# Appendix A – Regional Project Profiles

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# 1. West Alabama–East Mississippi (WAEM) Project Profile

## Introduction

The West Alabama–East Mississippi (WAEM) initiative, which concluded on June 30, 2010, had the overarching goal of transforming the region's economy by building the capacity of the region's towns and rural communities and its eight community and junior college districts to provide high-quality workforce and entrepreneurship training, establish a credentialed workforce, and develop strong partnerships to support local economic development. Based on citizen input obtained through a highly participative planning process, WAEM set four goals for the initiative: 1) Embed the capacity to identify key assets and strengths, target opportunities, and recruit champions to build an Enterprise-Ready region; 2) cultivate community and regional entrepreneurship; 3) credential, certify, and transform to a regionally-branded workforce; and 4) engage high schools and youth in regional branding and Enterprise-Ready activities. WAEM identified advanced manufacturing, health care, wood products, warehousing and distribution, tourism, and entrepreneurship as target industries.

The Montgomery Institute (TMI), a not-for-profit organization located in Meridian, Mississippi, led grant planning and implementation activities, while the Alabama Department of Economic and Community Affairs (ADECA) Office of Workforce Development served as the grantee and fiscal agent (see Figure A-1). A Governing Commission, made up of four members from Alabama, four from Mississippi, and a convener from TMI, provided oversight and strategic direction. Principal partners in the grant were the eight community and junior college districts, four in Alabama and four in Mississippi, whose catchment areas defined the WAEM region. Approximately one-third of the grant funds went to creating and funding dedicated workforce development positions at the colleges that had primary responsibility for implementing Goals 1 and 2 at the colleges and in the community and for coordinating related college courses and programs. In the first years of the initiative, Goal Committees, made up of the eight college presidents, employers, workforce training providers, and other stakeholders, worked to implement the initiative's goals; over time, as specific programs were successfully implemented, these formal committees disbanded.

## Key Issues

### Regional Partnerships

Pre-WIRED initiatives to encourage regional collaboration in economic development included bi-state initiatives such as the Commission on the Future of East Mississippi and West Alabama, which, under the direction of TMI, brought together economic development, educational, and political leaders from both states for regional decision-making and the increasing of economic opportunities in the region. With the WIRED grant, such initiatives increased in both scope and number, despite the many challenges—and according to many in the region, barriers—to working together across the state line.

**Figure A-1**
**WAEM Partner Map**

| Governors of Alabama and Mississippi |
| --- |

**GOVERNING COMMISSION**

Senior Consultant, The Montgomery Institute (convenor)

| Alabama | Mississippi |
| --- | --- |
| • Director, Alabama Department of Economic & Community Affairs<br>• Director, Governor's Office of Workforce Development, Department of Post-Secondary Education<br>• Planning & Evaluation Coordinator, Governor's Office of Workforce Development<br>• Executive Director, Greene County Industrial Development Board | • President of steel company and President, Mississippi Manufacturers Association<br>• Regional Manager for AT&T and Chair of TMI Board of Directors<br>• President, East Mississippi Business Development Corporation<br>• Executive Director, Mississippi State Board for Community & Junior Colleges |

**GRANTEE / FISCAL AGENT**

Alabama Department of Economic & Community Affairs (ADECA)
Office of Workforce Development*

**PROJECT MANAGEMENT**

The Montgomery Institute (TMI)**

**CONSULTANTS**
• University of Alabama
• Mississippi State University

**PARTNER COLLEGES**

| Alabama | Mississippi |
| --- | --- |
| • Alabama South. Community College<br>• Bevill State Community College<br>• Shelton State Community College<br>• Wallace Community College - Selma | • East Central Community College<br>• East Mississippi Community College<br>• Jones County Junior College<br>• Meridian Community College |

\*    ADECA contracts with TMI and with each of the eight community colleges for WIRED staff and activities.

\*\*   TMI contracts with the University of Alabama and Mississippi State University for research. Previously, TMI contracted with the Rural Policy Research Institute (RUPRI) for specialized technical assistance on entrepreneurship and place building

Information current as of the evaluation visit,12/09.

### *Focus on Community Colleges and Junior Colleges*

Although Alabama and Mississippi organize their postsecondary educational systems differently, both states considered their community and junior colleges to be the primary mechanism for the provision of workforce training and education services; in both states, respondents who spoke of the "workforce development system" were generally referring to the workforce development staff and programs at the colleges.[1] WAEM thus focused its grant activities on the colleges, and the commitment of the community college presidents to the initiative became key to its success.

### *Involvement of the Workforce Investment System*

The primary connector between WAEM and the DOL/ETA workforce investment system was ADECA, the initiative's grantee and fiscal agent, whose Office of Workforce Development works with the Alabama's Workforce Investment Boards (WIBs) to provide programs that improve employment opportunities for its state's citizens. The Mississippi Department of Employment Security (MDES), which is responsible for the DOL/ETA workforce system in that

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[1] In 2007, the State of Alabama institutionalized this college-based workforce system in the Governor's Office of Workforce Development, which is headed by a cabinet-level individual from the state Office of Postsecondary Education and which operates in concert with ADECA, the ETA-funded agency charged with implementation of the Workforce Investment Act.

state, supported and collaborated with TMI staff, but was not a formal, contracted partner in WIRED. WAEM typically worked directly with local One-Stops (WIN Job Centers in Mississippi and Career Centers in Alabama) rather than with the WIBs. WAEM facilitated WIA training partnerships between One-Stops and the community colleges, participated in joint Rapid Response efforts with DOL workforce staff, and promoted the initiative's activities at the WIN Job Centers and the Alabama Career Centers, in particular, the MyBiz entrepreneurship program.

## Successes

### *Worker Training*

WAEM's primary funding focus was the development of a credentialing/certification mechanism to achieve Goal 3, the creation of a regionally-branded workforce. After identifying the desired components of technical training and credentialing, WAEM developed the Modern Multi-skill Manufacturing (M3) credential, which assesses and documents entry-level and intermediate skills in advanced manufacturing. The M3 program utilizes virtual training laboratory modules developed by Amatrol, an internationally-recognized provider of learning systems for technical education. In addition to purchasing Amatrol licenses, WAEM purchased equipment for training on-site at the colleges and funded some instructor salaries, establishing the Anytime, Anywhere E-Learning System. At the end of the grant, WAEM reported that over 2,000 people had been trained through this system. WAEM also built on Alabama's WorkKeys system to establish and promote a Career Readiness Certificate (CRC) at the partner colleges.

In addition to the M3 program, WAEM established numerous programs at the partner colleges to train workers for employment in the initiative's target industries. These programs were designed and provided by the colleges, in partnership with the initiative's industry partners. For example, occupational categories similar to advanced manufacturing exist in northeast Alabama, where the main industry is coal mining. In that area, Bevill State Community College worked closely with Alabama Mining Company to identify its workforce needs and determine the skills required for employment in that industry, and developed a degree program that provided graduates with the appropriate skills. Some of the partner colleges, such as East Mississippi Community College, reported that they were experiencing "reverse transfers," in which people with four-year degrees transferred to the community college for the grant-funded worker skills training programs.

In the later years of the grant, WAEM expanded its efforts in health care worker training. In partnership with regional health and medical care alliances that included the East Mississippi AHEC (Area Health Education Center), which was co-located with TMI, WAEM identified the need for health care workers in West Alabama and East Mississippi, and began to develop health care-related worker training projects for the region. In February 2010, TMI received a three-year, $4.5 million American Recovery and Reinvestment Act of 2009 (ARRA) grant from DOL/ETA to implement a medical training and residency program that included a model career ladder program, the Nursing Career Lattice Program.

### *Investment in the Regional Economy: Community Development and Place-Building*

WAEM's initial efforts in community development followed the Rural Policy Research Institute (RUPRI) model for promoting community leadership and rural entrepreneurship. However, the RUPRI process proved to be very time- and labor-intensive, causing WAEM to expand its efforts

to include community engagement activities that could produce immediate, concrete results. Drawing upon established community development programs in the region,[2] WAEM developed an approach that utilized the charrette, a traditional urban planning tool characterized by structured brainstorming sessions and the creation of a graphic representation of local assets. WAEM conducted at least two charrettes in each of the eight partner college districts, along with "WAEM Town" retreats, based on the successful Your Town Alabama community planning and design program. The WAEM Town workshops sought to build local leadership and make the participating communities not only better places to live, but also more "entrepreneur-friendly."

## Entrepreneurship

The initiative promoted entrepreneurship primarily by creating tools for use by individual entrepreneurs and building local and regional entrepreneur resource networks. Entrepreneurship strategies developed by WAEM included: 1) identification of "Connectors" in the region's small towns to connect local entrepreneurs to outside support, including WAEM; 2) creation of a Start It! card for each community in the region that provided a concise directory of resources for local business start-ups; 3) development of the MyBiz website, which featured a Resource Navigator and links to both local and regional information; 4) training of Connectors and Navigators to help entrepreneurs locate the right resources on the website; and 5) entrepreneurship training at the University of Southern Mississippi and at the partner community colleges. With such strategies, the initiative sought to maximize the effectiveness of the region's existing small business assistance resources as well as to "demonstrate practical results on the ground locally."

TMI consolidated the entrepreneurship strategies developed by the initiative into the MyBiz Entrepreneur Network. In 2008, WAEM expanded the MyBiz Entrepreneur Network beyond the WIRED region in both states, taking it statewide in Mississippi with $1.2 million in funding from MDES and the Mississippi Development Agency (MDA) and statewide in Alabama under a $1 million DOL/ETA Project GATE grant to ADECA and the University of Alabama.

## Partnerships

For the first year of the grant, WAEM staff concentrated on partnerships with the eight colleges in the initiative and with business and civic leaders in the communities that were the focus of the ERDS process. As the grant went on, WAEM reached out to all community leaders in the region through, for example, the WAEM Mayors Network, which addressed local economic and workforce development issues through quarterly meetings and newsletters. WAEM also formed worker training partnerships with industry, such as the Lockheed Martin basic aircraft assembly skills program at Meridian Community College and the PACCAR pre-hire training program at East Mississippi Community College. Partners in the ARRA grant to provide employment and training services in the health care industry include Rush Health Systems, East Mississippi State Hospital, and Alliance Health Center, along with MDES, the Twin Districts (MS) WIB, the East Mississippi AHEC, and Meridian, East Mississippi, and East Central Community Colleges.

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[2] The programs upon which WAEM drew included: Your Town Alabama, out of Auburn University's Small Town Design Initiative (STDI) Program, which conducts participatory workshops on the planning and design needs of small towns and rural areas (http://www.yourtownalabama.org/); Mississippi Main Street, a program of the National Trust for Historic Preservation and the Mississippi Development Authority that ties economic development to historic preservation (http://www.msmainstreet.com/); and *First Impressions*, a program of the Mississippi State Community Action Team (MSCAT) at Mississippi State University (MSU), which sends first-time visitors into a town to assess how it appears to outsiders (http://www.mscat.msstate.edu/firstimpressions/).

WAEM's partnerships with the universities in the region are noteworthy. From the beginning, Mississippi State University (MSU) was a partner in the initiative, as was the University of Alabama (UA), through its Center for Economic Development (UCED) in Tuscaloosa. The 2007 WAEM's Governors' Summit included brainstorming sessions on ways in which the universities could be involved in the initiative: One participant reported that the universities saw themselves as being responsible for "high-level and geographically-broad implementation and integration of WIRED findings, while the community and junior colleges supported the initiative's specific projects." TMI staff had worked with MSU on regional economic development projects prior to the WIRED grant, and maintained close relationships with MSU faculty and program directors throughout the course of the grant. MSU also collaborated on the initiative's community engagement efforts, primarily by aligning its Community Action Team's (CAT) First Impressions program with Mississippi Main Street and conducting place-building activities in the region's small towns and rural communities. UCED not only assisted WAEM with asset mapping and project planning, but also provided important training and expertise to the grant in the implementation of WAEM Town. Other university research partners included the University of Missouri, where RUPRI is based, and the University of Southern Mississippi.

WAEM also established an important partnership with the Mississippi Band of Choctaw Indians, which, although it had long made large investments in employment on the Choctaw Reservation, had not previously partnered with the college workforce development system. WAEM sited its East Central Community College (ECCC) grant program on the reservation in a facility provided by the tribe, and offered the M3 training both to members of the tribe and to individuals in the surrounding communities. The ECCC Workforce Development Center's Integrated Technologies Training Center is also located on the Choctaw Reservation.

### *Innovation*

WAEM developed innovative strategies and activities that spanned the range of target industries and programmatic goals set by the initiative:

- WAEM created the regional M3 assessment and credential program, establishing the Anytime Anywhere e-Learning System for advanced manufacturing training in the region. State economic development officials in both Alabama and Mississippi have employed the M3 as a marketing tool to attract new businesses to the regions.

- WAEM used grant funds to make the CRC, the M3, and other college training programs available to juniors and seniors in the region's high schools, assisting the school in offering dual credit (high school courses that provide college credit) and dual enrollment (college classes offered to high school students). WAEM also staff planned to develop articulation agreements across the state line, so that a student could attend high school in one state and community college in the other.

- WAEM developed an innovative approach to rural place-building that combined the charrette process of the Auburn University Urban Studio Small Town Design Initiative (STDI) Program and the community leadership development workshops of Your Town Alabama with other successful community engagement programs in the region. The Southern Growth Policies Board awarded TMI its 2010 Innovator Award for its Rural Place-Building Program.

- A key component of WAEM's network of resource providers to support entrepreneurs and entrepreneurial activities in Mississippi and West Alabama, was MyBiz.am (which later became MyBiz.MS), an innovative website that includes links to Start It! Cards and other local resources for starting or expanding one's business, the "The Finance Flyby," with information on potential sources of funding for start-up businesses, and a searchable, sortable database of local resource providers. WAEM also developed the Nexus Hero program, which provides workshops and technical assistance to individuals and communities to help create or expand a businesses or markets using the Internet.

## *Sustainability*

In December 2008, WAEM submitted a Sustainability Plan jointly with ADECA, the WAEM Alliance (described below), and the eight WAEM partner community and junior colleges to DOL/ETA. Throughout the remaining 18 months of the grant, WAEM updated and refined this Plan, developed strategies for sustainability that included:

- The eight colleges participating in the initiative agreed to continue offering the M3 advanced manufacturing credential and the Anytime, Anywhere E-Learning System as part of their workforce training programs. The WAEM Alliance, legally incorporated in 2008 as a self-sustaining partnership among the colleges and TMI, had not only the responsibility for administering the M3 program, but also the authority to commit college resources and organizational expertise to sustain the enterprise in the future. ADECA, which owned the training equipment and other capitalized items that six of the eight colleges had purchased with grant funds, agreed to permit the colleges to continue to use them. The colleges also agreed to provide the advanced manufacturing training to juniors and seniors in high schools and to customers of the One-Stop Career Centers.

- Through its *America Works Initiative*, the Wal-Mart Foundation provided TMI and its WAEM partners with a $400,000 grant to provide M3 training to dislocated workers; this grant was matched by more than $300,000 in funds from the participating community colleges, the National Institute for Rural Community Colleges at Mississippi State University (MSU), and MDES, which provided WIA funds.

- In 2010, the Mississippi State Community Action Team (MSCAT), which had already aligned its First Impressions program with Mississippi Main Street, took over the WAEM Town community development efforts in the small towns in Mississippi, launching Your Town – Mississippi as a complementary program to Your Town Alabama.

- The WAEM Mayors Network also continued beyond the end of the grant, as did smaller partnerships, such as the one among the Mayors of Mayhew, Columbus, West Point, and Starkville in the so-called "Golden Triangle" area of Mississippi.

- TMI continued to maintain and operate the MyBiz website, changing the URL to MyBiz.MS to reflect the fact that, while the website still served the West Alabama communities of the WAEM region, most of the usage of the site came from Mississippi region. TMI also continued WAEM's support system for entrepreneurs and entrepreneurial activities in the region, through the MyBiz-Mississippi Entrepreneur Alliance. Entrepreneur training at the University of Southern Mississippi and at the partner community colleges also continued through, for example, ARRA funds that supported the Mississippi Entrepreneur Training Program at all 15 community colleges in Mississippi.

# Challenges

## *Regional Economy*

As the WIRED grant came to an end in mid-2010, the East Mississippi-West Alabama region continued to face many economic challenges. The rural nature of much of the region, combined with the downturn in the national and regional economy overall, meant that resources for economic growth remained limited. By its very structure and its programmatic goals, WIRED demanded bi-state collaboration for regional economic development, and the initiative created a number of mechanisms, in particular, the M3 and MyBiz.MS, that crossed jurisdictional boundaries and brought needed resources to WAEM's efforts to move the region's economic needle in a positive direction. However, since the end of the initiative, cross-jurisdictional efforts have been difficult—although not impossible—to maintain, and trying to reverse long-term economic decline in the region by providing job training and entrepreneurship support to individuals and by teaching communities how to become more competitive is an uphill climb.

## *Implementation Delays*

WAEM encountered a number of challenges that delayed the progress of program implementation, including:

- Fewer well-developed entrepreneurship resources in the community than expected. The initiative's original approach to entrepreneurship relied upon grant-funded staff assisting communities by identifying existing local resources and providers with whom entrepreneurs could connect. This plan proceeded more slowly than expected because few communities had the necessary "critical mass" of expertise and resources.

- Delays in the procurement of M3 training equipment. In some cases, state procedures, such as the requirement in Alabama that all equipment purchases by the colleges had to go through both the Chancellor's Office and the state purchasing board, slowed implementation of the M3. In several cases, poor vendor service caused delays. At Wallace Community College in Selma, Alabama, for example, Amatrol delivered the wrong equipment and failed to provide timely installation and set-up assistance.

- Turnover in key WIRED positions, particularly at the top levels of the community colleges. The departures of many of the original college presidents and senior government officials meant that WAEM was forced to expend time and resources to bring new partners up to speed on a regular basis. The loss of several individuals in particular meant less access than expected to state-level resources, with concomitant delays in the expansion of key WAEM programs.

- Changes in program strategy and focus. In one instance of such a change, WAEM shifted from strict adherence to the RUPRI community development model to a wider focus, adding new activities such as WAEM Town. Although a major advantage to this shift was that the broader model of place-building was able to produce more immediate results, it still took time for WAEM to shift gears and begin implementing the new activities.

**Figure A-2**
**WAEM Region**

**Figure A-3**
**Demographic and Other Details for WAEM Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,080,155 |
| **Population Density** | 39.3 |
| **Per Capita Income[2]** | $23,517 |
| **Population Age** | |
| 15-24 | 15% |
| 25-34 | 13% |
| 35-44 | 12% |
| 45-54 | 14% |
| 55-64 | 11% |
| **Poverty Level[3]** | 22.4% |
| **Unemployment Rate[4]** | 11.2% |
| **Labor Force[4]** | 441,295 |
| **Race/ Ethnicity** | |
| African-American | 37% |
| Asian | 1% |
| American Indian/Native Alaskan | 0.9% |
| Latino/ Hispanic | 2% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 61% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 70% |
| Some College or AA Degree | 24% |
| Post-Secondary Degree | 14% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 10 |
| Four Year Colleges | 8 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $16.67 |
| SBIR/STTR $ per capita[7] | $0.56 |
| FY 2009 Patent applications per 100,000 population[8] | 7.6 |
| **New Business Starts in 2008 per 10,000 population[9]** | 14.7 |

[1] Source except where noted: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 2. California Innovation Corridor Project Profile

## Introduction

In response to evidence that California is losing its global competitiveness, the California Innovation Corridor developed an initiative to explore how a region can become a sustainable habitat for high-wage job creation through innovation and alignment of its workforce, economic development and education resources. The California Corridor had three strategic goals:

1.  **Innovation Support** – Create new companies and high-skill, high-wage jobs by designing a replicable and sustainable "innovation support architecture" to increase innovation and entrepreneurship.

2.  **Industrial Rejuvenation** – Improve the international competitiveness of the region's supply chain by developing and executing a "Smart Supplier Strategy" that supports manufacturers, small businesses, and entrepreneurs in adapting to global manufacturing transformation.

3.  **Talent Development** – Accelerate development of a highly skilled 21st Century talent pool by creating pilot projects and activities to support a continuum of math, science, and engineering education (K-U), and lifelong learning relevant to the 21st Century worker.

California's Employment Development Department (EDD, the state's workforce investment agency) served as the WIRED fiscal agent. The California Space Authority (CSA), dedicated to facilitating California's competitiveness within the aerospace industry, managed the WIRED grant. In addition to the Regional Lead at CSA and about a dozen staff at CSA and the California Space Education and Workforce Institute (CSEWI, CSA's sister organization focusing on talent development for the aerospace industry), the region's efforts were supported by a Leadership Team made up of core partners, which served primarily in an advisory role to the grant (see Figure A-4). Each of the California Corridor's 25 funded projects was assigned a Project Liaison from either CSA or CSEWI. Each project could also have a Project Lead from among the various project partners that served as the Project Director. In a few cases the CSA or CSEWI staff served in the Project Director role. In addition to regular conference calls and webinars, all of the Project Leads met twice a year to share information about their projects and promote synergy between their projects. Occasional all-partner meetings supplemented the Project Lead meetings.

## Key Issues

### *Regional Identity and Size*

The California Corridor covered an area as large as most states, and rather than being a single regional economy, it was really a "region of regions" covering the 13 most populous counties in the state. The region included stakeholders who are traditionally in competition with one another (for example, northern vs. southern California; high-tech vs. agriculture; inland vs. coastal; urban vs. rural). Therefore, rather than focusing on developing a single identity for the region, the WIRED leadership promoted cross-fertilization across different communities within the region. The size of the region, its ambitious goals, and numerous projects with multiple partners, proved to be both a strength of the initiative and a challenge to its implementation.

**Figure A-4**
**California Innovation Corridor Partner Map**
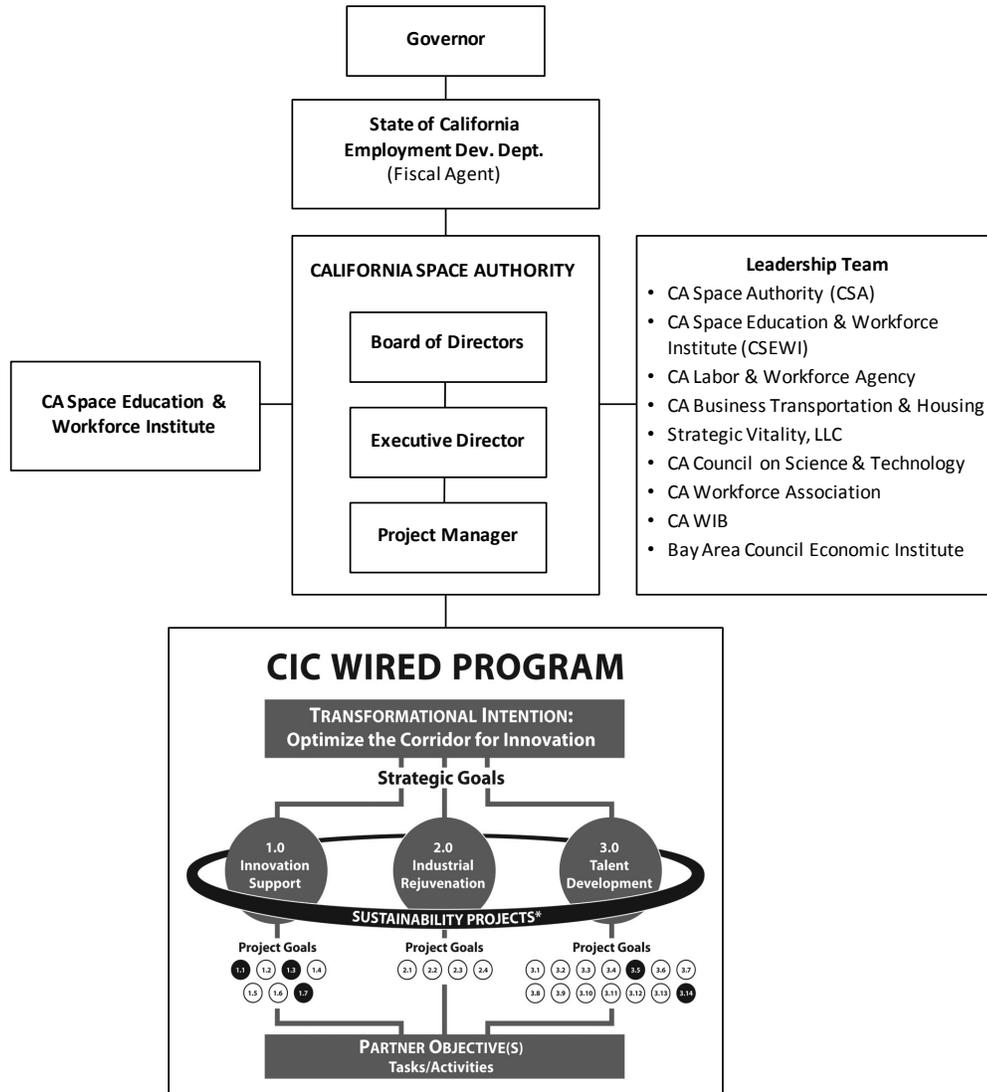


Information current as of the evaluation visit,10/09.

Respondents across the board praised CSA staff for their remarkable administrative success and strong management skill in moving toward completion of all the region's projects. However, many felt that partner and leadership meetings focused too heavily on tasks and deliverables and not enough on system transformation. The initiative's managers faced many administrative challenges at the beginning of the grant, including the contracting process, project leadership, and internal and external communications.

- The process of contracting with CSA and then with sub-recipients was complicated by two significant contracting barriers with several partners: 1) intellectual property rights, and 2) the $500 per day limit on consultant fees. Many projects experienced essentially a one-year

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delay in startup, but moved forward on the original deadlines for completion. In many cases, project staff felt they really needed another year to see the full fruits of their efforts.

- CSA assigned a Project Lead from among its participating partners. In some cases, the lead was someone with whom CSA already had a strong prior working relationship; in other cases, the lead was chosen for knowledge or experience; and in others, leads were chosen strategically to ensure maximum engagement of key partners. Not every Project Lead turned out to have the necessary skills to facilitate collaborative work processes and develop effective partnerships, which resulted in some projects getting a slower start and requiring a stronger CSA/CSEWI leadership role than others.

- CSA staff put extensive time and resources into communicating with partners, including email, conference calls, webinars, meetings, and a collaborative online workspace. Even so, building a common vision of where each project fit within the overall effort, and maximizing sharing of resources and knowledge across such a large group, was challenging. InnovateCalifornia.net became a partial solution to address this issue, although the website was used more as a repository for information rather than as an interactive tool to support collaborative communication.

- Eleven projects targeted individuals who were younger than age 16. These projects were impacted by the stop work order issued by ETA in November of 2007. Some projects were delayed by as much as six months and some did not meet their objectives.

### *Involvement of the Workforce Development System*

While the California Corridor included workforce system partners in almost every one of the grant's projects, one of the region's biggest challenges was to maximize the continuity and regularity of WIB staff participation. At the proposal stage, California Corridor engaged certain WIBs in specific projects, but in light of DOL's emphasis on transforming the workforce system, the initiative shifted some of its focus to a broader effort to influence the workforce system statewide. A key aspect of that effort was working with the California Workforce Association (CWA) to incorporate the WIRED/Innovation agenda into CWA activities. A key component of this effort was the development of a *WIB Toolkit* designed to provide WIBs with information and materials to effectively partner with the education, industry and economic development partners, providing common language and set of tools for local workforce activities targeting regional economic growth and sectoral strategies. The toolkit includes information about California workforce trends and how they affect workforce development, five core WIB roles (convenor, workforce analyst, broker, community voice, capacity builder), profiles of key high tech industries (nanotech, advanced manufacturing, biotech and transportation) along with case studies and resources. Not only is the toolkit being used by local WIBs to shape their own strategic plans and educate new WIB members, but it is also being used to educate other systems and industry HR professionals about the workforce development system.

After two years of working together, workforce development partners reported positively on the new partnerships they had formed, not only across systems, but *within* the workforce investment system as well. "We realized that businesses don't care which side of the county line services are on … we found out it's us [the WIBs] that are in the way."

### *Job Creation and Training*

WIRED partners designed and implemented a variety of job training programs. Some projects created jobs immediately; some were not designed to create immediate jobs, but learned necessary lessons for future job creation; and, some projects will need new funding to move beyond design to implementation.

- The first round of Aerospace Manufacturing Technician training concluded in August of 2008. Situated in the center of the aerospace industry cluster in the South Bay of Los Angeles County, El Camino College − part of the system of 122 California community colleges − was perfectly positioned to respond to a local workforce crisis impacting U.S. aerospace suppliers. Over 75% of the world's suppliers of aerospace-related fasteners resides in this area. The local/global fastener industry was experiencing a crucial shortage of manufacturing technicians, threatening delivery of the fasteners critical to the nation's aircraft and other aerospace suppliers. In a community characterized by diversity, low incomes, elevated high-school drop-out rates in most areas, and growing unemployment, El Camino College took on the challenge, developing a 360 hour certificate program in aerospace manufacturing. A total of 36 participants completed the training, all of them obtained employment in local aerospace firms. The program obtained NSF funding to continue its development and El Camino College's Industry & Technology division now offers 10 courses through four different academic programs in its Aerospace Manufacturing Education program.

- The Aerospace Corporation and Cal Poly formed a partnership to create and implement a two-day introduction to the basics of systems engineering (SE), targeting working engineers. The purpose of this effort was to educate engineers about the field of systems engineering and to encourage them to do coursework in the field to supplement their engineering work experience. The symposium was offered twice and more than 100 participants completed the training. The partners also published an online catalog of SE training resources for working engineers on innovatecalifornia.net. While the symposiums themselves did not continue on a regular basis, the online SE training resource guide continues to be updated and used by the engineering community to find local training resources to meet individual needs.

- A local WIB (NOVA) and the University of California Santa Clara extension program partnered to develop an aerospace skills training course. Over two dozen (27) dislocated /unemployed software specialists completed this certification, and 20 fund jobs in the aerospace industry by the end of the grant period. The WIB reported other benefits including:
  o Better understanding of the aero/space industry in its jurisdiction;
  o Creation of a better assessment tool for technical worker assessment; and
  o Understanding of the value of engaging HR and hiring managers early in training planning stages to ensure training meets industry needs.

- Allan Hancock College led a partnership with six community colleges to development an industrial technology-based associate degree program in mechatronics,[3] as well as exploring with other education-related partners high school recruitment strategies to bring students into engineering and technical programs. (As an outgrowth of both this effort, and a virtual classroom mentoring project funded through WIRED's STEM initiative, Fremont High School introduced an introductory mechatronics course into their regular curriculum.) The community college program offers Career Technical Education (CTE) training in technical

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[3] Mechatronics is the synergistic combination of mechanical, electrical, and computer technologies in the design of complex products and processes. http://me.calpoly.edu/about/degree-programs/concentrations/mechatronics

and mechanical skills. Enrollment was encouraging especially as the program has attracted students living in isolated areas who can take the courses in real time online. Allan Hancock College successfully developed curricula and monitored through the approval process two California Community College-approved degrees and two new certifications:

- o Associate of Science (AS) degree in Engineering Technology with Emphasis in Mechatronics;
- o Certificate in Engineering Technology with Emphasis in Mechatronics;
- o Associate of Science (AS) degree in Electronics Technology with Emphasis in Mechatronics; and
- o Certificate in Electronics Technology with Emphasis in Mechatronics.

- CSA conducted a WIRED-funded needs assessment of the aerospace industry which revealed a lack of trained supply chain managers. CSA published an analysis of the survey of needs, developed a supply chain management curriculum, and conducted two, two-day workshops to test the curriculum. The Smart Supplier Capabilities Assessment was reshaped into an online self-assessment tool and both the assessment tool and the Supply Chain Management Course be will continue to be available for public use on innovatecalifornia.net.

## Successes

### *Development of the STEM Education Collaborative Action Plan (STEMCAP)*

California Corridor's most ambitious STEM project, developing the STEMCAP high school earth science curriculum, faced major challenges, including the competitiveness of education stakeholders, inexperience in collaboration, a perception that education/academia and industry have different agendas, the misperception that the chief role of industry should be to provide funding rather than input, the clarification in DOL directives about use of grant funds for K-12 activities, and political issues around the potential systemic changes needed.  A carefully facilitated, extensive collaborative planning process addressed these challenges. The result was a STEMCAP that educators and state-level policy-makers saw as very valuable.  Funds from the Gates and Bechtel foundations supported a new statewide network of STEM stakeholders led by STEMCAP key partners to leverage the STEMCAP into statewide STEM progress.

### *Partnerships and Collaboration*

Almost all respondents named new partnerships – and the value of those partnerships in meeting their organizations' goals – as the top benefit of participating in WIRED.  For example:

- The pairing of local WIBs and economic development entities on specific projects which fostered mutual understanding between partners.

- The partnership between the Naval Postgraduate School in Monterey and WIRED that generated the Naval Postgraduate School Cubesat Launcher prototype, a significant means of supporting university and other student payloads to provide experiential training for aerospace. Other U.S. government agencies interested in the Cubesat program provided funding.

- A WIRED-initiated partnership between a small supplier and a supply chain management research team at the University of Southern California, sponsored by the Air Force Research Laboratory.

### Asset Mapping

California Corridor called its asset inventory effort the "Innovation Asset Mapping Inventory." Since the focus of the California Corridor was on an innovation economy, the inventory included resources to support innovation. The project was a collaborative effort involving partners across the region, which created the Connectory,® a statewide, web-based buyer-supplier database containing profiles of over 1,800 California industrial and technology companies across all industries at every level of the supply chain. The Connectory was managed by the San Diego East County Economic Development Council which continued to add resources and expanded the inventory to a statewide resource with over 17,000 companies profiled.

### Capacity Building – Increasing Role of Workforce System in Economic Development

Capacity-building within the workforce investment system was an important component of the grant's efforts to strengthen the region's innovation-driven economy. The initiative's products included *Racing for the Future,* an online toolkit providing WIBs with essential tools for understanding the innovation environment and adapting successfully to it. The WIB Toolkit http://www.wibtoolkit.net/ was an online sourcebook with background on changes in California's economy and how they affect the workforce system, explanations of the five core roles WIBs can play in the local economy, case studies of six local WIBs and how they played these core roles, and a compendium of resources including documents, maps, and LMI data.

### Identification of Accomplishments

With the help of a contractor, California Corridor identified success stories and accomplishments across all of its projects over the grant's last year. This process encouraged project teams to reflect about their experiences and identify lessons from which others might learn. The region posted 320 deliverables and 137 success stories on its website at http://www.innovatecalifornia.net/.

## Challenges

The grantee identified several specific challenges to achieving workforce system transformation:

- Workforce Investment Act (WIA) Performance Measures were found to exhibit a "significant disconnect" between WIA and a collaborative regional agenda. The focus on job placements was inconsistent with the primary goals and activities of the grant.

- Need for collaboration with local entities was "constrained by a lack of clear policy direction and of dedicated strategic planning resources." [4]

- California WIBs are dramatically underfunded relative to the resources necessary for effectively investing in skills and talent development. Such investment is essential to fill the pipeline of workers responsive to 21st Century opportunity and demand.[5]

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[4] Conner, Victoria and Turner, Judy, *Insights and Perspectives from the California Innovation Corridor,* CIC Final Report, 2010. California Space Authority, http://www.innovatecalifornia.net/documents/CIC-WIRED-Final-Report-with-Appendices-CSA.pdf

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### *Sustainability beyond WIRED Grant*

All of California Corridor's projects were intended to be transformational in nature, to not only bring about new partnerships and organizational linkages, but also to create models, methods, systems, procedures, or products that would outlive the grant period. All projects were to be completed by November 30, 2008, after which CSA made a preliminary estimate of unused funding and submitted a draft Utilization of Funds proposal to the state in the fourth quarter of 2008. In addition, a draft sustainability plan was developed in the third quarter of 2008 identifying 11 sustainability projects that were completed during 2009:

- Demonstration of Innovation-Driven Economic Development Model – in two geographic regions (LA South Bay, and Antelope Valley);

- Innovation Asset Mapping Inventory Expansion;

- Talent Development/Innovation Webinars;

- University and Student Payload Demonstration Project

- Smart Supplier Transformation Initiative;

- Launch-Related Industry Mentoring with Demonstration of Virtual Classroom Tool;

- STEM Collaborative Action Plan Implementation;

- Aerospace Community Development Strategy;

- Enhancement of California Space Education Center Website;

- WIB Learning Collaboratory - Bridging the gap between industry human resources and WIB professionals; and

- Sustainability/Expansion of InnovateCalifornia.net.

For a variety of reasons, (including the impacts of a stop work order while the WIRED grantee negotiated the use of H-1B funds for STEM education) many of the more complex WIRED projects had not fully realized their objectives as the grant ended. Some partners planned to shelve the surveys, course outlines, and pilot blueprints in the hope that they would be revitalized later, but a significant number of partners continued to look for ways to sustain their projects after the WIRED grant ended. For example:

- One group of partners developed a core curriculum for certification of supply chain managers and tested the course in two-day workshops at Lockheed and Northrop Grumman. The grant ended before they were able to implement the full course in community colleges. In December 2008, however, two community colleges, a local WIB, and the grantee applied for a $2 million DOL grant which would allow them to finalize the curriculum design and launch it both on campus and interactively.

- Education and industry partners who served together on the STEM CAP committee and advisory board collaborated to fund summer institutes during which teachers and students

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[5] Conner, Victoria and Turner, Judy, *Insights and Perspectives from the California Innovation Corridor,* CIC Final Report, 2010. California Space Authority, http://www.innovatecalifornia.net/documents/CIC-WIRED-Final-Report-with-Appendices-CSA.pdf

could spend their summers working in NASA and Jet Propulsion Lab laboratories. California education systems used the STEMCAP to support their grant proposal efforts.

- STEM CAP principles and recommendations were institutionalized across systems.

- ARCHES, the statewide facilitator of regional collaborations and STEMCAP development sub-grantee embedded STEM CAP principles into its frequent solicitations to support regional collaboratives.

- The STEMCAP served as foundation for a Gates/Bechtel grant establishing the California STEM Innovation Network, a non-profit organization working to catalyze innovation in STEM teaching and learning in the State of California. CSLNet, in collaboration with state and regional partners, champions policies and practices designed to rapidly scale STEM education innovation, and support educators in preparing students for success in postsecondary education and work, particularly those students who have historically been underserved.

Respondents emphasized the value of the partnerships developed through participation in WIRED that resulted in new ways of working together and positioning participants to obtain additional funds. The San Diego Workforce Partnership (WIB) was one such example, The WIB and the economic development centers (EDCs) developed strong relationships that were a major contributing factor to their success in securing ARRA and Walmart Foundation funds to support collaborative job training efforts. "WIRED has strengthened our commitment to stronger and more strategic business engagement." Now at the top of the Chamber and the EDC's agenda, the WIB serves as a regional catalyst for collaboration between the WIB, the EDCs, and industry.

On the other hand, the EDD reported that at the end of the WIRED grant, CSA project leaders were invited to propose specific projects that the state might fund to continue targeted aspects of the CIC WIRED initiative. The project leaders were unable to identify any continuation projects they felt were appropriate for state funding.

**Figure A-5**
**Map of California Information Corridor**

**Figure A-6**
**Demographic and Other Details for California Innovation Corridor Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 26,158,884 |
| **Population Density** | 447.7 |
| **Per Capita Income[2]** | $37,199 |
| **Population Age** | |
| 15-24 | 15% |
| 25-34 | 14% |
| 35-44 | 15% |
| 45-54 | 14% |
| 55-64 | 10% |
| **Poverty Level[3]** | 14.4% |
| **Unemployment Rate[4]** | 11.9% |
| **Labor Force[4]** | 13,074,994 |
| **Race/ Ethnicity** | |
| African-American | 7% |
| Asian | 13% |
| American Indian/Native Alaskan | 1.1% |
| Latino/ Hispanic | 40% |
| Native Hawaiian/ Pacific Islander | 0.4% |
| White | 76% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 80% |
| Some College or AA Degree | 28% |
| Post-Secondary Degree | 30% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 83 |
| Four Year Colleges | 124 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $123.84 |
| SBIR/STTR $ per capita[7] | $12.94 |
| FY 2009 Patent applications per 100,000 population[8] | 129.0 |
| **New Business Starts in 2008 per 10,000 population[9]** | 31.2 |
| | |

# 3. Metro-Denver Project Profile

## Introduction

Denver's thriving and diversified economy is propelled by growing technology sectors and one of the most highly educated workforces in the country. The region also has a low high school graduation rate and a talent development pipeline that is "leaking" at all stages, leaving local workers inadequately prepared to compete in the fast-growing, high-wage industries in the area. Metro Denver's WIRED initiative addressed this challenge, known as the "Colorado Paradox," by building regional partnerships among industry, education, economic development, and the public workforce system across the nine-county Metro Denver region. With the mission of "building a talent base to drive prosperity," the goals of Metro Denver were to:

1. Develop a home-grown skilled workforce for fast-growing, high-wage, industries that are also experiencing labor shortages – aerospace, bioscience, traditional and renewable energy, and information technology – so that the region's companies can remain competitive in the global economy.

2. Become the "go to" region for companies relocating or expanding because Metro Denver's workforce will have the best science, technology, engineering, and math (STEM) skills.

3. Provide an entrepreneurial climate for business creation and expansion for companies in targeted industries.

4. Become a region where the minimum acceptable educational standard for all residents is a post-secondary certificate or an associate degree.

5. Create a regional system that seamlessly integrates workforce, education, and economic development programs to effectively meet the needs of individuals and business.

The region consisted of the eight counties in the Denver Metropolitan Statistical Area defined by the US Census. The Metro Denver Economic Development Corporation (MDEDC), a public-private partnership between the Chamber of Commerce and 63 regional municipalities, managed Metro Denver WIRED. Metro Denver's fiscal partners were the Colorado Department of Labor and Employment (CDLE), the Denver Office of Economic Development (OED). CDLE was the grant recipient and monitored the grant for compliance with federal laws and regulations; it was also responsible for some direct allocation of WIRED funds to local workforce development centers in the region. OED was the local fiscal agent and monitored the contract with MDEDC.

During the grant's first year, Metro Denver established eight panels to contribute to the initiative's design. Four "demand-side" panels represented the region's key industry sectors (aerospace, bioscience, energy, and information technology), while four "supply-side" panels represented K-12 school districts, higher education, the workforce investment system, and local small businesses. The panels conducted research and analysis on talent shortages and employer needs, and recommended activities to address these issues. The 16 co-chairs of the panels formed the High Skills Leadership Council, which set the policy direction and vision for the initiative. The Council vetted the recommendations of the eight panels in September 2007. Starting its implementation phase, Metro Denver restructured the Leadership Council as a decision-making body representing all partners and supported by four Solutions Teams to

implement the recommendations. The Solutions Teams were cross-disciplinary, cross-industry groups, each led by two chairs. The primary mission of the four Solution Teams included:

1. **Connection to Industry:** Identify information and access to internships, externships, apprenticeships and work-based experiences for students, teachers, incumbent workers, and other job seekers.

2. **Metro Denver 2010:** Develop a sustainability plan to continue the initiative's work after the grant ends.

3. **Growing Our Own:** Focus on programs and initiatives that educate and prepare workers for high-skill jobs, particularly STEM skill development.

4. **Optimizing Today's Workforce:** Focus on programs that train and place incumbent workers in the target industries.

The Solutions Teams were responsible for building partnerships, identifying best practices or developing new approaches, securing resources (including grant funding leveraged with funding from other sources), identifying measures of success, and implementing programs or projects through its partners (see Figure A-7). The Teams completed their work in summer 2008. Metro Denver then converted the High Skills Leadership Council into the Leadership Council, which includes both new members and members from the previous Council. The mission of the new Leadership Council was to provide oversight, focus on the sustainability of WIRED's mission, define the transformation of workforce delivery system, and work toward becoming a permanent structure for regional talent development.

**Figure A-7**
**Metro Denver Partner Map**
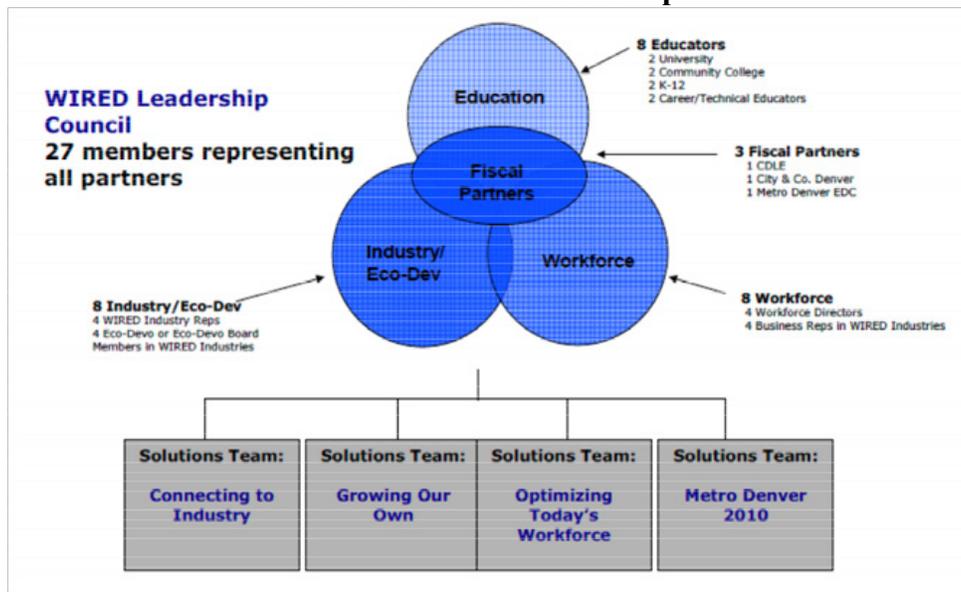


Information current as of the evaluation visit,11/09.

# Key Issues

## *Industry Engagement*

Being co-housed with the MDEDC facilitated the initiative's ability to attract and engage senior level executives and industry partners. The MDEDC was able to build on its membership and existing relationships to pull in key players from the very beginning (although longer-term collaboration was primarily with human resource staff rather than the highest level executives).

In addition to industry representation on the Leadership Council and required industry participation in sub-grantee projects, Metro Denver used two other approaches for engaging industry – Regional Industry Sector Coordinators and the Colorado Small Business Development Corporation Network. In the first year of the grant, Metro Denver hired a Regional Industry Sector Coordinator for each of its four targeted industries to facilitate cross-sector partnerships and clarify and respond to industry's workforce development needs. These professionals worked in the region's On-Stop Centers and served as conveners of industry, education, economic development, and public workforce development partners; staffed industry panels to identify employment and training requirements; supported industry's human resource (HR) departments in identifying appropriate job candidates; and promoted career pathways with students, parents, and community members through online videos and brochures featuring the targeted industries. The local WIBs found the sector coordinator roles so successful that several decided to institutionalize those roles as part of their One-Stop Center staffing.

Recognizing that some of the fastest growing and most innovative employment opportunities are through small businesses, Metro Denver funded the Colorado Small Business Development Corporation Network (SBDC). The SBDC surveyed new businesses in the region's targeted industries and identified their most important needs. Using leveraged funds, the SBDC published a directory of resources specific to the targeted industries in the *Colorado Business Resource Guide* and developed a replicable course in business plan development for high school students. With grant support, SBDC also developed replicable workshops aimed at small business expansion and workforce development in the targeted industry areas.

## *Involvement of the Workforce System*

Workforce development system involvement increased over the course of the grant. To encourage the meaningful participation of the workforce system in its projects, Metro Denver required sub-grantees to submit letters of commitment from workforce system partners along with their grant proposals. The region also dedicated initiative funds to Individual Training Accounts (ITAs) that were managed at the state level and offered to job seekers in the region.

Smaller companies that were not well-known or had limited resources for outreach to potential workers valued their relationships with the Workforce Centers. The grant's Industry Coordinators worked to identify these employers and cultivate relationships to help them find potential employees. Industry Coordinators found that HR staff from some larger employers thought their hiring needs could more readily be met by commercial recruiting agencies, or that their job openings were visible enough to job seekers that little effort was needed to attract eligible applicants. These HR managers were more inclined to work with the WIBs on longer-term issues – such as STEM education – than on filling existing openings.

## Jobs and Training

Metro Denver funded 31 programs across the region through its four major grant programs: JumpStart (10 projects, $3.7 million); Workforce Innovation Grants I (10 projects, $3 million) and II (six projects, $1.2 million) and Career Academy grants (four Academies, $455,000).

*Rays of Hope* was an example of Metro Denver's job training projects that helped low-skill workers find good jobs in the region's targeted industries. The program assisted formerly incarcerated job seekers to find work in energy efficiency/construction and renewable energy, as well as other industries. When program staff realized they had more trained workers than jobs available, they initiated the *Faith BUILDings Alliance*, a project to train disadvantaged workers to install energy efficiency measures and renewable energy systems at faith buildings. The Alliance was a joint effort of energy efficiency employers that hired program participants, church congregations housed in old and inefficient facilities, and a financial broker who developed a funding mechanism so that the congregations could afford to pay for efficiency upgrades through energy cost savings. At the end of the grant, the Alliance continued to cultivate dozens of partners, expand business opportunities, and create jobs for disadvantaged workers.

## Sustainability

Metro Denver built on existing efforts to support regional cooperation, cluster-based strategies, and industry-driven workforce development. Metro Denver validated these efforts and built momentum through its investments in research, capacity-building, and partnerships. Grant funds served as seed investments for start-up funding and supported demonstration projects that better positioned sub-grantees to attract other resources for building capacity. Further, the grant supported efforts to institutionalize these activities within the sub-grantees.

One Solution Team defined transition options for WIRED activities based on lessons learned through the grant. This Team hired an outside consultant to develop a model for sustaining a regional talent development system. The consultant delivered his report, *Talent Drives Prosperity: Transitioning to a Talent Development System for the Metro Denver Region*, in December 2009. The report described Metro Denver's sustainability objective as the creation of an education and workforce training system that meets current challenges while anticipating future trends and opportunities. It recommended applying a "talent supply chain management" model built on WIRED relationships and that recognized the roles of different system partners including K-12 education, community colleges, universities, and workforce development.

Finally, WIRED's educational grants fostered curriculum and teacher development that could provide returns to the community well into the future. For example, the University of Denver's Innovative Partnership for Educating Aerospace and Bioscience Workforce program prepared 28 high school teachers to teach engineering curriculum.

# Challenges

## Administration

Multiple levels of government involved in grant management proved to be one of the biggest challenges for Metro Denver. Each fiscal partner worked hard to meet the grant's federal

guidance and monitoring requirements, however, these efforts were often duplicative, conflicting, or highly bureaucratic. From the perspective of the sub-grantees, the process of contract approval was slow, the time available for program implementation subsequently reduced, and the administrative requirements onerous. Both sub-grantees and the partners' grant monitoring staffs labored long hours to address changes in allowable costs and reporting requirements. While acknowledging Metro Denver's achievements, many respondents felt that still more could have been accomplished if the grant requirements had been less bureaucratic and communicated well at the start of the grant. Bureaucratic requirements and financial audits by three fiscal partners continued to be a significant burden that limited the innovation of funded programs, overly burdened grant monitors, and negatively impacted cooperative relationships among sub-grantee partners. These difficulties had a chilling effect on implementation in the final grant year and on organizational collaboration in the post-WIRED period.

### STEM Education

To assess where to target STEM education resources, Metro Denver studied how the region's students performed in STEM subjects compared to the rest of the state, looking at different subgroups of students. The school districts in the region represented 65% of all public school students in the state, and were very diverse in terms of number of students and characteristics such as ethnicity and poverty level. The resulting report, completed in 2006, revealed that the Metro Denver region performed roughly on par with the state as a whole. Large achievement gaps existed between minority students (other than Asian Americans) and their white peers, however, and this level of achievement was insufficient for meeting future needs of the state's industry if the high tech business sector is to expand and Colorado remain competitive globally.

Many employers in the region emphasized the need for the workforce development system to engage young people in career pathways as early as the fourth grade, to ensure that by the time students reach high school they would be well prepared to succeed in STEM coursework and develop potential interest in STEM careers. Industry representatives were especially concerned about reaching elementary school students with effective introductory STEM programs and some respondents speculated that programs for younger children would lead to greater industry involvement. Metro Denver responded by starting a STEM initiative that targeted elementary schools as well as middle and high schools. When grant staff discovered that H1-B funds could not be used to serve younger youth, however, they dropped the programs started in the first year that targeted children. Some industry partners who supported the grant serving youth younger than age 16 were disappointed that the initiative could not continue moving in this key direction. In some cases, industry representatives pulled back their involvement – or even dropped out of participating – in Metro Denver activities in frustration over this issue. Several key players said that although the initiative claimed to be driven by industry needs, in fact, its inability to target resources where they were needed was yet another example of government bureaucracy unable to respond to the realities of industry needs.

### Employer Engagement

Metro Denver was successful in engaging employers in initiative activities such as serving on the Leadership Council, or partnering with community colleges to develop new training programs to address specific skill shortages. On the other hand, the initiative was less successful at developing long-term relationships between employers and the workforce system.

Industry Coordinators reported that while industry partners were pleased to be involved in collaborative efforts to address skill shortages, many did not see the workforce the larger employers found the geographic boundaries of multiple WIBs and the need to work with various local Workforce Centers to be frustrating, and encouraged the workforce development system to be less bureaucratic with greater standardization and a single point of entry for companies. Some industry representatives raised concerns that the public workforce system could not respond to their immediate need for high-skill, educated workers. While developing new industry-specific training programs helped address this need, the structure of workforce development services in the region continued to be a barrier for larger employers to engage in the grant.

### *Involvement of Four-Year Institutions*

Although the community colleges were readily engaged in Metro Denver's workforce development activities, four-year universities were less adaptable to the initiative's short-term or industry-specific training programs. Developing new programming in universities can be expensive and require long-term commitments to faculty and facilities. Some respondents observed that industry shifts in focus can make a newly developed program quickly irrelevant. Additionally, the culture at universities is not exclusively focused on employment but also on other educational objectives. Furthermore, some potential university partners believed that the workforce system was oriented toward low-skilled workers and did not appreciate the potential value of partnering with workforce development programs.

## Successes

### *Impact on State Policy*

Metro Denver caused a "buzz" in state and local policy circles, increasing conversations about the regional economy, the targeted industries, and development of a skilled workforce. Respondents reported that the initiative created a closer alignment of educational policy with workforce and economic development in the state, and increased integration of the traditional "silos" of education and workforce development systems. The Governor's new Job Cabinet adopted many of the WIRED principles, including: regionalism; demand driven workforce development; and cooperation between industry, workforce development, education, economic development, and policy makers.

The initiative contributed to meeting long-term workforce development needs – not only in the region but also across the state – through 1) bringing together education, workforce, and industry partners, and 2) funding effective programs for preparing students and workers for high-wage jobs and careers. Many stakeholders worked in partnership with the Governor's Office to apply for (and receive) a National Governors Association STEM grant, which supported the development of the Colorado STEM Network. Metro Denver also partnered with Colorado Succeeds and the University of Colorado at Denver's School of Public Affairs to produce a report on career and technical education in Colorado. Metro Denver also brought together STEM communication personnel to develop media resource materials that provide a common message across the state, to better educate communities and policy makers about the role of STEM education as a career pathway for students.

One of Metro Denver's most innovative events was its *STEMapalooza,* an immensely popular two-day event featuring science, technology, engineering, and math learning opportunities and attended by thousands of students of all ages and their families. This event was even more popular in its second year and was replicated in other regions across the country.

### Career Academies

The region's Career Academy grants successfully partnered higher education – especially community colleges – with high schools to prepare students to be job-ready for high-demand occupations upon graduation, or to be better prepared for enrollment in career-track post-secondary degree programs. The grants: supported career-oriented, classroom-based, experiential learning programs; trained teachers to teach the new curriculum; exposed students to higher education opportunities; and connected students with potential employers. These programs not only addressed industry needs for cultivating its future workforce, they also attracted many young people who might otherwise slip through the cracks. In February 2009, Colorado Succeeds convened the *Career and Themes Academies Forum.* The Forum highlighted career academies across the state, including those funded by Metro Denver, and engaged stakeholders who learned promising practices from local and national experts.

### Career Education

Through public polling, Metro Denver found that lack of information discouraged many students, teachers, parents, and job seekers from pursuing careers in certain fields, especially science and technology. In response, Metro Denver created career brochures and videos and posted them on a new interactive website, MetroDenverCareers.com. These career education materials included specific information on average salaries, job titles, educational requirements, estimated future hiring needs, and Colorado education and training programs that can prepare job candidates for employment in the targeted industries.

**Figure A-8**
**Map of Metro Denver Region**

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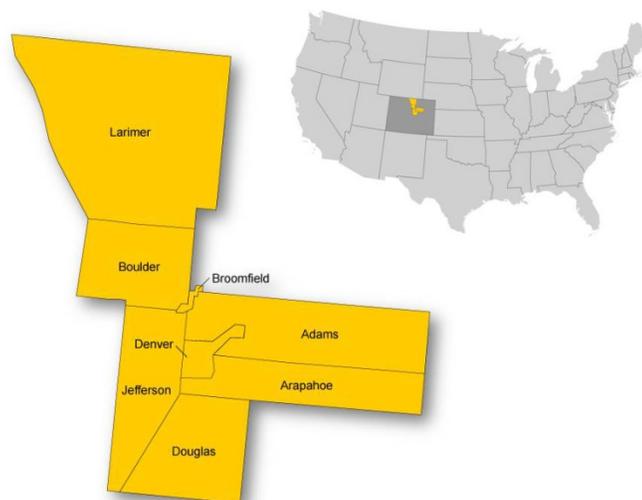
**Figure A-9**
**Demographic and Other Details for Metro Denver Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 3,288,404 |
| **Population Density** | 294.0 |
| **Per Capita Income[2]** | $44,074 |
| **Population Age** | |
| 15-24 | 13% |
| 25-34 | 15% |
| 35-44 | 15% |
| 45-54 | 15% |
| 55-64 | 11% |
| **Poverty Level[3]** | 8.6% |
| **Unemployment Rate[4]** | 6.8% |
| **Labor Force[4]** | 1,803,004 |
| **Race/ Ethnicity** | |
| African-American | 5% |
| Asian | 3% |
| American Indian/Native Alaskan | 1.0% |
| Latino/ Hispanic | 21% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 89% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 88% |
| Some College or AA Degree | 28% |
| Post-Secondary Degree | 38% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 7 |
| Four Year Colleges | 25 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $179.79 |
| SBIR/STTR $ per capita[7] | $24.39 |
| FY 2009 Patent applications per 100,000 population[8] | 91.3 |
| **New Business Starts in 2008 per 10,000 population[9]** | 40.6 |

Source except where noted:   US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2]  Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3]  Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard@census.gov&filename=ed_home.hrml#

[4]  Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5]  Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6]  Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7]  Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8]  Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9]  Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

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# 4. Northwest Florida Project Profile

## Introduction

The goal of Florida's initiative was to transform the economy of Northwest Florida by expanding high-growth, high-wage jobs in the region, diversifying the regional economy beyond tourism and the military, and continuing efforts to integrate workforce development, economic development, education, and training across the region. Florida's Great Northwest, Inc. (FGNW) − a regional economic development organization in Destin, Florida − managed the grant. Based on a comprehensive analysis of the economic assets and workforce needs of the region, FGNW selected aerospace and defense, life sciences, alternative energy, information technology, software development, and electronics engineering as the grant's target industries.

The Agency for Workforce Innovation (AWI), Florida's state workforce investment agency, was the grantee and fiscal agent (see Figure A-10). Strengthened and sustained by public-private partnerships made up of key stakeholders in the region's economy, the initiative was a catalyst to regional economic transformation through grants of almost $9 million to the region's businesses, WIBs, economic development organizations, and secondary and post-secondary educational institutions. FGNW required initiative sub-grantees to provide 100 percent in match funds and secured additional funding from other sources.

## Key Issues

### Involvement of the Workforce Investment System

The region's six WIBs already were partners with each other and with FGNW prior to the grant. They met on a regular basis, held membership on the FGNW Board of Directors, and frequently collaborated on WIB and FGNW workforce initiatives. Creation of the Northwest Florida Initiative both strengthened existing relationships among the WIBs and FGNW and facilitated further partnerships with the region's key economic development players. The grant also increased recognition of the workforce system's role in long-term economic development.

### FGNW as a Strong Focal Point for the Region

As an existing regional economic development organization, FGNW was in a strong position to manage and integrate the region's efforts to achieve economic transformation. Prior to the grant, FGNW enjoyed a reputation as a neutral party that could work with − and often bring together − the many different economic development entities across the region. Existing and potential partners did not view FGNW as a competitor. With grant funds, FGNW built on that reputation and established itself as the focal point for regional investment in economic development, and as a catalyst to change. The grant allowed FGNW to take on much of the financial risk of initiating or expanding innovative projects in an uncertain economic climate.

### Data-Driven Decisions

Some members of the initiative's Governance Council initially disagreed with FGNW's plans for large investments in analyses of the labor force and target industries. The value of obtaining region-specific data for strategic planning and decision-making quickly became evident to even

**Figure A-10[1]**
**WIRED Northwest Florida Partner Map**

```
┌─────────────────────────────────┐         ┌──────────────────────────────────┐
│ Northwest Florida WIRED Initiative│         │ Agency for Workforce Innovation (AWI)│
│      Governance Council           │         │ (Florida Workforce Development Agency)│
│ • Business/Industry Representatives│        └──────────────────────────────────┘
│   and Entrepreneurs (7)           │                      │
│ • University of West Florida      │         ┌──────────────────────────────────┐
│ • Northwest Florida State College │         │  Florida's Great Northwest, Inc. │
│ • Florida Small Business          │─────────│            (FGNW)                 │
│   Development Center Network       │         │       Northwest Florida          │
│ • Florida Black Chamber of Commerce│        │       WIRED INITIATIVE           │
│ • Chipola Regional Workforce      │         └──────────────────────────────────┘
│   Development Board                │
│ • Economic Development Council of  │
│   Tallahassee/Leon County          │
│ • Jackson County Development Council│
│ • Opportunity Florida             │
└─────────────────────────────────┘
```

| Workforce Innovation Subgrants | Secondary Education Subgrants | Employee Skills Training Subgrants | Post-Secondary Education Subgrants | Entrepreneurship Subgrants | Incumbent Worker Subgrants |

[1] As of December 2010

Information current as of the evaluation visit, 12/09.

those most opposed to expenditures on research, however. The initiative funded several major analyses, among them:

- In 2008, SRI conducted a comprehensive analysis of workforce demand and growth opportunities that identified current and projected employment rates for 118 occupations in the target industries and assessed the region's training capacity for high-growth occupations.

- A second phase of the comprehensive analysis[6] focused on assessing the demand for workers in IT, engineering, and other high-tech occupations, as well as the capacity of the region's post-secondary education programs to meet this demand.

- A 2010 sub-cluster analysis[7] examined regional, national, and international occupational and industry trends, and identified the workforce and infrastructure requirements suggested by these trends. The Haas Center also performed a labor force analysis to identify workforce trends and regional assets for occupations in the industries that the SRI study previously identified. An important aspect of this work was that it provided detail at the county level and the Metropolitan Statistical Areas that was otherwise unavailable.

An unexpected finding of the 2008 assessment of demand for workers in the target industries was that the region had a critical talent shortfall in the support industries of IT and engineering. This result not only guided the development of the initiative's worker training and education programs, but also ensured the collaboration of the region's six WIBs because WIB staff clearly saw both the employer and worker needs as well as how to be part of the solution.

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[6] Conducted by the Haas Center for Business Research and Economic Development (University of West Florida) in 2009

[7] Conducted by KMK Consulting and the Haas Center

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## Successes

### *Investment in the Regional Economy*

By the end of the grant in January 2011, FGNW had awarded 72 sub-grants totaling $8,800,000. Leveraged contributions (matching funds) of $20,910,000 and other partner/grantee investments resulted in a total capital investment of $169,580,000 in the regional economy.

### *Worker Training*

By the end of the grant, initiative partners had trained 7,134 individuals for employment in the region's target industries. Training programs included:

- **Employee Skills Training –** The initiative awarded more than $500,000 to target industry businesses to provide customized training that prepared workers to fill new full-time jobs.

- **Incumbent Worker Training**: More than a dozen businesses in targeted high-tech industries received grants to train their existing employees in topics and/or skills that meet specific industry workforce needs, thus encouraging employee retention and advancement.

- **Entrepreneurial Job Creation and Skills Training**: The initiative awarded $1 million in Entrepreneurship Grants to ten technology businesses to create jobs in high-skill, high-wage positions and train workers to fill these positions. The grants, which required a match of at least $100,000 in new equity investment into the company, also required that the companies retain trainees for 12 months.

- **Secondary Education**: The region made significant investments in local public education systems by awarding grants for career skills programs to secondary education institutions. The initiative supported the development of the CHOICE Career Academies, which provide high school students with skills training for high school and college credit and for industry certification, and funded the creation of accelerated high school math and science programs.

- **Post-Secondary Education**: The initiative funded programs to expand the region's existing training capacity to meet the anticipated demand for workers in IT and engineering fields.

- **Workforce Innovation Grants**: Through its Workforce Innovation grant program, the Florida region invested in innovative training and education programs designed to address the workforce needs of the region's high-growth industry clusters. The first $150,000 of this funding went to the region's six WIBs to train workers and students age 16 years or older in the skills and competencies that target industries needed. The second and third rounds of these grants went to post-secondary educational institutions and major employers that used creative solutions to develop the region's knowledge-based workforce.

### *Partnerships*

The region's public-private partnerships were key to the grant's success. By creating and facilitating networking opportunities, encouraging partner participation on boards, committees, and work groups for both the initiative and FGNW, and making its sub-grantees full partners in efforts to transform the regional economy, the initiative strengthened existing partnerships and created many new ones. Long-time FGNW partners – such as the region's six WIBs – were especially important to the initiative because they were relatively stable (compared to partners in other sectors, which tended to have high turnover), and because they acted as champions for workforce programs that had existed prior to the grant. In the first years of the initiative,

Industry Advisory Councils were key players in identifying priorities and developing strategies for the initiative. In later years, members of the Northwest Florida Initiative Board of Governors and the FGNW Board of Directors played a stronger role. The Northwest Florida Consortium emerged as an especially strong partnership in the grant's later years. It was comprised of college presidents and senior administrators from nine institutions in the region: the University of West Florida, Gulf Coast Community College, Northwest Florida State College, Chipola College, North Florida Community College, Tallahassee Community College, Pensacola Junior College, and the region's two public research universities (Florida State University and Florida A&M University). Established through a $1 million grant from the initiative, the Consortium brought together a diverse set of post-secondary educational institutions with little experience in working together and, with shrinking state education budgets and competition for limited funds, little incentive to cooperate. Consortium members saw the grant as critical because "Getting the initiative's money gave us positive feedback and helped us trust each other."

*Innovation*

Under its Workforce Innovation programs, the grant funded education and training projects that used innovative approaches to preparing participants to work in high-growth industry clusters. ETA granted the initiative a no-cost extension through January 2011 to allow its last round of grants for two-year post-secondary programs full implementation. These projects included:

- The University of West Florida (UWF) established a program for workers to obtain a Masters' degree in Software Engineering while remaining in their jobs. The employer match to the grant consisted of release time for both students and their supervisors. In this innovative delivery model, a cohort of students followed a curriculum based on projects that benefited their employers. The 12-month program was shorter than the usual Masters' program: "We kept the learning outcomes the same, but compressed the time." The university continued to use this alternative model to supplement its traditional programs.

- The National Flight Academy developed an interactive STEM curriculum for a residential naval aviation program "aboard" a virtual aircraft carrier. Set to open in 2012, the Academy offered middle and high school students a five and one-half day Aviation in Residence (AIR) program at the Pensacola Naval Air Station. In an immersive environment similar to that of Huntsville, Alabama's Space Camp and using state-of-the-art simulation technologies, students executed virtual missions based on real-world events, such as an emergency rescue of oilrig workers. Although designed as a national program, the National Flight Academy is working closely with local school districts and with the University of West Florida and Embry-Riddle Aeronautical University to ensure that students in the Northwest Florida region can avail themselves of this innovative educational opportunity.

- UWF also developed the Northwest Florida Career Pathways academic portal to serve as a comprehensive, user-friendly, and sustainable online resource for those interested in learning about employment and college programs in the region. With matching resources from the region's six WIBs and the other members of the grant-funded Northwest Florida Consortium, UWF established the portal on its campus. Each partner has administrative access to the system to update its material, spreading the website's maintenance costs across the partners.

- The University of Florida's Research and Engineering Education Facility (REEF) created a graduate program at Eglin Air Force Base that offered certificates in aerospace, engineering, and IT, and Masters' and Ph.D. degrees. REEF's specialized programs included

computational mechanics (modeling metallic materials), and computational energetics (studying the behavior of energetic, i.e., explosive, materials). About 20% of program students were active military granted release time to attend daytime classes. Many of the courses were available on DVD, which the troops took with them while on deployment. REEF incorporated into its curriculum the C-Map visual concept-mapping tool that increases student comprehension of complex, interconnected concepts.

- Sacred Heart Health System (SHHS) used its $200,000 grant to create a three-year accelerated residency program in internal medicine that expanded post-graduate medical training and aimed to retain program graduates in the region. SHHS also supplemented initiative funds with state and private monies to establish a scholarship program for medical students from the region who committed to training and practicing in the region, and created an incentive program that included forgiveness of student loans for graduate residents committed to medical practice in Northwest Florida.

### *Sustainability*

Even before receiving the initiative grant, the FGNW strategic plan emphasized regionalism and integration of the region's economic development, workforce development, and educational systems. FGNW used the grant to incorporate these principles into its ongoing operations so that the organization could maintain all initiative activities once the grant ended. In addition to making sustainability plans for grant activities overall, FGNW emphasized to its sub-grantees that they were receiving seed money only, and required all recipients of the initiative's training and education sub-grants to plan and implement strategies for long-term program sustainability. From the beginning, a primary question for many on the Governance Council was: "What will we do when there is no more grant money?"

Numerous initiative stakeholders noted their belief that regional collaboration was critical to sustainability, and that the grant's partnerships provided a solid platform for such collaboration in the future: "They've gotten into the habit of collaborating, and there's no going back, they won't climb back in their silos." In addition to "nurturing" these partnerships, plans to sustain the initiative's effort included conducting further analysis of the projected skills gaps between the available workforce and the skill requirements of the target industries; developing education and workforce training programs designed to close these gaps; and identifying partners to assist––both programmatically and financially—in providing training. Initiative staff recognized that effective use of region-specific data was a crucial element of sustainability, and contracted for the creation of easily understandable research presentations and outreach materials that initiative partners could use with a variety of audiences. For example, in addition to the initiative funding development and expansion of the CHOICE Career Academies, the State Legislature used the region's labor force analyses in its 2009 mandate that each school district in the state produce a five-year strategic plan for implementing the Academy model.

## Challenges

### *Regional Economy*

As in the rest of the country, Florida's public workforce system was under stress due to slow economic growth and a weak economy overall. As FGNW and its partner organizations continued to struggle to attract new companies and investments to the region, the local WIBs

focused on helping people find jobs in whatever way they can, regardless of whether partners could invest in training people over the long-term for high skill, higher paying jobs.

The region's economy sustained a severe blow with the Deepwater Horizon oil spill in April 2010, which wreaked havoc on the environment and wiped out jobs and businesses in tourism and fishing. The seven counties with coastlines affected by the spill came together as a region in order to address the urgent need for both economic recovery and environmental remediation. Their efforts resulted in a number of economic development initiatives, among them, a $1 million award to FGNW from the U.S. Department of Commerce's Economic Development Administration (EDA) to help the region implement a strategic business outreach program to strengthen the local economy.[8] The initiative's partner organizations played an important role in regional economic recovery efforts, assessing economic development needs, facilitating recovery services, and continuing to create jobs and economic opportunities across the region.[9]

**Figure A-11**

**Northwest Florida Region**



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[8] In April 2011, BP awarded a $30 million grant to the Northwest Florida Tourism Council (NWFTC), a not-for-profit 501(c) 6 organization made up of the tourism development councils (TDCs) of the seven affected counties, to reinvigorate Northwest Florida's tourism industry following the Deepwater Horizon oil spill; this was the third grant BP provided to the Northwest Florida region, the second one awarded to NWFTC.

[9] The New Florida Initiative, launched in 2010 as a partnership of Florida's Governor, the Legislature, and the State University System of Florida, has the ambitious goal of creating a new Florida economy that based on knowledge and innovation. The University of West Florida, The University of Florida, The University of North Florida, Florida State University, and Florida A&M University created a consortium charged with transforming Florida's economy into a sustainable, globally competitive, innovation economy built on high-growth, high-wage jobs in STEM fields. The Consortium's initial efforts focused on the seven counties in Northwest Florida most affected by the oil spill.

**Figure A-12**
**Demographic and Other Details for Northwest Florida Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,349,082 |
| **Population Density** | 116.9 |
| **Per Capita Income[2]** | $28,103 |
| **Population Age** | |
| 15-24 | 15% |
| 25-34 | 13% |
| 35-44 | 13% |
| 45-54 | 14% |
| 55-64 | 12% |
| **Poverty Level[3]** | 14.5% |
| **Unemployment Rate[4]** | 8.4% |
| **Labor Force[4]** | 681,691 |
| **Race/ Ethnicity** | |
| African-American | 20% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.8% |
| Latino/ Hispanic | 4% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 76% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 82% |
| Some College or AA Degree | 31% |
| Post-Secondary Degree | 23% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 9 |
| Four Year Colleges | 7 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $30.14 |
| SBIR/STTR $ per capita[7] | $2.64 |
| FY 2009 Patent applications per 100,000 population[8] | 15.5 |
| **New Business Starts in 2008 per 10,000 population[9]** | 44.6 |

[1]  Source except where noted:   US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2]  Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3]  Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010
 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard@census.gov&filename=ed_home.hrml#

[4]  Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table launcntycur14.xls

[5]  Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6]  Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7]  Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8]  Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9]  Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 5. North Central Indiana (NCI) Project Profile

## Introduction

The two driving factors behind the North Central Indiana (NCI) grant were a decline in large manufacturing firms and suppliers, and the low educational attainment of an aging workforce. With a focus on advanced manufacturing, advanced materials, agribusiness, and food processing industries, NCI sought to develop nationally and internationally renowned and innovative initiatives that could be replicated across the region and the state. The initiatives goals were:

1. Building post-secondary education opportunities to support a region dedicated to lifelong learning;

2. Strengthening Entrepreneurship and Innovation Networks in the region;

3. Developing Business Clusters in health care, energy efficiency, advanced materials, agribusiness supply chains, nanotechnology, and green workforce certification;

4. Strengthening habits of Civic Collaboration, including building networks, developing communities of practice, and hosting regional forums; and

5. Investing in innovative partnerships through a $5 million Opportunity Fund.

Purdue University's Center for Regional Development (PCRD) managed both the grant's finances and implementation. The Policy Advisory Team, made up of executives from the regional partners, oversaw the grant's implementation. The Core Team was the tactical group charged with managing the initiative (see Figure A13). It consisted of manager-level staff from the region's partners. NCI also convened an advisory panel with members from the region's local economic development organizations (LEDOs) to encourage their collaboration in grant activities. Other key partners included Tecumseh Area Partnership (the local workforce board for the region), Indiana University–Kokomo, Ivy Tech (the statewide community college system), and the Small Business Development Centers in Lafayette and Kokomo. Statewide partners included the Indiana Office of the Governor and the Indiana Department of Workforce Development (DWD). With only two full-time positions funded through the grant, NCI kept its overhead low and was never dependent on a large internal staff or infrastructure.

## Key Issues

### *Influence/Interaction with the Workforce System*

At the time of the grant award, the NCI region consisted of two local workforce areas, one centered on the West Lafayette/Lafayette metro area, and one centered in Kokomo. Based on the Governor's Office research about economic conditions, labor markets, and commuting patterns, in July 2006 Indiana's DWD combined these two local workforce areas into a new State Workforce Region 4. While the grant did not cause the consolidation of the two local boards, respondents noted that the initiative accelerated the process of integrating the two areas.

With grant support, the Tecumseh Area Partnership (TAP) firmly established the REACH (Regional Employment and Assessment Centers for Hiring) model in the region. REACH

**Figure A-13**
**NCI Partner Map**
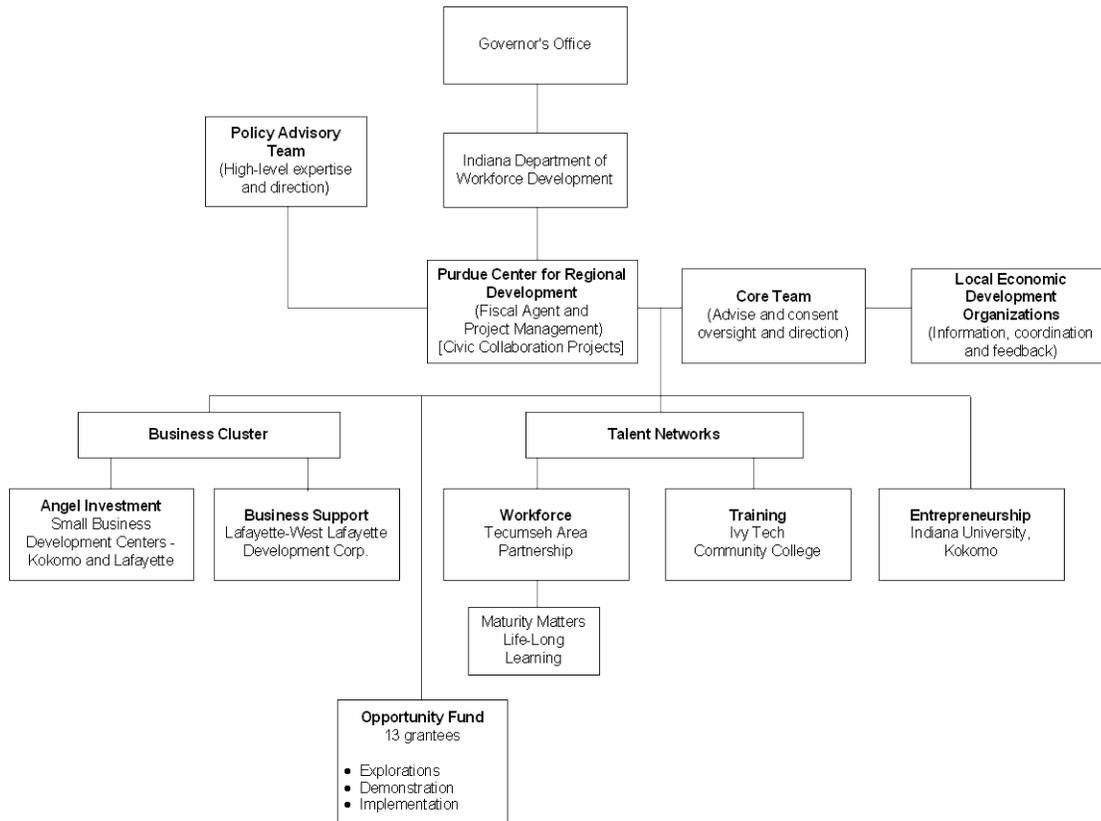


Information current as of the evaluation visit,10/09.

Centers provided a wide range of "back-office" human resource services to employers. NCI also funded the development of Maturity Matters to promote hiring older workers for the regions' high-growth, high-demand occupations. During the grant's final year, TAP received a $1 million Aging Worker Initiative grant to continue the work they began under the WIRED grant.

### *Partnering with Purdue*

During the first evaluation visit to the NCI region, respondents revealed a rift between Purdue University and the initiative's other partners. With an operating budget of $1.7 million per year, enrollment of just under 40,000 students, and over 18,000 employees, Purdue is the second largest employer in the state. Some stakeholders in the region viewed Purdue as the "800-pound gorilla," and separate from the rest of the region, as reflected by the comment that WIRED was just "another government grant to Purdue to do Purdue projects." Several respondents said that such attitudes slowed the early implementation process of regional initiatives.

By the end of the grant, however, many respondents reported that Purdue's reputation in the region had shifted. While Purdue has always been considered a leading institution nationally and internationally, WIRED introduced Purdue to rural Indiana and to the state government as a valued regional asset. While some individuals still privately admitted to biases against the university, they also readily admitted that Purdue was an effective regional partner.

### *Building Civic Networks*

One of NCI's transformative strategies was to build community networks that fostered collaboration across jurisdictional boundaries by quickly identifying initiatives on which to work together. NCI staff referred to this approach as "strategic doing." NCI convened quarterly regional forums on topics such as clean energy and economic development to bring people together to discuss specific ideas, and to establish familiarity and trust. This served as the basis for further interagency projects to boost the region's economy.

### *Sustainability*

Several aspects of the initiative's design contributed to the sustainability of grant activities. First, NCI required that sub-grant applicants include in their program designs sustainable funding mechanisms, such as charging fees for services. Second, the initiative invested in new curricula, instructional materials, training equipment, and other education resources. Stakeholders adopted these products and folded them into existing programs or services. As they did so, they took over responsibility for future staff and operating costs. Third, initiative leaders planned for some grant activities to be disseminated beyond the region and sustained through a combination of state or federal grants and user fees. The following strategies were replicated statewide:

- Purdue's Technical Assistance Programs in health care cost reduction, energy efficiency, and small business revenue growth;

- Green Manufacturing certification;

- e-BIN, the network system in Purdue's extension offices that gives Indiana's entrepreneurs access to the Krannet Business Library at Purdue;

- Classroom Business Enterprise teacher development curricula;

- Entrepreneurship instruction at Indiana University-Kokomo;

- A technical assistance program using nano-tech coating for machine tools that increases tool life and reduces waste costs (developed by Purdue engineers and taught in the Ivy Tech Community College system);

- The Maturity Matters aging workforce initiative led by Tecumseh Area Partnership; and

- "Strategic Doing" labs and workshops pioneered by PCRD.

In contrast to the sustainability of NCI WIRED activities, the initiative's institutional sustainability seemed less certain in the closing months of the grant. Nonetheless, several partner agencies planned to assume the initiative's "convenor" role with various constituencies. For example, the Regional Leadership Institute, created with WIRED funding, re-branded itself as the Hoosier Heartland Alliance and sought funding to sustain itself as a semi-independent organization for convening joint initiatives. Respondents doubted that the Alliance could replace the scope and scale of NCI WIRED, however. As a result of the grant, the region's LEDOs cooperated and planned to create a regional Comprehensive Employment Development Strategy (CEDS) to obtain funding from the Federal Economic Development Administration. Purdue remained a powerful convening organization, particularly for industry and technology-focused efforts; its future projects will not necessarily be focused on the 14-county region, however.

# Challenges

## *Regional Identity*

Prior to award of the grant, the 14 counties in the new workforce region were never considered as an integrated regional unit, and the county-based local economic development organizations (LEDOs) competed with each other. Through their participation in NCI's advisory committee, however, the region's LEDOs networked, exchanged ideas, and collaborated. Building on this experience, they subsequently shared advice and assistance, and began pursuing joint endeavors. Several local projects – such as a wind farm in Howard County, a business park in Miami County, and a job fair in Tippecanoe County – benefited from this regional integration. The LEDOs for Lafayette and Kokomo also used grant funds to respond to major layoffs at Delphi manufacturing in a coordinated way. Greater Lafayette Commerce held a job fair for the dislocated workers, while the Kokomo/Howard County Development Corporation started a business incubator called "skunk works" to encourage some of the laid off engineers to remain in the area. While some respondents felt that the region continued to operate in a divided way (e.g., urban versus rural, east versus west, Purdue versus other initiative partners), those differences were no longer a barrier to communication and collaboration by the end of the grant period.

## *The Economy*

The economic downturn remained a challenge for the region. Economic uncertainty inhibited some businesses from investing in employee training or expansion. Many workers did not immediately take advantage of the initiative's training opportunities; they thought they could "wait out" the recession, expecting a recall from the companies that had layoffs. Over time, as the recalls did not come, enrollment in training programs gradually increased.

## *Grant Spending Restrictions*

In 2009, DOL/ETA staff informed the WIRED regions of the existing policy that required grantees to obtain Department approval for equipment purchases of greater than $5,000 prior to making the acquisition. Coupled with Purdue's delays in processing approval requests, the resulting delays interfered with the implementation of some of Ivy Tech's alternative energy programs. The restriction also limited partnerships with alternative energy firms that supported Ivy Tech's program and wanted to employ its graduates.

# Successes

## *Technology Transfer*

The NCI initiative implemented several technology transfer projects as Business Cluster strategies. These programs were well received by the business community.

- Energy Efficiency Implementation Innovation – This program trained workers from 24 companies throughout the region. The program awarded Energy Efficiency Practitioner certification to successful participants that is portable across regional manufacturers;

- Healthcare Cost Control – Helped small- and medium-sized manufacturing companies train personnel to reduce and contain health care costs;

- Supply Chain Gap Analysis for Agribusiness – Provided technical assistance and enterprise-wide training in global supply chain management to 14 companies (one firm from each county in the region);

- Nanotechnology Transfer – Trained employees of tool-and-die shops and other firms that do metal cutting about innovative nanostructured coatings for cutting tools that save costs by enhancing tool life and reducing the use of hazardous lubricants and material waste.

### *Improved Institutional Capacity in the Region*

The region's higher educational institutions – Purdue, Ivy Tech, and Indiana University-Kokomo – each benefited from the NCI initiative. Purdue's experience working with regional workforce and economic development helped it compete more effectively for Recovery Act (ARRA) grant funds. Ivy Tech increased its training capacity via NCI-funded curricula and equipment. Moreover, Ivy Tech impressed the business community with its ability to create workforce programs as fast as the firms demanded them. Before the grant, Indiana University-Kokomo was considered an "odd duck" in the region; its community mission was not as evident as that of a land grant university like Purdue or that of a community college like Ivy Tech.  Through its management of the NCI-funded Regional Leadership Institute program, however, Indiana University–Kokomo now has a prominent role in maintaining the civic fabric of the region.

The grant also increased the capacity of the region's K-12 schools. New Tech High, NCI's flagship educational program, proved that intensive, wall-to-wall STEM instruction could be implemented in a small rural school. Project Lead the Way, which was exempted from categorical funding limitations, operates in more Indiana schools than ever before. Finally, NCI's investment in training teachers in economic and entrepreneurship instruction substantially increased the "teaching horsepower" of the region and the state.

**Figure A.14
NCI Region**

**Figure A-15**
**Demographic and Other Details for NCI Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 541,803 |
| **Population Density** | 96.6 |
| **Per Capita Income[2]** | $31,833 |
| **Population Age** | |
| 15-24 | 16% |
| 25-34 | 14% |
| 35-44 | 13% |
| 45-54 | 14% |
| 55-64 | 11% |
| **Poverty Level[3]** | 9.9% |
| **Unemployment Rate[4]** | 10.0% |
| **Total Labor Force[4]** | 261,480 |
| **Race/ Ethnicity** | |
| African-American | 3% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.4% |
| Latino/ Hispanic | 5% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 94% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 84% |
| Some College or AA Degree | 24% |
| Post-Secondary Degree | 18% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 3 |
| Four Year Colleges | 4 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $165.96 |
| SBIR/STTR $ per capita[7] | $12.61 |
| FY 2009 Patent applications per 100,000 population[8] | 74.8 |
| **New Business Starts in 2008 per 10,000 population[9]** | 18.3 |

[1]  Source except where noted:   US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2]  Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3]  Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4]  Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5]  Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6]  Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7]  Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8]  Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9]          Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 6. Kansas City Project Profile

## Introduction

The goal of the Kansas City initiative was to unify workforce, education, and economic development systems across the metropolitan area (including both Kansas and Missouri) to strengthen existing partnerships in three targeted industries – advanced manufacturing, biotechnology, and health care.  This union aimed to use previously segregated resources to educate and train workers, and to create and sustain skilled job opportunities for those workers.  The vision was that the initiative would evolve beyond a marketing strategy into "thinking, acting, working, and growing as One KC" within the bi-state region.

The Missouri Division of Workforce Development (DWD) was the WIRED grantee. The Mid-America Regional Council (MARC), the federally-designated regional Metropolitan Planning Organization,[10] functioned as the fiscal agent for One KC and chose the initiative's project director.  Two committees provided guidance to project implementers.  The Steering Committee consisted of all Kansas City partners, including grantees, and oversaw implementation of the initiative's projects. It met monthly so that partners who provided grant services could report on their progress.  The Executive Committee was a subset of Steering Committee members; it included representatives from Kansas and Missouri public workforce development systems, educational programs, and from the three targeted industry sectors.  The Executive Committee acted as the initiative's board of directors and met to discuss and consider important or sensitive issues related to the grant (see Figure A-16).

## Key Issues

### *Extension Request*

In October 2009, the initiative projected that $3.5 million would be unspent at the end of the grant, in part because the project lacked sufficient staff to spend its budget as scheduled. The grantee, Missouri DWD, applied to ETA for a no-cost extension for the Kansas City grant, and the Department granted a six-month extension for the sole purpose of continuing existing activities in the public workforce system (for which $1 million had been allocated and was unspent).  By the end of the extension period, the region had used all but $20,000 of the funds and served an additional 250 people, mostly through Just-in-Time and on-demand training in health care and advanced manufacturing. The health care training targeted the working poor in health care – low-skilled workers in long-term care and public health agencies.  The advanced manufacturing training funded Six Sigma certifications.

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[10] Metropolitan Planning Organizations plan, program, and coordinate federal highway and transit funds in urbanized areas, and thus offer an organizational infrastructure useful for developing a regional identity.

**Figure A-16**
**Kansas City Partner Map**
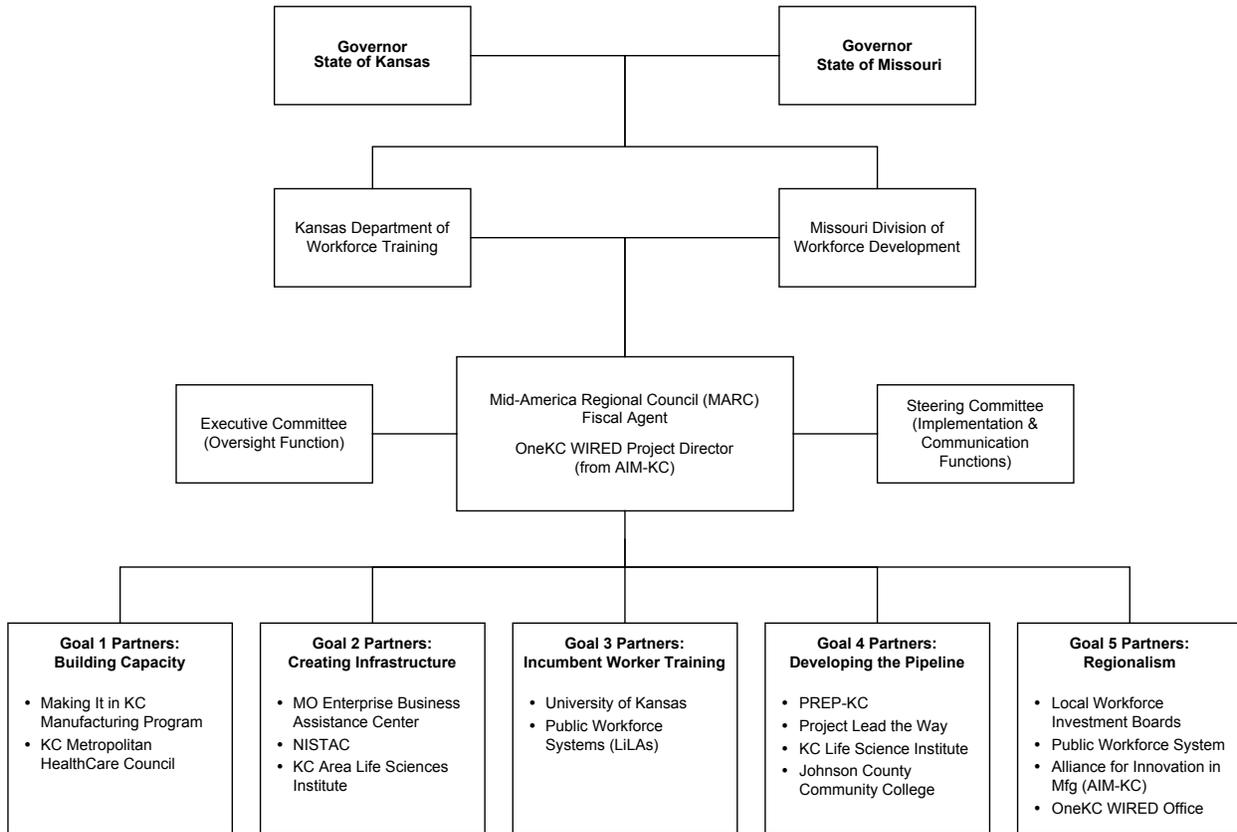


Information current as of the evaluation visit,10/09.

### Readiness for Collaboration

The Alliance for Innovation in Manufacturing-Kansas City (AIM-KC) provided Kansas City with an already established network of collaborative partners and a project manager. The fact that workforce development services are in the same state agency as economic development in both Kansas and Missouri further facilitated collaboration.

### Interaction/Influence on the Workforce System

Respondents noted that the grant differed from some previous initiatives in that it did not have the public workforce system as its nexus. Consequently, respondents said, some elements of the public workforce system saw WIRED as a threat and were reluctant or even opposed to participating in the initiative. Respondents noted that the workforce system's primary clients come from the Workforce Investment Act (WIA) eligible population, and that "WIA is essentially a supply side program; WIRED is demand-driven." Another respondent remarked that, "It's not clear whether WIA is a social program or an economic development program."

However, attitudes about workforce investment's role changed over the course of the grant. WIRED partners outside the public workforce system, such as the Metropolitan Hospital Association and Kansas City Area Life Sciences Institute, as well as other regional stakeholders

such as MARC and the Kansas City Area Development Council, report they now appreciate the value of <u>all</u> of the public workforce system providers in the region. Within the workforce system, some operators diversified their job seeker base beyond WIA-eligible customers and planned to continue serving the expanded client base without WIRED funds. Still, while cooperation, referrals, and protocols have improved, the vision of a "common customer experience" across the state line for employers and jobseekers was not fully realized.

### *Sustainability*

The Kansas City executive and steering committees held a joint sustainability meeting in October 2009. The committees reviewed all WIRED-funded activities and classified projects into three categories: 1) sustainable; 2) sustainable with help; and 3) not sustainable beyond the original grant completion date of January 31, 2010. The committees classified all WIRED health care initiatives as "sustainable." Education initiatives − such as Project Lead the Way or the KC Science Initiative (a professional development program for teachers − were classified as "sustainable" or "sustainable with help." A prominent program making the "not-sustainable" list was *Making It In KC*, the advanced manufacturing training program led by the Alliance for Innovation in Kansas City (AIM/KC), the precursor organization of Kansas City WIRED.

## Challenges

### *Oversight and Management by the Executive Committee*

Several respondents perceived management of the grant as lacking supervision and strategic guidance. Interviewees, including executive committee members, said part of the problem was that the structure of the executive committee was flawed from the beginning. For example, committee members were sub-grantee managers who, some complained, were too engrossed in programmatic details to adequately manage the initiative as a whole. Interviewees also pointed out that many of the executive committee members had "day jobs" or obligations other than WIRED and were not able to devote the time necessary to provide close oversight and set strategic direction. Several interviewees suggested that the initiative should have been organized with an oversight body of executives focused on policy and strategic vision, an operational body charged with day-to-day management, and a partner/stakeholder body for networking and for sharing programmatic information and resources.

### *Engagement and Management by Workforce System at the State Level*

At the start of the grant, the Missouri Director of Workforce Development and the Kansas Director of Workforce Services were active leaders of the executive committee and took on joint responsibility for strategic guidance and fiscal oversight. However, both directors left their workforce organizations during the grant and no one at the state level took up the roles of champion, visionary, and watchdog. Several respondents argued that the loss of these leaders was the reason behind the perception that the grant was not adequately supervised or guided.

### *Interstate Barriers to Regionalism*

Site visit respondents explained that there are many challenges to creating a regional identity that crosses state lines; for example, each state has a different list of qualified training providers from which customers with ITA may select. Turf politics interfere as well: legislators still think locally and strive to avoid the appearance of resources going to benefit the other state.

# Successes

### *Mid America Regional Council*

MARC led the region in a recent and successful grant application to the Wal-Mart Foundation to develop a regional database of workforce information and labor market data. While MARC staff doesn't seek for the organization to be the leader of workforce development in the region, they do see MAEC as a convener and facilitator of those Kansas City partners still interested and willing to address talent development on a regional basis. MARC is a well-respected organization with regional reach and influence. Many respondents felt that the executive director of MARC is an honest broker, a thoughtful policy maker and visionary, and an effective leader.

### *Health Care Sector Initiatives*

Initially, WIRED supported four health care initiatives in the Kansas City region: a Clinical Faculty Academy; a Nurse Preceptor Initiative; a Nurse Re-entry/RN Refresher Academy; and a Human Patient Simulator for nurse training. All of these initiatives concluded their WIRED funded activities, exceeded their participation goals, and were sustained without WIRED dollars. When One KC recaptured and reallocated some unexpended funds last year, it launched two additional health care initiatives, Financial Assistance for New Clinical Faculty and an Allied Health Academy. Both initiatives were completed by the end of the original grant period.

### *Project Lead the Way Implementation*

There are 42 high schools and 14 middle schools representing 19 school districts offering Project Lead the Way (PLTW) courses. Additionally, six high schools now offer the new PLTW Bio-Medical Program. Nearly 7,000 students enrolled in Project Lead the Way courses in the region. Through the grant, area Project Lead the Way students had access to 4,800 events including career speakers, workplace tours, career fairs, and job shadowing.

**Figure A-17**
**Kansas City Region**

**Figure A-18**
**Demographic and Other Details for Kansas City Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 2,427,683 |
| **Population Density** | 260.6 |
| **Per Capita Income[2]** | $33,735 |
| **Population Age** | |
| 15-24 | 14% |
| 25-34 | 14% |
| 35-44 | 14% |
| 45-54 | 15% |
| 55-64 | 11% |
| **Poverty Level[3]** | 9.2% |
| **Unemployment Rate[4]** | 8.5% |
| **Labor Force[4]** | 1,286,265 |
| **Race/ Ethnicity** | |
| African-American | 11% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.7% |
| Latino/ Hispanic | 7% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 84% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 90% |
| Some College or AA Degree | 29% |
| Post-Secondary Degree | 32% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 9 |
| Four Year Colleges | 29 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $55.04 |
| SBIR/STTR $ per capita[7] | $1.21 |
| FY 2009 Patent applications per 100,000 population[8] | 37.4 |
| **New Business Starts in 2008 per 10,000 population[9]** | 21.6 |

[1]  Source except where noted:  US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2]  Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3]  Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4]  Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5]  Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6]  Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7]  Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8]  Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9]  Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 7. Maine's North Star Alliance Initiative Project Profile

## Introduction

The goal of Maine's North Star Alliance Initiative (NSAI) was to integrate education, workforce, and economic development systems in order to create and sustain skilled job opportunities in the region's stronghold industries: boat-building; marine services and repair; and advanced composites. NSAI identified four "Pillars of Economic Development" and convened committees to develop activities under each Pillar:

- **Workforce Development** – Developed and delivered applied knowledge and skills to both incumbent and new workers, using faculty jointly sponsored by industry and education. Initiated and facilitated a working collaboration between industry and Maine public school teachers in order to inform and instruct the educational system on the current and future skill sets required of the NSAI cluster.

- **Research and Development (R&D)** – Identified and prioritized new industry-based research initiatives, leveraging existing R&D resources with the goal of increasing Maine's industry-focused R&D workforce. Established a training venue for both students and industry representatives to advance working knowledge of related technology advancement.

- **Market and Business Development** – Worked to expand new market development initiatives within the boat-building and composites industries, including cohesive branding.

- **Capitalization and Infrastructure Development** – Focused on providing capital and management assistance for business and industry growth and for facility improvement and expansion in order to provide the necessary backdrop for workforce development.

The Governor's Office was the grantee and employed the Program Manager. The Maine Department of Labor (MDOL) was the fiscal agent. The Department of Economic and Community Development (DECD) was an equal partner in the initiative, responsible for implementing Market and Business Development and the Capitalization and Infrastructure strategies (see Figure A-19). DECD contracted out services outlined in Maine's grant application but contributed staff time as an in-kind contribution to the initiative. MDOL contracted with the University of Maine for management and activities under the Research and Development Pillar and with various other organizations for training under the Workforce Development Pillar.

Industry participation was integral to NSAI's structure and functioning. Representatives from three major industry associations – Maine Marine Trades Association, Maine Built Boats, and Maine Composites Alliance – and a range of businesses participated in the Pillar Committees and the Executive Committee. All of these committees made decisions by consensus.

## Key Issues

### *Worker Training and Talent Development*

NSAI partnered with the Maine Marine Trades Association (MMTA) to start the Marine Industry Owner Operator College program. This program used the agricultural cooperative extension

**Figure A-19**
**Maine's North Star Initiative Partner Map**
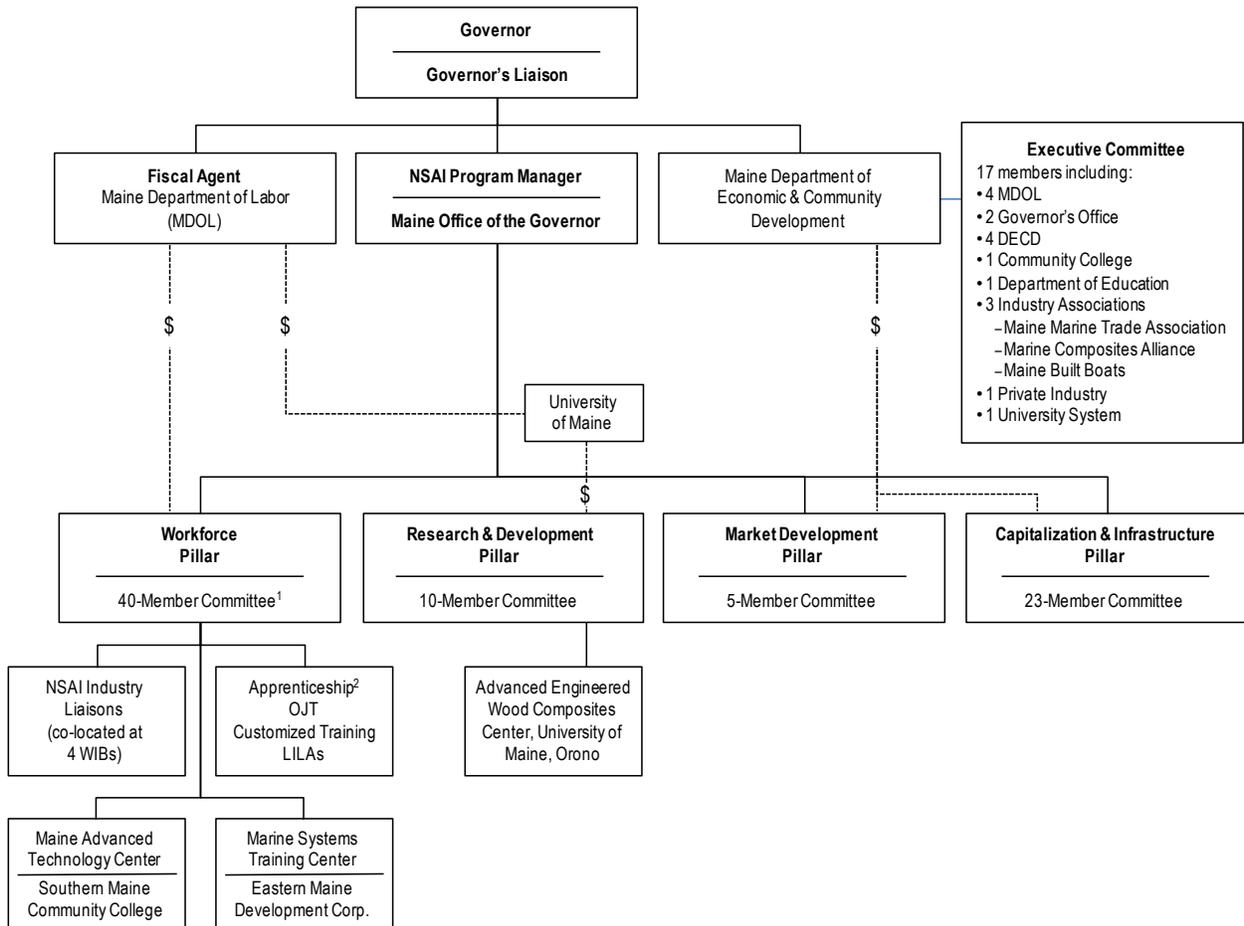


[1] Membership in Pillar Committees includes industry representatives. Beyond that, membership varies depending upon the Pillar, but may include representatives from MDOL, DECD, local workforce boards, local economic development agencies, local school districts, banks, and foundations.

[2] NSAI has contracted with a number of employers and training providers to train workers using any one of these mechanisms.

Information current as of the evaluation visit,11/09.

model to provide access to local expertise in specific topics at centrally located venues. The goal was to provide and promote ongoing, continuing education to NSAI cluster businesspersons, to enhance their management skill levels, and to ensure the long-term health of their firms and the industry. The College's first set of courses focused on upper level management. The initiative expanded the training to include classes for mid-level managers and supervisors.

NSAI worked with the industry and the state to create the new MMTA Maine Apprenticeship Program. While most apprenticeships require participants to complete a community college credential to achieve journeyperson status, the MMTA apprenticeship instead required attainment of an industry-recognized certificate. Trainees can apprentice in six occupations – marine certified composites technician, marine joiner, marine engine service technician, marine electrician, marine tradesperson, and boat builder-wood.

NASI also worked with businesses to train workers to respond to changes in the Clean Air Act. The Act requires businesses in NSAI's target industries to reduce volatile organic compound emissions. Companies must adopt sophisticated closed-mold manufacturing processes, increasing the need for training of new and existing employees. Another need is for job applicants with sufficient math skills to perform precise measurements. The initiative adopted several strategies to address these needs:

- Identifying the need for workforce development through NSAI's Business Visitation Program survey of boat-building and composites companies. The initiative used the survey results to inform and tailor existing training programs.  Both Eastern Maine and Southern Maine Community Colleges restructured several of their courses and developed new programs and curricula (such as a Marine Trades Certificate) in response to survey findings;

- Offering supplemental funding for apprenticeships and On the Job training  programs, and subsidizing employer contributions to Lifelong Learning Accounts (LiLAs);

- Supporting development of technical curricula in higher education.  The University of Maine's Advanced Engineering Wood Composites (AEWC) Center trains students in research and development methods required by the boat-building and composites industry and developed community college curriculum in quality assurance/control for composites. The University's Engineering School also discussed the possibility of a three-week "May term" program focused on boat-building and composite design for engineering majors, in cooperation with the Landing School.  Additionally, the Maine Advanced Technology Center provided training in advanced composites.

- Organizing "T3" (**T**rain **T**he **T**rainers), a program to certify incumbent workers as trainers so that training could occur  on-site at their companies to minimize disruption of workers' lives and companies' production schedules.

### *Regional Identity*

The geographic range of Maine's major boat builder and composite businesses, covering parts of all four of the state's local workforce investment areas, define the boundaries of the region.  The initiative functioned more like a sector initiative than a regional initiative since few, if any, activities focused on developing a regional (vs. industry) identity.  However, NSAI staff did maintain a relationship with the agency charged with creating an economic redevelopment strategy and regional transformation plan for the Brunswick Naval Air Station closure in 2011.

### *Sustainability*

At the time of the evaluation team's third site visit, the NSAI program manager was still working on a proposed structure for the initiative after the grant ended, and looking at ways to keep the three main industry associations—Maine Built Boats, Maine Marine Trades Association and Maine Composite Alliance—working together. Moving forward, staff of these organizations will take over the responsibilities of NSAI's industry liaisons, who worked for each local WIB's one-stop operator, and association members will look to them for connections to resources and to each other.  The initiative had its final Executive Committee meeting in January 2011.  At the time of the site visit, the NSAI program manager was preparing a universal memorandum of understanding for executive committee members on how to keep NSAI-initiated work alive after the grant funds expire.  Additionally, MMTA assumed full management of the Marine Systems

Training Center, which ensures continuing industry involvement in –and use of– the Center. The Center's restructured board of directors mirrors this commitment and involvement.

Several significant sources of funding were available to sustain the activities launched under NSAI. First, the Governor's Training Initiative provides financial assistance for companies to train their workforce. Funding was also available through the Targeted Training Initiative, which provided struggling companies access to ARRA funds for training and retraining. The Marine Systems Training Center was successful in fundraising private donations, including a $5,000 pledge from a major repair yard that used the Center's training facility. Finally, the state received an ARRA Labor Market Information grant to define and study the green energy industry, which has significant overlap with the initiative's target industries and stakeholders.

## Challenges

### *ETA Fiscal Audit*

ETA issued its guidance on the use of grant funds after agency staff had already approved NSAI's Implementation Plan, which included establishing a revolving loan fund for small boat builders. ETA disallowed these costs and some partners had to pay out of pocket for costs that the initiative was supposed to have covered. Once initiative staff and partners understood the restrictions on using H-1B funds – reinforced by ETA's 2008 audit of the grant – NSAI reallocated funds from the Capitalization and Marketing Pillars' activities to training activities. In addition to the significant financial burden this placed on some partners, the move severely injured trust that the initiative had started to develop with these individuals, industry representatives, and the state Department of Commerce.

### *Impact of Economic Downturn*

Ironically, because most of NSAI's training took place either in the workplace or with employer support, the economic downturn resulted in a decline in training demand after the initiative moved additional funds into this program component. As the end of the grant approached, NSAI had to find uses for its surplus funds to ensure that the grant was fully spent.
Respondents also noted that economic recessions tend to hit Maine later – but linger longer – than in other states, and the luxury boat-building industry was particularly affected. In response to the decreased demand for luxury boats, companies shifted, where possible, from recreational boatbuilding to commercial boat-building.

### *Industry Participation*

Many companies in the target industries are small shipyards with fewer than 25 employees; these businesses generally lack the resources to plan for, and pay for, employee training. While NSAI engaged a number of the region's boat builders and composites businesses, participation by these industry partners is "deep" (those who are involved are very involved) but not "wide" (a relatively small number participate). One NSAI industry liaison noted, "It's very hard to get in the door of these companies, but those who tried [grant-funded training] used it again and again." An industry respondent also noted that while NSAI has engaged the business community in its work, active participants in initiative management and decision-making tended to come from industry associations rather than individual companies. As noted above, business owners were frustrated that the Capitalization Pillar's activities were reduced because many believed that the

loan fund was the initiative's value-added component. One respondent explained, "You can learn about infusion all you want, but then you need to buy equipment." The shift from marketing and capitalization to training, while necessary to conform to the grant's funding restrictions, thus reduced industry buy-in at the individual company level.

### Diversification

While opportunities exist for companies in the target industries to diversify their markets by moving into commercial boat-building, defense contracts, or alternative energy, many companies are resistant to change because of the region's long tradition in recreational boat-building. As an industry association representative explained, "Some smaller companies don't want to be anything but recreational boat builders."

## Successes

### Investment in Training Facilities

One of the initiative's major successes was NSAI's "bricks-and-mortar" investment in two training facilities: the Marine Systems Training Center, created by the WIRED grant; and the Boat School, which had been struggling to stay open at a community college before being bought by and relocated to Husson University. The Center served 250 students from 60 Maine companies in its first year. The Boat School improved its curricula received accreditation from the American Boat and Yacht Council, which is a strong selling point for potential students. The School recently rolled out a 12-week Master Composite Repair and Construction training program to fast-track students into composite careers.

### Alternative Energy Activities

Many WIRED partners are leveraging their experience with the grant to take advantage of new opportunities in the alternative energy industry, which draws on many of the same technical and skill elements as the region's target industries. In January 2010, NSAI and its partners – AEWC, Maine Composites Alliance, and Maine Technology Institute –hosted a free three-day seminar series on wind power opportunities for composites companies in the state. Topics on this emerging market included design, manufacturing, installation, maintenance, and repair of blade and turbine components. Senior AEWC staff members are on the governor's Wind Energy Task Force and the Center received $8 million in ARRA funding to convene the DeepCWind Consortium, bringing together 30 institutions and companies focused on all aspects of offshore wind power development. With initiative funding, AEWC also sponsored a wind blade design challenge for high school students. Finally, NSAI partners created the Maine Wind Industry Initiative, which aims to organize the supply chain by identifying industry training and skill needs and state assets and opportunities, and by developing a strategic plan for Maine's alternative energy industry. These developments were hailed as major progress for Maine, which is currently highly oil-dependent for home heating and in need of stable, job-creating alternative energy sources in the state.

### Outreach and Communications

NSAI launched an electronic newsletter called the "North Star News" in spring 2008. This monthly publication highlights training opportunities and special events in the boat building and composites industries, and presents stories about companies, workers, and new trainees who are

accessing the resources of NSAI. By the end of its first few months, the circulation list included 800 recipients.

The initiative partnered with Maine Built Boats to fund a one-hour documentary on the history of boat building in Maine called, "Art and Soul." The film includes onsite interviews with owners and employees speaking on the craftsmanship of Maine-built boats, the longevity of the boat building companies, and the quality and work ethic of the industry's labor force. Initiative partners plan to show the film at Maine job fairs, educator conferences, schools, and training facilities.

In October 2009, NSAI held its final, annual symposium as a commencement celebration for the initiative. Governor Baldacci was the opening speaker, and other guest speakers included experts on regional economic planning and innovation. The event attracted 88 participants and the initiative presented its final report showcasing the progress of grant-funded activities. Industry partners are also improving their communications and outreach strategies. As a NSAI industry liaison noted, many companies now have Web sites, in contrast to the start of the grant when only three companies in his county were using the Internet to promote their businesses.

### Technology Transfer

Working in collaboration with the Advanced AEWC, one of NSAI's employer partners received a $12.9 million contract from the Department of Homeland Security for the design and prototype of an anti-tamper shipping container that will detect intrusions through any one of the container's six sides. The containers are constructed from a composite material that is rated as strong as steel but is 15% lighter. The Maine Department of Transportation awarded another NSAI employer partner a $2 million contract to produce bridge girders made from composites. The developer of the technology for producing the girders came to Maine looking for business partners because of the prominence of the state's composite industry, the result of NSAI efforts.

### Growing Cohesion in the Target Industries

One of NSAI's key employer partners noted that Maine business owners are very independent and never have seen the value of collaboration in the past. Interview respondents repeatedly mentioned the extent to which NSAI has helped transform this attitude. According to one industry representative, "honesty amongst the boat-building community is really much better, and people are sharing with each other that their businesses aren't doing as well" due to the economic downturn. NSAI industry liaisons noted that business owners and workers are increasingly mingling across geographic areas. They recalled that three years previously at MMTA's annual symposium, the participants from each community kept to themselves, but this year were interacting with others from across the region.

A key turning point occurred in July 2008 when a boat building company with 87 employees suffered the total loss of its boatyard to fire. Within hours, three other boat builders opened their doors and took on the company's temporarily displaced workers and/or provided the infrastructure that allowed the company to continue work on orders already in production. Respondents noted that NSAI's efforts had turned competitors into a cohesive and resource sharing partnership that allowed the other businesses to respond quickly and supportively.

### Initiative-Connected Funds

By the end of the grant period, the region had leveraged $72.5 million for its WIRED-related activities, over half of which were from federal sources. In addition to the grants and contracts mentioned above, other notable sources of funds included: a $2 million BRAC Implementation Grant from DOL/ETA to train workers secondarily impacted by the Brunswick Naval Air Station Closure; $5 million from the Office of Naval Research to the AEWC and Hodgdon Yachts to build and field test a high-speed composite boat; and a $2 million ETA Community-Based Job Training Grant to establish the Maine Advanced Technology Center (MATC), a training facility for the composites industry. The Brunswick Economic Development Corporation also supported the MATC in the form of an in-kind contribution of the building in which to locate the facility.

### Mobilize Maine

The Mobilize Maine is a collaborative effort between the state's the Department of Economic and Community Development, the state Chamber of Commerce, Maine's largest telecommunications provider, and six regional economic development districts. Mobilize Maine aims to foster locally-driven development strategies, including asset mapping and regional forecasting. Industries will be involved in Mobilize Maine both as partners and financially with a dollar-for-dollar match from the private sector. Unveiled in April 2009, this initiative will continue to focus on regional economic development after the grant expires.

The initiative assisted Mobilize Maine on several levels. First, NSAI made available to the economic development districts the seats purchased for access to Decision Data Resources (formerly known as the WITS). Contracting with the state's Small Business Development Center, NSAI expanded the available training and communications information in Maine Business Works, a statewide database. Finally, NSAI assisted the Eastern Maine Development Corporation to create a formal written document combining the WIB's updated Economic Development Strategy and WIA Strategy.

**Figure A-20**
**Maine Region**
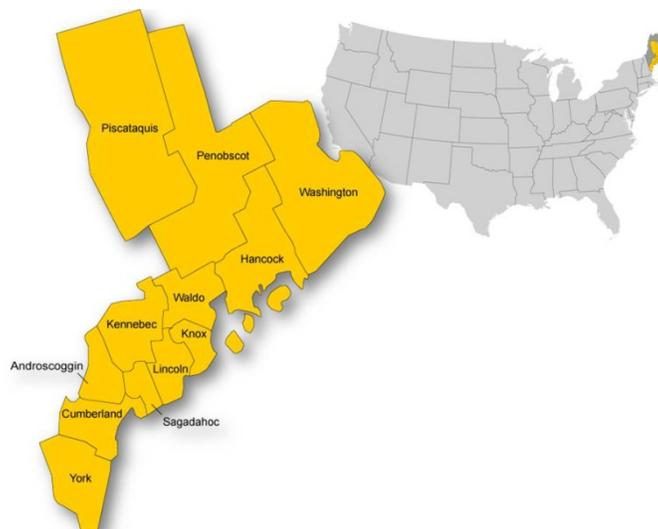
**Figure A-21**
**Demographic and Other Details for Maine Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,106,805 |
| **Population Density** | 62.7 |
| **Per Capita Income[2]** | $34,971 |
| **Population Age** | |
| 15-24 | 13% |
| 25-34 | 11% |
| 35-44 | 14% |
| 45-54 | 17% |
| 55-64 | 13% |
| **Poverty Level[3]** | 10.3% |
| **Unemployment Rate[4]** | 7.4% |
| **Labor Force[4]** | 599,616 |
| **Race/ Ethnicity** | |
| African-American | 1% |
| Asian | 1% |
| American Indian/Native Alaskan | 0.6% |
| Latino/ Hispanic | 1% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 96% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 90% |
| Some College or AA Degree | 27% |
| Post-Secondary Degree | 28% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 8 |
| Four Year Colleges | 13 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $89.09 |
| SBIR/STTR $ per capita[7] | $3.98 |
| FY 2009 Patent applications per 100,000 population[8] | 29.3 |
| **New Business Starts in 2008 per 10,000 population[9]** | 22.2 |

[1] Source except where noted: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)
[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0
[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard@census.gov&filename=ed_home.hrml#
[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls
[5] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents
[6] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009
[7] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008
[8] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009
[9] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 8. Mid-Michigan WIRED Project Profile

## Introduction

The Mid-Michigan Innovation Team (MMIT), a network of economic development, workforce development, education, foundation, and government partners, had the goal of fostering economic growth in a 13-county region that included the cities of Lansing, Flint, Saginaw, and Midland.  Michigan State University (MSU) was the fiscal agent for the grant[11] and the Prima Civitas Foundation (PCF), a nonprofit regional community and economic development organization, was the managing entity for the initiative (see Figure A-22).  The MMIT focused on five industry sectors − health care, the bio-economy, advanced manufacturing, building and construction, and entrepreneurship − and on redefining the region's relationship to its traditional industrial base, the automotive industry.  The MMIT sought to achieve the economic transformation of the region through:

- **Innovation**:  Reinventing the region's industrial base around innovation in future industries and growth in entrepreneurial firms;

- **Talent**:  Developing next-generation talent through business- and entrepreneurship-based learning opportunities for workers and students in current and emerging industries; and

- **Collaboration**:  Encouraging collaboration among the region's assets, partnerships and networks; ensuring that resources are known and used to support transformation.

According to respondents, the "big learning" as the grant proceeded was that the MMIT was not an organization, but rather, a network, for which PCF served as the hub during the years of the WIRED initiative. When the federal grant funding ended in January 2010, the MMIT entity gradually dissolved, but its mission and goals continued through the work of its partner organizations, in particular, a revitalized PCF (described below).

## Key Issues

### Partnerships

The initiative brought together academic institutions, public workforce and other government agencies, foundations, think tanks, economic development organizations, and service providers from across the 13-county region to support and promote economic growth in the region. Although each partner had a different focus related to economic development, all shared a common commitment to regional interconnections and cooperation. With MSU playing the lead fiscal role in the initiative, and additional financial and programmatic support from the Flint-based C.S. Mott Foundation, the MMIT promoted collaboration among partners that included Saginaw Valley State University (SVSU), Lansing Community College, Mott Community

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[11]  Under subcontract to the state's Department of Energy, Labor & Economic Growth (DELEG). The original grantee agency, the Department of Labor and Economic Growth (DLEG), became DELEG on December 29, 2008, combining workforce and economic development efforts in support of Michigan's new energy economy.

**Figure A-22**
**Mid-Michigan Partner Map**
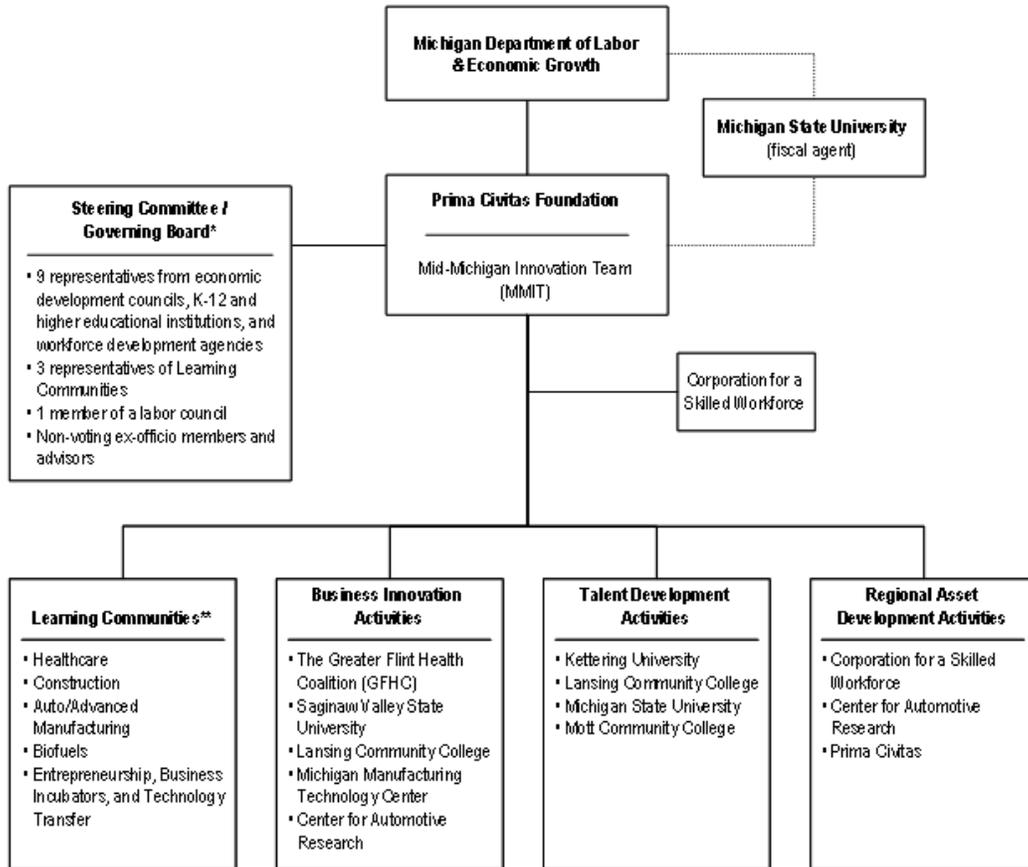


Information current as of the evaluation visit, 11/09.

College (Flint), the MichiganWorks! workforce agencies, the Greater Flint Health Coalition, Kettering University, the Michigan Manufacturing Technology Center (MMTC), the Center for Automotive Research (CAR), local economic development organizations, the Corporation for a Skilled Workforce, and the region's Intermediate School Districts (ISDs). According to many partners, the involvement of two organizations eased the way for individuals from different organizations to cross jurisdictional boundaries and work together collaboratively. These were the C.S. Mott Foundation, a regionally-anchored foundation with interests cutting across jurisdictions and siloed organizations, and MSU, with its broad responsibilities for education and economic growth across the entire state

Respondents were virtually unanimous in recognizing the value of partnerships. In a statement on the website for SVSU's Center for Business and Economic Development (CEBD), one workforce agency director affirmed this sentiment: "No one goes it alone in this time of change and challenges. Fortunately ThumbWorks! and Saginaw Valley State University have embraced this strategy and have attempted to maximize our cross-regional resources to offer development

opportunities to residents and businesses. Partnering with SVSU and other educational institutions enables everyone to move forward….together."

### Workforce Training

The initiative funded a number of workforce training initiatives, among them: programs in advanced manufacturing, nursing and health care, and building and construction at Lansing and Mott Community Colleges; retraining programs for dislocated workers through the Greater Flint Health Coalition; training in bio-economy careers through MSU; and advanced manufacturing training programs at Delta College, a partner of SVSU. The CEBD at SVSU also provided training and support for entrepreneurship and technology commercialization.

### Involvement of the Public Workforce System

MMIT succeeded in engaging all five WIBs in the region as MMIT board members, participants in initiative activities, and partners with the region's businesses, ISDs, universities, and other groups promoting economic growth in the Mid-Michigan region. Strong relationships among the initiative's partners also resulted in increased participation by these partners on the local WIBs. Partnerships recognized as effective by respondents − such as the one between the initiative and Capital Area Works! (the workforce agency for the Lansing area, which received a grant to do on-the-job training with a Lansing-based IT firm) − demonstrated the initiative's ability to establish solid relationships with the public workforce system.

## Successes

### Sustainability

The MMIT considered the sustainability of the initiative's mission and principles from the beginning, and, despite numerous challenges, strove to build structures that would ensure the continuation of regional collaboration for economic development after the grant ended. Most of the challenges had to do with the shifting fortunes of PCF, which many respondents thought was a likely management and governance platform for the initiative going forward. The MMIT Board planned for PCF to continue managing regional collaborative efforts, with the MMIT incorporated into its operations, only to see those plans put in limbo when PCF encountered challenges to its own sustainability as an organization. However, PCF survived and was able to continue integrating community and economic development efforts across a wide geographic area. In 2011, Prima Civitas launched PCF 2.0, which entailed "a major upgrade aimed at accelerating Michigan's transition to the knowledge economy" as well as geographic expansion from Mid-Michigan to the entire state. Many partners from the WIRED initiative played key roles in PCF 2.0, building on both their knowledge of how to achieve economic growth and on the networks, relationships, and experience they developed through the grant.

### Building on Success

The activities of MMIT evolved in a number of ways, each building on the successes of prior activities and enhancing not only the extent to which they promoted employment and/or entrepreneurship but also increased collaboration. For example:

- In a collaborative effort initiated by the West Michigan Strategic Alliance (Generation I region), the MMIT helped develop the National Career Readiness Certificate (NCRC), based on ACT's WorkKeys system that demonstrates an individual's mastery of core employability

skills. As part of this effort, the initiative funded the participation of over 12,000 Mid-Michigan high school seniors in a pilot NCRC initiative. The MMIT's work with WMSA and the Michigan State Legislature resulted in the enactment of SB-1107, the School Aid Bill, which made the NCRC mandatory for all high school students.

- DOL/ETA awarded PCF a multi-million dollar grant for the Mid-Michigan Partnership for Training in Healthcare (M-PaTH) Initiative to train dislocated auto industry workers in health care related occupations. The Regional Leadership Council for the second grant drew on the MMIT network and was "intentionally regional." Years 1 through 3 (July 2008 through June 2011) of the M-PaTH project focused on dislocated worker training in Flint and Genesee County, building on the WIRED-funded FEHO model (Flint Employment in Health Occupations) of the Greater Flint Health Coalition (GFHC). The second and third years of the grant also included an effort to regionalize M-PATH best practices

- The Mott Foundation funded PCF to operate the Moving Ideas to Market (MI2M) Initiative, which focused on entrepreneurship education at the K-12 and college and university levels, and development of a system and support network to accelerate the growth of early stage ideas and businesses. Many members of the MMIT Board and the WIRED partners were involved in MI2M. This initiative also supported three entrepreneurship groups that grew out of the WIRED grant's entrepreneurship Learning Communities: 1) EnGen (Empowering the Next ENtrepreneurial GENeration), which focused on post-secondary entrepreneurship education and involved the college/university partners of MSU, SVSU, Kettering, Central Michigan University, and UM-Flint; 2) IGNITE (Sparking Tomorrow's Entrepreneurs Today), which focused on K-12 entrepreneurship education; and 3) Jumpstart, a mentoring and TA network for to help early-stage start-ups develop pitches for venture capitalists.

## Challenges

### Regional Economy

The State of Michigan has particularly felt the struggling national economy. Although the state's traditional economic base of auto manufacturers and suppliers still show signs of life, "regional economic transformation" remains elusive. Nonetheless, rays of hope exist, for example the Thumb Area has very high wind energy, which shows promise for rural electrification. The Midland area has seen a growing number of industrial parks with solar, nanotechnology, and other high-tech companies in emerging fields. One company makes solar panels using polysilica; nearby Saginaw, the smallest urban area in the state, has the largest manufacturer of pure silicon in the world (Hemlock Semiconductor). This plant is also the largest electrical user in the state, more than all the automobile plants combined. Dow Chemical has 6,000 people working in Midland and has made a commitment to keeping their corporate headquarters (about 3,000 people) there, along with a premier R&D center. Midland was also the headquarters of Dow Corning; although Dow Corning moved the headquarters (about 2000 people) to Bay County, there are 1,400 Dow Corning workers still in Midland. Encouraged by the WIRED initiative, the Mid-Michigan partners have gotten a realistic sense of where the potential growth fields are.

**Figure A-23**
**Mid-Michigan Region**
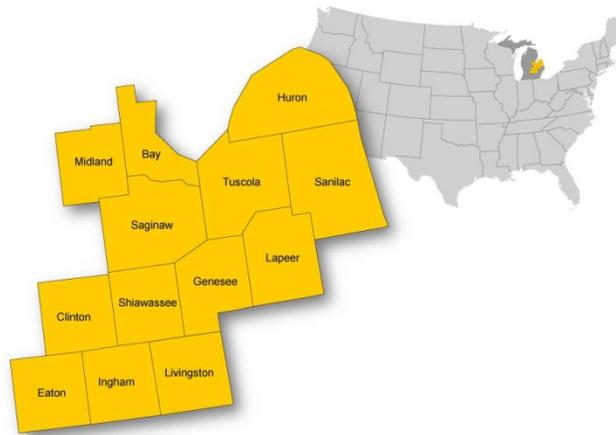
**Figure A-24**
**Demographic and Other Details for Mid-Michigan Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,750,016 |
| **Population Density** | 204.5 |
| **Per Capita Income[2]** | $34,116 |
| **Population Age** | |
| 15-24 | 15% |
| 25-34 | 12% |
| 35-44 | 13% |
| 45-54 | 15% |
| 55-64 | 12% |
| **Poverty Level[3]** | 10.5% |
| **Unemployment Rate[4]** | 13.5% |
| **Labor Force[4]** | 844,725 |
| **Race/ Ethnicity** | |
| African-American | 9% |
| Asian | 1% |
| American Indian/Native Alaskan | 0.5% |
| Latino/ Hispanic | 4% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 87% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 90% |
| Some College or AA Degree | 33% |
| Post-Secondary Degree | 23% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 3 |
| Four Year Colleges | 10 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $13.02 |
| SBIR/STTR $ per capita[7] | $2.40 |
| FY 2009 Patent applications per 100,000 population[8] | 68.4 |
| **New Business Starts in 2008 per 10,000 population[9]** | 29.3 |

[1] Source except where noted: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 9. West Michigan WIRED Project Profile

## Introduction

WIRED West Michigan sought to transform workforce investment and education systems to meet the region's need for skilled workers who can compete in today's innovation economy. As defined by stakeholders in the region, an innovation economy:

- Participates in the global economy.

- Employs shorter product cycles and more rapid market penetration than the traditional economic model.

- Uses a multi-disciplinary and technologically complex approach.

- Requires high levels of collaboration and blurs traditional boundaries.

- Results in high-skill, high-wage jobs.

WIRED West Michigan drew its industry partners from three key sectors – life sciences and health care, alternative energy, and advanced manufacturing. WIRED funded an "Innovations Lab" to identify practices that would encourage innovation and meet the training and workforce needs of these industry partners.

The grantee for West Michigan was the West Michigan Strategic Alliance (WMSA). West Michigan WIRED was formed as an independent entity to manage grant operations. Grand Valley State University was the fiscal agent for the grant (see Figure A-25). During the first year of the grant, the WIRED Policy Council, a body of stakeholders appointed by the WMSA president, served as the board of directors for the initiative. The WIRED Policy Council became less active in subsequent years, after most of the grant funds were distributed.

## Key Issues

In 2000, business and community leaders from the West Michigan Metro Tri-Plex (Grand Rapids, Holland, and Muskegon) formed the West Michigan Strategic Alliance (WMSA). WMSA's goals were to create a shared vision that could be sustained for the next 25 years and to foster collaboration among government, economic development, workforce, education, and nonprofit entities. WMSA solicited input from 250 diverse participants and identified six priorities for regional collaboration over an 18-month strategic planning process. The priorities were: creating a regional mindset; ensuring a sustainable environment; revitalizing urban centers; developing a growth strategy for the Tri-Plex; strengthening the community through diversity; and publishing a position paper advocating regional collaboration. At the end of the process, WMSA identified regional indicators and established a regional brand for West Michigan: "*West Michigan – The best place in the Midwest to live, learn, work and play.*"

**Figure A-25**
**West Michigan Partner Map**
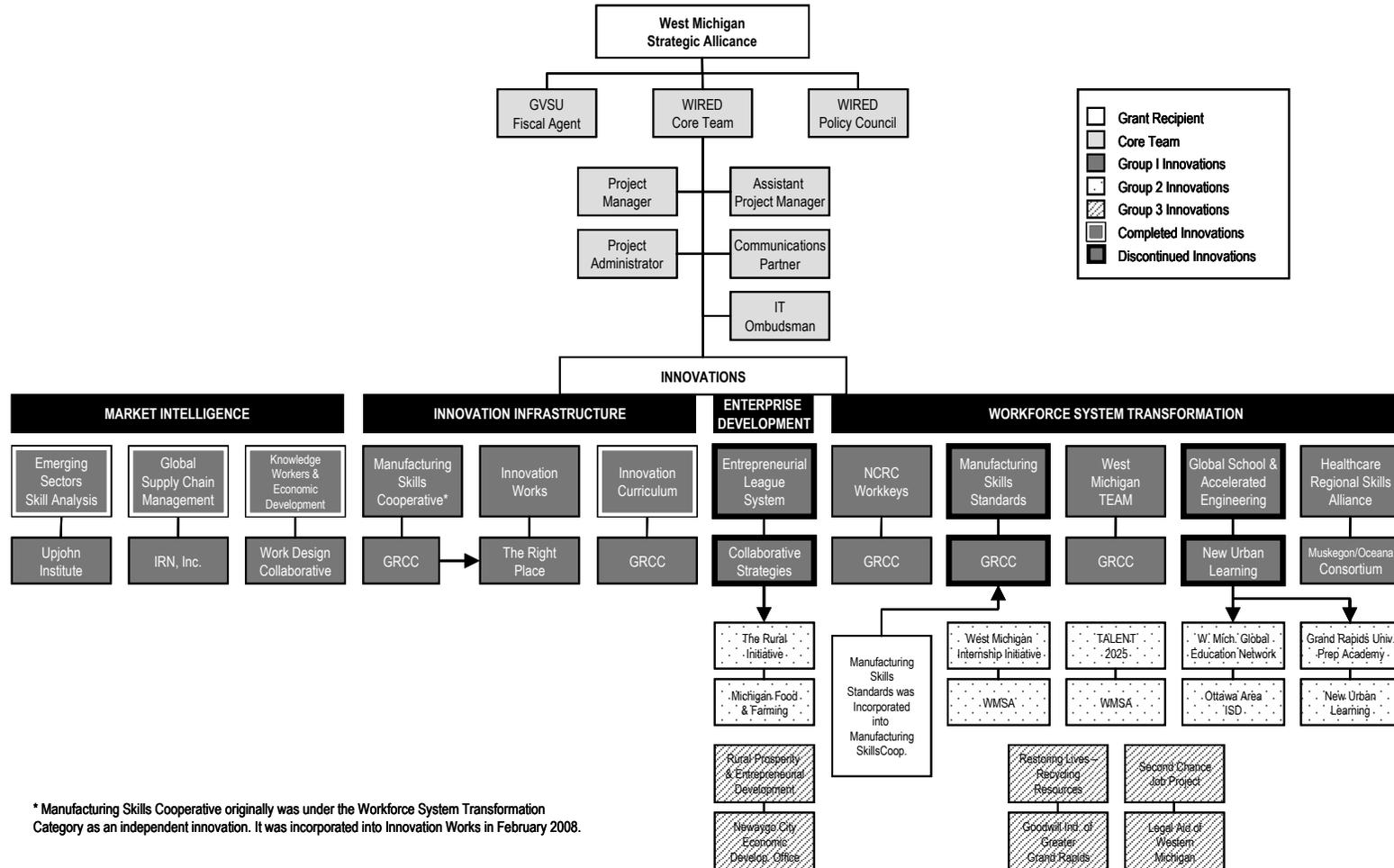


*Information current as of the evaluation visit,12/09.*

During the evaluation site visits, respondents emphasized that historically the region's economy was dominated by small, family-owned companies that gave back to the community. They emphasized that the Western Michigan culture, influenced in part by the Calvinist tradition of its original settlers, values and supports good works. The region gives more to charity per capita than any other region in the U.S., with the exception of Salt Lake City.

Multiple respondents noted that Western Michigan has long supported the prototyping of new products and social initiatives, as can be seen in the success of WorkKeys and West Michigan TEAM, both funded by WIRED and both of which were scaled beyond the region. While this willingness to experiment distinguishes Western Michigan from other industrial areas, it became problematic in the context of WIRED. For example, the InnovationWorks collaborative hoped to create new jobs by supporting entrepreneurs in developing and marketing their ideas and by using WIRED funds to seed new companies, but the collaborative was ultimately deemed as not compatible with DOL's vision and priorities for the grant.

## Partnerships

Several of the Innovations selected for Year 1 funding, including the West Michigan TEAM Employee Assistance Program and the Health Care Regional Skills Alliance, evolved out of collaborative programs that existed prior to the WIRED grant. As the initiative moved forward, new partnerships were formed.

## Sustainability

The region's WIRED funds expired in January 2009, but many activities continued with other funding. Most significantly, the institutionalization of WorkKeys in schools and workforce agencies statewide assured the sustainability of this WIRED effort. Other sustained WIRED innovations include:

- The Manufacturing Skills Cooperative, which is now funded by participant and employer fees.

- The West Michigan TEAM, which is under contract to replicate the TEAM model in Wisconsin.

- The Innovation Curriculum, which has moved from prototype to market with 12 community colleges as paying clients.

- InnovationWorks started, without grant funds, and its first client completed the invention commercialization process for a plastic valve that reduces water waste in traditional toilets.

Talent 2025 (described below) continued to interface with business, education, and local government to support talent development, sustaining many WIRED relationships.

## Involvement of the Workforce Development System

The eight-county WIRED region was served by six local WIBs; five of those six also serve counties outside the WIRED region. The only WIB located entirely within the WIRED region, the Kent/Allegan WIB, is chaired by a member of the WIRED Policy Council.

WIB participation in the grant centered primarily on WorkKeys. WIB directors reported they had investigated using WorkKeys, and even had the software for it, prior to the grant. With WIRED

funds, however, WIBs were able to start using the tests and connecting with local schools. Five local WIBs were also involved in the Health Care Regional Skills Alliance, along with health care employers and other advocates, to develop and retain the region's health care workforce.

## Challenges

### *ETA Fiscal Audit*

During the evaluation team's second and third visits, respondents expressed considerable concern about the ETA audit that questioned $8 million of grant spending, several million of which appeared to be fully disallowed. The cost issues were largely resolved by the end of the grant (with just over $1 million still in question), but the audit absorbed significant amounts of time, money, and resources for project staff and partners. Because of the audit and decreased resources, WIRED West Michigan laid off its project manager, and project staff withheld, delayed, or reduced payments to sub-grantees for services rendered. Thus, the audit significantly eroded the trust that had developed between the grant, the Michigan Department of Energy, Labor and Economic Growth (DELEG), and DOL/ETA. WIRED staff had two particular concerns about the way the audit was handled, reporting that:

1. ETA only provided guidance about allowable costs after many West Michigan project decisions had already been made.

2. ETA staff had in fact encouraged some of the same programs that were later questioned and/or disallowed.

### *Administration*

The original Project Manager resigned in November 2006 for personal reasons and was replaced with a member of the Policy Council. Turnover of key staff is typically challenging in situations such as these, but the incoming Project Manager had a history of both industry and community involvement and was able to lead West Michigan through the transition period effectively. Other staff reductions included the Innovations Advisor, contracted to serve during the first year only, and the project historian and assistant project manager, both of whose positions were eliminated.

West Michigan was further challenged by a program vocabulary (e.g., "Innovations," "Champions") that confused the media and the region's non-WIRED leaders. In response, the grant hired a communications firm to improve regional understanding of the grant.

Finally, as a result of relying on pre-existing relationships to form the WIRED team and supporting pre-existing innovation initiatives using grant funding, the region encountered conflict of interest concerns during its start-up period and during the ETA fiscal audit. Specific concerns included the relationship between the WMSA and the local economic development organization, The Right Place, Inc.

### *Regional Collaboration*

Despite an existing regional identity, the challenge for West Michigan was to *act* regionally in the context of existing and entrenched tensions among the region's three major cities (Grand Rapids, Holland, and Muskegon). Because the three cities have independent WIBs and separate economic development agencies, they were accustomed to acting more locally than regionally.

In addition, because Grand Rapids is often viewed as the "seat" of the region, grant staff initially had to reassure potential partners in neighboring communities that resources would be shared fairly throughout the region. In the last year of the grant, the region invested in the Rural Initiative and the Rural Prosperity and Enterprise Development Program, both of which served outlying areas of the region.

## Successes

### *Workforce Support for Small Businesses*

West Michigan funded the TEAM (Tri-Sector Employment Advancement Model) program to replicate the successful Grand Rapids-based SOURCE program elsewhere. SOURCE assists small businesses by: 1) providing case management and social services to employees leaving welfare; 2) connecting employees with services to assist with transportation, housing, and other potential barriers to work; and 3) helping workers advance to a new position when they are ready. The program was a successful collaboration between the public, private, and nonprofit sectors, and a representative from each sector served on TEAM's board of directors. The program received national attention when it was discussed at a Workforce Innovations panel on outreach to TANF recipients, moderated by former ETA Assistant Secretary, Brent Orell. Employers saw an average return of 239% on their investment, and the program saved over $13 million by transitioning workers from TANF cash assistance to employment.

### *Credentialing and Skills Development*

WIRED West Michigan's NCRC Program far exceeded its goals for testing and issuing certificates; an estimated 30,000 people earned certificates, more than any other state on a per-capita basis. Over 500 employers in the region were using the certification, and the state workforce agency, MichiganWorks!, requires that all participants in WIA-funded programs complete the WorkKeys assessment. In addition, the Michigan Merit Exam for high school students now includes all three WorkKeys modules on the junior class exam. Michigan is the first state to have achieved such a successful alignment between the workforce system and the K-12 education.

### *Collaboration with Other WIRED Regions*

The West Michigan Internship Initiative partnered with the Southeast Michigan WIRED region to develop the InterninMichigan.com web portal, which matched employers with potential interns. The West Michigan WorkKeys team collaborated with the other two WIRED regions in the state, Mid-Michigan and Southeast Michigan, to expand and strengthen the use of the National Career Readiness Certificate in schools, workforce boards, and companies. Finally, the Southeast Wisconsin WIRED region contracted with the president of West Michigan TEAM to assist its region in replicating the SOURCE model (see "Successes") in Germantown, Milwaukee, and Kenosha/Racine.

### *Internship Initiative*

The grant funded a statewide Internship Initiative, with a goal of creating 3,000 internships in West Michigan by the end of 2011. In April of 2009, the Internship Initiative's Web portal, InternInMichigan.com, began matching college students with internship opportunities. To help

companies create meaningful internships, WIRED conducted an employer needs assessment survey and developed a toolkit for employers, available through the portal.

### Prisoner Re-Entry

After Detroit, Grand Rapids has the second highest concentration of parolees in the state. To assist these individuals in finding work, West Michigan funded two programs: 1) "Restoring Lives, Recycling Resources," a program run by Goodwill Industries that trained ex-offenders for employment in the recycling industry; and 2) the "Second Chance Job Project," a program run by Legal Aid of Western Michigan that educated employers about hiring ex-offenders and helped ex-offenders find jobs.

### Talent 2025

Many key stakeholders pointed to Talent 2025 as the lasting legacy of West Michigan WIRED. Talent 2025 was a new initiative designed to "extend the lessons learned from WIRED by actively engaging the employer community to help build world-class talent systems." CEOs from 20 companies joined the effort and Talent 2025 staff hoped to eventually attract a minimum of 50 CEO members. The member companies will pay $5,000 per year for three years to fund activities that include contracting with the Upjohn Institute to develop an assessment system and explore best practices in talent retention and development in other regions. According to respondents involved in the effort, WIRED gave them "the energy and the foresight" to undertake this type of project.

**Figure A-26**
**West Michigan Region**

**Figure A-27**
**Demographic and Other Details for West Michigan Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,324,516 |
| **Population Density** | 273.8 |
| **Per Capita Income[2]** | $28,313 |
| **Population Age** | |
| 15-24 | 15% |
| 25-34 | 14% |
| 35-44 | 14% |
| 45-54 | 15% |
| 55-64 | 10% |
| **Poverty Level[3]** | 8.4% |
| **Unemployment Rate[4]** | 12.7% |
| **Labor Force[4]** | 658,236 |
| **Race/ Ethnicity** | |
| African-American | 7% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.6% |
| Latino/ Hispanic | 8% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 89% |
| Other | 2% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 87% |
| Some College or AA Degree | 31% |
| Post-Secondary Degree | 24% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 3 |
| Four Year Colleges | 9 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $32.19 |
| SBIR/STTR $ per capita[7] | $0.23 |
| FY 2009 Patent applications per 100,000 population[8] | 43.2 |
| **New Business Starts in 2008 per 10,000 population[9]** | 29.5 |

# 10. Montana Project Profile

## Introduction

The Montana Agro-Energy Plan (MAP) aimed to establish a globally competitive bio-energy and bio-products cluster in Central and Eastern Montana using partnerships with business and industry, education, community development organizations, state and tribal governments, and philanthropic foundations. MAP had four goals for transforming the region:

- Develop a world-class bio-products industry that catalyzes regional economic transformation from an agricultural commodity-driven economy to a value-added economy that supports regional prosperity in Eastern and Central Montana;

- Develop a highly trained and stable/growing workforce to support the bio-products, bio-fuel, and energy industries;

- Create an agile, integrated talent development system (workforce, education, and economic development) that is responsive to business needs and that will prepare state residents to take advantage of new economic opportunities quickly; and

- Create an inclusive and sustainable regional identity and leadership structure that promotes innovation and ensures the long-term success of the transformational initiative.

Montana's Department of Labor and Industry (DLI) was the fiscal agent for the grant and managed the initiative. DLI contracted with the state Departments of Agriculture and Commerce, and the Office of the Commissioner of Higher Education (OCHE), to carry out MAP activities (see Figure A-28). The Executive Committee consists of the leaders of these agencies, as well as those of the State WIB and the Governor's Office of Economic Development. MAP also contracted with the state Department of Environmental Quality.

In 2009, DLI created a new 21st Century Workforce Technology Apprenticeship and Training Bureau, and brought together the State Workforce Investment Board, Jobs for Montana Graduates, the state Apprenticeship and Training Program, Incumbent Worker services, and MAP. Stakeholders saw DLI's reorganization as a positive step in sustaining the Initiative's philosophy at the state level, since one goal of the reorganization was to promote better coordination between workforce development, education, economic development, and industry.

In addition to building collaboration at the local level across the region, MAP activities accomplished through sub-grants to partner agencies included:

- Department of Agriculture – Supporting four Bio-Product Innovation Centers (BPICs) that provided entrepreneurs and small businesses with technical assistance and training;

- OCHE – Developing a Bio-Energy Innovation and Testing Center at Montana State University (MSU) Northern; developing curricula on bio-fuels and alternative energy; and providing certificate training for unemployed and underemployed individuals in the region;

- Department of Commerce – Providing technical assistance to employers; training incumbent workers of bio-energy companies.

**Figure A-28**

**Montana Agro-Energy Plan Partner Map**

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┌─────────────────────────────────┐
│            GOVERNOR             │
└─────────────────────────────────┘
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**Montana Department of Labor and Industry (DLI)**

Fiscal Agent and WIRED Project Management

WIRED case managers located In Workforce Centers in:
• Glendive
• Lewistown
• Glasgow
• Sidney
• Miles City
• Cutbank
• Billings
• Havre

**EXECUTIVE COMMITTEE**

*Voting members:*
• Director of Department of Labor & Industry
• Senior Manager from Office of the Commissioner of Higher Education
• Director of Department of Agriculture
• Director of Department of Commerce
• Governor's Office of EC Development
• Two Members of State WIB

*Nonvoting members:*
• Project Managers from Department of Agriculture, Commerce, and Office of the Commissioner of Higher Education
• 2 Senior Department of Labor & Industry Managers

**Department of Agriculture**

4 BioProduct Innovation Centers in:
• Wolf Point
• Lewistown
• Havre
• Big Timber

**Office of the Commissioner of Higher Education**

All grantees provide training. In addition,
• MSU-Northern: Bio-Energy Innovation and Testing Center
• Miles Community College: curriculum development & TA
• Dawson Community College: outreach
• Fort Peck Community College: curriculum development and seminars

**Department of Commerce**

**Direct Employee Training**

• Sustainable Systems
• Peaks Prairies
• Fort Belknap Indian Community in conjunction with the Little River Smokehouse
• New Century Agric.
• Earl Fisher
• Mr. Pipetech Intercontinental

**Outreach & Other Training**

• Montana Mfr Extension Center (MMEC)
• Ethanol Producers and Consumers (EPAC)
• Univ. of Montana College of Tech
• Fort Peck Tribe through the Fort Peck College
• Mission Mtn. through Lake County Dev. Corp.

Information current as of the evaluation visit,10/09.

# Key Issues

## *Involvement of the Workforce Investment System*

Montana has a single workforce investment board (WIB) for the state. Community Management Teams composed of local representatives from both mandatory and other One-Stop partners oversee the operation of most of the state's 23 comprehensive One-Stop Career Centers (called Workforce Centers). These teams provide the state WIB with input about local issues and needs and represent the concerns of their communities.

DLI's Workforce Services Division played a central role throughout the grant as project manager and fiscal agent. DLI staff also served as WIRED consultants in the Workforce Centers.

## *Need for Short-Term Training Options*

Through its many partners, MAP developed curricula that ranged from two-year technical degrees in bio-fuel production to very short-term certificate training in hazardous materials handling and OSHA safety. Length of training was an important issue to participants who may have to drive long distances or rent temporary lodgings to attend classes. MAP partners responded to this need in several ways. It condensed curricula for construction and some other skill areas, brought in instructors for on-site trainings, designed mobile training labs, enhanced supportive services to cover travel costs, developed on-the-job training, and enhanced the capacity of community colleges to provide distance learning.

One of the initiative's greatest "wins" was convincing community colleges to develop training programs that were not tied to the academic semester system. The colleges saw themselves as academic institutions, and realizing that they could also provide vocational training was a stretch. Most of the initiative's community college partners created short-term training of six to nine weeks that led to certifications.  Workforce Center staff observed that most workers who labor outdoors (including construction workers and farmers) were not willing to take time off to participate in training, but did experience seasonal layoffs because of Montana's harsh winters. Thus, the timing of the training was an important consideration. The colleges scheduled training sessions during the winter so that workers laid off for the season could obtain skills that might lead to full-time or full-year work.

## *Scale of Impact*

The vast majority (85%) of jobs in Montana are with companies with 10 or fewer employees. Site visit respondents emphasized that because the communities are so small, creating even a small number of jobs can change the spirit of a community.  The population of these towns decreases as young adults move to find jobs. Many high schools in the region have closed, and students ride the bus bused many miles to go to school. This is often the beginning of the end for small towns. Thus, if MAP can save five or 10 jobs, the high school might not close.  The creation of 10 or 20 new jobs represents economic transformation for the community.

## *Sustainability*

Soon after the WIRED grant began, Montana's Governor issued an Executive Order establishing a cooperative agreement between the state agencies involved in the initiative. The Order also required that they continue to work together beyond the three-year grant period.

Most of the courses and many of the program activities begun under MAP have been sustained after the grant ended. For example, the biofuels and energy-related courses at MSU Northern, and the Miles and Dawson Community Colleges continued under OCHE funding. MSU Northern's Bio-Energy Innovation and Testing Center received a combination of state and federal grants that retained its staff and expanded its facilities. State funding allowed two Bio-Product Innovation Centers and two satellites centers to remain in operation. The WIRED consultants – and their knowledge and experience in collaboration – were absorbed back into Wagner-Peyser, Veterans, and Workforce Services Division programs.

# Challenges

## *Growing a New Industry*

MAP was distinct from most of the other Generation I regions in that the initiative attempted to grow a new industry instead of working with existing industries in the area. New biofuels producers in Montana faced major challenges. First, farmers were reluctant to abandon growing wheat for oilseed because of the security offered by federal crop insurance (which does not cover oilseed). Second, the basic infrastructure needed for manufacturing (e.g., power transmission lines, water, and sewer) and transporting (highways or rail) the product to market are insufficient in many parts of the region. Initiative funds could not be used to build infrastructure.

## *Economic Climate*

Changes in the economy posed the greatest obstacles to the commercial expansion of bio-fuels. Falling prices for fossil fuels and high prices for oilseed squeezed biodiesel crushers and refiners. Several companies that participated early in the grant had to cut back operations, and one went out of business. Oilseed production did not expand over the grant period, largely due to high prices for competing crops and a dramatic reduction in investment capital available for new or expanding bio-products ventures. To create a bridge between the existing economy and the alternative fuels economy of the future, MAP expanded its target industries to include several that require many of the same relevant skill-sets. The new industries included value-added agriculture and energy production/ transmission, along with transportation, construction, and other industries that support these sectors.

The region's slow economic recovery and diminished prospects for the biofuels industry presented the greatest challenges for the initiative. The economic downturn also resulted in an increased demand for training at Workforce Centers, and DLI's Job Services division exceeded its goals for WIA-funded worker. To help meet the high demand, MAP directed unused grant funds to DLI's Workforce Services Division to expand training available through the Centers. Nonetheless, employers were cautious in rehiring or taking on new workers, and this affected trainee completion and employment rates.

## *Hiring Staff*

Finding individuals to staff the initiative's projects, both initially and as turnover occurred, was a lengthy process and delayed implementation of several projects. Few Montanans had the skills needed to develop curricula on biofuels or to conduct tests and research at the Bio-Energy Innovation and Testing Center. One position was posted four times before the initiative found a suitable candidate.

MAP projects addressed this issue, in part, by hiring recent retirees from relevant industries to provide short-term training. MAP recognized that as a generation of workers retired, a generation of experience was becoming available as teachers. MAP tapped this pool of talent by hiring retirees who could temporary relocate for four to six weeks to teach workshops at isolated campuses or worksites. For example, the MSU Billings College of Technology used retirees as instructors for a two-week course on Process Logic Controller (PCL) troubleshooting, for a 40-hour hazardous materials course, and for Lockout-Tagout training.[12]

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[12] Lockout-Tagout is a system used in mines, refineries, and chemical plants to ensure that dangerous power sources and other processes are systematically isolated and made inoperative before doing repairs.

*Equipment Purchases*

Delays in securing approval for equipment purchases, coupled with vendor delays, held back the start of some training activities at MSU Northern, and at Miles and Dawson Community Colleges. At least two major pieces of equipment took over a year to arrive. On the positive side, respondents noted that the worst of the Year Three delays were caused by vendor problems rather than administrative problems. Equipment delays were a major cause of under-spending in the final months of the grant, though these issues were resolved by the initiative's end.

# Successes

## *Bio-Energy Innovation and Testing Center*

The Bio-Energy Innovation and Testing Center at MSU Northern, funded in part with initiative funds, increased its visibility over the grant period. The Center plays several critical roles in supporting the bio-energy industry by: 1) providing state-of-the-art testing facilities for bio-fuels, additives, and bio-lubricants; 2) providing high-level training to future workers in the industry; and 3) operating a bio-energy business incubator.  MSU Northern used Initiative funds to purchase equipment that allowed the Center to offer hands-on technical training workshops. Center staff also presented the workshops at other MSU and community college campuses.

## *Implementing New Curricula*

Curricula that MAP partners developed in Year Two were implemented and expanded in Year Three. The Montana Department of Commerce contracted with MSU Missoula, to develop a curriculum in bio-fuels and energy technology for Miles Community College's two-year Associate of Applied Science degree. The curriculum could also be completed online.  Miles Community college also designed a two-year Associate of Science degree with a bio-fuels emphasis that allowed students to transfer the credits toward a four-year Bachelor of Science degree. To support these curricula, the college opened a bio-fuels lab adjacent to the main campus, with bio-fuel and Amatrol equipment purchased largely with WIRED funds. The University of Montana's College of Technology also used MAP funds to create a two-year Associate of Applied Science degree program for Energy Technicians.

Dawson Community College developed a new wind energy and maintenance course, first offered in December 2009. To provide hands-on training, the college purchased a wind monitoring tower (which measures the suitability of a site for wind power) and two small wind generators. The school's engineering technology courses added wind technology as well. Instructors used Amatrol training units to deliver training in electronics, hydraulics, and materials analyses. Dawson also created a variety of short courses on biodiesel and alternative energy, welding, and hazardous materials training. Finally, several partner colleges established articulation agreements to simplify the transfer of credits from community colleges to state universities.

## *Partnerships with Tribal Nations and Colleges*

The Montana Governor's Office encouraged MAP to serve individuals who were least likely to obtain training from other sources. Given the extremely high unemployment rate on the tribal reservations, many in this target group were Native Americans. Tribal Nations encouraged their members to participate in the training so they could compete for jobs on ARRA-funded

infrastructure projects or at a coal liquefaction plant proposed on the Crow reservation. Many tribal members were not interested in training that required them to leave their families on the reservation for extended periods, however. In response, MAP funded training programs in Year 2 and Year 3 that worked with tribal governments and with colleges or businesses already on the reservation. These included:

- Miles Community College developed entrepreneurship certificate courses, in collaboration with Chief Dull Knife and Little Big Horn Colleges, that were delivered through a combination of online and in-person classes;

- Bear Trax Truck Driving School, a Native American-owned company, provided truck driver training on the Blackfeet Indian Reservation;

- Blackfeet Manpower organized a course in pipe laying and cement work using trainers from the Montana Laborers Union;

- Fort Peck Community College (on the Fort Peck reservation) developed new welding curricula, and Fort Peck Tech, a tribally owned business, provided American Welding Society certificate training;

- MAP funded job training in the production of smoked meat products for workers employed by a tribal enterprise of the Fort Belknap Indian Community. The training allowed the smokehouse to produce their products under USDA inspection and to market them nationally; and

- The Crow Transportation Department provided equipment so that a heavy equipment operator course could be held on the Crow reservation. MAP hired an instructor from Miles Community College on a consultant basis and paid for student safety equipment.

### Bio-Product Innovation Centers

With MAP funding, Montana's Departments of Commerce and Agriculture partnered to create Bio-Product Innovation Centers (BPICs) in four communities in the region. BPIC staff provided training and technical assistance on business start-up and expansion to farmers, private entrepreneurs, university officials, and others. The Centers supported local businesses in developing projects to enhance the rural economy through bio-based products and value-added agriculture.  For example, during the third year of the grant the BPICs worked with a number of entrepreneurs who used locally-grown products to manufacture and market specialty retail foods.

### Collaboration

The MAP region covers 32 counties and six Indian reservations, a total of 86,000 square miles with a population of less than 180,000. The largest town in the region has a population of just under 10,000.  The size of the region was a barrier to convening regular in-person meetings that help cement working relationships and move collaborative efforts forward. Nonetheless, MAP consultants from the Workforce Centers, along with community college representatives, participated in WIA Rapid Response activities.  Strong relationships formed between the Montana State University system and the region's community colleges. For example, MSU Northern committed to mentor Fort Peck Community College staff, and MSU Billings, Missoula, and Northern signed numerous subcontracts with the region's community colleges.  Stakeholders said none of this would have happened without the WIRED grant.

MSU Northern mentored and partnered with Mid-South Community College in West Memphis, Arkansas, part of the Generation II Arkansas Delta initiative. Mid-South was creating a program modeled closely on Northern's Testing Center and two-year diesel engineering program. MSU Northern assisted Mid-South with curriculum development, staff training, and with configuring a Testing Center. This assistance allowed Mid-South to move much faster in starting its programs. The college started its two-year program in 2009, and its four-year program in 2010.

### *Regional Identity*

Forging a distinct regional identity was difficult because of the small population and the distances involved. Furthermore, Montanans are independent and tend to be skeptical of government initiatives. Despite these challenges, some respondents observed that the region is starting to develop a regional identity: "We're getting there. There was none at first, but there is now. MAP projects are scattered throughout the region, but they are related. As things are explained to people, they begin to see the need to act together. Regional identity does build on a much older and more diffuse idea, expressed in the old phrase (about Montana's geography), 'there's the mountains and there's the rest.'"

### *Initiative-Connected Investments*

Through October 2008, the region secured over $34 million in funds from sources outside of the grant. Some of these investments were from state and federal sources for motor oil development, technical assistance, and a community-based job training grant. MSU Northern was successful in obtaining additional grants for equipment and operations from a number of sources, including the Montana Department of Agriculture, OCHE, the National Science Foundation, and private companies such as Northwest Energy and Foundation Coal. MAP's industry partners secured an additional $26 million from private capital, industry, and equity investments in small biofuel companies.

**Figure A-29**
**Montana Region**

**Figure A-30**
**Demographic and Other Details for Montana Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 169,233 |
| **Population Density** | 1.9 |
| **Per Capita Income[2]** | $31,612 |
| **Population Age** | |
| 15-24 | 14% |
| 25-34 | 10% |
| 35-44 | 11% |
| 45-54 | 16% |
| 55-64 | 13% |
| **Poverty Level[3]** | 19.9% |
| **Unemployment Rate[4,5]** | 5.5% |
| **Labor Force[4,5]** | 80,058 |
| **Race/ Ethnicity** | |
| African-American | 0% |
| Asian | 0% |
| American Indian/Native Alaskan | 21.5% |
| Latino/ Hispanic | 2% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 76% |
| Other | 2% |
| **Educational Attainment, age 25+[6]** | |
| High School Diploma | 82% |
| Some College or AA Degree | 32% |
| Post-Secondary Degree | 17% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 8 |
| Four Year Colleges | 1 |
| **Innovation** | |
| NIH,NSF funding $ per capita[7] | $7.88 |
| SBIR/STTR $ per capita[8] | $0.00 |
| FY 2009 Patent applications per 100,000 population[9] | 4.7 |
| **New Business Starts in 2008 per 10,000 population[10]** | 8.5 |

[1] Source except where noted: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)
[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0
[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard@census.gov&filename=ed_home.hrml#
[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls
[5] Data excludes Indian reservations
[6] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents
[7] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009
[8] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008
[9] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009
[10] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

**August 2009: Research & Analysis Bureau, Montana Dept. of Labor and Industry

# 11. Finger Lakes, New York Project Profile

## Introduction

The Finger Lakes region aimed to be a premier place in which to innovate, invest in entrepreneurial ventures, and educate workers. The region lost tens of thousands of jobs over the past quarter century, as Kodak, Bausch & Lomb, Xerox, and their supplier networks suffered successive rounds of cutbacks. The area, once ranked as third nationally in per capita income, now ranks number 238. Colleges and universities are among the largest employers in the region and are promising sources of ideas and talent for rebuilding the economy.

Professionals who were laid off from the large "legacy" companies mentioned above have tended over the years to remain in the area, often joining smaller companies or founding new ones. Residents term this commitment to place among mature workers "sticky feet" – a phenomenon that reflects well on the area's quality of life. The result has been a relatively resilient economy. The Finger Lakes region did not experience the 2008-2009 recession as an especially significant downturn and ended 2009 with an unemployment rate (8%) far lower than the national average.

The Finger Lakes grant targeted the following growth clusters: optics and imaging; biotech and life sciences; food and agriculture; and alternative energy. The initiative also aimed to build on regional competencies in advanced manufacturing, information technology, and business support services.

The lead organization and fiscal agent for the effort was RochesterWorks!, the local workforce investment board (WIB) for one of the three local workforce areas covered by the region. The initiative's Governing Board set the overall strategy for the grant. The Board's 33 members represented a cross section of economic development and workforce development organizations, educational institutions, and trade associations. Board members were presidents, CEOs and Chairs from partner organizations, and elected officials from throughout the region. A subset of Governing Board members comprised the Steering Committee, which functioned as the executive committee of the Board (see Figure A-31). The Governing Board formed a prestigious advisory committee to provide guidance and feedback during the initiative's early months.

## Key Issues

### Regional Identity

The Finger Lakes region covered the nine counties that include and surround Rochester, New York. This area is a portion of the larger Finger Lakes region recognized by tourist boards and the state. Rochester and Monroe County are home to most of the research universities in the region that prepare students for knowledge-based jobs. Most of the companies and organizations that received grant funds were also located in Monroe County. The economy in the other eight rural counties centers on agriculture, wineries, and tourism. The traditional dominance of the City of Rochester in regional affairs, and the fact that Rochester-based organizations led early implementation of the grant, initially created tension with the region's rural counties.

**Figure A-31**
**New York Partner Map**

```
                    ┌─────────────────────────┐
                    │   Governing Board       │
                    ├─────────────────────────┤
                    │   Steering Committee     │
                    └─────────────────────────┘
                                │
            ┌───────────────────┴───────────────────┐
┌─────────────────────────────┐         ┌─────────────────────────────────┐
│   Rochester Works, Inc.     │         │   Ad Hoc Committees             │
├─────────────────────────────┤         │  • RFP Committee (2008)         │
│     Finger Lakes WIRED       │         │  • Nominating Committee (2008)  │
│ (Fiscal Agent, Project       │         └─────────────────────────────────┘
│  Management)                 │
└─────────────────────────────┘
            │
┌─────────────────────────────┐
│         Grantees             │
└─────────────────────────────┘
```
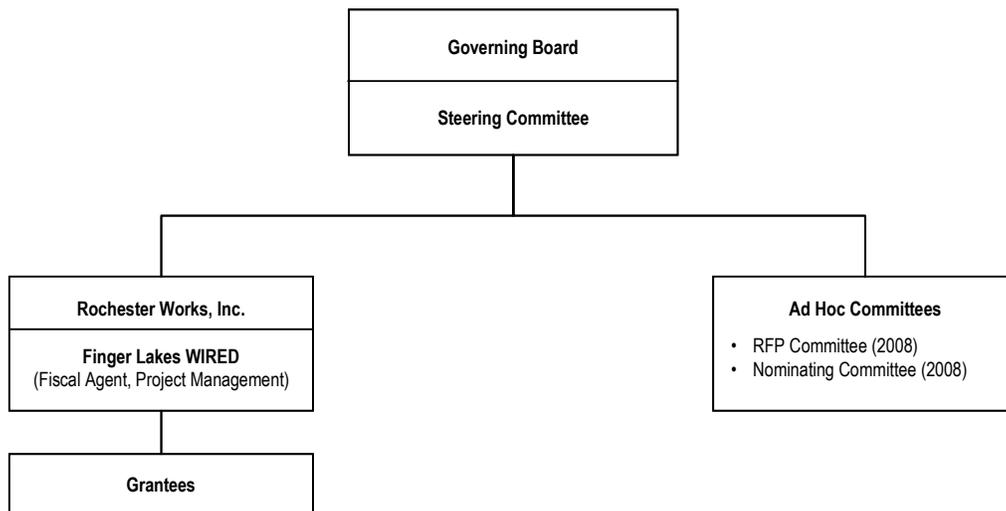
Information current as of the evaluation visit, 12/09.

Representatives of these counties on the Governing Board expressed concern during the first year that a small Rochester-based group was driving the WIRED initiative.  By the end of the grant period in December 2009, however, the Governing Board and Steering Committee had bonded into effective working groups. The early history of urban-rural tension was long forgotten, and members valued the diverse ideas and viewpoints that members represented.

### Involvement of the Workforce Development System

Cooperation among the region's local WIBs was strengthened by their collaborative work through the grant. The initiative empowered the boards to develop and deepen specialized areas of expertise, and to cross-refer to maximize the benefit of their services to the region's workers and employers. The collaboration among the region's Workforce Investment Boards took several forms, including:

- A formal partnership that created and supported two regional skills alliances –Health Care/Human Services Alliance and Finger Lakes Advanced Manufacturing Enterprise.

- The Career Navigator Program served dislocated workers, most of whom were over 50 years of age and had a Bachelor's or advanced degree.

- An effort to increase the use of the Career Readiness Credential (CRC). More than 1,241 CRCs were awarded in the region.

Finally, and perhaps most indicative of the sustainability of the WIB collaboration, was ongoing informal communication among leaders and staff of the three WIBs.

### Readiness for Collaboration

Finger Lakes is now characterized by significant collaboration, both across the nine counties and among professionals engaged in the workforce, education, and business communities.  Two partnerships in particular will continue to benefit the region long after the initiative's funding has

disappeared: the collaboration among the region's three WIBs and the partnership among the universities and incubators involved in technology commercialization.

In addition, coordination and cooperative learning among university-based entrepreneurship initiatives and operators of incubators is evident. Leaders of those efforts share information and expertise, are knowledgeable about and support each other's efforts, and believe that they can jointly foster a renewed growth of entrepreneurship within the region. One program is convening semi-annual conferences across industries and including multiple academic programs to discuss the potential synergies between high technology and ventures in the agricultural/food processing industries.

### *Sustainability*

While many of the initiative's accomplishments and initiatives will be sustained as stakeholders have learned the extent to which their efforts produce shared benefits, the initiative's leaders continued to debate whether or not any organization would take on formal responsibility for sustaining the initiative in the absence of funding. At the final meeting of the Governing Board in December 2009, members celebrated the initiative's significant accomplishments and debated their future as a group. They noted that the group collectively represents an important set of stakeholders with power to influence the region's future. They noted that "something would be lost" if they failed to bridge between the DOL-funded initiative and "what comes next." They discussed the possibility of continuing to meet quarterly as a group, perhaps with volunteer support from an existing organization such as GRE or perhaps from the business services units of the three participating WIBs. They also envisioned more formally-structured types of ongoing support that would require funding to support staff time and continued internet presence. The board agreed to continue the conversation via email and poll the group's members about "what to do next and what your organization can offer."

## Challenges

### *Ongoing Barriers to Change and Collaboration*

As is true in other regions, the community college system is not well suited to collaborating across jurisdictional boundaries. Traditionally competing with each other for enrollments and reputational advantage, community colleges appear to cooperate, but not yet to form genuine partnerships. The Workforce Excellence Regional Center, a joint venture of the region's three community colleges, provided access to technical, lab-based non-credit and credit programs—currently only offered at one of the three community colleges—via distance learning and hybrid delivery formats, assisting 157 individuals during the latter stages of the initiative. Collaboration among the community colleges, however, appears to be limited to specific workforce-focused programs and may not pervade the colleges more broadly.

## Successes

### *Entrepreneur Support*

The Finger Lakes is a region whose economy was once dominated by large companies who fired employees for thinking too creatively. The key accomplishment of the Finger Lakes region may

well be its nurturing of an emerging entrepreneurial culture in the region. This growing entrepreneurship is bolstered by several related efforts:

- The technology and innovation commercialization partnership among High Tech Rochester, the University of Rochester, Rochester Institute of Technology, Cornell Agriculture and Technology Farm, and Infotonics has trained 1,107 individuals and identified 290 entrepreneurs. At least 25 of the resulting business ventures have succeeded in raising capital.

- The Entrepreneurs Network began prior to the initiative and will continue beyond the end of DOL funding.

- The initiative funded 166 young people to participate in the Young Entrepreneurs Academy in area high schools and colleges.

Two of the area community colleges have trained 205 students in the Entrepreneurship Fast Track, resulting in creation of at least seven businesses

### Training for Incumbent Workers

The impact of the Finger Lakes' program of scholarship grants to companies outperformed all expectations.  Scholarships have a maximum award of $25,000 and require a company match. To date, the program has provided businesses in targeted industries with over $5.5 million dollars in funding for workforce training and skills upgrades that has resulted in training for more than 8,400 workers. Companies provided over $8.5 million in matching funds. Training is short-term and leads to industry-recognized certifications/credentials, supervisory and managerial skills training, process/productivity improvement, and/or in-demand technical and occupational skills.  In the initiative's latter months, at employers' request, training was broadened to include competency skills training—such as teamwork, problem-solving and decision making, interpersonal skills, and leadership. The training is reported to have made a critical difference in the sustainability and future of the 305 grant recipient companies.

### Regional Skills Alliances

The area's WIBs have worked together to support two Regional Skills Alliances. They created the Health Care/Human Services Alliance, a still-young alliance that includes 39 members. They also strengthened the already-thriving Finger Lakes Advanced Manufacturing Enterprise (FAME), a collaborative public/private partnership of regional stakeholders dedicated to investments in human capital. FAME had grown to include 127 members and at the end of 2009 was working to become self-supporting, in part by charging membership dues.

### Scholarship Program

The Scholarship Program, consisting of matched grants to companies in the region for training to upgrade skills of incumbent workers, has remained one of the region's uniquely successful ventures. Over 8,400 workers had been trained in 305 companies; expenditures included $5.5 million in initiative funds and $8.5 million  in employer matching funds.

**Figure A-32**
**New York Region**



**Figure A-33**
**Demographic and Other Details for New York Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,192,301 |
| **Population Density** | 247.0 |
| **Per Capita Income[2]** | $32,100 |
| **Population Age** | |
| 15-24 | 16% |
| 25-34 | 12% |
| 35-44 | 13% |
| 45-54 | 16% |
| 55-64 | 12% |
| **Poverty Level[3]** | 10.3% |
| **Unemployment Rate[4]** | 7.9% |
| **Labor Force[4]** | 619,095 |
| **Race/ Ethnicity** | |
| African-American | 10% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.3% |
| Latino/ Hispanic | 5% |
| Native Hawaiian/ Pacific Islander | 0.0% |
| White | 86% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 88% |
| Some College or AA Degree | 29% |

| | |
|---|---|
| Post-Secondary Degree | 29% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 3 |
| Four Year Colleges | 11 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $124.63 |
| SBIR/STTR $ per capita[7] | $8.82 |
| FY 2009 Patent applications per 100,000 population[8] | 147.9 |
| **New Business Starts in 2008 per 10,000 population[9]** | 20.4 |

[1]  Source except where noted:   US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2]  Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3]  Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4]  Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5]  Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6]  Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7]  Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8]  Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9]  Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 12. Piedmont Triad, North Carolina Project Profile

## Introduction

The Piedmont Triad WIRED Initiative (Piedmont Triad) had two primary goals: 1) to create high-skill, high-wage jobs across the 12-county region, and 2) to significantly strengthen the region's global competitiveness through integration of workforce, education, economic development, innovation, and entrepreneurship.  With a strong emphasis on business and private sector involvement, the initiative focused on four industry clusters: advanced manufacturing; health care; creative enterprises/arts; and logistics/distribution.

Cluster roundtables included representatives from each of the targeted industries.  These groups were charged with identifying demand-driven needs for the industry, establishing desired outcomes, and determining training program priorities.  Each roundtable director researched the targeted industry, identified executives who were known to have the respect of the community and then invited them to participate in the roundtables.

Piedmont Triad contracted with the both the Piedmont Triad Entrepreneurial Network (PTEN) and local Workforce Investment Boards (WIBs) to review grant applications and manage a series of Focus Grants. The Focus Grants provided the impetus for delivery of innovative and collaborative training demonstration projects related to the industry clusters and entrepreneurial job creation.  Local WIBs administered Workforce Training Focus Grants.  A WIRED stakeholder review team oversaw Talent Development Focus Grants, which focused on curriculum development, identification and dissemination of career information, and supply chain education and Transformation Grants, a newer grant program that focused on innovative approaches and systemic change in economic development for underserved communities. The structure of the Piedmont Triad Partnership is depicted below in Figure A-34.

## Key Issues

### *Regional Identity*

Many years ago, the North Carolina General Assembly designated the 12-county Piedmont Triad region as one of seven economic development regions in the state.  Today, the region is well established and the Piedmont Triad "brand" is widely recognized. However, owning an established regional brand has not always translated into thinking in a genuinely regional way; inter-jurisdictional competition between local governments and economic development organizations remains the norm, and partners in the rural counties (counties other than Forsyth and Guilford, where Greensboro, High Point, and Winston-Salem are located) still tend to feel left out of regional efforts. Piedmont Triad WIRED leaders and staff made substantial efforts to include all 12 counties in the WIRED process, and most respondents believed that the initiative advanced the goal of establishing a genuine regional identity.  Moving forward, each of the three priority areas identified for continuation—the aerotropolis in Greensboro, the furnishings cluster in High Point, and the life sciences cluster in Winston-Salem—had a strong presence in one of the region's major cities.

**Figure A-34**
**North Carolina Partnership WIRED Map**
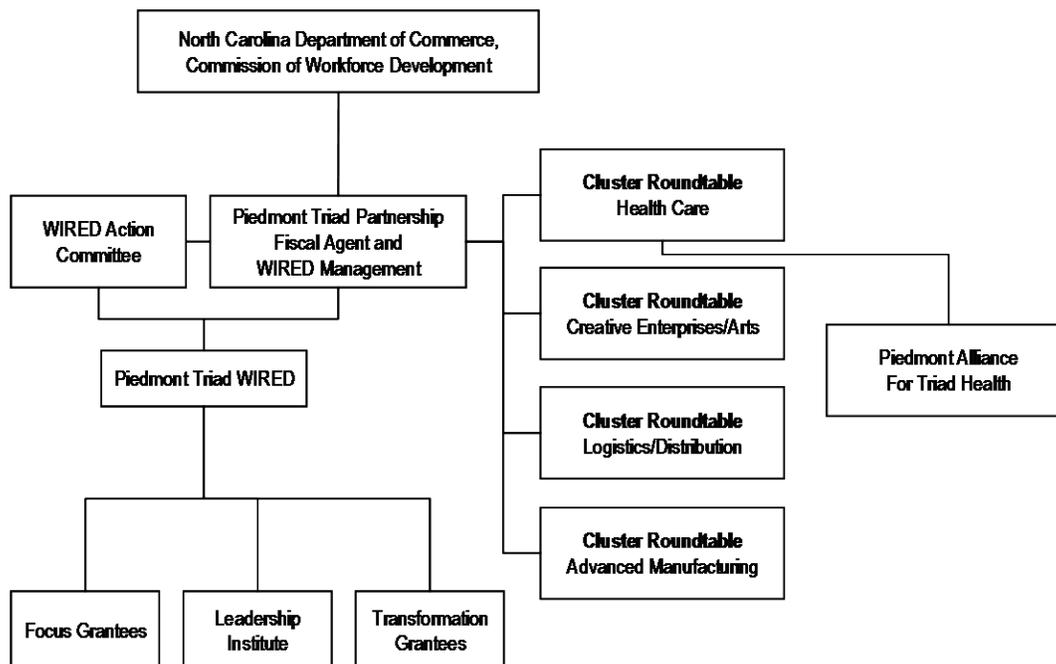


Information current as of the evaluation visit,11/09.

### *Readiness for Collaboration*

A region-wide study by an outside consulting firm preceded the grant, culminating in the publication in 2005 of the *Regional Vision Plan for the Piedmont Triad Region.* Many of grant's goals and strategies grew out of this Vision Plan, and the planning process has given legitimacy to the initiative's goals and activities. Similarly, because the Piedmont Triad Partnership is an established region-wide economic development organization, the region has a sound framework for discussing and resolving barriers to collaboration.

### *Partnerships*

Partnerships with educators developed easily, especially among the operators of the 10 Talent Development Focus Grants. Individuals within the community college system benefited from new partnerships that often extend across county lines. However, community colleges and four-year universities still operated under different administrations, different missions, and different credentialing systems. This means that something as simple but necessary as transferring community college credits to a four-year degree is not always possible.

## Challenges

### *Impact of the Economic Downturn*

The economic downturn that began in 2008 had a significant impact on the region, particularly in rural areas. At the time of the evaluation team's final site visit in the fall of 2009, three-quarters

of working people in rural Caswell County commuted outside the county for work, and Davidson County had one of the highest unemployment rates in the nation. In rural counties throughout the region, tobacco companies closed long ago and no new businesses have replaced either them or the non-tobacco businesses that also closed in recent years. Enrollment at community colleges increased during the economic downturn because more 18-to-24-year-old students who might otherwise have gone to four-year schools enrolled in less expensive community colleges. The high unemployment rate throughout the region also impacted the demand for home health workers, an occupation promoted through the Health Care Cluster, because unemployed relatives stayed home with their elderly family members.

### *Involvement of the Workforce System*

Two factors complicated the initiative's partnerships with the workforce system. First, while the Piedmont Triad region fully encompasses three local workforce areas (covering eight of the twelve counties in the region), each of the four other counties in the region belongs to one of three workforce areas that include counties beyond the region. In these areas, local workforce board directors did not view the initiative as central to their mission. The second complicating factor was concern at the regional level that grant funds for the initiative might diminish funds available for ongoing WIB operations, coupled with a fear that the initiative overall was a harbinger of change that would ultimately prove disruptive. To allay these concerns, the initiative sought input from workforce system leaders in making decisions about grant-funded activities, especially related to Focus Grants, and contracted with WIBs to manage the workforce development grants. However, workforce development stakeholders were dismayed that they were not invited to the table earlier; they also resented what they saw as a tendency for WIRED stakeholders to take credit for collaborations between local WIBs that were underway well before the grant began. For example, when local WIBs hosted a WIRED-funded Virtual Job Fair that was the most successful Virtual Job Fair held in the country and the only one conducted by a non-merged group of WIBs as a business venture, the WIBs were quick to point out this project and the collaboration had been in the works long before WIRED was in the picture.

### *Sectoral Diversity*

The industries targeted within both the advanced manufacturing and creative/arts clusters are very diverse. This heterogeneity could create difficulties in explaining the cluster concepts, narrowing the focus for the cluster activities, and ensuring that needs and issues for all industries were adequately addressed by the cluster work. Despite such difficulties, the Creative Arts cluster narrowed its focus toward the end of the grant to emphasize design and development of commercially-viable products.

### *Cultural Legacy in the Region*

As is true in many communities with a manufacturing legacy, innovation and entrepreneurship appear to have been "bred out of the culture" in the Piedmont Triad. Historically, large manufacturing companies offered students a monetary incentive to drop out of school and go to work in their factories. With a seemingly endless supply of stable jobs with decent pay that required no special education or training, communities developed a mindset that placed little value on education and considered risk-taking unnecessary. To change this mindset, the initiative awarded Focus Grants and Transformation Grants in the area of entrepreneurship. For example, one Transformation Grant funded a youth entrepreneurship program in a rural county that matched students with small businesses to promote mentoring.

### Transformation

Piedmont Triad stakeholders initially appeared not to believe that genuine economic transformation was feasible, or even to know what that transformation might look like. They saw a distinct possibility of marginal improvements in the industries targeted for attention, but they could not visualize dramatic outcomes. When asked about transformation, site visit respondents most often answered, "We're working on transition; we'll have to wait and see about transformation." By the end of the grant period, however, such attitudes had changed noticeably.

### Youth Programming

ETA restrictions limited the use of H-1B funds for youth programs to individuals 16 and older. Without the H-1B funds available, several projects planned in economic development and youth-focused activities had to be canceled. Frustrated partners pointed out that under the ETA restrictions a large percentage of the region's youth already would have dropped out of high school before interventions could take place.

## Successes

### Sustainability Plan

One of the most salient and striking findings from the final evaluation visit was the region's clear and progressing sustainability plan. As they had stated in their initial Implementation Plan, PTP believed that the key to long term sustainability was to engage existing leaders within the region in carrying on the work begun by the grant. Indeed, WIRED invested a great deal of time and resources in building a regional leadership team. The region was already home to a number of strong leaders; the initiative's challenge was to engage them in thinking and planning jointly − across jurisdictional and functional boundaries − to enhance the region's prosperity. Inviting leaders from across the 12 counties, identifying the "right" individual to galvanize the group, and giving them a clear mandate, PTP created what is now known as the Piedmont Triad Leadership Group. The Leadership Group identified three areas as key to the region moving forward:

- To support and promote the region's aerotropolis (a term coined by a local professor);

- To revitalize one of the region's legacy industries, home furnishings; and

- To focus on nanotechnology and regenerative medicine.

After determining that these efforts would require $1 million per year for five years, the chair of the Leadership group quickly solicited the first $1 million from private sector partners to fund the first year of work, which included hiring cluster directors for each of the three initiatives and raising the remainder of the necessary funds. By the end of September 2010, total contributions had reached $6.5 million. The region thus successfully leveraged private dollars to replace public funds from WIRED, signaling strong support from the business community for collaborative activities to increase the region's economic competitiveness.

### Aerotropolis

One of the major successes of the Piedmont Triad WIRED Initiative was the momentum built around developing the region as an aerotropolis, defined as "a region whose economy is directly and significantly connected to its airport through airport-linked businesses and industry

clusters." Over the course of the grant, the logistics/distribution cluster retained a consultant on aerotropolis development and engaged the support of key regional partners, including the Piedmont Triad Center for Global Logistics (a collaborative of educational institutions), the Piedmont Authority for Regional Transportation, the Piedmont Triad Airport Authority, and the Airport Commission of Forsyth County. The plan was for, an Aerotropolis Leadership group to combine two existing initiatives—the Global Logistics Task Force of the Piedmont Triad Leadership Group and the Logistics/Distribution Roundtable—to promote and support the aerotropolis. The Piedmont Triad Airport Authority integrated aerotropolis principles into its new strategic plan, including provisions for building air cargo capability and sites for aviation-related businesses. A new logistics education center, the North Carolina Center for Global Logistics, was located near the airport on the new Northwest Campus of Guilford Technical Community College. The 80,000 square foot center was completed in 2011 and draws upon programs and expertise from several colleges and universities. Stakeholders believed that the center would position the region as a leader in the development of workers and leaders who have the skills needed in the logistics and distribution industry. WIRED contributed significantly to the aerotropolis and to the other sector initiatives that were expected to be key in revitalizing the Piedmont Triad's economy.

### Career Awareness Outreach to High School Students

Piedmont Triad funded a number of initiatives to increase awareness among high school students of career opportunities in the target industries. The Advanced Manufacturing Cluster held Technology Career Days at two community colleges and offered students a two-day, hands-on immersion class in advanced manufacturing. The cluster also awarded AT&T a Focus Grant to fund more ROBOT Challenge teams in North Carolina. The Logistics/Distribution Roundtable held a "train the teachers" bus tour of logistics and distribution companies and hubs in the region. During the tour, teachers discussed ways to introduce relevant skills into their curricula.

### Coordination among Higher Education Entities

Site visit respondents emphasized that not only were community colleges working more with other community colleges—previously not common due to competition over FTE slots—community colleges were strengthening partnerships with four-year colleges and universities in the region as well. One of the roadblocks to creating partnerships between the schools was the inability of students to move credits between institutions with conflicting requirements. As a solution, Piedmont Triad WIRED's Logistics/Distribution Cluster funded a Virtual Regional Campus Initiative and invited educators from community and four-year colleges to participate. At the meeting, the educators agreed on a set of four core courses in logistics and distribution for which credit would be honored within and between community colleges and four-year institutions. The courses were approved by industry partners.

### Outreach to Underserved Populations

The Piedmont Triad initiative has made notable attempts to better serve the region's minority and working poor communities. The minority advisory committee reached out to businesses through Transformation Grants, which funded activities dedicated to increasing the number and capacity of minority-owned businesses. Other grants helped existing businesses identify ways to grow. The initiative also funded a needs assessment survey of the working poor in the region, using a 13,000-person sample of childcare subsidy recipients in eight counties. Finally, the WorkKeys assessment was available in Spanish at community colleges.

## Industry Involvement

The private sector was strongly represented among Piedmont Triad's stakeholders. Company representatives served on the initiative's Action Committee and the Cluster roundtables. Private sector funds exclusively paid for the three priority initiatives after the grant ended.

## Career Readiness Certificate

Piedmont Triad promoted the NCRC WorkKeys system through a Focus Grant for the Regional Partnership WorkKeys project. This partnership promoted the use of the WorkKeys assessment through the collaborative efforts of high schools, community colleges, and the workforce system. As of the final evaluation visit, 23 high schools in ten rural school districts were using WorkKeys to assess their students, including 2,000 students enrolled in Career-Technical Education classes. Community colleges were using WorkKeys as a prerequisite for some of their certificate programs. Major area employers, such as Guilford County Schools, Goodyear, and Energizer, reported that using WorkKeys in their hiring processes has reduced turnover.

## Health Care Cluster

The Health Care Cluster was enormously successful in creating sustainable training programs for the region. Grants were awarded for curriculum development and initial staffing for numerous certificate and degree programs, most of which were sustained by student fees. A stakeholder explained that when program developers realized that the region had more health care jobs than trained workers to fill them, they became "very focused on pragmatic training programs that reach new populations." Training programs included certificate programs for family caregivers and medical coding and billing, a hands-on orientation program to increase retention in a nurse-anesthetist program, a licensed practical nursing degree program, and a video curriculum for certified nurse assistant trainees. The grant also purchased training resources, such as echograms, simulation equipment, mannequins, and videoconferencing equipment for distance learning.

**Figure A.35**
**North Carolina Region**

**Figure A-36**
**Demographic and Other Details for North Carolina Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,603,101 |
| **Population Density** | 268.8 |
| **Per Capita Income[2]** | $32,657 |
| **Population Age** | |
| 15-24 | 13% |
| 25-34 | 13% |
| 35-44 | 15% |
| 45-54 | 15% |
| 55-64 | 12% |
| **Poverty Level[3]** | 10.8% |
| **Unemployment Rate[4]** | 11.0% |
| **Labor Force[4]** | 803,609 |
| **Race/ Ethnicity** | |
| African-American | 21% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.5% |
| Latino/ Hispanic | 8% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 76% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 81% |
| Some College or AA Degree | 27% |
| Post-Secondary Degree | 23% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 8 |
| Four Year Colleges | 11 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $146.90 |
| SBIR/STTR $ per capita[7] | $0.81 |
| FY 2009 Patent applications per 100,000 population[8] | 29.5 |
| **New Business Starts in 2008 per 10,000 population[9]** | 29.7 |

[1] Source except where noted:   US Census  2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) and US Small Business Technology Transfer Program (STTR), 2008

[8] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# 13. Wall Street West, Pennsylvania Project Profile

## Introduction

Located in 10 counties of northeast Pennsylvania, Wall Street West (WSW) worked to enhance the regional workforce's ability to participate in a knowledge- and technology-based economy, with an emphasis on financial services and business continuity.  WSW initially focused the initiative's entire efforts on building the physical infrastructure for a data system's disaster recovery capability as recommended in the U.S. Government's White Paper following the terrorist attacks of 2001. This strategy relied on attracting investment from New York-based financial services firms and the location of data back-up facilities in the region. In 2008, given the deterioration of the business climate in the financial services sector, the Executive Committee expanded its target industry clusters to include health care, logistics and transportation, advanced materials and diversified manufacturing, and STEM (science, technology, engineering, and math)-related industries. Business continuity remained a priority but was more broadly defined to include not only data back-up systems but to emphasize  building transferable skills and career pathways across industry sectors as well.

Ben Franklin Technology Partners of Northeast Pennsylvania (BFTP/NEP) —part of a state-funded economic development network linking entrepreneurs with funding, talent, technology, and universities—was WSW's fiscal agent and management organization.  Pennsylvania's Department of Labor and Industry was the grantee (see Figure A-37).

The WSW initiative operated as an independent unit within BFTP/NEP.  A 17-member Executive Committee made up of representatives from the Commonwealth of Pennsylvania, economic development agencies, the workforce system, and universities led the initiative.  The Human Resource Committee was the most active subcommittee; it developed criteria for sub-grants, and reviewed and selected projects to be funded. Other subcommittees were time-limited or eventually merged with the Human Resource Committee into the Sustainability Committee, which developed strategies for continuing WSW's activities beyond the grant period.

In its early years, the WSW Executive Committee commissioned a Workforce Development Gap Analysis and a Regional Asset Map to assist in setting the agenda for WIRED activities. In response to these analyses, WSW created two main types of funding streams: one for projects that addressed specific gaps in the region's workforce development capacities; and one for innovative projects that proactively prepared the current and future workforce to strengthen the region's economy.

Wall Street West operated with a staff of four individuals.  It relied on leadership from the Executive Committee and invested the vast majority of WIRED funds in projects designed to strengthen the workforce. Thirty-eight organizations operated 61 separate projects. The principles underlying both the Gap and Innovation Investment grants were the following:

- Innovation —enhancing existing or new processes or practices that encourage the use of technology and/or other non-traditional methodologies to deliver education and training.

-

**Figure A-37**
**Northeast Pennsylvania WIRED Partner Map**
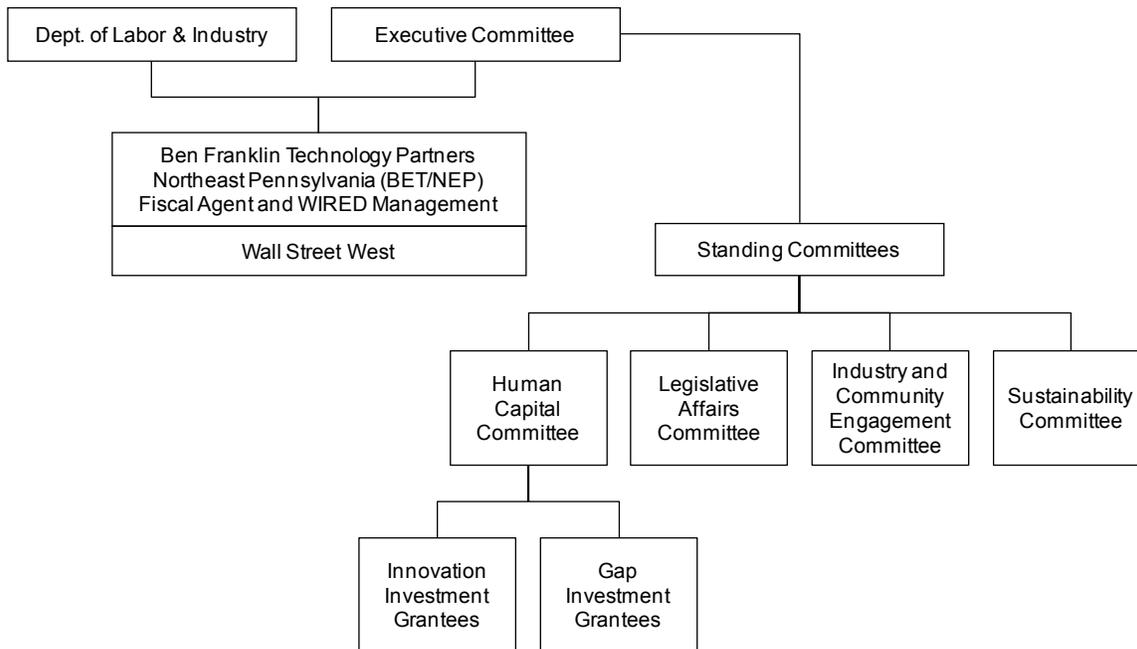


Information current as of the evaluation visit,11/09.

- Collaboration—demonstrating how diverse organizations can work together to achieve project objectives.

- Regionalism—including organizations from across the 10-county region, or replicable region-wide.

- Transferability—expandable to other industry sectors.

- Sustainability—embedded within policies, procedures, and organizations so that benefits would extend beyond the formal WIRED grant period.

- Demand/Industry Driven Approach—meeting the workforce needs of the information technology, financial services and related industries, or enhancing the workforce and education pipeline.

## Challenges

### *Regional Identity*

The grant's goal was to mesh the ten counties in the region into a cohesive regional entity, but the initiative was unable to truly overcome pre-WIRED divisions in the region. The area included four distinct labor markets and three regional economic development councils, made up of a "patchwork" of previously defined, geographically divided sub-regions and counties with diverse economic histories and a tradition of competing with each other. Cooperation and communications were enhanced significantly during the WIRED grant period and. The economic

downturn and resulting change in WSW goals, however, diminished the extent to which leaders within the region's sub-areas saw themselves as economically interdependent and pursuing a common vision.

### *Adapting to a Changed Economic Environment*

WSW leaders recognized quickly that the collapse of the financial services sector in 2008 forced them to place "on the back burner" their initial goal of building a fiber optic cable to enable synchronous data back-up operations for Wall Street. That goal had galvanized significant energy for collaboration, especially among economic development agencies. Rebuilding enthusiasm among these original partners for a vision centered primarily on strengthening the workforce was a significant challenge.

### *Communications*

Although members of the Executive Committee shared an understanding of and commitment to the WSW vision, communications with larger audiences were more difficult. In particular, communications with private companies in the region were not strong, and only a few corporate executives became engaged in the initiative. In response, WSW hired a Director of Communications for regional-level communications focused on local and state media, thereby increasing the likelihood that a more informed public would support the continuation of WSW-initiated investments beyond the end of the grant.

## Successes

### *Stakeholder Involvement*

Among WSW stakeholders were the region's 27 colleges and universities, four community colleges, and 69 independent school districts. Nearly all of these were involved in WIRED-funded activities, many in partnership with the region's five local WIBs. In addition, 18 of them led WIRED projects ranged from developing specific in-demand technical skills to strengthening the "soft skills" s that workers can succeed in private industry.

Private firms were partners in WSW projects in several ways. As sub-grant recipients, they defined workforce needs that informed training priorities, and they offered internships and executive coaching that created direct career pathways for project participants. In addition, WSW collaborated with several important industry associations, creating relationships that continued to benefit the region beyond the grant period.

WSW worked hard in its early years to develop strong relationships with and among economic development organizations with the shared goal of enhancing outside private investment in the region. As WSW's priorities changed from its singular focus on financial services disaster recovery, the economic development community was less clear about its role and contribution. Eventually, economic development partners shifted their activities from business attraction through infrastructure development to emphasizing the value of transferrable skills and the grant-enhanced workforce delivery system.

The local WIBs partnered with each other on several successful programs. Their expertise and ability to oversee a series of programs, combined with their knowledge of the industry clusters

and the constituent needs in their jurisdictions, facilitated collaboration among the teams. They increased educational attainment through the WIRED Individual Training Accounts. They also developed career education programs and trained incumbent workers. They streamlined their administrative processes and developed a common Individual Training Account structure, creating a lasting strategic partnership among WIB leaders and Pennsylvania's CareerLink Offices.

## *Achievements of Funded Activities*

As the WIRED grant was ending in December 2009, stakeholders celebrated the accomplishments of the funded projects. More than $12 million in federal funds had been awarded to the projects, and more than $9 million of additional leveraged funds had been generated. Investments benefited individuals who received training and education, and they fostered system-level improvements expected to generate continued benefits. Specific project outcomes included the following:

- Enhanced skills for 1,069 incumbent workers in 63 companies;

- Increased educational attainment level for 263 individuals;

- Completion of 143 internships and assistantships at 142 organizations;

- Professional development for 9,271 educators who will impact 130,978 students;

- Training for more than 113,000 students;

- Increase in Junior Achievement participation by 3,079 students;

- Addition of 36 educational certificates, degrees, or curricula;

- Development of 23 academic and workforce models;

- Demonstration of a 67% increase in math educator knowledge of economic/financial mathematics and terminology;

- Alignment of career pathways among five intermediate units to meet Career Education and Work Standards;

- Integration of Career Education and Work Standards into the disciplines by completing the crosswalk and developing curricula; and

- Deployment of 11 Career Education and Training Centers in two rural counties.

In addition, each project was required, as a condition of funding, to include a plan for its sustainability and lasting impact on the economy.

## *Partnerships*

While the ten-county region may not continue as an operating entity, the grant did create unprecedented cooperation among organizations within the region:

- Economic development organizations recognized the link between their success and a strong, industry-responsive workforce, and they began working more closely with educators and WIBs. Several organizations committed to collaborating and exchanging ideas to better market and promote the region's assets.

- Educators formed concrete cross-sector partnerships with each other, including a Higher Education Consortium that facilitated industry participation in curriculum development. Perhaps the largest funded partnership was the NEPA Business Education Workforce Partnerships − a collaboration of the region's five WIBs, 69 school superintendents, four business education partnerships, and the state Department of Education − aimed at providing a regionalized career pathway awareness program.

- The leaders of the five WIBs still met monthly as the WIRED grant ended; they discovered the benefits of working together toward common goals and were committed to continued collaboration. They shared best practices, agreed on commonly-targeted industry clusters, and produced region-wide labor market information. They planned to collaborate regionally (as well as statewide) in response to future funding opportunities. They continued discussing standardization across WIBs, such as creating a joint OJT contract, and continued their involvement with the region-wide Business Education partnership.

## *Sustainability*

WSW's Sustainability Committee became active in the fall of 2008 and met monthly to deliberate the sustainability of the overall initiative and vision, in addition to the ongoing benefits of specific funded projects. The committee hosted a region-wide Sustainability Summit in May 2009 at which sub-grantees and stakeholders discussed key factors likely to have positive effects on WSW investment programs and the overall initiative. They considered organizational, communication, and financial factors, as well as factors involving job creation. In the words of Wall Street West's Director of Workforce Initiatives, "The work that was done in the Sustainability Summit break-out sessions may have been the single most important work done throughout the entire grant period. We had workforce, education, and economic development leaders from across the region—some of whom had never met before—talking about what they needed to succeed. Many found common areas that they shared, leading to the discovery that working together would be more beneficial than working separately." Leaders also agreed that WSW had strategically awarded WIRED funds, implemented innovative and powerful programs, and permanently enhanced Northeastern Pennsylvania's workforce and education system.

## *The National Center for Organizational Continuity*

As a critical part of the overall sustainability plan, the WSW Executive Committee voted to transfer the initiative to the Northeastern Pennsylvania Technology Institute, with the prospect of establishing a National Center for Organizational Continuity. In collaboration with the Northeastern Pennsylvania Technology Institute and Disaster Recovery Institute International, this interdisciplinary workforce development and research collaborative was designed to utilize many of the resources created and enhanced by WIRED investments. The Center was built on the idea that industry leaders across all business sectors recognize the growing demand for talent with diverse security and risk management skills. The mission of the National Center for Organizational Continuity was to:

- Develop, link, and deploy leading-edge operations continuity course content, methods, and certification/credentialing opportunities for both individuals and organizations.

- Attract traditional, non-traditional, incumbent, and dislocated worker trainees into the workforce system.

- Link the Center's resources and activities with the industry vendor community, industry recruiting organizations, organizational continuity certification bodies, and organizations seeking candidates to fill key operational continuity planning roles within their organizations.

- Contribute to the national economic competitiveness through organizational continuity workforce training, education, certification, and research.

While the field of organizational continuity is rapidly evolving, the development process for proper training and credentialing of professionals in the field has lagged behind. The foundation that the WSW initiative created through funded projects and programs, combined with private-sector commitment to add critical expertise and training, gave Northeastern Pennsylvania a unique opportunity to be a leader in this emerging industry.

**Figure A-38**
**West Pennsylvania Region**
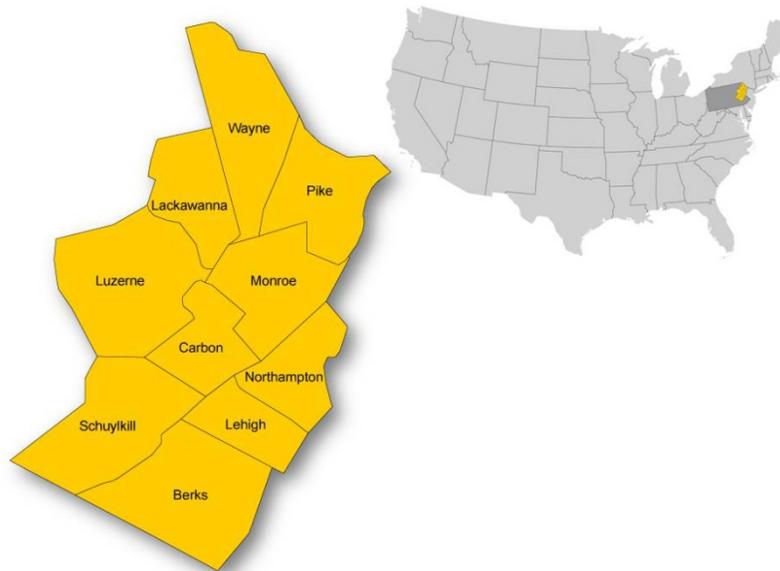
**Figure A-39**
**Demographic and Other Details for Wall Street West Region[1]**

| Measure | Regional Average |
|---|---|
| **Population** | 1,900,058 |
| **Population Density** | 359.6 |
| **Per Capita Income[2]** | $34,886 |
| **Population Age** | |
| 15-24 | 14% |
| 25-34 | 12% |
| 35-44 | 14% |
| 45-54 | 15% |
| 55-64 | 12% |
| **Poverty Level[3]** | 9.6% |
| **Unemployment Rate[4]** | 9.0% |
| **Labor Force[4]** | 964,912 |
| **Race/ Ethnicity** | |
| African-American | 5% |
| Asian | 2% |
| American Indian/Native Alaskan | 0.2% |
| Latino/ Hispanic | 10% |
| Native Hawaiian/ Pacific Islander | 0.1% |
| White | 92% |
| Other | 1% |
| **Educational Attainment, age 25+[5]** | |
| High School Diploma | 86% |
| Some College or AA Degree | 24% |
| Post-Secondary Degree | 23% |
| **Institutions of Higher Learning[3]** | |
| Community Colleges | 8 |
| Four Year Colleges | 21 |
| **Innovation** | |
| NIH,NSF funding $ per capita[6] | $5.54 |
| SBIR/STTR $ per capita[7] | $0.13 |
| FY 2009 Patent applications per 100,000 population[8] | 49.6 |
| **New Business Starts in 2008 per 10,000 population[9]** | 23.2 |

[1] Source except where noted: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts)

[2] Source: Regional Economic Information System, Bureau of Economic Analysis, US Dept. of Commerce, Table A1-3-3.0

[3] Source: Community Economic Development HotReport. Employment and Training Administration, US Census Bureau and Economic Development Administration. Downloaded November 10, 2010 from: http://smpbff2.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?emailname=whazard @census.gov&filename=ed_home.hrml#

[4] Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls

[5] Source: 2006-8 avg, American Community Survey Table B15002 except regions WAEM, NCI, Northwest Florida and Montana 2000 US Census SF3-P37, due to censoring of counties with fewer than 20,000 residents

[6] Source: US National Institutes of Health, US National Science Foundation, UCSD, FY2009

[7] Source: US Small Business Administration TECH-Net, US Small Business Innovation Research Program (SBIR) & US Small Business Technology Transfer Program (STTR), 2008

[8] Source: US Patent and Trademark Office, US Census Bureau, UCSD, FY2009

[9] Source: Dun and Bradstreet custom report; US Census Bureau, UCSD, 2008

# Appendix B – Partner Survey Methods and Detailed Findings

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# Appendix B-1: Survey Methodology

In order to gather additional information about regional efforts to develop, organize, fund and implement the Workforce Innovation in Regional Economic Development (WIRED) Initiative, the evaluation team conducted a survey of partners and other stakeholders. The survey had two primary goals:

- To understand how roles and responsibilities in collaborative networks were distributed across staff at different levels of partner organizations; and

- To better understand how collaboration affected practices among the collaborating organizations.

The survey supplemented information gathered during site visits by asking individuals at different levels within the participating organizations to report on the nature and effectiveness of collaboration efforts. The survey was designed to flesh out important dimensions of collaboration, specifically the structure, effectiveness, and sustainability of efforts to achieve regional transformation.

Although the survey design was based largely on issues specific to the WIRED Initiative, it also built on a rich literature on collaboration drawing from instruments developed for other studies of regional collaborative including the works of Saxenian,[13] Romer,[14] Hargedon,[15] Powell,[16] Granovetter,[17] and Kenney.[18]

The potential respondent universe included the full range of regional partners and collaborators identified through reviewing grantee materials and conducting site visit interviews, as well as the individuals identified by site visit respondents in the early round of social network analysis. The sample also included the universe of local workforce investment boards, local economic development agencies, and community colleges within each region, whether or not they were identified as initiative partners. Respondents included individuals at all levels within the partner organizations who were involved in the collaborative effort, from leadership to front line staff including:

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[13] Saxenian, Annalee. 1994. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*
[14] Romer, Paul. 1990. "Endogenous Technological Change," *Journal of Political Economy,* Vol. 98, No. 5, "Part 2: The Problem of Development: A Conference on the Institute for the Study of Free Enterprise Systems," pp. S71-102.
[15] Hargedon, A.B. 2004. "Tapping the Networks of Innovation," *Business at Oxford,* 5 (Summer):20-22. Cross, R, A.B. Hagedon, and S. Parise. 2005. "Critical Connections: Driving Rapid Innovation with a Network Perspective," Network Roundtable White Paper, University of Virginia.
[16] Powell, Walter and Stine Grodal. 2005. *"Networks of Innovators,"* in *The Oxford Handbook of Innovation*, pp. 56-85, http://www.stanford.edu/group/song/papers/powellgrodal.pdf .
[17]Granovetter, Mark. 2005. "The Impact of Social Structure on Economic Outcomes," *Journal of Economic Perspectives*, 19(1) (Winter): 33-50, http://www.stanford.edu/dept/soc/people/faculty/granovetter/JEP%20article.pdf Granovetter, Mark. 2001. *The Sociology of Economic Life*, 2nd edition, edited with Richard Swedberg. Boulder, CO: Westview Press.
[18] Martin Kenny and Richard Florida. 2004. *Locating Global Advantage – Industry Dynamics in the International Economy*. Stanford, CA: Stanford University Press.

- WIB staff;

- Providers of workforce investment training and supportive services, including community- and faith-based organizations;

- Local and regional economic development agencies;

- Local school districts, community colleges, universities, and private training providers;

- Participating businesses and industry representatives; and

- Business support organizations such as Chambers of Commerce and local Independent Business Alliance chapters; as well as banks and venture capital firms.

The survey captured numerous dimensions of collaboration which allowed for assessing both the nature and the intensity of collaboration as experienced by actors at different levels within participating organizations. The survey contributed to an understanding of the extent to which the WIRED regions successfully built regional alliances that crossed traditional boundaries, and genuine collaborations across a variety of institutions committed to the economic transformation agenda. Survey results built on site visit data by documenting collaboration more systematically and by measuring it across various dimensions such as:

- Level of investment, engagement and commitment;

- Changes in operations;

- Number and types of individuals involved;

- New partnerships or social networks; and

- Roles and responsibilities across and within collaboration organizations.

Most items offered closed-ended response categories, with only a small number of short-answer or open-ended items that will require post-coding (see Appendix B-4.) This kept the response burden to a minimum and allowed for greater consistency of data across respondents for analysis.

## Survey Data Collection

Prior to distributing the survey, members of the evaluation team discussed the survey with each region's Initiative director and emphasized the importance of high level support from the Governor's office or other state level official. The team provided each region with a draft letter to be personalized and then signed. The signed letter preceded the survey as a mechanism to bring attention to the importance of the survey and help maximize the response rate.

The survey was designed to be administered through multiple methods (online, mail, phone). However, the primary distribution method was via email. This meant a significant step of identifying email addresses for potential respondents. Through

publicly available data sources and follow-up telephone calls, the team was successful in getting e-mail contact information for over 90% of the sample.

The survey email linked respondents to a web-based survey instrument, which enabled the separation of responses from individual email addresses, thus ensuring both confidentiality and a convenient response mechanism. In addition, the team mailed a paper copy of the survey to non-respondents. Finally, both the email and the mailed package provided a toll-free telephone number that respondents could call to complete the survey over the telephone.

Contact with survey respondents involved the following steps:

1. Survey invitation with link was sent to all potential respondents in the sample by email using Vovici (an online data collection tool that includes mailmerge and follow-up features.)

2. One week later a reminder email is sent using the Vovici mail merge feature, to all email addresses from which no survey had yet been received. This step was repeated two additional times, two weeks and three weeks after the survey was sent out in that region.

3. One month after the original survey was sent out, the master sample database was updated with the latest information from Vovici to reflect which individuals had not yet responded to the survey, which individuals opened the survey file but did not submit a completed survey, and which emails bounced back as undeliverable. This file was then turned over to a trained research assistant for follow up and used as a follow-up tracking database to record phone call attempts, additional emails, phone interviews, requests for hard copy, and notes.

4. The research assistant assigned to that region attempted to contact all non-respondents by phone at least three times. In some cases an additional follow-up email may also be sent (Sometimes this was to let them know our records showed they opened the survey but did not submit it, to let them know their data will still be there and they can go back in and complete it, and to remind them to click the submit button. Sometimes it was to re-send them the link in response to the phone follow-up, or to send the link to an executive assistant or colleague who agreed to follow up, or to send a PDF version of the file that the respondent could print out and fill out in hard copy.) The research assistants went directly to the Vovici system and pulled down a daily update of the surveys completed to avoid contacting individuals who had already complete the survey.

5. Because the survey overlapped in time frame with the site visits, in some cases BPA site visit leads agreed to follow up with a few key potential respondents whom they felt might respond better to an email from them than an unfamiliar research assistant.

6. Regions were not asked to assist with follow up. However, once the data collection process was complete, in several regions with low response rates, BPA contracted with a staff person or former staff person in the WIRED administrative agency, who

was likely to be known by many of the potential respondents, to conduct an initial round of follow-up.

## Sampling

The survey samples were varied across the regions, reflecting the unique characteristics of each regional partnership. Based on the partnerships in each WIRED region, the universe of potential respondents for each region included more potential respondents from some types of organizations or sectors than others, depending on the major focus of the WIRED initiative's efforts. Regions that emphasized one or more of the key systems over others (e.g., workforce development vs. education vs. industry vs. economic development) have relatively more potential respondents in those systems than do other regions. Rather than use statistical techniques to "oversample" certain respondent groups, we used this natural variation to determine the sample for the survey by sending the survey to all of the potential respondents that were identified as site visit respondents or contacts they identified (i.e., the universe is the sample).

In addition to individuals identified through the methods mentioned above, the evaluation supplemented the sample with staff from agencies that, in theory, should all have at least some involvement in regional transformation efforts, even if that system is not a central focus of the region's efforts. Thus, the sample included representatives from all local WIBs, local economic development agencies, and community colleges in each region. As a result, the total sample size of 1498 was significantly larger than originally anticipated (larger than the 600 estimated in the Design Report).

## Summary of WIRED Survey Non-respondents

The WIRED survey aimed to capture regional networks as completely as possible, which was made particularly challenging by the delay in OMB clearance which meant that by the time the survey was conducted, over a year has passed since the sample had been identified, and the grant period was coming to a close. In many cases individuals had moved on to other positions or even to other geographic areas, but with extensive follow-up, we attained a response rate of 69 percent. As Figure 1 shows, response rates ranged from a low of 57 percent in West Michigan to a high of 84 percent in North Central Indiana and Kansas City.

**Figure B-1: Survey Response Rates by Region**

| Region | Number of Respondents | Sample Size | Response Rate |
|---|---|---|---|
| WAEM | 69 | 93 | 74.2% |
| California Corridor | 77 | 128 | 60.2% |
| Metro Denver | 57 | 83 | 68.7% |
| Northwest Florida | 73 | 94 | 77.7% |
| NCI | 98 | 117 | 83.8% |
| Kansas City | 49 | 41 | 83.7% |
| North Star Alliance | 96 | 126 | 76.2% |
| Mid-Michigan | 115 | 181 | 63.5% |
| West Michigan | 93 | 162 | 56.6% |
| Montana | 81 | 111 | 73.0% |
| Finger Lakes | 88 | 145 | 60.7% |
| Piedmont Triad | 74 | 90 | 82.2% |
| Wall Street West | 74 | 119 | 62.2% |
| **Total** | 1015 | 1498 | 69.3% |

Of the 483 individuals who did not respond to the survey, we were able to collect two pieces of descriptive information on 450 of them, either through their providing identifying information before opting out of the survey, or from the information provided by site visit respondents who identified them as contacts. As Figure 2 shows, most of the non-respondents were leaders or decision-makers in their organizations, with 51% of the non-respondents in this category, compared to only 40% of survey respondents (See Appendix B-2). Day-to-day staff were more likely to respond – only 9% of the non-respondents were in this category, compared to 15% of respondents.

**Figure B-2: Non-respondents by Level in Organization**

| Level in Organization | N | Non-respondents |
|---|---|---|
| Leaders, Strategists, Visionaries, Decision-Makers | 231 | 51.3% |
| Implementers, Managers, Administrators | 176 | 39.2% |
| Day-to-Day Staff | 43 | 9.1% |
| *Total* | 450 | 100.0% |

Figure 3 shows the distribution of non-respondents by the type of organization they represented. As the figure shows, industry accounts for the greatest proportion of non-respondents (37 percent), whereas industry represented only 26 percent of the respondents (see Appendix B-2). Individuals from education organizations were more

likely to respond representing only fifteen percent of the non-respondents compared to 27 percent of the respondents.

**Figure B-3: Non-respondents by Organization Type**

| Organization Type | N | Non-respondents |
|---|---|---|
| **Industry** | 169 | 37% |
| **Education** | 68 | 15% |
| **Economic Development** | 60 | 13% |
| **Workforce System** | 49 | 11% |
| **Other** | 39 | 9% |
| **Research** | 38 | 8% |
| **Other Government** | 27 | 6% |
| *Total* | 450 | 100% |

In summary, the analysis of non-respondents suggests that industry representatives and individuals in leadership roles may be somewhat underrepresented in the survey data. However, even with a fairly substantial number of non-respondents, industry representatives and leaders/decision-makers still comprise the largest groups of survey respondents. Therefore, both industry partners and individuals who serve as leaders and decision-makers seem to be well represented in the survey, and there is no reason to assume the pattern of non-response introduces any major bias that significantly skews the survey results. Perhaps a bigger concern is the variation in response rates across regions. When reviewing survey results at the individual region level (see Appendix B-2) it is important to note that the response rate of 57 percent in West Michigan suggests those results are more tentative than the results for Kansas City or NCI each with a response rate of 84 percent.

**Analysis**

Using multiple data items from the survey, the evaluation team will constructed variables summarizing responses related to factors such as readiness for regional collaboration, intensity of effort, clarity of roles, quality of leadership, and perceived overall effectiveness. We used factor analysis to identify the key indicators of engagement that could be used to measure the extent of collaboration.

Our analysis of both original data items and constructed variables involved using cross-tabulations to look at the data at different levels. At the micro level, we examined the survey results by type of respondent, and where relevant, by type of industry. Beyond the regional level, we also analyzed the data across all of the Generation I regions. To conduct these analyses, the evaluation team aggregated individual respondent surveys at different levels for different types of analyses.

We aggregated survey data at the **regional level** to describe the nature and extent of collaboration within each region. These analyses explored characteristics such as:

- Types of organizations involved;

- Roles of different types of organizations;

- Intensity of partner involvement;

- Effect of collaboration on participating organizations and practices;

- Extent of regional identity – awareness among participants of regions' goals and efforts;

- Strategies used to strengthen collaboration and partnerships; and

- Optimism about the region's economic future.

Finally, we aggregated the survey data at the **national level,** across all Generation I WIRED regions. The purpose of these analyses is to describe the effects of the Generation I Regions as a group, and to explore how collaboration differs across different types of respondents, such as:

- Across different types of organizations; and

- At different levels within organizations.

**Social Network Analysis**

At the end of the survey, each respondent was asked to identify "five individuals with whom you have significant contact in the context of the Initiative, outside of your own organization," and to provide the contact's organization, job title, and frequency of contact. (The term "significant" was defined to include meaningful and important contact, but not necessarily the most frequent contact.) Thus, the social network dataset consisted of the name, type of organization, and level within organization for a respondent and his or her five important contacts, plus the frequency of contact that a respondent reported for each contact.

Social network analysis is based on the assumption that relationships among interacting units are important. The unit of analysis is not the individual, but the network that consists of a collection of individuals and the linkages among them. The evaluation explores the hypothesis that regions that build strong collaborative networks with many connections will be more competitive in the new economy than those with weak networks. By mapping these networks, the evaluation team can better understand the connections that make up the networks, and their overall strength. A network map shows the nodes (e.g., people or organizations) and links (e.g., relationships or flows) in the network. Social network analysis can help answer many key questions in the collaboration-building process, such as: □ Are the right connections in place? Are any key connections missing? Who is playing leadership roles in the community? Are there facilitators who are linked with a very large number of people, and/or isolated people

who are only linked with one or two others? How do patterns of association among entities evolve over time?

Two approaches can be used when conducting a social network analysis –a personal (egocentric) network assessment or a group (bounded) network assessment.  Under the personal network approach, a person is asked to identify other people who are important for a given function or task; the nature of these relationships are then explored through a series of additional questions. The drawback of such an approach is that creating accurate network maps is difficult because no defined, closed network exists. The bounded network approach first defines a network of interest. In order to produce accurate network maps, the group (bounded) network approach is the most desirable, yet it is the most challenging approach for the evaluation. Typically, a group (bounded) network assessment is appropriate for analyzing a closed system in which the total universe of respondents is easily identified (e.g., a single organization). The regions, however, do not have closed systems; furthermore, the universe of players is constantly changing over time. To capture the most complete network possible for each region, the evaluation team planned to administer a survey in 2008 that would include a much more comprehensive set of respondents than is interviewed during any single site visit. The survey would have mitigated the challenges and potential limitations to the kinds of analysis that can be done with the data.

Originally the evaluation plan called for conducting social network analysis at three points in time, with the intent of comparing the networks maps to see how the networks evolved over time. However, in comparing the networks from the first two rounds (based on site visit respondents from the first two rounds of site visits) the team calculated the proportion of individuals from each region who were included in the social network analysis data sets from both years. In all of the regions, this percentage was under 50 percent, which serves as a reminder that the evaluation team captured different portions of the actual network in each year. For this reason, this report does not compare the social network responses or maps across years. The extent to which the any differences are due to changes over time versus differences in respondents from one year to the next is impossible to assess. Instead, the social network maps are interpreted as "snapshots" of a portion of the network that the evaluation was able to capture for each region at a particular point in time.

Other important limitations in this data collection include:

- Only site visit respondents were asked to name contacts. The contacts named by the respondents were not in turn asked to name their contacts, so the data does not include reciprocal information; and

- Respondents were asked to name only five individuals, which for some was too few to accurately reflect their significant interactions.

The social network data was first analyzed descriptively (see Appendix B-3.) Then social network analysis software was used to analyze the relationships between the individuals in the network and social network mapping software was used to display the

characteristics of the network. The social network maps (see Chapter 4) display several key aspects of the social networks, include:

- Frequency of contact – indicated by the thickness of the lines between the nodes;

- Type of organization – indicated by the color of the node;

- Level within organization – indicated by the shape of the node;

- Centrality – indicated by how close the node is to the center vs. the outside of the map;

- Betweenness – indicated by the number of connections to a particular node, and the extent to which a node serves as a bridge between clusters of nodes.

# Appendix B-2. WIRED Survey Tables

**Table B-2a.**
**Type of Organization by Region**

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **N** | 66 | 74 | 57 | 73 | 98 | 41 | 96 | 116 | 90 | 76 | 82 | 72 | 74 | 1015 |
| **Industry** | 15% | 34% | 16% | 42% | 15% | 5% | 32% | 22% | 48% | 11% | 24% | 31% | 28% | 26% |
| **Education** | 41% | 23% | 25% | 18% | 37% | 46% | 14% | 33% | 16% | 30% | 29% | 28% | 26% | 27% |
| **Workforce System** | 9% | 18% | 18% | 15% | 8% | 24% | 22% | 14% | 11% | 26% | 9% | 11% | 16% | 15% |
| **Economic Development** | 21% | 19% | 28% | 16% | 15% | 10% | 15% | 20% | 13% | 9% | 13% | 15% | 20% | 17% |
| **Research** | 3% | 4% | 7% | 5% | 16% | 0% | 3% | 6% | 4% | 0% | 7% | 10% | 4% | 6% |
| **Other Government** | 9% | 1% | 4% | 1% | 2% | 5% | 9% | 3% | 1% | 17% | 11% | 3% | 0% | 5% |
| **Other** | 2% | 1% | 4% | 1% | 6% | 10% | 5% | 3% | 7% | 7% | 6% | 3% | 5% | 4% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

* Differences between groups are significant at the 95% confidence level

** Differences between groups are significant at the 99% confidence level

**Table B-2b.
Survey Respondents' Level in their Organization\*\***

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **N** | 66 | 74 | 57 | 72 | 97 | 40 | 92 | 115 | 83 | 75 | 79 | 70 | 74 | 994 |
| **Leaders, Strategists, Visionaries, Decision-Makers** | 36% | 39% | 30% | 50% | 34% | 35% | 37% | 44% | 52% | 27% | 35% | 44% | 49% | 40% |
| **Implementers, Managers, Administrators** | 49% | 51% | 53% | 44% | 37% | 40% | 44% | 44% | 42% | 48% | 51% | 44% | 43% | 45% |
| **Day-to-Day Staff** | 15% | 10% | 18% | 6% | 29% | 25% | 20% | 11% | 6% | 25% | 14% | 11% | 8% | 15% |
| **Total** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

### Table B-2c. Respondent's Involvement in Collaboration Efforts by Respondent's Region[19]

(Were you often involved in the following task about efforts to transform your region's economic competitiveness?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Attend meetings regularly** | 74% | 66% | 67% | 75% | 64% | 78% | 65% | 69% | 63% | 67% | 63% | 82% | 67% | 69% |
| **Talk at meetings (make comments, express ideas, etc.)** | 64% | 60% | 59% | 67% | 56% | 68% | 62% | 66% | 64% | 62% | 53% | 74% | 68% | 48% |
| **Serve as a member of an action committee or task force*** | 54% | 48% | 45% | 51% | 48% | 44% | 43% | 50% | 43% | 42% | 43% | 59% | 57% | 21% |
| **Assist in selecting recipients of funds** | 19% | 17% | 15% | 25% | 22% | 18% | 19% | 21% | 14% | 26% | 18% | 31% | 31% | 41% |
| **Communicate with external constituencies/media** | 48% | 35% | 40% | 43% | 38% | 28% | 30% | 46% | 45% | 41% | 37% | 42% | 50% | 51% |
| **Provide access to resources*** | 50% | 46% | 69% | 48% | 55% | 54% | 45% | 53% | 42% | 62% | 42% | 46% | 51% | 42% |
| **Help organize activities (other than meetings)** | 53% | 40% | 54% | 40% | 38% | 45% | 44% | 40% | 37% | 41% | 36% | 42% | 49% | 47% |
| **Participate in the implementation of a program associated with regional transformation or the WIRED initiative*** | 56% | 48% | 44% | 36% | 51% | 63% | 35% | 46% | 42% | 46% | 40% | 62% | 55% | 29% |
| **Chair/lead a committee or sub-group** | 29% | 32% | 23% | 37% | 22% | 28% | 22% | 36% | 21% | 23% | 30% | 39% | 29% | 31% |
| **Facilitate group process (e.g., team-building, conflict resolution, visions, consensus-building, etc.)*** | 40% | 34% | 24% | 33% | 24% | 31% | 22% | 35% | 29% | 23% | 23% | 48% | 38% | 23% |
| **Write grant proposals/raise funds** | 24% | 25% | 24% | 21% | 15% | 30% | 16% | 23% | 27% | 18% | 22% | 28% | 31% | 23% |

\* Differences between groups are significant at the 95% confidence level

\*\* Differences between groups are significant at the 99% confidence level

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[19] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

**Table B-2d.**
**Respondent's Governance Role in Efforts to Transform Regional Collaboration by Respondent's Region[1]**
(Which of the following best describes your role in the governance of regional transformation efforts, including the WIRED initiative?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Part of formal leadership** | 30% | 15% | 22% | 22% | 18% | 26% | 19% | 25% | 19% | 23% | 26% | 21% | 26% | 22% |
| **Part of leadership to a lesser degree - WIRED** | 42% | 43% | 48% | 46% | 48% | 26% | 33% | 36% | 36% | 35% | 34% | 58% | 41% | 41% |
| **Not part of WIRED leadership structure** | 28% | 42% | 30% | 31% | 34% | 47% | 48% | 39% | 44% | 42% | 41% | 21% | 33% | 37% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

**Table B-2e. Extent of Awareness throughout Organization of Efforts to Transform Regional Collaboration by Respondent's Region[1]**

(Which of the following best describes the extent of awareness throughout your organization to transform your region?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A few key senior leadership staff participate in efforts to transform our region, but most of the organization is unfamiliar with such efforts.** | 12% | 17% | 13% | 14% | 10% | 16% | 12% | 12% | 22% | 10% | 17% | 14% | 12% | 14% |
| **A few mid-level managers and/or line staff participate in the initiative, but most of the organization is unfamiliar with such efforts.** | 26% | 8% | 9% | 12% | 4% | 21% | 10% | 10% | 11% | 13% | 16% | 7% | 13% | 12% |
| **Staff members of my organization are generally aware of efforts to transform our region, including through the WIRED initiative.** | 19% | 27% | 40% | 27% | 40% | 24% | 37% | 35% | 25% | 33% | 40% | 36% | 29% | 32% |
| **Familiarity with efforts to transform our region is widespread throughout the organization.** | 37% | 41% | 29% | 39% | 44% | 26% | 35% | 35% | 32% | 35% | 23% | 39% | 41% | 35% |
| **I do not know the extent of awareness of WIRED throughout my organization.** | 5% | 8% | 9% | 8% | 2% | 13% | 6% | 9% | 10% | 10% | 4% | 4% | 6% | 7% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

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**Table B2-f.**
**Collaboration Context by Respondent's Region**[1]*****

(Thinking back to 2006, do you agree with the following statements about efforts to transform your region's economic competitiveness?)

|  | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Agencies in our community had a history of working together.\*\*** | 47% | 56% | 67% | 66% | 56% | 70% | 64% | 43% | 72% | 76% | 59% | 45% | 59% | 59% |
| **People and organizations in our region had trust in one another.\*\*** | 35% | 47% | 62% | 58% | 40% | 57% | 53% | 40% | 70% | 68% | 43% | 28% | 50% | 49% |
| **The political and social climate seemed to be "right" for starting a collaborative project related to regional transformation.** | 89% | 83% | 90% | 86% | 81% | 92% | 91% | 85% | 90% | 85% | 87% | 85% | 83% | 86% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

**Table B2-g.**
**Regional Collaboration Functions by Respondent's Region**[1]
(Do you agree with the following statements about efforts to transform your region's economic competitiveness?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Most people involved in efforts to achieve regional transformation are willing to compromise on important aspects of our joints efforts.* | 91% | 78% | 84% | 84% | 92% | 83% | 73% | 85% | 73% | 88% | 75% | 86% | 80% | 82% |
| Most people in this collaborative group have a clear sense of their roles and responsibilities.** | 75% | 80% | 58% | 88% | 89% | 73% | 70% | 76% | 64% | 85% | 74% | 89% | 70% | 77% |
| Most people in this collaborative group communicate openly with one another. | 77% | 85% | 87% | 89% | 90% | 81% | 78% | 79% | 76% | 80% | 78% | 94% | 78% | 82% |
| The collaborative group is open to "out-of-the-box" thinking where diverse and unique ideas are highly valued. | 78% | 81% | 74% | 86% | 91% | 76% | 83% | 85% | 81% | 75% | 77% | 84% | 85% | 82% |
| Most members of the collaborative group have a high degree of tolerance for risk-taking and change.* | 58% | 52% | 39% | 65% | 74% | 59% | 54% | 60% | 58% | 56% | 47% | 69% | 59% | 58% |
| The partners in this collaborative have a clear process for making group decisions.** | 65% | 57% | 53% | 88% | 75% | 58% | 54% | 74% | 52% | 60% | 58% | 68% | 66% | 65% |

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| This collaborative group is able to adapt to changing conditions, such as changes in political climate, business climate, or leadership. | 81% | 84% | 75% | 89% | 86% | 81% | 78% | 90% | 77% | 83% | 72% | 90% | 79% | 82% |
| Our collaborative group has adequate "people power" to do what it wants to accomplish.** | 75% | 53% | 73% | 82% | 67% | 65% | 54% | 65% | 54% | 66% | 64% | 81% | 69% | 66% |
| The level of commitment among the collaborative participants is consistently high. | 75% | 65% | 74% | 84% | 83% | 76% | 79% | 80% | 69% | 80% | 68% | 85% | 83% | 77% |
| Resources (time, money, materials, staff, space, etc.) are shared among groups/organizations. | 74% | 65% | 76% | 79% | 79% | 70% | 71% | 70% | 71% | 79% | 68% | 78% | 70% | 73% |
| All the most important stakeholders in the collaborative process.* | 67% | 70% | 63% | 77% | 74% | 81% | 66% | 77% | 61% | 68% | 55% | 81% | 63% | 69% |

* Differences between groups are significant at the 95% confidence level
** Differences between groups are significant at the 99% confidence level

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**Table B2-h. Regional Collaboration Success Outcomes by Respondent's Region[1]**

(Do you agree with the following statements about efforts to transform your region's economic competitiveness?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| My organization is benefiting from being involved in regional transformation efforts. | 93% | 94% | 94% | 98% | 93% | 100% | 95% | 94% | 91% | 92% | 95% | 91% | 94% | 94% |
| The collaborative group includes a diverse range of stakeholders involved in many different aspects of regional transformation. | 91% | 91% | 92% | 90% | 96% | 89% | 90% | 94% | 85% | 93% | 86% | 90% | 86% | 91% |
| My involvement (and/or that of my organization) in this collaborative effort is increasing over time.* | 63% | 74% | 67% | 72% | 77% | 59% | 58% | 72% | 53% | 67% | 63% | 81% | 63% | 67% |
| My organization had committed substantial resources to this collaborative effort.* | 79% | 83% | 69% | 75% | 94% | 83% | 79% | 81% | 69% | 79% | 68% | 83% | 76% | 78% |
| Significant cross-industry networks are developing in this region. | 77% | 75% | 84% | 92% | 83% | 78% | 82% | 79% | 74% | 73% | 76% | 88% | 68% | 79% |
| Valuable cross-professional networks are developing in this region.** | 85% | 91% | 88% | 95% | 92% | 73% | 89% | 92% | 83% | 82% | 85% | 97% | 81% | 88% |
| Collaboration has resulted in leveraging new sources of funds beyond those used in the past for these kinds of efforts. | 72% | 77% | 74% | 72% | 67% | 79% | 71% | 84% | 64% | 80% | 66% | 74% | 85% | 75% |
| I feel optimistic about our ability to improve the job skills of our regional workforce.* | 96% | 93% | 92% | 94% | 98% | 95% | 95% | 93% | 92% | 81% | 88% | 96% | 86% | 92% |
| I feel optimistic about the future of our regional economy. | 89% | 88% | 90% | 94% | 90% | 95% | 80% | 90% | 87% | 81% | 83% | 96% | 87% | 88% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

**Table B2-i.**
**Current Stage of Collaboration by Respondent's Region[1]***
(Which best describes the current status of collaborative efforts in which your
organization participates to further the goals of increasing regional competitiveness?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Co-Existence** | 11% | 5% | 2% | 3% | 1% | 0% | 1% | 2% | 5% | 2% | 3% | 0% | 3% | 3% |
| **Communication** | 22% | 29% | 22% | 17% | 9% | 26% | 27% | 20% | 23% | 22% | 23% | 12% | 16% | 20% |
| **Coordination** | 36% | 36% | 41% | 22% | 37% | 29% | 31% | 29% | 30% | 30% | 30% | 29% | 28% | 31% |
| **Cooperation** | 13% | 19% | 18% | 33% | 27% | 34% | 27% | 31% | 20% | 38% | 30% | 35% | 29% | 28% |
| **Collaboration** | 18% | 10% | 18% | 25% | 26% | 11% | 14% | 18% | 23% | 9% | 15% | 25% | 25% | 19% |

* Differences between groups are significant at the 95% confidence level
** Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

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**Table B-2j.**
**Participation in Varying Types of Collaborative Functions by Respondent's Region**[1]
(Which of the following collaborative function do you or others in your organization
participate in the context of efforts to increase your regions economic viability?)

| | WAEM | California Corridor | Metro Denver | Northwest Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana | Finger Lakes | Piedmont Triad | Wall Street West | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Strategic Planning*** | 62% | 70% | 68% | 64% | 67% | 59% | 52% | 71% | 57% | 57% | 55% | 69% | 73% | 63% |
| **Resource Acquisition**** | 44% | 49% | 49% | 49% | 44% | 41% | 36% | 58% | 33% | 51% | 32% | 50% | 53% | 45% |
| **Resource Allocation*** | 45% | 31% | 44% | 44% | 41% | 34% | 32% | 47% | 26% | 51% | 35% | 47% | 47% | 40% |
| **Policy and Program Direction** | 42% | 39% | 39% | 47% | 46% | 46% | 33% | 43% | 36% | 32% | 30% | 50% | 50% | 41% |
| **Staff Training**** | 39% | 22% | 39% | 27% | 29% | 24% | 43% | 38% | 18% | 39% | 26% | 49% | 28% | 33% |
| **Program Operations**** | 38% | 27% | 40% | 33% | 38% | 46% | 31% | 46% | 22% | 33% | 29% | 49% | 45% | 36% |
| **Information Dissemination**** | 52% | 65% | 60% | 48% | 61% | 46% | 49% | 69% | 50% | 57% | 52% | 72% | 65% | 58% |
| **Community Representation**** | 58% | 57% | 61% | 52% | 47% | 34% | 48% | 59% | 38% | 49% | 35% | 60% | 59% | 51% |
| **Community Leadership**** | 56% | 50% | 56% | 56% | 57% | 46% | 44% | 61% | 49% | 49% | 41% | 71% | 64% | 54% |
| **Program Evaluation*** | 39% | 35% | 33% | 33% | 40% | 27% | 29% | 34% | 26% | 30% | 16% | 42% | 41% | 33% |

\* Differences between groups are significant at the 95% confidence level
\*\* Differences between groups are significant at the 99% confidence level

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[1] The values reflect the valid percents of those who responding to each individual question rather than the total number of survey respondents.

# Appendix B-3. Social Network Analysis Tables

**Figure B-3a.**
**Types of Organizations in Regional Networks**

| Types of Organizations in Regional Networks | N | Percent |
|---|---|---|
| Industry | 388 | 25% |
| Education | 403 | 26% |
| Workforce System | 220 | 14% |
| Economic Development | 283 | 18% |
| Research | 78 | 5% |
| Other Government | 103 | 7% |
| Other | 62 | 4% |
| Total | 1537 | 100% |

**Figure B-3b.**
**Types of Organizations in Regional Networks**
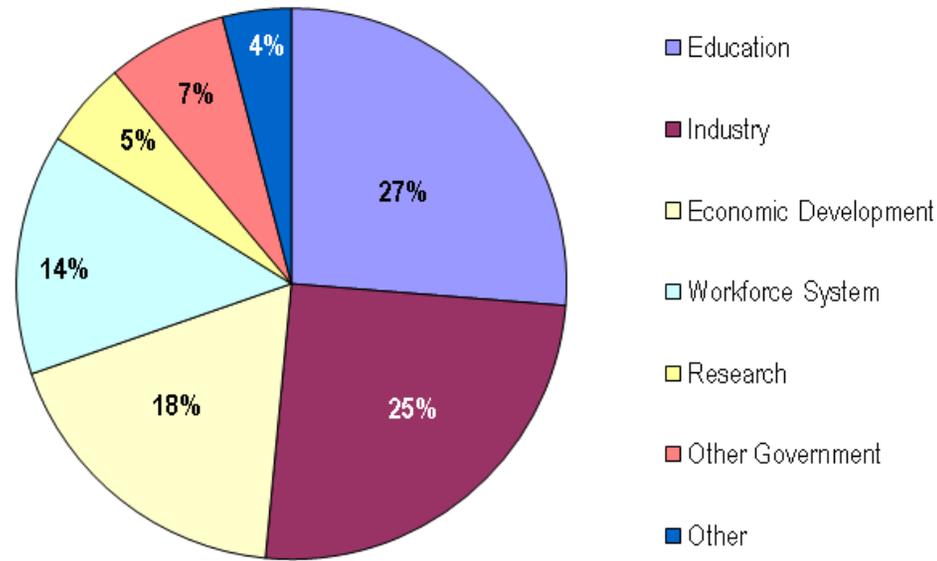
**Figure B-3c.**
**Types of Organizations in Regional Networks by Region**

| Region | N | Types of Organizations in Regional Networks | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Industry | Education | Workforce Systems | Economic Development | Research | Other Government | Other |
| **WAEM** | 116 | 20% | 34% | 4% | 24% | 3% | 14% | 2% |
| **California Corridor** | 129 | 32% | 25% | 12% | 19% | 4% | 4% | 5% |
| **Metro Denver** | 98 | 20% | 22% | 23% | 22% | 5% | 2% | 4% |
| **Northwest Florida** | 99 | 35% | 22% | 9% | 23% | 7% | 3% | 0% |
| **NCI** | 132 | 21% | 27% | 13% | 19% | 11% | 4% | 5% |
| **Kansas City** | 53 | 9% | 34% | 26% | 15% | 0% | 6% | 9% |
| **North Star Alliance** | 92 | 33% | 16% | 21% | 15% | 7% | 7% | 2% |
| **Mid-Michigan** | 184 | 25% | 26% | 15% | 17% | 6% | 6% | 5% |
| **West Michigan** | 125 | 32% | 16% | 11% | 21% | 3% | 7% | 10% |
| **Montana** | 128 | 13% | 27% | 21% | 15% | 4% | 18% | 3% |
| **Finger Lakes** | 113 | 26% | 27% | 16% | 12% | 6% | 10% | 3% |
| **Piedmont Triad** | 153 | 30% | 36% | 9% | 14% | 3% | 5% | 3% |
| **Wall Street West** | 115 | 25% | 28% | 14% | 23% | 4% | 1% | 4% |

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**Figure B-3d.**
**Organizational Roles in Regional Networks**

| Organizational Roles in Regional Networks | N | Percent |
|---|---|---|
| Leaders, Strategists, Visionaries, Decision-Makers | 685 | 45% |
| Implementers, Managers, Administrators | 691 | 45% |
| Day-to-Day Staff | 161 | 10% |
| Total | 1537 | 100% |

**Figure B-3e.**
**Regional Networks**



- Leaders, Strategists, Visionaries, Decision-Makers
- Implementers, Managers, Administrators
- Day-to-Day Staff

45%
45%
10%
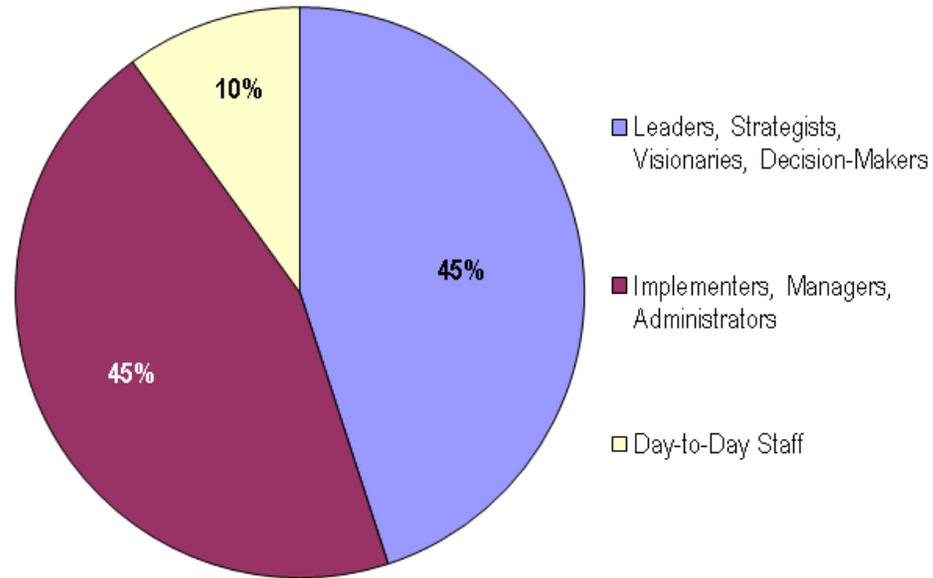
**Figure B-3f.**
**Organizational Roles in Regional Networks by Region**

| Region | N | Organizational Roles in Regional Networks | | |
| --- | --- | --- | --- | --- |
| | | Leaders, Strategists, Visionaries, Decision-Makers | Implementers, Managers, Administrators | Day-to-Day Staff |
| **WAEM** | 116 | 46% | 47% | 7% |
| **California Corridor** | 129 | 50% | 43% | 6% |
| **Metro Denver** | 98 | 42% | 46% | 12% |
| **Northwest Florida** | 99 | 55% | 40% | 5% |
| **NCI** | 132 | 42% | 42% | 16% |
| **Kansas City** | 53 | 43% | 34% | 23% |
| **North Star Alliance** | 92 | 48% | 34% | 19% |
| **Mid-Michigan** | 184 | 49% | 40% | 11% |
| **West Michigan** | 125 | 46% | 51% | 2% |
| **Montana** | 128 | 29% | 54% | 17% |
| **Finger Lakes** | 113 | 35% | 52% | 12% |
| **Piedmont Triad** | 153 | 50% | 43% | 8% |
| **Wall Street West** | 115 | 42% | 52% | 6% |

**Figure B-3g.**
**Proportion of Contacts at Each Level within Collaborating Organizations**

| Contact | Respondent | | |
|---|---|---|---|
| | **Leaders, Strategists, Visionaries, Decision-Makers** (42% of respondents) | **Implementers, Managers, Administrators** (46% of respondents) | **Day-to-Day Staff** (12% of respondents) |
| **Leaders, Strategists, Visionaries, Decision-Makers** | 64% | 45% | 38% |
| **Implementers, Managers, Administrators** | 32% | 48% | 47% |
| **Day-to-Day Staff** | 3% | 6% | 14% |

**Figure B-3h.**
**Frequency of Contact in Regional Networks**



Legend:
- 1/year - 5/year
- 6/year - 11/year
- 1/month
- 2/month - 3/month
- 1/week - 2/week
- 3+/week

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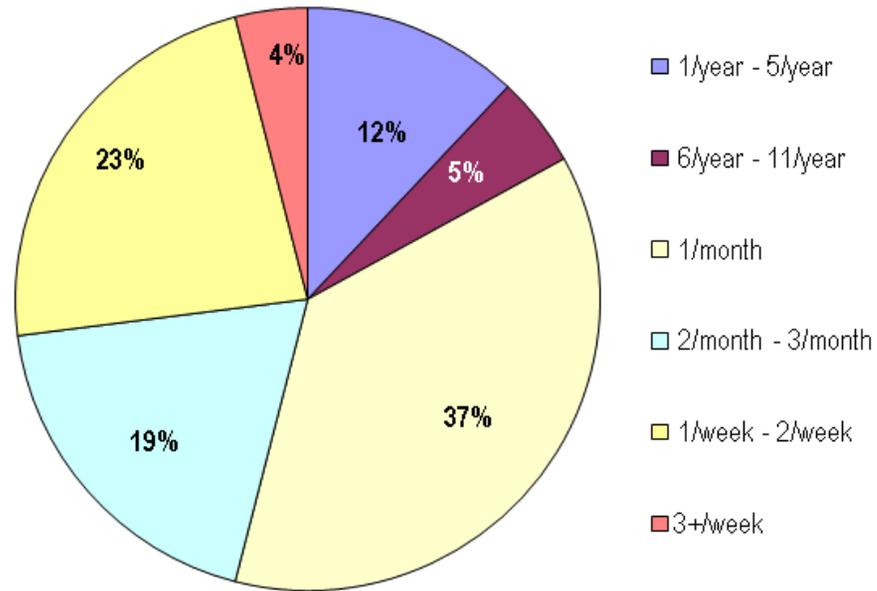
**Figure B-3i.**
**Working Across Organizational Boundaries**

| Region | Percent of Network Ties Crossing Organization Boundaries | N |
|---|---|---|
| Wall Street West | 81% | 189 |
| Piedmont Triad | 79% | 225 |
| Kansas City | 78% | 87 |
| North Star Alliance | 76% | 197 |
| Mid-Michigan | 75% | 292 |
| West Michigan | 75% | 158 |
| North Central Indiana | 73% | 185 |
| WAEM | 73% | 147 |
| California Corridor | 72% | 162 |
| Montana | 71% | 189 |
| Finger Lakes | 69% | 173 |
| Northwest Florida | 69% | 150 |
| Metro Denver | 67% | 133 |
| Overall | 74% | 2287 |

**Figure B-3j.**
**Working Across Levels in Organizations**

| Region | Percent of Network Ties Crossing Organizational Levels | N |
|---|:---:|:---:|
| North Star Alliance | 58% | 197 |
| Metro Denver | 53% | 133 |
| WAEM | 52% | 147 |
| Montana | 51% | 189 |
| Piedmont Triad | 51% | 225 |
| North Central Indiana | 50% | 185 |
| Finger Lakes | 49% | 173 |
| California Corridor | 48% | 162 |
| West Michigan | 48% | 158 |
| Mid-Michigan | 47% | 292 |
| Wall Street West | 44% | 189 |
| Northwest Florida | 40% | 150 |
| Kansas City | 38% | 87 |
| Overall | 49% | 2287 |

# Appendix C
# WIA Demographic Factors by Region

**bpa** **Berkeley Policy Associates**

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**Table C.1**
**Pre-Grant WIA Participant Demographics: Comparing Generation I Regions with Their States (2006)**

| | WAEM | | California Corridor | | Metro Denver | | Northwest Florida | | NCI | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | Region | State | Region | State |
| *Total # WIA Participants* | *136,952* | *181,745* | *51,419* | *143,818* | *12,205* | *14,077* | *5,271* | *76,099* | *15,142* | *17,753* |
| **Gender** | | | | | | | | | | |
| Male | 46% | 44% | 45% | 49% | 41% | 42% | 40% | 46% | 35% | 35% |
| **Age (years)** | | | | | | | | | | |
| Age 15 and Under | 1% | 1% | 9% | 6% | 6% | 5% | 22% | 9% | 6% | 7% |
| 16 - 17 | 3% | 4% | 16% | 12% | 14% | 14% | 19% | 12% | 10% | 10% |
| 18 - 21 | 18% | 18% | 21% | 16% | 22% | 22% | 18% | 19% | 27% | 28% |
| 22 - 29 | 27% | 27% | 11% | 16% | 13% | 13% | 14% | 14% | 13% | 13% |
| 30 - 44 | 32% | 31% | 21% | 28% | 23% | 24% | 17% | 25% | 24% | 23% |
| 45 - 54 | 14% | 14% | 15% | 17% | 15% | 16% | 8% | 15% | 14% | 14% |
| 55 and Over | 7% | 6% | 7% | 7% | 6% | 7% | 2% | 7% | 5% | 5% |
| **Race/Ethnicity** | | | | | | | | | | |
| American Indian or Alaska Native | 2% | 1% | 1% | 1% | 2% | 2% | 0 | 0 | 0 | 0 |
| Asian or Pacific Islander | 1% | 1% | 8% | 10% | 1% | 1% | 1% | 1% | 1% | 1% |
| Black | 47% | 54% | 21% | 21% | 9% | 10% | 44% | 36% | 20% | 27% |
| Hispanic | 1% | 1% | 49% | 42% | 34% | 32% | 5% | 23% | 4% | 3% |
| White | 49% | 43% | 19% | 25% | 52% | 53% | 48% | 35% | 73% | 67% |
| Multiple Race | 0 | 0 | 1% | 1% | 1% | 2% | 1% | 1% | 1% | 1% |
| **Education Level** | | | | | | | | | | |
| Eleventh Grade or Less | 7% * | 10% | 42% | 37% | 38% | 36% | 48% | 33% | 33% | 33% |
| High School Diploma or Equivalent | 12% | 16% | 31% | 34% | 34% | 34% | 31% | 41% | 40% | 38% |
| Any College | 4% | 7% | 9% | 11% | 19% | 20% | 8% | 10% | 16% | 16% |
| Bachelor Degree or Higher | 1% | 2% | 7% | 7% | 10% | 10% | 3% | 8% | 3% | 3% |
| **Veteran** | 10% | 9% | 3% | 5% | 6% | 7% | 6% | 4% | 4% | 5% |
| **Employed at Registration** | 19% | 19% | 8% | 15% | 17% | 17% | 19% | 28% | 18% | 18% |
| **Pre-Program Avg. Qtrly. Earnings** | $2,474 | $2,416 | $3,458 | $3,167 | $3,163 | $3,235 | $3,116 | $4,860 | $3,772 | $3,692 |
| **Barriers to Employment** | | | | | | | | | | |
| Homeless Adult or Runaway Youth * | 0 | 0 | 3% | 4% | 4% | 4% | 1% | 1% | 2% | 3% |
| Offender ** | 0 | 0 | 8% | 6% | 14% | 13% | 7% | 6% | 9% | 9% |
| Disability | 7% | 7% | 9% | 9% | 11% | 12% | 15% | 9% | 11% | 10% |
| Limited English Proficiency | 0 | 1% | 8% | 8% | 3% | 3% | 1% | 3% | 1% | 1% |
| Single Parent | 4% | 7% | 11% | 12% | 20% | 19% | 17% | 15% | 20% | 20% |
| Receive Unemployment Benefits | 5% | 6% | 18% | 17% | 21% | 22% | 8% | 16% | 20% | 18% |
| Low Income | 13% | 16% | 61% | 58% | 64% | 62% | 69% | 49% | 59% | 60% |
| At Least One Barrier | 1% | 1% | 4% | 5% | 4% | 4% | 7% | 4% | 4% | 4% |

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| | Kansas City | | North Star Alliance | | Mid-Michigan | | West Michigan | | Montana | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | Region | State | Region | State |
| *Total # WIA Participants* | *8,316* | *29,057* | *3,761* | *3,761* | *11,182* | *45,782* | *10,523* | *45,782* | *2,468* | *2,468* |
| **Gender** | | | | | | | | | | |
| Male | 44% | 43% | 42% | 42% | 44% | 47% | 49% | 47% | 43% | 43% |
| **Age (years)** | | | | | | | | | | |
| Age 15 and Under | 10% | 8% | 2% | 2% | 8% | 13% | 8% | 13% | 7% | 7% |
| 16 - 17 | 14% | 12% | 12% | 12% | 10% | 13% | 12% | 13% | 17% | 17% |
| 18 - 21 | 16% | 15% | 17% | 17% | 18% | 18% | 21% | 18% | 19% | 19% |
| 22 - 29 | 17% | 15% | 11% | 11% | 19% | 14% | 12% | 14% | 15% | 15% |
| 30 - 44 | 25% | 27% | 30% | 30% | 28% | 25% | 26% | 25% | 24% | 24% |
| 45 - 54 | 14% | 18% | 20% | 20% | 14% | 14% | 16% | 14% | 15% | 15% |
| 55 and Over | 5% | 6% | 9% | 9% | 4% | 5% | 5% | 5% | 4% | 4% |
| **Race/Ethnicity** | | | | | | | | | | |
| American Indian or Alaska Native | 1% | 0 | 1% | 1% | 0 | 1% | 1% | 1% | 11% | 11% |
| Asian or Pacific Islander | 1% | 1% | 1% | 1% | 0 | 1% | 1% | 1% | 0 | 0 |
| Black | 33% | 31% | 4% | 4% | 34% | 34% | 23% | 34% | 1% | 1% |
| Hispanic | 4% | 3% | 1% | 1% | 6% | 5% | 11% | 5% | 4% | 4% |
| White | 59% | 62% | 90% | 90% | 58% | 58% | 63% | 58% | 79% | 79% |
| Multiple Race | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 4% | 4% |
| **Education Level** | | | | | | | | | | |
| Eleventh Grade or Less | 33% | 29% | 27% | 27% | 31% | 42% | 38% | 42% | 35% | 35% |
| High School Diploma or Equivalent | 36% | 33% | 42% | 42% | 36% | 40% | 48% | 40% | 38% | 38% |
| Any College | 16% | 17% | 14% | 14% | 0 | 0 | 0 | 0 | 25% | 25% |
| Bachelor Degree or Higher | 4% | 3% | 4% | 4% | 7% | 8% | 9% | 8% | 1% | 1% |
| **Veteran** | 5% | 6% | 6% | 6% | 4% | 4% | 4% | 4% | 7% | 7% |
| **Employed at Registration** | 15% | 14% | 14% | 14% | 10% | 10% | 12% | 10% | 25% | 25% |
| **Pre-Program Avg. Qtrly. Earnings** | $3,132 | $3,681 | $3,272 | $3,272 | $1,916 | $2,566 | $2,745 | $2,566 | $3,657 | $3,657 |
| **Barriers to Employment** | | | | | | | | | | |
| Homeless Adult or Runaway Youth * | 1% | 1% | 3% | 3% | 2% | 2% | 3% | 2% | 6% | 6% |
| Offender ** | 4% | 4% | 3% | 3% | 4% | 5% | 9% | 5% | 9% | 9% |
| Disability | 18% | 11% | 19% | 19% | 12% | 11% | 15% | 11% | 10% | 10% |
| Limited English Proficiency | 1% | 2% | 3% | 3% | 1% | 2% | 4% | 2% | 1% | 1% |
| Single Parent | 15% | 14% | 14% | 14% | 17% | 16% | 21% | 16% | 21% | 21% |
| Receive Unemployment Benefits | 20% | 24% | N/A | N/A | 15% | 21% | 24% | 21% | 31% | 31% |
| Low Income | 61% | 51% | 51% | 51% | 55% | 62% | 61% | 62% | 55% | 55% |
| At Least One Barrier | 17% | 20% | 5% | 5% | 7% | 8% | 5% | 8% | 0 | 0 |

| | Finger Lakes | | Piedmont Triad | | Wall Street West | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | **Region** | **State** |
| *Total # WIA Participants* | *30,495* | *34,955* | *5,457* | *382,980* | *4,840* | *34,070* | *298,031* | *966,565* |
| **Gender** | | | | | | | | |
| Male | 55% | 38% | 38% | 54% | 48% | 53% | **49%** | **49%** |
| **Age (years)** | | | | | | | | |
| Age 15 and Under | 2% | 8% | 6% | 3% | 10% | 7% | **4%** | **4%** |
| 16 - 17 | 3% | 13% | 13% | 3% | 11% | 8% | **7%** | **7%** |
| 18 - 21 | 9% | 16% | 17% | 8% | 15% | 15% | **14%** | **14%** |
| 22 - 29 | 18% | 16% | 13% | 19% | 14% | 13% | **19%** | **19%** |
| 30 - 44 | 33% | 29% | 30% | 34% | 28% | 29% | **30%** | **30%** |
| 45 - 54 | 22% | 14% | 16% | 21% | 17% | 20% | **17%** | **17%** |
| 55 and Over | 12% | 5% | 5% | 13% | 6% | 7% | **9%** | **9%** |
| **Race/Ethnicity** | | | | | | | | |
| American Indian or Alaska Native | 0 | 3% | 0 | 0 | 0 | 0 | **1%** | **1%** |
| Asian or Pacific Islander | 1% | 1% | 1% | 3% | 1% | 1% | **3%** | **3%** |
| Black | 20% | 51% | 55% | 20% | 0 | 26% | **30%** | **30%** |
| Hispanic | 8% | 2% | 2% | 16% | 13% | 6% | **16%** | **16%** |
| White | 65% | 43% | 41% | 48% | 73% | 65% | **45%** | **45%** |
| Multiple Race | 1% | 1% | 1% | 3% | 2% | 2% | **2%** | **2%** |
| **Education Level** | | | | | | | | |
| Eleventh Grade or Less | 9% * | 34% | 31% | 10% | 9% * | 7% | **20%** | **20%** |
| High School Diploma or Equivalent | 10% | 47% | 47% | 10% | 19% | 14% | **22%** | **22%** |
| Any College | 6% | 15% | 17% | 5% | 6% | 5% | **8%** | **8%** |
| Bachelor Degree or Higher | 3% | 4% | 5% | 3% | 2% | 2% | **4%** | **4%** |
| **Veteran** | 10% | 6 | 6% | 8% | 6% | 8% | **7%** | **7%** |
| **Employed at Registration** | 16% | 13% | 15% | 9% | 23% | 25% | **15%** | **15%** |
| **Pre-Program Avg. Qtrly. Earnings** | $4,430 | $2,874 | $3,010 | $5,624 | $2,871 | $3,154 | **$2,963** | **4,235** |
| **Barriers to Employment** | | | | | | | | |
| Homeless Adult or Runaway Youth * | 0 | 1% | 1% | 0% | 0 | 1% | **1%** | **1%** |
| Offender ** | 1% | 6% | 8% | 0% | 4% | 4% | **3%** | **3%** |
| Disability | 7% | 7% | 7% | 5% | 12% | 10% | **7%** | **7%** |
| Limited English Proficiency | 0 | 2% | 2% | 1% | 1% | 1% | **2%** | **2%** |
| Single Parent | 1% | 22% | 20% | 1% | 17% | 10% | **8%** | **8%** |
| Receive Unemployment Benefits | 6% | 33% | 32% | 7% | 40% | 39% | **13%** | **13%** |
| Low Income | 11% | 53% | 52% | 10% | 57% | 40% | **29%** | **29%** |
| At Least One Barrier | 9% | 11% | 1% | 1% | 24% | 17% | **4%** | **4%** |

**Table C.2**
**Education and Race Barriers to Employment, by Region; Comparing Census to WIASRD**
**2008**

| Region | Total population 2008 | Percent Minority Population | | | EDUCATIONAL ATTAINMENT, age 25+: Less than HS diploma | | |
|---|---|---|---|---|---|---|---|
| | | CENSUS | WIA | Difference | CENSUS | WIA | Difference |
| WAEM | 1,080,155 | 39% | 57% | **-18%** | 29% | 10% | **19%** |
| California Corridor | 26,158,884 | 24% | 76% | **-52%** | 21% | 37% | **-16%** |
| Metro Denver | 3,288,404 | 11% | 47% | **-36%** | 11% | 36% | **-25%** |
| Northwest Florida | 1,349,082 | 24% | 65% | **-40%** | 18% | 33% | **-15%** |
| NCI | 541,803 | 6% | 33% | **-27%** | 16% | 33% | **-17%** |
| Kansas City | 2,427,683 | 16% | 38% | **-22%** | 10% | 29% | **-19%** |
| North Star Alliance | 1,106,805 | 4% | 10% | **-6%** | 10% | 27% | **-17%** |
| Mid-Michigan | 1,750,016 | 13% | 43% | **-29%** | 11% | 31% | **-21%** |
| West Michigan | 1,324,516 | 11% | 37% | **-26%** | 12% | 38% | **-26%** |
| Montana | 169,233 | 24% | 21% | **3%** | 17% | 35% | **-18%** |
| Finger Lakes | 1,192,301 | 14% | 57% | **-43%** | 12% | 34% | **-22%** |
| Piedmont Triad | 1,603,101 | 24% | 52% | **-28%** | 19% | 10% | **8%** |
| Wall Street West | 1,900,058 | 8% | 36% | **-28%** | 14% | 7% | **7%** |
| **TOTAL** | **43,892,041** | **20%** | **55%** | **-35%** | **18%** | **20%** | **-2%** |

**Table 6.15**
**Demographic Measures: Comparing Generation I WIRED Regions with Their States**

| Measure | WAEM | | California Corridor | | Metro Denver | | Florida | | NCI | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | Region | State | Region | State |
| **Total Population** | 1,080,155 | 7,600,518 | 26,158,884 | 36,756,666 | 3,288,404 | 4,939,456 | 1,349,082 | 18,328,340 | 541,803 | 6,376,792 |
| **Population Density[a]** | 39.8 | 77.8 | 447.7 | 235.7 | 294.0 | 47.6 | 116.9 | 339.9 | 96.6 | 177.8 |
| **Race/Ethnicity** | | | | | | | | | | |
| White | 61% | 67% | 76% | 77% | 89% | 90% | 76% | 80% | 94% | 88% |
| Black | 37% | 31% | 7% | 7% | 5% | 4% | 20% | 16% | 3% | 9% |
| American Indian | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 0% | 0% |
| Asian or Pacific Islander | 1% | 1% | 13% | 13% | 3% | 3% | 2% | 2% | 2% | 1% |
| Other/Multiple Race | 1% | 1% | 2% | 3% | 2% | 2% | 2% | 1% | 1% | 1% |
| *Hispanic Ethnicity[b]* | 2% | 3% | 40% | 37% | 21% | 20% | 4% | 21% | 5% | 5% |
| **Age** | | | | | | | | | | |
| 15 to 24 | 15% | 14% | 15% | 15% | 13% | 13% | 15% | 13% | 16% | 14% |
| 25 to 34 | 13% | 13% | 14% | 14% | 15% | 15% | 13% | 13% | 14% | 13% |
| 35 to 44 | 12% | 13% | 15% | 15% | 15% | 15% | 13% | 14% | 13% | 14% |
| 45 to 54 | 14% | 14% | 14% | 14% | 15% | 15% | 14% | 14% | 14% | 15% |
| 55 to 64 | 11% | 11% | 10% | 10% | 11% | 11% | 12% | 12% | 11% | 11% |
| 65 and older | 14% | 13% | 11% | 11% | 10% | 10% | 13% | 17% | 14% | 13% |
| **Education Level[c]** | | | | | | | | | | |
| Less than HS Diploma | 29% | 26% | 21% | 20% | 11% | 11% | 18% | 20% | 16% | 18% |
| High School Graduate | 32% | 30% | 22% | 22% | 22% | 24% | 28% | 29% | 42% | 37% |
| Some College, No Degree | 24% | 26% | 28% | 28% | 28% | 29% | 31% | 29% | 24% | 26% |
| Advanced Degree | 14% | 18% | 30% | 29% | 38% | 35% | 23% | 22% | 18% | 19% |
| **Labor Force** | 441,295 | 3,358,308 | 13,074,994 | 18,373,695 | 1,803,004 | 2,683,788 | 681,691 | 9,227,641 | 261,480 | 3,138,483 |
| Percent Unemployment | 11% | 10% | 12% | 12% | 7% | 7% | 8% | 11% | 10% | 9% |

*Source: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts and US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls*

[a] Population density is population per square mile

[b] Hispanics may be of any race, so also are included in applicable race categories.

[c] Education level for population age 25 and older

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## Table 6.15 (continued)

| Measure | Kansas City Region | Kansas City State | Maine Region | Maine State | Mid-Michigan Region | Mid-Michigan State | West Michigan Region | West Michigan State | Montana Region | Montana State |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Population** | 2,427,683 | 8,713,739 | 1,106,805 | 1,316,456 | 1,750,016 | 10,003,422 | 1,324,516 | 10,003,422 | 169,233 | 967,440 |
| **Population Density**[a] | 260.6 | 57.8 | 62.7 | 42.7 | 204.5 | 176.1 | 273.8 | 176.1 | 1.9 | 6.6 |
| **Race/Ethnicity** | | | | | | | | | | |
| White | 84% | 86% | 96% | 96% | 87% | 81% | 89% | 81% | 76% | 90% |
| Black | 11% | 10% | 1% | 1% | 9% | 14% | 7% | 14% | 0% | 1% |
| American Indian | 0.7% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 22% | 6% |
| Asian or Pacific Islander | 2% | 2% | 1% | 1% | 2% | 2% | 2% | 2% | 0% | 1% |
| Other/Multiple Race | 2% | 2% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| *Hispanic Ethnicity*[b] | 7% | 5% | 1% | 1% | 4% | 4% | 8% | 4% | 2% | 3% |
| **Age** | | | | | | | | | | |
| 15 to 24 | 14% | 14% | 13% | 13% | 15% | 14% | 15% | 14% | 14% | 14% |
| 25 to 34 | 14% | 13% | 11% | 11% | 12% | 12% | 14% | 12% | 10% | 12% |
| 35 to 44 | 14% | 13% | 14% | 14% | 13% | 14% | 14% | 14% | 11% | 12% |
| 45 to 54 | 15% | 15% | 17% | 17% | 15% | 15% | 15% | 15% | 16% | 16% |
| 55 to 64 | 11% | 11% | 13% | 14% | 12% | 12% | 10% | 12% | 13% | 13% |
| 65 and older | 12% | 13% | 15% | 15% | 13% | 13% | 11% | 13% | 16% | 14% |
| **Education Level**[c] | | | | | | | | | | |
| Less than HS Diploma | 10% | 13% | 10% | 11% | 11% | 12% | 12% | 12% | 17% | 13% |
| High School Graduate | 29% | 32% | 35% | 36% | 34% | 32% | 32% | 32% | 33% | 31% |
| Some College, No Degree | 29% | 29% | 27% | 27% | 33% | 31% | 31% | 31% | 32% | 32% |
| Advanced Degree | 32% | 26% | 28% | 26% | 23% | 25% | 25% | 25% | 17% | 24% |
| **Labor Force** | 1,286,265 | 4,526,293 | 599,616 | 701,124 | 844,725 | 4,823,758 | 658,236 | 4,823,758 | 80,058 | 498,464 |
| Percent Unemployment | 9% | 8% | 7% | 8% | 14% | 15% | 13% | 15% | 6% | 6% |

*Source: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts and US Bureau of Labor Statistics, Local Area Unemployment Statistics table laucntycur14.xls*

[a] Population density is population per square mile

[b] Hispanics may be of any race, so also are included in applicable race categories.

[c] Education level for population age 25 and older

**Table 6.15 (continued)**

| Measure | New York | | North Carolina | | Pennsylvania | |
|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State |
| **Total Population** | 1,192,301 | 19,490,297 | 1,603,101 | 9,222,414 | 1,900,058 | 12,448,279 |
| **Population Density**[a] | 247.0 | 412.8 | 268.8 | 189.3 | 359.6 | 277.8 |
| **Race/Ethnicity** | | | | | | |
| White | 86% | 73% | 76% | 74% | 92% | 85% |
| Black | 10% | 17% | 21% | 22% | 5% | 11% |
| American Indian | 0% | 1% | 1% | 1% | 0% | 0% |
| Asian or Pacific Islander | 2% | 7% | 2% | 2% | 2% | 2% |
| Other/Multiple Race | 1% | 2% | 1% | 1% | 1% | 1% |
| *Hispanic Ethnicity*[b] | 5% | 17% | 8% | 7% | 10% | 5% |
| **Age** | | | | | | |
| 15 to 24 | 16% | 14% | 13% | 14% | 14% | 14% |
| 25 to 34 | 12% | 13% | 13% | 13% | 12% | 12% |
| 35 to 44 | 13% | 14% | 15% | 15% | 14% | 14% |
| 45 to 54 | 16% | 15% | 15% | 14% | 15% | 15% |
| 55 to 64 | 12% | 11% | 12% | 11% | 12% | 12% |
| 65 and older | 14% | 13% | 13% | 12% | 16% | 15% |
| **Education Level**[c] | | | | | | |
| Less than HS Diploma | 12% | 16% | 19% | 17% | 14% | 13% |
| High School Graduate | 30% | 29% | 31% | 29% | 39% | 38% |
| Some College, No Degree | 29% | 23% | 27% | 28% | 24% | 23% |
| Advanced Degree | 29% | 32% | 23% | 26% | 23% | 26% |
| **Labor Force** | 619,095 | 9,677,777 | 803,609 | 4,526,072 | 964,912 | 6,350,399 |
| Percent Unemployment | 8% | 9% | 11% | 10% | 9% | 8% |

*Source: US Census 2008 estimates (FactFinder tables T1, T3, T6, T8 and Quickfacts and US Bureau of Labor Statistics, Local Area Unemployment Statistics table lauclntycur14.xls*

[a] Population density is population per square mile

[b] Hispanics may be of any race, so also are included in applicable race categories.

[c] Education level for population age 25 and older

# Appendix D – Region-Defined Measures of Progress

**Figure D-1.**
**WIRED WAEM Metrics Progress Report - Grantee Results**

| | Progress Report Performance Categories and Measures | 1/31/2010 Target | Previous Quarters | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| | **Category 1: Education/Training/Assessment** | WAEM WIRED targeted advanced manufacturing (education, training, credentialing) and entrepreneurship (networking, training, support) as its top priorities. | | | |
| 1 | **Total Number of Intakes into Advanced Manufacturing or Entrepreneurship Workforce Education/Training Programs and M3 Assessments Using WIRED Funds.** | | 3668 | 607 | 4275 |
| 4 | **Number of Entrepreneurs Completing Education/Training Who Create Their Own Businesses, as Identified by Survey.** | 80 | 3 | 1 | 4 |
| 5 | **Number Beginning Assessment toward an M3 Credential Using WIRED Funds by Level** (M3 is a national standards based, modern multi-skill manufacturing credential based on assessed competency). | | | | |
| a. | Number beginning M3 Production Level I assessment | 3065 | 2071 | 203 | 2274 |
| b. | Number beginning M3 Production Level II assessment | 1200 | 340 | 71 | 411 |
| c. | Number beginning M3 Advanced Production Level assessment | 600 | 400 | 0 | 400 |
| 7 | **Investment in WAEM WIRED Education/Training/Assessment.** | $4,430,000 | $5,311,204 | $1,430,590 | $6,741,794 |
| a. | Investment of WIRED Funds in education/training/assessment | $4,430,000 | $4,125,180 | $ 3,232 | $4,128,412 |
| b. | Federal Funds Leveraged by Partners for education/training/assessment | | $44,580 | $ 46,392 | $90,972 |
| | **Category 2: Capacity Building** | | | | |
| 8 | **Other Funds Leveraged by WIRED Partners (excluding 7b),** see quarterly reports for details. | | $4,188,433 | $ - | $4,188,433 |
| d | Number of communities initiating Place-Building planning (including strategic planning, entrepreneur support planning, and Small Town Design Initiative and related MainStreet planning) | 53 | 79 | 0 | 79 |
| e | Number of Place-Building plans completed | plans | 30 | 4 | 34 |
| g | Number of newsletters published | newsletters | 16 | 0 | 16 |
| 10 | **Total Number of WAEM Partners** -- by type | 77 | 827 | 0 | 48 |

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| | Progress Report Performance Categories and Measures | 1/31/2010 Target | Previous Quarters | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| j | Number of high schools and youth program partners that have agreed to offer WAEM skills in their programs | 61 | 48 | **0** | 48 |
| k | Number of business partners receiving Governors' Seal awards | 16 | 0 | **0** | 0 |
| d | Total MyBiz Users self-reporting they started their own business within the WAEM Region | report | **12** | 7 | **19** |
| e | Total number of communities for which MyBiz Community Start It Cards have been developed and distributed | cards | **165** | 0 | **165** |
| a. | Total number of Career Readiness Certificates (CRCs) Awarded in the WAEM Region by state workforce agencies | **3335** | **8946** | **1465** | **10411** |
| b. | Total number of individuals registered in the Amatrol "anytime, anywhere" on-line advanced manufacturing training system | **4275** | **2842** | **361** | **3203** |
| c | Total number of M3 Assessment labs opened at WAEM colleges | **8** | **14** | **1** | **15** |
| | **Category 3: Economic Indicators - Annual Figures** | **2007   Baseline** | **2008** | **2009** | **2010** |
| **14** | **Employment by Targeted Industry Cluster** | | | | |
| a. | Advanced Manufacturing Clusters (including non-manufacturing employment related to clusters) | 78,073 | 74,265 | | |
| b. | Entrepreneurship | 62,117 | *Data not yet available* | *Data not yet available* | |
| **15** | **Average Wage by Industry Cluster** | | | | |
| a. | Advanced Manufacturing Clusters | $19.43 | $19.99 | | |
| b. | Entrepreneurship | *Data not available* | *Data not available* | *Data not available* | |
| **16** | **Unemployment Rate** | 5.49% | 6.68% | 8.15% | |
| **17** | **Performance Improvement on common Measures by WIRED Participants Region Wide as Reported by the Workforce Investment System** | | | | |
| a. | Entered Employment Rate (adult common measure) | *ADECA* | no data | 64% | |
| b. | Employment Retention Rate (adult common measure) | *ADECA* | no data | no data | |
| c | Average Earnings (adult common measure) | *ADECA* | no data | no data | |

| | Progress Report Performance Categories and Measures | 1/31/2010 Target | Previous Quarters | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| 18 | **Number Receiving a Degree or Certificate from a WAEM Community or Junior College in one of the WAEM Target Areas** | | | | |
| a. | Advanced Manufacturing | → | 569 | 489 | |
| b. | Entrepreneurship | *0* | 0 | 0 | |
| 19 | **Number of New Business Startups or Expansions** | 713 | 600 | | |

**Figure D-2.**
**WIRED CIC Grant Metrics Progress Report - Grantee Results**

| Progress Report Performance Categories and Measures | | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| **Category 2" Capacity Building** | | **Suggested Metrics for Quarterly Reporting** | | | |
| Proj. 1.1 | Innovation Driven Economic Development Model (Proj. 1.1) | Econ Dev Model | Draft competed April 2008 | Model rolled-out 9/22/08 | Completed Qtr 3 - 2008 |
| Proj. 1.1 | Innovation Driven Economic Development Toolkit (Proj. 1.1) | Econ Dev Toolkit | In development as projects complete | | Completed Qtr 4 - 2008 |
| Proj. 1.1 | CA Innovation Corridor Innovation Asset Portal | Innovation Asset Portal | Still in process | In final BETA test | Completed Qtr 4 - 2008 |
| Proj. 1.1 | Innovation roundtable event/report (Proj. 1.1) | Report | Event Completed Qtr-2 2007  Report Completed Qtr-3 2007 | | Completed Qtr-3 2007 |
| Proj. 1.7 | Completion of the WIB Toolkit with 3 major components (1.7) | WIB Toolkit | Completed Qtr 2 - 2008 | | Completed Qtr 2 - 2008 |
| Proj. 2.2 | Report of Analysis of Supplier Network Transformation Survey (2.2) | 1 Report | Draft completed Qtr-1 2008 | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 2.2 | Development of key learning outcomes recommended for inclusion in supply chain training curriculum, with outcomes derived from survey (2.2) | Key Learning Outcomes | Completed Qtr 3 - 2008 | | Completed Qtr 3 - 2008 |
| Proj. 3.5 | Development of ground breaking partnership among key high level stakeholders in education, academia, industry, government and informal science | Working Partnership established | Partnership established Qtr-2 2006 | | Partnership established Qtr-2 2006 |
| Proj. 3.5 | Development of the CA STEM Collaborative Action Plan (STEMCAP) | STEMCAP | Completed Qtr 1 -2008 | | Completed Qtr 1 -2008 |
| Proj. 3.14 | Development and administering of pre and post surveys of WIBs to benchmark and track transformative activities. Survey distribution to all 50 WIBs;  a minimum of 30 responses in each pre and post effort, with predominant focus on the 23 WIBs in the Corridor | Develop pre- and post-surveys with 30 completed WIB responses | Pre survey completed Oct '06, delivered Jan. 07  Mid project survey released Qtr 1-2008 | Mid project survey results completed. Delivered Qtr 2-2008 | Completed Qtr 4 - 2008 |
| Proj. 3.11 | Development of new community college AA degree for Engineering Technology/Emphasis in Mechatronics | Degree developed, & approved by Community College Chancellor's Office approval for AA degrees | Completed Qtr-3 2007 | | Completed Qtr-3 2007 |

| Progress Report Performance Categories and Measures | | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| Proj. 3.11 | Development of new AA degree for Electronics Technology/Emphasis in Mechatronics | Degree developed, & approved by Community College Chancellor's Office approval for AA degrees | Completed Qtr-3 2007 | | Completed Qtr-3 2007 |
| Proj. 1.5 | Literature review of best practices in technology transfer and innovation | Lit. review completed | Lit. review completed | | Lit. review completed |
| Proj. 1.5 | Summary report of each of 6 corporate consultations | Summary report completed | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 1.5 | Findings reported in various professional publications and industry forums | articles | 3 | Complete - CWA MMM, CSA WIRED Supplier Forum | Completed Qtr 4 - 2008 |
| Proj. 3.2 | Development of consortium comprised of representatives of space science and research and university communities, with minimum of three universities represented, three companies represented | Consortium Developed | Completed Qtr 4 - 2007 | | Completed Qtr 4 - 2007 |
| Proj. 3.2 | White paper outlining promising developments and recommendations for enhanced partnering between the space science and research/university communities and industry to foster affordable space opportunities for small satellites and university payloads, as well as opportunities to provide university students critical real-world space experience | White Paper | White Paper in Development | White Paper in Development | Completed Qtr 4 - 2008 |
| Proj. 3.3 | Development of Stanford student payload internships to include three interns: two undergrads developing payload launchers for student payloads, one graduate research assistant to develop balloon launch program and quarterly student assessments in project 3.10 | Internships 7 supporting agreements | Internships developed | Internships developed 4 undergrad, 2 HS | Internships developed 6 undergrad, 2 HS, one grad |
| Proj. 3.3 | Development of university (CSU Long Beach) aerospace student rocket/launch development program featuring min of two industry mentors (Garvey Spacecraft Corporation). | Program curricula & agreements | Program Developed | | Program Developed Qtr 1 - 2007 (12 students/8 mentors) |
| Proj. 3.3 | Development of balloon launch program to carry minimum of 300 miniature student payloads (PongSats) | Program components, curricula, agreements | Development of Balloon Launch Program | Completed Qtr - 2 2007 | Completed Qtr - 2 2007 |
| Proj. 3.3 | Distance learning pilot linking classrooms with launch sites for student experience with launch protocols | Development of Distance Learning Pilot | Development initiated Qtr1 - 2008 | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 3.3 | Development of participant seminar to document project conclusions (In conjunction with Project 3.10) | seminar structure & materials, agreements | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |

| Progress Report Performance Categories and Measures | | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| Proj. 3.3 | University student-supported development of a set of procurement practices and policies providing student exposure to key industry activity | Procurement Practices and policies | Development initiated Qtr1 - 2008 | Development Continues | Development Continues |
| Proj. 3.10 | One elementary school mentoring program developed | 1 | 1 | 0 | 1 |
| Proj. 3.10 | One high school mentoring program developed serving approximately 20 students | 1 | 2 | 0 | 2 |
| Proj. 3.10 | Recruitment of at least 6 industry engineers for student mentoring | 6 | 10 | 1 | 11 |
| Proj. 3.10 | Creation of set of online tools to support mentoring activities | Online Tools | | Development initiated QTR 1 - 2008 | |
| Proj. 3.10 | Development of participant seminar to document project conclusions (in conjunction with Project 3.3) | seminar materials | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 3.13 | Development of three internships in support of the virtual California Space Education Center and the eventual physical California Space Center: one historical research internship, one environmental research internship, one additional internship | three internships | 0 | 0 | 0 |
| Proj. 3.8 | Development of three program models (to align with three target universities) to orient undergraduate advisors with space-related STEM careers | three program models | Completed Qtr 4-2007 | | Completed Qtr 4-2007 |
| Proj. 3.8 | Development of orientation session featuring high-tech career discussion for target university student advisors/ counselors | orientation session agenda | Completed Qtr 2 - 2008 | | Completed Qtr 2 - 2008 |
| Proj. 3.8 | Development of outreach materials on space-related STEM careers | outreach materials | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 3.13 | Development of web-based "California Space Education Center" , a virtual learning center  and outreach platform for student, teacher, education stakeholder outreach supporting space and STEM-related learning and careers | Develop web-based virtual learning center | In Development | In Development | Completed Qtr 4 - 2008 |
| Proj. 3.13 | Creation of online element showing typical "consecutive steps" to a STEM career, featuring sample STEM career ladders | online element of "consecutive steps" to a STEM career | In Development | Completed Qtr 2 - 2008 | Completed Qtr 2 - 2008 |
| Proj. 1.1 | Entrepreneur boot camp event template (Proj. 1.1) | Event template created | 2nd review recvd 03-08. Review in progress. | Completed Qtr-2,  2008 | Completed Qtr-2,  2008 |
| Proj. 1.1 | CIC web portal created as part of the Cal. Connect. ECEDC (Prog. 1.1) | Web portal | Under development | Under development | Under development |

| Progress Report Performance Categories and Measures | | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| Proj. 1.1 | Min. of 10 new partnerships supporting entrepreneurship (1.1) | 10 New Partnerships | 10 | | 10 |
| Proj. 1.3 | Development of 1 template/1 guide for federal labs/military installation profiles (1.3) | 1 Template/guide | Completed Qtr-3 2006 | | Completed Qtr-3 2006 |
| Proj. 1.3 | Development of 1 template/1 guide for University profiles (1.3) | 1 Tempate/guide | Completed Qtr-3 2006 | | Completed Qtr-3 2006 |
| Proj. 1.3 | Development of 1 template/1 guide for industry profiles (1.3) | 1 Template/guide | Completed Qtr-3 2006 | | Completed Qtr-3 2006 |
| Proj. 1.3 | Incorporation of 150 innovation asset profiles into the CA Corridor Connectory Portal (1.3) | 150 Profiles | 272 asset profiles completed Qtr-1 2006 | | 272 asset profiles completed Qtr-1 2006 |
| Proj. 1.4 | Replicable entrepreneur "best practices" support model (1.4) | Support Model | Under review - CATech 100 write up | Completed Qtr 2 - 2008 | Completed Qtr 2 - 2008 |
| Proj. 1.7 | Annotated Bibliography of Research on Bridging Community Organizations to Take Advantage of Opportunities for Workforce Development (1.7) | Annotated Bibliography | | | Completed Qtr 2 - 2008 |
| Proj. 1.7 | 6 case studies of orgs that have joined together and responded to a high tech and opportunity (1.7) | 6 Case Studies | 4 case studies | | Completed Qtr 2 - 2008 |
| Proj. 2.2 | Development of Supplier Network Transformation Survey (2.2) | 1 Survey | Completed Qtr-1 2007 | | Completed Qtr-1 2007 |
| Proj. 2.2 | Development/ Training Resource Matrix (2.2) | matrix | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 2.2 | Strategies for implementing common learning outcomes from three training providers (2.2) | Strategies | | Strategies developed by ECC, AVC, USC completed Qtr 3 - 2008 | Completed Qtr 3 - 2008 |
| Proj. 2.2 | Demonstration project utilizing common learning outcomes with "lessons learned" report (2.2) | report | In development | Completed by El Camino college Qtr 2 - 2008 | Completed by El Camino college Qtr 2 - 2008 |
| Proj. 2.2 | Computer simulation demonstrating the oscillations of a negative feedback system in a small supply chain (case study), meant to document value of accelerated information-sharing throughout supply chain network (2.2) | Computer Simulation | In development | USC @ 21st SCM Q408 and on web | Completed Qtr 4-2008 |
| Proj. 2.2 | Final report incorporating learning outcomes encouraged, sample training strategies to address supply chain transformation (2.2) | Final Report | In development | Completed Qtr 4-2008 | Completed Qtr 4-2008 |
| Proj. 2.4 | Development of a student/trainee retention strategy through ongoing student support services including tutoring, counseling, mentoring and | Retention Strategy, agreements ongoing? | | | |

| Progress Report Performance Categories and Measures | | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| | financial aid (2.4) | | | | |
| Proj. 2.4 | Industry-driven analysis and validation of accurate workforce assessment instruments for development of sequential certification process in manufacturing (to include instruments of WorkKeys, Manufacturing Skills Standards Certification, NIMS and Society of Manufacturing Engineers) (2.4) | Analysis and Validation of accurate workforce assessment instruments for development of sequential certification process | In development | In development | Completed Qtr 2 - 2008 |
| Proj. 2.4 | Development of MTTC orientation program for college, One Stop Career Center counselors/case management personnel (2.4) | MTTC Orientation Program | | | |
| Proj. 2.4 | Articulation agreement with at least two local high school pre-engineering programs (2.4) | 2 Agreements | 3 Agreements completed Qt4 - 2007 | | 3 Agreements completed Qt4 - 2007 |
| Proj. 3.1 | Development of survey tool to assess regional high-demand occupations/skill needs (3.1) | Survey | | Completed Qtr 4- 2007 | Completed Qtr 4- 2007 |
| Proj. 3.1 | Development of regional workforce development and training strategy to meet survey-identified needs | Training Strategy, agreements | | Completed Qtr 4 - 2008 | Completed Qtr 4 - 2008 |
| Proj. 3.4 | Online needs assessment (survey) for companies, government agencies requiring systems engineers, systems engineering skills (Interface with project 3.1, 3.5) | Needs Assessment | Completed Qtr- 2 2007 | | Completed Qtr- 2 2007 |
| Proj. 3.5 | Case study to assess program benefit to technical student recruitment (client population): Project Lead the Way (PLTW) as a STEM best practice, based on El Camino College's monitoring of PLTW programs at four Los Angeles-area high schools | Case Study | In development | In development | Completed Qtr 4 - 2008 |
| Proj. 3.5 | Summary of minimum of three STEM-related reports/studies to provide environmental scan content | 3 STEM Related reports | 22 Federal, State and industry STEM-related reports incorporated Qtr -3 2007 | | Completed Qtr - 3 2007 |
| Proj. 3.5 | Identification/description of minimum of three STEM-related teacher professional development summer or retreat programs (3.6 and 3.12, plus NASA/CSU program) | 3 Teacher Professional Development Programs | Completed Qtr 1 - 2008 | | Completed Qtr 1 - 2008 |
| Proj. 3.7 | Skills needs identification for software engineers transition to aerospace/defense applications (Interface with Project 3.1) | Skill needs Identification | Completed Qtr - 1 2007 | | Completed Qtr - 1 2007 |
| Proj. 3.7 | University-approved certificate program for "Software Development for | Certificate Program | Completed Qtr - 1 2007 | | Completed Qtr - 1 2007 |

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| | Progress Report Performance Categories and Measures | Year 3 Target | Previous Quarter | Current Quarter | Cumulative Grant-to-Date |
|---|---|---|---|---|---|
| | Aerospace/Defense Applications | | | | |
| Proj. 3.7 | Development of curriculum outline to foster expansion of similar certificate programs statewide | Curriculum t | Completed Qtr - 1 2007 | | Completed Qtr - 1 2007 |
| Proj. 3.7 | Minimum of three new partnerships among workforce, education system and the private sector (Interface with Project 1.7, 3.14) | 3 New Partnerships | Completed Qtr-2 2007 | | Completed Qtr-2 2007 |
| Proj. 3.11 | Replication protocols for STEM-related community college outreach programs described in final report | Replication Protocols | | | Completed Qtr 4- 2008 |
| Proj. 3.14 | Develop and promote a self-assessment tool for local WIBs, informed by the Council on Competitiveness' monograph on "Measuring Regional Innovation" | WIB Self-Assessment Tool | Pre-survey Completed | | Completed Qtr 4- 2006 |
| Proj. 3.14 | Development of web-based trainings on new and innovative workforce and economic development strategies and on innovative approaches for building partnership investment in demand-driven training | Web-based Trainings | | In process | Completed Qtr 4 - 2008 |
| Proj. 3.14 | Identification of 10 existing and emerging innovative practices among workforce, economic development and education practitioners for providing workforce and training services in response to businesses with existing and future needs for workers with STEM skills | 10 Innovative Practices | 1   NOVA/L-M/UCSC Ext. | | Completed Qtr 4 - 2008 |
| Proj. 3.14 | Publishing of five white papers. | 5 White Papers | 3 | 2 | Completed Qtr 4 - 2008 |

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**Figure D-3.**
**WIRED Reporting Framework: Montana's Agro-Energy Plan**

| Progress Report Performance Categories and Measures | Previous Quarter | Current Quarter | Cumulative Grant to Date |
|---|---|---|---|
| **Capacity Building** | **$58,693.64** | **$106,299.38** | **$661,390.16** |
| **Number of Additional Students that will be trained annually as a result** | 227 | 207 | 1447 |
| **Creation of Centralized Information clearing house – to include networking contacts, oil seed production information, biodiesel production information, biodiesel co products, ethanol information, biofuel industry news, Dept. of Commerce programs, OCHE curriculum, DLI programs, MT industry news, energy development news, state and national conferences and events** | 3 | 1 | 42 |
| **Detailed career pathway map that identifies all related job opportunities and those within the industry** | | | 16 |
| **Curriculums developed to assist individuals at all levels** | 5 | 7 | 61 |
| **Creation of a network of cluster hubs within the region** | | | 35 |
| **Industry Education – Outreach/Networking - # of sessions** | 69 | 91 | 656 |
| **Estimated number of participants** | 3222 | 4190 | 25432 |
| **Economic Indicators** | | | |
| **Number of New Bio-Energy Jobs Created** | 38.2 | 66.7 | 472.6 |
| **Average Wage** | $19.26 | $19.26 (for 35 DOC reported jobs) | $17.06 (average wage for 440.9 jobs with reported average wage) |
| **Number of New Business Start-ups or Expansions** | 1 | 1 | 67 |
| **New Government Investments – federal $ leveraged** | $103,425.00 | | $4,180,868.50 |
| **Number of jobs created through the workforce training** | | | 79 |
| **Creation of a private equity investment group** | | | |
| **Acre increase in oilcrop production?** | | | 11560 |
| **Business and job growth on the tribal nations – tracked by change in employment on Indian reservations and change in wages on Indian reservations.** | 2 | 2 | 34 |

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## Figure D.4
## Pennsylvania Grant Specific

<span style="color:blue">**Blue shading indicates grant-specific**</span>

| PERFORMANCE ITEMS | CUMULATIVE | % GOAL ATTAINED |
|---|---|---|
| B. CUSTOMER SUMMARY INFORMATION (ADULT ONLY) | | |
| 1. Total Number Began Education/Job Training Activities | 3298 | 219.87% |
| 2. Total Number Completed Education/Job Training Activities | 1725 | 141.39% |
| 2a. Total Number Received Degree/Certificate | 69 | 6.90% |
| 2b. Total Number Entered Employment | 0 | |
| 2c. Total Number Entered Training-Related Employment | 43 | 13.44% |
| 3. Total Number of Interns Began Education/Training Activities | 120 | 68.97% |
| 4.  Total Number of Interns Completed Education/Training Activities | 98 | 56.32% |
| D. YOUTH | | |
| 1. Total Youth Entering WORKFORCE EDUCATION | 47539 | 108.04% |
| 2. Total Youth Completing WORKFORCE EDUCATION | 230 | |
| 3. Total Number of Youth Completing FINANCIAL SERVICES | 1465 | 53.43% |
| *(5)   JA Finance Park* | *612* | |
| 4. Total Number of Youth Completing INFORMATION TECHNOLOGY | 0 | 0.00% |
| 5. Total Number of Youth Completing Your Employability Skills Training | 42 | 105.00% |
| 6. Total Number of Youth Completing JUNIOR ACHIEVEMENT | 1837 | 61.23% |
| 7. Total Number of Youth Completing OTHER TRAINING | 42 | |
| E. CAPACITY BUILDING | | |
| 1a. Total Number of SECONDARY SCHOOL Educators | 9224 | 3507.22% |
| 2a. Total Projected Number of SECONDARY SCHOOL Students Trained by These Instructors | 125772 | 652.51% |
| 2b. Total Projected Number of COLLEGE Students Trained by These Instructors | 5206 | 52.75% |
| 3. Total Number Received Career Counseling | 69026 | 276.10% |
| 4. Total Number Received Career Awareness/Exploration | 105757 | 100.72% |
| 5. Total Number of CareerLinking Academies | 11 | 220.00% |
| 6. Total Number of Tours | 20 | 333.33% |
| F. CERTIFICATES and DEGREES | | |
| 1. Total Number Entered Degree/Certificate | 724 | 991.78% |

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| PERFORMANCE ITEMS | CUMULATIVE | % GOAL ATTAINED |
|---|---|---|
| **G. ECONOMIC MEASURES** | | |
| **1. Total Number of Jobs Created** | 28 | 3.16% |
| **2. Total Number of New Partnerships** | 625 | 500.00% |
| **3. Total number of New Start-ups or Expansion Efforts** | 8 | 66.67% |
| **4. Total number of New Seed and Venture Capital Investments** | 5 | 83.33% |
| **5. Total number of New Government Investments** | 5 | 83.33% |
| **6. Total number of New Patents** | 8 | 133.33% |
| **7. Total number of Prospective Client Contacts** | 141 | 94.00% |
| **8. Total number of Data Center Operators/Site Selectors/Developers/Financiers** | 87 | 174.00% |

**Figure D-5.**
**Maine's North Star Alliance Initiative /Wired**
**Progress Report Metrics and Grantee Results**

| Measure | 1/21/10 Cumulative Grant-to-Date |
|---|---|
| **Total investment new hire worker training** | **$1.331M** |
| **Leveraged Funds** | |
| Federal investment into NSAI cluster activity | $41.86M |
| State R&D (thru MTI) & CDBG investments into NSAI cluster activity | $9.37M |
| Non-government R&D investment/match into NSAI cluster activity as recorded at MTI (includes industry match) | $17.274M |
| Private industry/individual match to NSAI training funds invested | $4.084M |
| Total Leveraged Finds | **$72.588M** |
| Safety Works Training to NSAI cluster companies (116,795) and Husson Boat School (25,000) | $141,795 |
| State Cash Contributions (Governor's Contingency to MCCS (M Lessard) | $90,382 |
| State Funded Salaries for Grant Support (reported to date: DECD and other 239K, BES/MDOL 162K | $401,000 |
| Total In-Kind/Cash Investments | **$633,177** |
| **Patents Filed / Patents Granted** | **8/4** |

**Figure D-6.**
**New York WIRED**
**Total Participants Served**

|  |  |  | Total Number | Report Page |
|---|---|---|---|---|
| **1** | **Incumbent Workers Scholarship Program** |  | **9,244** | 3 |
|  | • Advanced Manufacturing | 4905 |  |  |
|  | • Alternative Energy | 189 |  |  |
|  | • Biotech/Life Sciences/Health Care | 804 |  |  |
|  | • Business Services | 1250 |  |  |
|  | • IT/Engineering | 1006 |  |  |
|  | • Food/Agriculture | 387 |  |  |
|  | • Optics/Imaging | 703 |  |  |
| **2** | **Career Navigator** |  | **927** | 4 |
| **3** | **High School Entrepreneurial Training** |  | **163** | 5 |
| **4** | **High School Teacher Entrepreneurial Training** |  | **68** | 6 |
| **5** | **High Growth Entrepreneurs and Innovators Training** |  |  |  |
|  | • Technology Commercialization | 612 | **1,250** | 6 |
|  | • SBIR Outreach | 356 |  |  |
|  | • RIT Strategic Growth Through Innovation | 134 |  |  |
|  | • The Entrepreneurs Network | 148 |  |  |
| **6** | **MS Program in Science & Tech Commercialization** |  | 6 | 6 |
|  | [Technology "Business Starters" = 187] |  |  |  |
|  | **TOTAL** |  | **11,688** |  |

(from final quarterly report, 6/30/10)

# Appendix E
## Details of Extant Data Analysis for the Generation I Regions

## Contents

### List of Figures

**Berkeley Policy Associates**

# Appendix E:
# Details of Extant Data Used Regarding the WIRED Generation I Regions

## *Introduction*

Although data from many sources are available on an annual basis, the year used as the time unit differs from data set to data set. Data from U.S. government agencies are usually organized by the federal agency's fiscal year (FY), i.e., October 1 through September 30. The charts in this report use the abbreviated label for these data, "FYyyyy," with the labeled year being the later of the two calendar years included in the fiscal year. (FY2007 runs from October 1 of 2006 through September 30 of 2007). Academic measures are collected by academic year (abbreviated AYyyyy in this report), which varies slightly from institution to institution, but usually runs from September of the labeled year through August of the following year. Thus, AY2006 is nearly identical to FY2007. Some primary data are aggregated by calendar year (abbreviated CYyyyy in this report). For each of the data sets described within this chapter, the evaluation team used the most recently released data available.

## *Workforce and Job Measures*

### Data Sources: National Bureau of Labor Statistics, Dun and Bradstreet, and US Internal Revenue Service

The evaluation team acquired workforce and wage data from the Quarterly Census of Employment and Wages (QCEW) database of the US Bureau of Labor Statistics (BLS). This data is available both at the state and county levels, so regional data may be rolled up county by county and then compared to state totals.

QCEW collects data from the states on employment and wage information for all workers covered by state unemployment insurance (UI) laws, representing 98% of U.S. jobs. Yearly data is usually available eight to nine months after the end of the year. Members of the armed forces, individuals who are self-employed, sole proprietors, domestic workers, unpaid family workers, and railroad workers covered by the railroad unemployment insurance system are not included in QCEW data, but partial information is available for agricultural industries and paid employees in private households. Limitations in reporting for agricultural industries poses an obstacle for reporting data in rural regions; and non-disclosure rules to guard privacy of individuals and individual enterprise also limits the availability of data in regions with low numbers of businesses, such as the North Star Alliance and Montana, even though the businesses themselves might be large. Also, county level data contains a few records that are missing a county location (designated by county code 999), but only 2% of the records fall into this category so it is not expected that these unidentified records will skew results. BLS receives data from the individual states, and has no control over whether states choose to change definitions of establishments, and so data on number of businesses is acquired from Dun and Bradstreet instead.

The evaluation team acquired QCEW data for the regions and their host states on:

**Average Annual Wages** – calculated by dividing the sum of total annual wages for the geographic area by the average number of workers employed during the year. According to QCEW's website, "[w]ages represent total compensation paid during the calendar quarter, regardless of when services were performed. Included in wages are pay for vacation and other paid leave, bonuses, stock options, tips, the cash value of meals and lodging, and in some states, contributions to deferred compensation plans (such as 401(k) plans);"[20] Average wages as an indicator of Initiative impact will be a lagging indicator, just as unemployment is an economic lagging indicator. Workforce initiatives have an associated training time before newly trained workers begin drawing new levels of wages. In addition, there is a data reporting lag associated with the yearly averaging. If a worker achieves a better paying job in the middle of the year, that gain when averaged over the year shows up at the end of the year as a smaller effect. The full effect is seen in the next year when the higher wages are achieved throughout the entire year.

**Number of Employees** – a yearly average computed by QCEW of number of employees for the identified year, geographical unit. Some records also have data segregated by industry, using groups of NAICS[21] codes at various levels of the NAICS hierarchy.

The charts below present data on these measures for the CY2006 (baseline) calendar year compared to the same measures for the CY2007 calendar year, the analyses compare the measures for each region to those for the surrounding (or host) state. In two-state regions (Kansas City and WAEM), measures are reported for the entire region compared to the average of the two surrounding states. Wage figures have not been adjusted for inflation because the metric used – the ratio comparing the region's performance to the host state – will have inflation accounted for in both the numerator and denominator. The difference in this ratio over the years will be relatively insensitive to inflation and other external factors such as changes in the overall economy.

*Average Wages*

As Figure E-1 demonstrates, many of the regions' average annual wages are below those of the surrounding state(s). Note that wage data for rural regions with strong agricultural economies, such as Montana, are less reliable in the QCEW data than that for more urban areas, as most family farmers are not included in the state unemployment insurance data furnished to QCEW. In addition, and as previously noted, the QCEW masks data from areas with fewer businesses in order to protect the privacy of individual businesses. The most noticeable gap between region and state is that of the Finger Lakes region. This is probably due to the unusually high wages of the New York City metropolitan area, but may also be due in part to the uncertainty of rural

---

[20] Bureau of Labor Statistics. "Quarterly Census of Employment and Wages Overview," http://www.bls.gov/cew/cewover.htm

[21] North American Industry Classification System is the standard coding system used by US statistical agencies. It is a hierarchical system categorizing the type of industry of the business being coded. Higher levels of aggregation yield codes with fewer digits. http://www.census.gov/eos/www/naics/

wage reporting, since six of the seven Finger Lakes counties have significant agriculture. The size of the gap did not change between 2006 and 2007.

 Although all average wages rose by a few thousand dollars per year, the regions progressed in step with their host states between 2006 and 2007, with no significant changes in comparison to their states. The wage numbers are uncorrected for inflation, so some rise is expected in all wages for both regions and their host states.

**Figure E-1**
**Average Yearly Wages for Regions and Their Host States, 2006 and 2007**
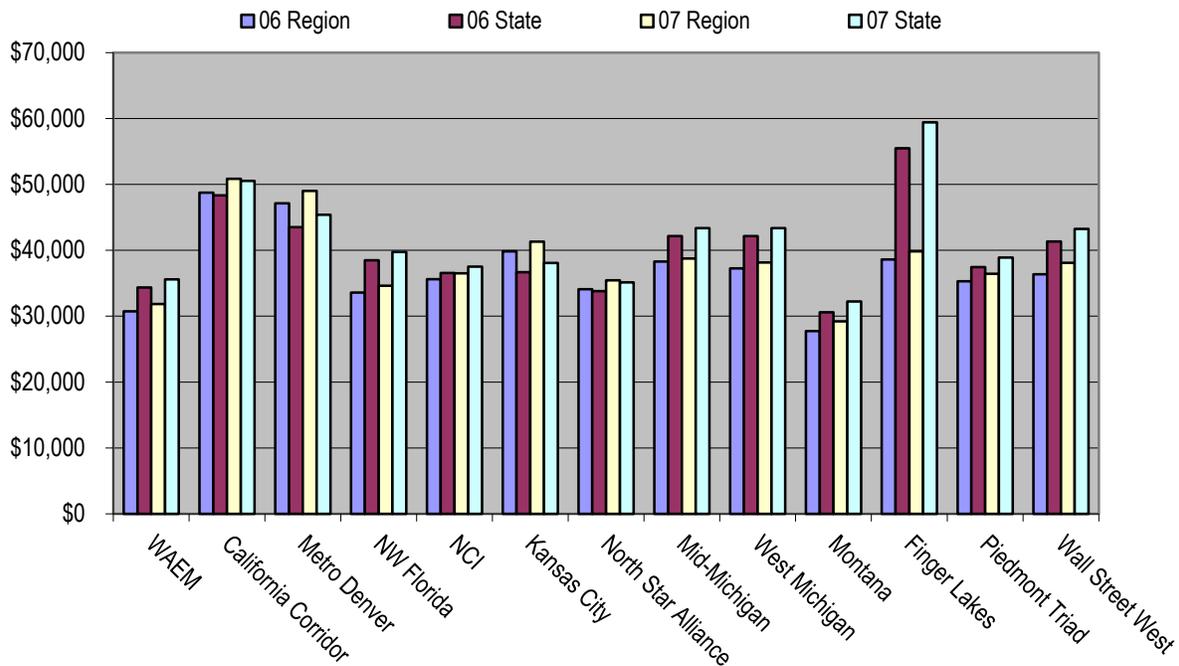


Source: Quarterly Census of Employment and Wages (QCEW) database of the U.S. Bureau of Labor Statistics (BLS)

## *Number of Employees*

Figure E-2 indicates the distribution of employment across various industrial sectors for each region, giving a snapshot of the overall employment landscape for each region to provide context when considering the initiatives some regions have begun, targeting specific sub-industries. Generally, the targeted industries are small subsets of the broad NAICS code categories shown here, so changes in target-industry employment will be masked by the untargeted portion of each of these larger categories. Retail employment is substantial in all regions, as is manufacturing except in Montana, Metro Denver and Northwest Florida. As expected, Metro Denver and California Corridor have substantial professional and scientific services representation.

**Figure E-2**
**Distribution of Employees Across Industries, By Region**

| | WAEM | California Corridor | Metro Denver | NW Florida | NCI | Kansas City | North Star Alliance | Mid-Michigan | West Michigan | Montana* | Finger Lakes | Piedmont Triad | Wall Street West |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total # of Employees in Region** | 38,6616 | 11,076,388 | 1,584,304 | 545,627 | 218,448 | 1,193,788 | 516,159 | 629,441 | 584,118 | 62,126 | 548,761 | 723,934 | 793,379 |
| *Proportion of Region's Workforce* | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region | % Region |
| Other Services (except Public Adm.) | 3 | 5 | 3 | 4 | 3 | 4 | 4 | 5 | 4 | 4 | 4 | 3 | 4 |
| Agriculture & Mining * | 4 | 2 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 7 | 1 | 0 | 1 |
| Construction | 7 | 6 | 8 | 10 | 5 | 6 | 7 | 6 | 5 | 7 | 5 | 7 | 6 |
| Manufacturing | 28 | 12 | 8 | 5 | 37 | 11 | 13 | 18 | 28 | 3 | 20 | 21 | 16 |
| Utilities, Wholesale, Retail, Transportation | 25 | 22 | 24 | 23 | 22 | 25 | 28 | 24 | 22 | 28 | 21 | 24 | 27 |
| Information | 1 | 4 | 5 | 3 | 1 | 5 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| Finance, Insurance, Real Estate, Mgmt of Companies and Enterprises | 5 | 8 | 11 | 8 | 5 | 10 | 8 | 8 | 7 | 6 | 8 | 9 | 8 |
| Professional, Scientific/Technical Services, Administrative/Support Waste Mgmt/Remediation | 7 | 15 | 18 | 14 | 6 | 15 | 10 | 12 | 14 | 4 | 12 | 12 | 11 |
| Education, Health Care, Social Assistance | 4 | 8 | 5 | 1 | 2 | 6 | 8 | 4 | 3 | 10 | 9 | 9 | 7 |
| Arts, Entertainment, Recreation, Food Service, Accommodation | 10 | 12 | 12 | 16 | 11 | 12 | 13 | 14 | 11 | 16 | 11 | 11 | 12 |
| Public Administration | 6 | 5 | 5 | 16 | 5 | 6 | 6 | 8 | 4 | 12 | 6 | 4 | 5 |

* *Data for agriculture and Montana region may not be accurate, since many agricultural establishments are not covered by unemployment insurance, also because agriculture tends to predominate in regions with low population, thus few businesses, where QCEW data is censored.*

Source: Quarterly Census of Employment and Wages, US Bureau of Labor

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Figure E-3 depicts the size of the region's employed labor force as a percentage of that of the whole host state or states. The regions vary widely, with Northwest Florida and North Central Indiana having only 7% of their state's workforce, while California Corridor, Metro Denver and Maine's North Star Alliance have 70-85% of their state's workforce. Percentages for both 2006 and 2007 show ***no significant shifts*** in these percentages during the time period.**Figure D-3**

**Figure E-3**
**Regions vs. Host States: Proportion of State Labor Force**
**Represented by Regions' Employees, 2006 & 2007**
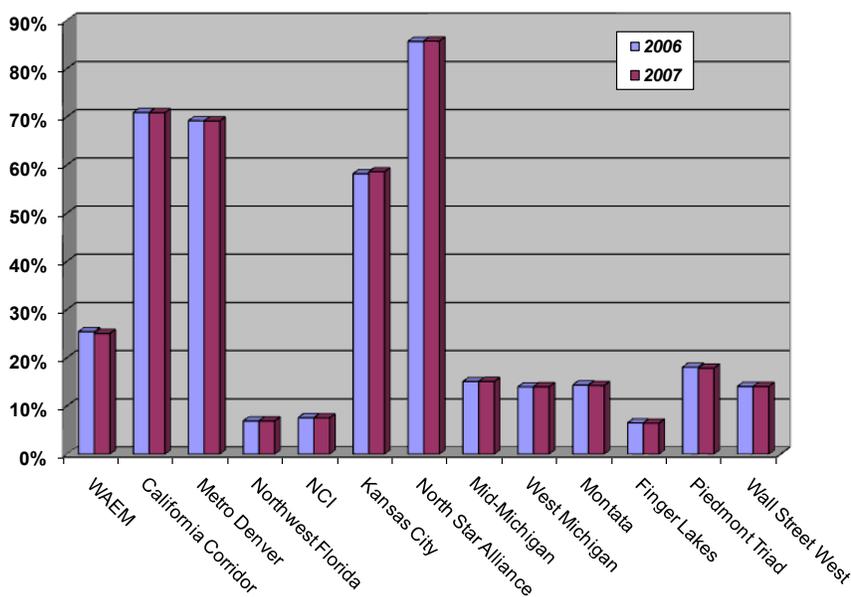


Values for two-state regions calculated by averaging.   Source;  Quarterly Census of Employment and Wages, US National Bureau of Standards

## *Worker Migration*

The Internal Revenue Service offers a much-underutilized data resource, a county by county tracking of the number of tax filers who change mailing addresses between filings [22]. Although some caveats exist in using this data[23] the data set appears to be a valuable proxy for worker

---

**[22] IRS Address Change Data:** *If a taxpayer files a return with a return address in region R in year 2005 and files elsewhere in year 2006, then (s)he will be counted as an "outflow return" for region R in the years 2005-6. Typically returns are mailed in during early spring, so a return with a changed address to an out-of-region location between spring of 2005 and spring of 2006 is assumed in this analysis to have indicated a move out of the region in 2005.*

[23] Limitations of the use of this data are several. If a family has more than one wage earner and only one return is filed, this will lead to underestimating the number of workers moving, but not the amount of their adjusted gross income leaving or entering, assuming they continue to file jointly. This method also misses workers who make so little that they do not need to file a 1040 form. Workers who die or cease to make enough wages to require filing during the period do not have matching forms in the year pair, and are not counted. Workers who cease filing jointly will have the new filer not counted in the first year of separate filing, as there is no matching earlier return to use to judge migration.

movements, as well as their income.  The data allow researchers to track migration between any pair of counties in the U.S., migration to other states, and migration to foreign countries.

The evaluation's analysis will track the number of returns (a proxy for worker migration) and more importantly, migration of adjusted gross income, a proxy for wage income flowing into or out of a region or state along with the worker flow.  (A worker who does not move but has a change in income will not be counted here; only income associated with migrating workers will appear in the following figures).

As Figure E-4 illustrates, net worker migration is positive into all of the regions and states for both 2005 and 2006, years before the Initiative began, and the most recent data available at this time.  Worker migration is shown for each region, and in the column adjacent, for its host state or states.

**Figure E-4**
**Migration of Workers, Regions and Host States, 2005, 2006**
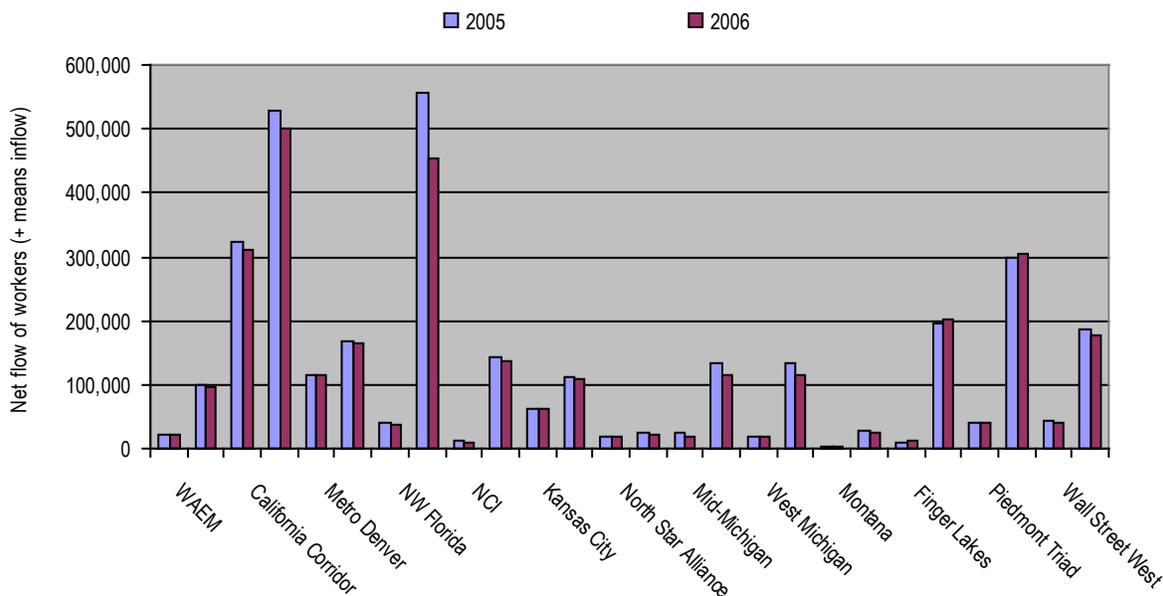


Source**:** US Internal Revenue Service Statistics of Income Program

Figure E-5 shows the net gross adjusted income flow for the regions and their home states, preceding the start of the Initiative.  Each region is shown with its host state in the adjacent column just above. The net gross adjusted income flow is the difference between the incomes of individuals who moved into the region and those who moved out of the region in a specific year.  Even though more workers moved into all of the regions than moved out, the net gross adjusted income flow, which is the metric more closely correlated with the economic health of the region than sheer number of workers, shows that for three regions (California Corridor, Mid-Michigan and Finger Lakes), the workers who moved in were earning less on average than the (smaller number of) workers who moved out.  Even though there were net workers coming into these regions, income was still flowing out.   On the other hand, Florida and North Carolina apparently attracted higher paid workers coming into their states and regions than those that may have left,

since their adjusted gross income flow was positive.   These observations describe the economic situations for regions as they begin their initiatives.

**Figure E-5**
**Migration of Adjusted Gross Income from Regions and Host States, 2005 & 2006**
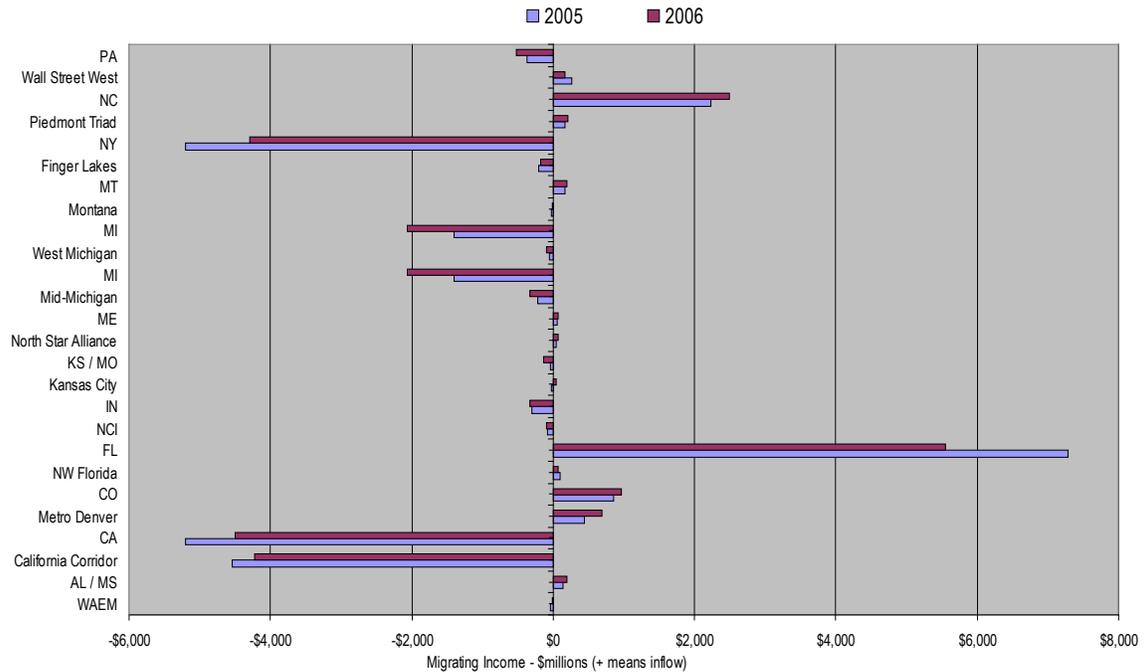


Source: US Internal Revenue Service Statistics of Income Program

## *Innovation and Commercialization Measures*

In addition to the growth of strong collaborative networks, an important measure of transformation is the extent to which a region can improve the innovativeness of its businesses, and thus increase regional business vitality.  To track this aspect of regional transformation over time, the evaluation team is collecting data for measures such as number of new business starts, the number of new patent applications per year, amount of grant funding from the National Institutes of Health (NIH) and National Science Foundation (NSF), number of grants to the regions and host states, and the number of angel networks in the region.  This section discusses those measures.

### *New Business Starts*

One measure of the future dynamism of a region is the number of new businesses being started. Since businesses must have a DUNS Dun and Bradstreet number to do business with the US Government, or to apply for certain types of business credit, and because application for the number is free, the Dun and Bradstreet database is a reliable source of information on new

business starts.  New business starts as a percentage of the starts in the host state or states, shown in Figure E-6, vary widely across regions.  Northwest Florida, NCI and Finger Lakes have only a small percentage of their states' business starts, whereas California Corridor, Metro Denver, Kansas City and the North Star Alliance have the lion's share of their states' new business activity.

**READING CHARTS WITH ERROR BARS**

The convention in this document is to plot error bars as 95% confidence intervals.  That means that if the same quantity were to be measured in many different experiments with random statistical variability, the measured value of the quantity will lay within the error bars 95% of the time.  Thus in looking at a chart, if the colored column of one measurement extends outside the error bars of another, as in this example, we can say that they are truly different with 95% confidence.
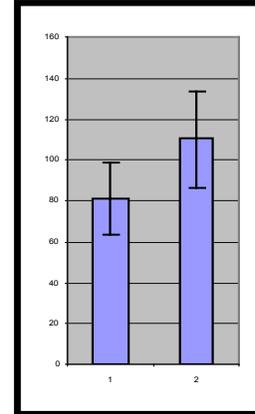
**Figure E-6**
**New Business Starts, Region as Percentage of State, CY2006 & CY2007**
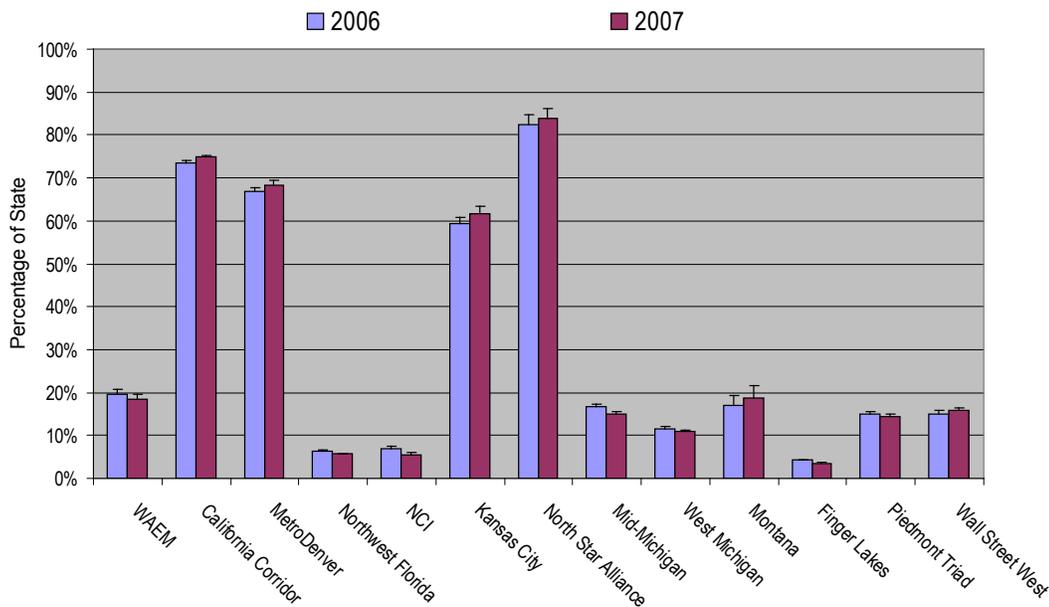


Values for two-state regions computed by averaging
Source: Dun and Bradstreet custom report, 2008

Changes between 2006 and 2007 were small in all regions when regions were compared to their host states. California Corridor and Metro Denver made small gains compared to the state as a whole (the error bars shown are 95% confidence intervals) while Northwest Florida, NCI, Mid-Michigan and Finger Lakes fell slightly behind. Finger Lakes went from roughly 900 businesses started in 2006 to 800 started in 2007, while Metro Denver went from 4,800 in 2006 to 6,000 in 2007.

### Federal Small Business Innovation Research (SBIR) and Small Technology Transfer (STTR) Grants

SBIR and STTR grants are leading indicators of increased research and development activity in small technology companies because they are important sources of early stage capital for technology-based entrepreneurs. Congress established the SBIR program to increase opportunities for small businesses to stimulate technological innovation by funding high-risk R&D that may have commercial potential. Both the number and total dollar amount of active SBIR and STTR grants in a given year are indicative of innovative activity in the small business community. Regions vary notably in the number of SBIR/STTR projects active in any of the recent years, as seen in Figure E-7. The number of SBIR awards in the California Corridor region in both 2006 and 2007 was over 800, whereas the Montana region had only one in 2006 and none in 2007. Likewise, the awards garnered by each region as a proportion of all awards in the state varies widely, from over 80% in the Metro Denver and California Corridor regions, to only 2% or 3% in West Michigan, WAEM, and the Wall Street West regions.

**Figure E-7**

**Number of Active SIBR and STTR Grants, Regions and Host States, Phase II and II – CY 2006 & CY2007**

**2006 and 2007**
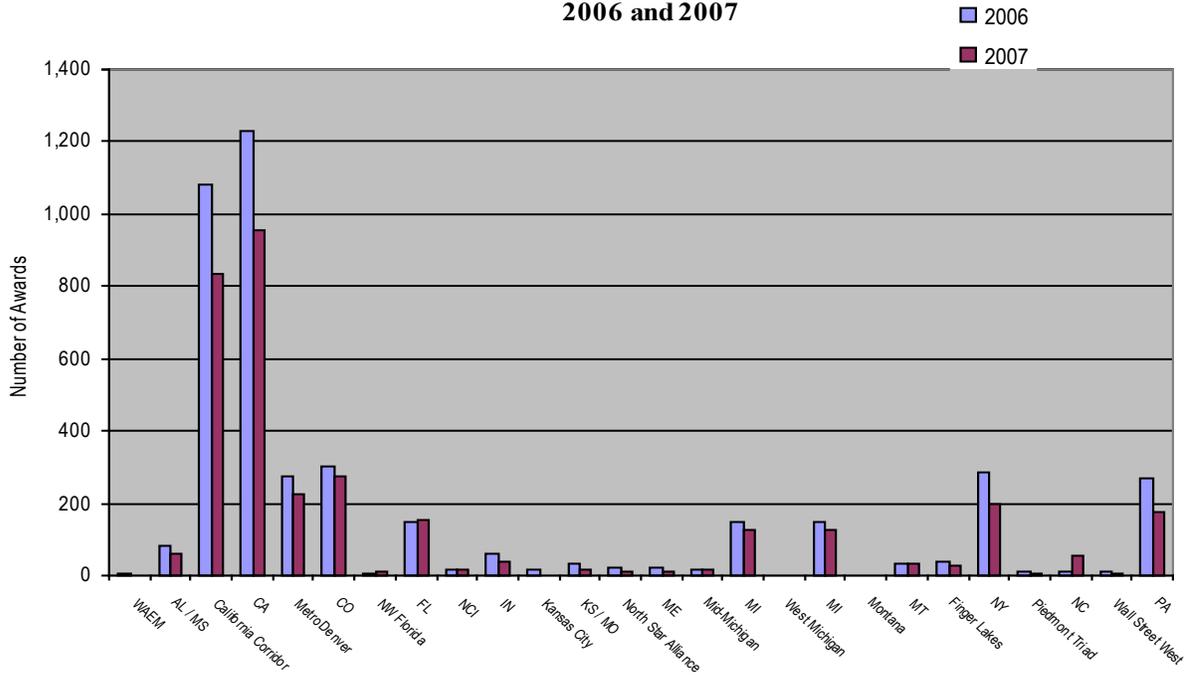


Source: Small Business Administration TechNet Database

Nationwide, the number of SBIR/STTR awards has been trending downward since 2004, as shown in Figure E-8.

**Figure E-8**
**Number SBIR/STTR Awards, Nationwide**
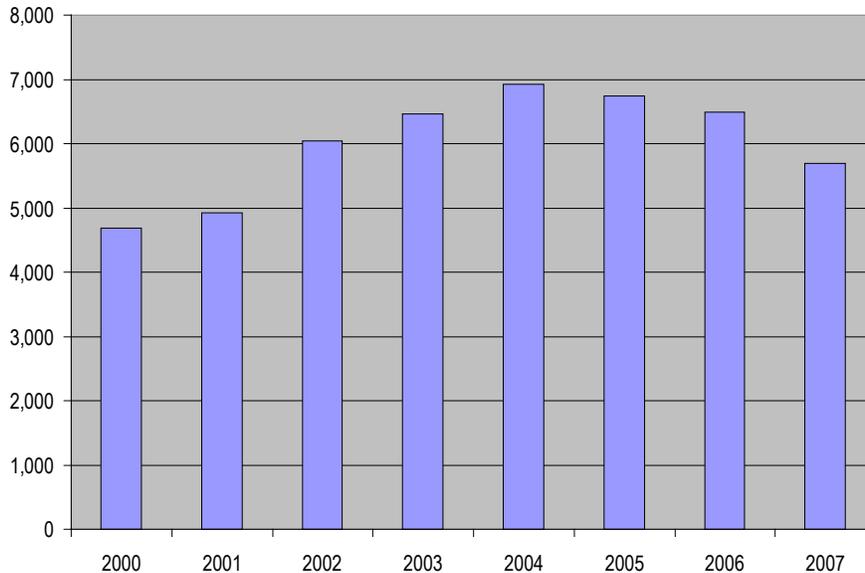


Although the absolute number of awards in the WIRED regions declined between 2006 and 2007, the regions have largely fared as well as their host states. NCI actually enjoyed better

results than Indiana as a whole, as the number of Indiana's Phase II awards from outside the region dropped substantially in 2007.

Figure E-9 displays the aggregate dollar amounts of SBIR and STTR awards to the WIRED regions in 2006 and 2007. The $300 and $200 million dollar awards to California Corridor are truncated to display data for the other regions more clearly. Only California Corridor, Metro Denver, and – to a lesser extent – Finger Lakes, brought in any important revenue from SBIR/STTR grants. Since these awards are seed grants, however, the number of grants is equally likely to be a good measure of the region's innovation as the amount of the grants awarded. Larger dollar amounts may also point to a higher success rate of Phase I companies moving to Phase II grants. Phase II grants are intended to bring products closer to commercialization, an important step toward maturity for an entrepreneurial company.

**Figure E-9**
**Amount SBIR/STTR Awards to Regions**
**$millions, CY2006 and CY2007**
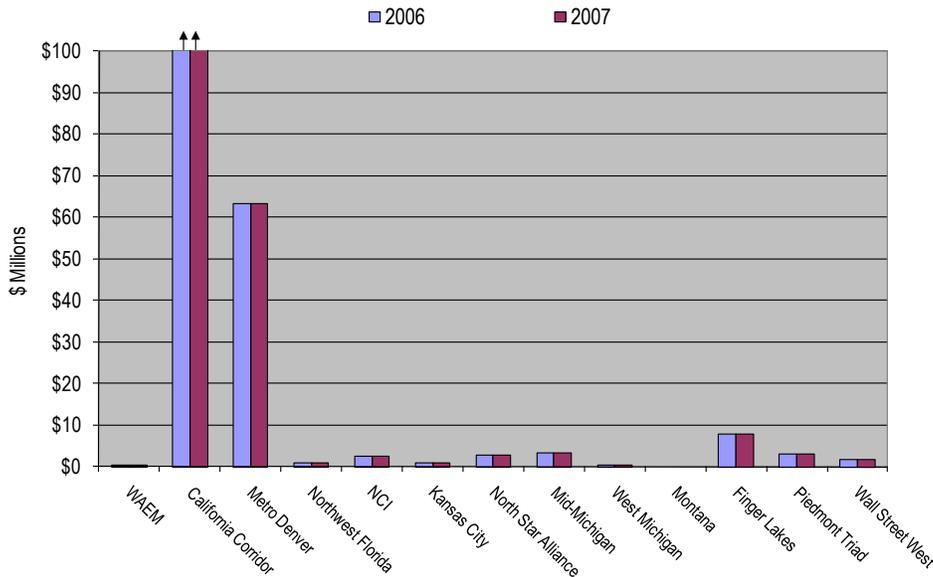


Source: U.S. Small Business Administration TechNet

The regions' award amounts as a percentage of the awards to their host states are shown in Figure E-10. As with many measures in this evaluation, the regions vary widely. California Corridor, North Star Alliance, and Metro Denver enjoy a large percentage of their states' total SBIR/STTR activity, while the other regions receive smaller grant amounts. The features that are most intriguing, however, are the apparent large jumps between 2006 and 2007 made upward by NCI and downward by Kansas City. The NCI region actually had a small decrease in its SBIR/STTR funding level between the two years, but the rest of the state of Indiana had a marked decrease in Phase II (larger dollar amount) awards.

**Figure E-10**
**SBIR and STTR Dollar Amounts, Region as % Host State,**
**CY2006 & CY2007**
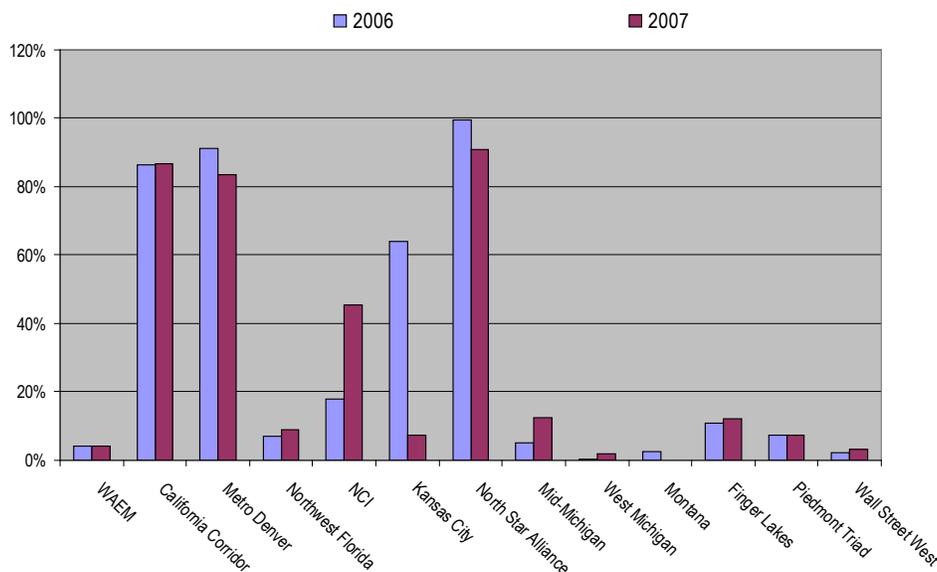


Source: U.S. Small Business Administration TechNet

In the case of Kansas City, its award amount decreased from $6M to $1M, while the Kansas and Missouri average decreased from $10M to $5M – less than Kansas City, but also substantial. The small drop in regional percentage for North Star Alliance reflects the fact that one company outside the region won a grant in 2007.

## Federal Research and Development (R&D) Grants from National Institutes of Health and National Science Foundation

For the evaluation's 2007 interim report, the evaluation team was able to assess total federal R&D funding via the RaDiUS database, a data gathering effort then being funded by NSF. That data collection effort has been discontinued, leaving this study to use only the two major sources of R&D funding, NIH and NSF, as a surrogate for total R&D funding. This surrogate does not include R&D activity undertaken for the Department of Defense, creating a possible source of bias in the data.

Figure E-11 presents the number of NIH and NSF awards to the regions as a proportion of the awards made in their home states, for the years 2006 and 2007. The figure also shows the grant amounts for the regions and their states in the same ratio.

**Figure E-11**
**NIH Plus NSF Awards, Region as % Host State, FY2006 & FY2007**
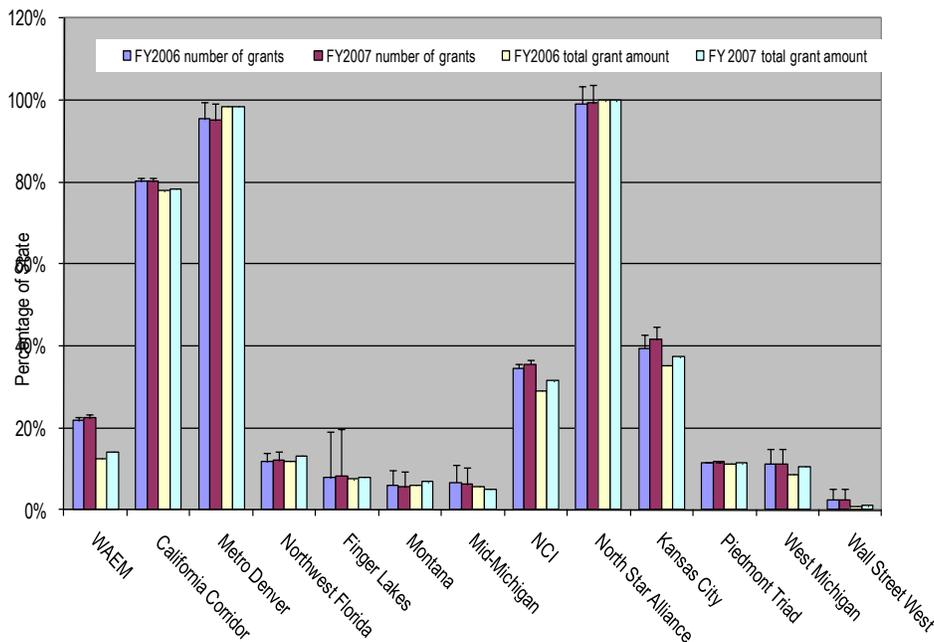


Source:   US National Institutes of Health and National Science Foundation

California Corridor, Metro Denver and North Star Alliance enjoy the majority of NSF and NIH grants in their states, both in amount and in number of grants. WAEM has proportionately smaller grants than Alabama and Mississippi, due to the presence of research institutions with medical schools outside the WAEM region which tend to receive larger NIH grants. Little change in the level of Federal R&D activity, as compared to the host states, occurred between FY2006 and FY2007.

### *Number of New Patent Applications*

An increased number of patent applications from a region may indicate increased innovation and business activity. The evaluation team tracked published applications instead of granted patents because the length of time between an application and the granting of a patent may be so long[24] that granted patents might be indicative of innovation during the previous decade. Note that if a patent has applicants in more than one region or more than one state, the patent is credited to each relevant region and state.

The diversity across regions is demonstrated again by the variability in patent application activity as seen in Figure E-12. The North Star Alliance region appears to encompass most of the technology activity that leads to patent applications in Maine, as does the California Corridor for California. The Metro Denver region also dominates its host state with more than 80% of

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[24] Popp, David, Ted Juhl, and D.K.N Johnson. 2003. "Time in Purgatory: Determinants of the Grant Lag for US Patent Applications." National Bureau of Economic Research.

Colorado's patent application activity.  Most regions track their states over the period FY2006 – FY2008, in patent innovation.  As expected, the rural regions such as WAEM, Montana, and Finger Lakes have much lower patent activity than the metropolitan regions.  The regions that stated a goal to increase innovation were California Corridor, Northwest Florida, NCI, North Star Alliance, Mid-Michigan, West Michigan, Finger Lakes, Piedmont Triad and Wall Street West.  WAEM has lost ground slightly in 2008, although as a rural region, the absolute number of patent applications was small; dropping from 84 applications in 2007 to 58 in 2008.  Finger Lakes's and Piedmont Triad's patent applications stayed roughly constant, while their host state's increased.  Northwest Florida experienced a delay in being allowed to award its planned Entrepreneurship grants.  Kansas City had a slight increase over its host states Kansas and Missouri in 2008 when compared to FY2007.  Error bars shown here are 95% confidence intervals.

**Figure E-12**
**Patent Applications, Regions as % of Host State, FY2006 & FY2007**
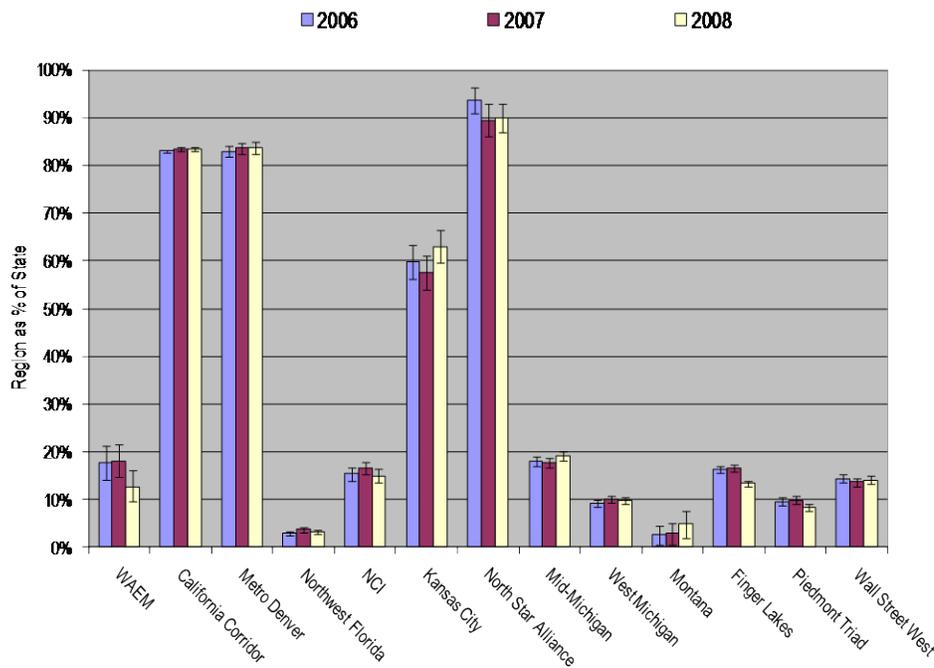


Source: U.S. Patent and Trademark Office

Patents granted (as opposed to patent applications) are also tracked; as shown in Figure E-13. The patterns are similar, with the number of patents granted each year being roughly half the number of patent applications.

**Figure E-13**
**Patents Granted to Regions as % of State(s), FY2006 & FY2007**
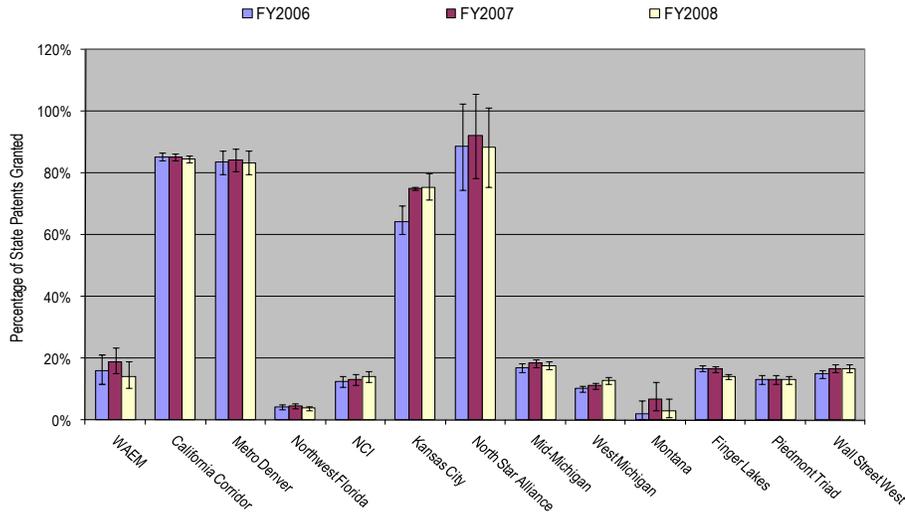


Source: U.S. Patent and Trademark Office

One measure of the extent to which regions participate in global innovation is the number of patent applications with at least one non-US co-author, as shown in Figure E-14. In all cases, the fraction of U.S. patent applications with foreign coauthors is rather small, and for many regions the margins of error are too large to permit a meaningful trend analysis. The California Corridor, Mid-Michigan, Wall Street West, and Piedmont Triad are notable for their substantial numbers of globally collaborative patents.

### *Number of Angel Networks*

"Angels" are individuals who invest personal wealth in a start-up company at the earliest stage of its development. These investors often participate in networks of like-minded individuals. The data on angel networks in Figure E-15 are from a survey by the Angel Capital Education Foundation.

**Figure E-14**
**Percent of Patent Applications with Foreign Coauthors**
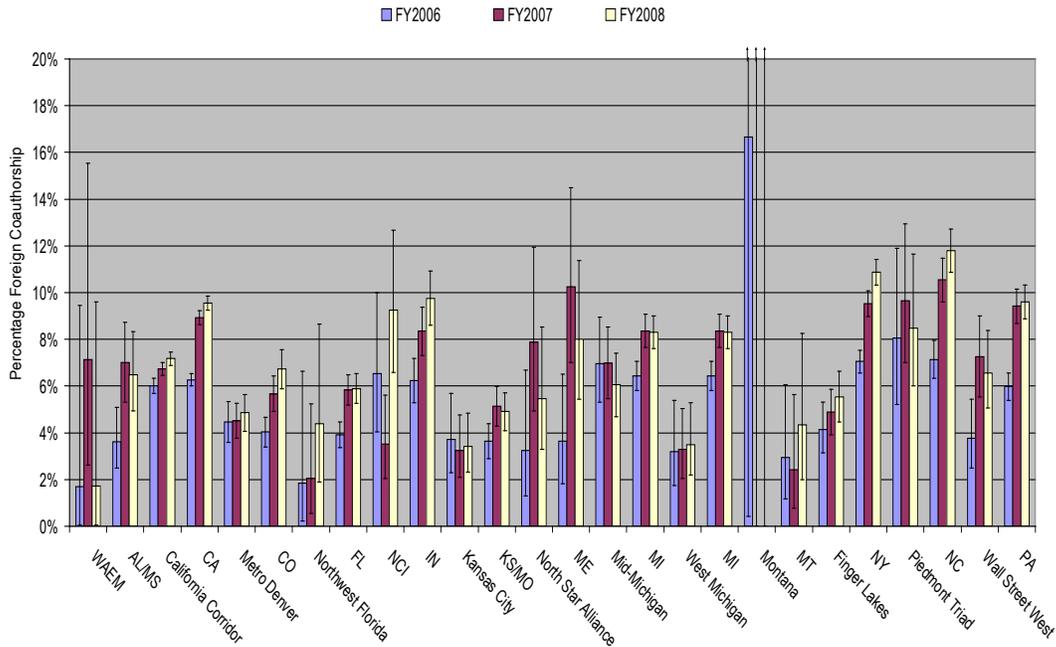


Source: U.S. Patent and Trademark Office

**Figure E-15**
**Number of Angel Networks, Regions and Host States, CY2007 & CY2008**
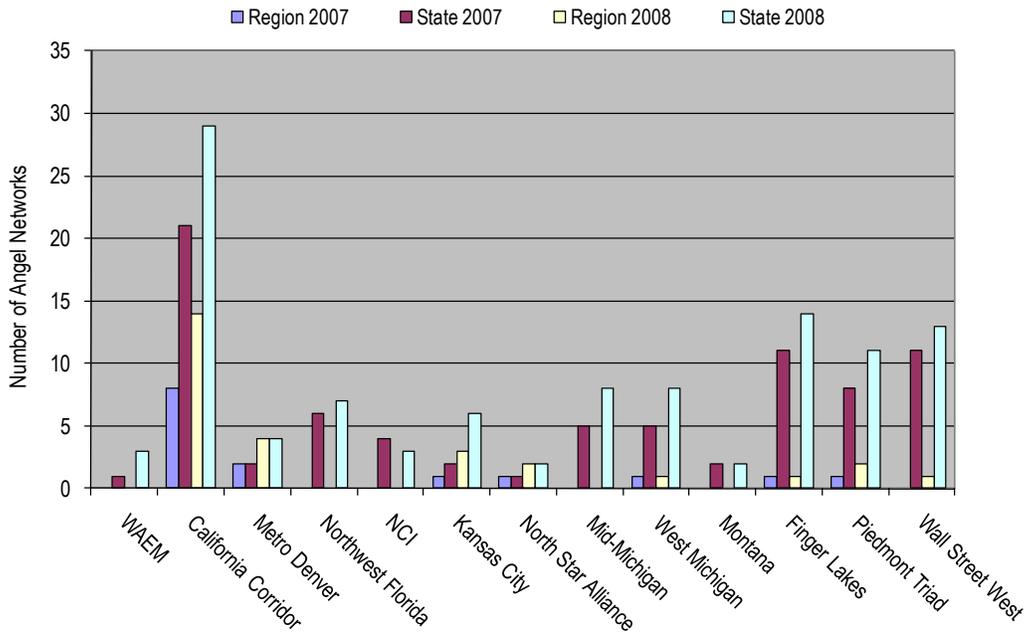


Source: Angel Capital Education Foundation

Because data on the actual level of angel activity (dollars and number of deals) is proprietary, the evaluation team used the number of angel networks as an indicator of angel activity. Research

has shown[25] that a large proportion of angel activity involved investments in local companies. Thus, if the data show that a network exists in a region, angel investing is likely to be occurring in that region.

Even though the absolute numbers of networks are small, there has been some increase in angel network formation from 2007 to 2008. Six of the regions had an increase in the number of networks, and only WAEM, Northwest Florida, NCI and Montana had no networks registered with the ACEF by 2008. The California Corridor region's growth is due partly to entirely new networks forming and, in a few cases, to existing networks starting new chapters in a different part of the state. Most regions did not explicitly target angel investors in their programs, although Finger Lakes supported The Entrepreneurship Network, which trained 100 executives of startup companies who in turn, tapped existing venture capital and angel funding of over $7 Million.

## *Education and Talent Development*

A region's attention to its talent pipeline, and the ability of the region's education and training organizations to respond to new and existing demands from regional industry for an appropriately trained workforce, are important keys to expanding economic success.

Educational achievement metrics are lagging indicators of Initiative success, because of the need to coordinate new programs to start with the academic year, and because of the length of time a program must be in existence for graduates to emerge into the workforce: 2 years for community college programs at minimum, or as long as six to eight years for professional degrees. Enrollment figures lag less than completion figures, of course. Generally enrollment changes would be seen at the end of the first full year of a program's operation.

The primary data source for postsecondary educational information is the Integrated Postsecondary Education Data System (IPEDS), the data collection program of the National Center for Education Statistics, U.S. Department of Education. All primary providers of postsecondary education receiving Title IV funding must forward data to the IPEDS. Special training programs, such as those run by contractors without Title IV funding are not included in IPEDS data.

The measures chosen for tracking in the WIRED regions are:
- Total enrollment (12-month unduplicated head count);
- Number of entering students;
- Number of degree completions;
- Number of degree completions in science, technology, engineering, and mathematics (STEM) majors;
- Number of instructional staff full-time-equivalents (FTEs);

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[25] Prowse, Stephen, "Angel Investors and the Market for Angel Investments", J. Banking Finance – 22 Aug 1998, pp 785-792. Branscomb, Lewis; Phillip Auerswald, "Between Invention and Innovation: An Analysis of Funding for Early-Stage Technology Development" NIST GCR02-841, 2002.

- Number of new faculty hires.[26]


The IPEDS provides data for each of these measures broken out by institution type according to the highest degree granted by the institution. Types of institutions include:


- Two-year, degree-granting (Associate degree);
- Four-year, Bachelor's degree-granting only; and
- Post-baccalaureate degree-granting (Masters, PhDs, professional).

This analysis combines the four-year and post-baccalaureate-granting institutions in order to characterize all bachelor's degrees in the regions and host states, regardless of whether the institution grants other higher degrees or not.

As might be expected, the IPEDS collects data by academic year. The baseline year for this evaluation is AY2005, which, for most institutions, ran from September 2005 through August of 2006.[27] Since WIRED funding generally became accessible in the March 2006 time frame and since new academic programs usually must be synchronized to the academic year, AY2005 (running through or to the summer of 2006) provides an accurate assessment of the pre-WIRED educational system.

Instructional staff FTEs include some teaching staff who are not considered faculty (such as teaching assistants), so those numbers run slightly higher than actual faculty counts. Since all instructional staff included in this measure have teaching responsibilities, FTE count is still a valid measure of teaching activity, but the new faculty hires will be slightly lower than if the datum captured new instructional staff hires.

Entering students and new faculty hires (in years when data coverage is complete) are leading indicators of change in the educational systems of both the regions and the states. Total enrollment and completions tell the story further down the pipeline.

***Total Enrollment, Degree Completions, Number of Entering Students as a Leading Indicator***

This section presents entering student counts, total enrollment, and degree completions for each region for academic years 2005-6 and 2006-7 as a proportion of the same measure for the host state. Comparisons are done for two-year schools (junior colleges, community colleges or technical colleges) and for schools granting bachelor's degrees or higher.

The number of entering students is a leading indicator of growth, shrinkage, or stability in the educational system. As such, comparing this measure to total enrollment over time can provide useful information. Two factors could cause the two measures to differ: 1) the region may be enrolling fewer or more entering students in comparison to the state than in previous years; and/or 2) the region has greater or lesser success in retaining students to graduation (a large

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[26] This data required to be submitted only in odd-numbered academic years

[27] Some institutions have July as the starting month.

entering class with a smaller total number of students may mean higher numbers of drop-outs). Comparing the ratio of enrollments to completions helps distinguish the possibilities, as shown below in Figures E-18 and E-19.  A region with a higher completion rate than its state is probably not experiencing high dropout rates.

Figure E-16 shows entering students vs. total enrollment for two-year colleges in the regions.

**Figure E-16**
**Two-Year and Technical Colleges:**
**Entering Students vs. Total Enrollment**
**Regions as Percentage of Host State, SY2005-6 & AY2006-7**
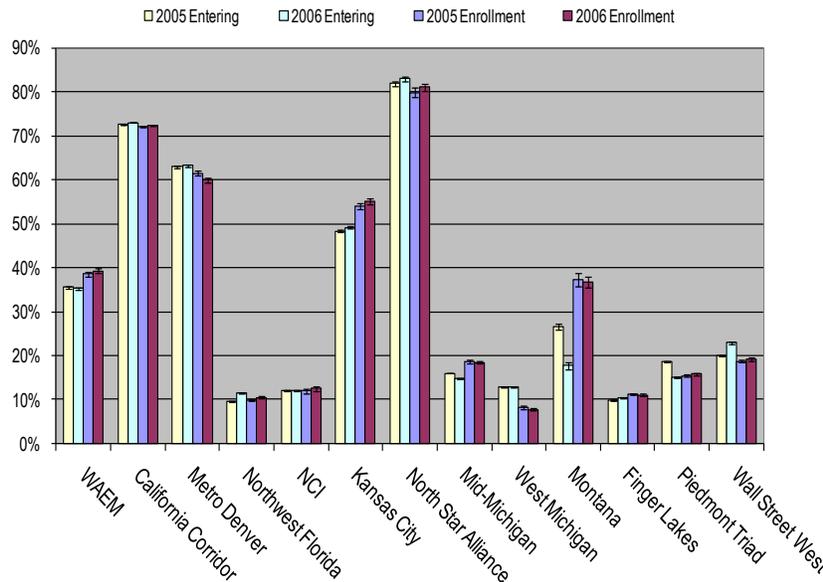


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

All the educational comparisons in this section highlight the diversity across regions in the number of students enrolled, the number of students entering, and the number of degree completions for the various types of colleges.  For example, the North Star Alliance region has nearly the entire two-year student enrollment in Maine, while the Northwest Florida and West Michigan regions have very little activity in two-year colleges.

Many regions stayed exactly in step with their host states in both enrollment and number of entering students.  The decrease in Montana's community college entering student population came mostly from one school, Little Big Horn College.  Piedmont Triad's and Mid-Michigan's entering classes also decreased compared to their states, while Kansas City, Metro Denver, Wall Street West and North Star Alliance were up slightly.  Metro Denver's total enrollment decreased slightly from 2005-6 to 2006-7, compared to its state, at the same time as its entering class percentage was rising slightly.

Figure E-17 shows the entering cohort and total enrollment for four-year colleges and universities granting both Bachelor's and post baccalaureate degrees (shorthanded as BS+ in this

report).  In general, the proportions of enrollments and entering students for BS+ schools are similar to those for two-year colleges (compare Figure D-16 with Figure D-17), except for Montana, where the region has half a dozen two-year colleges and only one bachelor degree-granting school.  As with the two-year college baseline, the regions vary considerably in terms of the proportion of their host states' enrollments and completions that they represent, with regions in urban areas having a larger proportion of the state's students.  The regions generally kept pace with their host states.  Kansas City had a downturn in entering students in 2006-7 due mainly to decreased matriculation into University of Missouri, Kansas City.

**Figure E-17**
**Bachelors & Postbaccalaureate Institutions:**
**Entering Students vs. Total Enrollment,**
**Regions as % of Host State, AY2005-6 & AY2006-7**
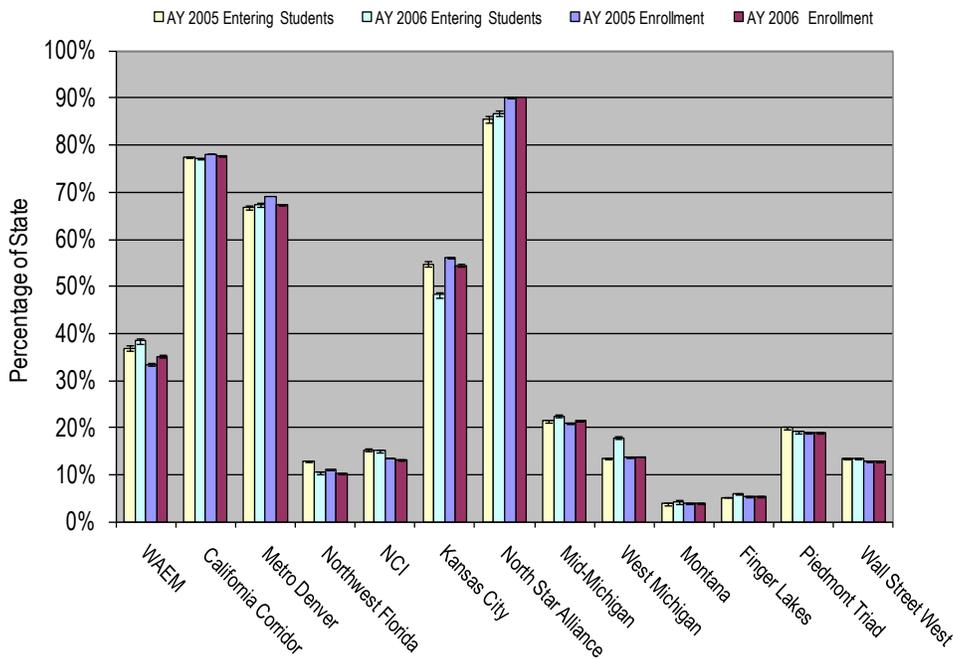


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

Figure D-18 compares enrollment with completions for two-year colleges.  Generally, completions track enrollments fairly closely, showing that the region's completion rate is similar to that of the state as a whole. Kansas City's completion rate for two-year institutions is lower than total enrollments when compared to the states.

**Figure E-18**
**Two-Year and Technical Colleges: Enrollment vs. Completions,**
**Regions as % of Host State, AY2005-6 & AY2006-7**
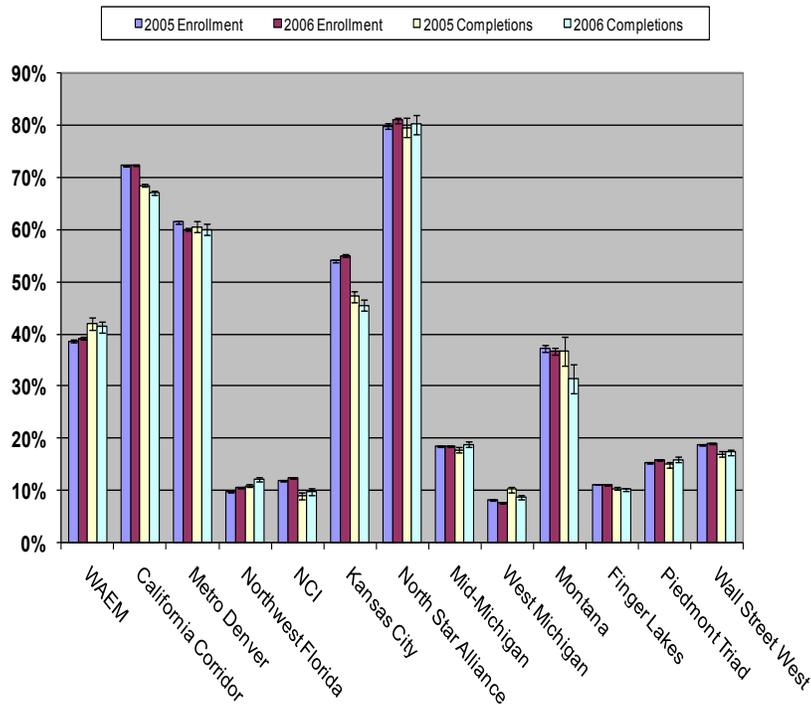
Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

Figure E-19 compares Bachelor's degree completions to enrollment for BS+ institutions. Bachelor's level completions also tracked enrollment as well in the region as in their surrounding states. Little change was observed between the 2005-6 and 2006-7 academic years. Northwest Florida, Mid-Michigan and Piedmont Triad have goals to increase graduation rates, which since the level was unspecified, might include all levels of graduation from high school through community college and 4-year colleges. All regions except NCI, Montana and Finger Lakes have the goal to create high skilled workforces. Since completions lag any program to encourage enrollment by at least 4 years at the baccalaureate level, this metric should be monitored from 2010 onward, comparing completion rates then to completion rates in these early years where it is yet too early to see effects.

**Figure E-19**
**Bachelors and Postbaccalaureate Institutions:**
**Enrollments vs. BS Completions**
**Region as % Host State, AY2005-6 & AY2006-7**
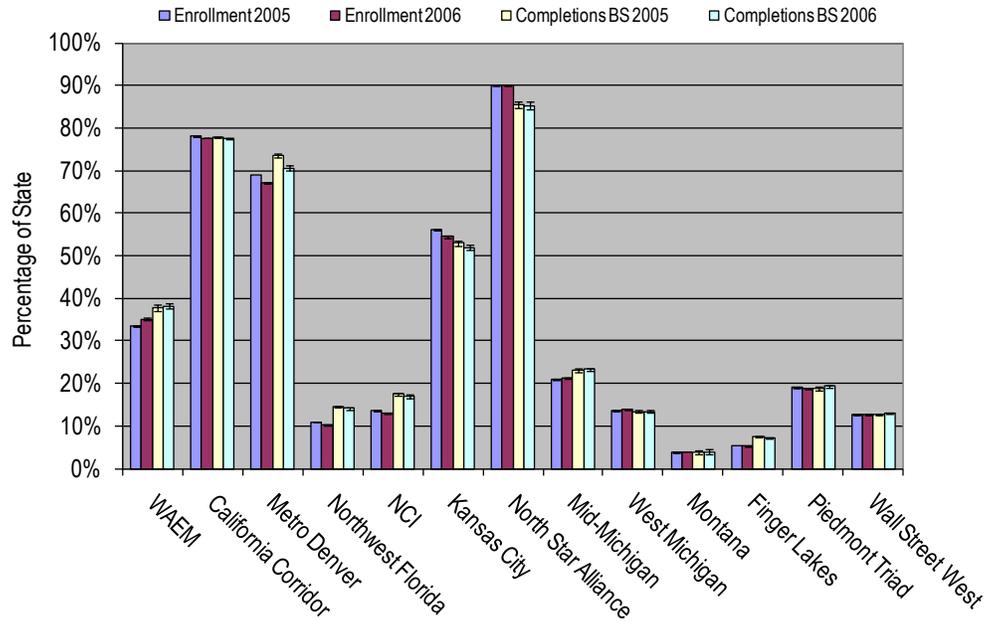


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

### STEM Degree Completions

The WIRED Initiative places special emphasis on science, technology, engineering, and mathematics (STEM) education, as STEM graduates may be the drivers behind the development and dissemination of innovative technology.  The question of which subjects constitute STEM fields has not been definitively answered:  the Carnegie Foundation has one definition, while the U.S. General Accounting Office (GAO) uses another.  Although the Carnegie Foundation's definition corresponds more closely to what most scientists would view as STEM, it is missing many of the fields appropriate for two-year graduates, such as laboratory technician skills, computer programming (as differentiated from theoretical computer science), and fields training health care workers, including physicians and other professionals, so the evaluation team added these fields to the definition.  The complete list of the evaluation's choice of STEM subjects can be found at the end of this Appendix.  Mid-Michigan, West Michigan, Northwest Florida and Piedmont Triad have made health care worker training one of their goals.  In some cases, certificate programs aimed at reconciling differences between community college offerings and employer needs are not funded by Title IV, however, and thus those graduates will not be counted in the IPEDS totals.

FigureE-20 compares two-year STEM completions to all completions for the 2005-6 and 2006-7 academic years.  Many of the regions have a slightly  lower rate of STEM completions than all completions than their host states but in most cases  STEM completions did not decrease in

AY2006-7.  Kansas City and  Montana  lost ground in STEM completions in comparison to their states in AY2006-7, although Kansas City's STEM completions outdid the states' in both years.

**Figure E-20**
**Two-Year and Technical Colleges: STEM Completions and All Completions**
**Region as % Host State, 2005-6 & 2006-7**
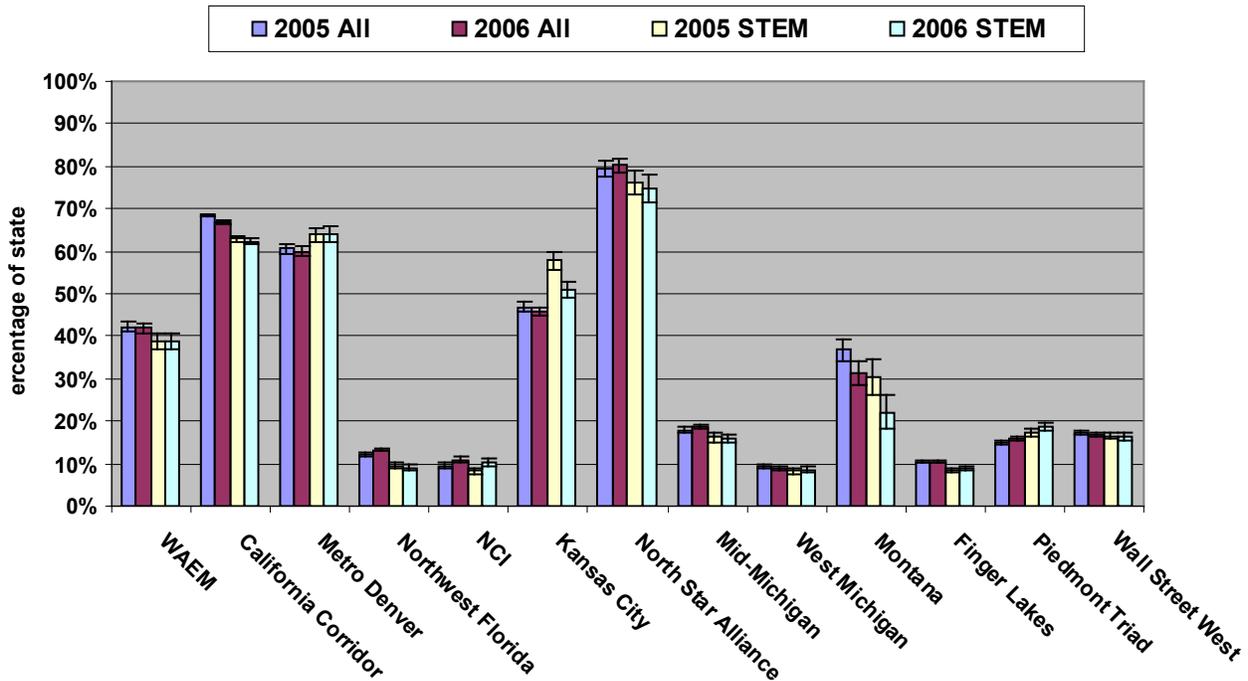


*Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)*

The evaluation also tracks STEM completions versus all completions for four-year colleges and universities in the Generation I WIRED regions.  Figure E-21 presents these data for STEM completions and all completions for bachelors' and advanced degrees.  California Corridor, Metro Denver, NCI and North Star Alliance have proportionately more STEM completions that their states.  Kansas City's STEM completions increased significantly in 2006 so that its STEM completions matched those of the states.

**Figure E-21**
**STEM Completions and All Completions of Bachelor's Degrees and Above**
**2005-6 & 2006-7**
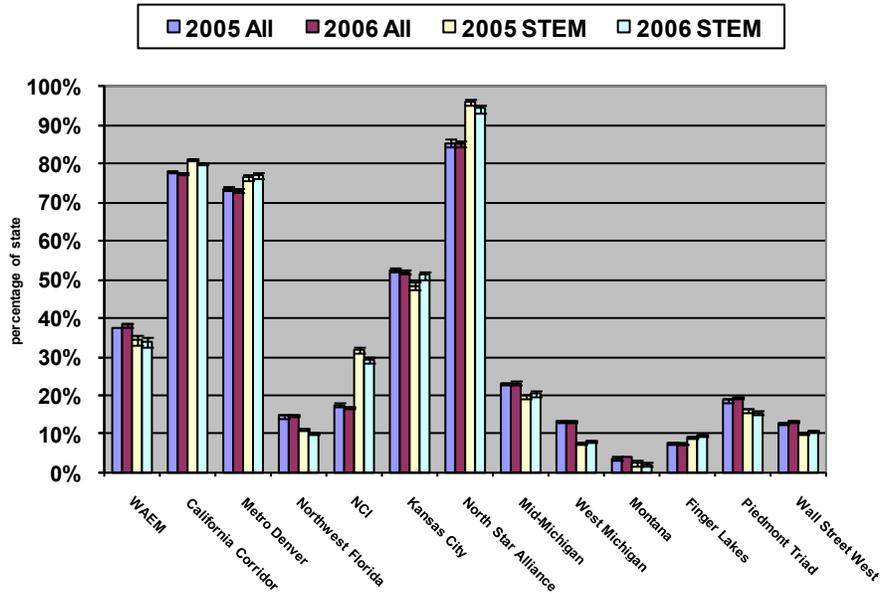


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

## *Staffing and Enrollment*

Figure E-22 compares regional enrollment and instructional staff levels (FTEs) for two-year institutions, again as a proportion of the same measures for the state. This comparison indicates whether the student-teacher ratio is similar for the region as for the state as a whole, and whether the ratio is changing over time. Not surprisingly, those regions that are home to the state's major educational institutions represent the majority of the state's instructional staff and enrollment. Denver had both falling enrollment and instructional staffing during the period, with the proportion of instructional staff being lower than the enrollment, in comparison to the state. Northwest Florida had a slight proportional increase in instructional FTEs as did Wall Street West. Wall Street West's increase brought the teaching staff proportion into better alignment with the enrollment proportion. Kansas City's instructional staff proportion went down slightly at the same time as its enrollment fraction went up slightly. Mid-Michigan's instructional staffing level went down slightly but stayed in line with the enrollment load, as did Montana's.

**Figure E-22**
**Two-Year Colleges and Technical Colleges: Enrollment vs. Instructional FTEs**
**Region as % of State, 2005-6 & 2006-7**
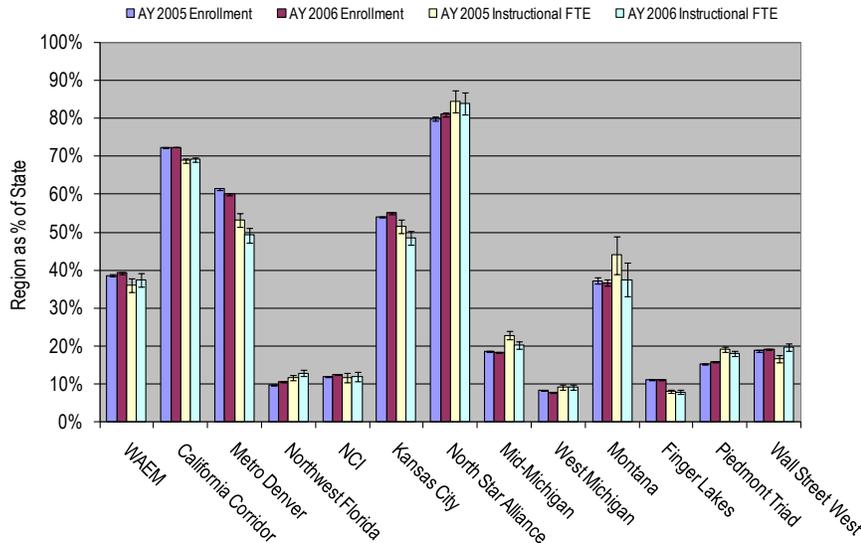


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

For the four-year colleges and universities, the change between AY2005-6 and AY2006-7 has been minimal, as shown in Figure E-23. The only notable difference between enrollment fraction and teaching staff fraction is in the Metro Denver region, where the region has a substantially higher teaching fraction than would be expected from enrollment figures.

**Figure E-23**
**Bachelors and Postbaccalaureate Institutions: Enrollment vs. Instructional FTEs WIRED**
**Regions as % State, 2005-6 & 2006-7**
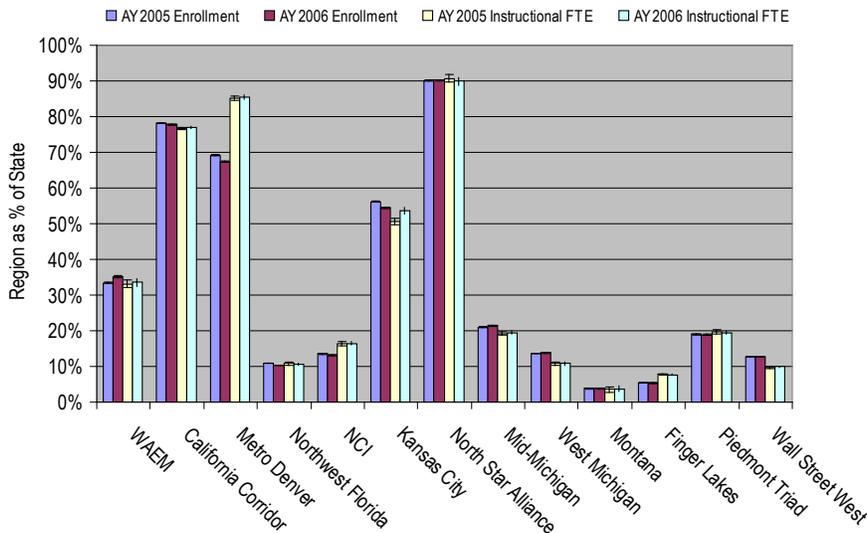


Source: U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS)

*K-12 Education*

Late in 2007, ETA issued a guidance letter to the regions[28] stating that educational programs are appropriate use of grant funds only for students 16 and older. In states where the legal work age is 14, programs for 14-15 year olds might also be allowed, if the state requests a waiver and ETA grants one.

The evaluation team searched for appropriate extant K-12 education data sets, however, none were identified that could be filtered accurately by region and state. Where programs target single schools or single specialty programs, privacy concerns prevent state and school districts from sharing detailed information. Therefore, site visit information gained from the program providers and/or participants is the best source of knowledge about K-12 educational advances. California Corridor, West Michigan, Wall Street West and NCI applied for, and received waivers for programs targeting younger students. Some regions may have designed programs limited to high school students aged 16 and older. California Corridor site visitors documented startup difficulties with STEMCAP, their educational program, but stated that STEMCAP is now receiving valuable attention at the highest state policy levels. No other K-12 programs have been highlighted during the most recent site visits, although Northwest Florida's important high school program was described in the first round of site visits.

## *Changes in Selected Measures Using Existing Data*

The data items discussed in this chapter offered quantitative measurement of changes in the regions over the course of the grants. The evaluation team compared the baseline "pre-WIRED" year to later extant data as the grants proceeded and data became available. Since various transformations were likely to take much longer than the grant period, the team focused on leading indicators where possible. Nonetheless, given the downward turn in the economy and the long timeline needed to transform a region's economy, the evaluation team was able to document initial small changes using data from existing sources.

The evaluation team was continuously seeking new sources of extant data to improve the evaluation of the grants. In 2008, the demise of NSF's RaDiUS database, previously maintained by RAND Corporation, left a gap in the evaluation's data on federal R&D funding. A replacement database may sometime be created, but, in the meantime, the evaluation tracked NIH and NSF funding as a surrogate for a more complete federal R&D funding picture.

The U.S. Small Business Administration (SBA) furnished data on SBIR and STTR programs. Since SBA is curating its database slightly differently than RAND did, the evaluation team had newly acquired data for all analysis years from the SBA dataset, to insure consistency. The SBIR/STTR data now includes all active grants, not just new grants, as was possible with RaDiUS data. The team has also purchased additional data on new business starts from Dun and Bradstreet.

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[28] Memo to WIRED regions from Emily Stover DeRocco, November 19, 2007, "WIRED Policy on Investments in Activities for Secondary School Age Youth."

Because of the regions' emphasis on health care, and the puzzling lack of health care fields in the lists of STEM fields from OMB and Carnegie, the evaluation team added health care training to its STEM categories, which allowed the tracking of the education of nurses, physicians, dentists and other health care technologists.

Due to a computational error, the extent of employment in industries previously identified by the evaluation team as "targeted industries" was overestimated, and the small number of employees in the identified NAICS codes caused censoring of much of the information due to the disclosure policy[29] of the Bureau of Labor Statistics Quarterly Census of Employment and Wages. This censoring resulted in unreliable data, and the evaluation team had to discontinue the quantitative analysis of employment in targeted industries. Also some government employees were excluded from the analysis done for the 2007 interim report. The evaluation team repeated the 2007 analysis with the missing group reinstated so that comparable groups would be used in this year's analysis, as well as future analyses of QCEW data.

IPEDS did not require all data in every year from institutions receiving Title IV funding; therefore comparisons were done only for years when the data element (such as New Faculty Hires) was required, since the "optional years" have poor data submission compliance, as might be expected.

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[29] Federal Committee on Statistical Methodology, Office of Management and Budget, "Statistical Policy Working Paper 22 (Revised 2005)- Report on Statistical Disclosure Limitation Methodology" http://www.fcsm.gov/working-papers/spwp22.html

**Figure E-24**
**Demographic Measures: Comparing Generation I WIRED Regions with Their States**

| Measure | WAEM | | California Corridor | | Metro Denver | | Northwest Florida | | NCI | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | Region | State | Region | State |
| **Total Population** | 2,844,658 | 4,447,100 | 24,278,841 | 33,871,648 | 2,833,000 | 4,301,261 | 1,222,492 | 15,982,378 | 535,700 | 6,080,485 |
| **Population Density**[a] | 59.7 | 86.1 | 415.6 | 214.2 | 253.3 | 41.3 | 105.9 | 281.8 | 95.5 | 168.0 |
| **Male** | 48% | 48% | 50% | 50% | 50% | 50% | 49.8% | 48.8% | 49.9% | 49.1% |
| **Race/Ethnicity** | | | | | | | | | | |
| White | 61% | 71% | 57% | 60% | 82% | 83% | 76% | 78% | 93% | 88% |
| Black | 36% | 26% | 7% | 7% | 4% | 4% | 19% | 15% | 2% | 8% |
| American Indian | 0.4% | 0.5% | 1% | 1% | 1% | 1% | 1% | 0.3% | 0.4% | 0.3% |
| Asian or Pacific Islander | 1% | 1% | 12% | 11% | 3% | 2% | 2% | 2% | 2% | 1% |
| Other/Multiple Race | 1% | 1% | 23% | 22% | 11% | 10% | 3% | 5% | 3% | 3% |
| *Hispanic Ethnicity*[b] | *1%* | *1%* | *36%* | *32%* | *18%* | *17%* | *3%* | *17%* | *4%* | *4%* |
| **Age** | | | | | | | | | | |
| *Median Age* | *33.8* | *35.9* | *32.7* | *33.3* | *33.8* | *34.4* | *35.5* | *38.7* | *34.4* | *35.2* |
| 15 to 19 | 8% | 7% | 7% | 7% | 7% | 7% | 8% | 6% | 8% | 8% |
| 20 to 24 | 8% | 7% | 7% | 7% | 7% | 7% | 88% | 6% | 9% | 7% |
| 25 to 34 | 13% | 14% | 16% | 15% | 16% | 15% | 14% | 13% | 13% | 14% |
| 35 to 44 | 15% | 15% | 16% | 16% | 17% | 17% | 16% | 16% | 15% | 16% |
| 45 to 54 | 13% | 14% | 12% | 13% | 14% | 14% | 13% | 13% | 13% | 13% |
| 55 to 64 | 9% | 9% | 8% | 8% | 8% | 8% | 9% | 10% | 9% | 9% |
| 65 and older | 12% | 13% | 10% | 11% | 9% | 10% | 12% | 18% | 13% | 12% |
| **Income** | | | | | | | | | | |
| Average for Household | $42,315 | $45,923 | $66,144 | $65,628 | $65,707 | $61,437 | $47,539 | $53,504 | $49,145 | $52,229 |
| Median for Household | $31,489 | $34,250 | $48,179 | $47,692 | $51,119 | $47,338 | $36,425 | $38,924 | $40,733 | $41,771 |
| **Education Level** | | | | | | | | | | |
| Less than HS Diploma | 27% | 25% | 24% | 23% | 13% | 13% | 18% | 20% | 16% | 18% |
| High School Graduate | 29% | 30 % | 20% | 20% | 22% | 23% | 28% | 29% | 42% | 37% |
| Some College, No Degree | 30% | 21% | 22% | 23% | 23% | 24% | 23% | 22% | 19% | 20% |
| Advanced Degree | 23% | 24% | 34% | 34% | 42% | 40% | 31% | 29% | 23% | 25% |

[a] Population density is population per square mile    [b] Hispanics may be of any race, so also are included in applicable race categories.    [c] Education level for population age 25 and older

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**Figure E-24**(continued)

| Measure | Kansas City | | North Star Alliance | | Mid-Michigan | | West Michigan | | Finger Lakes | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State | Region | State | Region | State |
| **Total Population** | 5,595,211 | 2,688,418 | 1,742,373 | 9,938,444 | 1,254,661 | 9,938,444 | 1,199,588 | 18,976,457 | 1,199,588 | 18,976,457 |
| **Population Density**a | 80.3 | 32.7 | 203.6 | 170.9 | 259.4 | 170.9 | 248.6 | 390.2 | 248.6 | 390.2 |
| **Male** | 49% | 49% | 49% | 49% | 50% | 49% | 49% | 48% | 49% | 48% |
| **Race/Ethnicity** | | | | | | | | | | |
| White | 85% | 86% | 97% | 97% | 86% | 80% | 87% | 80% | 85% | 68% |
| Black | 11% | 6% | 1% | 1% | 10% | 14% | 7% | 14% | 10% | 16% |
| American Indian | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 0.3% | 0.4% |
| Asian or Pacific Islander | 1% | 2% | 1% | 1% | 1% | 2% | 1% | 2% | 2% | 6% |
| Other/Multiple Race | 2% | 6% | 1% | 1% | 3% | 3% | 5% | 3% | 3% | 10% |
| *Hispanic Ethnicity*b | *2%* | *7%* | *1%* | *1%* | *4%* | *3%* | *6%* | *3%* | *4%* | *15%* |
| **Age** | | | | | | | | | | |
| *Median Age* | *36.1* | *35.2* | *38.4* | *38.6* | *35.4* | *35.5* | *33.5* | *35.5* | *36.4* | *35.9* |
| 15 to 19 | 8% | 8% | 7% | 7% | 8% | 7% | 8% | 7% | 7% | 7% |
| 20 to 24 | 7% | 7% | 6% | 6% | 7% | 7% | 7% | 7% | 6% | 7% |
| 25 to 34 | 13% | 13% | 13% | 12% | 13% | 14% | 14% | 14% | 13% | 15% |
| 35 to 44 | 16% | 16% | 17% | 17% | 16% | 16% | 16% | 16% | 17% | 16% |
| 45 to 54 | 13% | 13. % | 15% | 15% | 14% | 14% | 13% | 14% | 14% | 14% |
| 55 to 64 | 9% | 8% | 10% | 10% | 9% | 9% | 8% | 9% | 9% | 9% |
| 65 and older | 14% | 13% | 14% | 14% | 12% | 12% | 11% | 12% | 13% | 13% |
| **Income** | | | | | | | | | | |
| Average for Household | $49,956 | $52,080 | $49,179 | $47,383 | $55,210 | $57,400 | $55,681 | $57,400 | $54,745 | $61,856 |
| Median for Household | $38,114 | $40,687 | $38,750 | $37,368 | $44,114 | $44,702 | $45,694 | $44,702 | $43,488 | $43,642 |
| **Education Level** | | | | | | | | | | |
| Less than HS Diploma | 19% | 14% | 14% | 15% | 15% | 17% | 16% | 17% | 16% | 21% |
| High School Graduate | 30% | 30% | 35% | 36% | 33% | 31% | 32% | 31% | 30% | 28% |
| Some College, No Degree | 22% | 25% | 19% | 19% | 24% | 23% | 23% | 23% | 18% | 17% |
| Advanced Degree | 27% | 32% | 32% | 30% | 28% | 29% | 29% | 29% | 36% | 35% |

a Population density is population per square mile       b Hispanics may be of any race, so also are included in applicable race categories.       c Education level for population age 25 and older

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**Figure E-24** *(continued)*

| Measure | Montana | | Piedmont Triad | | Wall Street West | |
|---|---|---|---|---|---|---|
| | Region | State | Region | State | Region | State |
| **Total Population** | 179,639 | 902,195 | 1,464,979 | 8,049,313 | 1,776,855 | 12,281,054 |
| **Population Density**[a] | 2.1 | 6.1 | 245.7 | 162.9 | 336.3 | 271.1 |
| **Male** | 50% | 50% | 48% | 49% | 49% | 48% |
| **Race/Ethnicity** | | | | | | |
| White | 78% | 91% | 75% | 72% | 92% | 85% |
| Black | 0.1% | 0.3% | 20% | 22% | 3% | 10% |
| American Indian | 19% | 6% | 0.4% | 1% | 0.2% | 0.2% |
| Asian or Pacific Islander | 0.3% | 1% | 1% | 2% | 1.1% | 2% |
| Other/Multiple Race | 2% | 2% | 4% | 4% | 4% | 3% |
| *Hispanic Ethnicity*[b] | *1%* | *2%* | *5%* | *5%* | *6%* | *3%* |
| **Age** | | | | | | |
| *Median Age* | *38.1* | *37.5* | *36.3* | *35.3* | *38.9* | *38.0* |
| 15 to 19 | 9% | 8% | 7% | 7% | 7% | 7% |
| 20 to 24 | 5% | 7% | 7% | 7% | 6% | 6% |
| 25 to 34 | 10% | 11% | 15% | 15% | 12% | 13% |
| 35 to 44 | 15% | 16% | 16% | 16% | 16% | 16% |
| 45 to 54 | 14% | 15% | 14% | 14% | 14% | 14% |
| 55 to 64 | 9% | 9% | 9% | 9% | 9% | 9% |
| 65 and older | 15% | 13% | 13% | 12% | 17% | 16% |
| **Income** | | | | | | |
| Average for Household | $36,887 | $42,471 | $50,926 | $52,682 | $50,926 | $52,682 |
| Median for Household | $29,448 | $33,195 | $40,571 | $40,115 | $40,571 | $40,115 |
| **Education Level** | | | | | | |
| Less than HS Diploma | 17% | 13% | 23% | 22% | 19% | 18% |
| High School Graduate | 33% | 31% | 30% | 29% | 39% | 38% |
| Some College, No Degree | 25% | 26% | 20% | 21% | 16% | 16% |
| Advanced Degree | 25% | 30% | 27% | 29% | 26% | 28% |

[a] Population density is population per square mile    [b] Hispanics may be of any race, so also are included in applicable race categories.

[c] Education level for population age 25 and older
Source: Workforce Innovation and Technical Solutions (WITS)

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**Figure E-25**
**Generation I WIRED Evaluation's Definition of STEM Subjects**
**(Science, Technology, Engineering, and Mathematics)**

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| **01-Agriculture, agriculture operations, and related sciences.** | | | |
| *01.00-Agriculture, General* | | | |
| 01.0905-Dairy Science | | | X |
| 01.0906-Livestock Management | | | |
| 01.0907-Poultry Science | | | X |
| **03-Natural resources and conservation.** | | | |
| *03.01-Natural Resources Conservation and Research* | X | X | |
| 03.0101-Natural Resources/Conservation, General | X | X | |
| 03.0103-Environmental Studies | X | X | |
| 03.0104-Environmental Science | X | X | |
| 03.0199-Natural Resources Conservation and Research, Other | X | X | |
| *03.02-Natural Resources Management and Policy* | X | | |
| 03.0201-Natural Resources Management and Policy | X | | |
| 03.0204-Natural Resource Economics | X | | |
| 03.0205-Water, Wetlands, and Marine Resources Management | X | | |
| 03.0206-Land Use Planning and Management/Development | X | | |
| 03.0299-Natural Resources Management and Policy, Other | X | | |
| *03.03-Fishing and Fisheries Sciences and Management* | X | | |
| *03.05-Forestry* | X | | X |
| 03.0501-Forestry, General | X | | X |
| 03.0502-Forest Sciences and Biology | X | | X |
| 03.0506-Forest Management/Forest Resources Management | X | | X |
| 03.0508-Urban Forestry | X | | X |
| 03.0509-Wood Science and Wood Products/Pulp and Paper Technology | X | | X |
| 03.0510-Forest Resources Production and Management | X | | X |
| 03.0511-Forest Technology/Technician | X | | X |
| 03.0599-Forestry, Other | X | | X |
| *03.06-Wildlife and Wildlands Science and Management* | | | X |
| **11-Computer and information sciences and support services.** | X | | |
| *11.01-Computer and Information Sciences, General* | X | X | |
| 11.0101-Computer and Information Sciences, General | X | X | |
| 11.0102-Artificial Intelligence and Robotics | X | X | |
| 11.0103-Information Technology | X | X | |
| 11.0199-Computer and Information Sciences, Other | X | X | |
| *11.02-Computer Programming* | X | | X |
| 11.0201-Computer Programming/Programmer, General | X | | X |
| 11.0202-Computer Programming, Specific Applications | X | | X |
| 11.0203-Computer Programming, Vendor/Product Certification | X | | X |
| 11.0299-Computer Programming, Other | X | | X |
| *11.03-Data Processing* | X | | X |
| 11.0301-Data Processing and Data Processing Technology/Technician | X | | X |
| *11.04-Information Science/Studies* | X | X | |
| *11.05-Computer Systems Analysis* | X | | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| *11.06-Data Entry/Microcomputer Applications* | | | |
| *11.07-Computer Science* | X | X | |
| *11.08-Computer Software and Media Applications* | X | | |
| 11.0801-Web Page, Digital/Multimedia and Information Resources Design | X | | |
| 11.0802-Data Modeling/Warehousing and Database Administration | X | | |
| 11.0803-Computer Graphics | X | | |
| 11.0899-Computer Software and Media Applications, Other | X | | |
| *11.09-Computer Systems Networking and Telecommunications* | X | | |
| *11.10-Computer/Information Technology Administration and Management* | X | | |
| 11.1001-System Administration/Administrator | X | | |
| 11.1002-System, Networking, and LAN/WAN Management/Manager | X | | |
| 11.1003-Computer and Information Systems Security | X | | |
| 11.1004-Web/Multimedia Management and Webmaster | X | | |
| 11.1099-Computer/Info Tech Services Administration & Management, Other | X | | |
| *11.99-Computer and Information Sciences and Support Services, Other.* | X | | |
| **14-Engineering.** | X | X | |
| *14.01-Engineering, General* | X | X | |
| *14.02-Aerospace, Aeronautical and Astronautical Engineering* | X | X | X |
| *14.03-Agricultural/Biological Engineering and Bioengineering* | X | X | |
| *14.04-Architectural Engineering* | X | X | X |
| *14.05-Biomedical/Medical Engineering* | X | X | |
| *14.06-Ceramic Sciences and Engineering* | X | X | |
| *14.07-Chemical Engineering* | X | X | X |
| *14.08-Civil Engineering* | X | X | X |
| 14.0801-Civil Engineering, General | X | X | X |
| 14.0802-Geotechnical Engineering | X | X | X |
| 14.0803-Structural Engineering | X | X | X |
| 14.0804-Transportation and Highway Engineering | X | X | X |
| 14.0805-Water Resources Engineering | X | X | X |
| 14.0899-Civil Engineering, Other | X | X | X |
| *14.09-Computer Engineering, General* | X | X | |
| 14.0901-Computer Engineering, General | X | X | |
| 14.0903-Computer Software Engineering | X | X | |
| 14.0999-Computer Engineering, Other | X | X | |
| *14.10-Electrical, Electronics and Communications Engineering* | X | X | X |
| *14.11-Engineering Mechanics* | X | X | |
| *14.12-Engineering Physics* | X | X | |
| *14.13-Engineering Science* | X | X | |
| *14.14-Environmental/Environmental Health Engineering* | X | X | |
| *14.18-Materials Engineering* | X | X | |
| *14.19-Mechanical Engineering* | X | X | |
| *14.20-Metallurgical Engineering* | X | X | |
| *14.21-Mining and Mineral Engineering* | X | X | |
| *14.22-Naval Architecture and Marine Engineering* | X | X | |
| *14.23-Nuclear Engineering* | X | X | X |
| *14.24-Ocean Engineering* | X | X | |
| *14.25-Petroleum Engineering* | X | X | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|---|---|---|
| *14.27-Systems Engineering* | X | X | |
| *14.28-Textile Sciences and Engineering* | X | X | |
| *14.31-Materials Science* | X | X | |
| *14.32-Polymer/Plastics Engineering* | X | X | |
| *14.33-Construction Engineering* | X | X | |
| *14.34-Forest Engineering* | X | X | |
| *14.35-Industrial Engineering* | X | X | |
| *14.36-Manufacturing Engineering* | X | X | |
| *14.37-Operations Research* | X | X | |
| *14.38-Surveying Engineering* | X | X | |
| *14.39-Geological/Geophysical Engineering* | X | X | |
| *14.99-Engineering, Other* | X | X | |
| **15-Engineering technologies/technicians.** | X | X | |
| *15.00-Engineering Technology, General* | X | X | |
| *15.01-Architectural Engineering Technologies/Technicians* | X | X | |
| *15.02-Civil Engineering Technologies/Technicians* | X | X | |
| *15.03-Electrical Engineering Technologies/Technicians* | X | X | |
| 15.0303-Electrical/Electronic/Communications Engr Technology/Technician | X | X | |
| 15.0304-Laser and Optical Technology/Technician | X | X | |
| 15.0305-Telecommunications Technology/Technician | X | X | |
| 15.0399-Electrical/Electronic Engineering Technologies/Technicians, Other | X | X | |
| *15.04-Electromechanical Instrumentation and Maintenance Technologies/Technicians* | X | X | |
| 15.0401-Biomedical Technology/Technician | X | X | |
| 15.0403-Electromechanical Technology/Electromechanical Engineering Tech | X | X | |
| 15.0404-Instrumentation Technology/Technician | X | X | |
| 15.0405-Robotics Technology/Technician | X | X | |
| 15.0499-Electromechanical Instrumentation/Maintenance Techs, Other | X | X | |
| *15.05-Environmental Control Technologies/Technicians* | X | X | |
| 15.0501-Heating/AC/Refrigeration Technology/Technician | X | X | |
| 15.0503-Energy Management and Systems Technology/Technician | X | X | |
| 15.0505-Solar Energy Technology/Technician | X | X | X |
| 15.0506-Water Quality & Wastewater Treatment Mgmt & Recycling Tech | X | X | |
| 15.0507-Environmental Engineering Technology/Environmental Technology | X | X | |
| 15.0508-Hazardous Materials Management and Waste Technology/Technician | X | X | |
| 15.0599-Environmental Control Technologies/Technicians, Other | X | X | |
| *15.06-Industrial Production Technologies/Technicians* | X | X | |
| 15.0607-Plastics Engineering Technology/Technician | X | X | |
| 15.0611-Metallurgical Technology/Technician | X | X | |
| 15.0612-Industrial Technology/Technician | X | X | |
| 15.0613-Manufacturing Technology/Technician | X | X | |
| 15.0699-Industrial Production Technologies/Technicians, Other | X | X | |
| *15.07-Quality Control and Safety Technologies/Technicians* | X | X | |
| 15.0701-Occupational Safety and Health Technology/Technician | X | X | |
| 15.0702-Quality Control Technology/Technician | X | X | |
| 15.0703-Industrial Safety Technology/Technician | X | X | |
| 15.0704-Hazardous Materials Information Systems Technology/Technician | X | X | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| 15.0799-Quality Control and Safety Technologies/Technicians, Other | X | X | |
| **15.08-Mechanical Engineering Related Technologies/Technicians** | X | X | |
| 15.0801-Aeronautical/Aerospace Engineering Technology/Technician | X | X | |
| 15.0803-Automotive Engineering Technology/Technician | X | X | X |
| 15.0805-Mechanical Engineering/Mechanical Technology/Technician | X | X | |
| 15.0899-Mechanical Engineering Related Technologies/Technicians, Other | X | X | |
| **15.09-Mining and Petroleum Technologies/Technicians** | X | X | |
| 15.0901-Mining Technology/Technician | X | X | |
| 15.0903-Petroleum Technology/Technician | X | X | |
| 15.0999-Mining and Petroleum Technologies/Technicians, Other | X | X | |
| **15.10-Construction Engineering Technologies** | X | X | |
| **15.11-Engineering-Related Technologies** | X | X | |
| 15.1102-Surveying Technology/Surveying | X | X | |
| 15.1103-Hydraulics and Fluid Power Technology/Technician | X | X | |
| 15.1199-Engineering-Related Technologies, Other | X | X | |
| **15.12-Computer Engineering Technologies/Technicians** | X | X | |
| 15.1201-Computer Engineering Technology/Technician | X | X | |
| 15.1202-Computer Technology/Computer Systems Technology | X | X | |
| 15.1203-Computer Hardware Technology/Technician | X | X | |
| 15.1204-Computer Software Technology/Technician | X | X | |
| 15.1299-Computer Engineering Technologies/Technicians, Other | X | X | |
| **15.13-Drafting/Design Engineering Technologies/Technicians** | X | X | |
| 15.1301-Drafting and Design Technology/Technician, General | X | X | |
| 15.1302-CAD/CADD Drafting and/or Design Technology/Technician | X | X | |
| 15.1303-Architectural Drafting and Architectural CAD/CADD | X | X | |
| 15.1304-Civil Drafting and Civil Engineering CAD/CADD | X | X | |
| 15.1305-Electrical/Electronics Drafting and Electrical/Elect CAD/CADD | X | X | |
| 15.1306-Mechanical Drafting and Mechanical Drafting CAD/CADD | X | X | |
| 15.1399-Drafting/Design Engineering Technologies/Technicians, Other | X | X | |
| **15.14-Nuclear Engineering Technologies/Technicians** | X | X | |
| **15.15-Engineering-Related Fields** | X | X | |
| 15.1501-Engineering/Industrial Management | X | X | |
| **15.99-Engineering Technologies/Technicians, Other** | X | X | |
| **26-Biological and biomedical sciences.** | X | X | |
| **26.01-Biology, General** | X | X | |
| 26.0101-Biology/Biological Sciences, General | X | X | |
| 26.0102-Biomedical Sciences, General | X | X | |
| **26.02-Biochemistry, Biophysics and Molecular Biology** | X | X | |
| 26.0202-Biochemistry | X | X | |
| 26.0203-Biophysics | X | X | |
| 26.0204-Molecular Biology | X | X | |
| 26.0205-Molecular Biochemistry | X | X | |
| 26.0206-Molecular Biophysics | X | X | |
| 26.0207-Structural Biology | X | X | |
| 26.0209-Radiation Biology/Radiobiology | X | X | |
| 26.0210-Biochemistry/Biophysics and Molecular Biology | X | X | |
| 26.0299-Biochemistry, Biophysics and Molecular Biology, Other | X | X | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| ***26.03-Botany/Plant Biology*** | X | X | X |
| 26.0301-Botany/Plant Biology | X | X | X |
| 26.0305-Plant Pathology/Phytopathology | X | X | X |
| 26.0307-Plant Physiology | X | X | X |
| 26.0308-Plant Molecular Biology | X | X | X |
| 26.0399-Botany/Plant Biology, Other | X | X | X |
| ***26.04-Cell/Cellular Biology and Anatomical Sciences*** | X | X | |
| 26.0401-Cell/Cellular Biology and Histology | X | X | |
| 26.0403-Anatomy | X | X | |
| 26.0404-Developmental Biology and Embryology | X | X | |
| 26.0405-Neuroanatomy | X | X | |
| 26.0406-Cell/Cellular and Molecular Biology | X | X | |
| 26.0407-Cell Biology and Anatomy | X | X | |
| 26.0499-Cell/Cellular Biology and Anatomical Sciences, Other | X | X | |
| ***26.05-Microbiological Sciences and Immunology*** | X | X | |
| 26.0502-Microbiology, General | X | X | |
| 26.0503-Medical Microbiology and Bacteriology | X | X | |
| 26.0504-Virology | X | X | |
| 26.0505-Parasitology | X | X | |
| 26.0507-Immunology | X | X | |
| 26.0599-Microbiological Sciences and Immunology, Other | X | X | |
| ***26.07-Zoology/Animal Biology*** | X | X | X |
| 26.0701-Zoology/Animal Biology | X | X | X |
| 26.0702-Entomology | X | X | X |
| 26.0707-Animal Physiology | X | X | X |
| 26.0708-Animal Behavior and Ethology | X | X | X |
| 26.0709-Wildlife Biology | X | X | X |
| 26.0799-Zoology/Animal Biology, Other | X | X | X |
| ***26.08-Genetics*** | X | X | |
| 26.0801-Genetics, General | X | X | |
| 26.0802-Molecular Genetics | X | X | |
| 26.0804-Animal Genetics | X | X | |
| 26.0805-Plant Genetics | X | X | |
| 26.0806-Human/Medical Genetics | X | X | |
| 26.0899-Genetics, Other | X | X | |
| ***26.09-Physiology, Pathology and Related Sciences*** | X | X | |
| 26.0901-Physiology, General | X | X | |
| 26.0902-Molecular Physiology | X | X | |
| 26.0903-Cell Physiology | X | X | |
| 26.0904-Endocrinology | X | X | |
| 26.0905-Reproductive Biology | X | X | |
| 26.0906-Neurobiology and Neurophysiology | X | X | |
| 26.0907-Cardiovascular Science | X | X | |
| 26.0908-Exercise Physiology | X | X | |
| 26.0909-Vision Science/Physiological Optics | X | X | |
| 26.0910-Pathology/Experimental Pathology | X | X | |
| 26.0911-Oncology and Cancer Biology | X | X | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| 26.0999-Physiology, Pathology, and Related Sciences, Other | X | X | |
| ***26.10-Pharmacology and Toxicology*** | X | X | |
| 26.1001-Pharmacology | X | X | |
| 26.1002-Molecular Pharmacology | X | X | |
| 26.1003-Neuropharmacology | X | X | |
| 26.1004-Toxicology | X | X | |
| 26.1005-Molecular Toxicology | X | X | |
| 26.1006-Environmental Toxicology | X | X | |
| 26.1007-Pharmacology and Toxicology | X | X | |
| ***26.11-Biomathematics and Bioinformatics*** | X | X | |
| 26.1101-Biometry/Biometrics | X | X | |
| 26.1102-Biostatistics | X | X | |
| 26.1103-Bioinformatics | X | X | |
| 26.1199-Biomathematics and Bioinformatics, Other | X | X | |
| ***26.12-Biotechnology*** | X | X | |
| ***26.13-Ecology, Evolution, Systematics and Population Biology*** | X | X | |
| 26.1301-Ecology | X | X | |
| 26.1302-Marine Biology and Biological Oceanography | X | X | |
| 26.1303-Evolutionary Biology | X | X | |
| 26.1304-Aquatic Biology/Limnology | X | X | |
| 26.1305-Environmental Biology | X | X | |
| 26.1306-Population Biology | X | X | |
| 26.1307-Conservation Biology | X | X | |
| 26.1309-Epidemiology | X | X | |
| 26.1399-Ecology, Evolution, Systematics and Population Biology, Other | X | X | |
| ***26.99-Biological and Biomedical Sciences, Other*** | X | X | |
| **27-Mathematics and statistics.** | X | X | |
| ***27.01-Mathematics*** | X | X | |
| 27.0101-Mathematics, General | X | X | |
| 27.0199-Mathematics, Other | X | X | |
| ***27.03-Applied Mathematics*** | X | X | X |
| 27.0301-Applied Mathematics | X | X | X |
| 27.0303-Computational Mathematics | X | X | X |
| 27.0399-Applied Mathematics, Other | X | X | X |
| ***27.05-Statistics*** | X | X | |
| 27.0501-Statistics, General | X | X | |
| 27.0502-Mathematical Statistics and Probability | X | X | X |
| 27.0599-Statistics, Other | X | X | |
| ***27.99-Mathematics and Statistics, Other*** | X | X | |
| **29-Military technologies.** | X | X | |
| ***29.01-Military Technologies*** | X | X | |
| **30-Multi/interdisciplinary studies.** | | | |
| ***30.01-Biological and Physical Sciences*** | X | X | |
| ***30.05-Peace Studies and Conflict Resolution*** | | | |
| ***30.06-Systems Science and Theory*** | X | X | |
| ***30.08-Mathematics and Computer Science*** | X | X | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| *30.10-Biopsychology* | X | X | |
| *30.11-Gerontology* | X | X | |
| *30.15-Science, Technology and Society* | X | X | |
| *30.16-Accounting and Computer Science* | X | X | |
| *30.17-Behavioral Sciences* | X | | |
| *30.18-Natural Sciences* | X | X | |
| *30.19-Nutrition Sciences* | X | X | |
| *30.24-Neuroscience* | X | X | |
| *30.25-Cognitive Science* | X | X | |
| *30.99-Multi/Interdisciplinary Studies, Other* | | | |
| **40-Physical sciences.** | X | X | X |
| **41-Science technologies/technicians.** | X | X | |
| **42-Psychology.** | | | |
| *42.01-Psychology, General* | | | |
| 42.0101-Psychology, General | | | |
| *42.02-Clinical Psychology* | X | | X |
| *42.03-Cognitive Psychology and Psycholinguistics* | X | | |
| *42.04-Community Psychology* | | | |
| *42.06-Counseling Psychology* | | | |
| *42.07-Developmental and Child Psychology* | | | |
| *42.08-Experimental Psychology* | X | | |
| *42.09-Industrial and Organizational Psychology* | | | |
| *42.10-Personality Psychology* | | | |
| *42.11-Physiological Psychology/Psychobiology* | | | |
| *42.16-Social Psychology* | | | X |
| *42.17-School Psychology* | | | |
| *42.18-Educational Psychology* | | | |
| *42.19-Psychometrics and Quantitative Psychology* | X | | |
| *42.20-Clinical Child Psychology* | X | | |
| *42.21-Environmental Psychology* | | | |
| *42.23-Health Psychology* | | | |
| *42.24-Psychopharmacology* | X | | |
| *42.25-Family Psychology* | | | |
| *42.26-Forensic Psychology* | | | |
| *42.99-Psychology, Other* | | | |
| **45-Social sciences.** | | | |
| *45.01-Social Sciences, General* | | | |
| *45.02-Anthropology* | | | |
| 45.0201-Anthropology | | | |
| 45.0202-Physical Anthropology | | | |
| 45.0299-Anthropology, Other | | | |
| *45.03-Archeology* | | | |
| *45.04-Criminology* | | | |
| *45.05-Demography and Population Studies* | | | |
| *45.06-Economics* | | | |
| 45.0601-Economics, General | | | |

| CIP code - 2000 Classification | WIRED | CFAT | GAO |
|---|:---:|:---:|:---:|
| 45.0602-Applied Economics | X | | |
| 45.0603-Econometrics and Quantitative Economics | X | | |
| 45.0604-Development Economics and International Development | | | |
| 45.0605-International Economics | | | |
| 45.0699-Economics, Other | | | |
| **45.07-Geography and Cartography** | *x* | | |
| **45.09-International Relations and Affairs** | | | |
| **45.10-Political Science and Government** | | | X |
| 45.1001-Political Science and Government, General | | | X |
| 45.1002-American Government and Politics (United States) | | | X |
| 45.1099-Political Science and Government, Other | | | X |
| **45.11-Sociology** | | | X |

Sources:

CFAT: Carnegie Foundation - Mapping of CIP codes to disciplinary domains file (http://www.carnegiefoundation.org/classifications/index.asp?key=809)

GAO: US Government of Accountability Office report GAO-06-114: Federal Science, Technology, Engineering, and Mathematics Programs and Related Trends (2005), estimated from table on p.6 (http://www.gao.gov/new.items/d06114.pdf)

WIRED: choices made for WIRED project

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