Project Evaluation Executive Summary

Alternative Transportation Fuel Systems: Advancing the Workforce
Metropolitan Community College, Omaha, Nebraska

Lead Evaluator: Dr. Greg Welch, University of Nebraska-Lincoln, Lincoln, NC

TAACCCT Program/Intervention Description and Activities

- The purpose of the Metropolitan Community College TACT project *Alternative Transportation Fuel Systems-Advancing the Workforce (Transport Omaha)* was to advance the region's transportation workforce through training in emerging fuel systems and advanced technologies. The project focused on training for diesel technicians, automotive technicians, truck drivers, and equipment operators.
- *Transport Omaha* interventions were designed in collaboration with industry to a) equip participants with the skills and certifications necessary for safe and effective work with alternative fuels systems and advanced vehicle technologies and b) increase participant success in seeking, retaining, and advancing employment.
- Interventions focused on aligning training with changing industry needs. This alignment required faculty training, work with industry subject matter experts, and instructional design services. Project teams developed new course content, trainers, online scenario-based learning modules, and other instructional resources that incorporated alternative fuel systems such as compressed natural gas, electric, propane, and biodiesel fuel systems.
- Industry-responsive credentials were embedded and stacked in training pathways, state-of-the-art equipment was acquired, and new accelerated training options were delivered.

The population served

- 623 participants were served over the project period, 367 employed (59%) and 256 (41%) unemployed at the time of enrollment. The high number of employed individuals is reflective of very low unemployment rate in the Omaha area, around 3% over the project period.
- The average pre-training reported annual income was $31,256. This compares to rates of low income workers in the Omaha area that hover around 50%. Most individuals indicated they were participating in project training to advance their occupations and income.
- Nearly 40% of participants were from racial/ethnic minority backgrounds.10% were women and 14% of participants were veterans.

Evidence-based model

- MCC's *Transport Omaha* initiative was grounded in evidence based approaches, such as strong, ongoing industry collaboration; training that incorporates state-of-the-art industry technologies; strong faculty engagement with students through a faculty-adviser model; stackable credentials; and blending of technology-enabled, scenario based learning with hands-on applications.
- More than thirty Citations of Evidence are provided, including sources such as the Transportation Research Board Sustainable Transportation Indicators Subcommittee, the National Research Center for Career and Technical Education, the Center for Law and Policy, the Center for Postsecondary and Economic Success, and industry journals.

EVALUATION DESIGN SUMMARY

The goals of *Transport Omaha* evaluation were to assess project impact on participants and area industry, as well as evaluate the effectiveness of processes for project implementation.

Implementation study design

- The framework for Utilization Focused Evaluation (UFE) was applied for this mixed-methods project evaluation. In this method, intended users (primary stakeholders) were directly involved in the identification of research questions and intimately involved in the development and implementation of evaluation tools and data gathering.
- This process encourages ongoing evaluation and program improvements based on data informed decision making. The strong engagement of stakeholders also supports the sustainability of evaluation best practices.

Research questions for the implementation study

- The key research question for the implementation study was *"Does MCC Transportation sector training include the components necessary to respond to the highest priorities* identified by industry/employers?"

The conceptual framework for the implementation study

- The conceptual framework for the *Transport Omaha* implementation study suggested that by a) analyzing and identifying baseline training components, b) identifying industry priorities for MCC Transportation training, 3) aligning MCC Transportation training with industry priorities, there would be increased industry satisfaction with MCC Transportation training.

How the conceptual framework was used to guide the implementation analysis

- Following the conceptual framework for the implementation study, analysis was designed to assess the extent of alignment between the SOW (based on priorities identified by industry partners), and the achievement of proposed deliverables.
- Questions addressed through the implementation analysis included: Was project implementation consistent with the deliverables and timelines proposed in the *Transport Omaha* Statement of Work? What steps were taken to a) build program capacity and b) run the Transportation training program? What are the post-implementation operational strengths and weaknesses? During implementation, what areas for improvement were identified and steps were taken for project improvement?

Implementation data and methods

- Multiple data sources were tapped for the implementation study, including surveys and interviews with industry partners, monthly summary project updates, GANNT chart updates, Trello Kanban board, and quarterly reports on deliverables provided to USDOL.
- In addition to the project Evaluator, MCC staff and faculty were closely engaged in collecting and providing data.

How capacity building was measured, including indicators

- Capacity building was measured by comparing proposed capacity building deliverables with the achievement of these deliverables.
- Indicators for capacity building included data such as equipment inventory, faculty certifications, new courses, new training modules, course syllabi demonstrating incorporation of content on alternative fuels, new staff, and written plans for accelerated training

OUTCOMES/IMPACT DESIGN SUMMARY

Research questions for the outcomes/impact study

The outcomes/impact study was based on answering the following questions:

- *Does participant completion of MCC Transportation training result in employment and employment retention in the Transportation sector?*
- *Does participant completion of MCC Transportation training result in increased knowledge and skills related to alternative fuels and advanced technologies?*

Overall methodology

- The outcomes/impact study was completed through the combination of a baseline-to-post intervention study, assessment of projected v. achieved outcomes, and follow-on qualitative analysis.
- Causal inferences can be made from an analysis of the project impact on participant knowledge and skill, however, causal inferences cannot clearly be made from the analysis of impact on employment and employment retention.

Data used and their reliability

- Data regarding participant completion of training was accessed through MCC's institutional student information system, Colleague. This data is highly reliable and pre-post data sets were available.
- Employment and income data were drawn from USDOL UI reports and participant self-reports. MCC Working through the Nebraska Department of Labor, MCC was able to access only aggregate employment and income data. MCC obtained individual level data through self-reporting.
- Data on participant knowledge and skills was drawn from pre-post surveys and technical assessments of knowledge and skills.

Outcomes and impacts measured

- Key participant outcomes measured included employment, employment retention, and income, including post-training income advancement among individuals who were employed at the time of training.
- Impacts measured included participant knowledge and skill related to alternative fuel systems, including related tools, technologies.

IMPLEMENTATION FINDINGS

How the grant was used to build institutional capacity

- USDOL TACT grant funds were used to build institutional capacity for Transportation technician training in alternative fuels and advanced technologies, through faculty training and certification, curriculum updates, the incorporation of expanded certifications for students, and the acquisition industry grade equipment and training supplies.
- Grant funding enabled contracted assistance of an industry Subject Matter Expert in alternative fuels. This expert provided faculty and student training and input for the development of new MCC training.
- Grant funding supported the development of technology-enabled learning resources such as online learning modules incorporating video and animation and fuel system trainers.
- MCC was able to acquire vehicles operating on a variety of fuel systems, including CNG, biodiesel, electric/hybrid, and propane. Prior to these acquisitions, students were only able to observe vehicles on loan, but now they are able to build skills through the hands-on operation and maintenance of these vehicles.
- MCC received strategic planning input from industry and the National Coalition of Advanced Technology Centers, which supported longer term planning for program infrastructure expansions and enhancements.

Summary of key steps taken to create and run the training program

- Industry partners identified the need to develop training for alternate fuel systems and advanced technologies. The priority was on compressed natural gas (CNG) and large fleet vehicles, as that is where the demand was first developing. There were also serious safety concerns due to the growing number of CNG vehicles on the road, without trained technicians to provide service and repair.
- Employers indicated that since the demand for alternative fuel systems was just emerging, this new content should be incorporated within existing training that emphasized more prevalent fuel systems such as diesel and gas.
- Initially, an expert on alternative fuel systems was contracted to provide faculty and student training, while MCC developed the institutional capacity to deliver this new training. The SME and numerous industry partners worked with MCC to design and develop training content, online learning modules, and trainers.
- MCC hired additional faculty and purchased equipment to provide students hands-on experience driving, servicing and repairing a range of vehicles fueled by different fuel systems – CNG, propane, electric, hybrid, and biodiesel.
- Once training was implemented, MCC used a proven faculty-advisor model, wherein faculty take responsibility for maintaining communications with students, monitoring their progress, intervening to provide supports as necessary, and supporting their transition to employment. Historically and with this TACT funded project, this model resulted in strong student success.

Partnership highlights

- The success of MCC transportation program capacity building, training, and student hiring was enabled through partnerships with employers and local, regional and national organizations.
- Employers have long been closely engaged with MCC Transportation faculty, with high levels of participation in monthly employer advisory meetings. Two local companies were particularly critical partners in guiding the addition of training content for alternative fuels – Fuel Conversion Solutions and Truck Center Company.
- Examples of other important partners who informed program capacity building include the National Alternative Fuels Training Center (NAFTC), Oklahoma community colleges, the Clean Cities Coalition, and the National Coalition of Certification Centers (NC3)

Implementation fidelity to the original design/model

- MCC was able to implement the *Transport Omaha* project in alignment with the original scope of work. While the emphasis in the original project design was on compressed natural gas (CNG) fuel systems, the plan did include the potential incorporation of electric, propane and biodiesel.
- Over the course of the project period, decreasing emphasis was placed on CNG, due to changes in the CNG market trend line. MCC then expanded capacity building into other areas such as electric powered vehicles.
- Similarly, while MCC had proposed two main training pathways, incorporating CNG into Diesel Technician training and Process Operations Technology (PROT) training. The latter was to provide training for individuals who would service CNG stations. Because of the decreased demand for CNG, the PROT pathway would not have provided sufficient job opportunities. Due to the very strong interest among industry partners and faculty in Automotive Technology, the second pathway of emphasis shifted to Auto Technology. Training on alternative fuel systems and advanced technologies was incorporated into MCC's Auto Tech program.

Operational Strengths and Weaknesses

Operational strengths

- The TACT grant program was grounded in long-standing relationships between area employers and MCC faculty in Transportation programs. These relationships enabled ongoing, open communications necessary for working together on program enhancements and for facilitating a good "fit" between MCC students and employment opportunities
- MCC launched the TACT project under the guidance of an experienced grant manager already part of MCC's staff, while MCC completed the search for the project coordinator. MCC was able to acquire a project coordinator with a solid foundation of technical knowledge and professional networks relevant to alternative fuels, as well as strong management skills.
- Team members were able to gather and apply ongoing input for program improvement throughout the project. This included input provided during planning, as well through evaluative feedback on workshops, facilities, equipment, training formats, online modules, websites, and student preparedness
- Students and employers benefited from the decision to update and enhance current programs (diesel and auto technology and truck driving) rather than create a new program focused on alternative fuels. The Omaha area alternative fuels market is still emerging and changing. The core of training on Transportation fuel systems still needed to address conventional fuels, such gasoline and diesel.

Weaknesses

- Nebraska did not have an eligible applicant for the Round 2 single institution TACT award, therefore, MCC was approached in the fall of 2012 with the opportunity to apply for Round 2 funding. MCC worked with industry partners to develop the Round 2 proposal, which was not completed until winter and approved by USDOL early in the spring of year one. With this timeline, project training was not launched until the first quarter (fall) of project year two.
- There were significant delays in the process leading toward the approval and purchase of equipment for participant training. While training enhanced with TACT grant resources was provided during this approval and purchase process, earlier training participants did not receive the full benefit of the project in comparison with later project participants.

PARTICIPANT IMPACTS & OUTCOMES

Transport Omaha resulted in positive outcomes for training participants, exceeding project goals. While MCC projected to serve 250 individuals, over 600 individuals were served by Q14.

Key Participant Outcomes	SOW Goal	End of Yr 3	3 ½ yrs	% of Goal
Participants Served	250	421	623	+ 249%
Unemployed		158	256	
Employed (Incumbent) Workers		263	367	
Participants Completing Program	221	192	441	+200%
Unemployed Who Completed		102	205	
Incumbent Workers Who Completed		90	236	
Participants Retained in Program	21	228	173	+824%
Participants Earning Credit Hours	228	274	540	+237%
Participants Earning Credentials	225	234	605	+269%
Participants Enrolled in Education after Grant Program	80	29	203	+254%
(Unemployed) Participants Employed After Grant Funded Program	192	95	197	+103%
(Newly Employed) Participants Retained in Employment After Program Completion	183	94	185	+101%
Incumbent Workers Retained in Employment After Program Completion		89	365	
Participants Employed at Enrollment who Receive a Wage Increase Post-Enrollment	30	25	98	+328%

Additional outcome and impact findings

Transport Omaha was planned to provide quality employment opportunities in high demand occupations, while addressing industry priorities for workforce training.

Evaluation Question 1: *Does MCC Transportation sector training include the components necessary to respond to the highest priorities identified by industry/employers?*

- Priorities identified by Transportation industry representatives included the need for 1) an expanded workforce and 2) a workforce with knowledge and skills related to alternative fuels and advanced technologies. Specific needs included training for the maintenance and inspection of vehicles using alternative fuels and advanced technologies Industry also identified the need for facilities; supplies; equipment; curriculum, and faculty numbers, skills and credentials.
- Based on analysis of data provided through multiple sources, MCC Transportation training includes the components necessary to address industry's need for a workforce with knowledge and skills related to alternative fuels and advanced technologies. TACT grant funding enabled MCC to build program capacity in alternative fuels through professional development, faculty credentialing, curriculum development, and the acquisition of training equipment and supplies.
- In an effort to build capacity to enroll more students, MCC developed accelerated training and flexible scheduling options. Despite this effort, the workforce demand for Transportation professionals still outstrips MCC's capacity to enroll more students. Efforts continue to explore options for increasing MCC's capacity to enroll more students while maintaining safety and training quality.

Evaluation Question 2: *Does participant completion of MCC Transportation training result in increased knowledge and skills related to alternative fuels and advanced technologies?*

- Among participants, baseline surveys and assessments indicated little or no foundational knowledge of vehicle alternative fuel systems, including concepts critical for technician safety.
- Following participation in Transport Omaha workshops and/or courses, there was a measurable, meaningful increase in participant knowledge and skills related to alternative fuels and advanced technologies. This was demonstrated through survey self-reports and through written and hands-on assessments.
- Training participants earned among the highest pass rates ever achieved for certifications related to safety and inspection of CNG vehicles.

Evaluation Question 3: *Does participant completion of MCC Transportation training result in employment and employment retention in the Transportation sector?*

- By the end of year three, of the 102 unemployed individuals who completed training, 95 were employed, resulting in a participant employment rate of 93.2%. The employment retention rate of these participants was nearly 100%.
- Among incumbent workers who completed the TACT funded program, nearly 100% were retained in employment following completion of training and 27.8% received post-training wage increases.
- While data provided by the Nebraska Department of Labor did not indicate the sectors or occupations of employment, follow-up surveys indicated that nearly 100% of employed participants were working in Transportation occupations, such as vehicle maintenance, repair, or operation.

CONCLUSIONS

Key highlights from lessons learned

- The infusion of USDOL TACT grant resources was key to meeting industry priorities for workforce training related to alternative fuels and advanced technologies. To provide training reflective of current industry standards, practices, and priorities, significant investments were necessary, particularly for equipment.
- Due to the student-teacher ratio, facilities, and equipment required for Transportation training programs, significant program expansions will require resources far beyond what is typically available through community college budgets and public grant programs.
- The strong success experienced in employment and retention was enabled by quality programming and strong relationships between faculty and students and between faculty and area employers.

Main implications for future workforce and education research and next steps

- Industry and students have called for additional accelerated training options, such as shortening the number of classroom hours included in truck driver training. MCC will be closely monitoring and measuring the impact of accelerated training on enrollment, wait lists, and employer satisfaction of driver and technician preparedness.
- Information sources for the evaluation of accelerated training will include MCC's student data system for enrollment, completion, credentials, and wait lists; student assessments, surveys and interviews; employment and retention data; and employer surveys and reported observations provided through monthly industry advisory meetings.

TACT RESEARCH QUESTIONS

Emerging ideas for service delivery change and/or system reform further research?

- MCC's Round 2 grant was designed to respond to both immediate and emerging workforce training needs. In this case, the established trends toward increased fleet adoption of CNG fuel systems shifted mid-project.
- Situations such as this prompt the need for additional research on workforce training best practices in responding to industry need for skill building in emerging technologies, including research on risk v. reward in investments in training infrastructure.

Directions for future research on the country's public workforce system

- Despite significant assistance through federal grant programs, the U.S. is challenged to sufficiently and affordably scale workforce training for some high demand occupations. Although workforce trend data is available, it is also very challenging to get out in front of growing demand quickly enough to prevent workforce shortages that negatively impact industries.
- It would be valuable to engage in research intended to identify strategies for training expansions that anticipate and respond to upward trend lines in demand, without getting out too far ahead of the curve.

What service delivery and/or system reform innovations resulted in improved impacts for participants?

- Accelerated and flipped models of instruction for workshops and full courses resulted in a reduced need for face-to-face classroom time. Reduced requirements for classroom time

make education more accessible for students who are already working and reduces costs for employers who are paying individuals to attend training as part of their work week.

- The incorporation of more stackable industry and college credentials was positive for both students and employers. Short term trainings toward credentials were particularly advantageous for participants who were highly motivated to quickly gain employment. Employers particularly appreciated the expanded incorporation of competency based industry credentials (such as NC3), providing stronger assurance of student skill mastery.

Under what conditions can these innovations most effectively be replicated?

- The incorporation of flipped models of instruction will be most effectively replicated with the support of instructional design services. These services can support the development of instructional resources such as video demonstrations and industry scenarios.
- Accelerated training will require up-front dedication of resources for curriculum work, but once the accelerated training is developed, it can become the new norm pretty quickly.

Project Evaluation Report

Alternative Transportation Fuel Systems: Advancing the Workforce
Metropolitan Community College, Omaha, Nebraska
Round 2 Trade Adjustment Assistance Community College Career Training Grant (2012)

INTRODUCTION

Metropolitan Community College. Metropolitan Community College (MCC) is the second largest, most diverse institution of higher education in Nebraska. MCC is a public institution with eight campus sites located in urban, suburban, and rural locations. MCC's 2015 enrollment included over 26,000 credit students and over 18,000 students who were participating in non-credit education. The average student age is 28, with 55% of students being female and 29% reporting ethnic minority heritage.

Background on MCC's Round 2 Grant Opportunity. In September of 2012, MCC was approached by Nebraska's Coordinating Commission for Postsecondary Education (CCPE), on behalf of the US Department of Labor (USDOL) Employment and Training Administration (ETA). The CCPE inquired whether MCC would have the interest and capacity to apply for a Round 2 USDOL Trade Adjustment Assistance Community College Career Training (TACT) grant, as USDOL had not received a Nebraska application eligible for the single institution award. MCC agreed to develop a single institution Round 2 proposal, with a framework for the project due prior to October. MCC organized a group of Transportation industry partners to inform the development of an initial project concept, which was provided to USDOL ETA prior to the October deadline. Over the course of the next six months, MCC completed the research necessary to identify priority industry and participant needs and develop a TACT grant Statement of Work to address these needs. The Statement of Work and project evaluation plan were developed, with formative feedback provided from the Federal Project Officer. By March 2013, *Alternative Transportation Fuel Systems: Advancing the Workforce (Transport Omaha)* was launched.

Project Summary and Purpose. *Transport Omaha* was designed to build on the 2011 Round 1 TACT grant for *TransIT* (Transforming Industry and Training), awarded to a consortium of Nebraska community colleges. MCC served as the lead institution for TACT, with an institutional focus on training for the high demand occupation of truck driving. The purpose of the MCC TACT project *Alternative Transportation Fuel Systems-Advancing the Workforce (Transport Omaha)* was to advance the region's transportation workforce through training in emerging fuel systems and advanced technologies. The project focused on training for diesel technicians, automotive technicians, CDL truck drivers, and equipment operators.

The Population Served

The population context. There are nearly 1.3 million residents in the greater Omaha metropolitan, home to four Fortune 500 companies and five Fortune 1000 companies. Two of these Fortune rated companies are Transportation providers – Union Pacific and Werner Enterprises. Serving as an intersecting point for both East-West and North-South routes, Transportation is important to the area economy and a strong source of quality employment opportunities. In 2015, the Omaha metropolitan region had 38,670 jobs in transportation, accounting for 8.1 percent of local area employment, significantly higher than the 6.9 percent share nationally. The average hourly wage for this occupational group locally was $16.53, slightly below to the national wage of $16.90. While the unemployment rate overall for the region hovered around 3% over the project period, the income levels of nearly one-half of working households are considered "low income."

***Transport Omaha* participants.** Over the approximately 3 ½ year project period, 623 participants were served. Participants included 367 (59%) employed and 256 (41%) unemployed individuals. While the original project plans anticipated stronger participation of individuals who were unemployed, the larger number of participants who were incumbent workers is reflective of the very low unemployment rate in the area. Participants who were working at the time of project enrollment did show relatively low income levels overall ($31,256), which is consistent with the high rates of low income workers in the Omaha area. Most individuals who were working at the time of enrollment into *Transport Omaha* programs indicated they were participating in project training to advance their occupations and income. 40% of participants represented ethnic minorities 10% of participants were women, and 14% of participants were veterans. The average participant age was 31.

Transport Omaha Evaluation Team

The Lead Evaluator for Transport Omaha was Dr. Greg Welch, Research Assistant Professor with the Nebraska Center for Research on Children, Youth, Families and Schools, at the University of Nebraska-Lincoln. In addition to extensive experience with educational research, (as noted on his resume included in the appendices), Dr. Welch brought recent, relevant research experience completed with the Nebraska Transportation Center, a regional provider of Transportation Sector research and education. As the Utilization Focused Evaluation (UFE) model selected for *Transport Omaha* called for strong local site engagement in ongoing project evaluation, Dr. Welch's role was simultaneously that of expert, guide, and mentor for *Transport Omaha* staff and faculty. This model established a framework for quality evaluation for both full program accountability and continuous improvement. The local site liaison for *Transport Omaha* evaluation was Pam Perry, MCC Director of College & Workforce Innovation, who coordinated most closely at MCC with *Transport Omaha* Grant Manager, Chris Swanson. Other key contributors to project evaluation included MCC's Dean of Applied Technology, Kirk Ahrends; Diesel Technology lead faculty member, Don Gilliland; Automotive Technology lead faculty member, Al Cox; Truck Driving faculty members Kim Martin and Darryl Partner and Judy Armstrong, who provided administrative support for participant data.

Evidence-Based Model

MCC's *Transport Omaha* initiative was grounded in evidence based approaches. Interventions were supported by **external research**, as well as **proven practices internal to MCC**. Evidence was gathered for initial, data informed strategies, as well as for ongoing project improvement. **Over thirty sources of evidence** were referenced for original project planning, including sources such as the Transportation Research Board Sustainable Transportation Indicators Subcommittee, the National Research Center for Career and Technical Education, the Center for Law and Policy, the Center for Postsecondary and Economic Success, and industry journals. Examples of evidence based approaches incorporated into *Transport Omaha* interventions included strong, ongoing industry collaboration; training that incorporated state-of-the-art industry technologies; strong faculty engagement with students through a faculty-coach model; stackable credentials; and blending of technology-enabled, scenario based learning with hands-on applications.

Internal and external data sources were accessed throughout the project to inform project improvements. One external source accessed to contribute to ongoing awareness of industry trends was Gartner Research. This source was particularly helpful in keeping project staff and faculty aware of industry trends in alternative fuels and advanced technologies. Ongoing surveys also provided formative feedback. A mix of internal and external data sources informed the incorporation of training and certifications such as for forklift operation and Class B drivers' licenses (CDL B). The addition of training toward forklift certification and CDL B was based on an analysis of project participant data, as well as survey data from employers and individuals served through the area One Stop. Data from participants indicated the need for additional opportunities to engage unemployed individuals with project training and employment opportunities. Data from One Stop clients indicated a desire for accelerated opportunities for training, certification and employment. The area Transportation industry indicated an immediate need for individuals skilled and credentialed to operate forklifts and large trucks at warehouse and distribution sites. The operation of on-site truck operation required less extensive truck driver training, toward a CDL Class B license. Based on these data, MCC expanded training opportunities for forklift operator certification and CDL B. This type of ongoing, formative assessment was a key to project success.

TRANSPORT OMAHA SUMMARY AND DESCRIPTION

For the purpose of this project, "Transportation training" was defined as instruction related to the operation and/or service of vehicles such as buses, large trucks and vans, semis, large vehicles with specialized functions (such as those used in waste management), automobiles, and utility vehicles. At MCC, this instruction was provided primarily through three programs – diesel technology technician training, automotive service technician training, and operator training for commercial drivers' licenses and heavy equipment. *Transport Omaha* Transportation training program interventions were designed in collaboration with industry to a) equip participants with the skills and certifications necessary for safe and effective work with alternative fuels systems and advanced vehicle technologies and b) increase participant success in seeking, retaining, and advancing employment.

Summary of Transportation Program Baseline. It is important to note that *Transport Omaha* was developed on a **strong foundation of MCC Transportation training**. In 2010, MCC's CDL and Diesel Technology technician training programs earned the American Technical Education Association Outstanding Program Award. Program **retention, completion and post-training employment rates have been historically strong,** with 85-91% completion and 95% post-training employment. MCC's Transportation students have consistently been represented among SkillsUSA champions, a testament to their strong, skill-based training.

MCC Transportation **faculty have solid relationships with area employers.** Transportation advisory groups are the most engaged of any MCC employer group, with strong participation at monthly advisory meetings. There is ongoing communication and collaboration with area employers who open up their sites for MCC training, donate their equipment, and coordinate with faculty to provide employment opportunities for students.

While MCC programs were strong and their students in high demand, equipment was becoming dated. MCC benefited from generous employer donations of equipment, but often that equipment was already used when gifted to MCC. While having used equipment provided technicians with meaningful experience for equipment maintenance and service training, **equipment often did not reflect the technologies students would see on the job**. This included equipment operated by alternative fuels. MCC did not have alternative fueled vehicles that could be used in driver and technician training, so MCC would borrow vehicles from business partners to expose students to alternative fuels. Because MCC did not own the vehicles, students could not gain hands-on experience with them. Even with more conventionally powered vehicles, MCC also lacked in the quantity of equipment necessary to provide all students with simultaneous opportunities for active, hands-on training. Equipment was a problem area.

Other problem areas included faculty training, curriculum, and facilities. Though faculty had deep industry experience and credentials, **faculty did not have training or experience in alternative fuels or many of the advanced technologies** being used in cars, trucks, and heavy equipment. Though faculty had interest in building their program capacity for alternative fuels, such efforts would have required significant professional development and skills practice prior to incorporating the new content into technician training. It was also quickly noted that though there was some high quality instructional content available (such as through the National Alternative Fuels Training Consortium and the Clean Cities Coalition), there were **few instructional resources to draw on outside of textbooks.** For students increasingly needing online access to learning resources to complement hands-on training, it was apparent much work would be required to develop learning resources for new training content. To top off the challenges, while enrollments were growing, Transportation training facilities were not. **Space**

was very limited for classrooms, labs, service and maintenance areas, driving, and equipment parking and storage. While there was a will to expand enrollments, there was not a way.

Key Interventions. Though MCC Transportation programs, faculty and students have always been held in high esteem, MCC and industry acknowledged the need and challenge of keeping programs current with ever-changing industry technologies and practices. A theme of *Transport Omaha* interventions was the **alignment of MCC Transportation training with industry changes in fuel systems and vehicle technologies.** To achieve this alignment, *Transport Omaha* interventions fall into two categories: 1) capacity building interventions and 2) training interventions.

Capacity Building Interventions. Area Transportation partners reported an increasing adoption of vehicles operating on compressed natural gas (CNG), due to lower fuel costs and new emissions regulations. In 2012, the cost of new CNG vehicles was still quite high relative to those fueled by conventional systems. Employers suggested that since the return on investment for a CNG vehicle would come more quickly for a large, high mileage fleet truck than with a CNG car, the area would see stronger early adoption of CNG among large trucks. Employers of truck drivers and diesel service technicians also reported serious, immediate safety concerns, as their employees were encountering CNG trucks and were not aware of safe practices with CNG fuels.

Due to these safety concerns, industry partners were most immediately interested in addressing the growing need for drivers and technicians skilled with CNG. Employers were looking not only for training, but also for credentialing that would certify their employees' preparedness to drive or work with CNG vehicles. There was one test available for CNG technicians and while it was rigorous, it was only a computer-based exam. It did not include a hands-on component for technicians to demonstrate their ability to apply their knowledge of CNG.

While training was available to prepare for this exam and certification, it was largely through four-five day workshops. Though these workshops were offered across the U.S., they required substantial time, travel and cost for individuals and employers. Employers were very interested in CNG training that would be more accessible, accelerated, and incorporate a hands-on component to validate technician's knowledge and skills. These needs led to an early emphasis on **professional development, participant training, certification, and curriculum development related to CNG safety.**

Area employers also recognized research and national trends suggesting that CNG might be a transitional fuel, one that over time would be replaced with more sustainable options such as electric powered. It was also asserted that while area vehicle fleets such as cab companies were adopting CNG, individuals might be more likely to opt for electric. The area's largest urban

school district had just acquired propane fueled business and other fuels such as biodiesel were also being seen in the area. In response to these emerging trends, ***Transport Omaha*** **incorporated interventions to build MCC Transportation program capacity in electric, hybrid, propane, biodiesel, in addition to CNG.**

One **innovative example** of program capacity building in alternative fuels was MCC's partnership with the area's BioFuels Cooperative. Area organizations partnered to provide training on sustainable fuels such as algae and processed vegetable oil left over from food production. MCC students, faculty and staff also partnered on the production and use of vegetable oil based fuel, with raw material coming from MCC's Institute for the Culinary Arts.

Faculty training and certification was an important part of *Transport Omaha* capacity building. Faculty participated in a range of formal and informal professional development opportunities. Examples of formal training include workshops toward CNG certification provided in collaboration with the National Alternative Fuels Coalition and National Coalition of Certification Centers (NC3) train-the-trainers. The NC3 training prepared faculty to incorporate NC3 lessons, training and credentials in MCC Transportation courses.

To enable training delivery that was engaging, meaningful, and accessible, *Transport Omaha* capacity building interventions included the development of **three CNG safety modules that could be delivered online, in companion with hands-on training and assessments**. The modules were competency based and included video, animation, real world scenarios, assessments and tracking of student results. The modules were designed to use as part of college courses and/or workshops. Students participate in the online modules prior to a class, significantly reducing the face-to-face training time required. Workshop or class time can then be spent with demonstrations, hands-on practice, and skills testing.

In addition to developing the CNG modules, MCC faculty developed a range of other **new learning resources.** These new resources included **over thirty lessons and entire classes focused on alternative fuels.** Faculty also **developed or purchased trainers**, such as one that enables students to observe the power system in an electric vehicle. Other new learning resources included **NC3 tools, lessons and assessments** leading toward Mechanical and Electronic Torque and Multimeter certifications. Training was developed for forklift certification and auto technician training was repackaged to include a "fast track" training toward entry level employment in automotive service. Additional work was accomplished to provide training toward CDL B licensure as part of Diesel Technician training. These **new learning resources and certifications were incorporated into existing CDL, diesel technician and auto technician training programs,** providing more **on-ramps**, **stackable credentials**, and strengthened alignment with industry demand.

Transport Omaha capacity building also required the **acquisition of over $1,000,000 in industry standard equipment for hands-on technician and driver training.** The equipment ranged from large CNG trucks (referred to in the industry as "tractors") to a CNG pick-up and van, to electric cars and specialized electric utility vehicles. Equipment necessarily included an electric vehicle charging station as well as a small CNG fill station. Propane operated forklifts

were acquired, giving the participants a dual benefit of experience with propane, while also having the opportunity to train for forklift operator certification. Examples of equipment reflective of newer industry technologies include a refrigerator trailer, which offers participants experience with sensors, controls and other components of refrigeration systems. The complete list of capacity building equipment is included in the Appendices with this report. These equipment acquisitions were instrumental in meeting priorities of area employers and ensuring participants were well prepared for Transportation employment opportunities.

Transport Omaha interventions built on program best practices, such as the **"faculty coach" model** used in MCC's Transportation programs. In this model, faculty are closely engaged with students through smaller, more interactive classes; sponsorship of student clubs and competitions; and close monitoring of their attendance, participation and achievement. Students are more likely that others at MCC to continue in their classes consistently from quarter to quarter. They are also more likely than many to meet area employers, through industry's ongoing contact with Transportation program faculty. Because this model has resulted in strong student retention, completion and employment, the "faculty coach" model was continued for *Transport Omaha*. There was not a need to plan interventions that added a layer of staff support for students, such as through a third person coaching model.

TRANSPORT OMAHA EVALUATION DESIGN

The goals of *Transport Omaha* evaluation were to assess project impact on participants and area industry, as well as evaluate the effectiveness of processes for project implementation. The following key research questions were addressed in the project study:

- *Does MCC Transportation sector training include the components necessary to respond to the highest priorities* identified by industry/employers?
- *Does participant completion of MCC Transportation training result in employment and employment retention in the Transportation sector?*
- *Does participant completion of MCC Transportation training result in increased knowledge and skills related to alternative fuels and advanced technologies?*

The framework for Utilization Focused Evaluation (UFE) was applied for this mixed-methods project evaluation. The focus of the UFE method is on intended use by intended users. In order for this method to be implemented effectively, intended users (otherwise referred to as primary stakeholders) must be involved in data gathering, analysis, and decision-making throughout the evaluation process. The UFE method was applied from project inception on, as intended users (primary stakeholders) were directly involved in the identification of research questions and intimately involved in the development and implementation of evaluation tools and data gathering. This process encourages ongoing evaluation and program improvements based on data informed decision making. The strong engagement of stakeholders also supports the sustainability of evaluation best practices and continued, data informed decision making.

Because the study included an assessment of the processes behind project implementation, as well as project outcomes and impact on participants and industry, a mixed methods evaluation design was implemented. The mixed methods approach addressed the need for both quantitative and qualitative information to address evaluation questions and inform ongoing

project improvement. Process information, outcomes, and impact data were collected and reviewed in a formative manner throughout the project period, to inform stakeholders on project improvements to be considered.

Implementation Study Design

The key research question for the implementation study was ***Does MCC Transportation sector training include the components necessary to respond to the highest priorities identified by industry/employers?*** The implementation study was based on the concept that by a) analyzing and identifying baseline training components, b) identifying industry priorities for MCC Transportation training, and 3) aligning MCC Transportation training with industry priorities, there would be increased industry satisfaction with MCC Transportation training. It is helpful to recognize that this implementation study assesses the effectiveness of *Transport Omaha* **Transportation program capacity building**.

Building on the stated conceptual framework, the implementation study was designed to assess the extent of alignment between the SOW (based on priorities identified by industry partners) and the achievement of proposed deliverables. This analysis was expanded to include project responsiveness to formative assessment indicating changes in industry priorities not reflected in the SOW. For instance, changes in the market demand for CNG fuel influenced employer priorities over the course of the project period. These variables were included in the project study to fully address the question of whether MCC Transportation programs were responsive to the highest priorities of area employers.

To sufficiently address the implementation question, more specific, underlying research questions were addressed through the implementation analysis. Data was gathered to respond to the following four questions:

- Was project implementation consistent with the deliverables and timelines proposed in the *Transport Omaha* Statement of Work?
- What steps were taken to a) build program capacity and b) run the Transportation training program?
- What are the post-implementation operational strengths and weaknesses?
- During implementation, what areas for improvement were identified and steps were taken for project improvement?

Implementation data and methods. To address implementation question, *Does MCC Transportation sector training include the components necessary to respond to the highest priorities identified by industry/employers?* over twenty-six data sources were tapped. Sources provided evidence of **the implementation of project deliverables**, such as, whether three modules on CNG safety were, indeed, developed. For learning resources that were developed, a **curriculum assessment** was also completed, evaluating whether the materials were responsive to principles of universal design and accessibility. Multiple data sources were also referenced to assess **industry perceptions of the responsiveness of the capacity building resources** (such as, whether employers believe the CNG modules would contribute to technician's safe operation with CNG).

Data sources to assess implementation included equipment inventory lists, workshop materials, training schedules, and documents indicating faculty certification. Data was also available through management systems used to coordinate, track and report progress on project deliverables. Progress could be determined in real time by viewing the free, online electronic tool (Trello) used by staff to support project management. Users established and tracked short term tasks assigned to specific individuals or groups (such as completing a curriculum map) and moved the task along columns from "On Deck" to "Doing" and "Done." Evidence of implementation progress was also available through sources updated on a monthly basis, including a GANNT chart, written progress updates provided at monthly meetings with MCC administrative staff, and a chart of deliverables and indicators. Examples of these tracking tools are provided in the Appendices. An additional data source to assess implementation was direct observation, made available to the external evaluator. Direct observations provided first person validation, such as facility tours to see equipment, viewing online learning modules, or sitting in on project training. Together, these data sources played an important role in informing both formative assessment of implementation and capacity building, as well as summative assessment.

Data to assess implementation was also gathered through **Curriculum Analysis** provided by an external expert. The curriculum analysis focused on evaluating learning resources for features reflecting **universal design and accessibility**, but also assessed materials for compliance with other US Department of Labor requirements, such as Creative Commons licensing and inclusion of USDOL waivers. The assessment of universal design looked for features such as whether supplementary information was available to support comprehension and whether information was provided through multiple modalities, such as auditory, text based, and other supporting visuals such as video or diagrams. Accessibility was evaluated, with an emphasis on online and web-based content. Assessment included determining whether there was consistency in screen navigation, whether appropriate fonts and font sizes were used, and whether alternative text accompanies imagines such as photos and diagrams. The initial assessment was formative, providing both data and guidance for product improvements.

Participant and industry feedback were also gathered to assess project implementation. These data were gathered to inform the design of training and to assess whether *Transport Omaha* capacity building efforts were addressing student needs and industry priorities. **Participant feedback** was gathered throughout the project period, largely through standard institutional practices of evaluation at the end of each training. Additional participant data was gathered through brief surveys distributed during training and through the MCC Call Center and through focus groups. Survey data was also gathered from potential project participants through Heartland Workforce Solutions, the area One-Stop.

Because the implementation question focused on whether Transportation program capacity building responded to industry priorities, much attention was given to **gathering industry feedback** throughout the project period. Evaluative feedback was requested from employers across multiple topics related to program capacity building, such as equipment for training, training content, formats for training delivery, relevance and sufficiency of credentials incorporated into training, and preparedness of students who are hired by these employers. Multiple sources of feedback were accessed to assess employer perceptions and satisfaction, such as paper and online surveys, focus groups, monthly advisory meetings, and individual interviews. A chart summarizing the topics and sources of industry feedback is included in the appendices.

The Outcomes/Impact Study Design

Research questions for the outcomes/impact study

The outcomes/impact study was based on answering the following questions: 1) ***Does participant completion of MCC Transportation training result in employment and employment retention in the Transportation sector?*** and 2) ***Does participant completion of MCC Transportation training result in increased knowledge and skills related to alternative fuels and advanced technologies?*** While the first research question regarding project impact on employment was included in the original evaluation plan, the second question was added based on project team members' desire to identify and address any potential weaknesses in Transportation training. The addition of this study question is consistent with the UFE model, which encourages strong stakeholder input in evaluation questions and processes. These research questions served to guide both **formative and summative assessment.** Key participant outcomes measured included employment, employment retention, and income, including post-training income advancement among individuals who were employed at the time of training. Impacts measured included participant knowledge related to alternative fuel systems and advanced technologies.

Outcomes/Impact Data and Methods. The outcomes/impact study was completed through the combination of a baseline-to-post intervention study, assessment of projected v. achieved outcomes, and follow-on qualitative analysis. **Pre-post outcome/impact analysis and assessment of projected v. achieved outcomes** included analysis of the nine USDOL recommended participant outcome measures, as well as measures to assess participants' knowledge related to alternative fuels and advanced technologies. Follow-on qualitative analysis provided the opportunity to gain insight into variables that may have influenced participant outcomes and impact. Data elements and data sources for assessing project outcome and impact are summarized in the following chart.

Outcome/Impact Data Elements and Sources	
Data Elements	Data Sources
Unique participants served	MCC Colleague database
Unemployed	Colleague + Employment Self-report
Underemployed Incumbent Workers	Colleague + Employment Self-report
Participants Completing Program	MCC Colleague database
Unemployed Who Completed	Colleague + Employment Self-report
Incumbent Workers Who Completed	Colleague + Employment Self-report
Participants Retained in Program	MCC Colleague database
Participants Earning Credit Hours	MCC Colleague database
Participants Earning Credentials	MCC Colleague database + Self-report + CSA Group + National Coalition of Certification Centers (NC3) + Faculty records
Participants Enrolled in Post-TACT Education	MCC Colleague database
(Unemployed) Participants Employed After Grant Funded Program	Department of Labor + Self-report
(Newly Employed) Participants Retained in Employment After Program Completion	Department of Labor + Self-report
Incumbent Workers Retained in Employment After Program Completion	Department of Labor + Self-report
Participants Employed at Enrollment who Receive a Wage Increase Post-Enrollment	Department of Labor + Self-report
Participant knowledge of alternative fuels	Knowledge Assessments + Self-report + Employer Surveys + Focus Groups
Participant knowledge of advanced technologies	Knowledge Assessments + Self-report + Employer Surveys + Focus Groups

Data regarding participant enrollment, retention, and completion of training was accessed through MCC's institutional student information system, **Colleague**. This data is highly reliable and provided access to pre-post data sets. Colleague enables access to nearly real time tracking of student participation within and across enrollment quarters. Project staff were able to request status reports at any time throughout the project period. These reports provided updates on students' quarter-to-quarter and year-to-year retention, as well as information about credit hours and college credentials earned. Colleague also provided data to determine the number of students continuing in MCC training following their completion of TACT training.

Though Colleague was a key data source for participant information, it did not consistently include data on **industry credentials** earned by project participants. Data on certifications for compressed natural gas safety and inspection were provided by the CSA Group, the sole industry recognized organization providing this specific assessment and certification. Student assessments went directly to CSA group, CSA evaluated the responses and awarded certification to individuals who met "pass" criteria. The names of individuals earning the certifications were posted on the CSA site and provided directly to MCC. Similarly, assessments for credentials through the National Coalition for Certification Centers (C3) were completed directly through NC3, where results were evaluated and certification was determined. Participants and MCC faculty received the results of NC3 certification exams. Industry certifications were included in faculty records for students, but MCC did not yet have the

infrastructure in place to include all industry certifications within Colleague as part of students' official records.

Employment data was obtained from USDOL UI reports and participant self-reports. Through a written agreement between MCC and the Nebraska Department of Labor (NDOL), NDOL was able to provide aggregate data on participant employment status (employed v. unemployed) and average annual income. Over time, NDOL was able to provide aggregate employment data for sub-groups. This enabled some comparison between groups of individuals who were employed upon enrollment in *Transport Omaha* programs, with groups of individuals who were unemployed at the time of enrollment. Because NDOL was not able to provide individual level data to verify employment status and income, these data were derived from participant enrollment forms and updates of participant data provided through online surveys and through MCC Call Center contacts. This individual level data was used to support faculty coaching as well as look for trends related to variables such as areas of program training.

Causal inferences cannot clearly be made from an analysis of *Transport Omaha* project impact on employment and employment retention, as there was not workable access to adequate comparison group data or adequate target group data. Upon enrollment, there was the potential for considerable variability in participants' post-training income due to pre-training employment history and the *Transport Omaha* area of study (diesel technology, auto technology, or truck driving). While the project was eventually able to acquire income data aggregated within two subcategories (employed v. unemployed at the time of program enrollment), the project was not able to acquire data through NDOL that would aggregate income based on multiple sub-categories, such as area of study or occupation at the time of enrollment. These variables could have substantially influenced participant outcomes, but they could not be ruled in or ruled out. While comparisons will be made between aggregate participant outcomes during the pre-project baseline and the final project cohort, any conclusions about the impact of project interventions will be spurious. There are a host of variables that could have influenced trends in employment and income outcomes over the project period, such as increased workforce demand and related wage increases.

Data to assess project impact on **participant knowledge** was drawn from multiple sources, including pre-post technical assessments of knowledge of alternative fuels and advanced technologies; participant self-reports provided through focus groups; and focus groups of faculty and industry partners. Surveys and knowledge assessments were completed immediately prior to (first day, first hour of) training and immediately following (last day, last hour of) training. Pre-post surveys and knowledge assessment data were not gathered from all participants, but were drawn from a sampling of participants in workshops and courses across the target programs

and project period. **Causal inferences** can be made from analysis of the project impact on participant knowledge, based on individual and aggregate pre- and post-training assessments of technical knowledge. Data gathered from focus groups were intended to provide further illustration of and insight into findings

IMPLEMENTATION FINDINGS

Institutional Capacity Building Achieved through *Transport Omaha*

The achievement and impact of *Transport Omaha* institutional capacity building was assessed through the implementation study, responding to the research question, ***Does MCC Transportation sector training include the components necessary to respond to the highest priorities identified by industry/employers?*** Evaluation of project capacity building and implementation indicated that *Transport Omaha* fully achieved the proposed program capacity building included in the Statement of Work, designed to address industry priorities. Significant MCC Transportation program capacity building was achieved through USDOL TACT grant funding support, including components of high priority for area employers, such as faculty training and certification, curriculum enhancements, updated training tools and equipment, and the incorporation of additional industry certifications.

Implementation fidelity to the original design/model

While *Transport Omaha* implementation was in alignment with the original scope of work and proposed capacity building deliverables were achieved, there was one noteworthy adjustment in one deliverable. *Transport Omaha* had proposed two main training pathways, incorporating CNG into Diesel Technology Technician training (pathway 1) and Process Operations Technology (PROT) training (pathway 2). The latter was to provide training for individuals who would service CNG stations. Because of the unanticipated, rather sudden decrease in the demand for CNG, the PROT pathway would no longer have provided sufficient job opportunities. Due to the very strong interest among industry partners and faculty in Automotive Technology, the second pathway of *Transport Omaha* emphasis shifted to Auto Technology technician training. Training on alternative fuel systems and advanced technologies was incorporated into MCC's Auto Tech program, as well as the Diesel Technology Technician and Truck Driver training.

It is noted that while the emphasis in the original project design was on compressed natural gas (CNG) fuel systems, the plan did include the potential incorporation of electric, propane and biodiesel. Over the course of the project period, decreasing emphasis was placed on CNG, due to changes in the CNG market trend line. MCC then expanded capacity building into other areas such as electric powered vehicles, with the expressed support of the project's federal grant officer.

Key steps taken to create and run the training program

Following USDOL approval of the *Transport Omaha* Statement of Work in the spring of 2013, MCC initiated a contract with a Subject Matter Expert (SME) in alternative fuel systems. Because MCC faculty had limited experience with alternative fuels systems and technologies, the SME was contracted to provide faculty and student training while MCC developed the

institutional capacity to deliver this new training. MCC launched training in the fall of 2013, providing four day workshops toward certifications in CNG safety and inspection. As with nearly all training, evaluative feedback was requested from participants. Participant feedback (including feedback from industry representatives) on the first CNG workshops indicated that MCC was not yet hitting the mark. While the training was intended to increase technician's safe operation with CNG, feedback indicated the need for more hands-on training and assessment to ensure participants could truly engage in safe practices with CNG fuel systems. Participants and employers also indicated a desire for training that was not so long. This evaluative feedback led to the development of an accelerated, technology-enabled, alternative format that provided more time for hands-on practice and assessment.

The Subject Matter Expert (SME), numerous industry partners, and representatives from the Oklahoma community college system worked with MCC to design and develop additional learning resources, including online, video enhanced, scenario based learning modules. The online modules were planned to support a "flipped" learning model, reducing required classroom time and increasing the time available for hands-on practice. During this early period, faculty also participated in professional development and site visits to learn from faculty at other community colleges who were providing training in alternative fuels and advanced vehicle technologies. Faculty acquired new knowledge and credentials in areas such as CNG, torque, and multimeter operation, while they continued to work on the development of new training.

Because the area demand for alternative fuel systems was just emerging, this new content was incorporated within existing training that emphasized more prevalent fuel systems such as diesel and gas. To support training on the new systems, faculty and industry partners purchased and developed portable trainers. They also developed a list of equipment needed for participant training. While the initial list emphasized vehicles operated by CNG and included a large, fast-fill CNG station, the list evolved in response to changes in the CNG market. As prices fell for conventional fuels, the demand for CNG fell off. *Transport Omaha* partners reprioritized, expanding the types of fuel systems to be reflected in new equipment and training. MCC was then able to acquire vehicles operating on a variety of fuel systems, including CNG, biodiesel, electric/hybrid, and propane. Prior to these acquisitions, students were only able to observe vehicles on loan, but once the equipment was available, students were able to build skills through the hands-on operation and maintenance.

New industry certifications were incorporated into training programs for Diesel Technology Technicians, Automotive Technology Technicians, Truck Driving, and Equipment Operators. This gave participants access to more stackable credentials and accelerated training options. Another important element across the three training programs was the use of the proven faculty-coach model. In this model, faculty took the responsibility for maintaining communications with students, monitoring their progress, intervening to provide supports as necessary, and supporting their transition to employment. Within MCC Transportation programs, this model has been credited with a history of strong retention, completion and employment. MCC faculty engaged in ongoing communications with students and with employers, helping build participant on-ramps into internships and employment.

Throughout the TACT funded project, data was gathered for continuous program improvements. While *Transport Omaha* was successful in addressing industry priorities for training on alternative fuels and advanced technologies and significantly expanding the number of participants in Diesel Technology and Auto Technology technician training, MCC had not been able to measurably expand the enrollment capacity of Truck Driver training. In recent months, MCC piloted a shorter, six week driver training. By reducing the number of weeks of training, MCC plans to train more cohorts of students over the course of a year. This development is testimony to faculty commitment to ongoing program evaluation and improvement, as seen in the successful capacity building of *Transport Omaha.*

Throughout the project period, MCC transportation program capacity building, training, and student hiring was enabled through partnerships with employers and local, regional and national organizations. Employers such as these have long been closely engaged with MCC Transportation faculty. Transportation company representatives come together with each other and with MCC faculty for monthly advisory meetings. Though competitors for transportation services when they are off-campus, advisors work collaboratively to address their shared workforce needs. Two local companies were particularly critical partners in guiding the early addition of training content for alternative fuels – Fuel Conversion Solutions and Truck Center Company. Examples of other important partners who informed program capacity building include the National Alternative Fuels Training Center (NAFTC), Oklahoma community colleges, the Clean Cities Coalition, and the National Coalition of Certification Centers (NC3).

Operational Strengths and Weaknesses

Operational strengths

The *Transport Omaha* TACT grant funded project was grounded in strong, **long-standing relationships between area employers and faculty** in MCC Transportation programs. These relationships enabled ongoing, open communications necessary for working together on program enhancements. These open relationships were particularly important for achieving employers' active engagement in program capacity building. Area employers were very involved in planning, implementing, assessing and tweaking TACT funded Transportation program capacity building. The strength of employer and faculty working relationships was also seen in efforts to reprioritize the project's CNG emphasis when fuel prices shifted. Together, they were able to identify other significant, more immediate program capacity building needs consistent with the scope of work, such as the adoption of NC3 certifications and expanded incorporation of electric powered vehicle technologies.

Solid employer-faculty relationships were likely an influential factor in the strong participant employment outcomes. Because faculty know partner companies and faculty know their

students, they are **able to help facilitate a good "fit" between MCC students and employment opportunities.** Faculty generally understand the culture, expectations and opportunities within partner companies and in their **faculty-coach** role (another operational strength) they were able to guide students toward internship and employment opportunities that provided a good match for their work styles, skills, and aspirations. The close working relationships between faculty and company representatives also resulted in an increased presence of employers in the training setting. This offered participants increased, first hand opportunities to establish relationships with preferred employers.

MCC was able to launch the TACT project under the guidance of an experienced grant manager who was already part of MCC's staff, while MCC completed the search for the TACT project coordinator. This was possible through the development of an **institutional "pool" of experienced grant managers** who can be at least temporarily reassigned to facilitate the initiation of new, grant funded programs. This prevents delays in the achievement of project deliverables, as there is management support to begin implementation of the Statement of Work. Following the search, MCC was then able to acquire a project coordinator with **strong management skills and a solid foundation of technical knowledge and professional networks** relevant to alternative fuels. This hire was instrumental for expanding project momentum, partnerships, and impact.

Another operational strength of project implementation was team members' **ongoing data collection and analysis for continuous improvement**. This data-informed project management was encouraged through the adoption of the Utilization Focused Evaluation (UFE) model, which required strong local level engagement in data collection, analysis and application. Data informed practices began during initial project planning and continued through the analysis of evaluative feedback provided on deliverables such as workshops, courses, and online modules, as well as ongoing monitoring and consideration of participant enrollments and outcomes.

Students and employers benefited from the **decision to update and enhance current programs (Diesel Technology, Auto Technology and Truck Driving)** rather than create a new program focused on alternative fuels. The Omaha area alternative fuels market is still emerging and changing. To ensure there a strong workforce demand for training participants, the core of training on Transportation fuel systems needed to address conventional fuels, such gasoline and diesel. By incorporating alternative fuels and advanced technologies in existing, high demand programs, participants gained knowledge of a range of systems they may encounter in the workplace. Employers indicated that this broad exposure gave training participants increased job preparedness and a meaningful advantage in hiring.

Operational Weaknesses

Due to the delay in the completion and USDOL approval of the *Transport Omaha* statement of work, **training was not launched until the first quarter (fall) of project year two**. While participant enrollments were very strong by year three, MCC was not able to enroll any project participants in year one. This delay in project launch is obviously a weakness in implementation, as significant numbers of participants could have otherwise been served in year one.

There were significant **delays in the process leading toward the approval and purchase of equipment for participant training**. While training enhanced with TACT grant resources was provided during this approval and purchase process, earlier training participants did not receive the full benefit of the project in comparison with later project participants. Because experience with this range of vehicles expanded later participants' knowledge, earlier participants likely did not develop an equivalent level of knowledge about alternative fuels and advanced vehicle technologies.

Despite the more recent development of accelerated training and flexible scheduling options, **the workforce demand for Transportation professionals still outstrips MCC's capacity to train more students.** Measureable enrollment increases would likely require a significant infusion of resources for expanded facilities and staffing. Efforts continue to explore options for increasing MCC's capacity to enroll more students while maintaining safety and training quality.

FINDINGS OF OUTCOMES AND IMPACTS

Outcomes and Impacts Achieved through *Transport Omaha*

The outcomes/impact study addressed the following questions related to project outcomes and impacts: 1) ***Does participant completion of MCC Transportation training result in employment and employment retention in the Transportation sector?*** and 2) ***Does participant completion of MCC Transportation training result in increased knowledge and skills related to alternative fuels and advanced technologies?*** Key participant outcomes measured included employment, employment retention, and income, including post-training income advancement among individuals who were employed at the time of training. Impacts measured included participant knowledge and skills related to alternative fuel systems and advanced technologies.

Key Outcomes

Participant outcome measures included USDOL common measures adopted by, included on the following chart. Common measures provide quantitative data to determine to what extent participants have achieved the goal of employment and/or if they have accomplished desired precursors to employment such as earning an industry certification. In addition to assessing aggregate data for the full population of *Transport Omaha* participants, participant data was aggregated and analyzed within population subgroups of "unemployed" at the time of enrollment and "employed (incumbent) workers," workers who were employed at the time of *Transport Omaha* enrollment. This enabled some outcome comparisons across groups, in an effort to gain additional insight into participant outcomes.

Transport Omaha resulted in significant, positive outcomes for training participants, exceeding project goals. While MCC projected to serve 250 individuals, over 600 individuals were being served by Q14. By the end of year three, of the 102 unemployed individuals who completed training, 95 were employed, resulting in a participant employment rate of 93.2%. The employment retention rate of these participants was nearly 100%. Among incumbent workers who completed the TACT funded program, nearly 100% were retained in employment following

completion of training and 27.8% received post-training wage increases. While data provided by the Nebraska Department of Labor did not indicate the sectors or occupations of employment, follow-up surveys indicated that nearly 100% of employed participants were working in Transportation occupations, such as vehicle maintenance, repair, or operation.

Positive employment trends continued as the project reached the 3 ½ year mark. Of the 623 participants served, 256 were unemployed. Of the 205 unemployed individuals who completed training, 197 gained post-training employment. These data reflect an 80% completion rate among unemployment individuals and a 96% employment rate for unemployed training completers. USDOL data also indicated a significant post-training increase in income. While participants entered with an average income level of $31,256, three year post-training income levels were $43,280, an increase of around 38%.

Transport Omaha resulted in positive outcomes for training participants, exceeding project goals. While MCC projected to serve 250 individuals, over 600 individuals were served by Q14.

Key Participant Outcomes	SOW Goal	End of Yr 3	3 yrs 6 mo.	% of Goal
Participants Served	250	421	623	+ 249%
Unemployed		158	256	
Employed (Incumbent) Workers		263	367	
Participants Completing Program	221	192	441	+200%
Unemployed Who Completed		102	205	
Incumbent Workers Who Completed		90	236	
Participants Retained in Program	21	228	173	+824%
Participants Earning Credit Hours	228	274	540	+237%
Participants Earning Credentials	225	234	605	+269%
Participants Enrolled in Education after Grant Program	80	29	203	+254%
(Unemployed) Participants Employed After Grant Funded Program	192	95	197	+103%
(Newly Employed) Participants Retained in Employment After Program Completion	183	94	185	+101%
Incumbent Workers Retained in Employment After Program Completion		89	365	
Participants Employed at Enrollment who Receive a Wage Increase Post-Enrollment	30	25	98	+328%

While research has established the benefits of incorporating industry credentials in college level training, the incorporation of more stackable industry and college credentials was positive for both students and employers. Short term trainings toward credentials were particularly advantageous for participants who were highly motivated to quickly gain employment. Employers particularly appreciated the expanded incorporation of competency based industry credentials (such as NC3), providing stronger assurance of student skill mastery.

Additional Outcome and Impact Findings

In addition to assessing Transport Omaha impact on participant employment and income, the *Transport Omaha* outcome and impact study evaluated whether MCC Transportation training resulted in increased knowledge and skills related to alternative fuels and advanced technologies. Project evaluation concludes that *Transport Omaha* did result in increased

knowledge and skills related to alternative fuels and advanced technologies, among project participants. The strongest source of evidence was pre- and post-training assessment of participants' knowledge through paper-pencil evaluations. These data were supported by the number of industry credentials earned by participants – credentials that require assessments of knowledge and skills related to alternative fuels and/or advanced technologies – and by employer and participant input through surveys and focus groups.

Among participants, baseline assessments indicated little or no foundational knowledge of vehicle alternative fuel systems, including concepts critical for technician safety. Prior to training, participants did not recognize common terms related to alternative fuels and advanced technologies or understand concepts critical to the safe operation of some alternative fuel systems. They were not able to demonstrate necessary for safety with alternative fuels, such as assessing and responding to potential risks related to observable external vehicle damage or engaging in safe practices for vehicle refueling. Baseline surveys indicated that participants were aware of the existence of multiple vehicle fuel systems, but they self-reported having "little or no" knowledge of how the systems operated or safety considerations unique to each.

Following participation in *Transport Omaha* workshops and/or courses, there was a measurable, meaningful increase in participant knowledge and skills related to alternative fuels and advanced technologies. This was demonstrated most clearly through written and hands-on pre-post training assessments. Following training, participants were able to identify key similarities and differences among fuel systems and identify safety risks of each. They were able to demonstrate skills important to safe practices with alternative fuels systems, such as the appropriate use of torque tools. Participants earned XX credentials over the project period – credentials that demonstrate knowledge of alternative fuels and related technologies. Training participants earned among the highest pass rates ever achieved for certifications related to safety and inspection of CNG vehicles. In part, as a result of NC3 certifications earned by project participants, MCC is among the top ten schools in the nation for the number of NC3 certifications earned.

CONCLUSIONS

The infusion of USDOL TACT grant resources was key to meeting industry priorities for Transportation workforce training related to alternative fuels and advanced technologies. USDOL resources were instrumental in enabling MCC to update technician training to reflect current industry standards and practices with alternative fuels, and providing this new training for over 600 participants. *Transport Omaha* contributed meaningful resources to develop participants' knowledge and skills related to alternative fuel systems and advanced technologies in transportation and enable participants' achievement of industry credentials, employment, and a sufficient income.

More specifically, USDOL TACT grant resources were used for professional development, the development of new training resources, and the acquisition of new equipment. Faculty were able to develop skills and credentials necessary for quality instruction across a range of alternative fuels and advanced vehicle technologies. Learning resources were developed to support a "flipped" instructional model, allowing more face-to-face time to be committed to hands-on instruction with trainers, tools, and vehicles. These learning resources included

scenario based, video-enhanced modules that could be delivered online. Other learning materials, tools, and equipment were acquired specifically to enable training that leads toward stackable industry certifications in areas such as torque, safety, and forklift operation. A range of alternative fueled equipment was incorporated into training, including vehicles with electric, CNG, propane, biofuels, and hybrid systems. This equipment had a significant impact on the knowledge and skills acquired by *Transport Omaha* participants. Together, these TACT grant resources enabled MCC to build more industry responsive programming.

In addition to the infusion of USDOL resources, other factors likely contributing to Transport Omaha outcomes and impact were the historically strong relationships between faculty and students and between faculty and employers. Historical data suggests that the strong faculty-student ties seen within the faculty-coach model are supportive of participant retention, completion and successful transition into employment. Participants' successful transition into employment is also likely supported by the collaborative relationships historically seen between MCC Transportation program faculty and industry partners. MCC Transportation faculty see representatives of area industry as both customers and colleagues. As a result, faculty are continually tuned in to look for and respond to changing industry priorities, in partnership with industry. On the flip side, employers see MCC as a key source of candidates who are job ready and they see faculty as an invaluable facilitator of a good employer/employee "fit." This motivates industry to continue close working relationships with MCC faculty. This triad of close, ongoing working relationships among students, faculty and industry was a key to strong *Transport Omaha* impacts and outcomes.

While the USDOL resources were instrumental in achieving significant MCC Transportation program capacity building, multiple millions of additional resources would be needed to provide area industry with the quantity of workers in demand. As commonly observed in training for the healthcare workforce, training requires facilities and equipment that can accommodate multiple teams of students simultaneously engaged in hands-on practice. To meet the area Transportation workforce demand, MCC would need to more than double its facilities, equipment inventory, faculty and staff. Significant program expansions such as this would require resources far beyond what is typically available through community college budgets and public grant programs. In the meantime, MCC's strong, collaborative relationships with area industry will continue to enable expanded training capacities, such as companies that share their facilities for MCC training and individuals from industry who serve as MCC adjunct faculty. Together, they will continue developing and deploying strategic workforce solutions, such as the accelerated truck driver training that was recently launched. Working together, MCC and industry partners will continue to prepare individuals for high quality jobs and provide industry with a highly skilled workforce. Together, MCC and industry will *Transport Omaha*.

IMPLICATIONS FOR FUTURE RESEARCH

What service delivery and/or system reform innovations resulted in improved impacts for participants?

Three *Transport Omaha* interventions are particularly worth note in considerations for future research. Two interventions were considered **"impactful innovations**" for MCC Transportation programs and the fourth is a long-standing best practice worthy of additional research. The two program innovations included 1) the incorporation of "flipped" instructional resources that were scenario based, video enhanced and delivered online and 2) accelerated training. The third practice suggested for further research is 3) the long-standing faculty-coach model applied in MCC Transportation programs.

The online learning modules developed for flipped instruction did reduce necessary class time, allowing for more lab-based, hands-on practice. The modules were scenario based, wherein students were presented information within the context of a real world worksite problem they had to address through the information provided. This problem-centered model was new for many students and they expressed some discomfort in the non-linear, "tell me what I need to know" approach. Faculty and industry expressed appreciation of the format, in that it put students in a situation that was more similar to what they would encounter in the workplace. While research has established the effectively of problem-based learning, further research on the application of problem-based learning through online and flipped delivery would be of benefit.

Accelerated truck driver (CDL) training was not a proposed project deliverable, but evolved in response to expressed industry and participant needs. As the accelerated format was just being initiated near the close of the project period, there was not sufficient time to research impacts and outcomes. MCC CDL students have has long been the first choice among employers, due to the strong skills they demonstrate upon completion of training. Faculty had long been concerned about compromising the effectiveness of training through an accelerated option. Driving schools vary considerably in the amount of classroom, simulated driving, and on-the-road driving time they incorporate in their programs. Particularly with the high workforce demand pressuring options that would train more people more quickly, the outcomes and impact of accelerated driver training is worthy of additional research.

The best practice worthy of additional research is the **faculty-coach model.** In this model, faculty hold strong working relationships with students and thereby are able to more effectively monitor and support students' retention and completion. Because faculty know students well, they are also able to guide them in their career pathways and employment options, potentially contributing to stronger student employment and employment retention options. This model is more common to smaller schools and/or programs with smaller enrollments. In such situations, faculty are more likely to know their students and to serve as the primary (and perhaps sole) faculty in a given discipline. As enrollments have expanded, schools have increasingly added coaching positions to interface between faculty and students, taking on the "coach" functions that in the past were often part of a teacher's role. It would be worthwhile to circle back to

smaller programs that are still using the faculty-coach model to test its effectiveness, particularly in comparison to the newer models establishing distinct roles between coaches and faculty.

Under what conditions can these innovations and best practices most effectively be replicated?

The incorporation of flipped models of instruction will be most effectively replicated with the support of instructional design services. These services can support the development of instructional resources that incorporate elements to support student engagement and learning, such as video demonstrations, industry scenarios, and animation. Instructional design services help faculty move from providing flipped instruction through a more static, less engaging approach, such as a slide deck, readings, or a recorded faculty presentation. External funding or personnel might be required to provide faculty with close access to, and a sufficient amount of time with, an instructional designer.

Accelerated training requires up-front dedication of resources for curriculum work, but once the accelerated training is developed, it can become the new norm fairly quickly. Accelerated training can most effectively be implemented when there is flexibility to ensure that faculty carry a balanced load. Accelerated training will likely require a more concentrated amount of time from faculty, but for a shorter period. During the period of time when the accelerated training is active, faculty may need a reduced course load. Many institutions would find it challenging to manage faculty scheduling to enable accelerated courses. It would be worthwhile to engage in research to identify the most effective strategy for establishing faculty schedules to enable accelerated training.

As suggested, the faculty-coach model is likely a best practice “fit” for programs that have smaller enrollments. The smaller enrollments enable faculty to get to know students and develop working relationships with them. The faculty-coach model is also suited for training programs that are more hands-on, providing more opportunities for faculty-student interaction. This model is likely to be more effective in situations where a higher percentage of students attend school full time. Full time students tend to have more continuous engagement with faculty. They are less likely to skip a quarter and thereby, temporarily lose contact with their instructors. The faculty-coach model is likely to be seen among institutions with a higher percentage of students enrolling directly from high school, as these students are more likely to attend full time. Research could help identify common components of the faculty-coach model and variables (such as full time v. part time student status) that enable its success in student retention, completion, and transition to employment.

Main implications for future workforce and education research and next steps

Throughout MCC and beyond, industry and students have called for additional accelerated training options, such as shortening the number of required classroom hours. MCC has developed accelerated options in several program areas. It is sometimes necessary to establish additional pre-requisites and/or provide additional student guidance for determining whether accelerated training is an option for them. As MCC and other schools adopt additional Competency Based Education (CBE), options for acceleration will expand for some students. MCC will be closely monitoring and measuring the impact of accelerated training on enrollment, wait lists, the addition of pre-requisites, and employer satisfaction of driver and technician

preparedness. Information sources for the evaluation of accelerated training will include MCC's student data system for enrollment, completion, credentials, and wait lists; student assessments, surveys and interviews; employment and retention data; and employer surveys and reported observations provided through monthly industry advisory meetings.

TACT RESEARCH QUESTIONS

Emerging ideas for service delivery change and/or system reform further research?
MCC's Round 2 grant was designed to respond to both immediate and emerging workforce training needs. In this case, the established trends toward increased fleet adoption of CNG fuel systems shifted mid-project. Situations such as this prompt the need for additional research on workforce training best practices in responding to industry need for skill building in emerging technologies, including research on risk v. reward in investments in training infrastructure. As the technologies cycle becomes even shorter, it will become even more challenging for colleges to remain current with changes in industry technologies. Additional research could help provide schools with best practices in monitoring and responding to emerging technology trends in industry.

Directions for future research on the country's public workforce system
Despite significant assistance through federal grant programs, the U.S. is challenged to sufficiently and affordably scale workforce training for some high demand occupations. Although workforce trend data is available, it is also very challenging to get out in front of growing demand quickly enough to prevent workforce shortages that negatively impact industries.
It would be valuable to engage in research intended to identify strategies for training expansions that anticipate and respond to upward trend lines in demand, without getting out too far ahead of the curve.

"You know people think Metro I don't even know if they know about the diesel techs. I don't think people realize this amazing program's out there. I wish they would tell everybody that's kind of stuck in a dead end job "Go get your CDL at Metro. It's only like $1300 and it could change your life! It's changed my life. I bought a house, I'm ready to send my son to private school now and just, just by getting this degree, and it could change somebody's life in a big way."

Appendix - Project Evaluation Report

Alternative Transportation Fuel Systems: Advancing the Workforce
Metropolitan Community College, Omaha, Nebraska
Round 2 Trade Adjustment Assistance Community College Career Training Grant (2012)

Resume for Dr. Welch, Lead Evaluator

Equipment List

Sample Deliverables/Timelines Summary Tracking Chart

Sample Summary Chart – Deliverables and Indicators (from Octobert 2014 progress check)

Summary Chart – Topics and Sources of Industry Evaluation

Evaluator Resume - Welch

Greg W. Welch
Nebraska Center for Research on Children, Youth, Families, and Schools
University of Nebraska-Lincoln - Lincoln NE 68588-0235
(402) 472-2426 gwelch2@unl.edu

Professional Preparation
University of Wyoming Psychology/Statistics B.A. 2000
University of Wyoming Applied Statistics M.S. 2005
University of Pittsburgh Research Methodology M.A. 2005
University of Pittsburgh Research Methodology Ph.D. 2007

Appointments
2008-Present Research Assistant Professor, Nebraska Center for Research on Children, Youth, Families, and Schools, University of Nebraska-Lincoln.

2005-2008 Assistant Professor, Department of Psychology and Research in Education, University of Kansas.

Five Publications Closely Related to the Project
Buhs, E. S., **Welch, G. W.**, Burt, J. & Knoche, L. (2011). Family Engagement in Literacy Activities: Revised factor structure for The Familia – an instrument examining family support for early literacy development. *Early Child Development and Care, 7,* 989-1006.

Hall, J. P., Moore, J.M., & **Welch, G. W.** (2011). Preventing disability among working participants in Kansas' high-risk insurance pool: Implications for health reform. *Journal of Vocational Rehabilitation*, *34*, 119-128.

Sheridan, S. M., Swanger-Gagne, M., **Welch, G. W.**, Kwon, K., & Garbacz, S. A. (2009). Fidelity measurement in consultation: Psychometric issues and preliminary examination. *School Psychology Review, 38,* 476-495.

Other Significant Publications
Castillo, J., **Welch, G. W.**, & Sarver, C. (2012). Walking a high-beam: The balance between employment stability, workplace flexibility and non-resident father's involvement. *American Journal of Men's Health, 6,* 120-131.

Garbacz, S. A., Struthers, P., Schaughency, E., Sheridan, S. M., & **Welch, G. W.** (Under Review). The multiple dimensions of parental involvement: The role of child year in school and parent education for a New Zealand sample. *The Elementary School Journal*.

Ryoo, J.H., Molfese, V.J., Brown, E. T., **Welch, G. W.**, & Bovaird, J. A. (Under Review). Examining dynamic factor structures on the Test of Early Mathematics Ability-3: A Longitudinal Approach. *Journal of Psychological Assessment*.

Torquati, J. C., Raikes, H. H., **Welch, G. W.**, Ryoo, J. H., & Tu, X. (Under Review). Investigation of Thresholds of Child Care Quality and Childen's Development. *Child Development.*

Synergistic Activities

Areas of research include the development and application of quantitative methods in the social sciences and program evaluation.

Current work focuses on estimation issues in the application of advanced structural equation modeling (SEM) techniques; this work is currently being implemented in a Layman project examining empirical models of school readiness using the Early Childhood Longitudinal-Birth Cohort dataset.

Has served, or is currently serving, as evaluator on a number of projects, including the *Mountain Prairie Upgrade Partnership-Itinerant* funded by the U.S. Department of Education Office of Special Education Programs.

Has advised students in an academic setting.

Has taught classes on advanced quantitative methods and continues to serve on Masters and doctoral graduate student committees.

Collaborators and Co-Editors

Dr. Laurence Rilett – University of Nebraska-Lincoln
Dr. Helen Raikes – University of Nebraska-Lincoln
Dr. Jim Bovaird – University of Nebraska-Lincoln
Dr. Gwen Nugent – University of Nebraska-Lincoln
Dr. Bruce Frey – University of Kansas
Dr. William Skorupski – University of Kansas
Dr. Jean Hall – University of Kansas
Graduate Advisors:
Dr. Suzanne Lane – University of Pittsburgh
Dr. Clement Stone – University of Pittsburgh
Dr. Kevin Kim – University of Pittsburgh (Dissertation Committee Chair)
Dr. Steve Bieber – University of Wyoming (Masters Committee Chair)

Graduate Committee Service

Adam Collins – University of Nebraska-Lincoln (Dissertation Committee)
Frances Chumney – University of Nebraska-Lincoln (Dissertation Committee)
Houston Lester – University of Nebraska-Lincoln (Dissertation Committee)
Mary Krogman – University of Nebraska-Lincoln (Dissertation Committee)
Xiaoquing Tu – University of Nebraska-Lincoln (Dissertation Committee)
Angela Murray – University of Kansas (Dissertation Committee)
Jorge Carvajal – University of Kansas (Dissertation Committee)
Sally Fan – University of Kansas (Dissertation Committee)
Jason Slimon – University of Kansas (Dissertation Committee)
Mao Shung – University of Kansas (Dissertation Committee)
Terry Cooper-Swanson – University of Kansas (Dissertation Committee)

TACT GRANT EQUIPMENT LIST

MCC Description	PO#	Cost	Qty	Tag #
2008 53 Foot Box Refer Trailer	263396	23,000.00	1	60161
53' Box Trailer 2015 4000D-X	262970	29,250.00	1	60123
Mid State Utility Trailer	264713	32,120.00	1	60771
Hydraulic Tail Trailer	263641	45,575.46	1	60749
2016 t800 Kenworth CNG Tractor	263147	184,945.00	1	61179
2016 t800 Kenworth Diesel Tractor	263147	133,996.00	1	61180
2016 t800 Kenworth Diesel Tractor	263147	133,996.00	1	61870
Autocar Xspotter Yard Tractor	263553	79,550.00	1	60398
Digger/Derrick Truck	263263	189,692.00	1	60289
2015 CNG Pickup Silverado	263702	38,466.00	1	60740
2015 CNG Pickup Silverado	263284	67,999.54	2	60641-042
CNG Van	265342	30,687.00	1	61272
CNG Mail Van	264181	41,089.85	1	61519
Electric 2015 Nissan w/ Charger pkg.	263617	60,430.00	2	060402-403
Dual poin charging station level 2	263643	20,000.00	8	060387-394
Forklift	263366	18,131.90	1	60352
CNG Conversion Kit	265139	34,455.00	1	061245
Camera & tech. for new trucks	265676	10,908.00	3	061703-705
John Deere Electric Gator	264016	27,999.64	2	60984-085
Electric Utility vehicle gator	263315	25,864.26	2	060324-325

2012 TACT Grant Deliverables and Timeline – Summary Tracking Charts

DELIVERABLES	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12
Priority list for program updates												
Identify Interim Project Lead												
NCATC report with industry recommendations												
Preliminary schedule of training, site visits												
Develop, pilot, adopt outreach resources												
Participant training												
Purchase equipment, supplies for training												
New stackable credential(s) designed												
Hire administrative, faculty positions												
18 month training schedule												
Hire additional over-the-road trainers												
Faculty, industry, training												
Job Fairs (5 Total)												
Project website plan												
Website launched, maintained, expanded												
Simulation, scenario development plan												
Develop simulations/scenarios (6 total)												
Pilot simulations, scenarios												
Publications of project findings (2)												
Presentations of project best practices (2)												

PARTICIPANT OUTCOMES	Year 1		Year 2		Year 3		Total	
	#	%	#	%	#	%	#	%
Unique Participants Served	50	100	80	100	120	100	250	100
Participants completing program of study	45/50	90	70/80	88	106/120	88	221	88
Retained in TACT or other program of study	5/50	10	7/80	9	9/120	8	21	8
Participants completing credit hours	48/50	96	70/80	88	110/120	92	228	91
Participants earning credentials (< 1 year)	45/50	90	70/80	88	110/120	92	225	90
Completers enrolled in post-TACT training	20/45	44	20/70	29	40/106	38	80	36
Completers employed	42/45	90	60/70	86	90/106	85	192	87
Participants retained in employment	40/42	95	57/60	95	86/90	95	183	95
Incumbent post-training wage increases	5/5	100	10/14	71	15/21	71	30/40	75
Average 6 month earnings			$15,000		$16,000		$15,500	

2012 TACT Grant Deliverables and Indicators (Oct. 2014 progress check)

DELIVERABLES	STATUS	INDICATORS
Priority list for program updates	x	Written list of prioritized program update needs (equipment, faculty training, curriculum, etc.)
Identify ~~Interim~~ Project Lead	x	Included in Q2 report to USDOL
NCATC report with industry recommendations	x	Written report provided by NCATC, including industry recommendations for program improvement
Overarching industry-informed vision, mission, infrastructure, message	x	1. vision, mission, values (complete) 2. message and infrastructure in works
Preliminary schedule of training, site visits	x	Written schedule drafted with training topics, proposed trainers, sites, key audience(s)
Develop, pilot, adopt new outreach resources (MindMixer)	x	1. Written plan, including outreach priorities 2. Samples of new resources provided to USDOL
Participant training	x	Colleague database records of training and participants
Participant forms, project procedures	x	1. Participant files 2. Director e-files of project procedures
Purchase equipment, supplies for training *Pending USDOL approval and MCC bid process*	IP	1. Written list of priority equipment, supplies 2. Inventory list of supplies and equipment
New stackable credential(s) designed *Pathway is designed, not approved for inclusion in MCC catalog*	IP	1. Credential pathways provided to USDOL 2. Credential pathway included in MCC catalog
Hire administrative, faculty positions *Director hired. Utilizing current faculty.*	x	1. Job descriptions developed and posted 2. MCC board minutes reflect official hiring
18 month training schedule *All related to CNG: Orientation/safety* *Conversion – CNG Maintenance* *Driver Training*	x	1. Written schedule provided to USDOL, including topics, trainers, and sites 2. Training schedule, registration information on MCC website
Hire additional over-the-road trainers	-	Faculty roster and training schedule include names of new OTR trainers
Faculty, industry, training *Ongoing*	x	Sign in sheets include training topic, site, and date, and participant names and affiliations
Job Fairs (5 Total)	x	1. Written schedule of job fair sites, dates 2. Sign-in sheets of businesses and job-seekers, per job fair
Project website plan	IP	Written plan include content and specifications

Project SharePoint for collaboration	x	Screen shot of SharePoint site, contents
Website launched, maintained, expanded	IP	Website link, page snapshots provided to USDOL
Simulation, scenario development plan (includes video segments) *Content outline developed, scripting underway, date set for on-site video capture, prototype under development*	x	Written plan of priority simulations/scenarios to be developed (objectives, content, format, etc.)
Develop simulations/scenarios (6 total)	x, IP	Website link and summaries provided to USDOL
Pilot simulations, scenarios	x, IP	1. Written plan for pilots (sites, dates, etc.) 2. Written summary of pilot findings
Publications of project findings (2)	-	Two 4-5 page articles submitted for publication and provided to USDOL
Presentations of project best practices (2)	-	1. 1 page summary of presentations provided to USDOL (presenter, site, date, description) 2. Web link provided to access presentation materials
Deliverables listed in shaded rows were not included in the original work plan. They were added to support successful project implementation.		

Topics and Methods of Industry Evaluation of MCC Transportation Training	
Topic of Assessment	Methods and source of data for industry feedback
Baseline Program Needs	Strategic planning session
Content and delivery of four day CNG workshops	Workshop evaluation, pass rates of industry certification exams, small group face-to-face debrief following training
Relevance and sufficiency of industry certifications offered	Advisory group feedback on criteria for skill-based certifications, industry surveys
Effectiveness of assessments for skills and credentials	Focus group feedback following industry review of and/or participation in assessments
Preparedness of students in MCC Transportation programs	Surveys, input gathered during advisory group meetings, interviews with employers
Curriculum maps of content for new MCC training	Focus group feedback, individual follow-up interviews
Training equipment	Surveys, advisory meeting input, follow-up interviews
Training facilities	Surveys, advisory meeting input, follow-up interviews
Faculty skills and credentials	Surveys
MCC role in working relationship with industry	Surveys, advisory meeting input, focus group
MCC responsiveness to industry workforce needs	Surveys, advisory meeting input, focus group, interviews
Overall satisfaction with MCC Transportation training	Surveys, advisory meeting input, focus group