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Ben Kieckhefer, Chair
Senate Committee on Finance
State Legislature
401 S. Carson Street
Carson City, NV 89701

Paul Anderson, Chair
Assembly Committee on Ways and Means
State Legislature
401 S. Carson Street
Carson City, NV 89701

Dear Mr. Kieckhefer and Mr. Anderson:

In your letter to Mr. Michael J. Willden, Chief of Staff, Office of the Governor, dated September 29, 2015, you requested that the Governor's Office provide updates to the Interim Finance Committee regarding the award and outcomes of the STEM Challenge Grants and the broadband mapping contract. This report is the first semiannual report.

STEM Workforce Challenge Grants

The inclusion of funding for STEM Workforce Challenge Grants in the Governor's budget was based on a recommendation from the Brookings Institute in their 2014 report, *Cracking the Code on STEM: A People Strategy for Nevada's Economy*. Given the success of the State's economic diversification strategy, Brookings argued Nevada needs a people strategy, specifically one that would produce a workforce with the kinds of STEM skills employers would increasingly demand. STEM Workforce Challenge Grants are one strategy the Governor's Office of Science, Innovation and Technology (OSIT) is using to develop such a workforce.

The purpose of STEM Workforce Challenge Grants is to spark the creation of lasting partnerships between industry and workforce training providers. These partnerships must result in the identification

of STEM-specific skills needed by employers in Nevada and the creation of programs that provide the education and skills training to workers that match those needs, are aligned with present and future labor market information (LMI) needs in Nevada, and are sustainable after grant funds have been exhausted. Funded projects provide training for and develop the STEM-specific, in-demand skills of incumbent or displaced workers and/or traditional postsecondary students (18-24), leading to new or improved employment opportunities in Nevada.

One of the first priorities of the Governor's Office of Science, Innovation and Technology (OSIT) was to design and develop the STEM Workforce Challenge Grant. Mr. Brian Mitchell, Director of OSIT, led this effort. Mr. Mitchell met with public and private stakeholders from across the State to raise awareness of the opportunity for funding, understand the workforce needs of employers, and understand the existing capacity of the various public and private workforce training providers throughout the state.

Early on it was determined that this grant opportunity would focus on sub-baccalaureate STEM skills, identified by Brookings as the maximum level of required education in half of open STEM jobs in Nevada. Further, these types of jobs are projected to grow significantly as Nevada's economy continues to diversify. These jobs pay an average wage of \$53,000 per year- \$20,000 more than non-STEM jobs requiring similar education levels. Despite the abundance of opportunity, the perception in Nevada and nationwide is that STEM careers require significantly more education than is the case. This grant is viewed in part as a strategy to call attention to these careers and target for training Nevadans either without or not planning to get a four-year degree. Given the focus on sub-baccalaureate training programs, eligibility for funding was limited to community colleges, the state college, and other private or public workforce training providers. UNR and UNLV were not eligible applicants due to their focus on baccalaureate and above education.

Based on feedback from employers, training providers, workforce development professionals, the State Grants Office, and the Governor's Office, Mr. Mitchell wrote the Request for Applications (RFA) and distributed it in September. The RFA is included below as Attachment A. Total funding available in FY2016 was \$1,000,000.

At the October application deadline, OSIT received eight applications for funding. Mr. Mitchell convened a review team made up of experts in this field and the applications were competitively scored. Three of the eight applications were funded totaling \$334,975 in State funding. Five of the applications were given denial letters with feedback, and some were invited to reapply. Below is a description of the three awarded applications:

Truckee Meadows Community College (TMCC) has partnered with Switch, Inc. to develop a new training program for data center engineering technicians in anticipation of workforce demands created by Switch's new SuperNAP site in northern Nevada. Graduates will be trained in operations and maintenance of commercial heating and cooling systems. TMCC received a grant award of \$149,435 that will facilitate the acquisition of training equipment and simulators for the TMCC Applied Technologies Center and for the development of the new curriculum. Additionally, Switch will donate a cooling tower to TMCC so that students can work with the same equipment in the lab they would at Switch and will provide training to TMCC faculty. Graduates of this program will be qualified to work for a variety of industries including advanced manufacturing, distribution and healthcare. Data from the Governor's Office of Economic Development shows that workers with these skills earn a median hourly wage of \$22.58.

Specific project outcomes include:

- Installation of one commercial cooling tower for training at the TMCC Applied Technologies Center.
- Acquisition of three commercial-grade heating and cooling systems and three training simulators for the TMCC HVAC/R lab.
- Completion of faculty training and an externship at the sites of industry partners.
- Development of new courses and course content based on the advice of industry partners leading to a new AAS degree emphasis.
- First students enroll in Fall of 2016.

As of December 31, 2015, TMCC is on schedule to complete the new program by the fall enrollment deadline. The first of five courses needed for the program, Cooling Tower Operation, has been completed. TMCC is working to select faculty, design the remaining courses, and install the cooling tower after it has been decommissioned and transported from Las Vegas to Reno.

Western Nevada College (WNC) received a grant award of \$150,000 to build a Mechatronics Training Center and implement the Siemens Mechatronic Systems Certification Program, creating the only Siemens certified training center in the western United States. Training will focus on advanced automated systems used in advanced manufacturing. Grant funding will be used to purchase equipment and fund instructor training by Siemens. The program will cover fields of electricity, mechanics, fluid power, and programmable logic controllers while also teaching important skills for advanced manufacturing including project management, process management and optimization, cost controlling, safety, and effective teamwork. Students may graduate at one of two levels: Level 1 trains students to understand the full system, the components of the system and each device's role within the system and how to keep the system running at maximum capacity. Level 2 emphasizes systems management, investigation, repair, and troubleshooting.

Specific project outcomes include:

- Expanding and remodeling WNC's campus to house the WNC Mechatronics Training Center (paid for with matching funds from the WNC Foundation).
- Purchasing the Advanced Mechatronics System (AMS), a training system fully aligned with the Siemens training program.
- Developing Mechatronics curriculum and integrating best practices from Siemens. This will include WNC faculty participating in Siemens-specific training.
- Marketing and recruiting students, enrolling an initial class for Fall of 2016. WNC estimates 40-60 students will enroll during the first semester and extended lab hours will allow WNC to reach 200 students per year.

As of December 31, 2015, WNC is on schedule to complete the program before the fall enrollment deadline. WNC has contracted to expand the Reynolds Building to develop a larger classroom/lab for the advanced manufacturing program. WNC expects to purchase equipment for the lab and have it delivered before June 30, 2016. WNC is currently developing the curriculum for the following courses:

- Mechatronics: Electrical Components
- Mechatronics: Mechanical Components and Electrical Drives
- Mechatronics: (Electro) Pneumatic and Hydraulic Control Circuits
- Mechatronics: Digital Fundamentals and Programmable Logic Controllers
- Mechatronics: Hands-On Labs

Nevada State College (NSC) received a grant award of \$35,540 to increase the number of STEM teachers in rural Nevada. Rural postsecondary students will be able to complete their teaching degree online, via distance education. Funding from the grant will be used to convert traditional courses into an online and interactive video format, and for the purchase of specialized camera equipment. Students with a STEM-related associate's degree will be eligible to participate in this special program designed to equip them with the skills necessary to teach math and science in the classroom. NSC has partnered with WNC to recruit and prepare candidates for the program. The plan is supported by rural school district superintendents in Lyon, Storey, Churchill, Carson City and Douglas counties. NSC will begin recruiting students to start the program in July, 2016.

NSC is on track to complete the program before it begins recruiting students. NSC is working with WNC to develop the program, identify specific schools and understand needs, and develop marketing materials to promote the program.

Following the successful Round 1 funding, OSIT surveyed stakeholders on the RFA and the application process. Based on feedback received, OSIT made slight adjustments to the RFA and in November, 2015 released the RFA for Round 2. The Round 2 RFA is included below as Attachment B. In Round 2, \$665,025 remained in FY2016 from Round 1. Applications were due January 11, 2016 and OSIT anticipates making award announcements in early February. More information on these awards will be included in OSIT's next report.

Later this spring, OSIT plans to release the Round 3 RFA to award \$1,000,000 in FY2017 funding.

Broadband Mapping

In today's connected society, access to broadband is increasingly less a luxury and more a necessity for economic development, business, education, healthcare, and for use by the general public. In both his State of the State and his budget, Governor Sandoval gave significant attention to improving broadband access, assigning the task of coordinating broadband connectivity to OSIT. Sufficient connectivity is an important component of the Nevada Ready 21 plan, which gives middle school students their own device and teachers the necessary professional development to incorporate them into daily instruction.

To assist the State with the continued mapping, planning and development of broadband, the Governor's budget included funding to retain the services of Connect Nevada, a non-profit working with the State since 2009. In 2009, Congress included funding for broadband grants to states in the American Recovery and Reinvestment Act, established in the US Department of Commerce as State Broadband Initiative grants. Connect Nevada, a subsidiary of Connected Nation, was chosen as Nevada's state designee for the grant. From 2009-2014, during the period of the federal grant, Connect Nevada worked with the Governor's Broadband Task Force on policy development, created maps of broadband coverage, conducted surveys, and wrote the State Broadband Action Plan in November 2014. The plan can be found here: <http://www.connectnv.org>.

Following the passage of the bill, OSIT negotiated a two-year contract with Connect Nevada, which was approved unanimously by the Board of Examiners in September, 2015. The contract funds a full-time, Nevada-based program director, mapping and data analytics services, a GIS analyst, contracted field engineers, software, and administrative support. Connect Nevada works directly with OSIT's Broadband Manager, Britta Kuhn. Contract deliverables include:

- Provide to the Governor's Office of Science, Innovation, and Technology (OSIT) an annual update to the Nevada broadband map to refresh last mile broadband availability (once in December 2015 and once in December 2016);
- Work at the direction of the NV Broadband Task Force (NVBTF) and OSIT to develop for the first time a middle mile broadband infrastructure map so that the state can understand current capacity for transporting broadband service out to rural communities, and what opportunities may exist to help close broadband availability gaps and speed deficiencies;
- Provide staffing, in the form of a state program Executive Director, to support the work of OSIT and NVBTF—particularly in coordination across state agencies, local governments, broadband service providers, and other large capacity fiber/microwave operators to develop the middle broadband map and identify solutions for improved last mile service in rural communities;
- Work at the direction of OSIT to assist the state implement recommendations from the State Broadband Action Plan;
- Meet with OSIT upon request to provide updates on contract deliverables; and
- Upon request of OSIT, Connect Nevada will provide consultation and application assistance to Nevada state agencies applying for broadband or E-Rate grants from the federal government or other sources.

Connect Nevada's activities since September can be divided into three categories: strategic meetings with providers, strategic meetings with state and local government, and mapping.

Strategic Meetings with Providers

Staff from Connect Nevada, together with Ms. Kuhn, have met with representatives of the State's largest broadband providers including AT&T, Switch, Arizona-Nevada Tower Corporation, Lightcore Group Inc., NV Energy, Red Rover Ltd., CenturyLink, Network Services Solutions, and others to discuss fiber infrastructure in the State, future build-out plans, ways to leverage existing infrastructure, and how private-sector providers could collaborate with the State to meet the needs of underserved communities. Connect Nevada staff have also had discussions with several providers regarding leveraging federal funding, such as E-rate, to connect rural schools, hospitals, clinics, and other rural community anchor institutions to the internet. Switch and NV Energy have been particularly open to working with the State to achieve these goals. Staff also met with one provider regarding future build-out in north and northwest Las Vegas, building on previously received federally funded Broadband Initiatives Program grants.

Strategic Meetings with State and Local Government

Meetings in this category often include representatives from private-sector providers as Connect Nevada has made it a priority to bring the public and private sectors together. For example, Connect Nevada has had several meetings in community and government leaders Mt. Charleston regarding the viability of various broadband solutions. Representatives from Arizona-Nevada Tower Corporation and CenturyLink have also participated in these meetings. Connect Nevada has worked with Kim Vidoni, Director of Education Technology Programs at the Nevada Department of Education and others working

on the Nevada Ready 21 plan to organize a monthly conference call with Chief Information Officers in every Nevada school district to discuss forming E-rate collaboratives that could maximize buying power in rural parts of the state. Connect Nevada staff also organized a series of meetings with the Department of Education and Network Services Solutions to discuss possible fiber/microwave solutions for central Nevada schools.

Mapping

In December, Connect Nevada produced a refresh of its last-mile availability map for the state. The maps are included as Attachment C below. The interactive map application availability layers have also been updated at <http://map.connectnv.org>. Additionally, Connect Nevada staff have begun working with public and private sector fiber network operators to collect middle mile fiber information for use on a statewide middle mile infrastructure map.

Conclusion

This concludes the first report. OSIT will submit its next report on or before July 31, 2016. If you have any questions in the interim, please do not hesitate to contact me.

Brian Mitchell, Director
Governor's Office of Science, Innovation and Technology

Attachment A

Attachment B

Attachment C