

Vol. 27, No. 2: Career Pathways—Gateway to the Future

From the Director . . .



Hello, everyone:

I am pleased to introduce another excellent issue of *NCPN Connections*. The goal of the newsletter is keep our members and affiliates up-to-date on developments in Career Pathways and related education reform initiatives. In this issue we highlight programs in Michigan (Northwood University), Wisconsin (Gateway Technical College and Waukesha County Technical

College), Indiana (Indiana Pathways Innovation Network), and Illinois (Victor J. Andrew High School in Tinley Park). You will also find an informative article on the *Mapping Upward* project, which is providing technical assistance to "groups of community colleges as they work to embed stackable, industry-recognized credentials within technical associate degree programs."

Please take note of the AMT workshop, which will take place on May 23–25 and is free of charge. The workshop will focus on replication of the Toyota AMT program—a nationally recognized best practice.

The 2017 NCPN conference in St. Louis will be held at the beautiful Hyatt Regency at the Arch, Thursday and Friday, October 26–27 (with preconference events on Wednesday, October 25). Conference strands will be based on the OCTAE Ten Components of a Program of Study and the DOLETA Career Pathways Toolkit. Preconference workshops (Wednesday, October 25) will address topics such as Career Pathways Leadership Certification, Engaging Employers, and Apprenticeships. The conference's 1100+ attendees will consist of a broad cross-section of stakeholders comprising secondary and postsecondary educators, workforce development professionals, and employers.

The NCPN conference is one of the best professional development opportunities in the country, offering 130+ breakouts, a variety of preconference workshops, keynote speakers, networking opportunities, and an exhibit hall showcasing the latest products and services in career and technical education. We hope you'll make plans to attend! Visit ncpn.info often for the latest info.

We appreciate you. Thanks for all you do in preparing the nation's youngsters and adults for excellence in life and work!

Debbie Mills, Director, NCPN (dmills@cord.org)

Employer Engagement: The AMT Program Involves Employers from Beginning to End

Carol Crawford, Northwood University



Background

Employer involvement in all phases of the process is one of the hallmarks of a career pathway according to the Automotive Manufacturing Technical Education Collaborative's (AMTEC) *National Case Study Executive Summary: Programs That Work* (http://autoworkforce.org/wp-content/uploads/2014/04/AMTEC-Executive-CaseStudy-Final-2013.pdf). The Kentucky Federation for Advanced Manufacturing Education (KY FAME) embraces this concept in its industry-led Advanced Manufacturing

Technician (AMT) program. KY FAME is a collaborative of 125 manufacturers and their college partners across the state that have implemented the AMT career pathway model to address the global shortage of competently skilled technicians. The FAME and AMT program model continues to grow in the state and has been adopted by several other states.

The AMT program was initiated in 2010 by Toyota Motor Manufacturing Kentucky (TMMK) and Bluegrass Community and Technical College (BCTC) to address the large retirement bubble that was about to occur. TMMK needed technicians who not only had the technical skills but also understood the manufacturing culture and exhibited professional behaviors. Because of that need, the industry-led AMT program incorporates professional behaviors (for example, attendance, communication, and team building) and manufacturing culture (safety culture, workplace organization, lean manufacturing, problem solving, and maintenance reliability) into the technical training.

Benefits of Employer Engagement

Employer engagement requires finding ways for industry representatives and college educators and administrators to collaborate. The process is not easy, but the benefits make the effort worthwhile. Employer involvement creates a strong relationship between faculty members and manufacturers and gives them an opportunity to continuously improve the program based on changes in manufacturing. Students gain a more well-rounded knowledge of their chosen fields, gain confidence, and create networks for the future. Employer engagement allows manufacturers to influence the building of a globally competent workforce. The college benefits by becoming the "go to" organization when manufacturers need a pipeline of employees.

Employers are engaged from the beginning in these areas:

1. **Recruitment**—Manufacturers lead the recruiting activities by contacting the high schools, making presentations, attending high school career fairs, speaking with students one-on-one, hosting manufacturing tours, and more.

- 2. **Selection**—Manufacturers review applications and select the interviewees. Prospective students submit their top-three choices of manufacturers for sponsorship before being interviewed by a panel of manufacturers. At the end of the interviews, manufacturers, with the students' choices in mind, start the selections in a "draft" type activity.
- 3. **Orientation**—Manufacturers lead many activities at the two-day orientation that introduces program expectations.
- 4. **Manufacturing Culture and Professional Behaviors**—Successful students understand the manufacturing culture. Each semester students, working in teams, prepare a project to present to their sponsors at the end of the semester. The manufacturers, in turn, give feedback, complete an evaluation, and give recommendations. This process includes professional behaviors, such as presentation and communication skills and team building.
- 5. **Graduation**—Graduation is celebrated not only by students and parents but by the manufacturers.
- 6. **Other Activities**—Employers participate in activities such as high school and community tours of the classroom, safety ceremonies, and open houses at their facilities.



After seeing my presentation, my supervisor gave me the opportunity to do a project on the floor. Triston, Toyota student

AMT graduates have the opportunity to continue their career pathways by enrolling in either Advanced Manufacturing Business (AMB) or Advanced Manufacturing Engineering (AME). Northwood University continues the KY FAME industry-led employer engagement pathway by offering the AMB program. Many instructors are currently employed in the manufacturing industry, bringing their experience to the classroom. Two other activities are the Leadership Professional Inspiration Series (LPIS) and manufacturing tours that students must complete. In the LPIS, employer leaders present their career journeys to students and serve as mentors. KY FAME partners have opened their facilities for manufacturing tours, thereby giving students a broader view of the manufacturing industry.

For more information, visit www.northwood.edu/academics/adp or contact the author at crawforc@northwood.edu.

Special Event: AMT Workshop Coming Soon!

Join us May 23–25 in DC to learn more about building skilled talent pipelines for advanced manufacturing technicians (AMT)!



Registration for the Manufacturing Career Pathways Network 2017 AMT Pathways Workshop is now open! (https://www.surveymonkey.com/r/HCPNapplication)

The workshop will focus on replication of the Toyota AMT program—a nationally recognized best practice.

The Toyota AMT program has been busy growing its reach and impact in the years since it won the 1st Place Partnership Excellence Award at the 2013 NCPN conference in San Antonio. At that time, the program had 18 employer partners. To be more inclusive, the program has dropped the Toyota name and is now known as the Federation for Advanced Manufacturing Education (FAME). The program has expanded dramatically, encompassing nine states, 23



education providers, almost 500 active students, and nearly 300 employers—with continued growth in the pipeline for later this summer. The program has also continued to gain national recognition, earning six additional honors since the 2013 NCPN award.

Over 70 percent of our students graduate on-time (associate degree), and over 95 percent of our graduates are placed full-time with their sponsoring employers in jobs that can earn \$50,000-\$75,000 during the first year.

The AMT pathway now includes an Advanced Manufacturing Business (AMB) continuation to a bachelor's degree, and two master's-level programs are also in place. All previously earned credits are incorporated, thus enabling students to move forward seamlessly. Similarly, the Advanced Manufacturing Engineer (AME) pathway, another continuation from the AMT level, is being piloted at a university (soon to be two). Partnerships with local school districts and with national organizations that provide high-quality STEM engagement from kindergarten through high school, such as Project Lead The Way, extend the pathways through the K–12 systems, making the program a K-to-master's system.

The AMT program has partnered with the Manufacturing Career Pathways Network and Hope Street Group (http://hopestreetgroup.org/impact/jobs/mcpn/#top) to facilitate a free national

workshop on May 23–25 in Washington, DC. The workshop is designed to help regional stakeholder teams implement similar programs locally. Session topics will include:

- Regional Asset Mapping
- Defining occupational and foundational competencies, linking them to high-quality credentials
- Curriculum and Apprenticeships
- Work-based Training
- Costs and Recruitment
- Participant/Student Support Services

Participants will leave the workshop prepared to engage regional stakeholders in their regions.

To learn more about the workshop and how to attend, visit the AMT Pathways Workshop event page (http://hopestreetgroup.org/impact/jobs/mcpn/events/amt./). Please note that the content of the AMT pathways model is applicable to any employer of technicians. In fact, the FAME collaborative now includes several employers *outside* the industrial manufacturing sector, including Jack Daniels, Paradise Tomato, Raytheon, and BP. We encourage you to learn more about the program by visiting www.fame-usa.com or watching our latest feature at fortune.com (https://fortune.com/2016/11/16/how-american-manufacturers-are-working-to-close-the-skills-gap/).

Indiana Pathways Innovation Network

Shannon Doody, Center of Excellence in Leadership of Learning, University of Indianapolis



The Indiana Pathways Innovation Network (IN-PIN) is a collective impact partnership of three Indiana government agencies (K-12 Education, Higher Education, and Workforce Development) and the statewide nonprofit Center of Excellence in Leadership of Learning (CELL). IN-PIN was founded with the support and partnership of the National Center for College and Career Transitions (NC3T). This partnership grew out of workforce needs for

more skilled workers and the desire to build stronger education pathways that result in highwage, high-demand jobs for learners.

IN-PIN consists of over 425 cross-sector members from K-12 education, higher education, adult education, business, workforce development, and convening organizations. IN-PIN works at multiple levels to promote alignment among state leaders, educate cross-sector leaders on pathways systems, and share models to inspire their scaling across the state.

Regional conveners, including business and industry leaders, are networked through statewide leadership conference calls facilitated by NC3T and CELL. Calls focus on topics such as employer

engagement, sector organization, and pathways development and provide an opportunity for regional leaders to share promising practices. Kate Lee, Director of Talent Engagement at South Bend Regional Chamber, said, "I believe these conversations are the way we'll really get the entire state moving in the same direction while still honoring the unique needs and challenges of each region, county, and city."

Multiple regional workshops around the state have focused on key components of NC3T's pathways system framework. For example, at a Spring 2016 IN-PIN "Planning For Pathways" workshop, participants from adult education, K-12, workforce development, and human services teamed to identify key occupations, gaps, and action items in a sector such as healthcare.



Promising practices in pathways are showcased through study visits, such as a recent visit to Cub Manufacturing in Madison, Indiana. The Cub operation is modeled after Cardinal Manufacturing in Eleva-Strum, Wisconsin, and is a partnership of Madison Consolidated Schools, Ivy Tech Community College, and local manufacturers. Cub is a student-run business where learners not only gain welding and fabrication skills but also design products, communicate with manufacturing clients, order supplies, and learn about operations.

The power of IN-PIN is that it convenes leaders who are having similar regional conversations but, because of geographical differences, have never met. Indiana leaders from every workforce development region participate in leadership calls; over 150 individuals have attended workshops with cross-sector representation; and leaders traveled as far as 230 miles to learn more about the Cub Manufacturing model. When successes and lessons learned are shared across the state, pathways can be scaled more quickly and effectively. Ultimately more learners will be connected to high-wage, high-demand careers and a higher-skilled workforce will be available to Indiana businesses and industries.

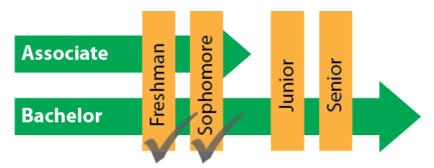
For more information, contact the author at doodys@uindy.edu.



Madison Consolidated High School teacher speaks about student-run Cub Manufacturing to business and education leaders.

Articulation Strategies for Four-Year Pathway Development: Best Practices from the Wisconsin Technical College System

Jaime Spaciel, Career Pathways Manager, Gateway Technical College, Kenosha, WI; Cara J. Bowman, Career Pathways Coordinator, Waukesha County Technical College, Waukesha, WI



"Vertical transfer from community college to four-year institutions therefore offers a critical avenue for *upward mobility for many underserved students*, including low-income, first generation, and racial/ethnic minority students, all of whom are disproportionally represented at community colleges." *What We Know About Transfer*, Community College Research Center, January 2016

The integration of four-year articulation opportunities into career pathway systems is essential to the advancement of the students and communities we serve. Providing a clear transition to this next step in a pathway helps students understand the value of continuing their education to ensure future stability and success. While the benefits are clear, developing articulation agreements with four-year colleges and universities can often be a confusing and somewhat daunting task. When your college is ready to begin this work, here are some key strategies to consider when establishing effective articulation agreements:

- Faculty engagement is critical. Content experts from both institutions must collaborate to validate content alignment and equivalencies.
- A clear 1:1 ratio should be distinguished between AAS and BS degrees.
- All admission requirements must be documented.
- Clearly delineate program credits versus general education credits versus elective credits.
- Differentiate courses that DO NOT transfer to the receiving institution.
- Identify the number of remaining courses a student will need to complete at the receiving institution.
- Provide each institution's transfer URL for easy access to information.

The best way to ensure that all desired requirements are addressed is to develop a standard boilerplate template to use as a guide. While the receiving institution may require its format to be used, having a set of standards for reference will guarantee that the components deemed critical by your college are included. Elements to consider incorporating include:

- Outline of coursework and degree requirements
- Admission requirements and advising guidelines
- Marketing regulations, including use of each college's name and logo
- Maintenance of regional accreditation and, where applicable, program-specific accreditation
- Periodic review cycle (If possible, it is best to align this timeframe with your program's curriculum review process.)
- Cancellation timeframe requirements

Your work does not end with formalization of the agreements. Maintaining strong relationships with your four-year partners and communicating transfer opportunities to stakeholders is critical to the success of the agreements. Listed below are a few strategies that will help you develop effective articulation partnerships:

- Create a brand to clearly identify the partnership (logos, tag words, etc.).
- Host a signing day with local media coverage and share on social media.
- Develop customized transfer maps highlighting each agreement.
- Provide visibility on your website's transfer page.
- Highlight articulation opportunities on career pathway maps.
- Host transfer fairs.
- Coordinate articulation forums—half-day events where faculty members, administrators, and student services personnel from both institutions can collaborate to review curriculum, discuss agreement modifications, and so on.

To view examples of these best practices, please visit the transfer pages at our colleges' websites:

- Gateway Technical College (https://www.gtc.edu/student-services/registrar/transfer)
- Waukesha County Technical College (https://wctc.edu/become-a-student/continuing-education/index.php)

For more information, contact the authors at cbowman@wctc.edu and spacielj@gtc.edu.

Gateway Technical College University of Wisconsin-Parkside

Ensuring the T and E in the STEM Classroom and Engineering Pathway

Mark Lobes, Victor J. Andrew High School, Tinley Park, Illinois

Educators, by nature and development, are territorial. We believe in home rule, my lab, my department, my things . . . don't touch. We are products of traditional thinking. Our schools often divide us into core, career path, and college path. We take that mantle and run with it, not looking at the other runners, just looking ahead.

STEM is an often misunderstood tagline, misinterpreted even by people with the best intentions. STEM is inherently collaborative but still sometimes causes divisions. Our colleagues in other departments have heard of STEM, but they probably do not understand it as much as we would hope or like, just as most probably do not understand the acronym CTE. This realization surfaced when I was told a story regarding an educator who had worked in a school where they proudly proclaimed English as the "E" in STEM. Why? They didn't have an engineering lab, so they figured English would work. We shake our heads at that, but it's not surprising. It takes understanding to ensure the "T" and "E" in STEM.

A solid STEM understanding requires a few individuals in a school to recognize the connections between the disciplines represented by all four letters in the STEM acronym. With the Engineering Concepts course at Andrew High School, we promote STEM understanding by ensuring that teachers in Applied Technology, Science, and Math talk to each other, bouncing ideas or just seeing what others are doing. Even though Engineering Concepts is an Applied Technology elective course, it connects to students in AP Physics C or AP Calculus. In so doing, the course establishes connections between not only academic students but also AP/Honors students seeking to take an elective out of the AP/Honors path for the first time. We've observed over the past many years that students in the Engineering Concepts course have never taken an Applied Technology course before, or any CTE course. Their first dive into our area is directly connected to their possible college and career paths.

The Engineering Concepts course focuses on the basics of the engineering field. Students sample labs from different engineering specialties in a team-focused, decision-making, and problem-solving manner. Concurrently, the students research and present on their own college and career goals. Students use their science and math backgrounds to develop college-level lab write-ups using the Design Loop, often referring to classes they have taken or are taking.

To apply these skills outside the classroom, the students are encouraged to compete at a state-level team engineering competition held every fall at Illinois State University. The students may also develop a team for the Illinois SkillsUSA state competition, focusing on engineering design. Our students have done well in these competitions, and they recognize the value of the class in preparing them for the real-world applications explored in competition settings.

We also have developed field trips that students in AP Physics C and Engineering Concepts attend together. Every year we are granted an in-depth, behind-the-scenes tour of Fermi Lab National Accelerator in Batavia, Illinois, and every two years the students attend and interact with exhibitors at the International Manufacturing Technology Show in Chicago, the largest show of its kind in the world.

Through these activities the students are involved in a true STEM education, in which they explore all four areas of the acronym. They see and experience the connections, and they demonstrate their understanding of those connections during their time with us. As they move on to college and careers, their feedback enables us to continually revise and update the curriculum. That further connection, between our students' experiences at our school and their experiences in college and the workplace, is another essential piece of making the program a success. This connection can also lead to industry site and college visits.

If you seek to develop this type of course, talk to your colleagues, gather feedback from your students, and seek connections with industry and professional associations. See who is out there and is willing to provide resources. Contact your local community college and the four-year colleges and universities your students may attend. What has worked? What needs additional fine tuning? Whatever you develop from the ground up will be the most successful, enduring, and long lasting—thus ensuring the "T" and "E" in your STEM classroom.

Resources:

- Engineering By Design (https://www.iteea.org/STEMCenter/EbD.aspx)
- SkillsUSA (http://www.skillsusa.org/)
- Fermi Lab National Accelerator (http://www.fnal.gov/)

For more information, contact the author at mlobes@d230.org.



Mapping Upward Project Helping Colleges Expand Stackable Credentials

Hope Cotner, Vice President, U.S. Projects, CORD; Mapping Upward Project Director



What's all the fuss about stackable credentials these days? What gives a credential "labor-market value" and who decides? How can you actively engage employers in meaningful conversations about credentials and keep them engaged? These questions and many more are being explored by colleges participating in the *Mapping Upward* project, an initiative supported by the U.S. Department of Education, Office of Career, Technical,

and Adult Education (OCTAE). Led by CORD and partner organization Social Policy Research Associates, the project is providing technical assistance (TA) to groups of community colleges as they work to embed stackable, industry-recognized credentials within technical associate degree programs. Working in sector-focused networks, colleges receive customized TA virtually and in person from subject matter experts and a dedicated TA coach who works to help colleges advance their efforts in stackable credential design through action items designed to address local needs.

Mapping Upward colleges, including their sector of focus and state, are:

- Bakersfield College, Shasta College, and Reedley College (Horticulture/CA)
- Forsyth Technical Community College, Catawba Valley Community College, Isothermal Community College, Piedmont Community College, and Robeson Community College (Advanced Manufacturing/NC)
- Luzerne County Community College, Lehigh Carbon Community College, and Northampton Community College (Advanced Manufacturing/PA)
- Rowan-Cabarrus Community College and Mitchell Community College (Advanced Manufacturing/NC)



Each college drafted action plans that tackle local priorities for stackable credential design and the essential elements needed to support it, including but not limited to employer engagement, non-credit/credit integration, standards development, and expansion of industry certifications. TA to help the colleges realize the goals identified in their action plans began in August 2016 and will conclude in July 2017. In addition to the TA, a number of resources have been developed to assist the participating colleges including a toolkit, online repository, series of podcasts, and webinars. The toolkit will be available to the public upon conclusion of the project in September.

The *Mapping Upward* podcast series is currently available via the project's page on the Perkins Collaborative Resource Network website. The podcasts feature community college professionals known for their work on stackable credentials discussing various aspects of

program design and partnership building. The podcasts highlight specific strategies colleges have used to collaborate with employers to build curriculum around stackable credentials that are embedded with industry certifications. The podcasts feature how-to advice from three experienced practitioners:

- Podcast 1: Implementing and Sustaining Stackable Credentials Across the Institution
 Featured Guest: Dr. Maria Coons, Chief of Staff and Vice President of Workforce,
 Planning and Institutional Effectiveness, Harper College, Palatine, IL
- Podcast 2: Aligning Curriculum to Industry Certifications
 Dr. Annette Parker, President, South Central College, North Mankato and Faribault, MN
- Podcast 3: Building Lasting Partnerships with Business and Industry
 Debbie Davidson, Vice President of Business & Workforce Solutions, Gateway Technical College, Kenosha, WI

Listen to the podcasts and learn more about the project here: http://cte.ed.gov/initiatives/community-college-stackable-credentials.

Stay tuned for more resources from the Mapping Upward project before the end of the year.

For more information, contact the author at hcotner@cord.org.

Student Entrepreneurs in CEO Program Learn 21st-Century Business Skills

Debbie Mills, Director, NCPN

CEÓ°

This week I had the opportunity to visit the Creating Entrepreneurial Opportunities (CEO) program in Monroe County, Illinois. I attended the CEO Trade Show where students debut their new businesses.

CEO is a year-long course designed to utilize partnerships that provide an overview of business development and processes. The local businesses partner with area schools to create project-based experiences for students by providing funding, expertise,

meeting space, business tours, and one-on-one mentoring. Students visit area businesses, learn from guest speakers, participate in a class business, write business plans, and start and operate their own businesses. Business concepts learned through the experiential CEO class are critical. Twenty-first-century skills such as problem-solving, teamwork, self-motivation, responsibility, higher-order thinking, communication, and inquiry are at the heart of the students' development.



Student Owen Mills Bolser at the CEO Trade Show in Columbia, Illinois

The business partners take a real interest in the program. Class is always at a business site, and the partners are funding students to visit Silicon Valley in June. Students will visit BoostVC, Barry Schuler (former CEO of AOL/Time Warner), Google's CapitalG, Disney Family Museum, MultiPlan, Coinbase, SherpaVC, Hyperloop One, Doctors on Demand, Intel Museum, and more.

For more information, contact <u>info@midlandinstitute.com</u>.

Bits 'n' Pieces

Items of interest to our members and affiliates



Policy Brief: Building Career Pathways Systems for Education, Training, and Employment, Abt Associates, October 2016. Published under the Moving Pathways Forward project, this policy brief is intended to help state adult education staff better understand career pathways implementation under the Workforce Innovation and Opportunity Act (WIOA), develop local career pathways systems to support education and employment outcomes, and determine how to collect and use local data related to career pathways.

(https://lincs.ed.gov/sites/default/files/CP PolicyBrief V5 ADA.pdf)

Defining On Ramps for Adult Career Pathways, Center for Postsecondary and Economic Success. An on-ramp is a career pathway program designed to serve individuals with significant barriers to educational and economic success. (http://www.clasp.org/resources-and-publication-1/Minnesota-Career-Pathways-On-Ramps.pdf)

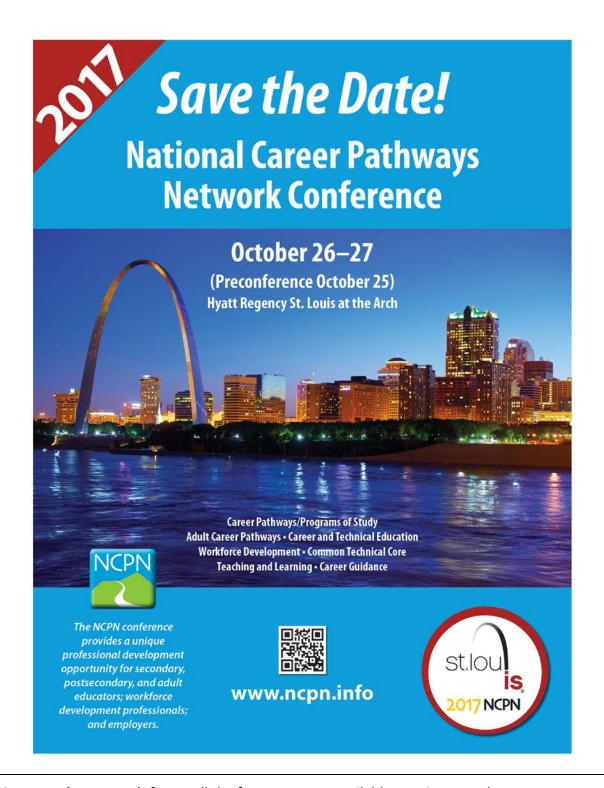
On April 6, a "Dear Colleague" letter was sent to the chair and ranking member of the House Labor, Health and Human Services and Education Appropriations Subcommittee to request a strong investment in Perkins in the Fiscal Year (FY) 2018 Appropriations Bill. The letter garnered 140 signatures from members across 38 states and shows the strong bipartisan support for CTE in the House. (We anticipate a similar letter will be circulated in the Senate later this spring.) (http://www.cordonline.net/connections/27 2/cte appropriations letter fy18 final.pdf)

Resource page highlighting the Federal Pathways Through Apprenticeship Program

(https://apprenticeshipusa.workforcegps.org/resources/2016/08/25/13/04/Pathways Through Apprenticeship Resource Page)

The U.S. Departments of Labor, Education, and Health and Human Services are proud to announce the release a **Sample MOU** and **Infrastructure Costs Toolkit**, now available on the Innovation and Opportunity Network (ION) page on WorkforceGPS.

(https://ion.workforcegps.org/resources/2017/03/23/13/30/Sample MOU Infrastructure Costs Toolkit)



NCPN Members—Don't forget all the free resources available to NCPN members at www.ncpn.info.

© 2017 Connections is published by the National Career Pathways Network, an organization of educators and employers dedicated to the advancement of Career Pathways, and other CTE initiatives. Founded by CORD, NCPN assists its members in planning, implementing, evaluating, and improving workforce education programs.

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