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**Workforce Innovation in Regional Economic Development (WIRED)  
California Innovation Corridor Partner**

**FINAL PARTNER PROJECT REPORT  
Due Date: December 15, 2008**

Subgrantee's Organization Name: SIL, Inc. (DBA Endeavour)

Project Number and Name: 3.12 Science Educator Conferences

Contact Person: Edmund Burke

Contact Phone Number: 805-925-9010, Ext. 1# or 805-720-2784 (Cell)

21 Questions for the 21<sup>st</sup> Century!

**A. Project Information**

1. Describe your final partner activities October 1 – December 15  
The following OCO Educator Launch Conference activities were accomplished for the time period of October 1 – December 15.

- Completed OCO Educator Launch Conference Registration Form
- Completed 11x17 OCO Educator Launch Conference Mailer
- Completed 8x11 OCO Educator Launch Conference E-Mail Mailer
- Contact OCO and Dinner Presenters. Started collecting STEM workshop title, descriptions, Bios and headshot photos.
- Arranged facility use for Allan Hancock College, Lompoc Valley Center and Pacific Coast Club for dinner banquet.
- Arrange for Bus Transportation.
- WIRED Invoices and Reports.
- Send registration e-mail to teachers on e-mail list.
- Collect all STEM workshop title, descriptions, bios and headshot photos.
- Work with NASA JPL and Ames for final Scientist PI/Co-PI presenters

2. Give a brief description of Project 3.12 and your partner role (Scope of Work) within it

The Endeavour Center, NASA Educator Resource Center is the organizer of the conferences with many university, NASA JPL and Ames Education offices, and other non-profit co-sponsors. Teacher workshops are provided by co-sponsors, and NASA JPL and Aerospace industry scientists and engineers are invited to dinner presentations to discuss mission with educators.



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3. Please indicate the cumulative amount of your partner expenditures on this project 2006-2008 (ending November 30, 2008)

See final financial report.

4. List and describe your project products/deliverables and attach (if not given to CSA on CD at Partner Celebration meeting)
  - a. Calipso-Cloudsat, AIM and OSTM/Jason-2 Final Conference Programs.
  - b. Mission to Planet Earth Systems course for high school and UC Lab Science A-G course approval form.
5. Describe your key accomplishments on this project and their importance to the Corridor, the State, the nation

Development of a new Mission to Planet Earth Systems course for high school that provides students with connectivity to the real-world of Earth Science and Technology. The students are provide early quality Education and focus in pursuing high-tech career pathway working for NASA, NOAA and Aerospace industry.

California Educators are provided real-world NASA curriculum and activities tied to NASA Earth Science satellites that connect classroom to the real-world that serves to educate and inspire students in the classroom. NASA, University and Aerospace industry engineers and scientists provided an opportunity to share real-world NASA mission and launch operations with educators in the public and private schools to improve student education.

6. Were any of your organization's policies or processes reviewed, refined or changed as a result of this WIRED project? If so, please explain how and why.

A more sophisticated computer network and databases were created for the WIRED educator launch conferences and posting of the Mission to Planet Earth Systems courseware. Additional policies for working with teacher workshop and scientist/engineer presenters were generated for reimbursement of travel and materials if required.



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7. If your project involved a literature review, indicate up to five key readings that impacted your project, explaining significance.

### **Quotes relating to STEM Education:**

**We need to encourage children to take more math and science, and to make sure those courses are rigorous enough to compete with other nations. ... If we ensure that America's children succeed in life, they will ensure that America succeeds in the world.**

—President George W. Bush

**High school reform is not just an “education issue.” It’s also an economic issue, a civic issue, a social issue and a national security issue. And it’s everybody’s issue.**

—U.S. Secretary of Education, Margaret Spellings

**High schools are failing to prepare too many of our students for work and higher education.**

—Achieve, Inc. and National Governors Association, An Action Agenda for Improving America's High Schools, 2005

### **Literature:**

#### **Project Based Learning sites.**

The Endeavour Academy implements Project Based Learning (PBL) and Project Based Science (PBS) that is well established in student assessment and research. The following limited websites highlight PBL/PBS research and effectiveness:

<http://pblmm.k12.ca.us/PBLGuide/pblresch.htm>

<http://www.nsf.gov/div/index.jsp?div=DRL>

<http://www.umich.edu/~pbsgroup/>

<http://www.iowa.gov/educate/prodev/science.html>

[http://www.bobpearlman.org/BestPractices/PBL\\_Research.pdf](http://www.bobpearlman.org/BestPractices/PBL_Research.pdf)

<http://www.edutopia.org/project-based-learning-research>

#### **STEM Education Literature.**

- National Academy of Sciences, Rising Above the Gathering Storm  
<http://www7.nationalacademies.org/gatheringstorm/>
- Book, Is America falling off the Flat Earth?  
[http://www.nap.edu/catalog.php?record\\_id=12021](http://www.nap.edu/catalog.php?record_id=12021)
- NASA Enriched Collaborative STEM K-12 Teacher Professional Development Institutes within the California State University System (December 2007)



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8. List key local and regional relationships/partnerships you built or enhanced through this project, indicating the potential or current impact of these on your local/regional workforce, education or economic development domains

Relationship	Nature of Org/Group	WIRED Activity Involved	Relationship Started or Enhanced?	Impact on workforce, education or economic development?
Co-Sponsor	Allan Hancock College	Educator Conferences	Enhanced	STEM Education
Partner	Orcutt Academy	MTPES Course	Started	STEM Education
Partner	Torrance USD	MTPES Course	Started	STEM Education
Partner	CSA	WIRED Grant	Started	STEM Education

9. In your work on this project, are there statewide or national associations or consortia with which you have interfaced? Please list, explain nature of the interface and indicate whether interface will continue.

Relationship	Nature of Org/Group	WIRED Activity Involved	Relationship Started or Enhanced?	Impact on workforce, education or economic development?
Co-Sponsor	Colorado State University	Educator Conferences	Started	STEM Education
Co-Sponsor	Globe International	Educator Conferences	Started	STEM Education
Co-Sponsor	Hampton University	Educator Conferences	Started	STEM Education
Co-Sponsor	NASA JPL and Ames	Educator Conferences	Enhanced	STEM Education
Co-Sponsor	Florida State University	Educator Conferences	Enhanced	STEM Education

Co-Sponsor	SpaceTec	Educator Conferences	Started	STEM Education
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10. Please list any major presentations you have given related to this project, describing the nature of the audience and type of presentation (keynote, panel or workshop presentation, radio/television interview, etc.)

Organization Requesting Major WIRED Project Presentation	Location/Venue of Presentation; Name/Title/Org of Presenter	WIRED Activity, Project or Program Showcased	Type and Number of Audience Stakeholders Present	Type of Presentation (Panel, keynote, interview, etc.)
WIRED – State and DOL Rep	Meeting with interviews	MTPES and Educator Conferences	CSA, State and US DOL Representaives	Interview
MIT NEST Conference in 2008	Andrew Williams – MTPES Course	MTPES Course	Hundreds of Educators	PPT to educators
CSA Partner Meetings	Edmund Burke	Educator Conferences	CSA Stakeholders	PPT, Presentation Boards, etc.
California Science Teachers Association	Andrew Williams- MTPES Course	MTPES Course	Hundreds of Educators	PPT
Educator Launch Conferences	Numerous STEM workshop presenters	Educator Conferences	Hundreds of Educators	PPT, On-Line, NASA curriculum and activities

11. Please list and describe any white papers, monographs, studies, reports, surveys, etc. developed by your organization or your subcontractor, describing the purpose and nature of the document.

Organization/Author(s) developing report, study, survey, etc.	Type (white paper, survey, study, etc.)	Purpose	Target Audience(s)	Nature



MTPES, Edmund Burke and Andrew Williams	White Paper	MTPES Course Overview	NASA JPL	STEM Education
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12. Please recount the story of one worker or education, workforce, or economic development professional whose work or life was significantly enhanced or positively altered by interface with your work on this project or as a result of your work this project (worker can be you, a colleague, a dislocated worker, an adult student, etc.)

13. If applicable, list and describe any videos, websites, databases or software developed by your organization or subcontractor for this project

Type/Name of Material Developed (video, website, dbase, software – name or link of video, site)	Purpose/Use for WIRED project	Potential Ongoing Use	Sustainability Notes, if applicable	Benefit to Partner, Region, State or Nation
Website	MTPES Course	Yes	On-line MTPES Curriculum Foundry and Endeavour Academy courses	All
Access DataBase	Educator Conferences	Yes	Yes.	Region and State

14. If applicable, list and describe any curriculum, course outline, training manual or training provider resource guide developed with WIRED funding for this project

Type/Name of Material Developed (curriculum, course outline, training manual, training	Purpose/Use for WIRED project	Potential Ongoing Use	Sustainability Notes, if applicable	Benefit to Partner, Region, State or Nation

resource guide)				
MTPES Course	Curriculum Development	Yes	Yes	Region and State

15. Please indicate cumulative amount of other funds outside of WIRED resources you contributed during the life of the grant for this project.

NASA In-Kind Contribution of NASA Curriculum, Activities, Space Lithographs and Posters (2006-2008): \$15K

In-Kind Contribution of NASA, University and Aerospace Industry providing STEM Education workshops and presentations (2006-2008): \$25K

Orcutt Academy Five Year Contract (2008-2013) to teach Endeavour Academy courses that includes MTPES developed under WIRED grant: \$75K

Torrance USD Five Year Contract (2008-2013) to teacher Endeavour Academy courses that includes MTPES developed under WIRED grant: \$500K. American Honda Corporation funded \$150K for start-up.

16. As you feel appropriate, please comment on promising approaches, best practices, lessons learned regarding any of the following:

- Project Management/Project Implementation  
Educator Launch Conference went to next level of organization and implementation.

- Replication  
MTPES has great potential to replicate to multiple California School Districts.

- Sustainability  
Contracts signed by two California school districts as a direct result of WIRED grant. Educator Launch Conferences will require grant funding to continue the professional teacher training opportunity.





17. My work, or my organization's work has enabled the following Corridor WIRED metrics (as described in the Metrics Reporting Document, this project) to be achieved.

Exceeded the number of STEM educators trained required in the metrics.

Project Goals	Deliverable/Outcome
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## B. California Innovation Corridor WIRED Initiative

1. Did the Corridor discover any innovative solutions to economic and workforce development challenges? If so, describe.

Provided exceptional STEM education professional training for California teachers. One teacher can properly educate hundreds of students towards STEM career pathway.

2. Please share what you believe to be the Corridor WIRED project's greatest accomplishments in any or all of the following areas:

- Innovation Support/Purposeful support for innovation and entrepreneurship

Properly training teachers in regards to STEM education equates to students being educated and inspired towards STEM career pathway.

- Talent Development/Responsive, flexible education/workforce systems which anticipate and respond to global market changes, workforce needs across systems

Currently, UC and CSU system dropout/flunkout rate of students in engineering degrees is between 40-50%. Early preparation of students in these degrees is critical (middle and high school level) to turn this metric around in order to be competitive on a global basis. California middle and high school teachers require extensive STEM education professional training.



3. Explain the “success stories” you feel the Corridor has to share around any or all of the following:

- Transforming education to better address required 21<sup>st</sup> Century workplace, high-tech, high-growth job skills/abilities

Quality STEM education programs need to be embedded within the public school system focused on STEM education with rigorous curriculum and activities connected to real-world to engage students and are UC approved, Lab Science D rigour. The work in 3.12 directly address these workforce challenges and provide a path forward to correct this unacceptable student performance. Early STEM preparation at the middle and high school level is critical to be competitive with other nations graduating many more engineers and scientists (China, India and Japan) from colleges/universities than America.

4. What is your own positive, personal “take-away” from the Corridor WIRED Initiative?

This is one of very few initiatives focused on improving STEM education and influencing state and national policy to make a change in our public school system curriculum.

It’s been a pleasure working with CSA and partners in the WIRED Initiative. I sincerely hope the government will seriously address the STEM education issue through other grant funding opportunities to change the student performance metric and address the inadequate STEM education professional training for K-12 teachers.

What skills have you gained or what you have personally learned, discovered, accomplished, that will support you or your organization in becoming a more effective stakeholder for California and U.S. 21<sup>st</sup> Century competitiveness?

The Endeavour organization has learned more about STEM issue facing America at the state and national level through many articles and literature research in regards to STEM program and professional teacher training effectiveness. This knowledge will be applied and



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implemented in new programs and projects into the future by the Endeavour organization.



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