illustrates how local needs in River Rouge are addressed through a regionally scaled strategy that informs the design and sustainability of the River Rouge Career & Workforce Innovation Center.

2.2 Executive Summary of Regional Labor Market Findings

The combined local and regional analyses support a clear planning conclusion: the River Rouge Career & Workforce Innovation Center should be **locally anchored and regionally scaled**. A community and labor market analysis prepared by WIN Research Specialists found significant opportunities to expand workforce participation, educational attainment, industry credential attainment, and access to family-sustaining careers for River Rouge residents. At the same time, the analysis found that River Rouge's relatively small population and municipal labor market cannot independently support the breadth of industries, employer partnerships, educational programs, work-based learning opportunities, and resources required for a comprehensive Career & Workforce Innovation Center. Accordingly, this chapter uses the Detroit Metro Prosperity Region as the primary labor market geography for identifying sustainable career pathways while recognizing River Rouge as the community anchor for the proposed Center.

The regional economy is undergoing significant transformation as advanced manufacturing, vehicle electrification, artificial intelligence, automation, healthcare innovation, infrastructure modernization, and evolving supply chains reshape employer demand. Although total employment in the Detroit Metro Prosperity Region is projected to decline modestly between 2022 and 2032, this statistic alone does not reflect the true demand for talent. Employers will continue to experience substantial hiring needs created by retirements, workforce turnover,

technological change, and evolving skill requirements. Consequently, workforce planning must consider annual job openings, replacement demand, employer-identified skill shortages, wages, and long-term career opportunities in addition to projected employment growth (Michigan Center for Data and Analytics [MCDA], 2025a).

The analysis identifies the following principal findings:

1. **Healthcare will remain a leading source of employment growth and replacement demand.** Healthcare and social assistance is projected to add more jobs statewide than any other major industry through 2032, while healthcare support occupations are projected to be Michigan's fastest-growing major occupational group (MCDA, 2025a).
2. **Manufacturing will remain economically important even as employment patterns evolve.** Although manufacturing employment is projected to decline because of automation, productivity improvements, and technological change, employers will continue to require highly skilled workers in industrial maintenance, mechatronics, robotics, automation, quality systems, machining, engineering technology, and related technical occupations.
3. **Engineering, mobility, and applied technology occupations remain central to the regional economy.** As Michigan's hub for automotive innovation, advanced manufacturing, engineering, and emerging mobility technologies, the Detroit Metro Prosperity Region continues to require a highly skilled technical workforce. Preparing learners for careers in engineering technologies, automation, robotics, advanced manufacturing, and related technical fields will help ensure that the River Rouge Career & Workforce Innovation Center aligns with the region's long-term economic competitiveness and workforce needs (MCDA, 2026; BLS, 2026).
4. **Transportation, construction, installation, maintenance, and material-moving occupations remain essential.** These occupations support manufacturing, infrastructure, logistics, utilities, building systems, and mobility throughout the regional economy.
5. **Technology has become a cross-cutting workforce competency.** Artificial intelligence, data literacy, automation, cybersecurity awareness, digital collaboration, and technology adaptability increasingly affect occupations across virtually every industry.
6. **Replacement demand will be as important as employment growth.** Retirements, occupational turnover, and workforce transitions will continue to generate substantial hiring needs, even in industries with stable or declining overall employment.
7. **Employers require both technical and durable skills.** Communication, teamwork, professionalism, adaptability, critical thinking, problem-solving, ethical decision-making, and continuous learning must complement occupation-specific technical competencies.
8. **Educational systems must provide multiple entry and exit points.** Secondary students, adult learners, incumbent workers, career changers, and dislocated workers require flexible pathways that include career exploration, dual enrollment, short-term credentials, certificates, degrees, work-based learning, and Registered Apprenticeships.

Collectively, these findings support the development of a Career & Workforce Innovation Center that is **community-centered, regionally connected, data-informed, employer-responsive, technologically current, partnership-driven, and organized around regional career pathways rather than isolated educational programs.**

Figure 2.2 provides an executive-level dashboard summarizing the regional workforce characteristics that shape planning for the River Rouge Career & Workforce Innovation Center. The dashboard highlights the Detroit Metro Prosperity Region's economic foundation, workforce outlook, employer demand, and educational planning priorities, providing a concise overview of the key findings that guide the detailed analysis presented throughout the remainder of this chapter.

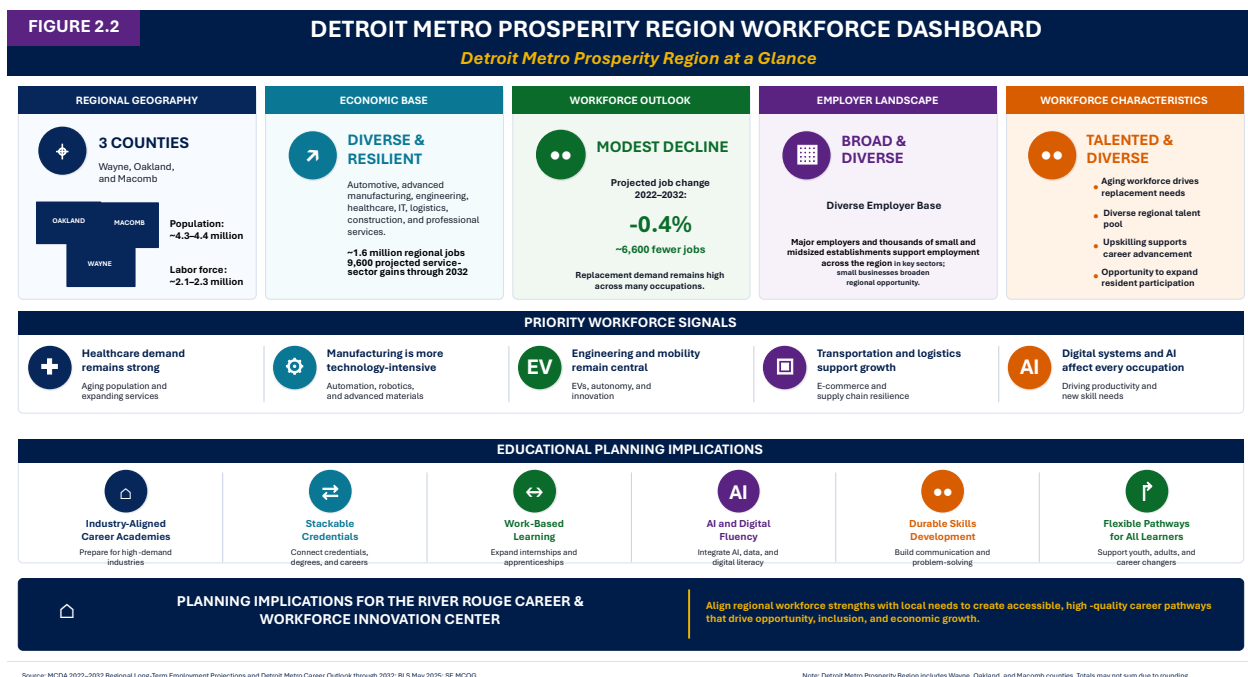


Table 2.1 provides a concise visual summary of the principal labor market findings that inform the planning and design of the River Rouge Career & Workforce Innovation Center. By connecting regional workforce conditions with their implications for the Center, the table highlights the economic trends, employer demands, skill requirements, and educational priorities that guide the more detailed analysis and recommendations presented throughout this chapter.

TABLE 2.1

PRINCIPAL REGIONAL LABOR MARKET FINDINGS

Key Takeaways and Strategic Implications for the River Rouge Career & Workforce Innovation Center

FINDING AREA		STRATEGIC PLANNING IMPLICATION
 Economic Outlook	The Detroit Metro Prosperity Region is experiencing economic transformation driven by advanced manufacturing, mobility, healthcare, AI, logistics, and infrastructure investment.	 Align programs with emerging industries while remaining adaptable to evolving workforce needs and long-term regional priorities.
 Healthcare Workforce	Healthcare continues to generate strong employment growth and replacement demand across a wide range of occupations.	 Expand healthcare career pathways, clinical partnerships, and work-based learning opportunities to strengthen the regional healthcare pipeline.
 Advanced Manufacturing	Manufacturing is becoming increasingly technology-intensive, requiring higher technical skills despite modest employment growth.	 Develop programs focused on automation, robotics, mechatronics, industrial maintenance, and advanced manufacturing technologies.
 Engineering, Mobility & Applied Technology	Engineering, electrification, mobility, and applied technologies remain major drivers of the regional economy and future job creation.	 Create career pathways that support engineering technologies, EV systems, robotics, automation, and related high-wage, high-skill occupations.
 Transportation & Logistics	Transportation, warehousing, supply chain management, and logistics remain essential sectors supporting regional growth.	 Incorporate transportation technologies, logistics operations, commercial driving, and supply chain competencies where appropriate.
 Technology Across Industries	AI, automation, digital systems, cybersecurity awareness, and data literacy are becoming foundational across nearly every occupation.	 Integrate digital fluency, AI literacy, and technology competencies across all Career Academies and credential pathways.
 Replacement Demand	Workforce retirements and turnover will create substantial ongoing hiring needs even in occupations with little projected net growth.	 Prioritize occupations with sustained replacement demand in addition to those with projected employment growth.
 Durable Skills	Employers consistently identify communication, teamwork, adaptability, critical thinking, and problem-solving as essential competencies.	 Embed durable skills throughout curriculum, work-based learning, and credential pathways.
 Career Pathway Design	Learners need multiple entry and exit points supported by stackable credentials, certificates, degrees, apprenticeships, and work-based learning.	 Design flexible, industry-aligned pathways that serve secondary students, adult learners, incumbent workers, career changers, and dislocated workers.
 Regional Workforce Strategy	Long-term sustainability depends on leveraging the employer, educational, workforce, and community resources of the Detroit Metro Prosperity Region while maintaining River Rouge as the community anchor.	 Develop the Center as a locally anchored, regionally scaled workforce innovation hub serving both River Rouge residents and the broader region.

Source: Michigan Center for Data and Analytics (MCDA); U.S. Bureau of Labor Statistics (BLS); SEMCOG; WIN Research Specialists (2025).

Note: Findings reflect analysis of regional labor market data and employer input.

Although this analysis begins with River Rouge's workforce, demographic, and educational characteristics, program recommendations are intentionally informed by labor market conditions across the Detroit Metro Prosperity Region. Residents routinely seek education and employment throughout the metropolitan area, and employers recruit talent from across municipal boundaries. Accordingly, regional labor market data provide the most appropriate basis for identifying priority industries, occupations, and long-term workforce investment strategies while ensuring that local community needs remain central to the Center's mission.

2.3 Regional Workforce Overview

The Detroit Metro Prosperity Region (Prosperity Region 10) represents Michigan's largest and most economically diverse labor market. Encompassing Wayne, Oakland, and Macomb counties, the region serves as the state's Center for automotive manufacturing, engineering, mobility innovation, healthcare, logistics, and advanced technologies. As a community within Wayne County, River Rouge is intrinsically connected to this regional economy, making the Detroit Metro Prosperity Region the appropriate framework for assessing workforce demand and informing the strategic recommendations presented in this report.

The Detroit Metro Prosperity Region is distinguished by its concentration of advanced manufacturing, engineering, mobility, logistics, and healthcare industries, making it one of

Michigan's most economically significant labor markets. The region's occupational profile reflects its longstanding leadership in automotive innovation, engineering, skilled trades, and advanced technologies, while continued investments in electrification, automation, and digital manufacturing are reshaping workforce requirements across multiple sectors. These regional strengths reinforce the need for education and workforce strategies that prepare learners for both current and emerging occupations aligned with employer demand (Michigan Center for Data and Analytics [MCDA], 2026; U.S. Bureau of Labor Statistics [BLS], 2026).

The region's industrial and occupational composition demonstrates the continuing importance of technical, production, engineering, transportation, and applied technology careers to the regional economy. These characteristics reinforce the need for educational programs that prepare learners to work with increasingly advanced equipment, digital systems, automated processes, artificial intelligence, and data-informed production environments.

Healthcare remains one of the region's largest employment sectors and continues to experience significant workforce shortages across a wide range of clinical, technical, and support occupations. Population aging, increased demand for healthcare services, and continued workforce retirements are expected to sustain employer demand for healthcare professionals throughout the Detroit Metro Prosperity Region.

The region offers career opportunities at multiple educational levels, but earnings vary considerably by occupation and level of preparation. The mean wage for all Detroit-area occupations was \$33.27 per hour in May 2025. Architecture and engineering occupations averaged \$51.17 per hour, while healthcare practitioners and technical occupations averaged \$49.11. Construction and extraction occupations averaged \$33.06 per hour; installation, maintenance, and repair occupations averaged \$30.32; production occupations averaged \$26.53; and transportation and material-moving occupations averaged \$24.62 (BLS, 2026).

These differences reinforce the importance of creating educational pathways that do more than prepare learners for initial employment. Programs should enable individuals to progress from entry-level credentials into advanced technical, supervisory, professional, and postsecondary opportunities that support wage growth and long-term economic mobility.

The region's labor market also illustrates why workforce development cannot be organized exclusively around occupations projected to experience rapid percentage growth. Production occupations, for example, remain highly concentrated in metropolitan Detroit even though the occupational group is projected to contract over the coming decade. Employers will continue to need workers to replace retirees and fill positions requiring more advanced technical competencies. For that reason, the Center should consider current employment concentration, annual openings, replacement demand, wages, employer input, and technological change when selecting career pathways.

The labor market findings summarized in Table 2.1 are further illustrated through the regional workforce profile presented in Figure 2.2. The dashboard provides an executive-level overview of the scale, composition, and characteristics of Detroit Metro Prosperity Region's workforce and establishes the broader context for the industry analysis that follows.

2.4 Economic and Workforce Drivers

Three interconnected forces are shaping the workforce environment in which the River Rouge Career & Workforce Innovation Center will operate: technological transformation, demographic change, and economic competitiveness.

Technological Transformation

Artificial intelligence, robotics, automation, electrification, digital production systems, data analytics, and connected technologies are changing how work is performed across nearly every industry. These technologies may reduce demand for some routine tasks while increasing demand for workers who can operate, maintain, troubleshoot, program, analyze, and improve sophisticated equipment and systems.

In manufacturing, workers increasingly encounter robotics, programmable controls, machine vision, digital work instructions, predictive maintenance, automated quality systems, and production analytics. The transition from traditional production to technology-enabled manufacturing increases demand for industrial maintenance technicians, mechatronics technicians, robotics specialists, quality professionals, machinists, engineering technicians, and workers with interdisciplinary mechanical, electrical, and digital skills.

Technology is similarly changing healthcare. Workers increasingly use electronic health records, diagnostic technologies, automated laboratory systems, remote-monitoring tools, digital scheduling systems, and AI-supported applications. Effective workforce preparation must therefore combine clinical and technical knowledge with digital fluency, data awareness, ethical judgment, communication, and patient-Centered care.

Construction and skilled-trades occupations are also becoming more technologically advanced. Building information modeling, digital estimating, smart-building controls, energy-management systems, electronic diagnostics, and advanced equipment are changing the competencies required of electricians, HVAC technicians, construction workers, welders, maintenance technicians, and related occupations.

These changes do not support creating a single technology program that operates separately from the rest of the Center. Instead, artificial intelligence, digital fluency, automation, cybersecurity awareness, and data literacy should be integrated into each Career Academy and applied in the context of the relevant industry.

Demographic Change

Demographic change affects the regional workforce in two significant ways. First, an aging population increases demand for healthcare, rehabilitation, diagnostic services, long-term care, home-based care, and personal assistance. Michigan projects that home health and personal care aides will add more positions in Metro Detroit than any other individual occupation between 2022 and 2032 (MCDA, 2025b).

Second, population aging accelerates retirements across manufacturing, skilled trades, healthcare, transportation, education, government, and other sectors. Employers must replace experienced workers who possess technical knowledge, institutional understanding, certifications, and practical workplace competencies developed over many years.

The resulting workforce need cannot be measured solely through projected net job creation. An occupation may experience modest growth—or even a small decline—while still producing substantial job openings because workers retire, transfer, or leave the labor force. The Center should therefore prepare learners for both expanding occupations and established occupations with significant replacement demand.

Economic Competitiveness

Detroit Metro Prosperity Region competes nationally and globally for employers, investment, technology, and talent. Its continued economic competitiveness will depend partly upon the region's ability to supply workers who possess current technical competencies, digital fluency, durable skills, and the ability to learn throughout their careers.

The Detroit Metro region is projected to experience modest overall employment contraction through 2032, but the underlying economy will continue to evolve. Service-producing sectors are expected to grow, healthcare demand will increase, and professional and technical services will remain important. At the same time, manufacturing and production will become more technologically intensive (MCDA, 2025a).

For River Rouge, workforce development is therefore also an economic-development strategy. A visible, employer-connected education and talent system can support business retention, business expansion, entrepreneurship, and future investment while creating more accessible pathways into family-sustaining employment for residents.

Figure 2.3 illustrates the major economic and workforce forces reshaping the Detroit Metro Prosperity Region and influencing future employer demand. These interconnected forces—including technological innovation, healthcare transformation, infrastructure investment, and evolving supply chains—provide the strategic context for identifying the priority industries,

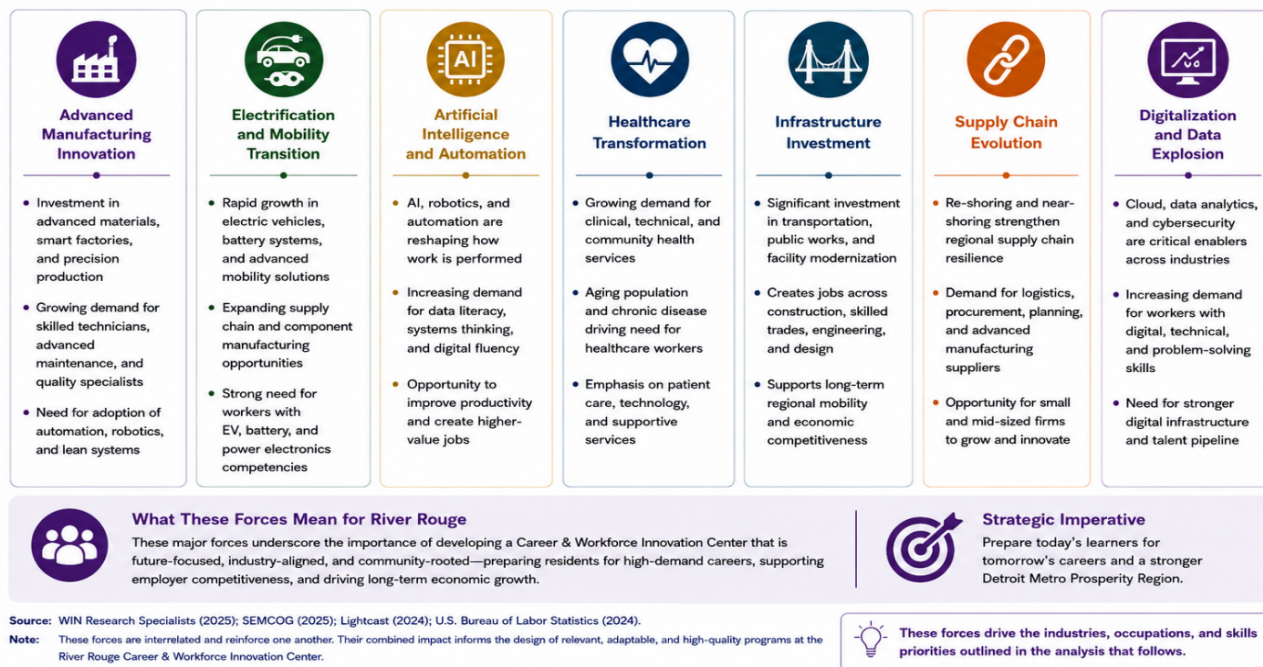
occupations, skills, and educational pathways examined throughout the remainder of this chapter.

FIGURE 2.3

MAJOR ECONOMIC AND WORKFORCE FORCES

Transforming the Detroit Metro Prosperity Region

The Detroit Metro Prosperity Region is experiencing powerful economic and workforce forces that are reshaping industries, jobs, and the skills needed for future success. These forces create both challenges and opportunities that inform the planning and program priorities for the River Rouge Career & Workforce Innovation Center.



2.5 Regional Education and Training Capacity

The Detroit metropolitan region is served by an extensive network of Career and Technical Education providers, community colleges, universities, apprenticeship sponsors, adult education programs, and workforce development organizations that collectively offer training across a broad range of industries and occupations. These institutions provide valuable educational opportunities and represent significant regional assets for workforce development.

However, the existence of educational programs does not necessarily ensure equitable access, efficient coordination, or sufficient capacity to meet employer demand. Program availability often varies by geographic location, transportation accessibility, scheduling flexibility, admission requirements, equipment availability, clinical or work-based learning capacity, and employer partnerships. In many technical fields, including healthcare, advanced manufacturing, skilled trades, transportation, and emerging technologies, employers continue to report difficulty recruiting qualified workers despite the presence of existing educational programs.

The proposed River Rouge Career & Workforce Innovation Center is therefore not intended to duplicate existing educational offerings. Rather, the Center is designed to function as a regional connector that improves awareness, accessibility, coordination, and alignment among existing education and workforce partners while expanding opportunities for River Rouge residents to access high-quality career pathways. Through strategic partnerships, shared programming, articulated pathways, work-based learning, and coordinated employer engagement, the Center can leverage existing regional capacity while addressing identified gaps in access, workforce responsiveness, and learner support.

This collaborative approach reflects current best practices in workforce development by emphasizing partnership, resource alignment, and coordinated service delivery rather than unnecessary duplication of educational infrastructure.

The River Rouge Career & Workforce Innovation Center should be distinguished less by whether it offers individual programs that may also be available elsewhere and more by the integrated operating model through which learners, employers, educational institutions, and workforce partners are connected. The table below summarizes how the proposed Center would complement existing regional Career and Technical Education and adult-training providers while creating a more coordinated, accessible, and responsive workforce-development system.

Table 2.2

Distinctive Role of the River Rouge Career & Workforce Innovation Center

Complementing and Expanding the Regional Education and Training System

Dimension	Common Delivery Approach	River Rouge Center Distinction
Mission	Deliver individual education or training programs.	Coordinate a regional workforce ecosystem around shared priorities.
Learners	Serve defined populations through separate programs.	Serve youth, adults, incumbent workers, career changers, and employers.
Program Design	Organize instruction around individual courses or occupations.	Use flexible Career Academies and stackable career pathways.
Employer Role	Engage employers primarily through advisory or recruitment activities.	Position employers as co-designers, work-based learning partners, and talent recruiters.
Work-Based Learning	Offer opportunities through individual programs when available.	Integrate internships, clinical learning, co-op, and Registered Apprentices into pathway design.
Postsecondary Connections	Link some programs to credentials or further education.	Create clear transitions from CTE and short-term training to certificates, degrees, apprenticeship, and employment.

Dimension	Common Delivery Approach	River Rouge Center Distinction
Technology and Skills	Address technology and employability skills within selected programs.	Embed AI literacy, digital fluency, durable skills, and emerging technologies across pathways.
Learner Support	Provide institution-based services or external referrals.	Coordinate career navigation and wraparound services through partner organizations.
Regional Assets	Operate primarily through the provider's own facilities, faculty, and partnerships.	Leverage shared regional programs, equipment, faculty expertise, employer sites, and clinical settings.
Labor Market Response	Revise programs through established institutional review cycles.	Use ongoing labor market data and employer feedback to guide program expansion, revision, or discontinuation.
Economic Development	Support economic development indirectly through education and placement.	Link workforce preparation directly to business growth, community revitalization, and regional competitiveness.

Note. *The River Rouge Center is differentiated not simply by the programs it may offer, but by how it connects learners, employers, education providers, workforce services, and community resources into an integrated regional career-pathway system.*

This comparison describes broad differences in operating structure and strategic emphasis. It is not intended as an evaluation of any individual regional education or training provider. Existing institutions would remain essential partners in the delivery of the Center's recommended pathways.

2.6 Employer and Stakeholder Validation

The findings and recommendations presented in this report are informed not only by labor market data, but also by WIN's established employer-engagement infrastructure and its ongoing relationships with education and workforce partners. Lightcast data provides a valuable source of real-time job posting analytics, helping to identify current hiring activity, in-demand occupations, employer skill requirements, and emerging workforce trends. However, job posting data is most useful when interpreted alongside direct employer input and the practical knowledge of regional workforce and education partners.

WIN regularly convenes two large, employer-led industry collaboratives: the Health Careers Alliance and the Michigan Alliance for Greater Mobility Advancement (MAGMA). Through scheduled meetings, employer discussions, project-specific workgroups, and ongoing engagement, these collaboratives provide direct insight into workforce shortages, changing occupational requirements, training priorities, recruitment challenges, and opportunities for

expanded work-based learning. Their input helps validate whether labor market trends reflected in the data are also being experienced by employers and whether proposed education and training strategies are responsive to actual workplace needs.

Additional validation is provided through WIN's governance structure. WIN's board includes representatives from the region's Michigan Works! agencies and community colleges, each of which maintains its own employer advisory groups, business-services relationships, Program Advisory Committees, and industry partnerships. These organizations contribute localized knowledge regarding employer demand, learner needs, existing training capacity, program development, placement outcomes, and barriers to participation.

Taken together, these complementary sources create a layered validation process. Real-time labor market analytics identify patterns and emerging demand; employer-led collaboratives provide direct industry interpretation; and Michigan Works! agencies and community colleges contribute local implementation knowledge and feedback from their respective employer networks. This combined approach strengthens confidence that the recommended priorities for the River Rouge Career & Workforce Innovation Center are data-informed, employer-validated, and grounded in the operational realities of the regional education and workforce system.

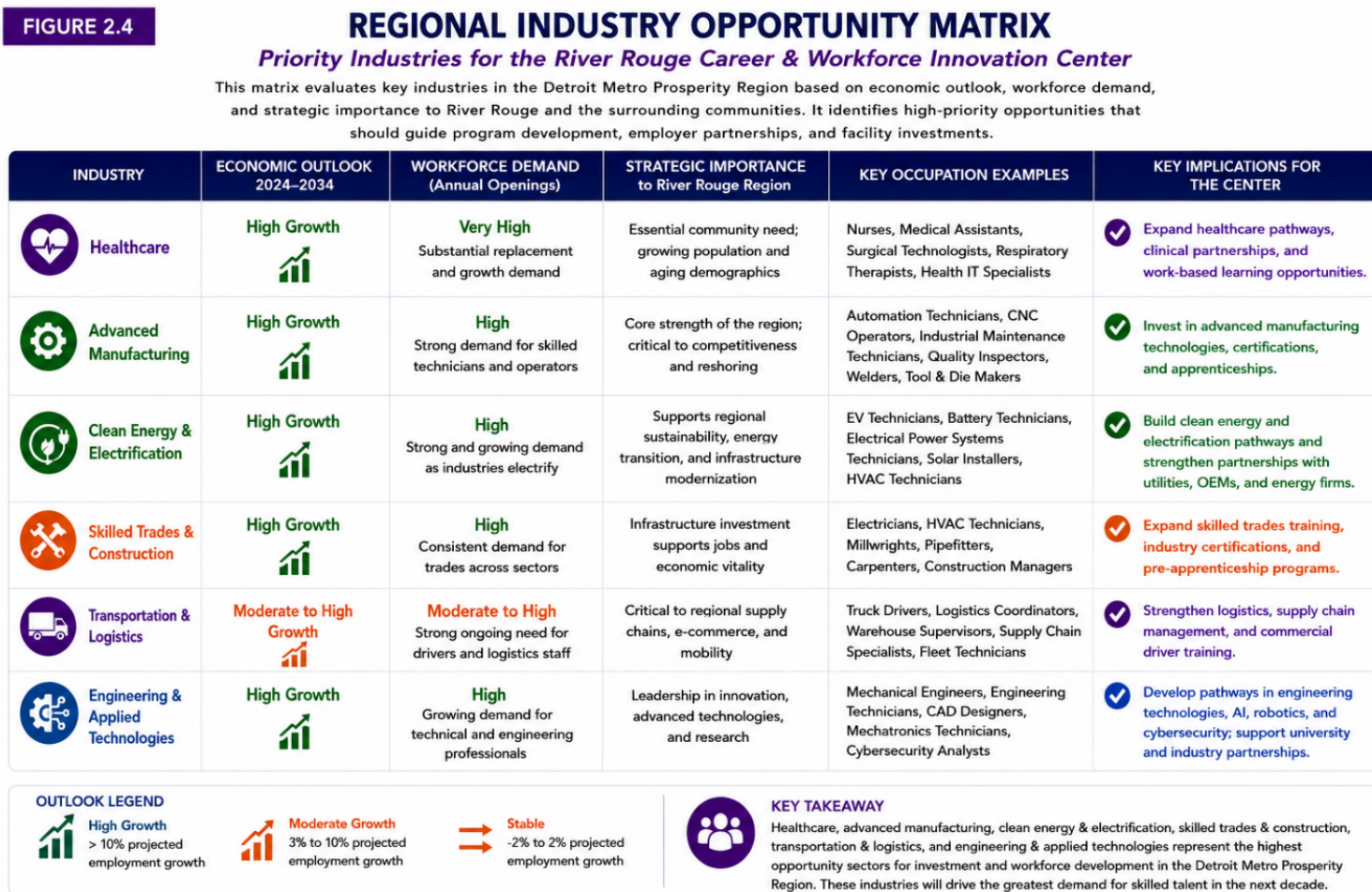
2.7 Priority Industry Sectors

The River Rouge Career & Workforce Innovation Center should concentrate its initial planning on industry sectors that combine regional economic importance, documented workforce need, opportunities for career advancement, and the availability of educational and employer partners.

The recommended sectors are not intended to represent a permanent or exclusive list. Rather, they provide a strategic starting point that can be refined through employer engagement, updated labor market analysis, program feasibility assessment, and evaluation of regional educational assets.

The selection of these priority sectors is supported by the occupational data presented in **Appendix B: Priority Occupations Supporting Recommended Career Pathways**. Appendix B provides additional detail on representative occupations within each sector, including Standard Occupational Classification codes, projected employment growth, annual job openings, regional wage ranges, and typical education or training requirements. The appendix relies primarily on Michigan labor market information for the Detroit Metro Prosperity Region, supplemented by U.S. Bureau of Labor Statistics data where appropriate. Together, the sector-level analysis in this section and the occupation-level evidence in Appendix B provide the basis for identifying potential Career Academies, sequencing program development, and evaluating future education and training investments.

Figure 2.4 provides a comparative overview of the principal industry sectors offering significant workforce and economic opportunity within the Detroit Metro Prosperity Region. By examining each sector’s projected outlook, workforce demand, strategic importance, representative occupations, and implications for educational planning, the matrix identifies the industries that should guide Career Academy development, employer partnerships, and long-term program investments for the River Rouge Career & Workforce Innovation Center. Appendix B expands upon this sector-level analysis by presenting detailed labor market information for selected occupations associated with each recommended pathway. **Appendix B** provides the more detailed occupation-level evidence supporting the sector-level findings summarized in Figure 2.4.



Source: Lightcast (2024); Michigan Center for Data and Analytics (2024); SEMCOG (2025); WIN Research Specialists (2025).

Healthcare

Healthcare provides employment opportunities across a broad range of educational levels, from short-term entry credentials to associate, bachelor’s, graduate, and professional degrees. Statewide projections identify healthcare and social assistance as the industry expected to add

the greatest number of jobs through 2032, with a projected increase of approximately 46,600 positions, or 7.5 percent (MCDA, 2025a).

Healthcare support occupations are projected to grow by 11.5 percent statewide, while healthcare practitioner and technical occupations are also expected to add substantial numbers of jobs. In Metro Detroit, home health and personal care aides alone are projected to add approximately 5,760 positions between 2022 and 2032 (MCDA, 2025a, 2025b).

Potential pathways associated with the Center may include:

- Nursing support and practical nursing
- Medical assisting
- Emergency medical services
- Respiratory therapy
- Surgical technology
- Diagnostic imaging and sonography
- Medical laboratory technology
- Behavioral health support
- Health information technology
- Patient care and rehabilitation support
- Dental assistant and hygienist

Many healthcare programs require specialized accreditation, clinical placements, qualified faculty, licensure alignment, simulation technology, and expensive equipment. The Center should therefore develop healthcare pathways through partnerships with existing accredited community colleges, universities, health systems, long-term care providers, public health organizations, and workforce agencies rather than independently duplicating established programs.

The Center may also support healthcare career exploration, prerequisite education, dual enrollment, simulation, clinical-readiness preparation, apprenticeship-related instruction, and shared laboratory experiences.

Advanced Manufacturing

Manufacturing remains one of the defining components of Detroit Metro Prosperity Region's economy and a critical part of its identity, supply chains, infrastructure, and employment base. Although statewide manufacturing employment is projected to decline by approximately 3.0 percent between 2022 and 2032, the sector will continue to require workers with increasingly advanced technical capabilities (MCDA, 2025a).

Metro Detroit is projected to experience a decline in some production and manufacturing positions, reflecting automation, productivity improvements, changing product demand, and industrial restructuring. This should not be interpreted as evidence that manufacturing education is no longer needed. Rather, it reinforces the need to shift programming toward occupations and competencies associated with advanced manufacturing.

Priority areas may include:

- Industrial maintenance
- Mechatronics
- Robotics and automation
- Programmable logic controllers
- Computer numerical control machining
- Welding and fabrication
- Quality systems
- Additive manufacturing
- Machine vision
- Manufacturing data systems
- Predictive maintenance
- Production and process improvement

Programs should integrate mechanical, electrical, digital, and problem-solving competencies because modern manufacturing increasingly requires workers who can operate across traditional occupational boundaries.

Clean Energy and Electrification

Electrification is reshaping automotive manufacturing, utilities, construction, transportation, infrastructure, and building systems. It is also directly aligned with the purpose of the Michigan Vehicle Technology Transition Impact Project.

Potential training areas include:

- Electric-vehicle systems
- Battery technologies
- Charging infrastructure
- Electrical systems
- Energy storage
- Energy-management systems
- Renewable-energy technologies
- Smart-grid applications
- Building electrification

- Advanced manufacturing processes
- Safety practices for high-voltage systems

Clean energy and electrification should not be treated as a narrow automotive specialty. Electrification affects manufacturing technicians, electricians, engineers, construction workers, utility employees, maintenance personnel, transportation workers, and emergency responders.

This sector can therefore serve as an organizing theme connecting advanced manufacturing, skilled trades, engineering, technology, infrastructure, and transportation pathways.

Skilled Trades and Construction

Skilled-trades and construction pathways provide strong opportunities for paid work-based learning, pre-apprenticeship, and Registered Apprentices. These occupations are essential to infrastructure modernization, industrial maintenance, housing, commercial development, energy systems, transportation, utilities, and advanced manufacturing.

Potential fields include:

- Electrical
- Heating, ventilation, air conditioning, and refrigeration
- Plumbing and pipefitting
- Welding
- Carpentry
- Millwright work
- Industrial maintenance
- Building controls
- Construction management
- Energy-efficient building systems

Detroit-area construction and extraction occupations averaged \$33.06 per hour in May 2025. Installation, maintenance, and repair occupations averaged \$30.32 per hour (BLS, 2026). These occupational groups can provide family-sustaining career opportunities while offering structured progression through apprenticeship, advanced credentials, supervisory positions, and business ownership.

The Center should work closely with employers, labor organizations, apprenticeship sponsors, community colleges, contractors, industry associations, and Michigan Works! agencies to connect learners with recognized pre-apprenticeship and Registered Apprentices pathways.

Transportation and Logistics

River Rouge's geographic location, transportation infrastructure, industrial base, and proximity to regional supply chains make transportation, warehousing, logistics, and supply-chain occupations particularly relevant.

Transportation and material-moving occupations represented 8.7 percent of Detroit-area employment in May 2025. This occupational group supports manufacturing, construction, commerce, healthcare, infrastructure, and the movement of goods throughout the region (BLS, 2026).

Potential programming may include:

- Commercial transportation
- Warehouse operations
- Inventory systems
- Supply-chain fundamentals
- Logistics technologies
- Fleet operations
- Transportation safety
- Equipment operation
- Procurement and materials management
- Automated warehousing systems

Digital technologies, automation, data analytics, and cybersecurity awareness should be incorporated because transportation and logistics increasingly depend on technology-enabled routing, inventory management, warehouse automation, predictive maintenance, and fleet-management systems.

Engineering and Applied Technologies

Engineering and technical services support product development, manufacturing, construction, quality, energy, infrastructure, mobility, and digital transformation. Detroit's concentration of architecture and engineering occupations is more than twice the national employment share, demonstrating the sector's distinctive importance to the region (BLS, 2026).

Potential educational pathways include:

- Computer-aided design
- Engineering technology
- Quality engineering and quality systems
- Product testing
- Technical documentation
- Digital twins

- Simulation technologies
- Data analytics
- Cybersecurity
- Automation systems
- Additive manufacturing
- Applied artificial intelligence

These pathways should provide multiple entry points, including high school career exploration, dual enrollment, industry credentials, associate-degree programs, university transfer, internships, and employer-sponsored projects.

2.8 Workforce Trends Affecting Educational Planning

The selection of priority industries is only one component of workforce planning. The Center must also respond to several cross-cutting trends that affect how education should be designed and delivered.

Figure 2.5 highlights the principal workforce trends shaping educational planning and talent development across the Detroit Metro Prosperity Region. These interconnected trends—including workforce retirements, talent shortages, rapid technological advancement, increasing demand for higher-level technical and durable skills, career mobility, and equitable access to education and training—provide important context for designing flexible, employer-responsive career pathways that prepare learners for long-term success in a rapidly evolving regional economy.

FIGURE 2.5

REGIONAL WORKFORCE TRENDS

Trends Shaping Educational Planning and Career Opportunities in the Detroit Metro Prosperity Region

These workforce trends reflect the shifting nature of work in the region and help inform the design of future-focused programs, curriculum, partnerships, and supports at the River Rouge Career & Workforce Innovation Center.



Source: Lightcast™ (2024); Michigan Center for Data and Analytics (MCDA) (2024); SEMCOG (2025); U.S. Bureau of Labor Statistics (BLS) (2024); WIN Research Specialists (2025).

Artificial Intelligence (AI) and Digital Fluency

Addressing technology acceleration, students should be provided opportunity to secure entry-level skills in artificial intelligence and digital fluency. Neither should not be treated solely as a stand-alone occupational pathway but rather be incorporated across the Center’s Career Academies in ways that are appropriate to each industry.

Learners should develop competencies in:

- Foundational AI literacy
- Responsible and ethical use
- Evaluation of AI-generated information
- Data interpretation

- Cybersecurity awareness
- Digital collaboration
- Prompting and effective interaction with AI tools
- Protection of confidential and proprietary information
- Industry-specific AI applications
- Recognition of situations requiring human review and judgment

Instruction should emphasize practical application. Manufacturing learners may use AI-enabled tools for predictive maintenance or quality analysis. Healthcare learners may examine documentation, scheduling, or diagnostic-support applications. Construction learners may encounter AI through estimating, design, safety, and building-management systems. Transportation learners may use route optimization, fleet analytics, or inventory forecasting.

Automation and Occupational Change

Automation is more likely to change tasks within many occupations than to eliminate entire fields. Workers will increasingly be expected to interact with technology, troubleshoot automated processes, interpret system data, and adapt as equipment and procedures evolve.

Programs should therefore prepare learners to understand both the technical process and the digital systems supporting it. A worker who can perform only a narrow set of routine tasks may be vulnerable to technological change. A worker who understands the broader system, solves problems, communicates effectively, and learns new technologies is more likely to remain employable and advance.

Demographic Change and Replacement Demand

Program decisions should not be based exclusively on projected percentage growth. A stable or declining occupation may still produce substantial annual openings because of retirements, occupational transfers, and worker turnover.

The Center's labor market review process should examine:

- Current regional employment
- Projected employment change
- Annual job openings
- Replacement demand
- Wage levels
- Education and credential requirements
- Employer-reported shortages
- Career advancement potential
- Work-based learning availability

- Program cost and implementation feasibility

This broader approach will help the Center avoid overlooking occupations that remain economically important despite modest growth projections.

Durable Skills

Technical expertise alone is insufficient for long-term career success. Employers need workers who can communicate, collaborate, solve problems, demonstrate professionalism, adapt to change, exercise judgment, and continue learning.

The Center should intentionally teach, reinforce, and assess durable skills throughout technical and academic programs leveraging the Durable Skills Advantage Framework available through Henry Ford College. These competencies include:

1. **Communication** – Communicate clearly, listen effectively, and interact professionally.
2. **Leadership** – Take initiative, guide others, and achieve shared goals.
3. **Metacognition** – Reflect on learning, monitor progress, and improve performance.
4. **Critical Thinking** – Analyze information, solve problems, and make sound decisions.
5. **Collaboration** – Work effectively with others to accomplish common objectives.
6. **Character** – Demonstrate integrity, accountability, professionalism, and ethical behavior.
7. **Creativity** – Generate ideas, innovate, and adapt to new challenges.
8. **Growth Mindset** – Embrace learning, feedback, and continuous improvement.
9. **Mindfulness** – Demonstrate self-awareness, emotional intelligence, and professional composure.
10. **Fortitude** – Show resilience, perseverance, and adaptability when facing challenges.

Durable skills should be reinforced and demonstrated through projects, teamwork, workplace simulations, employer feedback, presentations, internships, clinical experiences, and other applied learning activities rather than addressed only through participation in stand-alone curricular instruction.

Postsecondary Attainment and Stackable Credentials

The Center should not develop educational pathways that end with a single short-term credential. Entry-level credentials should connect to additional certifications, college certificates, associate degrees, bachelor's-degree transfer opportunities, Registered Apprentices, continuing education, and incumbent-worker advancement.

A stackable model will allow learners to enter employment earlier while maintaining clear opportunities for continued education and wage progression. It will also accommodate learners

whose educational and career journeys do not follow a traditional, uninterrupted academic sequence.

Work-Based Learning

Employers increasingly expect applicants to understand workplace expectations and apply technical knowledge in realistic settings. Work-based learning should therefore be treated as a central instructional strategy rather than an optional enrichment activity.

Opportunities may include:

- Career awareness and employer presentations
- Industry tours
- Job shadowing
- Mentoring
- Employer-sponsored projects
- Internships
- Cooperative education
- Clinical education
- Pre-apprenticeship
- Registered Apprenticeships
- Faculty externships

These experiences help learners make informed career decisions, develop professional networks, demonstrate workplace competencies, and transition more successfully into employment.

Addressing the workforce challenges and opportunities identified throughout this chapter requires coordinated action among education, industry, workforce development, government, and community partners.

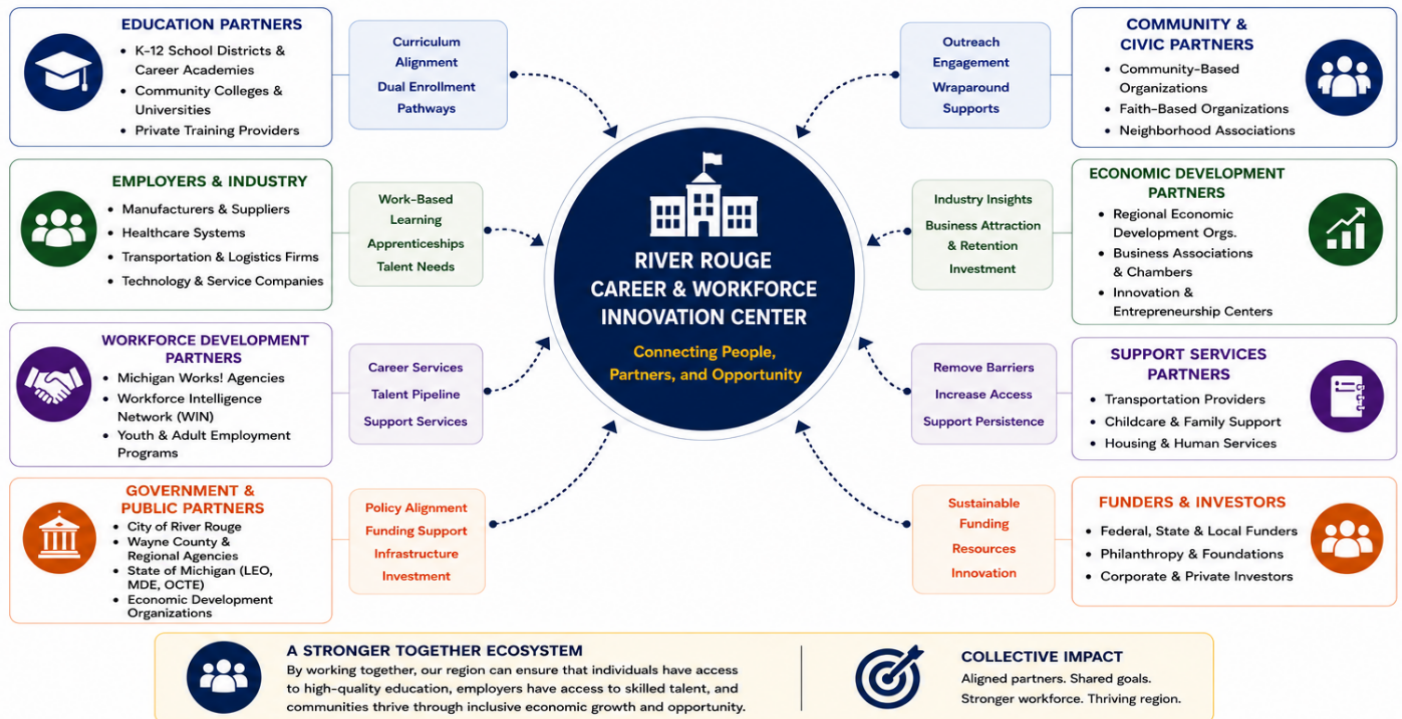
Figure 2.6 illustrates the Detroit Metro Prosperity Region Workforce Ecosystem, demonstrating how the River Rouge Career & Workforce Innovation Center serves as a regional convener that aligns these partners to expand talent pipelines, strengthen career pathways, support employers, and advance inclusive economic growth. The ecosystem reinforces that no single organization can meet the region's workforce needs alone; rather, sustained collaboration is essential to overcoming challenges and achieving long-term workforce and economic success.

FIGURE 2.6

DETROIT METRO PROSPERITY REGION WORKFORCE ECOSYSTEM

A Collaborative Network Advancing Talent, Opportunity, and Economic Growth

The River Rouge Career & Workforce Innovation Center will serve as a catalyst and connector within a strong regional ecosystem that aligns education, workforce, industry, government, and community to prepare people for in-demand careers.



Source: Workforce Intelligence Network (WIN) (2025); SEMCOG (2025); Michigan Department of Labor and Economic Opportunity (LEO) (2024).

2.9 Implications for the River Rouge Career & Workforce Innovation Center

The labor market findings lead to several direct planning implications for the Center.

Organize Programming Around Broad Career Pathways

Programs should be organized around broad industry sectors rather than individual job titles. Industry pathways provide sufficient stability to remain useful as specific occupations, technologies, and employer needs change.

Prioritize Industries with Multiple Indicators of Opportunity

The Center should prioritize industries that combine regional economic importance, employment concentration, annual openings, replacement demand, wage potential, employer need, partnership capacity, and opportunities for educational advancement.

Healthcare, advanced manufacturing, clean energy and electrification, skilled trades, transportation and logistics, and engineering and applied technologies meet these criteria.

Embed Technology Across All Programs

Artificial intelligence, digital fluency, data literacy, automation, and cybersecurity awareness should be incorporated throughout the curriculum. These competencies should be applied within each learner's technical field rather than taught only through isolated technology courses.

Integrate Durable Skills

Communication, collaboration, adaptability, professionalism, problem-solving, ethical judgment, and continuous learning should be intentionally taught, reinforced and assessed within every pathway.

Make Work-Based Learning a Core Design Feature

Internships, clinical education, job shadowing, cooperative education, employer-sponsored projects, pre-apprenticeship, and Registered Apprentices should be integrated into program design whenever feasible.

Build Stackable Educational Pathways

Programs should include multiple entry and exit points and connect short-term credentials to postsecondary certificates, degrees, apprenticeship, advanced certifications, and continuing education.

Coordinate Rather Than Duplicate

The Center should function as a coordinating hub rather than attempting to independently deliver every program. Community colleges, universities, employers, labor organizations, apprenticeship sponsors, Michigan Works! agencies, school districts, and community organizations already possess significant expertise and educational assets that can be aligned through the Center.

Establish an Ongoing Labor Market Review Process

Labor market analysis should not be treated as a one-time planning activity. The Center should regularly review:

- Employment projections
- Job-posting trends
- Employer feedback
- Program enrollment and completion
- Credential attainment
- Work-based learning participation
- Graduate placement
- Wage outcomes
- Emerging technologies
- Changes in licensing and industry standards

These indicators should inform decisions to introduce, expand, revise, pause, or discontinue programming.

2.10 Labor Market Analysis to Strategic Recommendations

The analysis presented in this chapter establishes a direct line of evidence from regional economic conditions to the recommendations presented throughout the Strategic Roadmap.

Labor market information identifies the industries and occupations that provide the strongest opportunities for learners and employers. Employer engagement validates the competencies, technologies, credentials, and workplace experiences required within those industries. Career pathways then organize those requirements into accessible educational progressions. The Career Academy Model provides the institutional structure for delivering the pathways, while the Educational Delivery Model establishes how learners will access and complete them.

The Regional Workforce Ecosystem described later in the report provides the partnerships necessary to implement the model. Facility, governance, funding, and implementation recommendations then translate the analysis into an actionable strategy.

This progression ensures that the Center's recommendations are not based on isolated program preferences. They are grounded in documented workforce conditions, regional economic priorities, employer participation, educational best practices, and implementation feasibility.

The labor market analysis presented throughout this chapter provides the evidence base for the strategic framework that guides the River Rouge Career & Workforce Innovation Center.

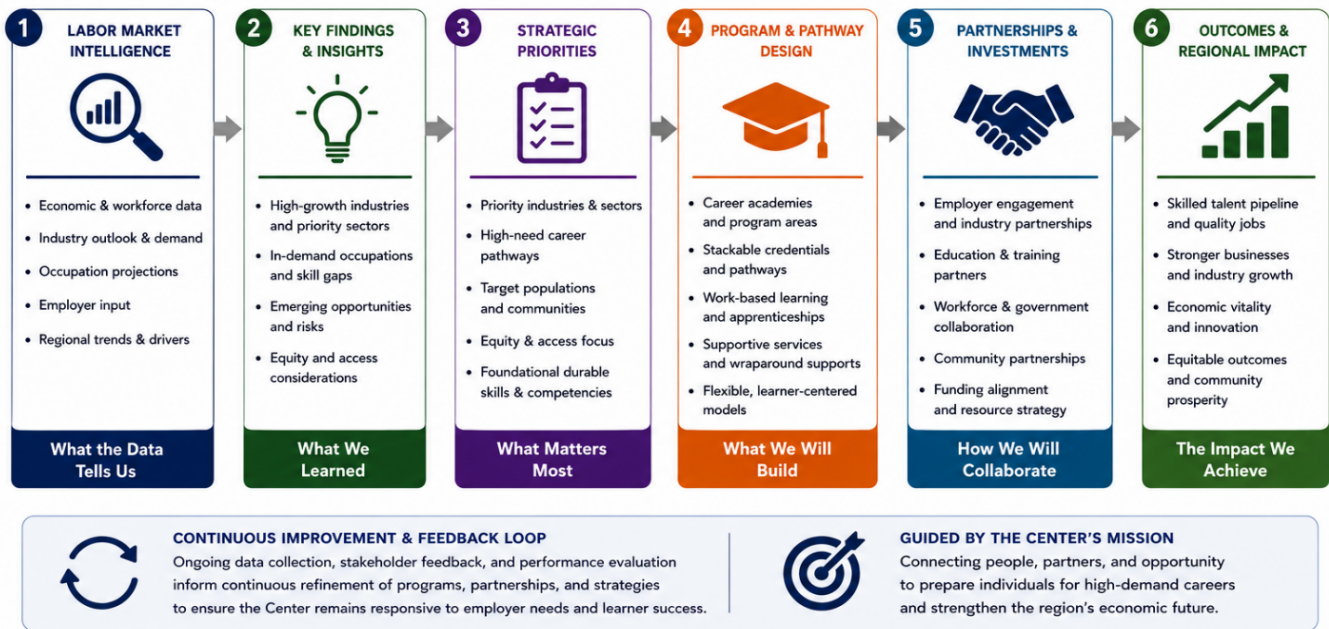
Figure 2.7 illustrates how regional labor market intelligence is translated into strategic priorities, program design, partnership development, and measurable outcomes. This data-driven planning

process ensures that the Center's recommendations are grounded in documented workforce demand, employer input, educational best practices, and regional economic development priorities, creating a clear pathway from analysis to implementation.

FIGURE 2.7 FROM LABOR MARKET ANALYSIS TO STRATEGIC RECOMMENDATIONS

Data-Driven Insights Informing the River Rouge Career & Workforce Innovation Center

This integrated process transforms labor market intelligence into actionable strategies that guide program design, partnerships, investments, and long-term impact.



Source: Workforce Intelligence Network (WIN) (2025); SEMCOG (2025); Michigan Department of Labor and Economic Opportunity (LEO) (2024).

2.11 Strategic Recommendation

Use regional labor market intelligence, ongoing employer validation, and continuous review of workforce trends to guide the development and expansion of the River Rouge Career & Workforce Innovation Center. Initial planning should prioritize healthcare, advanced manufacturing, clean energy and electrification, skilled trades and construction, transportation and logistics, and engineering and applied technologies, while integrating artificial intelligence, digital fluency, durable skills, work-based learning, and stackable credentials across all career pathways.

2.12 Chapter Summary

The workforce and economic analysis presented in this chapter demonstrates that the proposed River Rouge Career & Workforce Innovation Center addresses both local community needs and broader regional workforce priorities. While River Rouge faces challenges related to educational

attainment, workforce participation, and equitable access to career opportunities, it is also strategically positioned within one of Michigan's most diverse and dynamic regional economies. The analysis identifies sustained demand across healthcare, advanced manufacturing, skilled trades, transportation and logistics, engineering, information technology, and emerging clean-energy industries, while highlighting the increasing importance of durable skills, digital fluency, work-based learning, and stackable educational pathways.

Equally important, the analysis demonstrates that the region possesses substantial educational, workforce, and employer assets that can be more effectively coordinated to expand opportunity for residents and strengthen the regional talent pipeline. The recommendations presented throughout the remainder of this report build upon these findings by outlining a collaborative implementation framework that is locally anchored, regionally connected, and designed to remain responsive to evolving workforce and economic conditions.

Chapter 3

Vision and Strategic Framework

Chapter at a Glance

Purpose

This chapter establishes the long-term strategic direction for the River Rouge Career & Workforce Innovation Center (RRCWIC). Building upon the labor market evidence presented in Chapter 2, it defines the Center's vision, mission, guiding principles, strategic goals, operating model, and performance framework. Collectively, these elements provide the strategic foundation that will guide future planning, decision-making, partnership development, and implementation.

Key Questions Addressed

- What should the River Rouge Career & Workforce Innovation Center become?
- What mission should guide its work?
- What principles should shape future decisions?
- What strategic outcomes should the Center pursue?
- How should the Center operate within the regional workforce ecosystem?
- How will long-term success be measured?

Chapter Introduction

Chapter 2 demonstrated that the Detroit Metro Prosperity Region is experiencing significant workforce transformation driven by technological innovation, demographic change, employer demand, and evolving skill requirements. These trends create both challenges and opportunities for River Rouge. While the community faces barriers related to educational attainment, workforce participation, and economic mobility, it is strategically positioned within one of Michigan's most diverse and economically significant labor markets (Michigan Center for Data and Analytics [MCDA], 2025a).

The labor market analysis also demonstrated that no single educational institution can independently respond to these complex workforce challenges. Rather, successful workforce development increasingly depends upon coordinated partnerships among employers, educational institutions, workforce agencies, economic development organizations, labor organizations, and community-based organizations. National workforce research consistently concludes that regional workforce ecosystems outperform isolated workforce initiatives because

they align education, industry, and public investment around shared economic priorities (Jobs for the Future [JFF], 2023; National Governors Association [NGA], 2022).

Accordingly, this chapter establishes the strategic framework for the River Rouge Career & Workforce Innovation Center. Rather than defining a traditional educational institution, it presents a vision for a collaborative regional workforce hub that coordinates Career and Technical Education, workforce development, employer engagement, and community partnerships to expand educational opportunity, strengthen regional talent pipelines, and support long-term economic competitiveness.

The strategic framework presented in this chapter serves as the foundation for the implementation recommendations that follow. Subsequent chapters build upon this framework by identifying priority career pathways, recommending an integrated Career Academy Model, defining innovative educational delivery strategies, establishing a regional workforce ecosystem, and outlining governance, funding, facility planning, and phased implementation.

3.1 Strategic Vision

The River Rouge Career & Workforce Innovation Center should become a nationally recognized regional workforce innovation hub that prepares individuals for high-demand careers while strengthening economic mobility, employer competitiveness, and community prosperity throughout the Detroit Metro Prosperity Region.

Rather than functioning as another educational institution, the Center should serve as the connective infrastructure linking education, employers, workforce development, economic development, and community organizations into a coordinated talent development ecosystem. Through this collaborative approach, the Center can expand access to career-connected learning while leveraging the expertise, facilities, instructional capacity, and employer relationships that already exist throughout Southeast Michigan.

The Center should provide educational opportunities that serve learners throughout every stage of the workforce continuum, including middle and high school students exploring career options, adult learners seeking new opportunities, incumbent workers advancing their skills, unemployed individuals reentering the workforce, veterans transitioning to civilian careers, and employers requiring customized workforce solutions.

Consistent with the findings presented in Chapter 2, educational programming should emphasize career pathways that respond to documented labor market demand while remaining sufficiently flexible to evolve as industries, occupations, and technologies continue to change (MCDA, 2025a; U.S. Bureau of Labor Statistics [BLS], 2026).

Equally important, the Center should strengthen the broader workforce ecosystem by serving as a regional convener that aligns educational programming, workforce services, employer engagement, and community supports into an integrated system that expands opportunity for River Rouge residents while contributing to the long-term competitiveness of the Detroit metropolitan economy.

National workforce organizations increasingly recognize that sustainable workforce development depends upon coordinated regional partnerships rather than isolated educational programs. Successful workforce ecosystems integrate career pathways, employer leadership, work-based learning, stackable credentials, and continuous labor market analysis to create responsive talent development systems capable of adapting to changing economic conditions (Advance CTE, 2022; JFF, 2023; NGA, 2022).

Figure 3.1. Vision in Practice for the River Rouge Career & Workforce Innovation Center. The Center is envisioned as a regional workforce hub that aligns employer demand, education, workforce development, and community partnerships to create accessible career pathways leading to employment, lifelong learning, and regional economic prosperity. The model reflects nationally recognized workforce development practices emphasizing employer leadership, stackable credentials, work-based learning, and coordinated regional partnerships

FIGURE 3.1. VISION IN PRACTICE: RIVER ROUGE CAREER & WORKFORCE INNOVATION CENTER

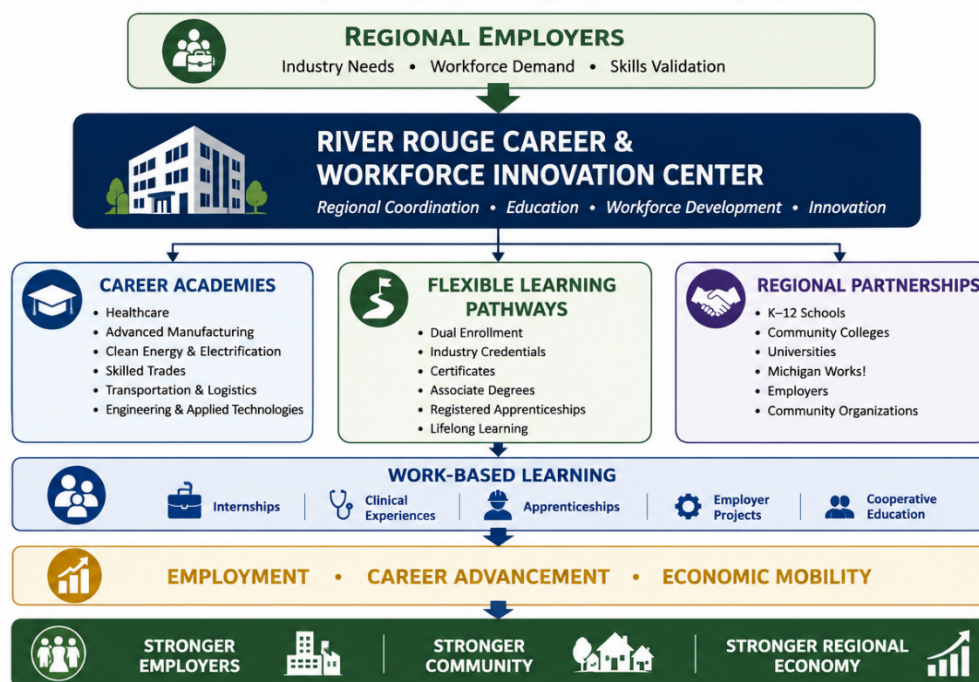


Figure 3.1. Vision in Practice for the River Rouge Career & Workforce Innovation Center. The Center is envisioned as a regional workforce hub that aligns employer demand, education, workforce development, and community partnerships to create accessible career pathways leading to employment, lifelong learning, and regional economic prosperity. The model reflects nationally recognized workforce development practices emphasizing employer leadership, stackable credentials, work-based learning, and coordinated regional partnerships. (Advance CTE, 2022; Jobs for the Future, 2023; NGA, 2022)

3.2 Mission

The mission of the River Rouge Career & Workforce Innovation Center is to expand educational opportunity, strengthen regional talent pipelines, and promote economic mobility by connecting learners, employers, educational institutions, workforce agencies, and community partners through innovative, career-connected education and workforce development.

The Center will serve as a regional workforce innovation hub that aligns education and training with documented labor market demand while creating accessible pathways to high-wage, high-skill, and high-demand careers. Through collaborative partnerships, the Center will support learners across the continuum of education and employment—from career awareness and exploration through postsecondary education, industry-recognized credentials, Registered Apprenticeship, employment, and lifelong learning.

Rather than duplicating existing educational programs or workforce services, the Center will leverage and coordinate the considerable assets that already exist throughout Southeast Michigan. Community colleges, K–12 school districts, universities, employers, Michigan Works! agencies, labor organizations, economic development organizations, and community-based organizations each contribute unique expertise and resources. The Center's role is to integrate these assets into a coordinated workforce ecosystem that improves access, reduces duplication, and increases the effectiveness of regional workforce investments (Jobs for the Future [JFF], 2023; National Governors Association [NGA], 2022).

Employer leadership will remain central to the Center's mission. Industry partners will play an active role in validating workforce needs, informing curriculum development, expanding work-based learning opportunities, supporting equipment and technology investments, and helping ensure that educational programming remains responsive to evolving workforce requirements. Research consistently demonstrates that sustained employer engagement results in stronger alignment between education and workforce needs, improved learner outcomes, and increased regional competitiveness (Advance CTE, 2022; Association for Career and Technical Education [ACTE], 2021).

The Center is equally committed to promoting educational equity and economic opportunity. By reducing barriers to education and employment, expanding access to career-connected learning, and providing comprehensive learner support services, the Center will help individuals of all ages and backgrounds prepare for meaningful careers while contributing to the long-term vitality of the River Rouge community and the broader Detroit metropolitan region. This commitment aligns with national best practices recognizing that inclusive workforce development strengthens both individual economic mobility and regional economic resilience (Brookings Institution, 2021; U.S. Department of Labor, 2024).

Ultimately, the River Rouge Career & Workforce Innovation Center will measure its success not only by the number of individuals served, but by the strength of the partnerships it cultivates, the responsiveness of its educational programs to employer demand, the quality of career pathways it creates, and its measurable contribution to regional workforce development, economic growth, and community prosperity.

Proposed Mission Statement

The River Rouge Career & Workforce Innovation Center connects education, employers, workforce development, and community partnerships to prepare learners for high-demand careers, strengthen regional talent pipelines, and advance economic mobility through innovative, career-connected learning.

3.3 Guiding Principles

The following guiding principles establish the values and operating philosophy of the River Rouge Career & Workforce Innovation Center. Together, they provide the framework for decision-making, partnership development, program design, and continuous improvement. These principles reflect nationally recognized best practices in Career and Technical Education, workforce development, regional economic development, and employer engagement while responding directly to the workforce needs identified in Chapter 2.

Employer-Driven Decision Making

The Center will maintain employers as the primary drivers of workforce program planning and continuous improvement. Industry partners will play an active role in identifying emerging workforce needs, validating occupational competencies, informing curriculum development, expanding work-based learning opportunities, and evaluating program outcomes.

Employer engagement will extend beyond advisory participation to include ongoing collaboration throughout program design, implementation, and evaluation. This approach ensures that educational programs remain responsive to changing technologies, evolving occupational requirements, and regional labor market demand. Research consistently demonstrates that sustained employer leadership improves curriculum relevance, strengthens learner outcomes, and increases workforce responsiveness (Advance CTE, 2022; Association for Career and Technical Education [ACTE], 2021).

Learner-Centered Access and Equity

The Center will provide accessible, inclusive, and flexible educational opportunities that support learners of all ages, backgrounds, and experience levels. Educational programming will be

intentionally designed to reduce barriers related to transportation, cost, scheduling, childcare, technology, disability, and academic preparedness.

Recognizing that learners enter the workforce continuum through many different pathways, the Center will support middle and high school students, recent graduates, adult learners, incumbent workers, unemployed individuals, veterans, and career changers. Comprehensive student support services—including career coaching, academic advising, navigation assistance, and connections to community resources—will promote persistence, credential attainment, and employment success. National research consistently identifies wraparound support services as essential components of successful workforce development initiatives (Brookings Institution, 2021; U.S. Department of Labor, 2024).

Career Pathway Alignment

Educational programming will be organized around clearly defined career pathways that provide multiple entry and exit points while supporting lifelong learning and career advancement. Programs will emphasize stackable, industry-recognized credentials that allow learners to build upon prior education and work experience as they progress toward higher levels of education and employment.

Career pathways will align secondary education, dual enrollment, postsecondary certificates, associate degrees, Registered Apprenticeship, industry credentials, and employment into coordinated sequences that promote both immediate workforce entry and long-term advancement. This approach reflects nationally recognized Career Pathways Frameworks that improve learner success and employer responsiveness (Jobs for the Future [JFF], 2023; U.S. Department of Labor, 2024).

Regional Collaboration and Shared Governance

The River Rouge Career & Workforce Innovation Center will operate as a regional partnership rather than an independent institution. Success depends upon sustained collaboration among employers, K–12 school districts, community colleges, universities, Michigan Works! agencies, labor organizations, economic development organizations, community-based organizations, and local government.

Shared governance encourages collective ownership of workforce challenges, reduces duplication of services, leverages existing regional resources, and promotes coordinated investment strategies. National workforce ecosystem research demonstrates that regional collaboration produces more sustainable workforce outcomes than isolated organizational initiatives because partners align their expertise and resources toward common goals (National Governors Association [NGA], 2022; JFF, 2023).

Innovation and Continuous Adaptation

The Center will embrace innovation as a core organizational value. Educational programs, technologies, delivery methods, and employer partnerships will be continuously evaluated and refined to respond to changing workforce demands.

Emerging technologies—including artificial intelligence, automation, advanced manufacturing systems, simulation technologies, virtual learning environments, and data analytics—will increasingly reshape workforce preparation. The Center will proactively integrate these innovations into educational programming while promoting agility, creativity, and continuous improvement across all operations. Organizations capable of adapting to technological and economic change are better positioned to prepare learners for future workforce needs and strengthen regional competitiveness (World Economic Forum, 2025; OECD, 2023).

Data-Informed Decision Making

Strategic planning, program evaluation, and resource allocation will be guided by reliable labor market intelligence, employer feedback, learner outcomes, and performance metrics. Decisions regarding new program development, enrollment expansion, equipment investments, and partnership priorities will be supported by quantitative and qualitative evidence.

The Center will regularly monitor regional labor market trends, occupational demand, wage progression, completion rates, credential attainment, employment outcomes, and employer satisfaction to ensure continuous alignment with workforce needs. A culture of evidence-based decision-making promotes accountability, transparency, and effective stewardship of public and private investments (MCDA, 2025a; U.S. Bureau of Labor Statistics [BLS], 2026).

Lifelong Learning and Workforce Resilience

Learning should not end with initial employment. The Center will promote lifelong learning by supporting continuous skill development, incumbent worker training, reskilling, upskilling, and career advancement throughout an individual's working life.

As technology, occupations, and industries evolve, workers will require ongoing opportunities to acquire new knowledge and competencies. Educational programming will therefore emphasize transferable skills, digital literacy, durable skills, and technical competencies that prepare individuals not only for today's occupations but also for future workforce transitions. Lifelong learning has become a defining characteristic of resilient regional economies and adaptable workforce systems (World Economic Forum, 2025; OECD, 2023).

TABLE 3.1. GUIDING PRINCIPLES FOR THE RIVER ROUGE CAREER & WORKFORCE INNOVATION CENTER

GUIDING PRINCIPLE		STRATEGIC INTENT	
	1. EMPLOYER-DRIVEN DECISION MAKING		Ensure workforce programs remain aligned with current and emerging industry needs.
	2. LEARNER-CENTERED ACCESS AND EQUITY		Expand opportunity by reducing barriers and supporting learner success.
	3. CAREER PATHWAY ALIGNMENT		Create seamless educational and career advancement pathways through stackable credentials and work-based learning.
	4. REGIONAL COLLABORATION AND SHARED GOVERNANCE		Coordinate regional assets to maximize impact and avoid duplication of services.
	5. INNOVATION AND CONTINUOUS ADAPTATION		Foster organizational agility and integrate emerging technologies and instructional practices.
	6. DATA-INFORMED DECISION MAKING		Use evidence and labor market intelligence to guide planning and continuous improvement.
	7. LIFELONG LEARNING AND WORKFORCE RESILIENCE		Support continuous skill development and career advancement throughout an individual's working life.

Table 3.1. Guiding Principles for the River Rouge Career & Workforce Innovation Center.

3.4 Strategic Goals

The strategic goals of the River Rouge Career & Workforce Innovation Center translate the Center's vision, mission, and guiding principles into long-term priorities that will guide planning, investment, and implementation. Together, these goals establish a comprehensive framework for strengthening educational opportunity, workforce development, employer engagement, and regional economic competitiveness.

While each goal addresses a distinct aspect of the Center's mission, they are intended to function as an integrated strategy. Progress toward one goal reinforces progress toward the others, creating a coordinated workforce ecosystem that benefits learners, employers, educational institutions, and the broader River Rouge community.

Strategic Goal 1

Expand Access to High-Quality Career Education

The Center will increase access to career-connected education by providing flexible learning opportunities for learners of all ages and backgrounds. Educational programming will be

designed to reduce barriers to participation while supporting multiple entry and exit points throughout the educational continuum.

Special emphasis will be placed on expanding opportunities for middle school and high school students, adult learners, incumbent workers, veterans, unemployed individuals, and career changers through flexible scheduling, dual enrollment, hybrid learning, competency-based education where appropriate, and stackable credential pathways.

Strategic Rationale

Expanding educational access strengthens workforce participation, increases credential attainment, and improves long-term economic mobility. National research demonstrates that flexible educational delivery models significantly increase participation among working adults and historically underserved populations (Jobs for the Future [JFF], 2023; U.S. Department of Labor, 2024).

Expected Outcomes

- Increased enrollment across diverse learner populations.
- Higher credential completion rates.
- Improved educational access for River Rouge residents.
- Expanded dual enrollment and adult education participation.

Strategic Goal 2

Strengthen Regional Talent Pipelines

The Center will align educational programming with documented labor market demand to create sustainable talent pipelines for Southeast Michigan employers. Career pathways will emphasize high-wage, high-skill, and high-demand occupations identified through ongoing labor market analysis and employer engagement.

Educational programs will integrate industry-recognized credentials, work-based learning, Registered Apprenticeship, and employer-sponsored experiences that prepare learners for immediate employment while supporting long-term career advancement.

Strategic Rationale

Strong talent pipelines require continuous collaboration among employers, educational institutions, workforce agencies, and community organizations. Employer-informed workforce systems consistently produce stronger employment outcomes and better alignment between workforce supply and demand (Advance CTE, 2022; ACTE, 2021).

Expected Outcomes

- Increased employment in priority occupations.
- Expanded Registered Apprentices participation.
- Improved employer satisfaction.
- Reduced regional workforce shortages.

Strategic Goal 3

Foster Employer Leadership and Regional Collaboration

The Center will serve as the primary regional convener connecting employers, educational institutions, workforce agencies, economic development organizations, labor organizations, and community partners. Shared leadership will strengthen workforce planning, improve coordination of resources, and support collaborative investment strategies.

Employers will remain actively engaged in curriculum design, equipment planning, work-based learning, competency validation, and continuous program improvement.

Strategic Rationale

Regional workforce ecosystems are most effective when employers assume active leadership roles rather than serving solely as advisors. Sustained employer engagement improves curriculum relevance, accelerates innovation, and increases workforce responsiveness (National Governors Association [NGA], 2022; JFF, 2023).

Expected Outcomes

- Increased employer participation.
- Expanded regional partnerships.
- Greater alignment among education, workforce development, and economic development initiatives.
- Improved coordination of public and private investments

Strategic Goal 4

Promote Innovation and Lifelong Learning

The Center will foster a culture of continuous innovation by integrating emerging technologies, modern instructional practices, simulation, digital learning, artificial intelligence, and flexible educational delivery models into workforce education.

Programming will support lifelong learning by providing opportunities for reskilling, upskilling, incumbent worker training, and continuous professional development throughout an individual's career.

Strategic Rationale

Rapid technological change requires workforce systems capable of adapting continuously to evolving employer needs. Organizations that promote lifelong learning are better positioned to support workforce resilience and regional competitiveness (World Economic Forum, 2025; OECD, 2023).

Expected Outcomes

- Increased participation in incumbent worker training.
- Expanded technology-enabled learning.
- Greater adoption of innovative instructional practices.
- Improved workforce adaptability.

Strategic Goal 5

Advance Economic Mobility and Community Prosperity

The Center will improve economic opportunity by preparing residents for family-sustaining careers while supporting business growth and regional economic development. Educational investments will contribute to stronger workforce participation, increased household earnings, reduced unemployment, and improved quality of life throughout the River Rouge community.

Success will be measured not only by educational outcomes but also by the Center's broader contribution to community revitalization, employer competitiveness, and regional prosperity.

Strategic Rationale

Workforce development is both an educational and an economic development strategy. Communities that align education, workforce development, and industry needs experience stronger economic resilience, higher employment rates, and greater long-term prosperity (Brookings Institution, 2021; U.S. Department of Labor, 2024).

Expected Outcomes

- Increased employment and earnings.
- Stronger employer competitiveness.
- Improved regional economic resilience.

- Enhanced quality of life for River Rouge residents.

3.5 Recommendation

Adopt the vision, mission, guiding principles, and strategic goals presented in this chapter as the governing framework for planning, partnership development, program design, investment decisions, and performance evaluation. Use this strategic framework to guide the phased implementation of the River Rouge Career & Workforce Innovation Center and to ensure that future initiatives remain aligned with documented workforce needs, regional economic priorities, and the Center's long-term mission.

3.6 Chapter Summary

The strategic framework presented in this chapter establishes the long-term direction for the River Rouge Career & Workforce Innovation Center. Together, the vision, mission, guiding principles, strategic goals, and strategic recommendation provide a unified foundation for future planning, investment, and decision-making. Rather than viewing workforce development as a collection of individual programs, this framework positions the Center as an integrated regional asset that responds to evolving labor market needs while creating accessible pathways to education, employment, and lifelong career advancement.

With this strategic direction established, the report now shifts from vision to implementation. Chapter 4 presents the Regional Career Pathway Framework, translating the Center's strategic objectives into an educational model that aligns career pathways, workforce demand, employer partnerships, and learner progression across multiple industries and educational levels.

CHAPTER 4

Career Pathway Framework and Educational Model

Chapter at a Glance

This chapter presents the educational blueprint for the proposed River Rouge Career & Workforce Innovation Center. Building upon the strategic framework established in Chapter 3, it describes how the Center will organize education, workforce development, and employer engagement into an integrated system of career pathways designed to meet regional labor market demand while expanding educational opportunity for learners of all ages.

Rather than functioning as a traditional training provider, the Center is envisioned as a regional workforce ecosystem that connects K–12 education, Career and Technical Education, postsecondary institutions, employers, labor organizations, Michigan Works! agencies, economic development organizations, and community partners through coordinated educational pathways. The chapter introduces industry-based Career Academies, stackable credentials, work-based learning, and lifelong learning as the organizing framework for educational programming and demonstrates how these nationally recognized best practices can strengthen talent pipelines while improving economic mobility for River Rouge residents.

Purpose

The purpose of this chapter is to establish the educational model that will guide the development and operation of the River Rouge Career & Workforce Innovation Center. It defines the framework through which educational programming will be organized, identifies priority industry sectors, and describes how learners can progress through multiple educational and career pathways that lead to recognized credentials, employment, career advancement, and continued learning. The chapter also demonstrates how national best practices in career pathway design, employer engagement, and work-based learning can be adapted to meet the unique workforce and economic development needs of River Rouge and the Downriver region.

Key Questions Addressed

- How should educational programming be organized within the Career & Workforce Innovation Center?
- What national best practices should guide the design of the Center?
- Which industry sectors should serve as the foundation for Career Academies?
- How can stackable credentials support lifelong learning and workforce advancement?
- How should employers participate in educational program design and delivery?

- How can education, workforce development, and economic development partners function as an integrated regional system?

Introduction

The River Rouge Career & Workforce Innovation Center represents an opportunity to rethink how education and workforce development are organized to meet the needs of learners, employers, and the regional economy. Traditional education and workforce systems frequently operate through independent institutions with separate missions, funding streams, and performance measures. While each organization provides valuable services, the lack of coordination often creates fragmented learner experiences, duplicative programming, and talent shortages that persist despite significant public investment.

Nationally, workforce leaders have increasingly shifted toward regional talent ecosystem models that integrate education, workforce development, economic development, and employer leadership into coordinated systems designed around career pathways rather than individual programs (National Skills Coalition, 2023; Jobs for the Future [JFF], 2023). These approaches recognize that workforce development is most effective when educational institutions, employers, workforce agencies, and community organizations collaborate to create seamless transitions from education to employment while providing opportunities for lifelong learning and career advancement.

The proposed River Rouge Career & Workforce Innovation Center embraces this systems-based approach. Rather than serving as another educational institution, the Center is envisioned as a regional hub that aligns existing assets, strengthens partnerships, and expands educational opportunities through coordinated planning and shared responsibility. By organizing programming around industry-defined Career Academies supported by stackable credentials, work-based learning, and employer engagement, the Center can respond more effectively to changing labor market conditions while improving educational access and economic opportunity for River Rouge residents.

This chapter presents the educational framework that will guide development of the Center and illustrates how nationally recognized best practices can be adapted to create an innovative workforce development model that is responsive, flexible, and sustainable.

4.1 Guiding Philosophy

The educational philosophy of the River Rouge Career & Workforce Innovation Center is grounded in a growing body of national research demonstrating that successful workforce systems are built through coordinated partnerships, employer leadership, flexible learning pathways, and continuous alignment with labor market demand. Rather than organizing education around individual institutions or programs, leading workforce initiatives increasingly

organize learning around **career pathways, industry sectors, and regional talent ecosystems** that connect learners to employment while supporting lifelong career advancement (U.S. Department of Labor et al., 2016; National Governors Association, 2022).

The Center should therefore adopt six guiding principles that reflect nationally recognized best practices while addressing the unique needs of River Rouge and the Downriver region.

Employer Leadership

One of the most consistent findings in workforce development research is that employers must serve as active partners—not simply end users—of the education system. Sector partnerships that engage employers in identifying workforce needs, validating competencies, advising curriculum, providing work-based learning opportunities, and evaluating program outcomes consistently produce stronger employment outcomes and more responsive educational programming than institution-driven approaches alone (National Skills Coalition, 2023; Jobs for the Future, 2023).

Accordingly, employers should play a central leadership role within each Career Academy through advisory councils, curriculum review, mentorship, internships, clinical placements, apprenticeships, equipment recommendations, and continuous labor market feedback. This level of engagement ensures that educational programming remains responsive to evolving technologies, changing occupational requirements, and regional economic priorities.

Learner-Centered Design

Best practice increasingly recognizes that modern learners follow diverse educational pathways rather than traditional linear progression from high school to college and employment. Adult learners, incumbent workers, veterans, career changers, justice-involved individuals, and recent high school graduates often require flexible entry points, accelerated learning options, and individualized educational pathways (Community College Research Center, 2023; Lumina Foundation, 2023).

The River Rouge Career & Workforce Innovation Center should therefore be designed around learner needs rather than institutional structures. Multiple entry and exit points, prior learning assessment, competency-based education where appropriate, flexible scheduling, hybrid delivery, and comprehensive student support services can reduce barriers to participation while improving credential attainment and workforce participation.

Stackable Credentials and Career Pathways

National Career Pathways initiatives have demonstrated that learners are more likely to persist when educational experiences are organized into progressive sequences of credentials that

provide immediate labor market value while supporting continued advancement (U.S. Department of Labor et al., 2016; Advance CTE, 2021).

Educational programming should therefore emphasize stackable certificates, industry-recognized credentials, Registered Apprenticeship, associate degrees, bachelor's degree transfer opportunities, and continuing education that build upon one another throughout an individual's career. This approach enables learners to enter the workforce quickly while maintaining opportunities for future educational advancement without unnecessary duplication of coursework.

Integrated Work-Based Learning

Research consistently demonstrates that students who participate in high-quality work-based learning—including internships, clinical experiences, apprenticeships, cooperative education, job shadowing, and employer-sponsored projects—experience stronger employment outcomes, improved career readiness, and increased earnings following graduation (MDRC, 2023; ACTE, 2022).

Accordingly, work-based learning should not function as a separate component of educational programming but rather as an integrated element embedded throughout every Career Academy. Employers become co-educators, providing authentic workplace experiences that reinforce classroom instruction while strengthening relationships between education and industry.

Durable Skills and Future-Ready Competencies

While technical skills remain essential, employers increasingly identify communication, teamwork, problem-solving, adaptability, digital fluency, critical thinking, and leadership as equally important for long-term career success. The World Economic Forum (2025) projects that technological change, artificial intelligence, and automation will continue to reshape occupational requirements, increasing demand for workers who possess both technical expertise and transferable competencies. Similarly, the Association of American Colleges and Universities (AAC&U, 2023) emphasizes that durable skills underpin lifelong learning and career adaptability across occupations and industries.

Consistent with these findings, every Career Academy should intentionally integrate durable skills, digital literacy, artificial intelligence literacy, ethical decision-making, and professional communication alongside technical instruction. Embedding these competencies throughout the curriculum prepares learners not only for their first job but also for sustained career growth in an evolving economy.

Regional Collaboration

Perhaps the most significant best practice emerging from workforce development over the past decade is the recognition that no single institution can independently meet regional workforce needs. Effective workforce systems increasingly function as collaborative regional partnerships that align education, workforce development, economic development, community organizations, labor, and employers around shared goals and coordinated strategies (National Governors Association, 2022; OECD, 2023).

The River Rouge Career & Workforce Innovation Center should therefore operate as the coordinating hub of a regional talent ecosystem, leveraging the strengths of K–12 school districts, Career and Technical Education providers, community colleges, universities, Michigan Works! agencies, employers, labor organizations, economic development partners, and community-based organizations. Through shared planning, aligned investments, and coordinated service delivery, these partners can create a more efficient, responsive, and equitable workforce development system than any organization could achieve independently.

4.2 Employer-Led Talent Development Ecosystem

The River Rouge Career & Workforce Innovation Center is envisioned as more than a traditional Career and Technical Education facility. Rather, it is designed as an **employer-led talent development ecosystem** that integrates career exploration, technical education, durable skill development, work-based learning, and career navigation into a coordinated system that supports learners from elementary school through postsecondary education and lifelong career advancement.

Traditional education models often present career exploration, classroom instruction, and employer engagement as separate activities. The proposed River Rouge model intentionally integrates these components into a seamless educational continuum in which employers actively participate throughout the learner journey. Employers serve not only as future hiring organizations but also as strategic partners in curriculum design, career awareness, mentoring, experiential learning, internships, apprenticeships, and continuous program improvement. This collaborative approach ensures that educational experiences remain aligned with regional workforce needs while providing students with meaningful opportunities to explore, prepare for, and enter high-demand careers.

As illustrated in **Figure 4.1**, the employer-led ecosystem is organized around six interconnected components that collectively prepare learners for high-wage, high-demand occupations.

WIN K–12 Career Immersion Program (E3). The learner journey begins with sustained career exploration through the WIN K–12 Career Immersion Program (E3)—Explore, Engage, and Excel. Beginning in the elementary grades and continuing through high school, students participate in age-appropriate employer engagement activities designed to increase career awareness, strengthen educational motivation, and build an understanding of regional career opportunities.

Rather than relying on isolated career awareness events, the model provides continuous exposure to employers through classroom presentations, workplace tours, mentoring, career challenges, family engagement, and project-based learning experiences.

Career Academies. At the Center of the ecosystem are the Career Academies, which organize educational programming around high-demand regional industry sectors. Each academy integrates rigorous academic instruction, Career and Technical Education, industry-recognized credentials, work-based learning, and postsecondary pathways that enable learners to transition successfully into employment, apprenticeships, certificates, and degree programs. The Career Academies serve as the primary mechanism for connecting employer workforce needs with learner preparation.

WIN Industry Career Profiles. Supporting each Career Academy are comprehensive WIN Industry Career Profiles that provide learners, families, educators, and career advisors with current labor market information and educational planning resources. These profiles identify representative occupations, wage information, educational requirements, industry-recognized credentials, certifications, career advancement opportunities, and regional education and training providers. Together, they support informed educational planning while helping learners understand multiple pathways within each industry sector.

Durable Skills Advantage Curriculum. Technical competencies alone are insufficient for long-term career success. Consequently, the ecosystem incorporates the Durable Skills Advantage Curriculum, developed through a partnership among Henry Ford College, Workforce Intelligence Network (WIN), and MindSpring. The curriculum consists of ten durable skill domains delivered through 120 learning modules organized into four developmental learning levels—Emerging, Developing, Applying, and Exceeding. Although the curriculum is organized into four distinct courses, the courses should not be isolated from technical and academic instruction. Instead, they should be implemented progressively throughout the Career Academy experience and reinforced through classroom learning, projects, laboratories, work-based learning, and employer engagement.

Employer Engagement and Work-Based Learning. Continuous employer engagement distinguishes the River Rouge model from traditional educational approaches. Employers participate throughout the learner journey by providing career awareness activities, guest speakers, workplace tours, mentoring, project-based learning opportunities, job shadows, internships, clinical experiences, youth apprenticeships, Registered Apprenticeship, advisory committee participation, and curriculum guidance. These experiences allow students to connect classroom learning with authentic workplace applications while enabling employers to develop future talent pipelines aligned with evolving workforce needs.

Regional Education and Workforce Partnerships. The ecosystem is further strengthened through coordinated partnerships among community colleges, universities, workforce

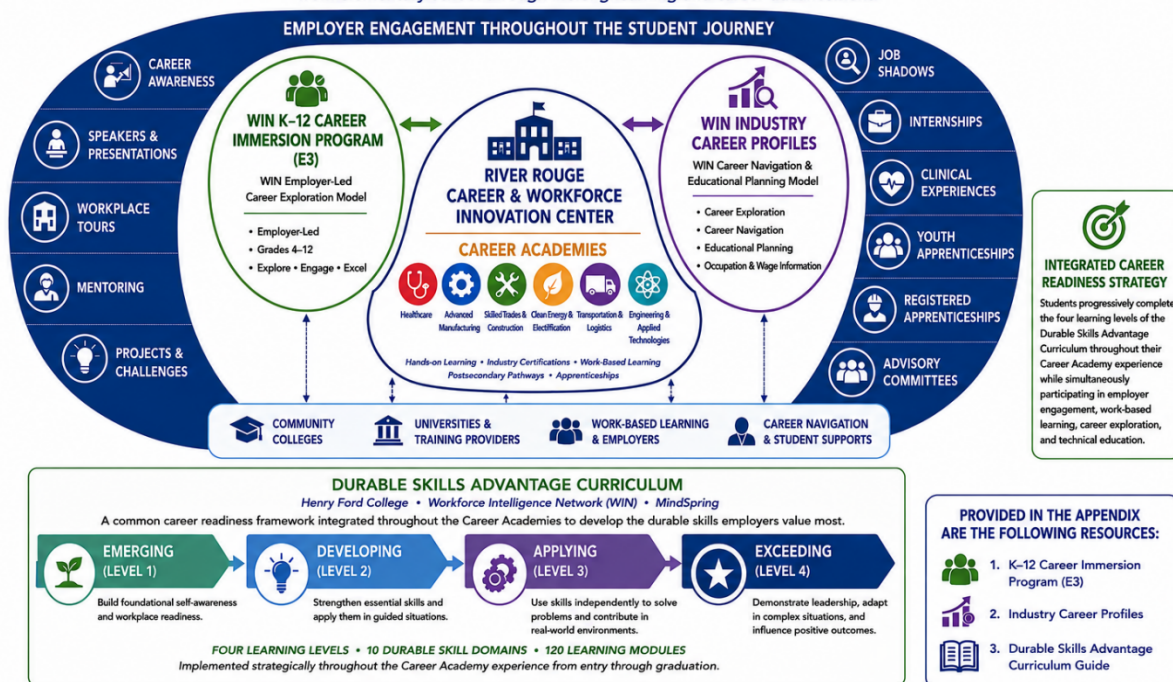
development organizations, employers, career navigation professionals, and student support services. These organizations work collaboratively to provide dual enrollment opportunities, articulated postsecondary pathways, stackable credentials, financial aid guidance, workforce services, career coaching, and employment placement assistance. By aligning educational institutions and workforce partners around shared regional priorities, the ecosystem supports seamless learner transitions from education to employment while promoting lifelong learning and career advancement.

Collectively, these six components establish an integrated talent development system that prepares learners for success while strengthening the region's workforce competitiveness. Rather than viewing career exploration, education, and employment as separate phases, the River Rouge Employer-Led Talent Development Ecosystem connects each component into a coordinated strategy that responds to employer demand, supports learner success, and advances long-term regional economic development.

Figure 4.1 illustrates the relationships among these components and serves as the conceptual framework for the sections that follow. Sections 4.3 through 4.7 provide additional detail regarding each major element of the ecosystem and its role in supporting the River Rouge Career & Workforce Innovation Center.

Figure 4.1. RIVER ROUGE EMPLOYER-LED TALENT DEVELOPMENT ECOSYSTEM

An integrated ecosystem connecting students, education, employers, and community partners from elementary school through lifelong learning and career advancement.



This ecosystem is employer-led, education-aligned, and community-supported to ensure every learner in River Rouge has access to high-quality education, meaningful experiences, and clear pathways to high-wage, high-demand careers.

4.3 WIN K–12 Career Immersion Program (E3)

Preparing students for successful careers begins long before they select a Career Academy, enroll in a Career and Technical Education program, or participate in work-based learning. Career awareness and career exploration are developmental processes that should begin during the elementary grades and continue throughout middle and high school. Early and sustained exposure to careers helps students connect classroom learning with future opportunities, make informed educational decisions, and develop a stronger understanding of the relationship between education, work, and lifelong career success.

The River Rouge Career & Workforce Innovation Center should incorporate the **WIN K–12 Career Immersion Program (E3)—Explore, Engage, and Excel** as the foundational career awareness and exploration strategy supporting the Center's educational model. Rather than relying on isolated career days or occasional guest speakers, the E3 model provides a structured, multi-year continuum of employer engagement and career exploration that progresses from elementary school through high school.

The E3 model is designed to expose students to a broad range of careers while helping them discover their interests, understand regional workforce opportunities, and appreciate the educational pathways that lead to high-wage, high-demand occupations. As students mature, career exploration activities become increasingly focused, allowing learners to make informed decisions regarding Career Academies, dual enrollment, postsecondary education, industry credentials, Registered Apprenticeship, and employment.

Employer participation is central to the success of the E3 model. Throughout the program, employers actively engage students through classroom presentations, workplace tours, career fairs, mentoring relationships, project-based learning activities, career challenges, industry demonstrations, and other experiential learning opportunities. These experiences provide authentic exposure to workplace environments while helping students understand employer expectations, workplace culture, and the wide variety of careers available throughout Southeast Michigan.

The E3 model also recognizes the important role of families, educators, and community partners in supporting career development. Career exploration activities are designed to encourage family engagement, strengthen educational planning, and connect students with regional education and workforce resources that support informed career decision-making. By involving parents and caregivers throughout the career exploration process, the model reinforces the importance of educational attainment and long-term career planning.

As students progress through the K–12 experience, career immersion activities become increasingly connected to the Career Academies and Regional Career Pathway Framework described in the following sections of this chapter. Early exploration evolves into more focused

career planning, technical education, work-based learning, and postsecondary preparation, creating a seamless transition from career awareness to career readiness.

By embedding career exploration throughout the educational continuum, the WIN K–12 Career Immersion Program establishes a strong foundation for the employer-led talent development ecosystem. Students enter Career Academies with greater confidence in their career interests, a clearer understanding of educational and employment opportunities, and stronger connections to employers and regional workforce partners.

A detailed implementation model for the WIN E3 K–12 Career Immersion Program is provided in **Appendix E: WIN E3 K–12 Career Immersion Framework**. The appendix describes the grade-level cohort structure, Saturday programming, community college and university partnerships, employer and faculty engagement, parent and adult-influencer participation, summer immersion experiences, career exposure, work-based learning progression, and transition into Career Academies, dual enrollment, Early College, postsecondary education, apprenticeship, and employment.

4.4 Priority Career Pathway Framework

The River Rouge Career & Workforce Innovation Center should organize educational programming around a comprehensive Regional Career Pathway Framework that aligns learners, educational institutions, employers, workforce organizations, and community partners within a coordinated system of talent development. Rather than viewing education as a sequence of disconnected programs, the framework recognizes career development as a lifelong process in which individuals continuously acquire new knowledge, technical competencies, industry credentials, and professional skills in response to evolving labor market demands.

The career pathway model has emerged as a national best practice because it provides learners with clearly defined educational and employment pathways while enabling employers to develop predictable and sustainable talent pipelines. The U.S. Departments of Labor, Education, and Health and Human Services define career pathways as integrated education and training systems that align instruction, workforce preparation, supportive services, and employer engagement to accelerate educational attainment and employment outcomes (U.S. Department of Labor et al., 2016). Similarly, Advance CTE (2021) emphasizes that high-quality career pathways provide learners with multiple opportunities to earn meaningful credentials, transition seamlessly between educational levels, and enter high-demand occupations with opportunities for continued advancement.

For River Rouge, this framework represents more than an educational model—it provides the organizational structure through which regional workforce development partners can coordinate investments, reduce duplication of services, and strengthen alignment between education and employment. By adopting a common pathway framework, participating

organizations can collectively support learners throughout their educational and professional journeys while responding more effectively to changing economic conditions and employer workforce needs.

Multiple Entry and Exit Points

One of the defining characteristics of an effective career pathway system is flexibility. Traditional educational models often assume that learners begin immediately after high school and progress continuously toward a degree. In reality, today's learners enter education at many different stages of life and frequently combine employment, family responsibilities, and continuing education. Community colleges now serve increasing numbers of adult learners, incumbent workers, veterans, first-generation college students, and individuals seeking career transitions (Community College Research Center, 2023).

Consequently, the proposed Career & Workforce Innovation Center should be intentionally designed to accommodate learners entering from multiple starting points. High school students may begin through Career and Technical Education programs, dual enrollment, or Early Middle College opportunities. Adult learners may enter through short-term workforce certificates or industry-recognized credential programs. Incumbent workers may participate in employer-sponsored upskilling or Registered Apprentices programs, while unemployed individuals may access accelerated workforce training supported by Michigan Works! agencies and community partners.

Likewise, learners should be able to exit the educational system after earning a marketable credential, secure employment, and later return to continue their education without repeating previously completed coursework. This flexible approach reflects the reality that lifelong learning has become essential within an economy characterized by rapid technological advancement and changing occupational requirements (OECD, 2023; Lumina Foundation, 2023).

Stackable Credentials and Educational Progression

Stackable credentials form the structural foundation of the proposed pathway framework. Rather than requiring learners to complete lengthy degree programs before entering the workforce, educational experiences should be organized into incremental credentials that provide immediate labor market value while contributing toward higher levels of educational attainment.

The National Skills Coalition (2023) and Jobs for the Future (2023) have identified stackable credentials as an effective strategy for improving educational completion rates while increasing workforce participation. Learners benefit by obtaining recognized credentials that lead directly to employment while preserving opportunities for future advancement. Employers benefit by

gaining access to workers who possess verified competencies and who can continue developing additional skills throughout their careers.

Within the River Rouge framework, stackable credentials may include industry-recognized certifications, registered pre-apprenticeships, Registered Apprenticeship, certificates, associate degrees, bachelor's degree transfer pathways, and advanced professional credentials. Each educational milestone should represent both a meaningful employment outcome and a stepping stone toward continued learning.

This progression supports educational persistence while acknowledging that career advancement increasingly occurs through continuous skill acquisition rather than a single terminal degree.

Career Navigation and Student Success

Research consistently demonstrates that clearly defined educational pathways improve student persistence, credential attainment, and employment outcomes when accompanied by comprehensive advising and career navigation services (Community College Research Center, 2023). Students are significantly more likely to complete educational programs when they understand how coursework connects to specific occupations, wages, advancement opportunities, and future educational options.

Accordingly, career navigation should function as an integrated component of every educational pathway rather than a stand-alone student service. Learners should receive continuous guidance regarding career exploration, educational planning, financial aid, work-based learning opportunities, credential sequencing, transfer options, and employment placement.

Career coaches, academic advisors, Michigan Works! professionals, employer mentors, and faculty should operate as coordinated members of a learner support team, ensuring that participants receive consistent guidance throughout their educational journeys.

Employer-Validated Competencies

Another distinguishing characteristic of the proposed framework is the emphasis on employer-validated competencies. National workforce organizations increasingly recognize that educational quality is strengthened when employers actively participate in identifying the technical and professional competencies required for workforce success (National Skills Coalition, 2023; ACTE, 2022).

Consequently, each Career Academy should maintain an Employer Advisory Council responsible for reviewing competency frameworks, validating curriculum, identifying emerging technologies, recommending equipment investments, and evaluating graduate preparedness. Employers

should also participate in capstone projects, industry panels, mock interviews, mentorship programs, internships, clinical experiences, apprenticeships, and program evaluation.

This collaborative approach ensures that curriculum remains responsive to technological innovation while strengthening employer confidence in graduate preparedness.

A Connected Regional Talent Ecosystem

Perhaps the greatest strength of the proposed Regional Career Pathway Framework is its ability to connect organizations that have historically operated independently. Rather than creating new educational institutions or duplicating existing services, the River Rouge Career & Workforce Innovation Center should function as the coordinating hub of a regional talent ecosystem.

Within this ecosystem, K–12 school districts introduce career awareness and exploration; Career and Technical Education programs provide foundational technical skills; community colleges deliver certificates and associate degrees; universities support bachelor's degree completion and advanced education; Michigan Works! agencies provide workforce services and supportive resources; employers offer work-based learning and employment opportunities; labor organizations contribute apprenticeship expertise; and economic development organizations ensure continued alignment with regional industry growth.

This systems-based approach reflects the recommendations of the National Governors Association (2022), which emphasizes that regional competitiveness increasingly depends upon coordinated talent development strategies rather than isolated educational initiatives. By aligning institutions around shared workforce objectives, River Rouge can leverage existing regional assets while creating an integrated talent pipeline that benefits learners, employers, and the broader community.

The Regional Career Pathway Framework is most effectively understood as an interconnected educational ecosystem rather than a linear sequence of programs.

Figure 4.2 illustrates how learners may enter the system at multiple points, progress through stackable educational experiences, engage with employers throughout their learning journeys, and continue advancing through lifelong education while contributing to the regional workforce. This conceptual model serves as the organizing framework for the Career Academies and educational strategies described throughout the remainder of this chapter.

FIGURE 4.2

Priority Career Pathway Framework

The River Rouge Career & Workforce Innovation Center will focus on six priority industry sectors. Each sector includes multiple career pathways aligned to regional employer demand and arranged along a continuum of education and training that leads to family-sustaining, high-skill, in-demand careers.



Source: Developed by the Workforce Intelligence Network (WIN) for the River Rouge Career & Workforce Innovation Center Strategic Roadmap.

Note: Career pathways are examples and not exhaustive.

4.5 WIN Industry Career Profiles

Successful career pathway systems require more than well-designed educational programs. Learners, families, educators, and career advisors also need access to clear, current, and reliable information that supports informed educational and career planning. As industries evolve and workforce requirements continue to change, students must understand not only the occupations available within a particular industry, but also the education, credentials, wages, advancement opportunities, and employer expectations associated with those careers.

To support informed decision-making, the River Rouge Career & Workforce Innovation Center should utilize **WIN Industry Career Profiles** as a comprehensive career navigation resource integrated throughout the employer-led talent development ecosystem. Developed using current labor market information and validated through employer engagement, these profiles provide an accessible overview of career opportunities within each of the Center's priority industry sectors.

Each Industry Career Profile is designed to present career information in a practical and learner-friendly format. Rather than focusing on a single occupation, each profile illustrates the breadth of opportunities available within an industry while demonstrating how learners can progress through multiple educational and career pathways over time. This approach reinforces the

concept that career development is a continuous process rather than a single educational decision.

The profiles should include information such as:

- representative occupations within the industry sector;
- typical job responsibilities and work environments;
- regional employment demand and projected workforce needs;
- wage ranges and career advancement opportunities;
- educational requirements and recommended credentials;
- industry-recognized certifications and licensure requirements, where applicable;
- stackable education and training pathways;
- Registered Apprentices opportunities;
- regional education and training providers;
- recommended durable skills and technical competencies; and
- examples of employers within Southeast Michigan.

Because workforce information changes over time, the profiles should be maintained as dynamic planning resources that can be updated periodically using current labor market data, employer input, and changes in educational programming. This flexible approach allows the Career & Workforce Innovation Center to remain responsive to evolving workforce needs while ensuring that students and advisors continue to receive accurate and relevant information.

The Industry Career Profiles also strengthen career advising throughout the learner journey. Beginning with career exploration in the WIN K–12 Career Immersion Program (E3), students can use the profiles to investigate career options, compare educational pathways, and identify occupations aligned with their interests and strengths. As learners enter Career Academies, the profiles become increasingly valuable for selecting dual enrollment opportunities, industry credentials, postsecondary programs, internships, Registered Apprenticeship and employment pathways. They likewise serve as valuable resources for adult learners, incumbent workers, career changers, and workforce professionals seeking current information about educational opportunities and labor market demand.

Equally important, the profiles provide a common planning resource for educators, employers, workforce development professionals, Michigan Works! agencies, and community college partners. By utilizing consistent labor market information and educational pathway guidance, regional partners can better align career advising, program development, employer engagement, and workforce planning around shared regional priorities.

Collectively, the WIN Industry Career Profiles transform labor market information into practical educational guidance that supports informed career decision-making. When combined with employer engagement, Career Academies, durable skills development, and work-based learning,

they help learners understand not only **what careers are available**, but also **how to successfully prepare for and advance within those careers**.

Guidance for accessing and using the current online WIN Industry Career Profiles is provided in **Appendix D: WIN Industry Career Profiles**. The online collection should be treated as a living career-navigation resource because labor market demand, wages, credentials, and education requirements change over time. The Profiles are organized to support students, families, educators, employers, and workforce partners throughout the educational and career planning process.

While Industry Career Profiles help learners identify and plan for career opportunities, long-term success within those careers also depends upon developing the durable workplace competencies that employers consistently identify as essential across every industry sector. The following section describes how the Durable Skills Advantage Curriculum provides that common foundation for every Career Academy and career pathway.

4.6 Durable Skills Advantage Curriculum: Developing the Professional Competencies for Career Success

Technical proficiency is essential for workforce success; however, employers consistently report that technical skills alone are insufficient to meet the demands of today's workplace. Across industries, employers increasingly identify communication, critical thinking, teamwork, professionalism, adaptability, problem-solving, leadership, and other durable workplace competencies as equally important determinants of employee success, advancement, and retention. Consequently, the River Rouge Career & Workforce Innovation Center should intentionally integrate durable skill development throughout every Career Academy and educational pathway.

To support this objective, the Center should incorporate the **Durable Skills Advantage Curriculum**, a comprehensive competency-based learning framework developed through a collaborative partnership among **Henry Ford College, the Workforce Intelligence Network (WIN), and MindSpring**. The curriculum was created to provide educational institutions and employers with a structured, evidence-informed approach to developing the workplace competencies that employers consistently value across all industry sectors.

The Durable Skills Advantage Curriculum is organized around **ten durable skill domains** delivered through **4 interactive learning courses** that progressively develop workplace competencies across four progressive learning levels:

- **Emerging** – Introduction to foundational workplace behaviors and professional expectations.
- **Developing** – Strengthening workplace competencies through guided application and increasingly complex learning activities.

- **Applying** – Demonstrating competency in authentic educational and workplace settings through collaboration, decision-making, and problem-solving.
- **Exceeding** – Consistently demonstrating advanced workplace competencies, leadership behaviors, initiative, and professional judgment.

Rather than functioning as a standalone course sequence, these progressive level courses are designed to be embedded throughout the Career Academy experience. Students progressively strengthen durable skills while participating in classroom instruction, laboratory activities, project-based learning, clinical experiences, internships, youth apprenticeships, Registered Apprenticeships, and other work-based learning opportunities. This integrated approach reinforces the understanding that durable skills are developed through repeated practice and authentic workplace application rather than through isolated instruction.

The curriculum addresses workplace competencies that are transferable across industries, allowing learners to build a common professional foundation regardless of their selected Career Academy or career pathway. As students advance through the educational continuum, durable skill development becomes increasingly sophisticated, preparing graduates not only to obtain employment but also to adapt to changing technologies, collaborate within diverse teams, lead continuous improvement initiatives, and pursue lifelong learning throughout their careers.

The curriculum also provides value beyond secondary education. Because durable skills remain relevant across multiple occupations and career transitions, the framework can support incumbent worker advancement, career changers, adult learners, and employer-sponsored workforce development initiatives. Educational institutions may integrate the curriculum into Career and Technical Education, dual enrollment, workforce training, first-year experience programs, or other instructional models, while employers may utilize the curriculum to strengthen onboarding, supervisory development, team effectiveness, leadership preparation, and incumbent worker training.

To ensure long-term sustainability and broad accessibility, the Durable Skills Advantage Curriculum will be made available to educational institutions, employers, and workforce organizations through **Henry Ford College**, which will serve as the primary steward and provider of the curriculum. This approach enables schools, employers, and regional workforce partners to implement a common durable skills framework while maintaining consistency in instructional resources, competency expectations, and continuous curriculum enhancement.

Within the River Rouge Career & Workforce Innovation Center, the Durable Skills Advantage Curriculum serves as the common foundation that supports every Career Academy and career pathway. Regardless of the technical discipline a learner pursues, graduates will develop the professional competencies that employers consistently identify as critical for workplace success. By intentionally integrating durable skill development throughout the employer-led talent development ecosystem, the Center will prepare learners not only for immediate employment

but also for long-term career growth, leadership, and resilience in an increasingly dynamic economy.

Additional information regarding the curriculum architecture and implementation model is provided in **Appendix F: Durable Skills Advantage Framework and Course Structure**. The appendix describes the ten durable-skill domains and the four courses organized by learning level—Emerging, Developing, Applying, and Exceeding—with each course addressing all ten domains through progressively more advanced workplace applications.

4.7 Priority Industry Career Academies

The River Rouge Career & Workforce Innovation Center should organize educational programming around a series of **Industry Career Academies** that reflect documented regional workforce demand, employer priorities, and emerging economic opportunities. Organizing programs into Career Academies rather than individual courses or departments encourages interdisciplinary learning, strengthens employer engagement, and provides learners with a clearer understanding of career opportunities within broad industry sectors.

Career Academy models have been widely recognized as a best practice for improving student engagement, increasing educational relevance, and strengthening workforce outcomes by connecting academic instruction with career exploration, technical education, and authentic workplace experiences (MDRC, 2023; Ford Next Generation Learning, 2023). Rather than preparing learners for a single occupation, Career Academies expose students to multiple career pathways within an industry, allowing them to make informed career decisions while developing transferable technical and professional competencies.

Consistent with the labor market analysis presented in Chapter 2, the Center should initially focus on the following Career Academies.

Advanced Manufacturing and Industry 4.0

Advanced Manufacturing remains one of Southeast Michigan's foundational economic sectors and continues to evolve through automation, robotics, digital manufacturing, artificial intelligence, and advanced production technologies. As manufacturers adopt Industry 4.0 practices, employers increasingly seek workers who possess both traditional technical skills and digital competencies that support smart manufacturing environments (National Institute of Standards and Technology [NIST], 2023).

The Advanced Manufacturing Career Academy should prepare learners for careers spanning machining, robotics, mechatronics, industrial maintenance, quality systems, additive manufacturing, automation, and production engineering while emphasizing adaptability to rapidly changing manufacturing technologies. Educational programming should be developed in

close partnership with regional manufacturers to ensure continued alignment with workforce needs.

Skilled Trades and Construction

The Skilled Trades and Construction Career Academy should prepare learners for occupations that support residential, commercial, industrial, and public infrastructure development. Continued investment in transportation systems, utilities, manufacturing facilities, housing, and energy infrastructure has increased demand for skilled trades professionals throughout Michigan and across the nation (Associated General Contractors of America, 2024).

Educational pathways may include electrical, HVAC, welding, plumbing, carpentry, construction management, facilities maintenance, and related occupations while incorporating modern construction technologies, energy-efficient building practices, and digital construction tools. Work-based learning and Registered Apprenticeship should serve as foundational components of this academy, reflecting long-established best practices within the skilled trades.

Healthcare and Human Services

Healthcare continues to represent one of the region's largest and fastest-growing employment sectors. As discussed in Chapter 2, demographic change, workforce shortages, and increasing demand for healthcare services require sustained investment in talent development across clinical, technical, and support occupations.

The Healthcare and Human Services Career Academy should provide educational pathways that support nursing, allied health, behavioral health, emergency medical services, respiratory therapy, medical laboratory technology, surgical technology, diagnostic imaging, medical assisting, and other high-demand occupations identified through ongoing employer engagement. Consistent with recommendations from the National Center for Healthcare Leadership (2023), educational experiences should emphasize interdisciplinary teamwork, simulation-based instruction, clinical education, and strong employer partnerships that facilitate workforce entry and career advancement.

Transportation, Mobility, and Electric Vehicle Technologies

Few regions are better positioned than Southeast Michigan to prepare talent for the future of mobility. The continuing transition toward electric vehicles, connected technologies, autonomous systems, advanced logistics, and intelligent transportation infrastructure is reshaping occupational requirements throughout the automotive and mobility sectors.

The Transportation, Mobility, and Electric Vehicle Career Academy should prepare learners for careers that support vehicle technologies, mobility systems, fleet operations, logistics, battery

technologies, charging infrastructure, and advanced transportation systems. Programming should remain sufficiently flexible to evolve alongside technological innovation and employer demand, recognizing the rapid pace of change occurring throughout the mobility industry.

Clean Energy and Environmental Technologies

National investments in clean energy, electrification, environmental sustainability, and resilient infrastructure continue to create new workforce opportunities across multiple industries (U.S. Department of Energy, 2024). These emerging occupations frequently intersect with manufacturing, construction, utilities, transportation, and engineering, making them appropriate components of an integrated workforce strategy.

The Clean Energy and Environmental Technologies Career Academy should prepare learners for careers supporting renewable energy systems, battery technologies, energy efficiency, water infrastructure, environmental compliance, sustainability practices, and related technical occupations. Incorporating these competencies within the Center positions River Rouge to participate in Michigan's growing clean energy economy while supporting regional environmental and economic resilience.

Information Technology and Digital Systems

Digital technologies increasingly influence every sector of the economy, making information technology competencies essential across nearly all occupations. Cybersecurity, cloud computing, software development, networking, artificial intelligence, data analytics, and digital business systems now support manufacturing, healthcare, logistics, government, education, finance, and numerous other industries.

Rather than functioning as a stand-alone technology program, the Information Technology and Digital Systems Career Academy should serve both students pursuing information technology careers and learners enrolled in other Career Academies whose occupations increasingly require digital fluency. This cross-sector approach reflects recommendations from the World Economic Forum (2025), which identifies digital skills and artificial intelligence as foundational competencies across the future workforce.

Designing Career Academies for Long-Term Adaptability

Although each Career Academy represents a distinct industry sector, they should not operate as isolated educational units. Modern industries increasingly share technologies, workforce competencies, and occupational skill requirements. Artificial intelligence, digital technologies, advanced manufacturing systems, data analytics, sustainability practices, and durable skills now span virtually every sector of the economy.

Accordingly, Career Academies should be designed as collaborative learning communities that encourage interdisciplinary projects, shared instructional resources, employer collaboration, and flexible curriculum development. This integrated approach enables the Center to respond more effectively to changing workforce needs while avoiding the creation of narrowly focused programs that may become obsolete as industries evolve.

Educational programming should also remain dynamic. While the Career Academies identified in this report reflect current labor market priorities, the Center should establish a continuous review process through employer advisory councils, labor market analysis, and regional workforce planning to ensure that academy offerings evolve alongside emerging industries and occupational demand. This commitment to continuous improvement reflects one of the defining characteristics of high-performing workforce development systems: the ability to adapt to economic change while maintaining a clear strategic focus (National Governors Association, 2022).

While the Career Academies provide the organizational structure for educational programming, long-term workforce success depends upon more than technical instruction alone. Every academy should incorporate a common foundation of durable skills, digital competencies, work-based learning, career navigation, and industry engagement that prepares learners to adapt to technological change and succeed across multiple career transitions. These integrated learning components are discussed in the following section.

4.8 The River Rouge Graduate

The ultimate measure of success for the River Rouge Career & Workforce Innovation Center is not the number of programs it offers, the number of students it enrolls, or even the number of credentials awarded. Its success will be measured by the quality of the graduates it prepares and their ability to contribute meaningfully to the workforce, their communities, and the regional economy.

The educational model presented throughout this chapter is intentionally designed to develop graduates who are prepared not only for immediate employment but also for lifelong career growth in an increasingly dynamic economy. Regardless of the Career Academy they complete, every graduate should possess a common foundation of technical knowledge, professional competencies, workplace experience, digital fluency, and career navigation skills that enable them to adapt to changing technologies, pursue continued education, and respond successfully to evolving workforce opportunities.

Rather than viewing career preparation as the completion of a single educational program, the River Rouge Career & Workforce Innovation Center embraces a broader vision of workforce readiness that prepares individuals to become lifelong learners, productive employees, engaged community members, and future leaders within their chosen professions. Collectively, the

recommendations presented throughout this chapter define the knowledge, skills, experiences, and personal attributes that characterize every River Rouge graduate.

Technical Excellence

Every graduate should demonstrate the technical competencies required for successful entry into high-wage, high-skill, and high-demand occupations within their selected Career Academy. Technical instruction should be aligned with current industry standards, employer expectations, and emerging technologies while providing opportunities to earn industry-recognized credentials, dual enrollment credit, college certificates, or other postsecondary credentials that support continued educational advancement.

Because industries continually evolve, graduates should possess not only current technical knowledge but also the ability to acquire new competencies as technologies, equipment, regulations, and workplace practices change throughout their careers.

Professional Competencies and Durable Skills

Employers consistently emphasize that technical skills alone are insufficient for long-term workplace success. Accordingly, every graduate should demonstrate the professional competencies that enable individuals to work effectively within diverse organizations and rapidly changing work environments.

These competencies include effective communication, collaboration, professionalism, ethical decision-making, critical thinking, adaptability, creativity, leadership, reliability, problem-solving, and continuous learning. Through the integration of the Durable Skills Advantage Curriculum, these competencies should be intentionally developed throughout classroom instruction, project-based learning, work-based learning experiences, and authentic workplace applications rather than being taught as isolated topics.

The result is a graduate who is prepared not only to perform technical tasks but also to contribute effectively within multidisciplinary teams, communicate professionally, adapt to change, and pursue increasing levels of responsibility throughout their career.

Digital Fluency and Artificial Intelligence Literacy

Digital technologies and artificial intelligence are transforming virtually every occupation represented within the Career Academies. Consequently, every graduate should possess the foundational digital competencies necessary to succeed within increasingly technology-enabled workplaces.

Graduates should understand the responsible and ethical use of artificial intelligence, data literacy, digital collaboration, cybersecurity awareness, and industry-specific technology applications relevant to their career pathway. They should be capable of evaluating information critically, utilizing digital tools appropriately, protecting confidential information, and recognizing situations that require sound human judgment.

By integrating digital fluency across all Career Academies rather than limiting these competencies to technology-specific programs, the Center prepares graduates to thrive within workplaces where technology serves as an essential component of everyday operations.

Authentic Workplace Experience

Career readiness extends beyond classroom instruction. Every graduate should participate in meaningful work-based learning experiences that reinforce technical instruction while providing direct exposure to workplace expectations and professional environments.

Depending upon the selected Career Academy, these experiences may include employer presentations, workplace tours, mentoring, job shadowing, internships, cooperative education, clinical education, employer-sponsored projects, youth apprenticeships, Registered Apprenticeship, or other forms of experiential learning. These opportunities allow students to apply classroom knowledge in authentic workplace settings while developing professional confidence, expanding their professional networks, and gaining practical experience that strengthens their transition into employment or postsecondary education.

By graduation, learners should possess more than academic knowledge—they should have experienced the expectations, culture, and responsibilities of the industries they aspire to join.

Career Navigation and Lifelong Learning

The Center is designed to prepare graduates for careers rather than individual jobs. Accordingly, every graduate should understand how to navigate educational and career opportunities throughout their working life.

Graduates should leave the Center with a clear understanding of stackable credentials, postsecondary education pathways, industry certifications, apprenticeship opportunities, transfer options, and continuing education that support career advancement. They should recognize that learning does not conclude upon graduation but continues throughout their professional lives as industries, technologies, and workforce requirements evolve.

This emphasis on lifelong learning strengthens workforce resilience while enabling graduates to pursue advancement, leadership opportunities, and career transitions with confidence.

Community Leadership and Civic Engagement

The River Rouge Career & Workforce Innovation Center is intended to strengthen not only individual careers but also the long-term vitality of the River Rouge community and the broader Downriver region.

Graduates should understand the important role they play in supporting local employers, contributing to regional economic development, and strengthening their communities through civic engagement, volunteerism, innovation, entrepreneurship, and professional leadership. By preparing individuals who are committed to continuous improvement and community success, the Center contributes to broader goals of economic mobility, workforce competitiveness, and community revitalization.

Ultimately, the Center seeks to develop graduates who are not only skilled employees but also engaged citizens capable of making lasting contributions to the places where they live and work.

A Graduate Prepared for the Future

The educational framework presented throughout this chapter is designed to produce graduates who are prepared for careers that may not yet exist, technologies that continue to evolve, and industries that will change throughout their working lives. By integrating employer leadership, career-connected learning, durable skills, digital fluency, work-based learning, and lifelong learning into every Career Academy, the River Rouge Career & Workforce Innovation Center creates a workforce development model that extends well beyond traditional Career and Technical Education.

Regardless of the pathway they pursue, every graduate will leave the Center with the technical expertise, professional competencies, workplace experience, adaptability, and confidence needed to succeed in an increasingly complex economy. These shared outcomes establish a consistent expectation for employers, provide a common foundation across all Career Academies, and define the River Rouge graduate as an individual who is prepared not only for a first job, but for a lifetime of learning, leadership, and meaningful contribution to the workforce and the community.

Figure 4.3 illustrates the defining characteristics of the River Rouge Graduate, summarizing the common competencies and experiences that every learner should acquire regardless of Career Academy or educational pathway. Together, these attributes represent the ultimate educational outcome of the River Rouge Career & Workforce Innovation Center and provide a unifying vision for the employer-led talent development ecosystem described throughout this chapter.

This chapter established the regional career pathways that should guide development of the River Rouge Career & Workforce Innovation Center based on documented labor market demand,

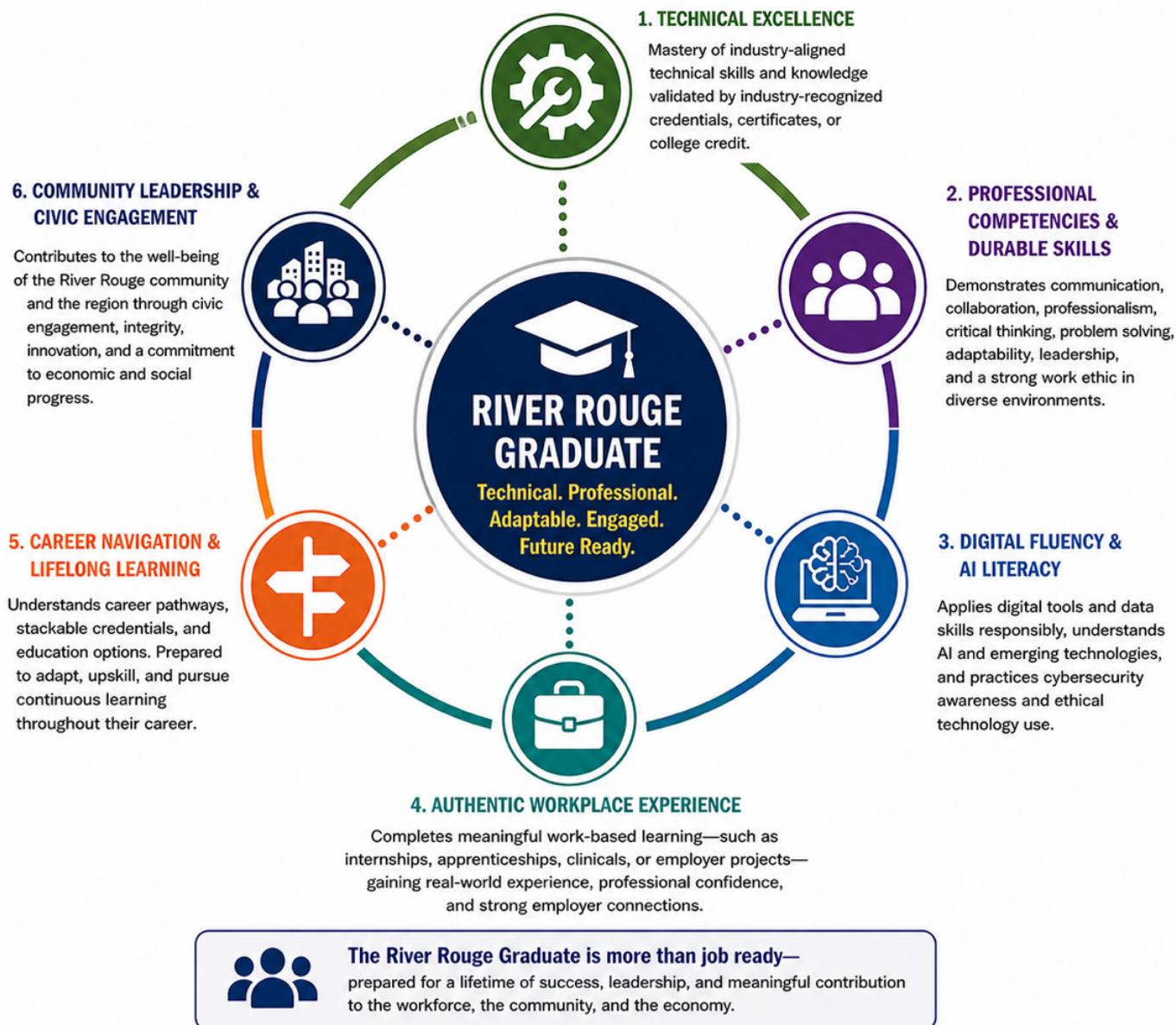
employer priorities, and regional economic opportunity. Identifying priority pathways, however, is only the first step in designing a high-performing workforce education system. The next challenge is determining how those pathways should be organized into an educational model that is flexible, employer-responsive, and accessible to learners at different stages of their educational and career journeys.

Chapter 5 introduces the recommended Career Academy Model, which translates the regional career pathway framework into an operational structure for delivering Career and Technical Education. Organized around six industry-based Career Academies, the model integrates technical instruction with artificial intelligence, digital fluency, durable skills, work-based learning, and postsecondary pathways to create a coherent, future-focused learning experience.

FIGURE 4.3

The River Rouge Graduate

Prepared for Careers. Built for the Future. Committed to Community.



Chapter 5

Career Academy Model

Chapter at a Glance

Purpose

The purpose of this chapter is to present the recommended Career Academy Model for the River Rouge Career & Workforce Innovation Center. Building upon the Regional Career Pathway Framework presented in Chapter 4, the Career Academy Model translates regional workforce priorities into an integrated educational structure that aligns Career and Technical Education with employer demand, labor market trends, and postsecondary pathways. The chapter describes the six recommended Career Academies, the guiding principles for organizing instruction, and the cross-cutting competencies—including durable skills, artificial intelligence, digital fluency, and work-based learning—that will prepare learners for success in a rapidly evolving economy.

Key Questions Addressed

- Why is the Career Academy Model recognized as a national best practice for delivering Career and Technical Education that is aligned with employer needs and regional economic development?
- How does the recommended Career Academy Model translate the Regional Career Pathway Framework into an integrated educational structure for the River Rouge Career & Workforce Innovation Center?
- How will the six Career Academies integrate technical instruction, durable skills, artificial intelligence, digital fluency, and work-based learning to prepare learners for career success?
- How does the Career Academy Model create flexible educational and career pathways that serve high school students, adult learners, incumbent workers, and career changers while supporting lifelong learning?

5.1 Introduction

The labor market analysis presented in Chapter 2 and the strategic framework established in Chapters 3 and 4 identify a clear need for an educational model that is flexible, workforce-responsive, and capable of preparing learners for careers across multiple high-demand industries. Rather than organizing instruction around isolated occupational programs, the River Rouge Career & Workforce Innovation Center should adopt an integrated Career Academy Model that groups related occupations within broader industry sectors.

Career Academies provide an organizational framework that aligns curriculum, employer engagement, work-based learning, student supports, and postsecondary partnerships within coherent industry pathways. This structure enables learners to explore multiple occupations within an industry, earn stackable credentials, and transition seamlessly among secondary education, postsecondary education, Registered Apprentices, and employment. By organizing education around industry sectors rather than individual occupations, the model creates greater flexibility for both learners and employers while supporting long-term career mobility. Individual programs developed within the Career Academies will require separate review for state approval, Perkins eligibility, licensing, accreditation, and other applicable requirements; related Michigan CTE planning guidance is provided in **Appendix C, Michigan State-Approved Career and Technical Education Programs and Programs of Study**

Unlike traditional Career and Technical Education programs that often focus on preparation for a single occupation, Career Academies emphasize broad industry sectors that provide learners with multiple educational and career options. This approach enables the Center to respond more effectively to changing labor market conditions while giving learners the flexibility to specialize and advance as technologies, occupations, and workforce needs evolve.

The recommended Career Academies are based on documented regional labor market demand, industry validation, educational capacity, and opportunities for long-term career growth. Although each Academy serves a distinct industry sector, all share a common instructional foundation that integrates rigorous technical education with durable skills, digital fluency, artificial intelligence literacy, career navigation, and authentic workplace learning. This consistent framework prepares graduates not only for successful entry into the workforce, but also for lifelong learning, career advancement, and continued adaptation within an increasingly dynamic economy.

National Best Practices in Career Academy Design

Career Academies are widely recognized as one of the nation's most effective organizational models for aligning Career and Technical Education with employer demand and regional economic development. Rather than delivering isolated occupational programs, Career Academies integrate academic instruction, technical education, employer engagement, work-based learning, and postsecondary pathways within broad industry sectors. Research has consistently found that high-quality Career Academy models improve student engagement, increase credential attainment, strengthen industry partnerships, expand participation in work-based learning, and improve long-term employment and earnings outcomes. National organizations including Advance CTE, Jobs for the Future (JFF), the Association for Career and Technical Education (ACTE), and the National Career Academy Coalition identify Career Academies as a proven strategy for creating coherent career pathways that align education with workforce and economic development priorities (Advance CTE, 2022; ACTE, 2021; JFF, 2023; National Career Academy Coalition, 2023).

Why the Career Academy Model Is Appropriate for River Rouge

The Career Academy Model is particularly well suited to the River Rouge Career & Workforce Innovation Center because it directly responds to the workforce conditions identified throughout this report. Chapter 2 documented sustained regional demand across multiple high-priority industry sectors, while Chapters 3 and 4 established the strategic vision and recommended career pathways needed to meet that demand. Organizing educational programming into industry-based Career Academies provides a flexible framework that can evolve with changing technologies, occupations, and employer needs without requiring continual redesign of the overall educational system.

The model also reinforces the Center's role as a regional convener by providing a common organizational framework through which K–12 school districts, community colleges, universities, employers, Michigan Works! agencies, labor organizations, and community partners can coordinate curriculum development, work-based learning, stackable credentials, and learner support services. Rather than duplicating existing educational programs, the Career Academy Model strengthens regional collaboration while expanding access to high-quality, career-connected learning opportunities for high school students, adult learners, incumbent workers, career changers, and future generations of River Rouge residents.

The River Rouge Career & Workforce Innovation Center adapts these nationally recognized principles to the unique workforce, educational, and economic development priorities of the Downriver region. The recommended Career Academy Model provides the organizational framework through which industry pathways, employer engagement, stackable credentials, durable skills, artificial intelligence, digital fluency, and work-based learning are integrated into a cohesive educational system. The sections that follow describe the six recommended Career Academies, the principles that guide their design, the competencies shared across all pathways, and the employer partnerships necessary to sustain a responsive, high-quality workforce education system.

5.2 The Recommended Career Academy Model

Based on the labor market analysis presented in Chapter 2, regional economic development priorities, employer engagement, and educational best practices, six Career Academies are recommended for the River Rouge Career & Workforce Innovation Center. Collectively, these academies represent the region's highest-priority industry sectors while providing learners with multiple entry points, stackable educational pathways, and opportunities for lifelong career advancement.

Rather than organizing instruction around individual occupations, the Career Academy Model organizes learning around broad industry sectors. This approach allows educational programs to adapt as occupations evolve, technologies change, and employer workforce needs shift over

time. Each academy serves as a pathway to multiple careers while maintaining strong connections to secondary education, postsecondary institutions, Registered Apprentices, and employment.

Table 5.1. Recommended Career Academies

Career Academy	Primary Industry Focus	Initial Priority
Advanced Manufacturing	Automation, robotics, machining, industrial maintenance, quality systems	Phase 1
Clean Energy & Electrification	Electric vehicles, battery technology, charging infrastructure, renewable energy systems	Phase 1
Skilled Trades	Construction, HVAC, electrical, plumbing, welding, millwright, building systems	Phase 1
Healthcare	Allied health, nursing pathways, diagnostic services, healthcare technologies	Phase 1
Transportation & Logistics	Supply chain management, warehousing, distribution, commercial transportation	Phase 2
Engineering & Applied Technologies	CAD, engineering technology, quality engineering, technical design	Phase 2

The recommended implementation sequence reflects current workforce demand, educational readiness, and employer priorities. The four Phase 1 academies address the region's most immediate workforce needs and can leverage existing employer partnerships and educational resources. The Phase 2 academies expand the Center's long-term capacity while allowing additional time to develop specialized facilities, equipment, and industry partnerships.

5.3 Academy Design Framework

Although each academy serves a different industry sector, all should be built upon a consistent instructional framework that prepares learners for employment, continued education, and career advancement.

Key design principles include:

- **Employer-Driven Curriculum** – Employers should participate in curriculum review, competency validation, equipment recommendations, and program planning to ensure alignment with workforce needs.
- **Career Exploration** – Learners should engage in career awareness, employer presentations, workplace tours, mentoring, and job shadowing before selecting a career pathway.
- **Technical Skill Development** – Instruction should emphasize industry-recognized technical competencies aligned with current technologies and occupational standards.

- **Postsecondary Alignment** – Whenever possible, programs should articulate into certificates, associate degrees, bachelor's degrees, and Registered Apprentices opportunities.
- **Industry Credentials** – Students should have opportunities to earn industry-recognized credentials that improve employability while supporting continued educational attainment.
- **Work-Based Learning** – Every academy should incorporate internships, clinical experiences, cooperative education, project-based learning, youth apprenticeship, Registered Apprentices where appropriate, and other authentic workplace experiences.

Best Practice

National research consistently recommends organizing Career and Technical Education around broad industry sectors rather than individual occupations. This approach provides greater flexibility to respond to changing technologies and labor market conditions while preparing learners with transferable technical competencies that remain valuable throughout their careers (Jobs for the Future, 2021; Community College Research Center, 2022).

Strategic Employer Engagement

A defining characteristic of the River Rouge Career & Workforce Innovation Center is the intentional integration of employers at both the operational and strategic levels. While many Career and Technical Education programs rely primarily on advisory committees or individual employer relationships, the recommended Career Academy Model recognizes that employers contribute in different ways depending on their role within the workforce ecosystem. Accordingly, the Center should establish a two-tiered employer engagement strategy that combines occupation-specific expertise with regional workforce leadership.

Industry Subject Matter Experts provide guidance at the program level. These individuals—including skilled trades professionals, engineers, healthcare clinicians, technicians, manufacturing specialists, and other occupational experts—should work directly with faculty and instructional staff to validate technical competencies, recommend equipment and instructional technologies, support curriculum development, participate as guest instructors, provide workplace experiences, and create opportunities for internships, clinical education, Registered Apprentices, and employment. Their expertise ensures that instruction reflects current industry practices and employer expectations.

Employer-Led Collaboratives provide strategic workforce leadership at the regional level. Comprised primarily of senior human resource executives, talent development leaders, workforce strategists, and other organizational decision-makers, these collaboratives identify emerging workforce trends, validate regional talent priorities, recommend new educational investments, and coordinate employer engagement across multiple organizations. Rather than focusing on the design of a single educational program, employer-led collaboratives help ensure

that the Career Academy Model remains aligned with long-term regional economic development and workforce needs.

Together, these complementary levels of employer engagement create a comprehensive partnership model that strengthens curriculum relevance, improves responsiveness to changing workforce demands, and establishes a sustainable talent development system. This approach positions the River Rouge Career & Workforce Innovation Center to serve not only as an educational institution, but also as a regional convener that brings employers, educators, workforce organizations, and community partners together to address shared workforce challenges.

While the six Career Academies share a common instructional framework, each academy is designed to address the unique workforce needs, career pathways, and industry partnerships associated with its respective sector. The following sections describe each recommended Career Academy, highlighting its purpose, representative career pathways, and the regional partnership ecosystem needed to support high-quality program design, work-based learning, and long-term workforce development.

The Regional Partnership Ecosystems presented for each academy illustrate representative examples of the types of organizations that can contribute to the successful planning, implementation, and continuous improvement of the River Rouge Career & Workforce Innovation Center. These examples demonstrate the breadth of collaboration envisioned among industry subject matter experts, employer-led collaboratives, educational institutions, workforce organizations, and community partners throughout Southeast Michigan's Regional Prosperity Region 10. They are illustrative rather than exhaustive and are intended to provide River Rouge with the flexibility to strengthen existing partnerships and engage new organizations as workforce priorities evolve.

5.4 Healthcare Career Academy

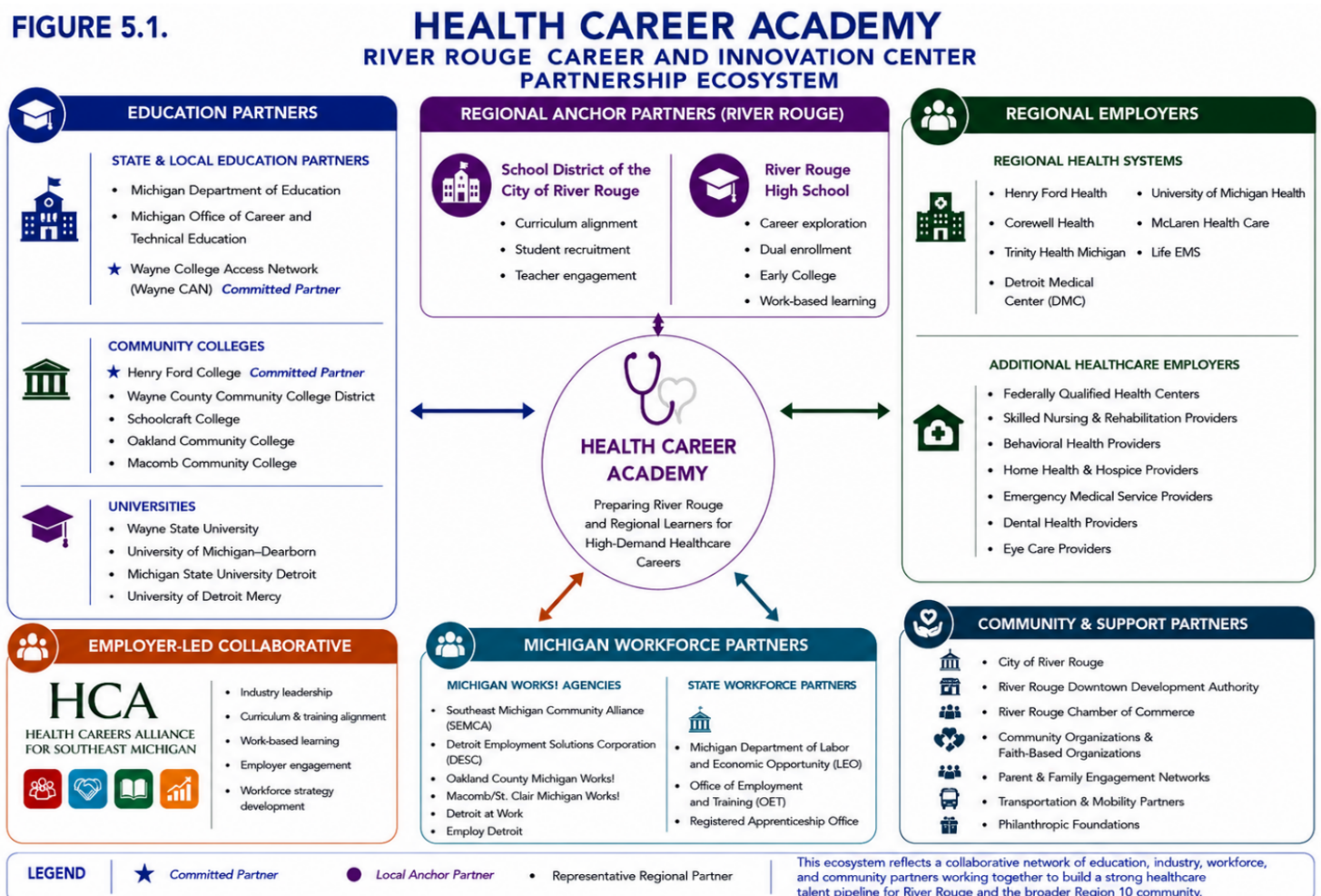
Purpose

The Healthcare Career Academy prepares learners for careers within one of Southeast Michigan's largest, most diverse, and fastest-growing industry sectors. Designed in partnership with regional healthcare employers, educational institutions, and workforce organizations, the academy supports talent development across the continuum of care by providing accessible educational pathways that lead to industry-recognized credentials, postsecondary degrees, professional licensure, Registered Apprentices where appropriate, and long-term career advancement. Through classroom instruction, simulation, clinical education, and work-based learning, learners gain the technical, digital, and durable skills required to succeed in an increasingly technology-enabled healthcare environment.

Representative Career Pathways

The Healthcare Career Academy encompasses a broad range of clinical, technical, diagnostic, and support occupations that respond to documented regional workforce demand. Representative career pathways include nursing, respiratory therapy, surgical technology, radiologic technology, diagnostic medical sonography, medical laboratory technology, emergency medical services, medical assisting, pharmacy technology, health information technology, behavioral health, dental health, and other allied health professions identified through employer demand. Educational pathways should emphasize stackable credentials and multiple entry and exit points, enabling learners to advance from entry-level positions into progressively higher levels of education, professional responsibility, and leadership throughout their careers.

FIGURE 5.1.



5.5 Advanced Manufacturing Career Academy

Purpose

The Advanced Manufacturing Career Academy prepares learners for careers in one of Southeast Michigan's most significant economic sectors by aligning education with the evolving workforce needs of modern manufacturing. Developed in collaboration with regional manufacturers, employer-led collaboratives, educational institutions, and workforce partners, the academy provides learners with opportunities to develop technical, digital, and durable skills that support careers in advanced production, automation, precision manufacturing, and emerging industrial technologies. Through classroom instruction, laboratory experiences, work-based learning, Registered Apprentices, and industry-recognized credentials, learners are prepared to contribute to a globally competitive manufacturing workforce while supporting the continued growth and innovation of Michigan's manufacturing economy.

Representative Career Pathways

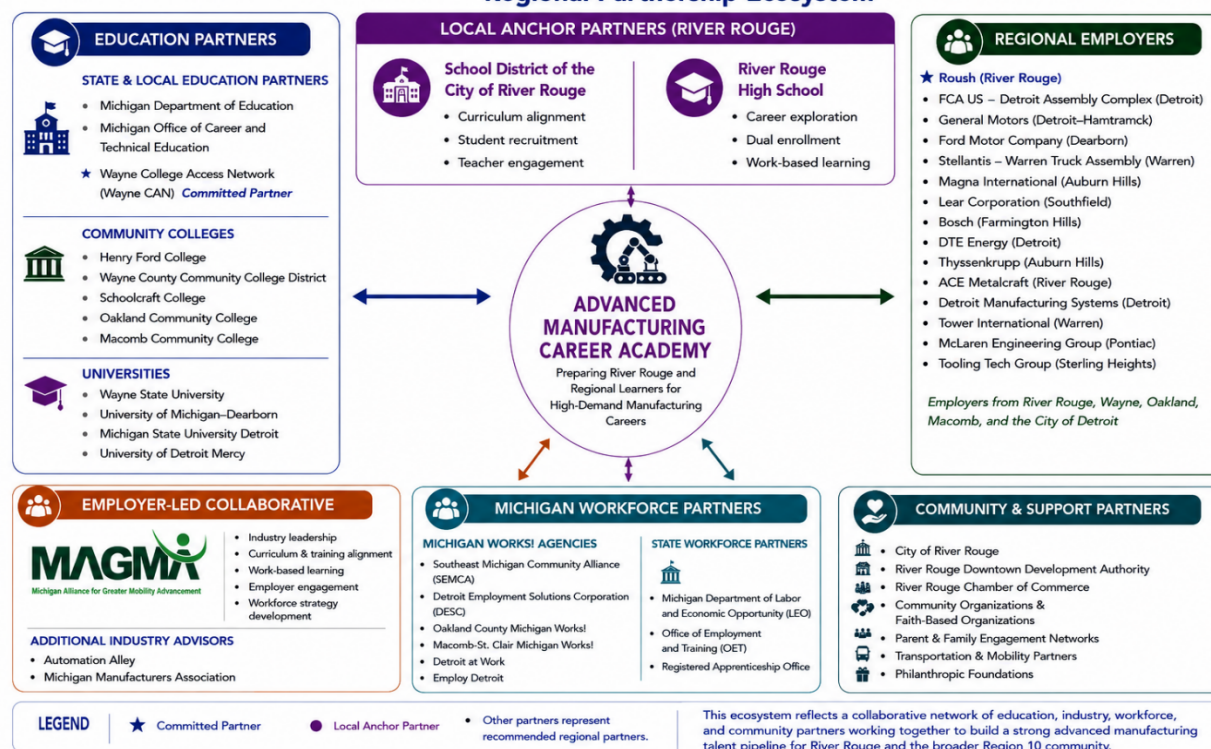
The Advanced Manufacturing Career Academy encompasses a diverse range of occupations supporting advanced production systems, engineering technologies, and industrial innovation. Representative career pathways include computer numerical control

(CNC) machining, industrial maintenance, mechatronics, robotics and automation, welding and metal fabrication, quality assurance, additive manufacturing, industrial engineering technology, production operations, supply chain and logistics support, computer-aided design and manufacturing (CAD/CAM), and manufacturing leadership. Educational pathways should emphasize stackable credentials, postsecondary certificates, associate and bachelor's degree opportunities, and Registered Apprentices programs that enable learners to advance from entry-level technical positions into highly skilled occupations supporting advanced manufacturing throughout Southeast Michigan.

FIGURE 5.2

ADVANCED MANUFACTURING CAREER ACADEMY

Regional Partnership Ecosystem



5.6 Skilled Trades Career Academy

Purpose

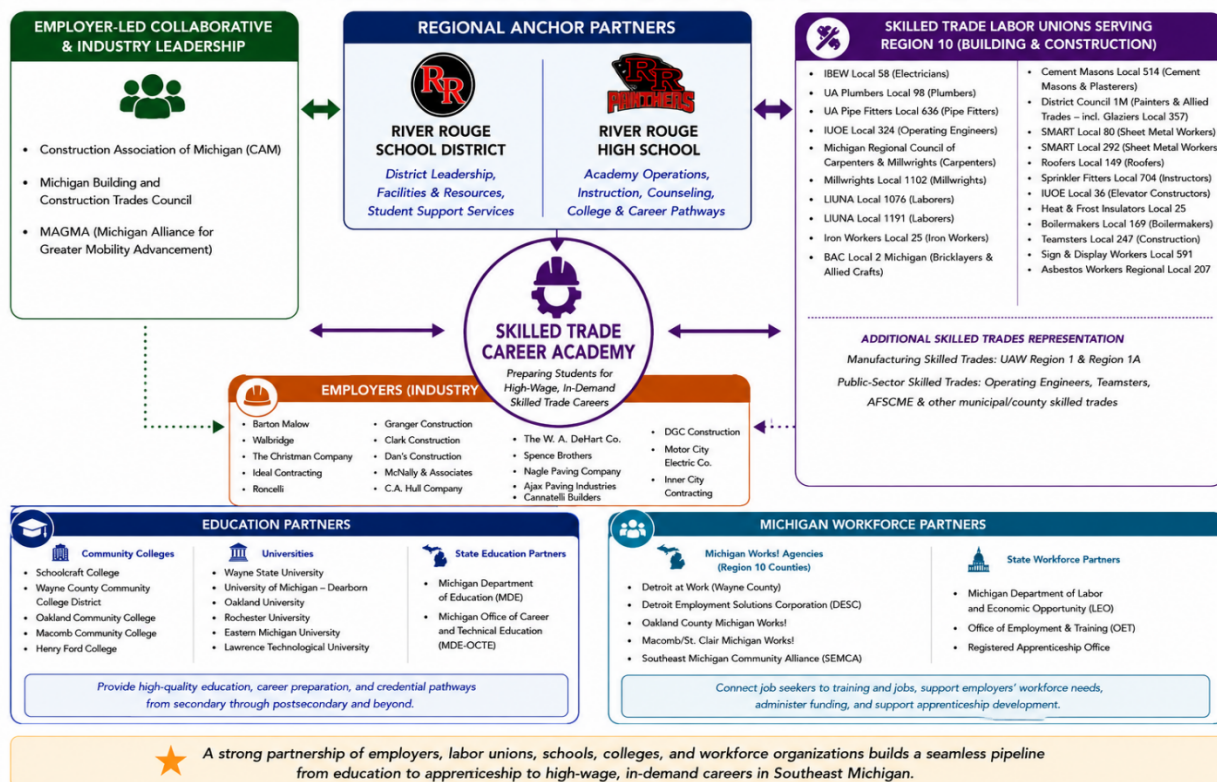
The Skilled Trades Career Academy prepares learners for rewarding careers in the construction, infrastructure, maintenance, and industrial trades that are essential to Southeast Michigan's economic vitality. Developed in partnership with employers, labor organizations, educational institutions, and workforce partners, the academy provides learners with the technical knowledge, hands-on experience, digital competencies, and durable skills needed to succeed in highly skilled occupations. Through classroom instruction, laboratory experiences, work-based learning, pre-apprenticeship, Registered Apprentices, and industry-recognized credentials, learners are prepared to enter careers that offer competitive wages, long-term advancement opportunities, and direct pathways to journey-level status and professional leadership within the skilled trades.

Representative Career Pathways

The Skilled Trades Career Academy encompasses a broad range of occupations supporting commercial, industrial, residential, and public infrastructure projects throughout Southeast

Michigan. Representative career pathways include electrical trades, plumbing, pipefitting, HVAC and refrigeration, carpentry, masonry, ironworking, welding, millwright, operating engineers, construction equipment operation, sheet metal, industrial maintenance, elevator construction and repair, and facilities maintenance. Educational pathways should emphasize stackable credentials, dual enrollment opportunities, industry certifications, pre-apprenticeship experiences, and Registered Apprentices programs that enable learners to progress from foundational technical skills to journey-level careers while meeting the evolving workforce needs of employers across Regional Prosperity Region 10.

FIGURE 5.3. SKILLED TRADE CAREER ACADEMY PARTNERSHIP ECOSYSTEM



5.7 Clean Energy & Electrification Career Academy

Purpose

The Clean Energy & Electrification Career Academy prepares learners for careers supporting the transition to a cleaner, more sustainable, and increasingly electrified economy. Located within one of the world's leading Centers for automotive innovation, advanced manufacturing, mobility technology, and critical infrastructure, the academy leverages Southeast Michigan's strengths in vehicle electrification, battery production, utility systems, water and wastewater infrastructure,

and intelligent transportation. The inclusion of the **Great Lakes Water Authority** broadens the academy beyond electric mobility by connecting learners to the operation, maintenance, instrumentation, energy management, and modernization of essential regional water and wastewater systems. The authority serves Southeast Michigan and offers paid internships and Registered Apprenticeship in occupations such as electrical maintenance, instrumentation, water technology, and information technology, demonstrating how public infrastructure can provide structured pathways into technical careers.

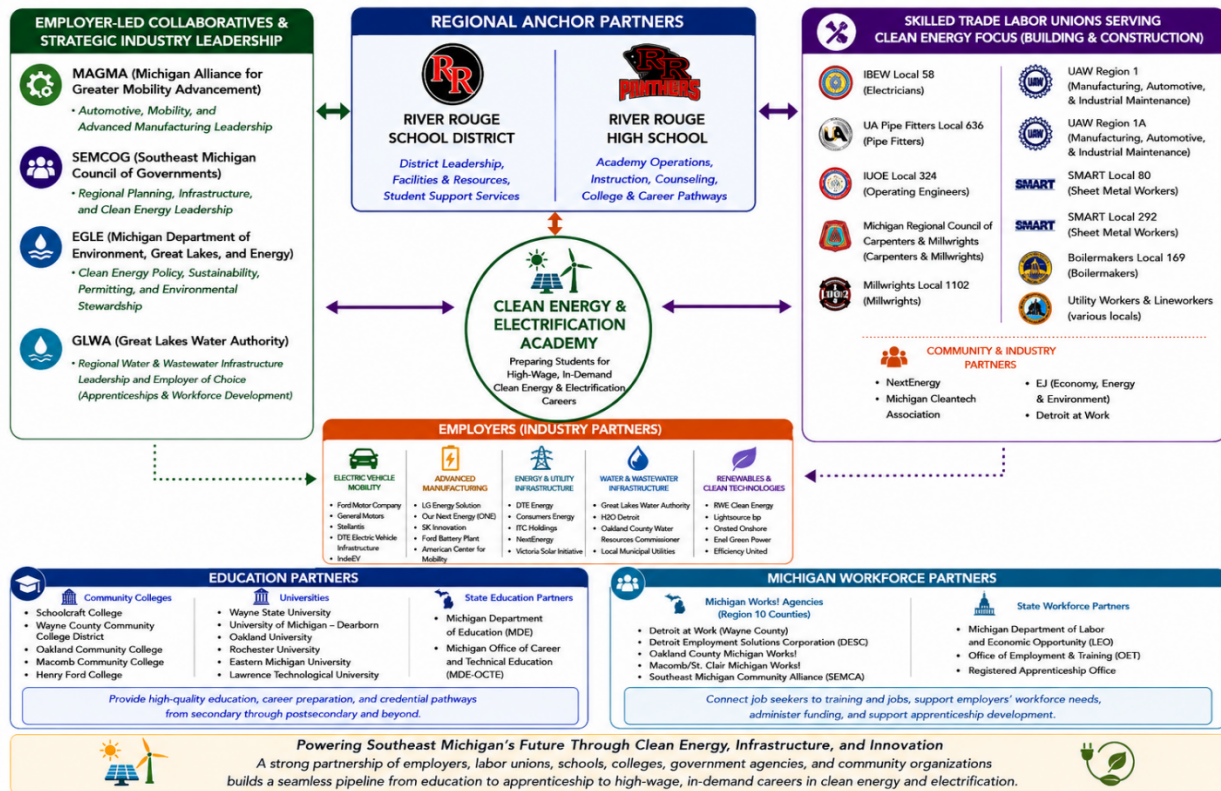
Developed in collaboration with employers, utilities, public agencies, educational institutions, labor organizations, and workforce partners, the academy equips learners with the technical, digital, and durable skills needed to support the future of mobility, clean energy, sustainable infrastructure, and essential public services. By aligning education with emerging regional workforce needs, the academy prepares graduates for high-demand careers while strengthening Michigan's leadership in advanced mobility, clean-energy technologies, and resilient infrastructure.

Representative Career Pathways

The Clean Energy & Electrification Career Academy encompasses occupations supporting electric mobility, advanced energy systems, renewable energy, utilities, water and wastewater infrastructure, and sustainable development. Representative pathways include electric-vehicle manufacturing and service; battery production and battery-management systems; charging-infrastructure installation and maintenance; renewable-energy technologies; smart-grid operations; energy-management systems; building automation and controls; industrial electrification; utility operations; water and wastewater treatment; electrical and instrumentation maintenance; water-system technology; predictive maintenance; cybersecurity and information technology for critical infrastructure; energy-efficient pumping and treatment systems; hydrogen and alternative-energy technologies; environmental sustainability; and intelligent transportation systems.

Educational pathways should emphasize industry-recognized credentials, stackable certificates, dual enrollment, associate- and bachelor's-degree pathways, internships, and Registered Apprentices. The Great Lakes Water Authority's apprenticeship model—developed with partners that include Henry Ford College, Macomb Community College, Focus: HOPE, the American Federation of State, County and Municipal Employees, and the International Brotherhood of Electrical Workers—provides a relevant regional example of how paid work-based learning, college instruction, and recognized credentials can be combined to prepare workers for essential infrastructure careers.

FIGURE 5.4. CLEAN ENERGY & ELECTRIFICATION ACADEMY PARTNERSHIP ECOSYSTEM



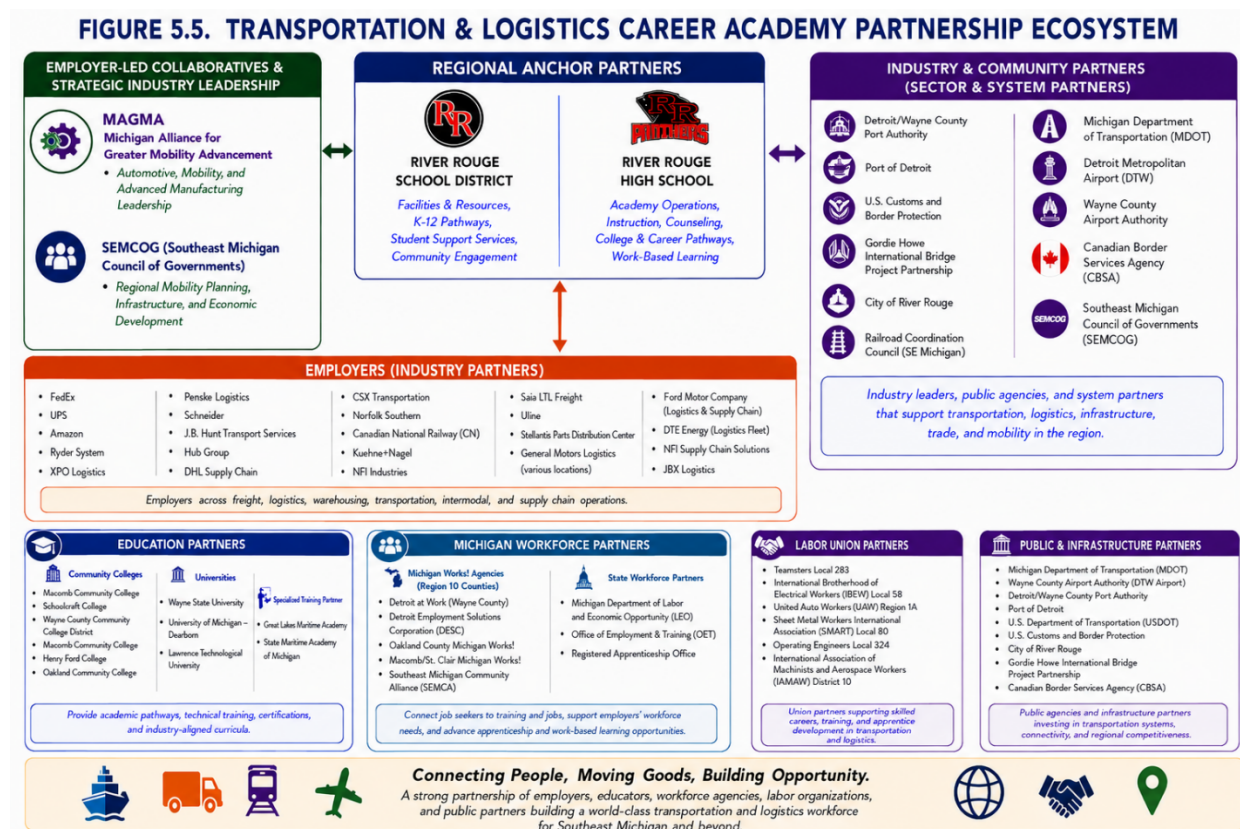
5.8 Transportation & Logistics Career Academy

Purpose

The Transportation & Logistics Career Academy prepares learners for careers that support the efficient movement of goods, services, and people throughout Southeast Michigan and the global economy. River Rouge is uniquely positioned to serve as a hub for transportation and logistics education due to its strategic location along the Detroit River, proximity to one of North America's busiest international border crossings, access to major interstate highways and rail corridors, and connections to regional ports, manufacturing Centers, and distribution networks. Building upon these regional assets, the academy leverages Southeast Michigan's extensive transportation infrastructure and interconnected supply chain ecosystem to prepare learners for careers in logistics, freight movement, warehousing, commercial transportation, and supply chain management. Developed in collaboration with employers, educational institutions, workforce partners, and public agencies, the academy equips learners with the technical, digital, and durable skills needed to support one of Michigan's most critical economic sectors. By aligning educational pathways with documented regional workforce demand, the academy prepares graduates for high-demand careers while strengthening the efficiency, resilience, and long-term competitiveness of Southeast Michigan's transportation and logistics economy.

Representative Career Pathways

The Transportation & Logistics Career Academy encompasses a broad range of occupations supporting supply chain operations, freight movement, warehousing, distribution, and transportation technologies. Representative career pathways include supply chain management, logistics coordination, warehouse and distribution operations, commercial vehicle operations, fleet management, customs and international trade, freight brokerage, inventory and materials management, transportation planning, port and intermodal operations, intelligent transportation systems, and logistics data analytics. Educational pathways should emphasize industry-recognized credentials, stackable certificates, dual enrollment opportunities, associate and bachelor's degree pathways, and Registered Apprentices programs that prepare learners for careers in one of Southeast Michigan's most critical economic sectors.



5.10 Engineering & Applied Technologies Career Academy

Purpose

While every Career Academy incorporates foundational digital literacy, artificial intelligence awareness, and technology-enabled learning, the Engineering & Applied Technologies Career Academy prepares learners to become the engineers, programmers, designers, analysts,

technicians, and technology specialists responsible for developing, implementing, securing, and advancing those technologies across every industry sector. Building upon Southeast Michigan's internationally recognized strengths in engineering, mobility, advanced manufacturing, automation, and digital innovation, the academy integrates engineering principles with applied technologies, information technology, cybersecurity, artificial intelligence, robotics, and advanced manufacturing systems. Developed in collaboration with employers, educational institutions, workforce organizations, and community partners, the academy equips learners with the technical, digital, and durable skills needed to design, improve, and sustain the products, systems, and technologies that will define Michigan's future economy.

Representative Career Pathways

The Engineering & Applied Technologies Career Academy encompasses careers supporting engineering, digital technologies, automation, and technology innovation across manufacturing, healthcare, mobility, transportation, clean energy, and other high-growth industries.

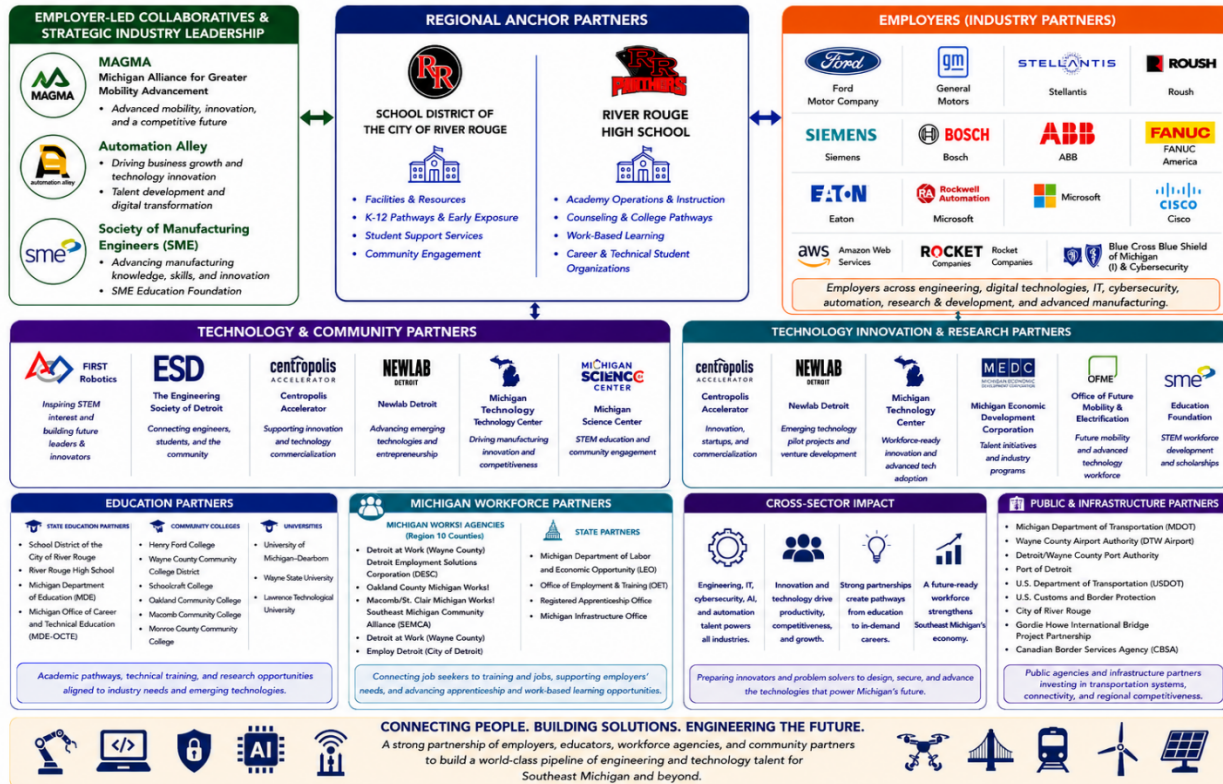
Representative career pathways include:

- **Engineering Technologies:** Mechanical Engineering Technology, Electrical Engineering Technology, Civil Engineering Technology, Manufacturing Engineering, Industrial Engineering Technology, Systems Engineering, and Quality Engineering.
- **Digital Technologies:** Information Technology, Cybersecurity, Software Development, Cloud Computing, Network Administration, Artificial Intelligence, Machine Learning, Data Analytics, Systems Administration, and Digital Engineering.
- **Automation & Smart Manufacturing:** Robotics, Mechatronics, Industrial Automation, Programmable Logic Controller Programming, Digital Twins, Smart Manufacturing, Automation Systems Integration, and Industrial Internet of Things.
- **Design & Product Development:** Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Product Design, Simulation and Modeling, Engineering Project Management, and Research and Development.

Educational pathways should emphasize dual enrollment, stackable certificates, industry-recognized credentials, associate and bachelor's degree pathways, internships, cooperative education, undergraduate research experiences, and Registered Apprentices opportunities that prepare learners for engineering and technology careers throughout Southeast Michigan.

Potential entry-level credentials aligned with each Career Academy are summarized in **Appendix K: Entry-Level Industry Credentials by Career Academy** and should be refined through program-level employer and education-partner validation.

FIGURE 5.6. ENGINEERING & APPLIED TECHNOLOGIES CAREER ACADEMY PARTNERSHIP ECOSYSTEM



5.11 Shared Foundational Competencies

While each Career Academy focuses on a distinct industry sector, all learners should develop a common set of foundational competencies that are intentionally embedded across academy coursework, competency-based instruction, project-based learning, and work-based learning at every educational level.

Artificial Intelligence and Digital Fluency

Artificial intelligence is transforming nearly every sector of the economy. Rather than treating AI as a standalone program, the Center should integrate AI literacy and digital fluency throughout every Career Academy so learners understand how these technologies are applied within their chosen profession.

Core competencies should include:

- Artificial intelligence literacy
- Ethical and responsible use of AI
- Effective prompting, evaluation, and verification of AI-generated information
- Digital collaboration tools

- Data literacy
- Automation technologies
- Cybersecurity awareness
- Industry-specific AI applications

Instruction should emphasize practical application, enabling learners to understand how AI improves productivity, quality, safety, decision-making, and innovation within their field.

Durable Skills

Technical knowledge alone is not sufficient for long-term career success. Employers consistently report that communication, teamwork, critical thinking, adaptability, leadership, and other durable skills are essential workforce competencies that complement technical expertise and enable individuals to succeed across occupations and throughout their careers (America Succeeds, 2021; Advance CTE, 2024). Accordingly, the River Rouge Career & Workforce Innovation Center should intentionally embed durable skills throughout every Career Academy rather than teaching them as stand-alone coursework.

The recommended approach is to integrate durable skills across classroom instruction, project-based learning, laboratory experiences, competency-based education, employer engagement, and work-based learning. Learners should have repeated opportunities to develop, practice, receive feedback on, and demonstrate these competencies in authentic educational and workplace settings. Embedding durable skills throughout the educational experience reinforces their importance while helping learners understand how professional competencies contribute to workplace performance, career advancement, and lifelong employability (America Succeeds, 2021).

The Durable Skills Framework identifies ten competency domains that employers consistently value across industries and occupations:

- Communication
- Leadership
- Metacognition
- Critical Thinking
- Collaboration
- Character
- Creativity
- Growth Mindset
- Mindfulness
- Fortitude

To support implementation of these competencies, the River Rouge Career & Workforce Innovation Center should adopt the **Durable Skills Advantage** curriculum developed collaboratively by **Henry Ford College, the Workforce Intelligence Network (WIN), and MindSpring**. Building upon the America Succeeds Durable Skills Framework, this workforce-focused curriculum translates the ten competency domains into **120 instructional modules** organized across four progressive learning levels:

- Emerging
- Developing
- Applying
- Exceeding

Rather than concentrating durable skills within a single course, the curriculum is designed to be integrated throughout Career Academy instruction, competency-based learning, dual enrollment, Early College, project-based learning, employer-sponsored activities, and work-based learning experiences. This progressive approach enables learners to strengthen professional competencies as they advance through education while demonstrating increasing levels of workplace readiness.

Together, the Durable Skills Advantage curriculum and the River Rouge Career Academy model establish a common professional competency framework across all six Career Academies. Regardless of a learner's chosen career pathway, every graduate should demonstrate the communication, collaboration, leadership, critical thinking, adaptability, and professional behaviors required for success in today's technology-enabled workplace. Embedding durable skills throughout the learner experience ensures that technical competency and professional competency develop simultaneously, strengthening both immediate employability and long-term career resilience (America Succeeds, 2021; World Economic Forum, 2025).

The complete course structure and recommended applications across education and workforce settings are summarized in **Appendix F**.

Best Practice Spotlight

National workforce organizations increasingly recommend embedding durable skills across all Career and Technical Education programs rather than teaching them as separate subjects. Integrating these competencies throughout technical instruction, competency-based learning, project-based learning, and work-based learning better prepares learners for rapidly changing workplaces while improving career adaptability, workforce resilience, and long-term employability (Advance CTE, 2024; America Succeeds, 2021; World Economic Forum, 2025).

Chapter 6 – Educational Delivery Model, Competency-Based Learning, and Educational Pathways

Chapter at a Glance

Purpose

This chapter presents the recommended educational delivery model for the River Rouge Career & Workforce Innovation Center. The River Rouge Career & Workforce Innovation Center is envisioned as an open-access workforce learning system that provides multiple educational entry points, flexible instructional delivery, competency-based progression, and lifelong educational pathways. Building upon the Career Academy framework presented in Chapter 5, it describes how education and training should be delivered through flexible, learner-Centered, competency-based, and technology-enabled strategies that improve educational access while maintaining instructional quality and strong employer engagement.

The chapter emphasizes instructional approaches that reduce barriers to participation, expand educational flexibility, strengthen work-based learning, support competency-based education, promote stackable credentials and educational pathways, and improve the long-term operational sustainability of the Innovation Center.

Key Questions Addressed

- How should education and training be delivered within the River Rouge Career & Workforce Innovation Center?
- How can instructional delivery better serve both secondary students and adult learners?
- How can technology improve educational access while reducing time, place, transportation, and childcare barriers?
- What role should simulation and technology-enabled learning play in workforce education?
- How should competency-based education strengthen learner success and employer confidence?
- How should educational pathways and stackable credentials support lifelong learning and career advancement?
- How should instructional technologies be selected to support educational and workforce objectives?

Introduction

The Career Academies presented in Chapter 5 establish **what** educational programs should be offered within the River Rouge Career & Workforce Innovation Center. Equally important is determining **how** those programs should be delivered. Traditional Career and Technical Education has often relied on fixed schedules, classroom instruction, and specialized laboratories that require students to be physically present at designated times. While these approaches remain appropriate for many technical competencies, they can also create barriers that limit participation, particularly for adult learners balancing employment and family responsibilities.

Advances in instructional technology now provide opportunities to redesign educational delivery in ways that improve access while maintaining instructional quality. Online learning, virtual simulation, artificial intelligence, immersive technologies, digital collaboration platforms, and remote instructional tools allow portions of education and training to occur beyond the traditional classroom. These technologies enable learners to complete appropriate instructional activities from home, at an employer's worksite, or other approved learning locations while preserving in-person instruction for competencies that require specialized equipment, direct faculty supervision, or formal skills assessment.

The educational delivery model recommended for the River Rouge Career & Workforce Innovation Center is therefore based upon a blended approach that combines flexible technology-enabled learning with strategically scheduled hands-on instruction and employer-based work experiences. Rather than replacing traditional instruction, technology expands the ways in which learning can occur, increasing educational access while allowing faculty to focus classroom and laboratory time on activities that provide the greatest instructional value.

This chapter recommends an educational delivery model that integrates flexible instructional delivery, technology-enabled learning, competency-based education, educational pathways, stackable credentials, and employer-engaged learning into a comprehensive workforce development strategy. Together, these elements provide learners with multiple opportunities to acquire knowledge, demonstrate competency, earn meaningful credentials, and advance through progressively higher levels of education and employment while remaining responsive to evolving employer and regional workforce needs.

6.1 Flexible Educational Delivery

The River Rouge Career & Workforce Innovation Center should adopt a flexible educational delivery model that recognizes workforce education is no longer designed exclusively for traditional full-time students. Instead, the Center should serve multiple learner populations whose educational needs, work responsibilities, and life circumstances vary considerably.

Educational delivery should therefore emphasize accessibility, flexibility, and responsiveness while maintaining high standards of instructional quality and competency development.

For secondary students, flexibility may include career exploration, dual enrollment, hybrid instruction, work-based learning, employer-sponsored projects, and opportunities to earn industry-recognized credentials while completing high school. Flexible scheduling can also support participation in extracurricular activities, employment, and other student responsibilities without limiting access to Career and Technical Education.

For adult learners, flexibility becomes even more critical. Many adults balance full-time employment, changing work schedules, family responsibilities, transportation challenges, and childcare obligations while pursuing additional education. Educational delivery models that require attendance at fixed times and locations may unintentionally limit participation among individuals who could otherwise benefit from workforce training. Expanding instructional options through online learning, evening and weekend scheduling, employer-site instruction, and technology-enabled learning can significantly improve educational access for these populations.

Incumbent workers represent another important learner population. Employers increasingly require opportunities to upskill existing employees while minimizing disruptions to business operations. Technology-enabled instruction, remote learning, simulation, and employer-based education can allow workers to develop new competencies without requiring extended absences from the workplace. These approaches also support customized employer training, Registered Apprentices, and incumbent worker advancement strategies that respond to evolving industry needs.

Regardless of learner population, educational delivery should remain competency-focused rather than location-focused. Learning should occur wherever it can be delivered effectively, efficiently, and safely. Technology should be used to expand access, increase flexibility, and strengthen learner preparation, while classroom instruction, laboratories, simulation Centers, and employer worksites should be reserved for experiences requiring direct interaction, specialized equipment, collaborative activities, or formal competency assessment.

By adopting a flexible educational delivery model, the River Rouge Career & Workforce Innovation Center can expand participation among diverse learner populations while strengthening employer engagement, improving educational outcomes, and creating a workforce education system capable of adapting to changing technologies, labor market conditions, and community needs.

6.2 Reducing Time and Place Barriers Through Technology-Enabled Learning

One of the greatest challenges facing Career and Technical Education is providing flexible access to high-quality instruction while maintaining rigorous standards for technical competency and workforce readiness. Traditional educational models often require learners to attend classes at fixed times and locations, creating barriers for individuals who balance employment, family responsibilities, transportation limitations, childcare needs, or other competing demands. These barriers can affect both secondary students and adult learners, limiting participation even when high-quality educational opportunities are available.

The River Rouge Career and Workforce Innovation Center should intentionally use instructional technology to reduce these barriers while maintaining educational quality. Technology should not be viewed simply as a means of modernizing instruction; rather, it should serve as a strategic tool for expanding educational access, increasing flexibility, strengthening learner engagement, and improving workforce outcomes.

For secondary students, technology-enabled learning can provide greater scheduling flexibility while supporting career exploration, Career Academy coursework, dual enrollment, employer-sponsored projects, and individualized learning opportunities. For adult learners and incumbent workers, flexible instructional delivery may reduce conflicts associated with work schedules, family responsibilities, transportation, and childcare by allowing portions of learning to occur outside traditional classroom hours.

Technology also provides opportunities to extend learning beyond the physical boundaries of the Innovation Center. Depending upon the instructional objectives, learners may complete foundational instruction, virtual simulations, collaborative projects, durable skills development, and selected competency-building activities from home, at an employer worksite, or through other approved learning environments. This flexibility allows valuable classroom and laboratory time to be reserved for activities requiring specialized equipment, instructor supervision, team-based collaboration, or formal competency assessment.

Reducing time and place barriers also contributes to the long-term sustainability of the Innovation Center. Every instructional activity that can be effectively delivered through distributed learning technologies reduces dependence on specialized facilities while expanding access for a broader population of learners. This approach supports educational equity, increases instructional capacity, and allows limited physical resources to be used more strategically.

Technology should therefore be selected based upon the educational or operational challenge it is intended to address rather than simply because it represents an emerging innovation. The Center should first identify the instructional problem it is attempting to solve and then evaluate technologies capable of addressing that specific need.

Reducing time and place barriers not only improves educational access but also supports competency-based learning by allowing learners to progress at an individualized pace while demonstrating mastery of required competencies. Flexible instructional delivery enables education to become more learner-Centered while preserving rigorous standards for competency development and workforce readiness.

Table 6.1

Selecting Instructional Technologies Based on Educational Need

If the Goal Is...	Instructional Strategy	Technology Categories to Consider
Reduce time barriers	Expand learning beyond scheduled classroom hours	Online learning platforms; self-paced instruction; AI tutoring; virtual simulation
Reduce place barriers	Allow learning to occur outside the classroom or laboratory	Virtual reality (VR); virtual classrooms; immersive learning environments; remote laboratories
Reduce transportation barriers	Minimize required travel to the Innovation Center	Distributed learning platforms; home-based simulation; remotely managed VR systems
Reduce childcare barriers	Increase scheduling flexibility for adult learners	Self-paced online instruction; asynchronous learning; AI-supported coaching and feedback
Support working adults and incumbent workers	Deliver learning around work schedules or at employer sites	Mobile learning; employer-site instruction; augmented reality work instructions; remote expert support
Simulate work-based learning	Prepare learners before internships, clinical experiences, or apprenticeships	Virtual patients; digital twins; cyber ranges; manufacturing simulations; immersive workplace scenarios
Reduce dependence on specialized laboratories	Deliver appropriate instruction outside physical laboratories	Virtual simulation; remote practice environments; digital simulations; AI-supported learning
Improve competency development and assessment	Measure learner performance and readiness	Simulation analytics; performance-based assessment; competency management systems; digital scoring platforms

Note: While many instructional technologies can reduce time and place barriers, not every educational objective can or should be delivered remotely. Certain technical competencies require direct interaction with specialized equipment, instructor observation, regulated skills validation, or employer evaluation. The Center should therefore adopt a balanced educational delivery model that uses technology to maximize flexibility while preserving in-person instruction for learning experiences that require physical participation.

By selecting technologies according to educational need rather than vendor preference, the River Rouge Career and Workforce Innovation Center can create a more accessible, responsive, and financially sustainable educational system that serves diverse learner populations while

remaining aligned with employer expectations and workforce priorities. A more detailed decision-making resource is provided in **Appendix G: Selecting Educational Technologies Based on Instructional Challenges**, which connects specific learner barriers and instructional needs with potential technology-enabled strategies, implementation considerations, and educational applications.

6.3 Technology-Enabled Workforce Learning

Technology is transforming how workforce education is delivered across virtually every industry. Advances in online learning, artificial intelligence (AI), virtual reality (VR), augmented reality (AR), simulation, digital twins, immersive learning environments, and remote collaboration platforms allow educational institutions to deliver instruction more flexibly while strengthening learner engagement and workforce readiness. These technologies should not be viewed as replacements for instructors or employer engagement. Rather, they should be considered instructional tools that expand educational access, improve learning outcomes, and better prepare learners for authentic workplace experiences.

The River Rouge Career and Workforce Innovation Center should adopt a technology-enabled learning model that integrates instructional technology throughout each Career Academy. Technology should support foundational knowledge, technical skill development, durable skills, competency-based learning, and career preparation while allowing faculty to devote greater attention to coaching, mentoring, hands-on instruction, and employer engagement.

Technology-enabled learning can also improve educational consistency by allowing learners to practice procedures repeatedly, receive immediate feedback, review concepts at their own pace, and safely experience workplace scenarios that may be difficult, costly, or hazardous to reproduce in traditional instructional settings. These approaches strengthen learner confidence while helping employers receive students who are better prepared for internships, clinical education, cooperative education, Registered Apprentices, and employment.

The technologies available to support workforce education continue to evolve rapidly. Rather than recommending specific products within this chapter, the River Rouge Career and Workforce Innovation Center should evaluate technologies based upon their ability to improve learner access, instructional quality, employer responsiveness, competency development, and long-term operational sustainability.

Technology-enabled learning also provides important support for competency-based education by creating additional opportunities for learners to practice, receive feedback, document progress, and demonstrate proficiency prior to formal assessment. Digital learning platforms, simulation technologies, and immersive instructional environments increasingly provide objective performance data that can strengthen competency assessment while supporting individualized learning pathways.

Representative technologies and providers that may support these applications are identified in **Appendix H: Technology-Enabled Learning Platforms**. The appendix focuses on technologies that can expand access through online, remote, virtual, synchronous, or asynchronous delivery and thereby reduce time, place, transportation, and scheduling barriers.

6.4 Strategic Use of Laboratory-Based Learning

Although technology enables many instructional activities to occur outside the traditional classroom, laboratory-based instruction remains an essential component of Career and Technical Education. Many technical competencies require learners to work directly with specialized equipment, demonstrate psychomotor skills, collaborate with instructors and peers, or complete competency assessments under direct observation. These experiences cannot be fully replicated through remote instruction and remain critical to workforce preparation.

At the same time, specialized laboratories represent one of the most significant investments required to establish and operate a comprehensive career and workforce education center. Advanced manufacturing laboratories, healthcare simulation Centers, robotics laboratories, cybersecurity environments, welding facilities, and skilled trades laboratories require substantial capital investment, specialized equipment, software licensing, ongoing maintenance, instructor training, technical support, and periodic replacement as technology evolves. These continuing costs can represent a significant long-term financial commitment for educational institutions.

Accordingly, the River Rouge Career and Workforce Innovation Center should adopt a strategic approach to laboratory utilization. Whenever learning objectives can be effectively achieved through technology-enabled instruction, distributed simulation, employer-based learning, or virtual practice environments, these approaches should be used to expand learner access while reducing unnecessary dependence on specialized facilities. Physical laboratories should be reserved for instructional experiences that genuinely require specialized equipment, direct faculty supervision, regulated competency validation, collaborative team activities, or hands-on technical practice that cannot be achieved through other instructional methods.

This balanced approach provides multiple benefits. It expands educational access by reducing time, place, transportation, and childcare barriers; improves utilization of expensive laboratory resources; reduces long-term operating costs; increases instructional flexibility; and allows learners to enter laboratory sessions better prepared through prior online instruction and simulation-based practice. Most importantly, it enables the Innovation Center to invest strategically in high-value laboratory experiences while leveraging technology to maximize educational opportunity for a broader range of learners.

Ultimately, the Center should embrace a simple instructional philosophy:

Use technology to expand access whenever possible, and use laboratories when direct, hands-on learning provides the greatest educational value.

This philosophy supports learner success, strengthens employer partnerships, improves operational efficiency, and reinforces the Center's commitment to delivering high-quality workforce education that is both innovative and financially sustainable.

Laboratory experiences should therefore be integrated within broader educational pathways rather than functioning as isolated instructional events. Students should enter laboratory experiences prepared through prior online learning, simulation, and competency development and leave those experiences having demonstrated measurable progress toward industry-recognized credentials, postsecondary achievement, and employment readiness.

Appendix I *Specialized Laboratory Equipment Supporting Career Academy Instruction* provides representative examples of specialized equipment that could be evaluated through the strategic laboratory-planning process described in Chapters 6 and 8. These resources are presented as planning examples and should be evaluated carefully in relation to facility requirements, utilization, capital cost, maintenance, staffing, and long-term sustainability.

6.5 Educational Pathways, Stackable Credentials, and Competency-Based Learning

The educational delivery model recommended for the River Rouge Career & Workforce Innovation Center should provide learners with multiple entry and exit points that support lifelong learning, credential attainment, and career advancement. Rather than viewing workforce education as a single credential or educational experience, the Center should organize instruction around stackable career pathways that enable learners to progressively build technical competencies, industry-recognized credentials, postsecondary education, Registered Apprenticeship opportunities, and employment throughout their careers. National workforce organizations increasingly recognize stackable credentials and clearly articulated career pathways as effective strategies for improving learner mobility, supporting lifelong learning, and responding to rapidly changing workforce demands (Lumina Foundation, 2021; U.S. Department of Education, Office of Career, Technical, and Adult Education [OCTAE], n.d.).

Educational pathways should remain sufficiently flexible to accommodate the diverse learner populations served by the Center. High school students may begin through career exploration, Career Academies, dual enrollment, and Early College opportunities before continuing into certificates, apprenticeships, or college degree programs. Adult learners, incumbent workers, veterans, and career changers may enter the pathway at different points depending upon prior education, work experience, military service, or previously earned credentials. This flexible approach supports lifelong learning while recognizing prior learning and creating multiple entry

and exit points that allow individuals to advance their education and careers as workforce needs evolve (Jobs for the Future, 2016; Lumina Foundation, 2021).

The educational pathways recommended for the River Rouge Career & Workforce Innovation Center should enable learners to earn meaningful industry-recognized credentials throughout their educational journey rather than waiting until program completion. Entry-level credentials provide evidence of competency, strengthen learner employability, support stackable educational pathways, and create opportunities for continued education and career advancement. As learners progress through Career Academies, dual enrollment, Early College, postsecondary education, Registered Apprenticeship, and employer-based learning experiences, they should have opportunities to earn credentials that are recognized and valued by employers across the region. Table 6.2 presents illustrative examples of entry-level industry credentials that align with the six recommended Career Academies and support competency-based workforce preparation.

Table 6.2
Illustrative Industry Credentials by Career Academy

Career Academy	Illustrative Entry-Level Industry Credentials
Advanced Manufacturing Career Academy	OSHA 10-Hour General Industry; Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT); FANUC Certified Education Training (CERT); Siemens Mechatronic Systems Certification Program (SMSCP); National Institute for Metalworking Skills (NIMS); AWS SENSE Welding Credentials
Health Careers Academy	CPR/AED; Basic Life Support (BLS); Stop the Bleed®; Certified Nursing Assistant (CNA); Emergency Medical Technician (EMT); Medical Assistant certifications; Pharmacy Technician certifications; Occupational Safety and Infection Control training
Clean Energy and Electrification Career Academy	OSHA 10-Hour Construction; NABCEP Associate Credential; Electric Vehicle Infrastructure Training Program (EVITP) Fundamentals; Electrical Safety; Battery and Energy Storage Fundamentals; manufacturer-specific electric vehicle certifications
Skilled Trades and Construction Career Academy	OSHA 10-Hour Construction; NCCER Core Curriculum; NCCER Level Credentials; EPA Section 608 Refrigerant Certification; AWS SENSE Welding Credentials; First Aid/CPR
Transportation, Logistics, and Mobility Career Academy	Commercial Driver's License (CDL) Permit; OSHA Forklift Operator; Automotive Service Excellence (ASE) Entry-Level

Career Academy	Illustrative Entry-Level Industry Credentials
	Certifications; Hazardous Materials Awareness; Supply Chain and Logistics Fundamentals
Engineering and Applied Technologies Career Academy	Autodesk Certified User (ACU); SolidWorks Associate (CSWA); CompTIA IT Fundamentals (ITF+); CompTIA A+; Cisco Networking Academy; Microsoft Office Specialist (MOS); AWS Cloud Practitioner (Foundational)

Note. Although Table 6.2 presents representative examples of entry-level industry credentials, the range of available credentials continues to evolve across industries. A more comprehensive inventory is provided in **Appendix K**. Final credential selection should be validated with employers, educational partners, credentialing organizations, licensing agencies, accrediting bodies, and applicable state or federal authorities. Final credential selection should be validated collaboratively with employers, postsecondary partners, credentialing organizations, licensing agencies, and accrediting bodies.

Central to this educational delivery model is the adoption of **competency-based education (CBE)**. Competency-based education shifts the emphasis from instructional time to demonstrated mastery of clearly defined knowledge, technical skills, durable skills, and workplace competencies. Rather than advancing because a prescribed number of instructional hours has been completed, learners progress by demonstrating proficiency through valid and reliable assessments. National leaders in higher education and workforce development identify competency-based education as a best practice for improving learner success, aligning education with employer expectations, and creating more flexible educational pathways for both traditional and adult learners (Competency-Based Education Network [C-BEN], 2024; Lumina Foundation, n.d.).

Competency-based education also complements the flexible instructional strategies described earlier in this chapter. Advances in online learning, virtual simulation, artificial intelligence, immersive learning technologies, and digital collaboration platforms make it increasingly possible for appropriate portions of instruction, practice, coaching, and formative assessment to occur beyond the traditional classroom. These technology-enabled approaches can reduce barriers associated with time, place, transportation, childcare, and work schedules while expanding access for high school students, adult learners, and incumbent workers (Jobs for the Future, 2018; Lumina Foundation, 2021).

To support successful implementation, the educational delivery model should incorporate the following competency-based design principles:

- Clearly define learning outcomes that are aligned with employer expectations, industry standards, accreditation requirements, and occupational competencies.

- Integrate technical knowledge, occupational skills, durable skills, safety practices, and professional behaviors throughout the curriculum.
- Provide learners with multiple opportunities to practice and demonstrate competency through classroom instruction, simulation, employer-based learning, laboratories, and authentic workplace experiences.
- Measure learner achievement through performance-based assessment using valid and reliable evaluation methods rather than relying solely on instructional hours or course completion.
- Document competency attainment through industry-recognized credentials, college credit, Registered Apprentices milestones, and other portable achievements that support continued education and career advancement (C-BEN, 2024; Lumina Foundation, n.d.).

Technology-enabled learning further strengthens competency-based education by allowing learners to practice procedures repeatedly, receive immediate feedback, complete realistic simulations, and demonstrate competency before participating in laboratory instruction or employer-based work experiences. Simulation technologies, digital learning platforms, and competency management systems increasingly provide educators with objective performance data that support continuous improvement while better preparing learners for employment. These technologies also support more personalized learning experiences by allowing learners to progress at an individualized pace while demonstrating mastery of required competencies (Jobs for the Future, 2018; C-BEN, 2024).

Educational pathways should therefore be designed as an integrated system in which competency development, stackable credentials, postsecondary education, work-based learning, and employer engagement reinforce one another. Learners should be able to earn meaningful credentials throughout their educational journey while continuing to advance toward higher levels of education, increased responsibility, and sustained career growth. This integrated approach strengthens alignment between education and regional workforce needs while creating a more responsive, learner-Centered, and employer-driven talent development system (Lumina Foundation, 2021; OCTAE, n.d.).

Table 6.3 illustrates how the educational delivery principles presented throughout this chapter can be translated into program planning across the six Career Academies. The matrix connects representative instructional programs with industry credentials, postsecondary partnerships, work-based learning opportunities, and technology-enabled instructional strategies that support competency development and career advancement.

Table 6.3
Illustrative Program Planning Matrix by Career Academy

Career Academy	Representative Programs and Pathways	Illustrative Industry Credentials	Postsecondary & Training Partners	Work-Based Learning Opportunities	Technology-Enabled Learning Applications
Advanced Manufacturing	Mechatronics, Industrial Maintenance, Robotics, CNC Machining, Welding, Quality Systems	OSHA 10, MSSC CPT, FANUC CERT, Siemens SMSCP, NIMS, AWS SENSE	Community colleges, universities, apprenticeship sponsors, employer training Centers	Employer projects, internships, cooperative education, pre-apprenticeship, Registered Apprentices	Digital twins, robotics simulation, virtual manufacturing, predictive maintenance, remote troubleshooting
Health Careers	Nursing pathways, Medical Assisting, Respiratory Therapy, Surgical Technology, EMS, Diagnostic Imaging	CPR, BLS, CNA, EMT, Medical Assistant, Pharmacy Technician, occupation-specific licenses	Community colleges, universities, hospitals, clinical education providers	Clinical education, internships, simulation, incumbent worker advancement, Registered Apprentices	Virtual patients, AI-supported instruction, anatomy platforms, healthcare simulation, remote learning
Clean Energy & Electrification	Electric Vehicle Technology, Battery Systems, Charging Infrastructure, Renewable Energy, Building Electrification	OSHA, EVITP Fundamentals, NABCEP Associate, manufacturer certifications	Community colleges, utilities, apprenticeship programs, manufacturers	Employer projects, field experiences, internships, Registered Apprentices	Battery simulation, electrical diagnostics, virtual safety training, smart-grid simulation
Skilled Trades & Construction	Electrical, HVACR, Welding, Plumbing, Carpentry, Construction Technology	OSHA 10/30, NCCER, EPA 608, AWS SENSE	Community colleges, apprenticeship training Centers, labor organizations, contractors	Jobsite experiences, internships, cooperative education, pre-apprenticeship, Registered Apprentices	Welding simulation, VR skilled trades training, BIM, remote diagnostics, digital work instructions
Transportation, Logistics & Mobility	Commercial Transportation, Logistics, Warehouse Operations, Fleet Maintenance, Supply Chain	CDL Permit, OSHA Forklift, ASE Entry-Level, Logistics Fundamentals	Community colleges, logistics employers, transportation companies, apprenticeship sponsors	Employer tours, internships, equipment training, cooperative education	Fleet simulation, warehouse simulation, logistics analytics, digital safety training
Engineering & Applied Technologies	CAD, Engineering Technology, Automation, Robotics, Cybersecurity, Data Analytics, Applied AI	Autodesk Certified User, SolidWorks, CompTIA, Cisco, Microsoft, AWS Cloud Practitioner	Community colleges, universities, employers, technology academies	Capstone projects, internships, employer-sponsored design challenges, research experiences	CAD/CAM, cloud-based laboratories, cybersecurity labs, virtual prototyping, engineering simulation

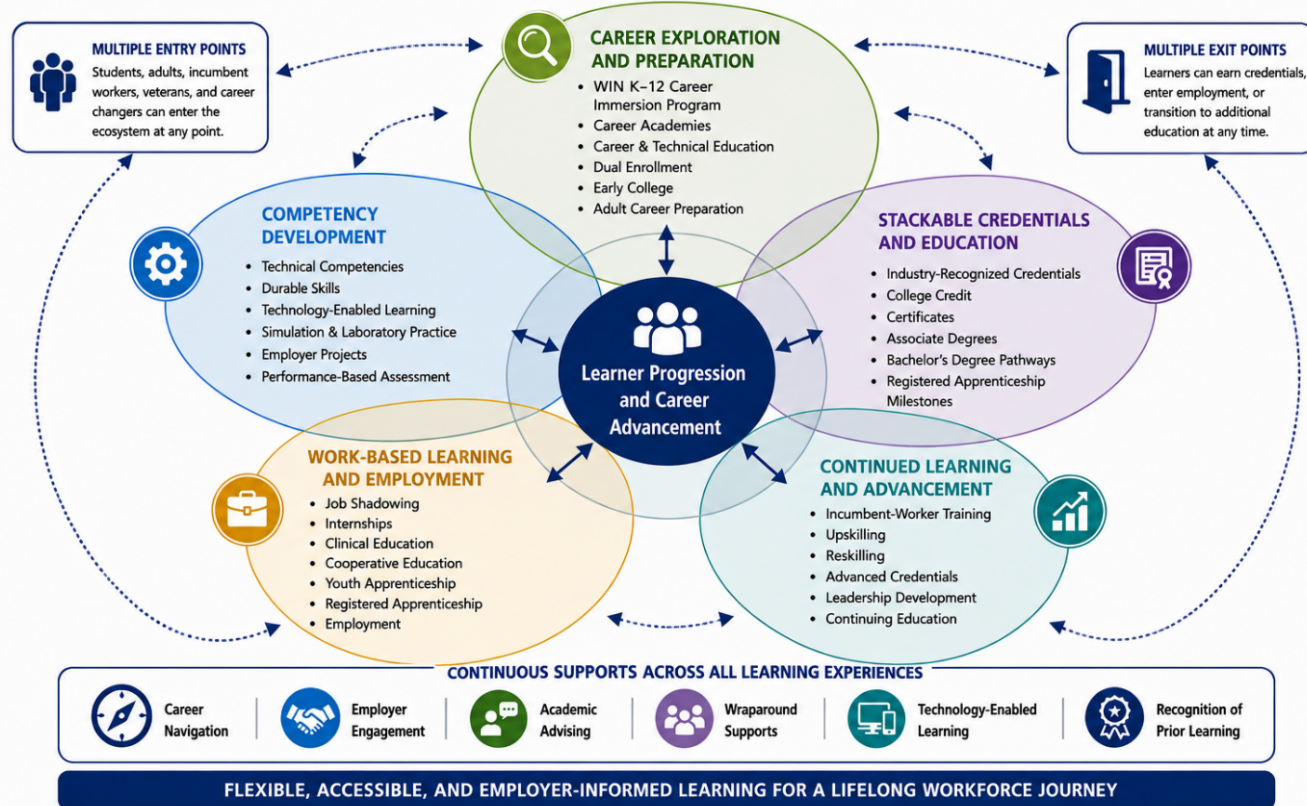
Note. This matrix is illustrative rather than prescriptive. Programs, credentials, technologies, and work-based learning strategies should be refined through employer validation, labor market analysis, postsecondary partner collaboration, licensing and accreditation requirements, facility planning, and available funding. Not every program or credential is expected to be delivered directly by the River Rouge Career & Workforce Innovation Center. Regional partnerships should be leveraged whenever appropriate to maximize educational quality, learner access, and long-term sustainability.

Figure 6.1 illustrates how the educational delivery model functions as an integrated workforce learning ecosystem rather than a linear sequence of educational experiences. Learners may simultaneously participate in competency development, earn stackable credentials, engage in work-based learning, and advance through postsecondary education while preparing for and entering employment. Multiple entry, exit, reentry, and advancement points provide flexibility for secondary students, adult learners, incumbent workers, veterans, and career changers throughout their lifelong learning journey.

FIGURE 6.1

River Rouge Integrated Lifelong Workforce Learning Ecosystem

Multiple Entry, Exit, Reentry, and Advancement Points Across the Learner Journey



Note. The framework is intended to illustrate an integrated and flexible workforce learning ecosystem rather than a prescribed sequence of educational experiences. Learners may participate in multiple components simultaneously and may enter, exit, and reenter the ecosystem at different points based on prior education, work experience, career goals, and

employer needs. Technology-enabled learning, employer engagement, work-based learning, competency-based assessment, and learner support services are designed to reinforce learning throughout the ecosystem rather than function as separate or sequential activities.

Employer engagement serves as the connective element linking educational institutions, learners, and the regional workforce. By actively participating throughout the educational process, employers strengthen competency-based education, validate industry credentials, expand work-based learning opportunities, and improve alignment between education and employment. The following recommendations summarize the key strategies presented throughout this chapter for implementing an innovative, flexible, and employer-responsive educational delivery model.

6.6 Employer Engagement in Educational Delivery

One of the defining characteristics of the River Rouge Career & Workforce Innovation Center is that employers serve as active partners in the educational process rather than simply consumers of workforce talent. Employer engagement should extend beyond advisory committee participation to include meaningful collaboration in curriculum design, competency validation, work-based learning, instructional support, and continuous program improvement. This employer-led approach helps ensure that educational programs remain responsive to changing technologies, evolving occupational competencies, and regional workforce demand.

Employers play an essential role in competency-based education by helping define the knowledge, technical skills, durable skills, and professional behaviors required for success in the workplace. Through participation in curriculum review, competency validation, equipment recommendations, and performance assessment, employers help ensure that instructional programs remain aligned with current industry expectations. Their ongoing involvement also strengthens the credibility of industry-recognized credentials and improves the alignment between educational outcomes and employment opportunities.

Beyond curriculum development, employers provide authentic learning environments that cannot be fully replicated in traditional classrooms or laboratories. Job shadowing, internships, cooperative education, clinical experiences, youth apprenticeship, Registered Apprentices, incumbent worker training, and employer-sponsored projects allow learners to apply classroom knowledge in real-world settings while developing professional behaviors, communication skills, and workplace confidence. These experiences also provide employers with opportunities to evaluate prospective employees and contribute directly to workforce development.

Employer engagement should be viewed as a continuous component of the educational delivery model rather than a single program activity. Throughout career exploration, Career Academies, dual enrollment, Early College, competency development, credential attainment, work-based learning, and lifelong learning, employers remain active partners in shaping educational

experiences and validating workforce readiness. This sustained collaboration strengthens regional talent pipelines while ensuring that the Innovation Center remains responsive to changing employer needs.

Table 6.4

Employer Roles in Educational Delivery

Employers should serve as active instructional partners throughout program planning, delivery, assessment, work-based learning, and continuous improvement. The following table summarizes representative employer contributions to the educational delivery model.

Employer Activity	Contribution to Educational Delivery
Career awareness and exploration	Provide classroom presentations, career fairs, industry tours, career mentoring, and other experiences that expose learners to regional career opportunities.
Curriculum review	Validate curriculum content against current industry practices, technologies, occupational requirements, and workplace expectations.
Competency validation	Identify the technical competencies, durable skills, safety practices, and professional behaviors learners must demonstrate.
Equipment and technology consultation	Recommend current and emerging equipment, software, tools, and industry standards that should inform instructional planning.
Guest instruction	Provide technical expertise, demonstrations, industry perspectives, and real-world examples that strengthen classroom learning.
Faculty externships	Provide workplace-based professional learning that helps instructors remain current with evolving technologies, processes, and employer practices.
Employer-sponsored projects	Supply authentic industry problems, design challenges, data, and workplace scenarios for project-based learning.
Work-based learning	Offer job shadowing, internships, cooperative education, clinical experiences, mentoring, and other structured workplace learning opportunities.
Registered Apprentices	Provide paid, structured on-the-job learning integrated with related technical instruction and progressive skill development.
Industry credential validation	Confirm the relevance and labor-market value of proposed industry-recognized credentials and certifications.
Graduate recruitment	Recruit qualified graduates, support transitions into employment, and provide feedback on graduate readiness and performance.

Employer Activity	Contribution to Educational Delivery
Continuous improvement	Participate in program evaluation, outcome review, curriculum updates, and ongoing improvement of educational delivery.

Note. Employer engagement is intended to occur throughout the learner journey rather than at isolated points. Employers serve as collaborative partners in curriculum development, competency validation, work-based learning, credential selection, graduate recruitment, and continuous program improvement, helping ensure that educational programs remain aligned with regional workforce needs.

6.7 Strategic Recommendations

The educational delivery model recommended for the River Rouge Career & Workforce Innovation Center is designed to create a flexible, learner-Centered, competency-based, and employer-responsive system that prepares learners for successful careers while supporting the evolving workforce needs of regional employers. By integrating technology-enabled learning, competency-based education, stackable credentials, educational pathways, and employer engagement, the Innovation Center can expand educational access while maintaining high standards of instructional quality and workforce readiness.

Based on the analysis presented throughout this chapter, the following strategic recommendations are offered.

Recommendation 6.1

Adopt a Flexible Educational Delivery Model

Develop educational programs that serve multiple learner populations, including secondary students, adult learners, incumbent workers, veterans, and career changers. Educational delivery should provide multiple scheduling and instructional options that improve accessibility while maintaining consistent educational quality.

Recommendation 6.2

Reduce Time and Place Barriers Through Technology

Leverage technology-enabled learning to reduce barriers associated with transportation, childcare, work schedules, geographic location, and access to specialized facilities. Technology investments should be guided by educational outcomes and learner success rather than technology alone.

Recommendation 6.3

Implement Competency-Based Education Across Career Academies

Design instructional programs around clearly defined competencies that align with employer expectations, industry-recognized standards, licensing requirements, and postsecondary outcomes. Learners should advance through demonstrated mastery of knowledge, technical skills, durable skills, and professional competencies rather than relying solely on instructional hours.

Recommendation 6.4

Develop Stackable Educational Pathways

Create educational pathways that provide multiple entry and exit points while enabling learners to earn industry-recognized credentials, postsecondary certificates, degrees, Registered Apprentices milestones, and employment opportunities throughout their careers. Pathways should support lifelong learning and allow learners to continue advancing as workforce needs evolve.

Recommendation 6.5

Use Laboratory Resources Strategically

Reserve specialized laboratories for instructional experiences requiring direct faculty supervision, specialized equipment, regulated competency assessment, or collaborative technical learning. Whenever appropriate, leverage distributed learning technologies, simulation, and employer-based learning to expand access while maximizing the utilization of costly laboratory facilities. **Appendix I** provides representative examples of specialized equipment that could be evaluated through the strategic laboratory-planning process described in Chapters 6 and 8.

Recommendation 6.6

Strengthen Employer-Engaged Learning

Technology should complement—not replace—authentic employer engagement. Continue to expand internships, clinical experiences, cooperative education, youth apprenticeship, Registered Apprentices, employer-sponsored projects, mentoring, and other work-based learning experiences that connect classroom instruction with real-world application.

Recommendation 6.7

Leverage Existing Curriculum and Technology Resources

Whenever appropriate, utilize commercially available curriculum, simulation libraries, digital learning platforms, and instructional technologies that have already been developed or validated by industry and educational providers. Leveraging existing resources can reduce development time, accelerate implementation, improve instructional quality, and allow the Innovation Center to focus resources on learner support, employer engagement, and continuous improvement. Representative vendors offering ready-made curriculum, digital courseware, simulation content, credential preparation, and integrated curriculum-and-equipment packages are identified in **Appendix J: Ready-Made Curriculum and Integrated Training Vendors by Career Academy**. These resources should be evaluated for instructional quality, employer relevance, credential alignment, accessibility, faculty requirements, total cost of ownership, technical support, and long-term sustainability before procurement.

6.8 Chapter Summary

The educational delivery model presented in this chapter establishes a flexible framework for delivering high-quality workforce education that is responsive to the needs of learners, employers, and the regional economy. By integrating flexible instructional delivery, technology-enabled learning, competency-based education, educational pathways, stackable credentials, and employer-engaged learning, the River Rouge Career & Workforce Innovation Center can create an educational system that expands access while maintaining rigorous standards for technical competency and workforce readiness.

Equally important, the recommended model promotes long-term sustainability by reducing unnecessary barriers to participation, strategically utilizing specialized laboratory resources, leveraging commercially available curriculum and instructional technologies, and strengthening partnerships with employers and postsecondary institutions. This balanced approach positions the Innovation Center to respond effectively to evolving workforce demands while creating clear pathways that support lifelong learning, continuous credential attainment, and career advancement.

The recommendations presented in this chapter establish the educational foundation for the Innovation Center. Successful implementation, however, will depend upon a coordinated regional partnership that aligns employers, educational institutions, workforce organizations, government agencies, and community stakeholders around a shared vision for workforce development. Chapter 7 presents the recommended regional workforce ecosystem, governance structure, and partnership framework needed to support implementation of this educational model.

Chapter 7

Regional Workforce Ecosystem and Partnership Framework

Chapter at a Glance

This chapter presents a regional workforce ecosystem designed to support the successful implementation, operation, and long-term sustainability of the River Rouge Career & Workforce Innovation Center. The recommended framework emphasizes collaborative leadership among education, employers, workforce organizations, government agencies, accrediting bodies, licensing authorities, industry credentialing organizations, labor organizations, and community partners. Together, these organizations create an integrated talent development system that aligns educational programming with workforce demand while supporting continuous improvement, program quality, and learner success.

Purpose

Recommend a regional workforce ecosystem that establishes collaborative partnerships, shared leadership, employer engagement, educational quality, regulatory alignment, and continuous improvement to guide the implementation and long-term sustainability of the River Rouge Career & Workforce Innovation Center.

Key Questions Addressed

- What organizations should participate in the regional workforce ecosystem?
- What roles and responsibilities should each partner perform?
- How should employers participate at both the strategic and instructional levels?
- How do state agencies, accrediting organizations, licensing boards, and industry credentialing organizations contribute to program quality?
- How should governance support collaboration, innovation, and continuous improvement?

7.1 Introduction

The long-term success of the River Rouge Career & Workforce Innovation Center will depend not only on the quality of its educational programs, but also on the strength of the regional partnerships that support those programs. Preparing learners for today's workforce requires

sustained collaboration among education providers, employers, workforce organizations, government agencies, labor organizations, accrediting bodies, licensing authorities, industry credentialing organizations, and community partners. No single organization possesses all of the expertise, authority, or resources necessary to prepare learners for successful careers in a rapidly changing economy.

Accordingly, the River Rouge Career & Workforce Innovation Center should function as the coordinating hub within a regional workforce ecosystem that aligns workforce development, education, employer engagement, learner support services, regulatory requirements, and economic development into a comprehensive talent development system. Rather than creating new systems where strong partnerships already exist, the Innovation Center should leverage existing regional assets while strengthening collaboration among participating organizations.

The ecosystem should also recognize that workforce education is governed by multiple external requirements beyond employer expectations. Career and Technical Education programs must satisfy K–12 educational requirements established by the **Michigan Department of Education (MDE)** and Career and Technical Education quality standards administered through the **Michigan Department of Labor and Economic Opportunity (LEO), Office of Career and Technical Education (OCTE)**, including compliance with the Carl D. Perkins Career and Technical Education Act. Many programs must also comply with institutional accreditation standards, specialized program accreditation requirements, state licensing boards, professional certification organizations, and applicable regulatory agencies. These organizations provide essential guidance regarding curriculum, instructional quality, faculty qualifications, competency standards, assessment, equipment, clinical or workplace experiences, and graduate outcomes.

By integrating these diverse partners into a coordinated regional workforce ecosystem, the Innovation Center can remain responsive to changing workforce needs while ensuring that educational programs maintain high levels of quality, regulatory compliance, and employer relevance.

Best Practice Spotlight

Regional Workforce Ecosystems Strengthen Talent Development

National workforce research consistently demonstrates that successful workforce initiatives are built through long-term collaboration among education, employers, workforce organizations, economic development agencies, and government partners. High-performing regional workforce ecosystems improve responsiveness to labor market changes, strengthen educational quality, reduce duplication of services, leverage multiple funding sources, and create more effective talent pipelines for both learners and employers (Jobs for the Future, 2021; National Governors Association, 2022; U.S. Department of Labor, 2023).

7.2 Regional Workforce Ecosystem Partners

The River Rouge Career & Workforce Innovation Center should establish a broad regional partnership network that brings together organizations responsible for workforce preparation, educational quality, employer engagement, regulatory oversight, learner support, and economic development. Each partner contributes specialized expertise while supporting a shared commitment to preparing learners for high-wage, high-skill, and high-demand careers.

Table 7.1

Regional Workforce Ecosystem Partners and Primary Responsibilities

Partner Category	Primary Responsibilities
City of River Rouge	Strategic leadership, facility development, policy support, community engagement, and funding advocacy.
River Rouge School District	Secondary Career and Technical Education, student recruitment, dual enrollment coordination, Early College development and coordination, and learner support.
Community Colleges	Certificates, associate degrees, faculty expertise, articulation agreements, dual enrollment and Early College partnerships, and workforce training.
Universities	Bachelor's degree pathways, transfer agreements, applied research, and specialized instruction.
Employers	Workforce forecasting, curriculum input, internships, apprenticeships, equipment recommendations, and graduate employment.
Michigan Works! Agencies	Workforce funding, career coaching, supportive services, business services, and adult workforce programs.
Labor Organizations	Registered Apprentices, skilled trades expertise, industry standards, and instructor support.
Economic Development Organizations	Industry engagement, labor market intelligence, and business attraction and expansion.
Community-Based Organizations	Outreach, mentoring, transportation assistance, learner support services, and barrier reduction.
Michigan Department of Education (MDE)	K–12 education policy, graduation requirements, educator certification, Career and Technical Education coordination, accountability, and educational guidance.
Michigan Department of Labor and Economic Opportunity (LEO) – Office of Career and Technical Education (OCTE)	Perkins administration, Career and Technical Education program approval, technical assistance, program quality standards, policy guidance, and state CTE compliance.

Partner Category	Primary Responsibilities
Accrediting Agencies and State Licensing Boards	Accreditation standards, program approval, faculty qualifications, competency standards, clinical requirements, graduate eligibility for licensure, and continuous quality improvement.
Industry Credentialing Organizations	Industry-recognized credential requirements, certification standards, competency validation, and assessment guidance.
Other State and Federal Agencies	Technical assistance, workforce initiatives, competitive funding opportunities, regulatory coordination, and policy support.

Note. *The partner categories and responsibilities are illustrative and should be refined as implementation agreements, program approvals, accreditation requirements, and governance structures are developed.*

The strength of the regional workforce ecosystem lies not in the number of participating organizations, but in the quality of collaboration among partners. Employers provide workforce direction; educational institutions deliver instruction; the Michigan Department of Education and LEO's Office of Career and Technical Education establish educational policy, Career and Technical Education requirements, and program quality standards; accrediting agencies, licensing boards, and credentialing organizations ensure compliance with professional and industry standards; workforce agencies connect learners with education and employment opportunities; and community organizations help remove barriers to learner success. Together, these partnerships establish a comprehensive workforce development system capable of adapting to changing technologies, workforce demands, and economic conditions.

River Rouge and its educational partners should consult current Michigan requirements before developing or seeking approval for any Career and Technical Education program. **Appendix C** provides an implementation reference addressing state-approved program structures, Programs of Study, Perkins alignment, program approval considerations, and potential connections to the six recommended Career Academies.

7.3 Employer Engagement Framework

Employer engagement should occur at two distinct but complementary levels within the River Rouge Career & Workforce Innovation Center. Strategic employer leaders should help guide the overall direction of the Innovation Center, while occupation-specific employers should work directly with faculty and teachers to strengthen individual instructional programs. Separating these functions ensures that high-level workforce strategy does not replace the detailed technical input required to design and maintain high-quality Career and Technical Education programs.

Strategic Employer Leadership

Strategic employer leadership should provide broad guidance regarding regional workforce priorities, emerging occupations, changing technologies, talent shortages, incumbent-worker

needs, and future Career Academy opportunities. Participants may include senior human resources executives, talent acquisition leaders, workforce development professionals, business executives, plant or operations leaders, healthcare administrators, industry associations, and other representatives capable of identifying long-term workforce trends.

Strategic employer leaders should advise the Innovation Center and its governing partners regarding:

- Regional workforce priorities and emerging talent needs.
- Industries and occupations that may warrant new or expanded programming.
- Changing technologies and their implications for education and training.
- Opportunities for internships, cooperative education, clinical education, youth apprenticeship, and Registered Apprentices.
- Employer recruitment, retention, and incumbent-worker advancement needs.
- Regional partnerships and shared workforce investments.
- Long-term alignment between Career Academies and economic-development priorities.

This level of engagement should focus on the overall direction of the Innovation Center rather than the detailed design of individual courses or programs.

Program Advisory Committees

Each state-approved Career and Technical Education program should maintain an active, occupation-specific Program Advisory Committee that works directly with the program's faculty, teachers, administrators, and education partners. Michigan's CTE program-review process includes templates for Program Advisory Committee rosters, meeting agendas, and minutes, reinforcing the expectation that employer input be documented as part of program quality and continuous improvement.

Program Advisory Committees should be composed primarily of employers and practitioners with current, direct expertise in the occupation or occupational cluster served by the program. For example, an advisory committee for respiratory therapy should include practicing respiratory-care leaders and clinical subject-matter experts, while an advanced manufacturing committee should include individuals with current expertise in machining, robotics, automation, industrial maintenance, quality, or related technologies.

These committees should work directly with faculty and teachers to ensure that each program:

- Reflects current employer and occupational requirements.
- Covers applicable state-approved program standards.
- Incorporates current equipment, software, technology, and workplace practices.
- Leads to appropriate industry-recognized credentials, certifications, or licenses.

- Meets applicable professional, accreditation, and licensing standards.
- Includes meaningful work-based learning and employer engagement.
- Uses valid competency-based assessments.
- Prepares learners for successful transition into employment and continued education.

Michigan-approved CTE programs are expected to provide coherent instruction that includes classroom, laboratory, work-based learning, and leadership opportunities; use state-approved standards; and complete the applicable approval and review processes. Program Advisory Committees provide the occupation-level employer expertise needed to help faculty translate those requirements into relevant, current instructional programs.

Although a formal annual meeting may satisfy a minimum administrative expectation, meeting only once per year is generally insufficient when a program is being created, substantially revised, adding a new credential, purchasing equipment, responding to accreditation requirements, or adapting to significant industry change. During those periods, committees should meet more frequently through quarterly meetings, curriculum-review sessions, equipment workgroups, credential-selection discussions, or other focused working sessions.

Table 7.2
Two Levels of Employer Engagement

Employer Engagement Level	Primary Purpose	Representative Participants	Primary Responsibilities
Strategic Employer Leadership	Guide the overall direction of the Innovation Center and regional workforce strategy.	Senior HR leaders, workforce executives, business leaders, operations leaders, industry associations, and other employer representatives with a regional or enterprise perspective.	Identify workforce priorities, emerging occupations, technology trends, regional talent needs, and opportunities for employer investment; determine Registered Apprentices opportunities and delivery; inform program delivery strategies, including online, hybrid, evening, weekend, and employer-site options; expand work-based learning; and identify and help secure public, private, philanthropic, and employer funding.
Program Advisory Committees	Guide the quality, relevance, compliance, and continuous improvement of individual instructional programs.	Occupation-specific supervisors, technical managers, clinicians, engineers, skilled trades professionals, industry practitioners, faculty, teachers, and program administrators.	Validate curriculum and competencies; review credentials, licenses, assessments, equipment, software, and instructional technology; support work-based learning; ensure alignment with employer, accreditation, licensing, and professional standards; and help ensure that Perkins program eligibility and other applicable approval requirements are established and maintained.

Note. Strategic employer leadership and Program Advisory Committees serve different but complementary functions. Strategic leaders provide broad workforce direction across the Innovation Center, while Program Advisory Committees provide detailed occupation-specific guidance directly to the faculty, teachers, and administrators responsible for individual programs. Program Advisory Committees should also help ensure that

Perkins eligibility, state program approval, accreditation, licensing, credentialing, and other applicable quality requirements are maintained.

7.4 Governance and Continuous Improvement

Governance for the River Rouge Career & Workforce Innovation Center should be collaborative but streamlined. The Center does not need multiple permanent councils with overlapping responsibilities. Instead, it should establish a clear coordinating structure that supports shared leadership while allowing project-specific groups to be created when needed.

Steering Committee

A Steering Committee should provide overall strategic direction for the Innovation Center. Its responsibilities should include:

- Establishing long-term priorities.
- Coordinating implementation across participating organizations.
- Reviewing proposed programs and major investments.
- Monitoring partnership commitments and progress.
- Supporting funding and sustainability planning.
- Resolving issues that require cross-organizational decisions.
- Reviewing learner, employer, and program outcomes.
- Ensuring alignment with the Center’s mission and regional workforce priorities.

Membership should include representatives from the City of River Rouge, River Rouge School District, postsecondary education, employers, Michigan Works! agencies, labor organizations, economic-development organizations, and community partners. State agencies, accrediting organizations, licensing boards, and credentialing bodies should participate or provide technical guidance when decisions affect their areas of authority.

The Steering Committee should not replace the governing authority of the City, school district, colleges, accrediting organizations, licensing boards, or other participating entities. Each organization retains responsibility for decisions within its legal and institutional authority. The Steering Committee instead provides the venue through which partners coordinate decisions, identify dependencies, align resources, and maintain shared accountability.

Program-Level Oversight

Individual instructional programs should remain accountable to their responsible educational institution and applicable regulatory requirements. Faculty, teachers, and administrators should work with their Program Advisory Committees, the Office of Career and Technical Education,

accrediting organizations, licensing boards, credentialing bodies, and employer partners to maintain program quality.

Michigan's CTE monitoring framework uses annual program self-review and periodic compliance review to support continuous improvement of approved programs. Program teachers are expected to update the state's Classification of Instructional Program self-review annually, and each program is reviewed periodically through the Career Education Planning District process. This reinforces the need for regular documentation, employer participation, curriculum review, work-based learning, credential alignment, and program improvement.

Continuous Improvement

The regional workforce ecosystem should operate as a continuous learning system. Program and partnership decisions should be informed by:

- Labor market information.
- Employer and Program Advisory Committee feedback.
- Learner enrollment, completion, and credential attainment.
- Work-based learning participation.
- Postsecondary transition and employment outcomes.
- Employer satisfaction.
- Learner satisfaction.
- Accreditation, licensing, and state program-review findings.
- Changes in industry technology, equipment, and occupational standards.

The Steering Committee should conduct an annual review of the Innovation Center's overall performance and strategic priorities. Individual programs should conduct more frequent reviews when responding to program-development needs, accreditation findings, curriculum changes, credential updates, equipment decisions, or employer feedback.

This structure creates a practical division of responsibility: the Steering Committee coordinates the overall regional initiative; strategic employer leaders inform broad workforce direction; Program Advisory Committees guide individual programs; educational institutions maintain instructional accountability; and state agencies, accreditors, licensing boards, and credentialing organizations provide the standards and oversight necessary to ensure program quality.

7.5 Strategic Recommendations and Chapter Summary

Strategic Recommendations

The River Rouge Career & Workforce Innovation Center should be established as the coordinating hub of a regional workforce ecosystem that aligns education, employers, workforce organizations, government agencies, economic development partners, accrediting organizations, licensing authorities, and community stakeholders around a shared vision for talent development.

Implementation of this ecosystem should be guided by the following principles:

Recommendation 7.1

Establish a collaborative regional workforce ecosystem.

Develop formal partnerships among education, employers, workforce organizations, government agencies, labor organizations, community partners, and economic development organizations to support coordinated workforce development and long-term regional talent strategies.

Recommendation 7.2

Differentiate strategic employer leadership from program-level employer engagement.

Engage senior employer leaders in identifying regional workforce priorities, emerging occupations, educational delivery strategies, Registered Apprentices opportunities, and long-term workforce investments. Simultaneously, maintain active Program Advisory Committees for each state-approved Career and Technical Education program to guide curriculum, competencies, industry credentials, instructional technologies, work-based learning, and continuous program improvement.

Recommendation 7.3

Maintain strong alignment with educational quality and regulatory requirements.

Develop ongoing partnerships with the Michigan Department of Education, the Michigan Department of Labor and Economic Opportunity—Office of Career and Technical Education, accrediting organizations, state licensing boards, and industry credentialing organizations to ensure that educational programs remain compliant with applicable standards, maintain Perkins eligibility, satisfy accreditation and licensing requirements, and prepare learners for recognized credentials and successful employment.

Recommendation 7.4

Leverage existing regional assets and partnerships.

Build upon existing educational institutions, employer collaborations, Michigan Works! agencies, labor organizations, and community resources rather than duplicating services. Whenever possible, expand and strengthen established partnerships to maximize learner access, improve efficiency, and increase long-term sustainability.

Recommendation 7.5

Embed continuous improvement throughout the partnership ecosystem.

Establish a collaborative review process that regularly incorporates employer feedback, Program Advisory Committee recommendations, labor market information, learner outcomes, accreditation findings, and workforce performance measures to guide continuous program improvement and ensure the Innovation Center remains responsive to changing workforce and educational needs.

7.6 Chapter Summary

The River Rouge Career & Workforce Innovation Center is envisioned as more than a Career and Technical Education facility; it is a regional workforce partnership designed to connect education, employers, workforce organizations, government agencies, and community partners through a shared commitment to talent development. Success will depend upon sustained collaboration among organizations that contribute unique expertise while working toward common workforce and educational goals.

The recommended regional workforce ecosystem recognizes that high-quality Career Academy programs require multiple forms of partnership. Strategic employer leaders help identify regional workforce priorities, emerging technologies, educational delivery strategies, and long-term talent needs. Program Advisory Committees work directly with faculty and instructional staff to ensure that curriculum, instructional technologies, work-based learning, industry credentials, and program quality remain aligned with employer expectations, Perkins requirements, accreditation standards, and professional licensing requirements. State agencies, accrediting organizations, licensing boards, and industry credentialing organizations provide additional guidance that strengthens program quality and ensures compliance with educational and professional standards.

By integrating these partnerships into a coordinated governance framework, the River Rouge Career & Workforce Innovation Center can create an educational system that is flexible, employer-responsive, academically rigorous, and aligned with regional workforce priorities. This collaborative approach establishes the foundation for continuous innovation, high-quality educational programming, and sustainable workforce development that will benefit learners, employers, and the broader River Rouge community for years to come.

Chapter 8

Facility Planning and Space Utilization Recommendations

Chapter at a Glance

This chapter presents recommendations for designing a flexible, technology-enabled, and financially sustainable facility that supports the educational mission of the River Rouge Career & Workforce Innovation Center. Rather than replicating traditional career Centers with extensive specialized laboratories, the recommended approach emphasizes flexible instructional spaces, technology-enabled learning, shared regional assets, employer partnerships, and strategic investments in facilities that maximize learner access while minimizing long-term capital and operating costs.

Purpose

Provide recommendations for facility planning, instructional space utilization, laboratory development, and technology integration that support flexible educational delivery, employer engagement, and long-term operational sustainability.

Key Questions Addressed

- What types of instructional spaces should be included within the Innovation Center?
- How can facility costs be managed while maintaining high-quality educational programming?
- How should technology influence facility planning and instructional delivery?
- Which instructional activities should occur at employer sites or partner institutions?
- How can facility design remain adaptable as workforce and technology needs evolve?

8.1 Introduction

The River Rouge Career & Workforce Innovation Center should be designed as a flexible regional learning hub rather than a traditional Career and Technical Education Center centered on large numbers of specialized laboratories. Advances in instructional technology, simulation, hybrid learning, employer partnerships, and postsecondary collaboration have significantly expanded where and how workforce education can occur. As a result, many learning

experiences no longer need to take place exclusively within dedicated instructional laboratories.

Facility planning should therefore prioritize flexibility, adaptability, and collaboration. The Innovation Center should provide high-quality instructional spaces that support classroom learning, simulation, collaborative projects, employer engagement, and learner services while strategically leveraging community college laboratories, employer facilities, apprenticeship training Centers, healthcare simulation Centers, and other regional assets when specialized equipment or learning environments are required.

This approach reduces unnecessary capital investment, lowers long-term operating costs, improves access for learners, and enables the Innovation Center to respond more quickly to changing workforce technologies and educational priorities.

8.2 Facility Design Principles

Facility planning should be guided by several overarching design principles that support long-term educational quality and operational sustainability.

Flexible Learning Environments

Instructional spaces should be designed to support multiple Career Academies, varying instructional methods, and changing workforce needs. Flexible classrooms, movable furnishings, modular technology, and adaptable instructional spaces allow facilities to evolve without requiring significant renovation.

Technology-Enabled Learning

Instruction should be delivered through a combination of classroom, online, hybrid, synchronous, and asynchronous learning models whenever appropriate. Blended learning expands access for high school students, adult learners, incumbent workers, and individuals with transportation, childcare, or work-related scheduling barriers.

Universal Digital Access

Technology-enabled instruction requires that every learner has reliable access to appropriate computing devices, software, internet connectivity, and technical support. Digital access should be considered a foundational component of educational equity and an essential requirement for successful participation in online and hybrid learning environments.

Shared Regional Resources

Whenever practical, the Innovation Center should leverage existing instructional resources throughout the region rather than duplicating expensive facilities or equipment already available through educational institutions, employers, apprenticeship training Centers, or community partners.

Employer-Connected Learning

Facility planning should support seamless integration between classroom instruction and employer-based learning experiences. Employers should be viewed as instructional partners whose facilities, equipment, technologies, and workplace environments extend the educational capacity of the Innovation Center.

Future-Ready Infrastructure

Building systems, technology infrastructure, utilities, and instructional spaces should be designed to accommodate emerging technologies, new educational programs, and changing workforce requirements without requiring major facility modifications.

8.3 Strategic Use of Specialized Laboratories

Specialized laboratories often represent the largest capital investment associated with Career and Technical Education facilities while also generating significant long-term operating, maintenance, equipment replacement, and staffing costs. Consequently, laboratory development should be approached strategically rather than assuming that every instructional activity requires a dedicated laboratory.

The Innovation Center should prioritize laboratory investments that support multiple Career Academies, are used extensively throughout the year, and cannot reasonably be delivered through employer partnerships, postsecondary institutions, apprenticeship training Centers, simulation technologies, or other regional resources.

Whenever specialized equipment already exists within the regional workforce ecosystem, partnership should generally be considered before constructing duplicate facilities.

Examples of specialized instructional equipment that may require dedicated space, utilities, ventilation, safety controls, maintenance, instructor preparation, and on-site learner access are provided in **Appendix I**. The appendix is intended to support initial planning and does not constitute a recommendation that all listed equipment be purchased or housed at the Innovation Center.

Table 8.1***Recommended Instructional Delivery Strategies***

Instructional Need	Preferred Delivery Strategy
Classroom instruction	Innovation Center classrooms and online through blended learning
General instruction and learner support	Innovation Center
Simulation-based instruction	Innovation Center simulation laboratories and online simulation platforms
Employer-specific equipment and technologies	Employer facilities
Advanced manufacturing laboratories	Community college laboratories, employer facilities, or shared regional laboratories
Healthcare clinical education	Hospitals, healthcare employers, clinical partners, and simulation Centers
Skilled trades instruction	Union apprenticeship training Centers, employer facilities, and community college laboratories
Transportation and mobility technologies	Employer facilities, dealerships, fleet operations, and community college laboratories
Specialized certification laboratories	Postsecondary education partners
High-cost emerging technologies	Regional shared laboratories and collaborative partnerships

Note. Laboratory investments should be prioritized only when instructional needs cannot be effectively met through technology-enabled learning, simulation, employer partnerships, or shared regional facilities. Table 8.1 should be used in conjunction with the planning criteria and laboratory-development considerations presented in **Appendix M: Facility Planning Resources and Laboratory Design Considerations**.

8.4 Technology-Enabled Facilities

Technology should be viewed as an instructional strategy rather than simply an equipment purchase. Advances in artificial intelligence, virtual reality, augmented reality, digital twins, remote laboratories, cloud-based simulation, and immersive learning environments allow many technical competencies to be developed before learners enter specialized laboratories or workplaces.

Technology-enabled learning also reduces time, transportation, scheduling, and childcare barriers by allowing learners to complete portions of their education remotely through online, hybrid, synchronous, and asynchronous instructional models. This flexibility is particularly important for adult learners, incumbent workers, and learners balancing education with employment or family responsibilities.

Technology investments should therefore be evaluated according to their ability to expand learner access, improve instructional quality, strengthen competency development, support employer engagement, and reduce long-term facility costs.

8.5 Regional Shared Asset Model

The Innovation Center should adopt a regional shared asset model in which existing educational and workforce resources are leveraged before new facilities are developed. This collaborative approach recognizes that many specialized instructional environments already exist throughout Southeast Michigan and can support learner experiences through formal partnerships.

Potential shared resources include community college laboratories, university facilities, employer training Centers, healthcare simulation Centers, apprenticeship training Centers, mobile training laboratories, and other regional instructional assets. By utilizing these existing resources, the Innovation Center can expand educational opportunities while reducing unnecessary duplication of facilities and equipment.

The shared asset model also encourages stronger collaboration among education providers, employers, and workforce organizations, creating a more integrated regional talent development system.

A more detailed facility-planning and laboratory decision resource is provided in **Appendix M**. The appendix addresses flexible instructional space, shared regional assets, laboratory investment criteria, building infrastructure, safety, accessibility, equipment life-cycle costs, maintenance, utilities, technology requirements, and pre-design documentation.

8.6 Strategic Recommendations

Recommendation 8.1

Design flexible instructional spaces capable of supporting multiple Career Academies and evolving workforce needs.

Recommendation 8.2

Utilize blended, online, hybrid, synchronous, and asynchronous instructional delivery whenever appropriate to reduce time, transportation, scheduling, and childcare barriers while expanding educational access.

Recommendation 8.3

Ensure that every learner has access to appropriate computing devices, internet connectivity, instructional software, and technical support necessary to participate successfully in technology-enabled learning.

Recommendation 8.4

Construct specialized laboratories only when instructional objectives cannot be effectively achieved through employer partnerships, community college laboratories, apprenticeship training Centers, simulation technologies, or other regional resources.

Recommendation 8.5

Leverage regional partnerships to maximize access to specialized equipment, instructional technologies, and workplace learning environments while minimizing long-term capital investment and operating costs.

8.7 Chapter Summary

The River Rouge Career & Workforce Innovation Center should be designed as a flexible, technology-enabled learning hub that supports high-quality workforce education through strategic partnerships rather than extensive investment in specialized facilities. By emphasizing adaptable instructional spaces, blended learning, simulation technologies, employer engagement, and shared regional resources, the Innovation Center can expand educational access, reduce long-term operating costs, remain responsive to changing workforce needs, and provide learners with high-quality educational experiences that prepare them for successful careers. This facility model reflects the broader vision presented throughout this report: a collaborative, employer-responsive, and future-ready workforce development system that leverages regional strengths to maximize educational opportunity and long-term sustainability.

Chapter 9

Governance and Organizational Sustainability

Chapter at a Glance

This chapter presents a governance and organizational sustainability framework for the River Rouge Career & Workforce Innovation Center. Building upon the regional workforce ecosystem presented in Chapter 7 and the facility recommendations presented in Chapter 8, this chapter identifies how the Innovation Center should be governed, how organizational responsibilities should be assigned, and how collaborative partnerships should be managed to support long-term success.

The recommended governance model balances clear accountability with shared leadership while establishing a continuous improvement process that enables the Innovation Center to remain responsive to changing workforce, educational, technological, and community needs.

Purpose

Recommend a governance and organizational sustainability framework that establishes clear leadership, collaborative decision-making, educational quality, operational accountability, performance management, and continuous improvement to support the long-term success of the River Rouge Career & Workforce Innovation Center.

Key Questions Addressed

- How should the Innovation Center be governed?
- How should organizational responsibilities be assigned?
- How should strategic and operational decisions be made?
- How should partnerships be managed?
- How should educational quality be maintained?
- How should organizational performance be evaluated?
- How can the Innovation Center remain adaptable over time?

9.1 Introduction

The long-term success of the River Rouge Career & Workforce Innovation Center will depend not only on innovative educational programming and strong regional partnerships, but also on

a governance structure that provides clear leadership, defined responsibilities, transparent decision-making, and continuous organizational improvement.

Governance should establish accountability while encouraging collaboration. Although the Innovation Center will rely upon employers, educational institutions, workforce organizations, government agencies, accrediting bodies, licensing authorities, and community partners, successful collaboration requires clearly defined organizational responsibilities and decision-making processes.

Organizational sustainability also requires adaptability. Workforce needs, educational technologies, labor market conditions, and employer expectations will continue to evolve. Accordingly, governance should support continuous innovation while maintaining educational quality, regulatory compliance, and strong employer engagement.

9.2 Governance Principles

Governance should be guided by six fundamental principles.

Clear Accountability

Responsibility for strategic direction, daily operations, educational quality, facility management, and organizational performance should be clearly assigned.

Collaborative Leadership

Major decisions should reflect meaningful input from education, employers, workforce organizations, government agencies, and community partners while respecting the legal authority of participating organizations.

Employer Responsiveness

Employers should remain active partners in both strategic workforce planning and program-level educational improvement through the two-tier employer engagement framework presented in Chapter 7.

Educational Excellence

All educational programming should maintain alignment with Michigan Department of Education requirements, Office of Career and Technical Education standards, accreditation requirements, licensing boards, and industry credentialing organizations.

Transparency

Organizational priorities, decision-making processes, partner responsibilities, and performance results should be communicated openly among participating organizations.

Continuous Improvement

The governance structure should encourage regular evaluation, innovation, and organizational learning to ensure continued responsiveness to workforce and community needs.

9.3 Organizational Governance

The Innovation Center should operate through a streamlined governance structure that clearly distinguishes strategic oversight from daily operations.

A designated sponsoring organization should retain responsibility for legal authority, fiscal accountability, facility oversight, and major policy decisions. Supporting this structure, the Steering Committee described in Chapter 7 should continue serving as the primary collaborative body responsible for coordinating regional partnerships, reviewing strategic priorities, monitoring organizational progress, and advising on future opportunities.

Daily operations should be coordinated by designated Center leadership responsible for implementing strategic priorities, coordinating partnerships, supporting educational programming, managing facility operations, facilitating communication among partners, and monitoring organizational performance.

Educational institutions participating in the Innovation Center should retain responsibility for curriculum, instruction, faculty qualifications, accreditation, licensing, academic records, and educational outcomes for the programs they deliver.

This governance model allows each organization to remain accountable within its area of responsibility while contributing to a shared regional workforce development strategy.

9.4 Organizational Sustainability

Organizational sustainability extends beyond financial resources. It reflects the Innovation Center's ability to maintain effective partnerships, respond to changing workforce needs, support educational excellence, and continuously improve organizational performance.

Several strategies support long-term sustainability.

Partnership Sustainability

Maintain active engagement among education, employers, workforce organizations, government agencies, labor organizations, and community partners through regular communication, shared planning, and collaborative decision-making.

Educational Sustainability

Continuously evaluate educational programming to ensure alignment with employer needs, labor market demand, accreditation standards, licensing requirements, and emerging technologies.

Operational Sustainability

Maintain efficient administrative systems, clearly defined organizational responsibilities, documented procedures, and effective communication among participating partners.

Innovation Sustainability

Encourage continuous evaluation of emerging technologies, instructional strategies, workforce trends, and employer practices to support ongoing program improvement and organizational adaptability.

9.5 Continuous Improvement

The Innovation Center should operate as a continuous learning organization.

Organizational decisions should be informed by employer feedback, Program Advisory Committee recommendations, labor market information, learner outcomes, educational performance, partnership effectiveness, and operational experience.

Annual organizational reviews should examine:

- Progress toward strategic objectives.
- Employer engagement.
- Educational quality.
- Partnership effectiveness.
- Learner participation and outcomes.
- Program responsiveness.
- Technology adoption.
- Operational effectiveness.
- Community impact.

The purpose of continuous improvement is not simply to evaluate past performance but to guide future decision-making and strengthen organizational capacity.

9.6 Risk Management

Long-term organizational sustainability also requires proactive risk management.

Leadership should regularly evaluate potential organizational risks, including:

- Changes in workforce demand.
- Changes in educational regulations.
- Program approval or accreditation issues.
- Employer participation.
- Leadership succession.
- Technology changes.
- Facility utilization.
- Partnership continuity.
- Workforce shortages affecting instructional staff.

Appropriate contingency planning should be incorporated into organizational planning to ensure continuity of operations and minimize disruption.

9.7 Strategic Recommendations

Recommendation 9.1

Establish a governance structure that clearly defines organizational authority while encouraging collaborative leadership among regional partners.

Recommendation 9.2

Maintain strong partnerships with employers, educational institutions, workforce organizations, government agencies, accrediting bodies, licensing authorities, and community organizations to support long-term organizational effectiveness.

Recommendation 9.3

Support educational excellence through ongoing collaboration with the Michigan Department of Education, the Office of Career and Technical Education, accrediting organizations, licensing boards, industry credentialing organizations, and Program Advisory Committees.

Recommendation 9.4

Implement an organizational continuous improvement process that regularly evaluates educational quality, partnership effectiveness, organizational performance, and workforce responsiveness.

Recommendation 9.5

Develop organizational policies, procedures, succession plans, and risk-management strategies that support long-term continuity and organizational resilience.

9.8 Chapter Summary

The River Rouge Career & Workforce Innovation Center should be governed through a collaborative organizational structure that combines clear accountability with broad regional partnership. Effective governance depends upon clearly defined responsibilities, transparent decision-making, meaningful employer engagement, educational quality, and continuous organizational improvement.

Long-term organizational sustainability will be achieved by maintaining strong partnerships, adapting to changing workforce needs, supporting innovation, and regularly evaluating organizational performance. By establishing a governance framework that emphasizes collaboration, accountability, adaptability, and continuous improvement, the Innovation Center will be well positioned to serve learners, employers, and the broader River Rouge community for many years.

Chapter 10

Funding and Investment Strategy

Chapter at a Glance

This chapter presents a diversified funding and investment strategy for planning, constructing, equipping, operating, and sustaining the River Rouge Career & Workforce Innovation Center. Rather than relying on a single funding source, the recommended approach combines local investment, state and federal funding, educational partnerships, employer participation, philanthropy, and strategic public-private collaboration. The chapter also recommends a phased investment strategy that prioritizes flexible instructional spaces, applied learning

technologies, instructional equipment, and regional partnerships before investing in specialized facilities.

Recognizing that workforce development is a long-term investment, this chapter emphasizes financial diversification, phased implementation, and responsible stewardship of public resources. By leveraging existing regional assets and coordinating multiple funding streams, the Innovation Center can maximize educational impact while minimizing unnecessary capital expenditures and long-term operating costs.

Purpose

Recommend a diversified funding and investment strategy that supports the planning, implementation, operation, modernization, and long-term financial sustainability of the River Rouge Career & Workforce Innovation Center.

Key Questions Addressed

- How should the Innovation Center be financed?
- What funding sources should support planning, construction, technology, instructional equipment, and operations?
- How should investments be phased over time?
- How can regional partnerships reduce capital and operating costs?
- What role should local investment play in long-term sustainability?
- How can public and private funding be leveraged to maximize educational impact?

10.1 Funding Philosophy

Developing a regional Career & Workforce Innovation Center requires more than securing a single grant or funding source. Successful workforce development initiatives are typically financed through a diversified portfolio of public investment, educational partnerships, employer contributions, philanthropic support, and competitive grants. This approach reduces financial risk, increases organizational flexibility, and allows investments to be aligned with changing educational priorities and workforce needs.

The River Rouge Career & Workforce Innovation Center should adopt a strategic investment philosophy that emphasizes phased implementation, shared regional resources, and long-term financial sustainability. Rather than attempting to construct every laboratory, purchase every piece of equipment, or launch every Career Academy simultaneously, investments should be prioritized according to validated workforce demand, employer commitments, learner interest, available partnerships, and financial feasibility.

Consistent with the recommendations presented throughout this report, investment decisions should first consider whether instructional needs can be addressed through technology-enabled learning, community college partnerships, employer facilities, apprenticeship training Centers, healthcare simulation Centers, or other regional assets before committing significant capital resources to new construction or specialized equipment. This approach not only reduces capital costs but also improves flexibility as technologies, industries, and educational needs evolve.

Local investment will ultimately determine the long-term success of the Innovation Center. While state and federal grants provide valuable planning, startup, and expansion resources, they are generally not intended to sustain ongoing operations or future modernization. Accordingly, the City of River Rouge and its educational partners should evaluate local funding strategies—including the potential use of a voter-approved millage—to provide a stable and predictable source of revenue for facility development, technology, instructional equipment, operations, maintenance, and future capital replacement. A stable local funding base also strengthens the Innovation Center's competitiveness for state, federal, employer, and philanthropic investments by demonstrating long-term community commitment.

10.2 Phased Investment Strategy

Developing the River Rouge Career & Workforce Innovation Center should occur through a deliberate, phased investment strategy that balances educational priorities with available financial resources. Phasing investments allows the Center to demonstrate early success, strengthen regional partnerships, respond to changing workforce needs, and avoid unnecessary capital expenditures before long-term demand has been validated.

Phase 1 – Planning and Startup Investments

The initial phase should establish the educational and organizational foundation necessary for successful implementation. Priority investments include:

- Strategic planning and facility design
- Partnership development
- Curriculum and program development
- Faculty and instructor professional development
- Building technology infrastructure
- Applied learning technologies
- Instructional equipment
- Flexible classrooms and collaborative learning spaces
- Initial staffing
- Student support services

The objective of Phase 1 is to maximize instructional capacity while minimizing fixed costs through flexible learning environments, technology-enabled instruction, and strong regional partnerships.

Excellent. I actually think this is the section that can distinguish your report from a typical feasibility study. Rather than saying "look for grants," we can identify **actual funding partners** that River Rouge should pursue. I would also recommend organizing them by **investment purpose** rather than simply by government level, because that makes the strategy much more actionable.

Phase 2 – Program Expansion

Following successful implementation of the initial Career Academies, investments should focus on expanding educational opportunities, strengthening employer engagement, and increasing learner access.

Priority investments include:

- Expansion of Career Academy programming
- Early College expansion
- Dual Enrollment expansion
- Work-based learning coordination
- Registered Apprentices development
- Additional applied learning technologies
- Specialized instructional equipment
- Selective laboratory development where justified
- Expanded learner support services

Facility expansion should occur only after workforce demand, enrollment, employer participation, and long-term financial sustainability have been demonstrated.

Phase 3 – Long-Term Growth and Modernization

The final phase should emphasize modernization, replacement of aging equipment, expansion of successful programs, and continued innovation.

Priority investments include:

- Facility expansion (as needed)
- Technology modernization
- Equipment replacement
- Emerging instructional technologies

- New Career Academy programs
- Expanded employer innovation partnerships
- Research and demonstration initiatives
- Continuous professional development for faculty and instructional staff

This phased approach encourages responsible stewardship of public resources while allowing the Innovation Center to evolve as workforce needs and technologies change.

10.3 Funding Sources and Strategic Investment Partners

The River Rouge Career & Workforce Innovation Center should pursue a diversified funding strategy that combines local investment, public funding, educational partnerships, employer participation, philanthropy, and competitive grants. No single funding source is likely to support the full implementation of the Innovation Center. Instead, long-term success will depend upon leveraging multiple investment partners whose missions align with workforce development, educational opportunity, economic development, and community revitalization.

Local Investment

Local investment provides the strongest demonstration of community commitment and often serves as the foundation for attracting additional state, federal, employer, and philanthropic support.

Potential local funding strategies include:

- Voter-approved **millage** supporting Career and Technical Education and workforce development
- City of River Rouge capital improvement investments
- River Rouge School District investments
- Local bond financing, where appropriate
- Tax Increment Financing (TIF), where applicable
- Brownfield redevelopment incentives, if eligible
- Public-private development partnerships

A stable local funding base strengthens the Innovation Center's ability to compete for external grants while supporting ongoing facility operations, maintenance, technology replacement, and program expansion.

State of Michigan Funding Partners

Numerous State of Michigan agencies administer funding programs that support Career and Technical Education, workforce development, economic development, infrastructure, talent development, and innovation.

Potential partners include:

- Michigan Department of Education (MDE)
- Michigan Department of Labor and Economic Opportunity (LEO)
- Office of Career and Technical Education (OCTE)
- Carl D. Perkins Career and Technical Education funding
- Going PRO Talent Fund
- Michigan Economic Development Corporation (MEDC)
- Michigan Strategic Fund
- Michigan State Budget enhancement appropriations
- Michigan Legislature capital appropriations
- Future State of Michigan workforce development initiatives

These resources may support planning, instructional equipment, technology, faculty development, curriculum innovation, facility improvements, workforce programming, and employer partnerships.

Federal Funding Opportunities

Federal investment opportunities should be pursued strategically to support planning, innovation, technology, workforce development, and capital improvements.

Potential federal partners include:

- U.S. Department of Education
- U.S. Department of Labor
- Economic Development Administration (EDA)
- National Science Foundation Advanced Technological Education (NSF ATE) Program
- U.S. Department of Energy
- U.S. Department of Commerce
- Appalachian Regional Commission (when applicable)
- Environmental Protection Agency Brownfields Program (where eligible)
- Congressionally Directed Spending (Community Project Funding)

Competitive federal grants often favor projects demonstrating strong regional partnerships, employer engagement, measurable workforce outcomes, and long-term sustainability.

Postsecondary Education Partners

Community colleges and universities represent both educational and financial partners through shared facilities, instructional resources, faculty expertise, and jointly funded programming.

Potential regional partners include:

- Henry Ford College
- Wayne County Community College District
- Schoolcraft College
- Oakland Community College
- Macomb Community College
- Washtenaw Community College
- Wayne State University
- University of Michigan-Dearborn
- Michigan State University-Detroit
- Eastern Michigan University
- Lawrence Technological University

These partnerships may reduce capital costs by sharing laboratories, simulation Centers, faculty, instructional technologies, and dual enrollment or Early College programming.

Employer Investment Partners

Employer investment should extend well beyond traditional advisory committee participation. Employers may contribute financial resources, instructional expertise, facilities, equipment, technology, internships, Registered Apprenticeship, and incumbent worker training opportunities.

Potential employer partners include:

- Ford Motor Company
- General Motors
- Stellantis
- DTE Energy
- Corewell Health
- Henry Ford Health
- Trinity Health Michigan
- Detroit Medical Center
- Magna International
- American Axle & Manufacturing
- Lear Corporation
- Bosch
- FANUC America
- Siemens

- Rockwell Automation
- ABB
- Lincoln Electric
- Automation Alley member companies
- Michigan Manufacturing Association member companies

Employer sponsorship opportunities may include:

- Career Academy sponsorships
- Student scholarships
- Equipment donations
- Laboratory sponsorships
- Instructor externships
- Paid internships
- Registered Apprentices support
- Incumbent worker training
- Faculty professional development
- Customized workforce training agreements

Philanthropic and Community Investment Partners

Southeast Michigan benefits from one of the nation's strongest philanthropic communities. Many foundations have established priorities that include education, workforce development, economic mobility, youth opportunity, community revitalization, and regional economic competitiveness.

Potential philanthropic partners include:

- Ralph C. Wilson, Jr. Foundation
- The Kresge Foundation
- Hudson-Webber Foundation
- Community Foundation for Southeast Michigan
- Skillman Foundation
- Ballmer Group
- William Davidson Foundation
- Erb Family Foundation
- McGregor Fund
- DTE Foundation
- Ford Motor Company Fund
- General Motors Foundation
- Stellantis North America Charitable Foundation
- Consumers Energy Foundation

- Bosch Community Fund
- Toyota USA Foundation

Potential philanthropic investments include:

- Career Academy sponsorships
- Student scholarships
- Technology and equipment purchases
- Applied learning technologies
- Innovation initiatives
- Faculty professional development
- Career exploration programming
- Transportation assistance
- Childcare assistance
- Digital equity initiatives
- Capital campaigns
- Endowment development

Regional Workforce and Economic Development Partners

Regional organizations also represent important investment partners through workforce funding, employer engagement, business services, and economic development initiatives.

Potential partners include:

- SEMCA Michigan Works!
- Detroit Employment Solutions Corporation
- Oakland County Michigan Works!
- Downriver Community Conference
- Southeast Michigan Council of Governments (SEMCOG)
- Detroit Regional Partnership
- Automation Alley
- Michigan Manufacturing Association
- Local chambers of commerce
- Industry associations

These organizations may contribute workforce funding, employer engagement, labor market information, business outreach, technical assistance, and strategic planning support.

The funding sources and investment partners identified in this chapter represent a starting point rather than an exhaustive inventory. **Appendix L: Funding Resources and Grant Opportunities** provides a more detailed implementation resource addressing local funding,

millage and bond strategies, state and federal programs, employer investment, postsecondary partnerships, philanthropic prospects, and grant-readiness considerations. Because eligibility, allowable uses, appropriations, and application schedules change, all opportunities should be reconfirmed before River Rouge or its partners pursue funding.

Table 10.1

Funding and Investment Strategy by Investment Category

Capital or Operating Investment	Examples of Eligible Investments	Potential Funding Sources	Illustrative Funding Partners
Planning and Program Development (Operating)	Strategic planning; feasibility studies; curriculum development; partnership development; faculty planning	Local funds; state grants; federal grants; philanthropy	City of River Rouge; River Rouge School District; MEDC; LEO; MDE; Community Foundation for Southeast Michigan; Ralph C. Wilson, Jr. Foundation
Facility Construction and Renovation (Capital)	Construction; renovation; site improvements; furniture; utilities; building infrastructure	Voter-approved millage; local bonds; state appropriations; federal capital grants; philanthropy	River Rouge voters (millage); City of River Rouge; Michigan Legislature; MEDC; Economic Development Administration (EDA); Kresge Foundation; William Davidson Foundation
Technology Infrastructure (Capital)	Building network infrastructure; Wi-Fi; classroom technology; audiovisual systems; smart classrooms; cybersecurity infrastructure; learning management systems	Voter-approved millage; local capital improvement funds; local bonds; state capital appropriations; federal capital grants; philanthropy; corporate sponsorships	City of River Rouge; River Rouge School District; Michigan Legislature; MEDC; EDA; Cisco; Dell Technologies; Microsoft
Applied Learning Technologies (Capital & Operating)	Virtual reality; augmented reality; digital twins; AI-supported instruction; simulation platforms; immersive learning environments; remote laboratories	Perkins V; state CTE grants; employer investment; philanthropy; competitive innovation grants; community college partnerships	LEO—Office of Career and Technical Education; MDE, where appropriate; FANUC America; Siemens; Rockwell Automation; Bosch; Ford Motor Company Fund; General Motors Foundation; DTE Foundation; Henry Ford College

Capital or Operating Investment	Examples of Eligible Investments	Potential Funding Sources	Illustrative Funding Partners
Instructional Equipment (Capital)	Laboratory equipment; manufacturing trainers; healthcare simulation equipment; robotics; welding trainers; technical instructional equipment	Perkins V; employer donations; philanthropy; state grants; community college partnerships	Amatrol; Lincoln Electric; FANUC America; ABB; Henry Ford College; Wayne County Community College District; Automation Alley member companies
Faculty and Professional Development (Operating)	Industry certifications; instructor training; externships; curriculum development; conference participation	Perkins V; employer investment; state grants; postsecondary partnerships	Community colleges; employers; MDE; LEO; professional associations; industry credentialing organizations
Student Support Services (Operating)	Career coaching; transportation assistance; childcare assistance; tutoring; digital access; success coaching; academic advising	Michigan Works!; philanthropy; federal workforce programs; community organizations	SEMCA Michigan Works!; Detroit Employment Solutions Corporation; Skillman Foundation; Ballmer Group; Community Foundation for Southeast Michigan
Dual Enrollment and Early College (Operating)	Tuition support; instructional costs; advising; coordination; student services	State appropriations; K–12 funding; community college partnerships	River Rouge School District; Henry Ford College; Wayne County Community College District; MDE
Work-Based Learning and Registered Apprentices (Operating)	Internship coordination; youth apprenticeship; Registered Apprentices; employer mentoring; work-based learning coordination	U.S. Department of Labor; LEO; employers; Michigan Works!; workforce grants	U.S. Department of Labor; LEO; Michigan Works! agencies; employer partners; labor organizations
Operations and Ongoing Program Delivery (Operating)	Staffing; utilities; maintenance; instructional materials; technology licensing; administrative operations	Voter-approved millage; local appropriations; tuition revenue; workforce funding; employer partnerships	River Rouge School District; City of River Rouge; community colleges; Michigan Works! agencies; employer partners
Equipment Replacement and Modernization (Capital Reserve)	Equipment replacement; software upgrades; technology refresh; laboratory modernization	Voter-approved millage; capital improvement funds; philanthropy; employer investment; capital campaigns	Local capital planning; employer partners; Kresge Foundation; Ralph C. Wilson, Jr. Foundation; corporate sponsors

Note. *Appendix L supplements Table 10.1 with additional funding resources and planning considerations that can assist River Rouge in matching specific capital and operating needs with appropriate investment partners. Funding for the River Rouge Career & Workforce Innovation Center should be pursued through a diversified investment strategy that combines local commitment, voter-approved millage (if approved by the community), educational partnerships,*

employer investment, philanthropy, and competitive state and federal funding. Because individual funding programs have specific eligibility requirements and allowable uses, the funding sources and investment partners presented in this table are illustrative rather than exhaustive. The City of River Rouge and its partners should evaluate each funding opportunity based on program objectives, eligibility requirements, matching fund obligations, implementation timelines, and long-term financial sustainability.

10.4 Leveraging Regional Resources

A defining characteristic of the River Rouge Career & Workforce Innovation Center should be its ability to leverage existing regional resources before making significant capital investments in new facilities, laboratories, or instructional equipment. Rather than duplicating specialized instructional assets that already exist throughout Southeast Michigan, the Innovation Center should build upon the strengths of its educational, employer, workforce, and community partners to maximize educational quality while reducing capital and operating costs.

Regional partnerships can significantly expand learner access to specialized laboratories, clinical environments, advanced manufacturing equipment, apprenticeship training Centers, and emerging technologies that would otherwise require substantial capital investment. This collaborative approach also enables the Innovation Center to respond more quickly to changing workforce demands by utilizing existing regional expertise and instructional capacity.

Examples of regional assets that should be considered before constructing new facilities or purchasing specialized equipment include:

- Community college laboratories and technical training facilities
- University laboratories and research Centers
- Employer training Centers and production facilities
- Hospital clinical education and simulation Centers
- Union apprenticeship and skilled trades training Centers
- Michigan Works! training providers
- Mobile training laboratories
- Shared simulation technologies and applied learning platforms
- Regional makerspaces, innovation Centers, and technology incubators

Leveraging regional resources extends beyond facility sharing. Educational partners may also contribute faculty expertise, curriculum, instructional technologies, equipment, dual enrollment opportunities, Early College programming, work-based learning experiences, Registered Apprentices opportunities, and student support services. Employers may provide internships, clinical education, mentoring, instructor externships, equipment donations, customized

training, and access to emerging workplace technologies. These contributions strengthen educational quality while reducing unnecessary duplication of investments.

This shared-resource strategy should become a guiding principle for future investment decisions. Before pursuing major capital expenditures, River Rouge and its partners should evaluate whether comparable instructional resources already exist within the regional workforce ecosystem and whether formal partnerships could provide learners with equivalent or enhanced educational experiences at a lower long-term cost.

By strategically leveraging regional assets, the Innovation Center can focus limited capital resources on investments that provide the greatest educational value while maintaining the flexibility to adapt as workforce needs, instructional technologies, and industry practices continue to evolve.

Consistent with the Regional Shared Asset Model presented in Chapter 8, the River Rouge Career & Workforce Innovation Center should evaluate partnership opportunities before making major capital investments in specialized facilities, instructional technologies, or laboratory equipment. This approach promotes fiscal responsibility, expands learner access, strengthens regional collaboration, and helps ensure that limited capital resources are invested where they provide the greatest long-term educational value.

10.5 Investment Priorities

The River Rouge Career & Workforce Innovation Center should prioritize investments that maximize learner access, strengthen educational quality, support employer engagement, and create long-term organizational value. Investment decisions should emphasize flexibility, scalability, and sustainability rather than attempting to fully develop every Career Academy or construct every specialized laboratory during the initial implementation phase.

When financial resources are limited, investments should generally be prioritized in the following order:

1. **Flexible instructional spaces** that support multiple Career Academies and changing instructional needs.
2. **Building technology infrastructure** that enables reliable online, hybrid, synchronous, and asynchronous instruction.
3. **Applied learning technologies**, including simulation platforms, virtual and augmented reality, digital twins, remote laboratories, artificial intelligence applications, and other instructional technologies that reduce time and place barriers while expanding learner access.
4. **Instructional equipment** that supports competency-based education, industry-recognized credentials, and high-quality technical instruction.

5. **Faculty and instructor professional development** to ensure educators remain current with evolving technologies, instructional practices, and industry standards.
6. **Student support services**, including career coaching, transportation assistance, digital access, childcare supports, academic advising, and work-based learning coordination.
7. **Specialized laboratories** that cannot reasonably be accessed through employer partnerships, community colleges, apprenticeship training Centers, healthcare simulation Centers, or other regional resources.
8. **Facility expansion** only after educational demand, employer participation, financial sustainability, and long-term utilization have been demonstrated.

This investment strategy reflects the broader philosophy presented throughout this report: leverage existing regional assets whenever practical, build only what is necessary, and invest first in resources that serve the greatest number of learners while remaining adaptable to future workforce needs.

10.6 Strategic Recommendations

Recommendation 10.1

Develop a diversified funding portfolio.

Pursue a balanced combination of local investment, voter-approved millage (if supported by the community), state and federal funding, educational partnerships, employer contributions, philanthropic investment, and competitive grants. Long-term success should not depend upon any single funding source.

Recommendation 10.2

Adopt a phased investment strategy.

Implement the Innovation Center through deliberate phases that prioritize planning, flexible instructional capacity, applied learning technologies, instructional equipment, and strategic partnerships before investing in specialized laboratories or facility expansion.

Recommendation 10.3

Leverage regional partnerships to maximize investment.

Coordinate with community colleges, universities, employers, healthcare systems, apprenticeship training Centers, Michigan Works! agencies, and other regional partners to share facilities, instructional technologies, equipment, faculty expertise, and work-based learning opportunities whenever practical.

Recommendation 10.4

Prioritize investments that expand learner access.

Invest in technology infrastructure, applied learning technologies, blended instructional delivery, digital access, and learner support services that reduce transportation, scheduling, childcare, and geographic barriers while improving educational flexibility for both high school students and adult learners.

Recommendation 10.5

Engage employers and philanthropy as strategic investment partners.

Encourage employers, industry associations, foundations, and community organizations to support Career Academy sponsorships, student scholarships, instructional equipment, applied learning technologies, faculty development, work-based learning, Registered Apprentices expansion, and innovation initiatives through financial and in-kind contributions.

Recommendation 10.6

Maintain a long-term capital replacement and modernization strategy.

Technology, instructional equipment, and specialized laboratories should be viewed as ongoing investments rather than one-time purchases. Establish a planned replacement and modernization cycle that ensures instructional resources remain current with evolving industry technologies and workforce expectations.

10.7 Chapter Summary

The River Rouge Career & Workforce Innovation Center represents a long-term investment in educational opportunity, workforce development, and regional economic competitiveness. Achieving this vision will require a diversified funding strategy that combines local commitment, public investment, educational partnerships, employer participation, philanthropy, and competitive grant funding into a coordinated financial framework.

Rather than attempting to construct a traditional Career and Technical Education Center with extensive specialized laboratories, the Innovation Center should prioritize flexible instructional environments, applied learning technologies, shared regional assets, and employer partnerships that maximize educational quality while reducing long-term capital and operating costs. Strategic investments in technology, instructional equipment, faculty development, learner support services, and regional collaboration will provide greater educational flexibility and allow the Center to respond more effectively to changing workforce needs.

Long-term financial sustainability will ultimately depend upon thoughtful stewardship of public resources, continued community support, and the ability to leverage multiple funding partners around a shared vision for workforce development. By implementing a phased investment strategy, prioritizing high-impact educational investments, and building upon the strength of Southeast Michigan's educational, employer, workforce, and philanthropic partnerships, the River Rouge Career & Workforce Innovation Center can establish a financially sustainable model that prepares learners for high-wage, high-skill, and high-demand careers while supporting the long-term economic vitality of the River Rouge community and the broader region.

Chapter 11

Conclusion and Roadmap for Implementation

Chapter at a Glance

This concluding chapter summarizes the strategic vision, guiding principles, and major recommendations presented throughout this report. It also provides a practical roadmap for implementation that can guide River Rouge and its regional partners from planning through long-term operation. The recommendations presented throughout this Strategic Roadmap and Implementation Plan establish a framework for developing a flexible, employer-led, technology-enabled Career & Workforce Innovation Center that responds to regional workforce needs while expanding educational opportunity for learners of all ages.

Purpose

Summarize the strategic recommendations presented throughout this report and provide a practical roadmap for implementing the River Rouge Career & Workforce Innovation Center.

Key Questions Addressed

- What is the overall vision for the Innovation Center?
- What are the highest-priority implementation activities?
- How should River Rouge transition from planning to implementation?
- What outcomes should define long-term success?

11.1 A Vision for the Future

The River Rouge Career & Workforce Innovation Center represents an opportunity to redefine workforce education by creating an employer-led, technology-enabled, regionally connected

talent development system that prepares learners for high-wage, high-skill, and high-demand careers. Rather than functioning solely as a traditional Career and Technical Education Center, the Innovation Center is envisioned as the coordinating hub of a regional workforce ecosystem that connects education, employers, workforce organizations, government agencies, community partners, and economic development organizations around a shared commitment to talent development.

Throughout this report, a consistent vision has emerged. Learners should have access to multiple educational pathways that include Career Academies, dual enrollment, Early College, competency-based education, stackable credentials, work-based learning, Registered Apprentices, and lifelong learning opportunities. Educational programs should remain responsive to employer needs while maintaining alignment with state requirements, accreditation standards, licensing requirements, and industry-recognized credentials.

Technology also plays a central role in this vision. Applied learning technologies, online and hybrid instruction, simulation, virtual laboratories, artificial intelligence, and other emerging instructional technologies can expand learner access while reducing traditional barriers related to transportation, scheduling, geography, and cost. These innovations, combined with strong regional partnerships, allow the Innovation Center to deliver high-quality educational experiences without unnecessarily duplicating expensive instructional facilities.

Ultimately, the Innovation Center is envisioned not simply as a building, but as a regional talent development strategy that strengthens educational opportunity, supports employers, advances economic development, and contributes to the long-term prosperity of the River Rouge community.

11.2 Roadmap for Implementation

Successful implementation will require thoughtful planning, sustained collaboration, and phased investment. The recommendations presented throughout this report suggest a logical progression that allows River Rouge to build organizational capacity while expanding educational programming over time.

Phase One – Organization and Planning

The initial phase should focus on establishing governance, confirming partnerships, securing initial funding, identifying facility needs, and organizing the employer-led collaborative structure. Early priorities include formation of the Steering Committee, development of Program Advisory Committees, confirmation of educational partners, identification of funding opportunities, and initiation of facility planning.

Phase Two – Program Development

Once organizational structures are established, attention should shift toward development of Career Academy programming, curriculum design, competency frameworks, stackable credential pathways, Early College and dual enrollment partnerships, instructional technologies, and employer engagement strategies. Program approval processes, accreditation requirements, licensing considerations, and Perkins eligibility should also be addressed during this phase.

Phase Three – Implementation

The third phase focuses on launching educational programming, enrolling learners, expanding employer engagement, implementing work-based learning opportunities, initiating Registered Apprentices programs where appropriate, and evaluating program performance. Continuous collaboration among employers, educational institutions, workforce organizations, and community partners remains essential during implementation.

Phase Four – Continuous Improvement and Growth

Following successful implementation, the Innovation Center should continue evaluating workforce demand, educational outcomes, employer satisfaction, technology advancements, and partnership effectiveness. This continuous improvement process should guide future program expansion, facility enhancements, technology modernization, and development of additional Career Academies as regional workforce needs evolve.

11.3 Defining Success

The long-term success of the River Rouge Career & Workforce Innovation Center should be measured not simply by the number of students enrolled or programs offered, but by its overall contribution to learner success, employer competitiveness, and regional economic vitality.

Success should include:

- Increased access to high-quality Career and Technical Education.
- Increased participation in dual enrollment and Early College programs.
- Greater attainment of industry-recognized credentials, certificates, and degrees.
- Strong employer participation in curriculum development, work-based learning, and Program Advisory Committees.
- Expanded Registered Apprentices opportunities.
- Increased postsecondary enrollment and workforce participation.
- Reduced educational barriers through technology-enabled learning and learner support services.
- Strong partnerships among education, employers, workforce organizations, government agencies, and community organizations.

- Continuous alignment between educational programming and regional workforce demand.
- Recognition of the Innovation Center as a regional model for workforce education and talent development.

These outcomes should be reviewed regularly using the continuous improvement framework described in Chapter 9 to ensure that the Innovation Center remains responsive to changing workforce, educational, and community needs.

11.4 Final Thoughts

The recommendations presented throughout this Strategic Roadmap and Implementation Plan provide a comprehensive framework for developing an innovative Career & Workforce Innovation Center that reflects the evolving needs of learners, employers, and the broader regional economy. While implementation will require sustained collaboration, thoughtful planning, and strategic investment, the opportunity before River Rouge is significant.

By embracing employer leadership, educational excellence, technology-enabled learning, competency-based education, regional partnerships, and continuous innovation, River Rouge can establish a workforce development system that prepares learners not only for today's careers but also for occupations and industries that will continue to evolve throughout their working lives.

Perhaps most importantly, this report demonstrates that workforce development is no longer the responsibility of any single institution. Success depends upon collaboration among K–12 education, postsecondary institutions, employers, workforce organizations, labor organizations, government agencies, community partners, and philanthropic organizations working together toward a shared vision of economic opportunity and community prosperity.

The River Rouge Career & Workforce Innovation Center represents more than the development of a new educational facility. It represents a long-term investment in people, partnerships, innovation, and the future of the River Rouge community. By implementing the recommendations presented throughout this report, River Rouge has the opportunity to create a nationally recognized model for employer-led workforce education that prepares learners for high-wage, high-skill, and high-demand careers while strengthening the region's economic competitiveness for generations to come.

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