



**Metro Denver Regional Partnership  
Quarterly Narrative Progress Report  
Submitted January 31, 2008**

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## SECTION I: GENERAL GRANT INFORMATION

### A. Grant Identification

**Grantee:** Colorado Department of Labor and Employment on behalf of the Metro Denver Region

**Name of Project:** *Growing our Own: A Model for Reducing Dependence on Imported Skills*

**Grant Agreement Number:** WR-15401-06-60; CFDA #: 17.261

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## **B. Summary of General Grant Activities**

*This narrative section is an important part of each report summarizing that quarter's activities including a general overview of project progress and results, new developments, promising innovations, and resolution of previous issues and challenges identified in the previous quarter(s).*

### **New Developments**

#### **Workforce Board of Metro Denver**

The Workforce Board of Metro Denver held a one day retreat in November 2007 to review its progress during the first full year as a WIRED partner and Workforce panel convener, and to establish an action plan for 2008. The Board revisited the organizational structure and began to develop bylaws to support the structure. The Board is scheduled to discuss and adopt the bylaws in January 2008. Work groups have been identified to continue the refinement of the 4 Workforce Board goals and the development of an action plan to guide its work in the coming year, including a plan to expand and strengthen partnerships with educators, industry and economic development groups.

#### **Small Business Development Center Network**

Kelly Manning, WIRED's Small Business panel convener, has worked with Development Research Partners to develop a proposal for an industry cluster survey targeted at small business in WIRED's target industries. The process will take place January 30<sup>th</sup> through March, and result in a white paper that will be presented to the WIRED Leadership Council. The white paper will be used to develop small business & entrepreneurship curriculum.

The Small Business Development Center Network is also in the process of compiling a Resource Guide which focuses on WIRED target industries. WIRED industry coordinators are contributing resource information for their respective industries. 60,000 copies of the Resource Guide will be published in March.

#### **Career and Technical Education**

During the fourth quarter of 2007 the WIRED IT industry focus was on career and technical education (CTE). In early October, Gay Gilbert from the U.S. DOL connected Metro Denver WIRED Initiative partners to a group that was planning a visit to a CTE Training event in Austin, Texas. Tim Taylor, President of [Colorado Succeeds](#) and Laura Hahn, IT Coordinator for the Metro Denver WIRED Initiative, attended a three-day training session convened for two Alaskan high school teams made up of administrators and teachers exploring the possibilities of implementing a CTE program in their respective schools.

This trip included training and planning sessions with consultants, a tour of [Lake Travis High School's CTE programs](#), and an advisory meeting with teachers, students, parents and business partners, and a review of the Project Lead the Way Program.

A direct result of this trip is a publication written and distributed by Tim Taylor of Colorado Succeeds: [Engineering the Future: Career and Technical Education Redesigned for Today's Students](#). This report is based on research from the Center for Education Policy Analysis (CEPA), School of Public Affairs, University of Colorado at Denver/Health Sciences Center, and the Metro Denver WIRED Initiative assisted with printing costs.

Colorado Succeeds is a non-profit, non-partisan coalition of business leaders committed to improving education for workforce development and economic growth. The organization was founded on the premise that the business community has the obligation, opportunity and capacity to improve the state's education system to prepare every student to succeed in a competitive international environment. The report examined the state of career and technical education for secondary school students in Colorado. The report found that CTE has the potential to make a real difference for students and that Colorado should be investing in this approach to education. The report also identified some challenges. State policies often squeeze out CTE at the high school level by prioritizing academic preparation for four-year liberal arts college programs. Smaller and more isolated schools and institutions face problems in funding CTE, finding qualified staff, and developing industry partnerships. The current state governance structure has allowed the Colorado Department of Education to abdicate its role in promoting and improving CTE. Many principals, counselors, families and students are not aware of the career and educational opportunities available in CTE.

#### Workforce Innovation Grant

The major activity of WIRED Industry coordinators and staff in the fourth quarter was the Workforce Innovations Grant RFP process, including a pre-proposal bidders conference (and networking session); receipt and response to Letters of Intent to Propose; receipt and technical review of proposals; and facilitation of the review process (including recruitment of reviewers, drafting reviewer instructions and a new review form, and revision of the score recording/ranking template that had been used in the previous RFP process). Grants are expected to be awarded in January 2008.

#### Career Attitude Polling

RFPs for student career attitude polling at both [high school](#) and [community college](#) levels (the latter including workforce system participants) were also released in this quarter and the bioscience coordinator participated in interviews with potential bidders (the equivalent of a pre-bidders conference), and prepared scoring materials, a review process, and tabulation of the reviewer's completed scoring forms. It is expected contracts will be awarded and polling will begin in Q1 2008.

#### Seattle Policy Academy

The following delegation from Metro Denver attended the WIRED Policy Academy in Seattle:

David Ford, Denver Office of Economic Development  
Ledy Garcia-Eckstein, Metro Denver WIRED Initiative  
Chris Kline, Adams County Workforce & Business Center  
Vicky Lea, Metro Denver WIRED (Aerospace)  
Jerry McCarthy, Metro Denver WIRED (Bioscience)  
Kathy Otten, Colorado Department of Labor and Employment  
André Pettigrew, Denver Office of Economic Development  
Janice Rooney, National Renewable Energy Lab\*  
Joan Smith, Red Rocks Community College (speaker)

Prior to the Academy, several members of the delegation visited Edmonds Community College (ECC) to discuss issues and best practices for education-workforce-industry collaboration in aerospace and advanced materials manufacturing. This very useful session also included several of ECC's workforce and industry partners, and the California Space Authority. Vicky Lea,

aerospace industry coordinator, gave a presentation about the [aerospace industry's workforce needs and issues in the Metro Denver Region](#). The visit concluded with a tour of the NSF Materials Science Resource Center at ECC.

ECC is one of eleven education institutions nationwide that is a [SpaceTEC](#) Education Center. SpaceTEC is the National Science Foundation's Center of Excellence for Aerospace Technical Education and offers Certified Aerospace Technician Training, a program that the Community College of Denver (CCD) is currently exploring. Mel Cossette, who heads up the SpaceTEC program at ECC, is happy to discuss ECC's experience of SpaceTEC. With Vicky Lea facilitating the introduction, CCD plans to contact Ms. Cossette in January.

During the Academy, Jerry McCarthy, bioscience coordinator, gave a presentation on the WIRED Bio Interest Group (BIG) as part of the Academy agenda. BIG, one of two WIRED communities of practice, had its second face-to-face meeting and recruited new members during the Academy.

\* At the request of US DOL (Linda Fowler) Janice Rooney participated on the Academy's Clean Energy Community of Practice panel.

Immediately following the Academy, Vicky Lea attended the National Educators Workshop (NEW) 2007 (organized by Edmonds Community College) in Lynnwood, WA. Sessions and discussions included planning for future workforce needs in advanced manufacturing, aerospace and nanotech; challenges facing education in addressing those needs, and updates on programs such as Project Lead the Way. Vicky Lea has volunteered to assist the planning committee of NEW 2008.

#### Meeting/Outreach Activity

WIRED industry coordinators participated in many industry/education/workforce-related meetings and activities throughout the quarter. Key activities include:

##### Aerospace and IT:

- Met with Woolpert, Inc. (a geospatial technology and applications company) to discuss workforce needs for projected company expansion. Useful feedback was received regarding skill, qualification and experience requirements for geospatial workers – on both technology development and application sides. Woolpert reports a lack of education and training courses (locally and nationally) that adequately combine the necessary technology and application components of the geospatial sector. WIRED will address this feedback by promoting these needs and issues to its education and workforce partners.
- Attended the Colorado Space Roundup, an event organized by the Colorado Space Coalition and the Colorado Space Business Round Table (CSBR). Sessions focused on entrepreneurship, education, congressional updates and panel discussion with some of Colorado's prime aerospace contractors. Discussed with CSBR (event organizer) the opportunity to present a "WIRED Session" at next year's event.
- Met with Colorado Nanotechnology Alliance (CNA) to discuss WIRED's participation and assistance with CNA's program committee. Proposed activities include a Future of the Nano Workforce event, and other education seminars.
- The aerospace coordinator met with the Colorado Springs coordinator of the Federation of Galaxy Explorers (FOGE), an after-school STEM education project for students focusing on

aerospace. FOGE is hoping to expand its operations into the Metro Denver area, and WIRED is assisting with education and industry contacts.

- The aerospace industry coordinator met with Dr. Ren Su, Dean of Engineering at CU Denver to discuss aerospace industry workforce needs and issues, and the possibility of CU's labs being made available to local companies for technician training. Feedback from WIRED aerospace contacts on this issue will be forwarded to Dr. Su.
- The aerospace industry coordinator met with Dr. Kris Enright, Executive Director of PACE ([Professional Association of Colorado Educators](#)), a non-union, non-partisan professional educators association. PACE is currently looking at ways to increase training and professional development opportunities for CO teachers that relate directly to real-life, hands-on experience in our target industries (e.g. workshops, externships etc). Another priority for PACE is tackling inaccurate/outdated career perceptions by communicating to teachers the many quality STEM career opportunities for students. Dr. Enright indicated PACE's membership would be happy to participate in WIRED's upcoming polling exercise.
- At the National Network of Sector Partners Conference, the aerospace industry coordinator made contact with Dr. Mike Campbell of the UK's Sector Skills Development Agency, which is responsible for establishing, managing and developing a network of 25 employer-led Sector Skills Councils (SSCs) across the UK. SSCs identify employer skill needs and works with providers to meet those needs. Prof. Campbell provided contact details for the director of SEMTA (the Science, Engineering, Manufacturing Technologies SSC), for WIRED to follow-up regarding further best-practices to share with the Metro Denver region.

#### Bioscience:

- The bioscience industry coordinator met with Dr. Karen Anderson of DU Daniels School of Business to discuss the employment issues of older workers in high tech industries (i.e. the challenge of connecting the older worker).
- The bioscience industry coordinator met with Dr. Robert Applegate of Colorado School of Mines regarding graduate and undergraduate placement, coop and internship programs, and processes for providing networking assistance to students to help them find employment locally (how to connect graduating students locally and also of track them in first jobs away from Colorado with the goal of bringing them back to our industry cluster).
- The bioscience industry coordinator met with Dr. Gillian Ivers-Read of Pharmion to discuss industry support for bioscience education and regulatory affairs class offerings. They discussed the possibility of creating a 'portable' regulatory affairs class, with teachers from the industry, which can be offered serially, at various higher education campuses in the region and on-site for incumbent workers, to overcome the locality problem of having one class available only at one location, inconvenient geographically to many potentially interested individuals.

#### Energy:

- In late October, the energy industry coordinator graduated with the inaugural class of NREL's Energy Execs program, a six-month immersion program on renewable energy technologies.
- The energy industry coordinator attended the 27th Annual Oil Shale Symposium at the Colorado School of Mines to better understand opportunities and challenges in developing this unconventional resource.
- The energy industry coordinator delivered [a presentation on mapping the industry](#) at the National Network of Sector Partners conference in October.

- The energy industry coordinator attended the 20th Annual Renewable Energy Growth Forum presented by the National Renewable Energy Lab, and helped host the dinner for the Clean Energy Alliance at the end of the conference.

### **Promising Innovations**

Metro Denver WIRED hosted two very successful events this quarter that will be adopted as standard practice moving forward:

Grantee Networking Event: In October, WIRED hosted a networking event for all recipients of JumpStart Grant funds. The event included an update session on required reporting practices and procedures, followed by presentations by each awardee on their respective JumpStart projects, and concluded with a networking session. Feedback from participants overwhelmingly supported this format as an opportunity to learn from, and connect to, other WIRED grantees. There is already evidence that some programs have expanded due to this interaction (i.e. Community College of Denver's inclusion of MESA in its aerospace curriculum development and dissemination).

Pre-Proposal Conference: In October, WIRED also conducted a pre-proposal conference for those interested in submitting applications for funding under the WIRED Innovation Grant. This meeting covered technical information (e.g. grant guide, fiscal guidelines, monitoring, etc.), and included a new networking activity in response to feedback received during the JumpStart Grant pre-proposal meeting. Participants at the JumpStart meeting wanted an opportunity to meet other people in the room for potential partnerships. The networking was a hit, with participants staying long past the end of the meeting, and several new partnerships formed (e.g. Community College of Denver and Shades of Blue).

### **Resolution of Previous issues and challenges:**

Contracting delays related to the JumpStart subgrants have been resolved and the three remaining subcontracts were signed in this quarter. We have been working with the City and the State to streamline the contracting process and expect to have fewer issues in the next RFP round.

### **C. Status Update on Strategic Partnership Activities**

*This narrative section of the report captures critical aspects of your partnership activities during the implementation of your grant. Please describe how the partnership is working together to adopt a comprehensive workforce and economic development approach for transformation (as outlined in the SGA) - document the dynamic growth and development of your partnership, rather than list every partner meeting or communication. It should also describe the partnership activities related to measuring performance and other outcomes.*

*The provision of this information allows you to reflect critically on your own partnership and contributes to broader discussions among grantees on partnership development and management. This section may: (1) Discuss how partners have been engaged during the current phase of the project; (2) Outline specific roles and contributions of each partner during this quarter; (3) Identify any challenges encountered/resolved in the development and management of the partnership; and (4) Report new partners that may have been brought into the project.*

#### **WIRED Governing Structure**

During this quarter it was determined that it would be beneficial for the three primary fiscal partners for the Metro Denver WIRED Initiative – senior level executives from the Colorado Department of Labor and Employment, the Denver Office of Economic Development and the Metro Denver Economic Development Corporation – to begin meeting on a regular basis to guide and facilitate a strategic and transformational dialogue for the regional initiative. These new monthly meetings began informally at the Leadership Council retreat held in September 2007, and have continued on a more formal and structured basis since October. They usually involve the input of the WIRED Executive Director and the City and State’s WIRED project/grant managers. A primary purpose for these meetings is to review and maintain a common vision among the three partners and to confer on strategic, policy and high level operational matters as well as build and strengthen the regional partnership among the three entities responsible for executing the Metro Denver WIRED mission of ‘growing our own.’

#### **Education**

In the final quarter of 2007, activities were primarily carried out by Center for Education Policy Analysis (CEPA), School of Public Affairs, University of Colorado at Denver/Health Sciences Center (CEPA), the Higher Education Panel having concluded its activities. Highlights included publication of two favorably-received reports with WIRED support: the aforementioned [\*Engineering the Future: Career and Technical Education Redesigned for Today’s Students report\*](#), and [\*Learning About Science, Technology, Engineering, and Mathematics: Assessing the State of STEM Education in Colorado\*](#). The findings in these reports support discussions and recommendations of the Metro Denver WIRED panels and Leadership Council recommendations. Metro Denver WIRED supported printing and dissemination of the report to practitioners and policymakers.

[\*Learning About Science, Technology, Engineering, and Mathematics: Assessing the State of STEM Education in Colorado\*](#), was created as a kick-off to Colorado’s STEM education reform agenda, spearheaded by Governor Ritter’s Office of Policy and Initiatives and supported by the National Governors’ Association. The report provides the National Governors’ Association and the Colorado community with a thorough understanding of the state of STEM education in Colorado. The report compares Colorado’s instructional STEM content to that of other states; examines Colorado students’ achievements in math and science; illuminates the role of STEM education in Colorado’s economic future; and, addresses where recommendations have fallen short in the past and where future progress is needed.

Additionally, during the past quarter, CEPA staff has:

- continued to identify and recruit Higher Education panelists, including academics and other experts from community and four-year colleges and universities for Metro Denver proposal reviews;
- collected the first round of the network analysis from the field and begun analyzing data;
- worked with the K-12 panel to assure seamless education system input;
- included WIRED as partner in implementation planning and monitoring of Colorado STEM Coordinating Center (successful grant proposal from Governor Ritter's Office of Policy and Initiatives to the National Governors' Association);
- represented Metro Denver WIRED at National Governors' Association Center for Best Practices at a national STEM Conference; and
- maintained the presence of Metro Denver WIRED in various activities, *e.g.*, through staffing of Governor Ritter's P-20 Council, work with Western Interstate Commission on Higher Education.
- CEPA efforts have helped increase WIRED's geographic influence both in Colorado and nationally.

### Industry and Workforce Collaboration

The Workforce Board of Metro Denver continues to develop and/or expand partnerships that foster a regional relationship by creating programs that integrate workforce development, economic development and education. Examples of partnership activity this quarter include:

- The Workforce Board of Metro Denver expanded the partnership between Weld, Boulder and Larimer County workforce regions to include the Adams County workforce region in the Multi-Industry System Technician (MIST) Program. The Workforce Board of Metro Denver is working with local representatives from these regions to expand the number of energy and manufacturing employers who will participate in the program. The regional workforce board, four local workforce regions, three local school districts, CTE staff from the local school districts and two community college systems and six energy and manufacturing employers collaborated in the developed of a proposal for WIRED Innovation grant funding. Attendees expressed interest in continuing to meet and discuss and develop solutions to skills shortages in both industries.
- While the energy sector has been the primary target industry for the Workforce Board of Metro Denver, this quarter they have begun to build their relationship with the Bioscience Sector. Under the leadership of Jerry McCarthy, WIRED Bioscience Coordinator, several representatives of the Workforce Board of Metro Denver meet with the Executive Director of the Colorado Bioscience Association to begin discussions on building a partnership and develop systems and programs that address the immediate and future pipeline of workers in that industry.
- Discussions have begun on a partnership between Tri-County, Arapahoe/Douglas and Denver workforce regions to pilot the Colorado Career Readiness Certificate for the Metro Denver workforce region. This pilot will establish consistency in career readiness standards, performance and accountability when marketing this certificate.

Additionally, WIRED industry coordinators have participated in the following workforce activities during the past quarter:

- Pikes Peak Workforce Center (PPWC): aerospace, bioscience and IT coordinators met with PPWC staff and education contacts to discuss Metro Denver WIRED activity and share best

practice. This meeting led to the aerospace, bioscience and energy industry coordinators participating in a series of facilitated strategic planning meetings with the Pikes Peak Workforce Center, specific to their respective industries.

- The aerospace industry coordinator met with John Wilson of PPWC to provide overview of aerospace sector in the Metro Denver region.
- The aerospace industry coordinator met with JoAnn Miller, Youth Employment Coordinator at Workforce Boulder County (WfBC), to discuss how WIRED can assist with WfBC's Summer Employment and Enterprise Development (S.E.E.D) project. WIRED industry coordinators shared asset map information, assisted with development of a promotional flier for S.E.E.D. and have agreed to promote the S.E.E.D program to WIRED industries in the Boulder area.
- The IT and aerospace industry coordinators met with Mary Ann Roe, Colorado Department of Labor and Employment to discuss approaches to career ladder/lattice development for STEM industries.
- WIRED staff attended Arapahoe/Douglas Works! Workforce Investment Board meeting in October.

### IT Partnership Activity

During the past quarter, the IT industry coordinator has facilitated several new partnerships among WIRED Initiative partners:

- Arapahoe/Douglas County Workforce has partnered with the [Douglas County Education Foundation](#) to develop a Career and Technical Education (CTE) program within a new high school. (See [attachment](#) for courses.)
- A meeting with Regis University personnel from their Metro Denver WIRED JumpStart Grant program and staff from OpenWorld Learning took place in October. The Regis University JumpStart program focuses on an IT / Business degree while OWL is teaching grade school kids software programming, reading, writing, math and leadership skills using a MIT program.
- Metro Denver WIRED JumpStart recipient JAG (Jobs for America's Graduates) has partnered with several Metro Denver WIRED IT Panelists who are presenting IT career opportunities to students within various high schools. Micki Nelson, CIO for MWH Global, Su Hawk, President of CSIA and Barbara Bauer, President of Global Sight Partners, are some of the presenters.

### Regional Partnerships

#### **National Governors' Association STEM Grant**

The NGA STEM grant presented Denver Metro WIRED to seven states, plus the staff of the National Governor's Association Center for Best Practices and its technical advisory committee. Several of the NGA states are members of WIRED cohorts and the possibility for synergy exists as the NGA programs start to ramp up.

#### **P-20 Education Council**

Through the work of Governor Ritter's P-20 Council, policy recommendations that will improve STEM education in Colorado were made to the Legislature. These recommendations included improving pathways for students from high school to post-secondary education, to address K-12 teacher shortages in STEM through alternative compensation systems and increase the capacity of state education data systems.

### **Colorado Energy Coalition**

The WIRED energy industry coordinator now provides administrative support to the Colorado Energy Coalition (CEC) which is housed at the Metro Denver Economic Development Corporation. The CEC is a partnership between the State of Colorado, the Denver Metro Chamber of Commerce/Metro Denver Economic Development Corporation, executives representing all sectors of Colorado's balanced energy economy, higher education institutions, leaders in economic development, and other stakeholders.

The Coalition has recently adopted its formal Book of Asks (a "wish list" of legislative action items), one of which is to: "PROMOTE A SKILLED WORKFORCE FOR THE ENERGY INDUSTRY. Maintain the WIRED Initiative as the vehicle for communicating at the federal level about training programs for potential workers in all energy sectors and at all education levels."

### **Visit of Utah State Science Advisor**

As an outgrowth of contact from last July's Workforce Innovations Conference in Kansas City and subsequent efforts at best practice sharing through the WIRED Bioscience Innovation Group, Dr. Tami Goetz, the Utah State Science Advisor and Utah WIRED region lead came to Denver for an extended visit from 10/23 to 10/26 to share information about the 2+2+2 bioscience education program she had started at Salt Lake City Community College, a program that extends from junior year of HS all the way to a four year degree. The Utah program also includes innovative use of campus-based not-for-profit CRO (Contract Research Organization) that provides hands-on internship opportunities for students at all levels from HS to four-year program.

While in Colorado, Dr. Goetz attended and presented at several meetings, including a Colorado Bioscience Association BioBreakfast, a lunch meeting at the Aurora Community College Biotechnology Department, a Metro Denver Chamber reception in her honor, a meeting of educators at the Larimer County Workforce offices, a meeting at the Longmont Economic Development Council offices, and meetings with a representatives of the Governor's Office of Economic Development and the Daniels Fund, a foundation which makes education-oriented grants in Colorado, Utah, Wyoming, and New Mexico. Dr. Goetz also had dinner meetings with Ledy Garcia-Eckstein and with a small group of individuals from local higher education, K12, and tech transfer organizations.

### **New and "Emerging" Partnerships**

### **Creative Careers Task Force**

CEPA has begun to participate in a Creative Careers Task Force to bring together stakeholders, including workforce development, in the Creative Careers arena (employers, educators, practitioners) in order to study the "pipeline" for creative careers in Colorado and to collectively take steps to identify and address needs in preparing the 21<sup>st</sup> century Creative Workforce. While the Creative Arts are not within Metro Denver WIRED's identified industry clusters, they do fall within Governor Ritter's priorities (advancing the tourism industry). At least nine states have promoted Creative Economy. CEPA's participation on this taskforce brings Metro Denver's WIRED lens.

## COMSTEC

The aerospace industry coordinator has been invited to join the Colorado Math, Science and Technology Education Coalition (COMSTEC) – a member coalition of NASSMC (the National Alliance of State Science and Mathematics Coalitions). COMSTEC’s mission is to “serve as an intermediary in creating partnerships to promote systemic, continuous and sustainable improvement of STEM education in Colorado, and leverage these partnerships to enhance the 21<sup>st</sup> Century workforce”. COMSTEC membership will create opportunities to connect and leverage partnerships between WIRED industries and local STEM education initiatives. WIRED will also be closely involved in COMSTEC’s fall STEM conference - STEMAPALOOZA – which will present a “living asset map” of the region’s STEM programs, initiatives, research and partnerships.

## Colorado Department of Education’s *Forward Thinking Plan* & the Colorado Legacy Foundation

In September 2007, Colorado Commissioner of Education Dwight Jones released the Colorado Department of Education’s (CDE) *Forward Thinking Plan: The Future of CDE*. One of the key aspects of the plan centers on the critical partnership that must emerge between business and the state’s education system specific to the development of Colorado’s future workforce needs. This is especially true for the STEM fields.

To that end, one of the objectives within the Forward Thinking Plan is the creation of a new position within CDE and the development of a stand alone (but aligned) non-profit called the Colorado Legacy Foundation (CLF) to accelerate these important alignment issues between business and education. Full background and information about the foundation, its work and proposed initiatives can be accessed [by clicking here](#).

Metro Denver WIRED’s Executive Director and Industry Coordinators have met with Kelly Leid, CDE’s Associate Commissioner Strategic Partnerships to discuss possible partnership opportunities between WIRED and the Colorado Legacy Foundation. These include assistance with:

- introductions to senior level business leaders in the STEM fields to help build the Foundation’s initial board of trustees;
- developing a web-based tool between CDE and STEM field businesses/business leaders to provide a dynamic way for CDE to solicit, on a ongoing basis, evolving industry skill information, cutting edge training information that industries are using to prepare their workers, and teacher/industry connections to continually share the latest emerging technologies information with K-12 teachers;
- hosting “business breakfasts” to engage business leaders in focused conversations about their concerns about how Colorado is preparing students for current and emerging workforce needs and discuss how they can get involved in supporting a dynamic P-12 education delivery system; and
- supporting the development of a targeted best practices teacher recruitment campaign, in partnership with other key stakeholders, to attract a new generation of K-12 teachers interested in the STEM fields.

These suggested partnership opportunities closely reflect the recommendations developed by WIRED panels, and other WIRED research. As WIRED moves forward with implementing these recommendations, it will work closely with CDE to identify specific partnership activities with the CLF.

## **Colorado WIN Partners, University of Colorado Denver**

In October 2007, Judy Emery from Colorado WIN Partners at the University of Colorado Denver began attending a number of Metro Denver WIRED meetings and activities. This was a result of receiving funding from the US Department of Labor to assist Colorado's WIRED Initiative with incorporating the disability perspective in all of its goals and activities ([See attached abstract dated 1/08/08](#)). Ms. Emery currently attends Metro Denver WIRED weekly staff meetings. In November, she presented and participated in the Metro Denver WIRED "Jumpstart" meeting where all of the Jumpstart grant recipients attended and discussed ways that technical assistance and training could be provided to them regarding serving underrepresented populations through their projects. There was also information shared regarding conducting outreach to this population. In December, Ms. Emery was also designated as a reviewer and reviewed a number of the Workforce Innovation Grant RFP's submitted under the WIRED Initiative.

### Update on Strategic Partnerships Activities for JumpStart Grant Recipients:

#### **1. Community College of Aurora (CCA)**

Partners: Colorado BioScience Association, University of Colorado at Denver and Health Sciences Center, Fitzsimons Redevelopment Authority, A/D Works!, Adams County Educational Consortium, Aurora Economic Development Council, Aurora Chamber of Commerce, Metro State College, Aurora Public Schools, Denver Public Schools, Cherry Creek Public Schools, Jefferson County Public Schools, Colorado Community College System.

#### **Industry:**

- Partnership is being explored with the Labs at Bonfils to meet their employee training needs – meetings have taken place during October-December, 2007 and there are plans for more meetings in January and for involvement of Bonfils with the WIRED DVD.
- The Colorado Bioscience Association (CBSA) continues as a lead partner. The CCA WIRED Outreach Coordinator and CCA Faculty member Todd Bergren, Ph.D. were invited to join the CBSA Education Committee and have attended several meetings. In addition to providing membership to the high-school teachers in the CCA WIRED project, CBSA coordinated the donation of two tables at the Biowest luncheon for high-school students who were chaperoned by the Outreach Coordinator from CCA.

Both Fitzsimons Redevelopment Authority and the University of Colorado at Denver and Health Sciences Center (who provided sites for teacher field trips during the Spring and Fall, 2007) have stepped forward to provide contacts for scientist interviews for the DVD.

#### **Workforce:**

- CCA's partnership with AD/Works is developing and expanding. AD/Works has been a partner on a recent proposal to the US DOL for a CBJT grant (not bioscience) and has included the CCA bioscience program as a Regional Targeted Training Academy. While AD/Works and CCA are not new partners in working together, the partnership has been invigorated by participation in the WIRED work.

#### **Higher Education:**

- Metro State College of Denver, which participated in the teacher workshops by providing instructor Dr. Rebecca Ferrell to lecture about a research project, continues to be a strong partner on the grant. As a direct result of the work with WIRED, there are currently plans to expand the research project (wastewater in Mexico) to include several high-school teachers

in future years. Funding is currently being sought to provide transportation and housing to teachers.

### **K-12 Education:**

- District relationships are primarily related to laboratory experiment kit delivery at this point in the grant. All are going smoothly. District science coordinators are being updated on the use of the kits October – December on a regular basis.

## **2. Community College of Denver (CCD)**

### **Metropolitan State College of Denver (MSCD):**

JumpStart into Aerospace (JSA) continues to work with Professor Keith Norwood, Chair of the Aerospace Systems Engineering Technology Department, and Professor Jeff Forrest, Chair of the Aviation and Aerospace Science Department, in a number of different capacities. For example, Norwood and Forrest participate in the advising of pre-aerospace students at the Community College of Denver (CCD). Also, JSA is working with MSCD to develop curriculum applications for Satellite Tool Kit (STK) software, although the STK lab faces continued delays in its completion.

### **North High School:**

Astronomy teacher Jim Moravec works closely with JSA. Moravec actively recruits North High School (NHS) students for the pre-aerospace program at CCD while utilizing Summer Institute curriculum in various applications at NHS. He also works to continually develop curriculum for CCD courses such as Astronomy 102 and Introduction to High Powered Rocketry. Lastly, Moravec has participated in the ongoing Aerospace Engineering High School curriculum project (see “Promising Approaches” below). Of note, two NHS graduates are set to enter the pre-Aerospace program at CCD Spring Semester 2008.

### **Division of Workforce Development:**

JSA has worked hard to improve the efficacy of its relationship with Workforce Development and the WIA programs. The addition of a new Aerospace Coordinator at DWD (Gardy VanSoest) has facilitated this process. JSA is now in communication with the WIA Youth Case Managers spread around Denver. These case managers have produced a number of potential students for the pre-Aerospace program at CCD. JSA is also working with VanSoest to expand the WIA recruitment pool by connecting with WIA Veterans programs.

### **New Partnerships:**

JSA has formed a number of significant new partnerships during the past quarter. More detailed information is included in Section IV of this report.

- JSA has partnered with [SpaceTEC](#) on a project to bring the national standard in certification training for Aerospace Technicians to Colorado.
- JSA has partnered with the **Goodwill Industries Career Exploration program** to reach out to a large number of high school students in the Denver Public Schools (DPS).
- JSA has brought together **Colorado MESA** (Math, Engineering, Science, Achievement), **CAPBES** (Colorado Association of Professional Black Engineers and Scientists), **DPS Career Education Center**, **Wings over the Rockies**, **CCD**, **Metro State**, and **Industry** to work on a curriculum development project. The end goal is a 16 week curriculum that introduces high school students to Aerospace Engineering.
- JSA is coordinating an effort to produce interdisciplinary curriculum between different CCD departments: **Mechanical Drafting**, **Machining**, and Aerospace.

- JSA has worked with **CCD's Pre-Collegiate Program** to recruit 11 high school students with an interest in Aerospace into the PSEO program.

### **3. Council for Adult and Experiential Learning (CAEL)**

Partners: Xcel Energy, United Power, International Brotherhood of Electrical Workers, Local 111, Denver Public Schools, Adams County School District and/or Jefferson County School District, Bismarck State College, and the Virtual High School, Inc.

#### **Xcel Energy & International Brotherhood of Electrical Workers, Local 111 (IBEW 111)**

- CAEL staff continues to meet with representatives from both Xcel Energy and IBEW 111 to establish details for integrating the energy career connection activities for the students involved in the "Light Up Your Future" program. Career connection activities consist of: classroom presentations from the energy experts, electric energy power facility tours and summer student job shadowing program.
- Xcel Energy and IBEW 111 have held on-going career connection planning meetings which will continue throughout the next two quarters in 2008.

#### **United Power:**

United Power staff provided a career connection activity for students at Brighton High School.

#### **Denver Public Schools:**

Both participating DPS schools, West High School and Denver Center for International Studies (DCIS) continued with on-going "Light Up Your Future" partnership activities, i.e., educational online courses, on-site coordinator responsibilities, and career connection activities.

#### **Adams County School District:**

Adams City High School continued with on-going "Light Up Your Future" partnership activities, i.e., educational online courses, on-site coordinator responsibilities, and career connection activities.

#### **Brighton School District 27J:**

McLain Community High School continued with on-going "Light Up Your Future" partnership activities, i.e., educational online courses, on-site coordinator responsibilities, and career connection activities.

#### **Virtual High School:**

VHS continues to be very instrumental in collaborating with CAEL to effectively administer the online course, "Mathematics of Electricity: Careers in Electric Power and other Science, Technology, Engineering and Mathematics (STEM) courses. VHS provided the following:

- Informational webinars for the participating high schools.
- Online site coordinator orientation course for each participating high school.
- Technical and educational support to students enrolled in the program, including full responsibility of the course instructor.

### **New Partnerships formed: Goodwill Industries (Goodwill)**

- Through on-going collaboration and common goals, CAEL and Goodwill are working together to provide high school students with career and educational support, i.e., student self-awareness and goal setting, career exploration, job readiness, and college preparation.
- Goodwill has school-to-work advisors staffed at three of the high schools that currently have the "Light Up Your Future" program (West, DCIS & Adams City high school). Through these common goals CAEL and Goodwill have formed a mutually beneficial relationship.
- CAEL and Goodwill continue to work together in an effort maximize the career connection activities provided by Xcel Energy. Both Goodwill and CAEL have been actively meeting with members from Xcel/IBEW 111 to schedule ongoing career activities for the school year 2007/2008.

**Jobs for America's Graduates (JAG):** CAEL has connected with Afor Nji, Program Manager for the Denver area JAG program. JAG is also a recipient of Metro Denver WIRED funding. JAG has a teacher providing classroom instruction on specific careers at West High School. This teacher spends a week on careers in the energy field. In order to align with both grants and the goals for West High School students, on November 14, 2007, CAEL provided classroom speakers (subject matter experts from Xcel Energy and IBEW 111) to speak to this group of students during the week in which these students are learning about careers in the energy field.

## **4. Denver School of Science and Technology**

Partners: University of Colorado-Boulder, Junior Achievement, Jared Polis Foundation, and HDR Engineering.

- **HDR Engineering:** students worked on projects exploring basic engineering calculations, reviewing plans, and project site visits for bridge projects.
- **Jared Polis Foundation:** students worked on projects including refurbishing computer equipment, installation and troubleshooting of computer systems.
- **Junior Achievement:** students worked on creation of a media database to help in media relations in a non-profit atmosphere.
- **9 new internship partners** have been added this term including: Ashley elementary, Systest Labs; Rose Hospital Midwifery; Presbyterian St. Luke's Medical Center emergency room, Washington Group International Engineering, Denver Dept. of Environmental Health, ViaWest Inc. (IT), Univ. of Colorado Health Science Center Dept. of Anesthesiology, UCHSC Dept. of Cell and Developmental Biology.

## **5. Jobs for America's Graduates (JAG)**

Partners: AIMS Community College, Weld County School District RE-8, Jefferson County School District.

- JAG has developed a partnership with MWH Global, Inc. in Broomfield that has resulted in multiple speaking engagements at Jeffco Schools. MWH Global will be offering one paid internship in its IT department for a JAG student from Jeffco.
- JAG is exploring partnership opportunities with Vessels Coal Gas in Denver.
- Members of CSIA have expressed interest in possible internship and job shadow opportunities.

## 6. Colorado Mathematics, Engineering, Science Achievement (MESA)

Partners: Adams 12 and 14 School Districts, Weld County RE-1, Thompson R2-J, St. Vrain Valley School District, NREL, CU Boulder College of Engineering, MEP, WIEP, CSU College of Engineering, WMEP, CSM and MEP, AeA, LASP, CESC, Larimer County WFC.

### Higher Education Institutions:

- *Colorado School of Mines (CSM)*: MESA is in the planning stages for MESA's Spring Fling for High Schools students across the state.
- *Colorado State University (CSU)*: Discussions are in progress with the Information Science and Technology Center at CSU (which is seeking ways to reach high school students for their pre-collegiate program) and how the partnership can benefit both organizations. Also the CSU MESA director, Melanie Haas, continues to meet with Research and Develop Center on a regular basis.
- *University of Colorado at Boulder*: Multi-Cultural Engineering Program hosted MESA's "Fall Fling", November 1<sup>st</sup> and 2<sup>nd</sup>, which over 280 students and sponsors attended.

### Research Labs

- *NREL*: MESA continues to discuss renewable energy WEBINARs for teachers within the WIRED region, and have several meetings scheduled. If for some reason NREL is unable to deliver the WEBINARS, MESA has reviewed where funds can be deployed for other uses within the grant.
- *American Council of Engineering Companies of Colorado (ACEC)*: MESA is discussing how the organization can help with funding the CU/CSU centers after the grant period. This is still in the development stages.
- *Laboratory for Atmospheric and Space Physics (LASP)*: LASP is continuing to offer Project Spectra to middle schools and high schools in the WIRED region.
- *Colorado Energy Science Center (CESC)*: CESC is in the final stages of developing the high school home energy curriculum, planned for completion by the middle of February 2008.

**Workforce Centers:** MESA is strategizing ways to have MESA juniors and seniors register on the workforce website. Current number of students entered into MESA's database for AY07-08: 84 juniors and 96 seniors. Some suggested ideas:

- Offer some type of incentive (via budget amendment)
- Make registration apart of senior forms
- Personal contact via phone
- Contact via phone/email and have teachers contact students
- Provide names to WIRED for tracking

### Other Partners

- *Denver Indian Center*: met in October to brainstorm how to employ the MESA concept in a community center. Several discussions followed the initial meeting and it may be best to start up Spring 2008.
- MESA is providing its curriculum expertise and experience to help Colorado Community College develop their aerospace curriculum. The curriculum when finished will benefit students in MESA, CABPES and Wings Over the Rockies. MESA will continue to lend its experience into the spring 2008 quarter.

## **7. Red Rocks Community College (RRCC)**

Partners: Jefferson County Schools, Denver Public Schools, CEC, Jefferson County Workforce Board, Colorado School of Mines, Colorado Energy Science Center, E-Star Colorado, Council for Adult and Experiential Education, Colorado Association for Manufacturing Technologies, Links for Learning, Rockies Alliance for Process Technology (RAPT), Suncor Energy, Xcel Energy, Metro Wastewater Reclamation, Coors Brewing Co., Shell Oil, Marathon Oil, BP America.

### **School Districts**

- Jefferson County Schools: Curriculum development and course Instruction in four high school classrooms.
- Denver Public Schools/ Career Education Center (CEC): One credit hour college credit courses from RRCC construction technology programs were offered for dual enrollment at the CEC. Focus of the program is to encourage career pathways in energy fields requiring trades background. Twenty two students completed one or more modules.

### **Workforce Center:**

Jefferson County Workforce Board: Joan Smith has been confirmed by Jefferson County Commissioners as a member of the Workforce Board. Challenges remain with data reporting and recruitment into Process Technology by WIA clients. However, success is being achieved through the Red Rocks Community Learning Center located at the Workforce Center in assisting clients with enrollment at RRCC.

### **Colorado School of Mines:**

Modifications to the Teachers Kit for the Petroleum Module for Process Tech I and Process Tech II has been completed. Marsha Barber will conduct faculty training in the use of the Petroleum Module as part of the summer faculty academy planned for 2008.

### **Colorado E- Star and Colorado Energy Science Center:**

Pat Keegan of Colorado E-Star and the Colorado Energy Science Center is assisting Matt Brown, Construction teacher and Renewable Energy Instructor from Lakewood High School with curricula updates to the ENY 101 (Introduction to Renewable Energy) course that has been piloted at Lakewood High School. 24 students completed the dual enrollment pilot course fall 2007. A meeting is scheduled in January to review work completed to date. The ENY 101 high school version has been cross referenced with the updated Jeffco performance benchmarks and RRCC will be reviewing to produce the final draft for district approval as a science class. Additionally, RRCC will be identifying those activities which will be included in the high school version of "Energy Science". A teacher workshop is scheduled for June, 2008 which will target teachers willing to utilize the work as enrichment modules in their current curriculum, with the idea that this will provide a transition to offering the stand alone course in Fall of 2009.

### **CAEL:**

RRCC assisted CAEL in identifying a teacher advisor for their online energy course at McLain Community High School. As RRCC has a full time Community Learning Center coordinator housed at McLain, the Coordinator will assist CAEL in assisting the 10 participating students with energy career awareness and provide information on matriculating to RRCC energy programs upon graduation.

### **Links for Learning:**

Joan Smith spoke to the class of 07-08 on November 29, 2007. The class is comprised of high school teachers and counselors who are investigating industries in the metro area to help with the currency of their classroom instruction and student career advising. The teachers toured the RRCC Mobile Recruitment Center and were provided Energy [career awareness materials](#) to distribute to their students.

**The Rockies Alliance for Process Technology:** RAPT met for two days in Price Utah November 7 and 8<sup>th</sup> at the Western Energy Training Center of the College of Eastern Utah. The two day meeting was held in conjunction with the Rockies Energy Workforce Collaborative.

**Mary Stecklein CTE Consultant:** Mary Stecklein, retired CTE Coordinator for Jefferson County Schools, is under contract with RRCC through WIRED funding to complete the Plans of Study for RRCC Industrial Science and Operations energy programs. The Plans of Study are in response to the State of Colorado's five year CTE strategic plan which will improve the alignment of academic and CTE courses with skills standards in 6 industry clusters.

**Coors Brewing Company:** A new partnership with Coors, RRCC and the Veterans Administration's Vocational Rehabilitation unit is showing promise in the recruitment and assessment of disabled veterans for positions as mechanical and electrical technicians in process industries. A [memo](#) was drafted at Ledy Garcia Eckstein's request and sent to Gay Gilbert describing the partnership and requesting assistance in replicating the model to assist non veterans with career preparation and employment placement.

**Suncor Energy:** RRCC has been offering new hire training for process operators at the request of Suncor Energy USA. The new hires complete intensive training in distillation basics. On December 3, 2007 Suncor launched a new initiative whereby RRCC provided incumbent operators, with an average of 10 years experience training in Distillation Principles and Boiler Operations. 9 incumbent operators completed the Boiler Operations training with an average increase in post test scores of 32%. 6 Operators completed the Distillation Principles with an average increase in post test scores of 38%.

### **New Partners**

- **Ball Beverage Container:** 3 incumbent technicians are enrolled in industrial maintenance courses at RRCC. Ball will pay tuition costs and allow technicians to work shifts that allow class attendance. Ball is promoting college certificates and degrees among incumbents to improve quality and plant efficiency.

## **8. Regis University**

Partners: Community College of Aurora, Front Range Community College, US Bank, IBM, Lockheed-Martin, and Sun Microsystems.

### **Community College of Aurora:**

An Articulation Agreement between Regis University and the Community College of Aurora (CCA) has been signed by both parties. The Articulation Agreement enables CCA students who have earned an Associate of Applied Science (AAS) Degree in Computer Information Systems, Networking, and Computer Science to transfer up to 90 semester credit hours to Regis University

in order to complete a Bachelor of Science degree program. In addition, CCA students that earn an Associate of Applied Science Degree in Business with a concentration in Computer Information Systems can transfer up to 90 semester credit hours into the Regis BTM program for degree completion. [Click here for an example of a CCA/Regis degree](#) (referred to by Regis as the “crosswalk” agreement).

**Employers:**

US Bank, IBM, Lockheed-Martin, and Sun Microsystems continue to provide ongoing support for the BTM program by serving as program advisors.

**9. Thompson School District (TSD)**

Partners: Public Education and Business Coalition (PEBC), University of Colorado Denver Center for Applied Science and Math for Innovation and Competitiveness (UCD), and the Northern Colorado Economic Development Corp. (NCEDC)

TSD is supporting funding of a Northern Colorado Economic Development Corporation study of employer needs. PEBC and UCD are cited above. TSD has received support from the Jabaily Center for Leadership and Learning for critical thinking and from IBM for technology training for two high school business teachers. TSD is also exploring grants to expand its work in the future.

**10. University of Denver**

Partners: Castle View High School, Denver School of Science and Technology, Peak to Peak High School, Lockheed Martin, CH2MHill, Medtronics, SandHill Scientific.

**Castle View High School:**

The principle Dr. Gates and Mike Smith are in monthly meeting with Dr. Lengsfeld and Dean Shoureshi as a result of the program. The school sent five teachers to the summer program and 15 students. Implementation at the school currently has 21 students enrolled. The partnership grew beyond this program to include DU student mentoring of Castle View students for the First Robotics competition. Dates for DU faculty providing special lectures on the Castle View campus are now being formalized. As a result of the summer program, several campers have applied to attend Castle View High School.

**Denver School of Science and Technology:**

Sent one teacher and one student to the summer program. Currently 22 students are enrolled in the implementation portion of the program. The partnership has recently grown past this program to include DU student mentoring of DSST students for the First Robotics competition. DU is hoping these multiple interactions will help branch its connections similar to those at Castle View High School.

**Peak to Peak High School:**

Did not send a teacher or any students to the program. Through continuing its efforts, DU anticipates securing some level of participation from them.

**Montbello High School:**

Dr. Lengsfeld and Mark Francis, the Assistant Principle, are in regular discussions as a result of the program. The school sent three teachers to the summer program and one student. The school is currently implementing the program with 45 students sustaining enrollment in the course this fall.

**Gold Crown Foundation:**

Fran Baker and Dr. Lengsfeld are in constant communication as a result of this program. The after school computer club house sent one teacher to the summer program, and anticipates 12-18 student participants. Dr. Lengsfeld and Fran Baker are currently working with the foundation to secure scholarships specified to their student population for the camp, as well as undergraduate engineering education at the University of Denver.

**Girls Incorporated of Metro Denver:**

Three teachers and eight female students visited DU during December to learn more about the summer camp program and specifically modules related to biosciences and bioengineering. It is hoped this relationship will continue and grow with time.

**Lockheed Martin:**

Lockheed gave two very well received presentations to the campers regarding the aerospace industry, engineering and career choice. This activity was scored the highest in student value in both camps. The company also provided a financial scholarship to one of the campers this summer.

**Rocky Mountain Space Consortium NASA:**

Provided financial scholarships to five campers this summer. The consortium also funded an extra graduate teaching assistant, which was very beneficial to the second camp where there were fewer high school teacher participants. DU is currently exploring ways for the consortium to extend this program to the University of Utah and local schools.

**Xcel Energy Foundation:**

The Company also provided a financial scholarship to five of the campers this summer.

**Gambro BCT:**

Gave two very well received presentations to the campers regarding the bioscience industry, engineering and career choice. This activity was scored very high in student value at both camps.

**CH2MHill:**

Has offered to give presentations at the partner schools during implementation similar to the Gambro and Lockheed Martin presentations in the summer.

**Medtronics:**

Has offered to provide field trips, seminars and guest lectures by its engineers.

**SandHill Scientific:**

Has offered to provide field trips, seminars and guest lectures by its engineers and scientists.

*In addition to the type of information your WIRED Region would normally provide in this area, ETA requests that your region include a special update on the status of collecting data to enable reporting on the Common Performance Measures, including:*

- a. Have you begun the collection of data to enable the calculation of the Common Measure performance outcomes for your region?*
- b. Describe the processes that have been established for tracking and collecting performance data, including the data necessary to calculate the Common Measure performance outcomes.*
- c. Have the local and state workforce partners been engaged to assist in this process?*
- d. Which entities are collecting the necessary data?*
- e. Is your region co-enrolling participants in Workforce Investment Act (WIA) programs, tracking WIRED participants separately, or a combination of the two?*
- f. If your WIRED strategy includes providing services to Youth, are there plans to collect information to enable the calculation of outcomes using the Youth Common Performance Measures?*

### Common Measures Baseline Data

As noted in Metro Denver WIRED's previous quarterly report, common measures for workforce programs are compiled by the Colorado Department of Labor and Employment (CDLE) for each workforce region. The most recent data collection of common measures is for Program Year 2006, beginning in July 2006 through June 2007. This represents the number of workforce clients that have exited programs during that time period. However, key data to comprise the calculated common measures is derived from data gathered between April 2005 and September 2006.

As also noted in the previous Quarterly Report, baseline data to be used for the WIRED Initiative to compare pre- and post- WIRED program effectiveness will be calculated by using data collected by CDLE at a later time that better reflects the current job market in the nine county WIRED region. To be most effective and accurate, it is important to measure the progress made by the WIRED Initiative using data reflecting economic conditions just prior to the awarding of the first round of WIRED Jumpstart grants (i.e. April-September 2007).

Another issue WIRED must address when collecting baseline data on common measures is that CDLE's common measure data is collated and presented at the state level, i.e. it does not include a breakdown for the Metro Denver Region. WIRED staff will therefore need to extrapolate this data by extracting and processing quarterly performance data from individual workforce regions within the WIRED region. However, although an extra exercise, the data extracted will also prove valuable to members of the Workforce Board of Metro Denver, whose Director has offered to work with WIRED staff in collecting this data for the WIRED Region.

### Grantee Performance Improvement Metrics

It is hoped that by tracking the first round of grant clients, WIRED will be able to determine several years from now which grant programs have been most effective in keeping students in school, directing them toward higher education and STEM careers, and ensuring a successful career in the workforce. Discussions are still in progress to establish a tracking system for students participating in the Jumpstart programs. Regional workforce directors have expressed a preference that tracking of JumpStart clients via JobLink be undertaken by CDLE or WIRED staff. A decision regarding who will perform this role is expected in January.

The focus of Metro Denver WIRED's second round of grants (The Workforce Innovation Grant) is on training and placing adults in WIRED industries, rather than the capacity building of the JumpStart grants. Future grantee performance metrics will involve collecting the necessary information on entered employment, job retention, and wage gains for adult participants. It is expected that collecting this data will be much facilitated by co-enrolling many of the participants into the WIA program. This will provide more complete information on program success and provide better demographics of the WIRED population.

#### **D. Status Update on Leveraged Resources**

*This update should describe the cumulative amount of leveraged resources provided by the grantee and partners along with expenditures each quarter. Leveraged resources are those resources that you and your partners may be providing to support your WIRED funds in the implementation of your grant activities. Leveraged resources may take the form of cash or in-kind donations and may include federal funds such as WIA, TAA, as well as other public or private investments.*

**Total Funds Leveraged by end of Q4 2007: \$2,666,228\***

\*Q4 leveraged funding amounts from the Colorado Department of Labor and Employment are being finalized and will be included in the next quarterly report. Metro Denver EDC leveraged costs included below are based on estimated costs to be finalized during Q1 2008.

#### **Q1-Q3: \$871,703**

Metro Denver EDC (06/07 WIRED Industry-related research): \$29,794

NGA Stem Grant: (\$500,000 from NGA + \$300,000 in-kind from non-WIRED contributions): \$800,000

Denver Office of Economic Development in-kind costs for the year ending June 30, 2007: \$41,909

#### **Q4 Breakdown:**

##### Reports

- The Metro Denver WIRED Initiative partnered with Colorado Succeeds and leveraged **\$48,000** for the publication and distribution of a Colorado Career and Technical Education report, [\*Engineering the Future: Career and Technical Education Redesigned for Today's Students\*](#). (Metro Denver WIRED contributed \$6,255.79 in printing costs)

##### Metro Denver Economic Development Corporation (EDC)/Chamber of Commerce

- [\*Toward a More Competitive Colorado - Executive Summary on Competitiveness\*](#) (**\$14,000\***): The Metro Denver Economic Development Corporation released the latest (third) version of this study, which reports its annual benchmarking of Colorado's strengths, challenges and opportunities for future job growth. The report serves to reinforce WIRED's goals and research by referencing future workforce challenges such as high school graduation rates, funding levels for higher education and – the driving force behind the Metro Denver WIRED Initiative – the Colorado Paradox. The report also focuses on the six industry clusters holding the greatest potential for Colorado's job growth, four of which are WIRED's target industries.
- Metro Denver EDC Industry Cluster updates (**\$34,000\***): The EDC has updated its [Aerospace](#), [Bioscience](#), [Energy](#) and [IT/Software](#) Industry Cluster Studies. Each industry study provides an industry overview, economic profile, employment statistics and other key information specific to that industry. Where previous cluster studies provided a Colorado-wide overview, the updated versions now include a WIRED regional focus, which is necessary for WIRED's annual reporting of Economic Indicators.
- Denver Metro Chamber of Commerce Annual Report: The Chamber's Annual Report featured a page on the Metro Denver WIRED Initiative, therefore promoting WIRED - and its activities and achievements to date - to its membership and wider network of influencers in the community. **\$583** was leveraged, and a distribution of 5,000.

JumpStart grantees:

By the end of Q4, 2007, JumpStart grantees had leveraged a total of **\$1,697,942** (or approximately 61%) of total projected leverage for JumpStart projects. The table below provides a breakdown by grantee:

<b>JumpStart Grantee</b>	<b>Reported WIRED Expenditures as of 12/31/07</b>	<b>WIRED Grant Award</b>	<b>Leveraged Expenditures as of 12/31/07</b>	<b>Total Projected Leveraged Amount</b>
<b>Community College of Aurora</b>	\$ 213,390	\$ 430,000	\$ 53,049	\$ 154,219
<b>Community College of Denver</b>	\$ 145,347	\$ 360,000	\$ -	\$ 393,180
<b>Council for Adult &amp; Experiential Learning</b>	\$ 121,241	\$ 350,000	\$ 19,200	\$ 110,350
<b>Denver School of Science &amp; Technology</b>	\$ 103,638	\$ 160,000	\$ -	\$ -
<b>Jobs for America's Graduates</b>	\$ 98,538	\$ 350,000	\$ 95,203	\$ 212,475
<b>Math Engineering Science Achievement</b>	\$ 94,381	\$ 350,000	\$ 807,648	\$ 944,033
<b>Red Rocks Community College</b>	\$ 12,061	\$ 400,000	\$ 358,788	\$ 425,400
<b>Regis University</b>	\$ 186,020	\$ 450,000	\$ 4,200	\$ 50,312
<b>Thompson School District</b>	\$ 226,629	\$ 400,000	\$ 234,450	\$ 305,709
<b>University of Denver</b>	\$ 335,963	\$ 450,000	\$ 125,404	\$ 187,809
<b>TOTAL</b>	<b>\$ 1,537,208</b>	<b>\$ 3,700,000</b>	<b>\$ 1,697,942</b>	<b>\$ 2,783,487</b>

## SECTION II: REGIONAL METRICS

*This section should provide information on all education, training, economic development, employer, key innovations, and grant deliverable results each quarter, as described in your grant agreement. This data is very important as we track the success of grantees each quarter and compile cumulative information about all WIRED grantees.*

- **WIRED Performance Measures and Results**

*Please list your regional performance metrics/measures and the outcomes associated with them. This information can be provided in the narrative progress report itself, or as an addendum. A template that grantees should consider as a model for this addendum is provided at the end of this Appendix.*

- **Discussion of Results**

*It is critical that the results or outcomes of grantee activities are sufficiently documented. Grantees should provide narrative information on the measures negotiated with ETA. In addition, grantees also may describe other important outcomes, including employer measures, captured during the quarter.*

*The purpose of many WIRED investments is to improve the capacity for education and training institutions to provide training linked to employer demand, to provide support for entrepreneurship, and networks that will facilitate regional economic growth. This section of the quarterly report also may be used to describe changes in policy, systems, and operations that have been made as a result of WIRED activities.*

### Progress Report Metrics and Results Addendum:

As noted in the previous quarterly report, WIRED staff has revised the example Progress Report Metrics and Results Addendum Template provided by ETA, to capture additional performance measures and results that will be outcomes of JumpStart and other anticipated grant activity. [Metro Denver WIRED's Progress Report Metrics and Results Table](#) currently contains anticipated target numbers for participants of subgrantee (JumpStart Grant) programs in both Education/Training and Capacity Building performance categories, in addition to JumpStart program numbers received to date (from program start until December 31<sup>st</sup>, 2007).

The Table also provides baseline data (and details of data's source) for the Economic Indicators suggested by ETA. Baseline data was sought from timeframes as close to the start of the grant period as possible and appropriate. The baseline data is obtained from a number of sources, and so the baseline year/date is not uniform. Where restrictions exist for baseline data collection (i.e. available only for the Colorado, rather than WIRED region), these are noted under the "Source" section of the table. WIRED staff are currently working with the Metro Denver Economic Development Corporation and Development Research Partners to develop improved regional data accuracy for baseline and annual reporting data for the following economic indicators (expected for inclusion in WIRED's Q1 2008 report):

15. Number of new jobs created, by industry
16. Average Wage, by industry
24. Number of new business startups or expansions
25. New seed and venture capital investments

## Performance Outcomes

Contracts for all ten JumpStart grant recipients, have been executed and signed by both parties, and therefore all JumpStart grantees reported project activity during Q4. Full quarterly reports submitted by each JumpStart grantee can be accessed [by clicking here](#). In summary, key JumpStart performance outcomes for the quarter include:

### **1. Community College of Aurora (CCA)**

- Lab kits distributed to trained teachers in high-schools. A total of 50 experiments were distributed to 24 schools.
- Website Launched in October, 2007: with information and resources regarding the CCA WIRED Bioscience project. Site includes: teacher list; downloadable protocols for experiments; lab kit schedule; industry resources; schedule of events; pictures of teachers in the workshops and the summit in May.
- Booth at Biowest conference and Field Trip for 10 High School Students to attend Biowest luncheon – December 6-7, 2007. Highlighted the work with high-schools and experiments and displayed map and lab equipment at conference with over 1,000 attendees. Solicited over 50 business cards from industry representatives willing to visit high schools to lecture about bioscience topics/careers. Chaperoned ten high school science students from the Denver School of Science and Technology to attend the Biowest luncheon with a keynote speaker who founded the bioscience industry in San Diego.
- Conducted [Feasibility Study](#) for creation of technical training program for commercial laboratory technicians. It was decided not to pursue the full proposal due to lack of commitment from industry.

### **2. Community College of Denver (CCD)**

- Leveraged the ACES program to create processes providing real-life experiences in the aerospace field for students). ACES developed both a seminar series bringing industry speakers onto campus and an internship program at Lockheed Martin.
- Strengthened delivery of instruction through professional development, curriculum alignment, development of contextual curriculum and the expansion of accelerated learning format to impact 300 high school students and CCD students to date.
- Increased enrollment in the ACES program in the past quarter. Previously, one new student was enrolled in the ACES program. During Q4, 14 students were enrolled.
- Collegiate Recruitment and ACES Enrollment: Curriculum from the JSA Summer Institute continues to expand in usage at North High School, now impacting 300 students.
- JSA presented the Aerospace degree and career pathway to over 400 high school students this quarter. Additionally, 11 DPS students are signed up to take Astronomy 102 as Post-Secondary Enrollment Option (PSEO) students Spring Semester 2008.
- JSA utilized the Astronomy 102 course as a recruitment tool to engage CCD and PSEO students with Aerospace. The course is currently full, with over 20 students registered.

### **3. Council for Adult and Experiential Learning (CAEL)**

- Several energy career connection activities were provided for students through December 2007. Students from three high schools participated in a tour to Xcel Energy Cherokee electric energy power plant. Students also participated in classroom presentations from Xcel Energy and United Power energy experts.

- As of 12/31/07, 32 students completed their fall semester online courses. 23 students completed the Mathematics of Electricity: Careers in Electric Power and 9 students completed Science, Technology, Engineering and Mathematics (STEM) courses.

#### **4. Denver School of Science and Technology**

- Completed First Trimester internships: 30 students placed in 26 businesses across the Denver metro area.
- 11 new internship partners have been added this term. (Forest City, Assets for Colorado Youth, Dept. of Agriculture, Smith Barney, Klipp Architects, ESA Hazardous Demolition, urban Peak, Denver Parks and Planning, Comcast, CU-Denver Biology Dept., and Mayor's Office-Safe City.
- November 12 Internship Showcase: students' final presentations/demonstrations of their learning and work during their internships. Projects Included: plan and organize youth summit for 600 youth, gathering voices from 10,000 residents on what makes Denver a child and youth friendly city, production of small neighborhood newspaper and write article, information technology and research for Urban Peak, project management in demolition, creation and testing and installation of TP cabling and troubleshooting network connections, use of traditional culturing and molecular techniques to identify bacteria, site visits and construction of architectural models, analyzing node health in the cable industry, financial planning and wealth management.

#### **5. Jobs for America's Graduates (JAG)**

- 153 students are currently being served with WIRED funding, however 267 are involved in WIRED capacity building activities, including involvement with target industries, participation in student events, and other JAG model activities.
- Each school selected two Career Association members to participate in a JAG National Student Leadership Conference December 5-9. Standley Lake was able to raise money through a (WIRED-facilitated) relationship with the Colorado Software and Internet Association for an extra student to attend this conference.
- Leveraged funds from the Jefferson Foundation have enabled JAG to free up funding for an eighth program at Justice High School, a charter school for chronically truant youth in Boulder.

#### **6. Colorado Mathematics, Engineering, Science Achievement (MESA)**

- Halfway through the project the goal of increasing the MESA program by 10% has nearly been reached. To date 1267 paper registrations have been received, only 42 short of MESA's 1309 target.
- Strengthened and assessed Hands-on Activity Curriculum: the math curriculum developer, fulfilled her contract to strengthening MESA curriculum with more math components and advanced mathematics.
- Strengthened private and government agency partnerships: LASP has fulfilled its contract and will continue to visit schools in the nine county areas as needed to offer Project Spectrum with a visiting scientist and a graduate student to schools for spring 2008.
- Strengthened educational institutional partnerships: 200 parents and students attended "Mesa Mania" in Adams 12 school district, and 280 students attended Mesa's "Fall Fling" at the University of Colorado

- Established new relationships with like-minded organizations:
  - *Colorado Association of Black Professional Engineer and Scientist (CABPES) and the Community College of Denver (CCD)* – Current working on Aerospace curriculum for middle and high school students.
  - *Goodwill Industry Denver Youth Development Initiative (DYDI)* – At East High School, DYDI helps students connect with the many organizations on campus. DYDI help connect African American students with Michele Towers, our CU Director to introduce them to the MESA program and some of MESA activities.
  - *National Center for Atmospheric Research (NCAR) – Bilingual Teachers Annual Resource Symposium (BSTARS)* – Started partnership strategies linking teachers with bilingual students to their geo-science program.

## **7. Red Rocks Community College (RRCC)**

- 70 degree/certificate seeking students completed PRO, ENY and WQM courses fall 2007.
- 132 students completed Energy and Process Technology dual enrollment courses, fall 2007.
- 271 enrollments were recorded in the RRCC ISOD and ENY courses taught at RRCC and at participating high schools.
- Curriculum team revised the Process Technology science curriculum.
- The Algebra II for Process Science curriculum: industry partners have reviewed the content and provided actual process scenarios that require mathematical problem solving. Three modules have been completed for the course
- College Night was sponsored at Jefferson High School by RRCC, reaching 55 students and their families. Attendance at this annual event was unprecedented. Twelve seniors completed the RRCC college application as part of the event.
- RRCC ISOD and CON programs were invited to participate in the Adams County Education Consortium Career Expo. The Mobile Recruitment Center was visited by over 4,000 8<sup>th</sup> graders.
- Five Community Learning Centers are now open, staffed by RRCC Learning Center Coordinators. Each center responds to the particular needs of the community by offering ESL courses, GED preparation, tutoring support, developmental education, work-ready certificate programs, and other college courses of interest to each community.
- The Colorado Association for Manufacturing and Technology has completed the first five modules of the LEAN curriculum that will be infused throughout the ISOD curricula.
- The Colorado Community College System has approved the degrees, certificates and courses for the Electro Mechanical program which is part of Industrial Maintenance Technology.

## **8. Regis University**

- Fall 2007 term numbers will are not yet available, so student performance metrics will be reported in Q1, 2008
- Course development and revision (nine in total) for launch of new Business Technology Management (BTM) degree is complete.
- Industry Advisory Group has been established to provide feedback on BTM, provide internships, and employment opportunities.
- First of a series of one-day remedial math workshops was offered at the Denver Tech Center campus, with eight students.
- Degree Audit and e-Advising Software has been purchased and advisors are now using the new software with great success.

- The online Student Orientation has been updated so students can be able to use e-Advising from their computers through a password protected portal. The advising web page has been translated into Spanish.

## **9. Thompson School District (TSD)**

- PEBC work continued with principals and teacher leaders, with an emphasis on higher order thinking and reading comprehension.
- PLTW classes continued. Woodward Governor is expected to purchase 6 computers for the program at Berthoud High where there were more students than expected.
- Berthoud High School staff continued follow-up planning and development from the work with University of Colorado Denver. They have plans to visit the Denver School of Science and Technology in January and the Illinois Math and Science Academy in February.
- Hach Scientific Foundation held an introductory seminar on Process Oriented Guided Inquiry Learning (POGIL) training for eight teachers and one administrator and will provide funding for a three-day workshop in June, 2008. This is a partnership with three other school districts.
- The Geometry in Construction learning community continued at Loveland High; work continued with curriculum development for Algebra II in Auto-Tech, and planning continued for the UCD seminar in June, 2008.
- The Jabaily Center for Leadership and Learning provided training for 20 gifted and talented teachers in critical thinking (67 teachers from other districts joined that 5-day class). The Jabaily Center will also train approximately ten current and former Thompson employees in critical thinking to develop a cadre of trainers who can sustain and expand critical thinking imbedded in other programs across the curriculum.

## **10. University of Denver**

- Completed curriculum implementation, with 42 freshmen students at the University level (14% female and 26% Asian). At the high school level, all necessary equipment for implementation was purchased and delivered to the schools. All high schools have developed potential integration schedules. Several schools have begun implementation with Vex Robotics.
- DU delivered modules of the summer program to a group of all female students participating in an after school program run by Girls Incorporated of Metro Denver. During this evening session, 8 girls and 3 female teachers were introduced to summer camp activities focusing on the bioscience or bioengineering sector. As a result of the activity, several of the girls expressed their interest in future engineering activities and two of the girls would like to participate in the camp offered Summer 2008.
- Two letters of recommendation were written this past quarter to help camp students enroll in engineering specific high school programs. One letter of recommendation was written for one of the camps to attend DU engineering next fall.
- Development of the 2008 program, website and brochure were completed. Dissemination of the student and teacher summer program opportunities were distributed electronically to regional high school science teachers as well as camp alumni.
- University freshmen who were exposed to the curriculum (total of 42 students), were given a final exam with questions pertaining to the subject matter. On these questions, students averaged 64%. Student persistence in engineering to the second term was 98%, which was

considerably higher than previous years Assessments from the high schools will be given towards the end of February once more integration has been completed.

#### Other Outcomes

Governor Ritter listed the creation of Colorado's first P-20 Education Coordinating Council as a highlight of his first year in office. Governor Ritter's P-20 Council has recommended, and the Governor has endorsed, a plan to align the state's education systems into a seamless pipeline that generates the best-educated, best-trained and best-skilled modern workforce on the planet: the Colorado Achievement Plan for Kids (CAP4K). Metro Denver WIRED CO chair of higher Education has a leadership role on the council. Dr. Linda Bowman, President of the Community College of Aurora and Vice President for Academic and Student Affairs at Colorado Community College System chairs the committee on transitions from high school into higher education.

Lt. Governor Barbara O'Brien is actively promoting science, technology, engineering and math curriculum to ensure Colorado students are prepared for the global, high-tech economy.

### **SECTION III: CHALLENGES to PROJECT PROGRESS**

*This section provides an opportunity to highlight challenges and barriers that may slow project progress as well as any actions that are being taken to address challenges and barriers. ETA is fully committed to providing support to WIRED grantees to help them successfully achieve the goals and objectives of their project. To that end, please describe any specific technical assistance (TA) needs that you have currently or anticipate in the future in this section. Examples of TA may include: requesting assistance connecting to the workforce investment system, creating innovation networks, receiving clarification on grant management requirements, or requesting advice on leveraging third-party resources.*

#### Contracting

In anticipation of the next round of funding for Workforce Innovation grants, and knowing that there had been challenges with the contracting instrument, the Workforce Board of Metro Denver partnered with WIRED to identify potential contract issues that might be experienced by local workforce regions. Copies of the contract instrument were reviewed by each of the local government attorneys and a list of issues was identified. This list was forwarded by WIRED staff to the Denver County attorney who will work to address the issues through changes in the contract language.

Additionally, changes to the existing State-City and City-Metro Denver EDC contracts are planned to be made in the next round of contract amendments to address issues concerning indemnification, intellectual property rights and return of property that have been problematic and prolonged, especially as Metro Denver EDC began subcontracting with the JumpStart grant awardees during the summer and fall of 2007. While improving, the complexity of contracting continues to be a significant challenge to the rapid rollout of the initiative.

#### Partner Participation

Several of the industry coordinators and panel convenors reported challenges in retaining active interest from panel members during the period between developing recommendations for future WIRED activity, and implementation. This issue is expected to be successfully addressed through the formation of four “Solutions Teams” based on four “Action Categories”, that are the focus of WIRED activity and strategy moving forward:

- Connecting to Industry
- Metro Denver 2010
- Growing Our Own
- Optimizing Today’s Workforce

Each Solutions Team will include members from education, industry and the public workforce system. Its role will be a combination of think-tank, advisory committee, and knowledge resource group. Each Team will focus on developing strategies and activities – using WIRED funds and leverage – that address recommendations developed by WIRED panels and research.

#### Challenges Identified by Subgrantees:

##### **Community College of Denver (CCD)**

- JumpStart Into Aerospace (JSA) faces continued delays on the completion of the Auraria STK Lab. Contract completion means the project can move forward, but carpentry errors have pushed back the opening date for the lab. Without an STK lab, CCD cannot begin the Aerospace Systems Technology training, which is based on STK applications. CCD is working to have curriculum applications already in place on opening day, but will find it

challenging to meet the QAPs dependent upon an operational STK lab within the grant timeframe.

- CCD reports many of its new projects will require more time to satisfactorily develop and institute than remains in the grant timeframe. Therefore, it needs to seek ways to either institutionalize these projects, or find additional grant funding. CCD lost a large amount of time developing a proposal for the WIRED Workforce Innovation Grant, only to have its corporate partner back out two days before the proposal due date. Therefore, CCD reports it would be helpful if WIRED offered a seminar on finding continued funding for JumpStart projects.
- A number of social, economic, and cultural issues hinder the recruitment of WIA youth into the JSA program. Gardy VanSoest, WIA Business Associate, explains, *“The ‘2 plus 2’ academic program with CCD/Metropolitan State College of Denver is academically quite rigorous, and potential students not only need to have a keen interest in the fields of math and science, but they must also possess the academic potential and aptitude to succeed in an academic environment. Many of the students in the Youth Services program have not had positive educational experiences, and their cultural backgrounds frequently have not encouraged the pursuit of an education over work experience. Due to the nature and needs of our youth customers, I suggest that we focus our training efforts on short-term programs (six-12 months), involving an apprenticeship or academic programs resulting in a certificate allowing for initial entry into a specific occupation in the aerospace industry. Once employed in the industry, they could continue their education working toward a degree, often with employer educational assistance.”* Such feedback, which CCD has also received from the Career Education Center, is one of the primary reasons why JSA is very interested in offering a shorter-term program, such as SpaceTEC.
- CCD has found the budget approval and amendment process creates hesitancy to spend for some of the initiatives until approval is given.
- CCD also faces a positive challenge. With so many initiatives taking shape and so many additional partnerships coming to fruition, the project is challenged by understaffing issues. The JSA project team will continue to achieve as much as possible, prioritizing when necessary.

### **Council for Adult and Experiential Learning (CAEL)**

- Coordinating of all the career connection activities: it was somewhat challenging to coordinate the date, time, number of students, permission slips, school staff schedule and transportation schedule with the following organizations; School Districts, Xcel Energy, and busing transportation.
- Students' schedules: some participating schools are providing time in the students' schedule for an online course to be added as part of their school day, while other are not providing time during the normal school hours. Time management skills are necessary for students who need to manage online courses in addition to their regular high school classes.
- Student coursework: CAEL's online math course includes a career exploration section in the first 3-4 weeks of the course. As of week 4 in the semester, it appeared students were doing very well in the course. However, once math and the application of math concepts were introduced in the course, some students' performance declined and students seemed to be less engaged, falling behind in the course. CAEL is conducting evaluations of students and site coordinators to try to identify the issues.

### **Denver School of Science and Technology (DSST)**

- One of DSST's biggest challenges in the Internships Program is getting new industry partners to commit to taking its 11<sup>th</sup> graders as interns. Although highly successful, DSST's program is still new, and it is unusual for businesses to take high school students as interns. However, as the reputation of DSST grows and businesses realize the benefit and work output its students can give their organization, this is expected to become less challenging.

### **Jobs for America's Graduates (JAG)**

- JAG's project has faced few challenges outside of cash flow issues that arise from having expanded rapidly and operating on a reimbursement basis.
- JAG's partner schools are very sensitive to issues of immigration and JAG is prevented from gathering citizenship information from students in most schools. The project manager has forwarded copies of the Supreme Court case from 1982 that the Colorado Assembly has interpreted as an assurance of public school education to all youth under 18 regardless of citizenship status. Since JAG programs reside in schools, most of its school partners view the program as a part of the school curriculum.
- A minor challenge exists with relation to operating capacity. JAG has been unsuccessful in hiring an office administrator to enable the CEO to attend to issues of strategy and sustainability. A Specialist was hired for the new Boulder program, but backed out after initial training. JAG anticipates hiring both positions in January 2008.

### **Colorado Mathematics, Engineering, Science Achievement (MESA)**

- Student Registrations: data regarding student registrations was slow to come in during October and November, and MESA required a large percentage of the data by the end of 2007 to feel comfortable with its progress. After tabulating the count in mid November, MESA made a concerted effort to obtain the data during the remainder of the year, with the help of the Center Directors. To date, MESA has received 1458 student registrations statewide for Middle and High School. Of the 1458, 1308 are from the WIRED regions, with more to come in 2008. At this point MESA is on target to meet its estimate number of registrations.
- Assessment Surveys: these are new required instruments for the grant. Normally only two forms are required (student registrations and senior forms), whereas this grant requires seven additional documents of the advisors. As with the Student Registrations, MESA had to make a concerted effort to collect a large enough percentage of the data for a feasible study, and was successful in doing so.
- Mentors: it was challenging for MESA to recruit mentors with transportation. Of the large numbers who expressed interest, only a few had transportation, plus CU-Boulder discourages freshman from bringing cars on campus because of the limited parking. MESA has considered several options, including: (1) having a car donated (accomplished, but the car was sub-standard and there were too many liabilities associated with this option. (2) Rent a car via the University, which currently appears to be the best option. Several drivers have passed the required university driving and are available, but MESA continues to investigate the cost, timing and availability of the students.
- Data Entry: receiving a great response from the field caused a problem for data entry, as the grant's reporting requirement has led to a fourfold increase in documents. Previously, the database was located on one computer and only one person had permission to enter data. With the larger amounts of data to be entered, the data entry system had to be modified to allow multiple people to enter data. This has been accomplished, but the system is occasionally encountering record locking.

- MESA Students: an ongoing issue for MESA is to ensure that underrepresented students are recruited to the program each year, which MESA addresses through data gathering and site visits. MESA's statistics indicate that it is currently on track with this goal. In order to report student retention, MESA needs to get a list of all students in the WIRED region who are still in the program for Spring 2008.

### **Red Rocks Community College (RRCC)**

- Recruitment continues to lag behind expectations among adults 21-35. However, with the completion of the course guides, and CCCS approval of the Industrial Maintenance Program, the program offerings of the Industrial Science Program now meet the needs of energy and related advanced manufacturing employer partners for both operators and skilled craft persons. Short term certificates and internships have been developed to promote employment placement within the first year of enrolling in the RRCC program. The high school process technology courses continue to be very popular with students because of the hands-on high touch curricula. Counselors, teachers and parents have yet to recognize careers as technicians in Energy and advanced manufacturing with starting salaries exceeding \$40,000 as viable alternatives to four year college degrees.

### **Regis University**

- Regis currently faces a challenge in getting an agreed percentage of Business Technology Management (BTM) students registered with the JobLink via ConnectingColorado.org. Regis will send out formal letters requesting that its BTM students register with JobLink and provide their personal information. This requirement was not part of the original WIRED JumpStart grant requirements, and therefore not part of its original registration process for BTM students. Students will be strongly encouraged to participate but their participation cannot be guaranteed. It is understood that performance numbers are tied to this requirement.

### **Thompson School District (TSD)**

- Since TSD is experiencing greater success in attracting teachers to critical thinking than to Schools Attuned, and is exploring the possibility of shifting additional funds toward this area. Initial indications suggest teachers are not willing to commit to the extensive time required for Schools Attuned training. TSD's original training of 100 teachers prior to this grant may have hit all the "first stage innovators", and this may mean that the normal stipends will not be adequate to attract other teachers and administrators to the training. TSD has asked CSU to include this issue in their study of the project to determine the significant factors leading to this phenomenon.
- TSD is finding that it may be easier to spread innovations within a school than across schools within a school district. It appears that schools want to have a separate identity rather than being seen as "copying" another school's program, which may correlate to Thompson's historical commitment to site-based decision making. It may prove to be a challenge for decision makers in the future when confronted with replicating success versus encouraging entrepreneurial thinking. Again, the CSU study may shed light on this.

### **University of Denver**

- Castle View High School is finding it difficult to schedule time with the teachers who were trained at the summer camp. They would like to send more teachers to the camp in 2008, especially those who are going to be involved at the high school level.
- Denver School of Science and Technology is finding it difficult to incorporate the other labs that were taught during the summer because they feel the content is beyond the level of many

of their students. The teaching assistants are in the process of helping design a curriculum that teaches the same concepts on a different level.

## **SECTION IV: PROMISING INNOVATION PROCESSES and SUCCESS STORIES**

*This section provides the grantee an opportunity to illustrate the positive effects that the initiative is having on regional economic transformation.*

### **A. Promising Approaches, Processes, and Lessons Learned**

As applicable, describe any promising approaches, innovative processes, and lessons learned to date. *The discussion can revolve around the following elements, among others relevant to your regional strategy: (1) project implementation; (2) project administration and management; (3) new and innovative solutions to economic and workforce development challenges; (4) strategic partnership relationships; (5) leveraging resources; (6) sustainability; and (7) replication.*

### **WIRED Bio Interest Group (BIG)**

WIRED BIG, a special interest/information sharing group among bio-interested WIRED regions, continues to develop with Jerry McCarthy, Metro Denver WIRED's bioscience coordinator, directing BIG's communication activities. WIRED BIG has held monthly telephone conference calls for information sharing and to discuss plans for an upcoming WIRED Bioscience Institute in Winston-Salem, North Carolina (February 4, 5, 6, and 7). The meeting will feature a WIRED BIG dinner meeting on 2/4, a DOL/ETA agenda all day on 2/5 and until noon on 2/6, followed by a less formal networking agenda of the WIRED BIG group members on the afternoon of 2/6 and most of 2/7 for whoever remains available.

### **Solutions Forums**

WIRED Industry Coordinators have turned their attention to reviewing the potential for smaller-scale WIRED investments to fulfill WIRED Initiative goals. The WIRED industry coordinators developed ideas for the revised implementation plan, including WIRED 'Solutions Forums' and other WIRED activities in the remaining two years of the grant.

### **Regional Workforce Collaboration**

Local workforce funding from Denver has been committed to support the polling project for high school students, workforce center clients, community college student and their career influencers. Regional workforce staff and WIRED staff worked together to expand the poll to include the adult education and workforce system. They will continue to work with the polling contractor to develop an approach that provides education and the workforce system with information to help shape an approach to increasing the awareness and enrollment of workforce participants and employers in STEM careers. Funding from the Denver Division of Workforce Development for this project will constitute funding leverage for WIRED.

As a result of the MIST Program partnership, Boulder County and the Workforce Board of Metro Denver convened a meeting with economic development staff from two counties, two cities, Small Business Development Center staff and two community college staff to work cooperatively to develop a project that addresses a variety of employers (including those in the four WIRED target industries) in Boulder County (including both the cities of Boulder and Longmont). The target for this audience includes new and incumbent workers. The Workforce Board of Metro Denver and Boulder County are also speaking with several other local workforce regions to see how this project may be linked with services in their local region. The project is being funded with WIA dollars, and will contribute to WIRED's funding leverage.

## Promising Approaches, Processes and Lessons Learned from Subgrantees:

### **1. Community College of Aurora (CCA)**

- Outreach coordination on this project was an essential element of success. The outreach coordinator has served as a liaison for the project to the district, industry and workforce partners. She has communicated regularly with interested partners, coordinated events for external audiences, represented the project at regional meetings, and has supervised the population of the website and production of other communication materials (maps, brochures, etc). Faculty on the project have been able to focus on the successful implementation of the project as a result.
- The Lab Technician position is critical to the project. In order to provide the materials and equipment for over 4,000 experiments to be conducted in schools across the entire Denver area during a three month period, a full-time laboratory technician has been essential in ordering and organizing materials, delivering the kits, and providing technical assistance to teachers as they move through the experiment steps with their classes.
- Stipends and graduate credits for teachers to attend workshops were essential in gaining the needed number of teachers to attend and participate. The teachers involved in the workshops expressed strongly that they must make professional development decisions based on the district preference for graduate credits. Several expressed that they would not have attended without the credit. Likewise, many teachers work during summer months for additional income, and several expressed that they were trading work time to attend the workshop – they could not have afforded to participate without the stipend.

### **2. Community College of Denver (CCD)**

- **High School Aerospace Engineering Curriculum Project:** What started as a project to develop Aerospace Engineering curriculum for MESA has snowballed into a major curriculum development project with many different applications. The curriculum is designed to be adaptable to a number of different applications. The basic framework contains five different modules: Principles of Flight, Wing Design, Wind Tunnel Testing, Satellites, and Rocketry. Each module is project-based. Two wind tunnels (with appropriate software and wing machining tools) will be purchased and deployed for capacity building with MESA and Wings Over the Rockies. A third (and more sophisticated) wind tunnel may be jointly purchased between the CCD WIRED grant and Metro College to use on campus.

Already, MESA has numerous MESA Advisors very interested in instituting the Aerospace curriculum into their respective MESA programs. The Colorado Association of Black Engineers and Scientists (CABPES) has already started using the curriculum for its Mechanical Engineering group, even though the curriculum is not yet complete. Wings Over the Rockies is interested in distilling elements from the curriculum for its varied programming, especially since the Wings Staff does not have time available to develop such curriculum in-house, though it is much needed. The Career Education Center (CEC) is interested in drawing out explicit Math applications from the various Aerospace projects embedded in the curriculum. These Math applications will serve as the curriculum for CEC's six week CSAP preparation program for advanced students. Down the road, JumpStart into Aerospace (JSA) plans to utilize the curriculum for its 2008 summer program. Also, with the CEC effort to draw out the specific Math equations, concepts, and applications, JSA hopes to distribute the curriculum to Math Literacy Project and CCD Math courses. As Open World Learning (OWL) expands its after school programs to high schools, it plans to utilize our curriculum for the aerospace part of the program.

In addition to the above partners, many others have also participated in the curriculum development project: Jose Lopez, a retired Aerospace Engineer; Diana Mann from Ball Aerospace; Jim Moravec from North HS and CCD; Chokri Sendi from CCD; instructors from CEC, and Keith Norwood from Metro State. The energy and applications generated during this project have far exceeded CCD's expectations, and it is excited to impact myriad students through the project.

- **CSMARTS** (Colorado Students and Mentors Applying Research and Technology in Space): Jose Lopez, a retired Aerospace Engineer with 37 years experience in the field, has been actively involved in a number of different JSA initiatives. Among these is CSMARTS, a collegiate course designed to introduce students to working in the space industry. JSA recruited Lopez to teach the CSMARTS class offered at CCD/Metro State over the Spring 2008 semester. CSMARTS is a great medium for drawing new students into Aerospace. JSA put in a strong effort recruiting students for the class from November 2007 to January 2008.
- **Astronomy 102:** Jim Moravec is a teacher of Astronomy and Aerospace at North High School. During the Spring 2008 semester, Moravec will teach Astronomy 102 at CCD. The course integrates Aerospace into the curriculum (as developed by Moravec). Similar to CSMARTS, JSA put in a strong recruiting effort for the course, seeing Astronomy 102 as a great way to bring new students into the field. The course is currently full, with 22 registered students. Additionally, during the Spring-Summer Inter-term at the end of May, Moravec will teach a brand new, two-week, intensive course: Introduction to High-Powered Rocketry. Again, JSA will use this course for outreach.
- **Mechanical Drafting, Machining and Aerospace:** JSA is currently spearheading an effort to produce interdisciplinary Aerospace projects that will allow for contextualized learning amongst students in three different Academic programs: Mechanical Drafting, Machining, and pre-Aerospace Engineering. For example, students in Astronomy 102 will be constructing rockets. Certain pieces for this construction project will need to be manufactured. So, the Astronomy 102 students will follow a project management protocol and "sub-contract" the manufacturing out to CCD students involved in the Mechanical Drafting program. These students will have to design the rocket components according to the specifications of the Astronomy 102 students. Then, the Mechanical Drafting students will send the designs on to students in the Machining program, who will physically manufacture the components. These components will then be returned to the Astronomy 102 students. In a similar manner, students will produce a mock-up satellite. The mock-up satellite will be an on-going project, with future classes adding new complexity to the satellite, such as robotics components that adjust solar panels according to the location of a light source. Moreover, the mock-up satellites will be used for marketing purposes; they will be displayed in various locations around CCD and local high schools.
- **SpaceTEC:** SpaceTEC is an industry-driven effort to provide a national standard for educating and certifying aerospace technicians. According to the SpaceTEC website, "In 2002, the National Science Foundation (NSF) awarded a \$3 million grant to establish a National Aerospace Technical Education Center (SpaceTEC) based at Brevard Community College (Cocoa, Florida) and housed in facilities at Cape Canaveral Air Force Station. In addition to the programs at the Cape, partner institutions include eleven colleges and universities in eight states....SpaceTEC, the National Science Foundation's Center of

Excellence for Aerospace Technical Education, is the focal point for providing aerospace related post-secondary technical education for aerospace employees. SpaceTEC and its industry partners offer programs that prepare aerospace technicians to become Certified Aerospace Technicians.”

JSA is working with SpaceTEC to establish CCD as an educational center offering both the SpaceTEC Certified Aerospace Technician training and examination and an Associate’s degree for Aerospace Technicians. With the support of SpaceTEC and its numerous industry contacts, JSA will offer training/education that is specifically aligned with the regional needs of the Aerospace industry in Colorado.

The SpaceTEC Certified Aerospace Technician training is available to individuals with one of the following: 2 year technical college program degree; a two year technical military assignment; a FAA Airframe/powerplant certificate; or two or more years of on the job training and experience in the Aerospace industry. With this in mind, one immediate source of participants in the SpaceTEC certification will be current employees within the Aerospace industry. Another innovative pathway feeding into the SpaceTEC certification program involves working with DWD Veteran’s program to provide the training to veteran’s with appropriate technical experience. Based on CCD’s conversations with SpaceTEC and Lockheed Martin, it believes that a SpaceTEC certification will give a variety of experienced individuals the opportunity to gain more skills and earn employment placement or upgrade.

As far as the Associate’s degree is concerned, CCD intends to draw from both DWD WIA programs and programs such as the Career Education Center. In conversations with these entities, it has become clear that these populations have an affinity for a two-year program that will lead directly to a job (as opposed to a 4 year Aerospace Engineering program). The life circumstances of many of these individuals require them to start working as soon as possible after high school. CCD believes that having a two-year Associate’s program for Aerospace Technicians would draw many WIA youth and CEC students into the Aerospace field. Down the road, these individuals may be able to further advance their education while working, which would be more amenable to their life circumstances. CCD is discussing the possibility of building a CEC Aerospace track around the SpaceTEC Aerospace Technician model with CEC Principal Scott Rubin (A student would spend 5 years at CEC and graduate with both a High School diploma and an Associate’s degree in Aerospace Technology).

According to SpaceTEC, companies such as Lockheed Martin are very supportive of educational programs for Aerospace Technicians. CCD’s provisional discussions with Lockheed Martin personnel in Denver supported these claims.

CCD aims to partner with SpaceTEC and Brevard Community College (of Cocoa, Florida) to bring the program to the Metro Denver WIRED Region. The strategic partnership between JSA and SpaceTEC/Brevard Community College will lead to the development of the necessary curriculum by utilizing current courses within the Colorado Community College system and Metropolitan State College of Denver; modifying these current courses with the input of SpaceTEC when necessary; and relying on SpaceTEC to disseminate the remaining course curriculum. Once the appropriate curriculum is put into place, the Community College of Denver will become a national education and testing center for the SpaceTEC program and its consortium of community colleges and industry representatives.

In a letter of commitment submitted to the Community College of Denver, Frank Margiotta, Executive Director of SpaceTEC/Brevard Community College Aerospace Technology programs, writes, “*SpaceTEC and Brevard Community College are pleased to support the Community College of Denver in its mission to build a sustainable workforce for the aerospace field through innovative and industry-driven educational programs and certifications. As the National Science Foundation's Center of Excellence for Aerospace Technical Education and the focal point for providing aerospace related post-secondary technical education, SpaceTEC is eager to partner with the Community College of Denver in order to bring the SpaceTEC curriculum and certification to the state of Colorado.... The partnership between SpaceTEC and the Community College of Denver will enhance your region's educational opportunities, workforce training, and overall ability to meet the needs of the aerospace industry.*”

CCD also notes that the SpaceTEC consortium includes community colleges from all of the major Aerospace states, except for Colorado (the closest SpaceTEC center is in Wyoming). With Colorado being the #2 space economy in the United States, the need for a SpaceTEC program in Colorado is potentially significant.

JSA is currently laying the groundwork for the establishment of a SpaceTEC program at the Community College of Denver. The scope of this project will likely require more time than that remaining on CCD’s current WIRED grant, but CCD hopes to carry the project on until it is accomplished.

- **Pre-Collegiate Programs:** Working with the Pre-Collegiate office at the Community College of Denver, JSA has successfully populated the seminal Aerospace Pre-Collegiate program. Through Post-Secondary Enrollment Option (PSEO), 11 high school students from Denver Public Schools will be taking Astronomy 102 next semester at CCD. The hope is that these students get excited about both Aerospace and college, thus feeding the educational pipeline.
- **American Institute of Aeronautics and Astronautics (AIAA):** AIAA is one of the premier professional societies for the Aerospace field. JSA works with AIAA on several levels. First, JSA is in the process of establishing a JSA Student Organization that will serve as an AIAA student chapter at CCD/Metro State. As part of the JSA Student Organization, each student member will receive an AIAA Student Membership. The idea is to enable JSA student members opportunities to learn more about the Aerospace industry and gain valuable connections. Second, JSA is currently working with AIAA to connect the Denver educational community with AIAA’s 3<sup>rd</sup> Annual Conference for Space Exploration, being held at the Colorado Convention Center, February 26-28, 2008. CCD is recruiting high school classrooms to participate in Lockheed Martin’s Educational Exhibit at the conference, and is also recruiting college students to get involved with the conference through volunteer opportunities. Third, JSA has started to work with AIAA Headquarters to connect its programming with the active AIAA professional chapter in Denver. This process is still in the very early stages, and CCD is hopeful many new opportunities will emerge from it.
- **AAA 101 with an Aerospace Focus:** AAA 101 is a pro-active course at CCD designed to introduce students to the basic skills and knowledge that they will need to succeed as college students (i.e. college resources, study skills, career exploration, et cetera). JSA has developed a 12-course curriculum for an AAA 101 course with an Aerospace focus. For example, the

course introduces students to Math-specific study skills, Aerospace internships, Satellite Tool Kit software, and guest speakers from the Aerospace industry. CCD aims to institute the course Fall Semester 2008.

- **ACES Internship and Curriculum Development:** JSA worked together with another prong of CCD's Aerospace program, ACES, to offer CCD students the opportunity to intern with Lockheed Martin from November through January. Two CCD students were selected to join with three Metro State students to participate in the internship project. JSA aims to develop more ACES internships in the future, as well as internships at other local institutions, such as NCAR.

With the first ACES internship experience now concluding, JSA aims to formalize a project-based curriculum based on the multiple person internship. The idea is to produce a curriculum model that enables 1) a team of students an internship opportunity and 2) a value-added project whereby a classroom participates in the project being led by the interns. With multiple teams performing different tasks as part of the whole project, project management elements will easily integrate into the curriculum.

- **JSA Student Organization:** JSA is in the process of developing a student organization for students interested in Aerospace. A student organization serves as a retention strategy by keeping students engaged in a community of students. Also, participation in a student organization allows students to build their resume with impressive skills and experiences, get their "foot in the door" with the Colorado Aerospace industry, and have the opportunity to serve as role models in local high schools. On the last point, CCD plans on bringing JSA student members along for high school outreach, such as Aerospace presentations in classrooms.
- **Workforce Development and WIA Adult Funding:** Through a presentation to DWD's Quigg Newton's staff, JSA staff learned that WIA Adult funding is available for CCD students within 12 months of graduation. JSA has recruited a few students for the WIA Adult program, and hopes to have more CCD students receive tuition assistance through this program.
- **Open World Learning (OWL):** OWL is an extracurricular technology education program operating in local middle schools (and soon high schools). JSA is working with OWL to integrate aerospace applications into OWL's computer/technology projects. On a different note, OWL is organizing a digital media project whereby its students will produce a mini-documentary on the JumpStart into Aerospace program.
- **Goodwill Industries Career Exploration Program:** A WIA Youth Case Manager introduced JSA to the Goodwill Industries Career Exploration program. Since then, JSA has worked with Jenny Clark, Assistant Manager of Youth Services, to recruit Jose Lopez for a Career Panel at East High School. JSA will also attend five Goodwill career fairs in the following months at local DPS schools, collaborating with Shades of Blue.
- **WIA Case Managers:** JSA is still developing WIA's role in contributing students to CCD's Aerospace program, but the effectiveness of the relationship is steadily improving. In October, Gardy Van Soest came on board with DWD as the Aerospace Coordinator for the WIA Youth Program. Van Soest has served as a go-between with the WIA Case Managers,

which has been helpful. As a result of increased communication with the WIA Case Managers, JSA has one WIA youth registered for CCD classes next semester, and two other WIA youth interested in learning more about the program. Van Soest is working to recruit WIA Veterans into the Aerospace program as well. Down the road, JSA hopes to recruit a number of WIA Youth for the JSA Summer Program 2008.

- **Expansion of Marketing Strategy:** JSA has continued to expand and improve its marketing strategy. December involved the development of [a new Aerospace website](#); new brochures for both high school and college students; new posters for placement in DPS schools, WIA offices, and at CCD; a full page advertisement in the CCD student paper; and the authoring of numerous web stories. These items will all be published/go live in January. A future plan is to start issuing press releases in the effort to increase external media coverage.
- **Project Lead the Way:** The mission of Project Lead the Way is to create dynamic partnerships with middle and high schools to prepare an increasing and more diverse group of students to be successful in science, engineering, and engineering technology. JSA met with Bill Lehman, the Colorado Coordinator for PLTW, in order to explore the process of bringing the program to local high schools such as North HS, West HS, and Career Education Center. Currently, JSA is tentatively exploring whether or not these high schools are interested in PLTW, and if so, how to fund the necessary equipment purchases.
- **Veterans:** With a large concentration of veterans along the Colorado Front Range, JSA is seeking ways to connect these individuals with the Aerospace industry (especially the veterans with a background in Aerospace). A key component of this effort is the establishment of the aforementioned SpaceTEC program, which provides training and certification for veterans with two or more years of technical experience.
- **NCAR:** Ron Vasquez, Director of JSA, has been working with the National Center for Atmospheric Research on a number of projects. This past November, Vasquez attended BSTARS, a professional development seminar for bi-lingual science teachers in the area put on by NCAR. Also, JSA is working with NCAR to recruit CCD students for the SOARS internship at NCAR. The SOARS internship is a paid summer internship for underrepresented student populations currently involved in the Atmospheric and related sciences.
- **MESA program at West High School:** Dave Yuskewich is a Math teacher at West High School who has interest in and experience with the Aerospace industry. After learning more about JSA's Aerospace Engineering High School curriculum, Yuskewich has become very interested in becoming a MESA Advisor for West High School and instituting the curriculum through MESA.
- **Collaborating with Metro State:** Although JSA is facing further difficulties with the installment of its STK lab, it aims to develop channels for aligning STK applications with various curricula at CCD and Metro State. Toward this end, JSA has been brainstorming with the Metro State Aviation and Aerospace Science faculty and administrators. One possibility is to have Jose Lopez develop applications of the STK software, as he spent a significant part of his career working with STK applications.

Another potential collaboration with Metro State is the purchase and utilization of a wind tunnel. The wind tunnel would be housed on the Auraria campus, and be integrated into numerous CCD and Metro State classes. Moreover, the wind tunnel could be used to attract high school students onto the Auraria campus, for example, students participating in our Aerospace Engineering High School curriculum through organizations such as MESA, CEC, CAPBES, et cetera. CCD sees the integration of high school students, the Auraria college setting, and Aerospace projects as an excellent means to strengthen the educational pipeline feeding the Aerospace industry.

### **3. Council for Adult and Experiential Learning (CAEL)**

- CAEL's relationship with Goodwill Industries for providing career and educational planning has proved to be a successful partnership. Goodwill Industries' current school-to-work advisors (located in three of the five specific high schools) have met with the "Light Up Your Future" students to provide an educational plan, career & skills assessment, resume building and interviewing skills. CAEL is providing this service to the two other high schools, which assists in providing this service to all students in all five metro Denver area high schools.
- Career connection activities: providing both energy experts to speak to the students in the classrooms and student facility tours was a highlight this past quarter. Students began to understand the bigger concept of the number of careers available within the high-growth energy industry. In each of these activities, students heard and witnessed the critical shortage of energy workers and the abundant opportunities available to them upon completing their education.
- CAEL will be providing students and high school site coordinators with a fall semester evaluation to assist in assessing the goals of the "Light Up Your Future" program. Results will be reported in the next quarterly report.

### **4. Denver School of Science and Technology (DSST)**

- DSST reports that creating a successful high school internship program takes a great deal of pre-planning and legwork in order to establish partnerships with organizations. Industry partners need to be willing to provide a mentor to take the time to supervise and guide a high school student through a meaningful 12-week internship and this is a time commitment and risk on their part. However, DSST has also learned that if students perform well and provide good projects for the industry partners, businesses start to initiate requests for interns. Provision of training for the interns and the mentor prior to the internship's start has been critical in setting clear expectations and standards at the outset.

### **5. Jobs for America's Graduates (JAG)**

- JAG's partnership with MWH Global has been fruitful and will benefit students. The relationship exists because one executive is passionate about youth who have barriers and has reached out to JAG to offer numerous opportunities for young people.
- Innovation: JAG plans to open a new program in Boulder to serve chronically truant youth. Justice High School is a very small charter school, so JAG will be offered at some point to almost all youth who attend. It is anticipated that we will offer a customized program using JAG's Out-of-School curriculum, which is web-interactive and is designed for use with more challenging, less engaged populations. Justice High is a college preparatory school where students are required to be accepted to three postsecondary institutions prior to graduation.
- Lessons learned: The JAG Model is rich in terms of value added for schools and participants, however it is also a program that requires staff to work at full capacity (or greater) at all times and the learning curve is almost vertical. Specialists were faced with an additional

documentation burden when readying students for leadership conferences while they were still learning their responsibilities. They would have benefited from much earlier training, planning and startup to enable them to prepare as early as possible for major events. They performed admirably but were understandably burnt out by the time the holidays arrived. The summer of 2008 will be given over to planning for curriculum, events, and other activities so that Specialists are not under such pressure at the beginning of the 2008/09 school year.

#### **6. Colorado Mathematics, Engineering, Science Achievement (MESA)**

- **Contracts:** MESA developed contracts early in the grant period, and had assumed there wouldn't be any delivery problems because the agreements were made months in advance. With hindsight, however, more focus was required on ensuring delivery of material within the agreed timeframe.
- **Assessments:** After reviewing the surveys and the responses from the students, most seem to understand the questions. On closer review, a number of students - especially at the middle school level - didn't seem to know how to answer questions in the negative, and the vocabulary may have been challenging for some of the students. Next year the same surveys will be employed, but the wording will need to be modified to accommodate middle school vocabulary and understanding. MESA will also ensure the same percentage, if not more, will be returned early for statistical analysis.
- **Contact with every school:** This year, with the help of a larger staff, schools have enjoyed more contact and feeling a greater part of MESA.
- **Innovative Processes:** MESA has been considering the issue of capturing literacy and numeracy gains. Its assessment staff has determined if it can obtain some CSAP data, MESA would be able to make comparison and conclusions about the MESA program. The data is available, but the issue is obtaining data associated with MESA students. Some schools are reluctant to share due to privacy issues. After further discussions, MESA may be able to obtain older data for assessment.

#### **7. Red Rocks Community College (RRCC)**

- The emerging partnership with Veterans Administration's VR&E and Coors Brewing Company has validated the importance of early linkage between employer, education and a client support organization. The upfront emphasis on verifying through multiple assessments the aptitude and attitude of job candidates has resulted in new employees for Coors Brewing Company and committed students in the Industrial Science program of Red Rocks Community College.

#### **8. Regis University**

- Regis is pleased with the Hispanic student participation and enrollment in the Business Technology Management (BTM) program and throughout the College of Professional Studies (CPS). Regis believes this is due to the increased attention and resources given to potential and incoming Hispanic students. Additional increases in Hispanic students are also expected at Regis University, CPS. Regis has also found that providing marketing material specific to the BTM program outside its traditional university marketing program has helped increase the new BTM program enrollment.

#### **9. Thompson School District (TSD)**

- TSD is experiencing tremendous enthusiasm for the critical thinking piece of its JumpStart project. However, it is finding conflicting definitions of what critical thinking actually is.

TSD will continue to work with the Public Education and Business Coalition (PEBC) to determine how their approach to professional development to improve comprehension strategies meshes with the Paul and Elder model that defines a specific approach to improving the overall quality of thinking from the classroom to the boardroom. TSD is also finding this confusion among businesses. The Sustaining Transformation Through STEM (STT STEM) project may help distinguish more effectively between higher order thinking and critical thinking. Such a distinction is not esoteric, since the distinctions drive both current workers and future workers (students) are trained.

- The systemic model for leadership development is proving to be one of the most powerful pieces of this project. TSD's focus this year has been on reading comprehension and critical thinking as it improves student achievement in STEM related classes. But it has laid the groundwork for next year's math implementation. This has been a great starting place for both teachers and administrators since most seem to feel more comfortable discussing how critical thinking and reading comprehension can improve achievement in STEM related classes. TSD is now building the bridge that will tie this PEBC and critical thinking concept to its two year math implementation.

#### **10. University of Denver**

- Castle View High School reports beginning the class with the robots generates a high level of interest and involvement, and is a great way to start the class. Castle View plans to redesign the way additional supplies are given to the students, and to be clearer on the instructions and expectations at the beginning of the project.
- Montebello High School reports the students are very excited about the class. They enjoy experiencing the activity, and since most of the kids are on the analytical side, they like to see how the physics (materials, friction, force, velocity, acceleration) cause different outcomes.
- Denver School of Science and Technology reports that with the demands of the normal curriculum and school year, this is long process that may take several years to implement. It's difficult to work in some of the labs without having much experience with the technology (Labview for example). Being somewhat flexible with the grant money is needed; money needs to be spent on STEM, but it's not possible to replicate every lab exactly due the fact that every school is different and operates in its own way.

## B. Sharing “Success Stories”

As applicable, highlight any “success stories” resulting from WIRED activities. For example, these stories may be about a new business start-up, an individual participant moving from unemployment to a successful career in a high-growth industry, or other relevant successes. We ask that you include a photo with the story as appropriate and ensure that the business entity or participant has granted express written permission for use of the story.

### Career and Technical Education Report

CEPA’s CTE report, supported by WIRED, has been very favorably received with continued requests for copies. An example of favorable notice: *“I read the full report today and thought it was outstanding. Can we get copies of the full report sent to all seven State Board of Ed members? I’ll give them until the January meeting to read it, then start advocating for many of its recommendations. In addition, we need to make sure the Graduation Guidelines Advisory Group is aware of it and actively seeks input from business during its discussions. Anything I can do to help, let me know,”* Randy DeHoff, State Board of Education, 6<sup>th</sup> Congressional District.

### Success Stories from JumpStart Grant Program Activity:

#### **Community College of Aurora (CCA)**

- See <http://www.ccaurora.edu/bioscience/gallery> for photographs from the various events of the CCA WIRED Bioscience projects. Media releases from teachers at the Teacher Workshops are also on file at CCA.

#### **Comments from Teachers who used the Experiment Kits during October, November, and December of 2007...**

“The students really enjoyed it! I heard comments like ‘I feel like a real scientist’ and ‘this is what I want to do when I grow up!’”

“Perfectly wrapped up end of semester – discussed prokaryotes, cell membrane, DNA, expressing genes, etc.”

“Helps them study DNA replication by writing about similarities and differences between PCR and normal replication.”

“They were excited! I had students who are not always engaged doing all the steps and/or students who were unsure or hesitant experiencing loading the gel, etc.”

“Using the pipettes is exciting for them (students) and also promotes good lab skills; they were very careful and it worked!”

“It was great to have everything included and organized!”

“Students loved this lab and had talked it up so much that there was another group of kids-not in my class-that came to the door to watch part of the lab.”

“This was a wonderful experience for the students. I made sure everyone used the micropipettes and loaded a sample into the gel.”

“The students enjoyed the lab. They were engaged and looked forward to the next lab.”

“Completely improved lab skills/I allowed them to be more independent.”

"They were surprised by how simple DNA looks – they liked preserving it in the necklace!"

"Students really enjoyed the activity. The lab helped reinforce following procedures. Really was able to go off on tangents about careers (like) crime scene investigator."

"100% correlated (to curriculum)!"

"It directly reinforces the content I teach".

### **Community College of Denver (CCD)**

- Received Colorado Community College System Outstanding Program Award
- Testimonials (from e-mail correspondences – media release forms can be completed if needed):
  - *"Hey Troy, thanks for the newsletter! I'm totally excited about joining the ACES program."* Juan Carlos Lopez, CCD student, October 19, 2007
  - *"It feels so good to have support from people that care about my continued education, and that have the power within the system to make a difference."* Arthur Sharp, CCD student, October 26, 2007
  - *"As for MSCD in general, I'm at the last spot in the process and then I can register [with the Aerospace Systems Engineering Technology program]. I just put in my application to graduate CCD at the end of the spring semester. Everything else is going smoothly. Thanks for all your help and all the updates."* Scott Maaser, CCD student, October 31, 2007
  - *"I appreciate all that you are doing for our students. The connections you are making in the broader community are quite valuable to our work."* Joann Trujillo Hayes, Principal of North High School, November 9, 2007
- News Stories (This story may be found in its entirety on CCD's website: <http://www.ccd.edu/main.aspx?CID=424>)

### **Despite Challenges, Ortiz Moves Toward Promising Future in Aerospace**

"I'm a student that is first-generation, a minority, and a single mother, and the combination can get to be overwhelming at times," explains Ruth Ortiz, a student studying pre-engineering at the Community College of Denver (CCD).

Without a doubt, Ortiz's current challenges are as complicated as they sound. After hearing the rest her story, however, you'll be convinced that this talented young lady will find a way—some way—to surmount her trials and tribulations, just as she has for most of her life....

Ruth has big plans for her future. One day, she hopes to design systems that support aeronautical research and work on state-of-the-art concepts and equipment. Eventually, Ruth hopes to pursue a Master's or Doctorate degree.

In the meantime, Ruth will continue her study in the Aerospace program at CCD. Recently, she started an internship at Lockheed Martin through the ACES program.

“I haven’t taken another break from my education at this point because it’s more important to keep moving forward rather than thinking about anything else that could possibly go wrong,” she concludes.

### **Council for Adult and Experiential Learning (CAEL)**

Below are comments from some of the students in the “Light Up Your Future” program, while on a tour to the Xcel Energy Cherokee electric power plant:

- *"This was very interesting. It's amazing we use so much coal to produce energy."*
- *"I'm impressed with how much money some of the workers make."*
- *"I'm interested in working for Xcel in the summer job shadow program."*
- *"It's great that Xcel Energy will pay for 80% of your college degree if you are employed with them."*
- *"Wow, they pay you to learn." – speaking about the apprentice programs.*

### **Denver School of Science and Technology (DSST)**

Industry feedback on DSST student interns:

- University of Colorado at Denver Biology Department Professor, Timberly Roane, in evaluation of intern Nora Stewart stated: *"Nora did a better job than some college students. I was often amazed at the intern's ability to analyze her research. The intern was very active in developing solutions"*.
- Sam Miller at Klipp Architects on intern, Gavin Brown, stated: *"His project showed promise for a future architect and he was great to have as an intern and provided work of the highest quality"*.
- Tammy Heffron, HDR engineering on intern, Auriel Ramsey stated: *"Auriel was a pleasure to have as an intern. Very hard working, inquisitive, polite, appreciative. She'll make an excellent engineer should she choose that path"*.



Participant at DSST’s Internship showcase.

### **Jobs for America’s Graduates (JAG)**

*“It was my first time on a plane and it was an amazing experience and we learned a lot of leadership skills and the sites were amazing.”* said Estevan Larios who went on the Washington D.C. trip. *“It was fun to get to know all the people that went on the trip. We also*

got to know people from other states. We had to take some leadership sessions that were extremely fun... We played a variety of games that taught us many of comprehension skills," said Estevan from Jefferson High School.

*"As I went to Washington D.C. without knowing any one but one person, made me come out of my comfort zone, which made me realize how much I missed my family. While in D.C. I meet a variety of different kind of people which made me think about how people are different from one another and having to compromise which made me feel like a better person. I learned a lot about leadership skills which I will take with me forever. D.C. was a experience I will never forget,"* said Sabrina Salazar of Jefferson High School, who also went on the Washington D.C. trip.

### **Red Rocks Community College (RRCC)**

- As published in the Red Rocks Community College Annual Foundation Report, a success story featuring a process technology student now employed by Xcel Energy may be viewed using the link included [here](#). The story has already been printed and distributed, and reprints may be made with proper source citation.
- Additionally the following industry partners have volunteered as contacts to media and other parties with an interest in the Industrial Science and Operations Programs of Red Rocks Community College. NOTE: *These contacts have expressly stated interviews provided must be proofed by their corporate offices before going to press.* All are available for informal conversations at any time to discuss their partnership with Red Rocks Community College.

Hank Ward, Reliability Engineer,  
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Todd Hattersley  
Electrical Supervisor  
Ball Beverage Container Group  
[thatters@ball.com](mailto:thatters@ball.com)

### **Thompson School District (TSD)**

A video about TSD's *Geometry in Construction* project, including participant testimonials, is available at: [www.geometryinconstuction.org](http://www.geometryinconstuction.org).

### **University of Denver**

One of the summer camp participants has already matriculated to an undergraduate program starting Fall 2008, and two further summer camp participants have already expressed interest in returning in the summer of 2008.