

PERFORMANCE PROGRESS REPORT

11.b. Describe any challenges encountered with vendors or subrecipients.

PROJECT CHALLENGES:

- [1] Broadband Mapping - The team has experienced some challenges in obtaining the full cooperation of some broadband providers and outreach continues to improve participation levels among the provider community.
- [2] State Capacity Building & Planning - Due to various factors including an administration change, agency reorganizations, personnel changes, and National Public Safety Broadband Network (PSBN) developments, it was necessary to reevaluate and delay some components to ensure the best approach and address sustainability.

PA's broadband program director has been in communication with the federal program office about redirecting unused funds to expand the scale and reach of the state's extremely successful and impactful broadband Technical Assistance component to deepen impact on libraries statewide in partnership with the PA Department of Education. This approach aligns with the original intent of the Planning and Capacity Building components with the promise to generate more economic impact than the original work plan. An Award Action Request (AAR) being prepared by the recipient agency for submission to NTIA during Q3-2014. Resolution of this matter and receipt of authorization to proceed from NTIA will allow for full implementation of PA's SBI program and the commitment of all remaining SBI funds.

REPORTING NOTES:

- [1] In #10.b, per guidance of the Federal Program Office, this table now includes only federally paid recipient staff. Please note that 100% of the recipient-employed State Broadband Director's time continues to be paid using approved match. In total, 1.5 FTEs are dedicated to the program by the recipient.

Please note that the percentage of time dedicated to each project by the federally-funded recipient staff person listed in #10.b. (State Administrative Officer) remained the same since Q1-2014. These proportions will change over time as additional project components are launched, stabilized, and completed.

- [2] In #11.a, Rows 8-10 represent subcontract agreements yet to be determined. The change in the dollar amount on Row 7 represents an amendment to the subcontract agreement related to administration of project components, specifically increased outreach and technical assistance to libraries statewide under the Technical Assistance Component.
- [3] In #12, the Total Matching Funds Expended column includes some costs not reflected in PA's current approved match budget, but that were expended in carrying out the grant activities.

PERFORMANCE PROGRESS REPORT (continued)

Given Commonwealth accounting practices to automatically code and track all expenses associated with the federal grant, these state-paid expenses (e.g. travel to SBDD events, specialized services associated to grant administration, hardware and telecommunications costs etc.) are tracked and reported each quarter as part of our PPR and SF425 reporting. This does not suggest that our approved match sources have or will change, rather it simply reports overmatch in some categories.

We are hesitant to remove such expenses costs from our PPR reporting, as this action would: (1) result in a discrepancy between the matching expenses reported on the PPR and the SF425, and (2) require us to maintain a secondary financial tracking system to back-out such costs, which may increase the chances for error or confusion.

This situation has been discussed with the Federal Program Officer and we welcome guidance from NTIA and/or NIST on how to best address this situation in the event that our ongoing reporting of excess match dedicated to the project raises issues and/or is burdensome to federal program staff.

- [4] In #12, any difference found between the figures in the budget table and the sum of the individual project budgets included in the Excel attachments is due to rounding, as the Excel document allows for the entry of decimals and accounts for those in the sum, whereas the PDF document allows only whole numbers.
- [5] In #11a (Subcontracts Table), the sum of the subcontracts listed exceeds the Total Approved Budget Subcontracts line in (#12). This discrepancy in the amount of \$204,381 can be explained as follows:
- To achieve the intent of PA's capacity building project component, we needed to bring on personnel to assist in the execution of the federal scope of work. In our original supplemental application and project plan, it was anticipated that such staff would be hired directly and therefore such costs would fall under the Salary and Fringe line items. Ultimately, however, these resources, due to their short term nature, were brought on instead via a contracting vehicle designed for the employment of temporary staff augmentation resources, and therefore these costs have fallen under Subcontracts (Row 7 specifically) vs. Personnel.
 - This change is part of a larger budget revision (in the process of being finalizing) which moves funding from Salary and Fringe to Subcontract. Following acceptance of a budget revision, this discrepancy will no longer exist.

PERFORMANCE PROGRESS REPORT (continued)

[6] In #9 and #12 and on the Project Attachment budget tables, please note that the dollar amount of federal expenditures for the Capacity Building "Other" line item decreased between Q1-2014 and Q2-2014 period. This relates to the adjustment of expenditures originally associated with the federal grant, but that were later reimbursed by a funding source outside of this project. Regular monitoring, review, and reconciliation of project expenses by the recipient ensures that all charges billed to the federal grant align with the project work plan and budget.

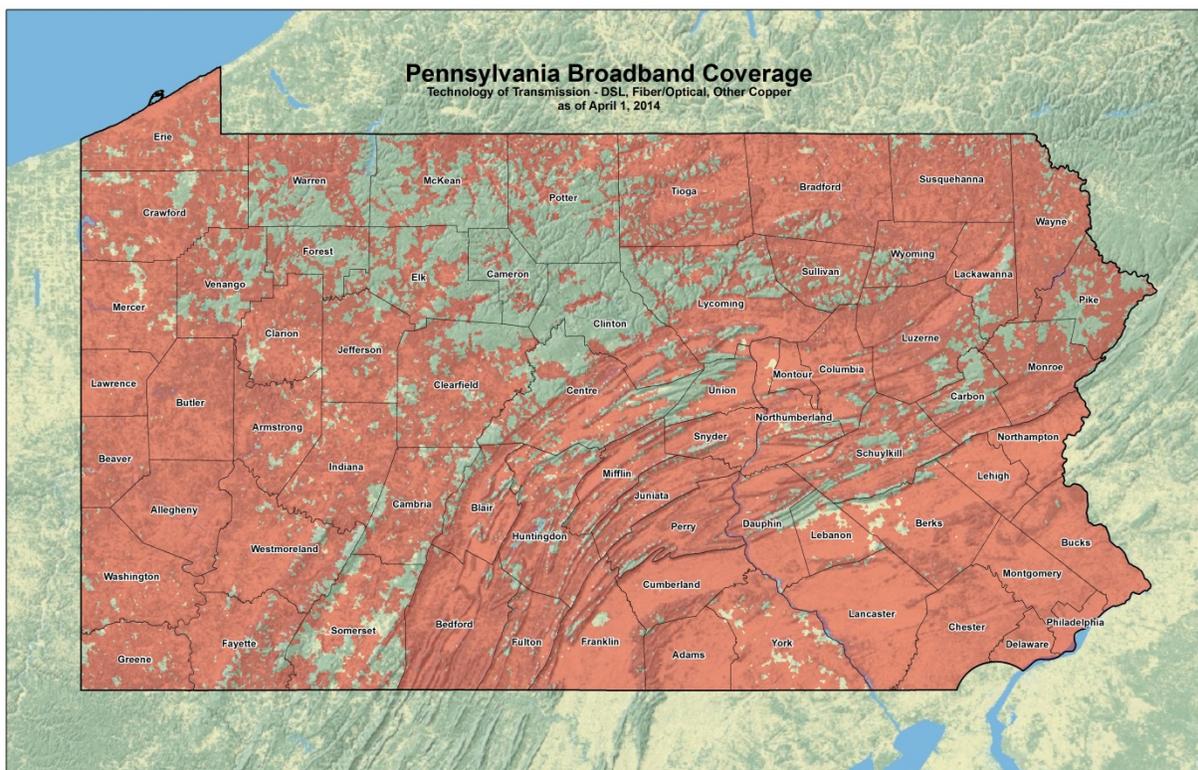
DATA COLLECTION

14.a.2. Describe any additional project milestones that have been accomplished over this reporting period (Ex. Updates to state broadband maps and websites, map outreach activities)?

PA Broadband Map Continues to Be Updated

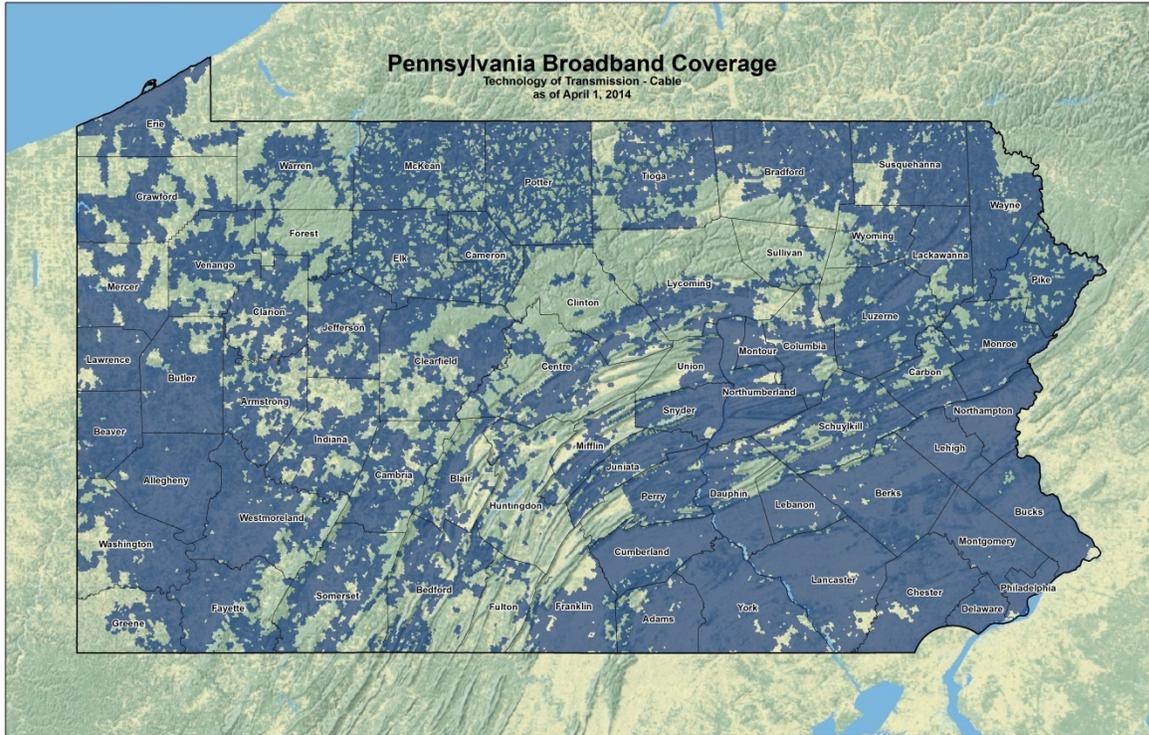
- In accordance with Pennsylvania's work plan, the data collected through the SBDD program is being made available to the public online via a searchable, interactive interface. This mapping tool is available at www.broadbandinpa.com. An official press release about the public mapping tool was released in November 2010. Through Q2-2014, it has received 23,258 hits to the state broadband mapping entry page.
- Following are a series of maps that provide a geographic representation of the reported broadband coverage (excluding satellite provider data) included in the April 2014 data submission. The PA map is refreshed with each semi-annual data delivery to NTIA.

REPORTED WIRELINE/DSL COVERAGE:

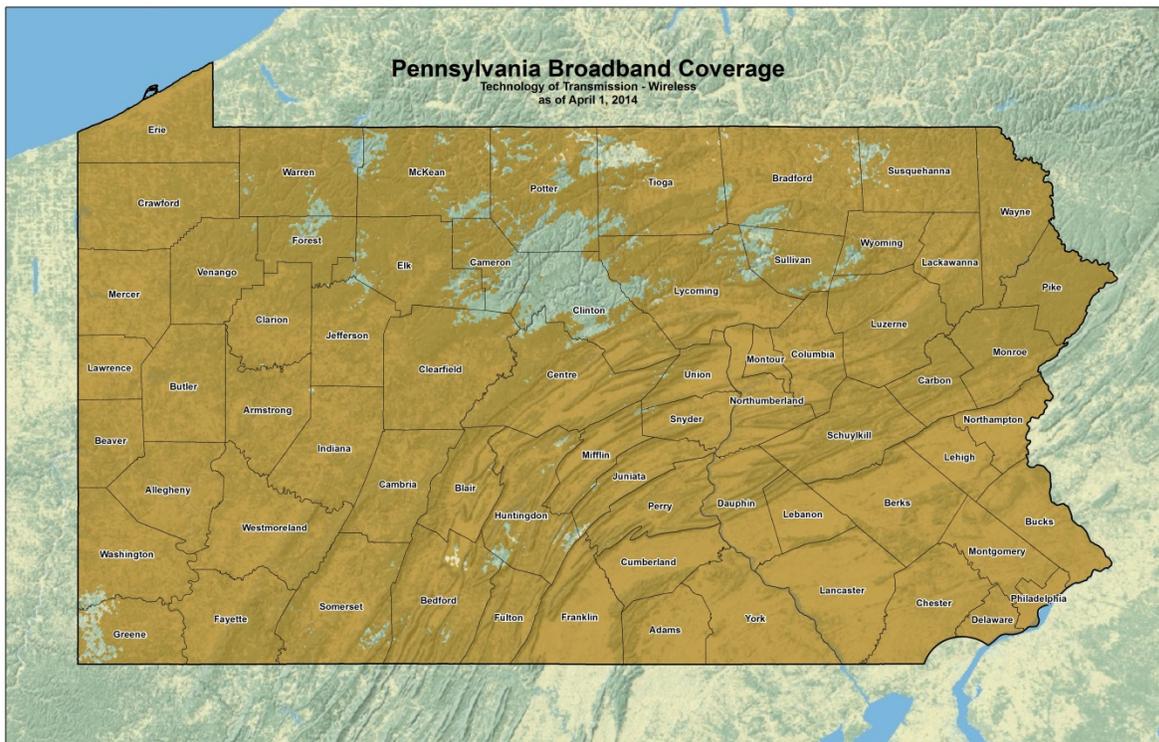


DATA COLLECTION (continued)

REPORTED CABLE COVERAGE:

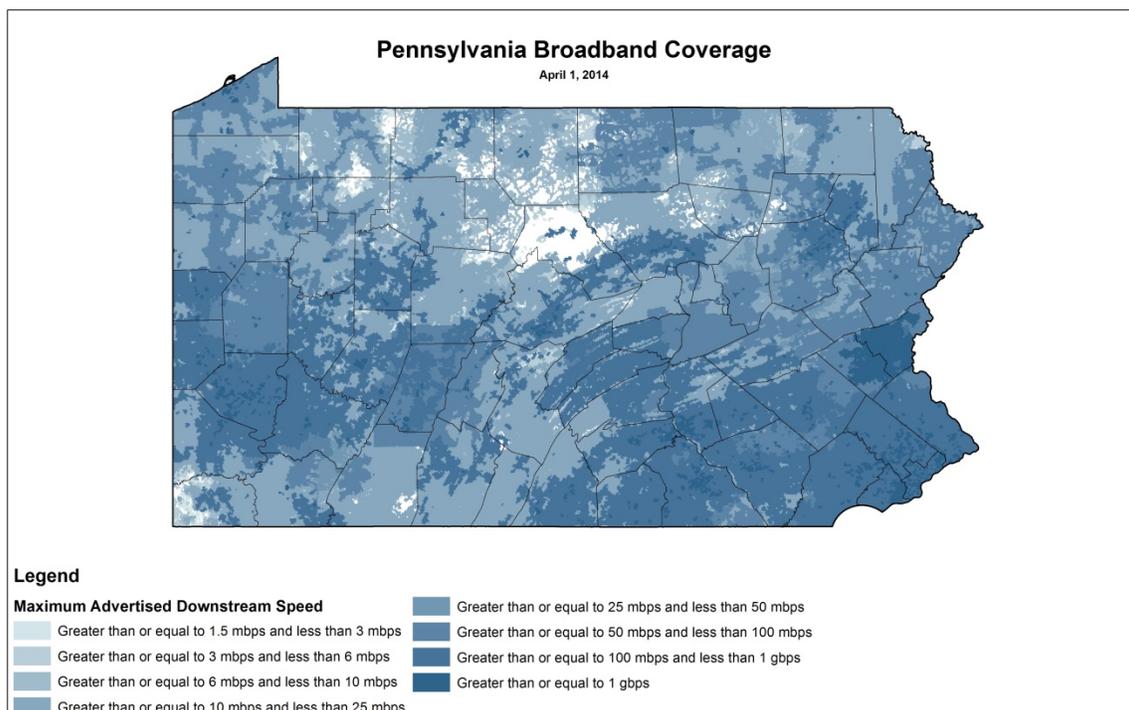


REPORTED WIRELESS COVERAGE:



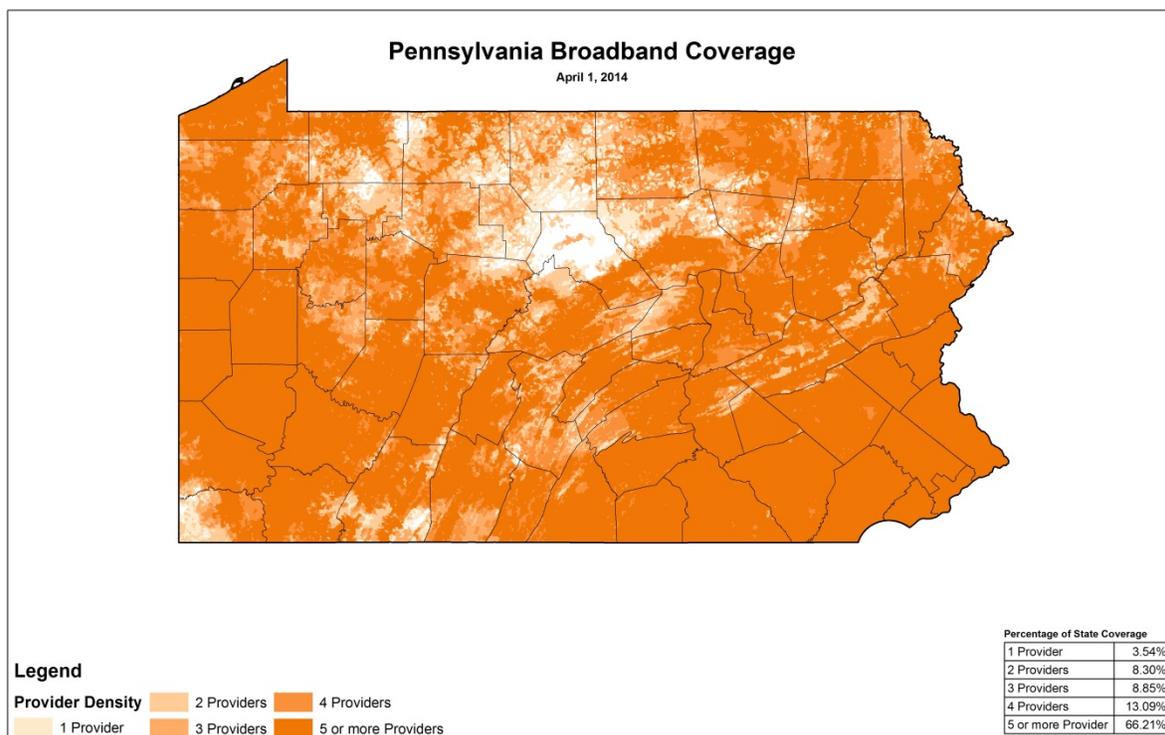
DATA COLLECTION (continued)

- **Data Confidence Scale Published:** With each NTIA data submission, the state broadband mapping website is updated with the latest data and data confidence scale. When someone queries the state broadband mapping website for available broadband service at a specific location, the data confidence scale is shown with each provider's service that is listed. The data confidence scale was updated on the state broadband mapping website during Q2-2014 based on the April 2014 data submission.
- **Small Provider Technical Support:** Technical assistance was provided to small providers, in preparation of their data updates for the April 2014 NTIA data submission and will continue to be provided for future data submission cycles.
- **Data Quality Feedback Loop with Providers:** With each NTIA data submission, the project team provides data quality feedback to the providers based upon findings during the validation process. In Q2-2014, Provider confidence maps were produced and distributed for corrective actions by the Providers for the October 2014 NTIA data submission.
- **Speed Geography:** The following speed tier map shows the maximum advertised download speeds offered across Pennsylvania that is reported in the April 2014 data submission.



DATA COLLECTION (continued)

- **Provider Density:** The following map shows the density of providers offering service in Pennsylvania, derived from the data reported in the April 2014 data submission.



Specific Mapping Enhancements Implemented or In Process:

- **Mobile Device Accessibility Deployed:** During Q2-2014, the beta version of Pennsylvania’s broadband map (www.bakerbb.com/pamobileapp/map.html) remained accessible from mobile devices, including the iPhone (iOS), Android, Windows Phone, and Blackberry.
- **Provider Submission Portal Utilized:** For the April 2014 data submission, the project team witnessed increased usage of the broadband mapping provider submission portal. It is anticipated the usage will increase even more with the October 2014 data submission. This secure, web-based application is designed specifically for providers to streamline the transmission of coverage data between providers and the project team and improve accuracy.

DATA COLLECTION (continued)

- Secure Map Updated:** Recognizing that broadband data collected is most powerful as an economic development and planning tool when viewed and analyzed in context, Pennsylvania is building out a secure version of its public broadband. This interface is accessible by various state agencies, along with select internal and external partners.

Permissions ensure the confidentiality of the data and enable users to access additional non-broadband data in the GIS interface and/or upload their own datasets to view in relation to broadband. This application is also used as a tool to facilitate stakeholder participation in data validation. During Q2-2014, the data on the website was refreshed with the April 2014 data submission information. The update of the secure website will continue for subsequent update cycles.

- Propagated Coverages Generated:** For the April 2014 NTIA data submission, propagated wireless coverages were included for the fixed wireless providers who either refused to participate, were non-responsive, or had supplied a questionable coverage.
- CAI Outreach Enhanced:** Pennsylvania implemented an online survey tool and leveraged existing data sources to amass data on 64% of identified K-12 schools and 93% of identified libraries collected for the April 2014 update. The following table shows the current CAI outreach results. Data collection continues, with additional responses to be included in the October 2014 update.

<i>Community Anchor Institution Type</i>	<i>Number of Community Anchor Institutions Identified</i>	<i>Number of Institutions with Connectivity Attributes</i>
<i>K-12 Schools</i>	<i>4,898</i>	<i>3,118</i>
<i>Libraries</i>	<i>769</i>	<i>720</i>
<i>Post-Secondary Schools</i>	<i>535</i>	<i>104</i>
<i>Police Departments</i>	<i>1,025</i>	<i>280</i>
<i>Hospitals</i>	<i>278</i>	<i>63</i>
<i>Health Departments</i>	<i>616</i>	<i>30</i>
<i>Other Non-Governmental</i>	<i>7</i>	<i>7</i>
<i>Other Governmental</i>	<i>5</i>	<i>5</i>
<i>Total:</i>	<i>8,133</i>	<i>4,327</i>

- Improved Middle Mile Inventory:** During outreach activities to providers, the project team continues to emphasize the importance of supplying middle mile with their service data. For the April 2014 data submission, the project team included five (5) additional middle mile locations from the previous NTIA data submission.

DATA COLLECTION (continued)

- **Reseller Data Included:** For the April 2014 data submission, reseller data was included. Although it has been a challenge getting resellers to participate, outreach will continue to increase their participation in the program in the coming data submissions. During Q2-2014, the state broadband mapping website was updated to include the participating resellers.
- **Typical Speed from Public Sources:** During outreach activities, the project team continues to emphasize the importance of supplying complete data. Where typical speed values will not be supplied by the provider, the missing typical speeds are calculated from public speed tests supplied by the FCC and collected from the state broadband mapping website.
- **WiFi Hotspots Published:** WiFi hotspots continue to be made available on the secure map and on the state broadband mapping website. In addition, a WiFi self-reporting application is available on the state broadband mapping website.
- **Data Sharing:** The project continues to make the raw data available for use by municipal and other entities to support their specific planning and mapping needs. The project team has provided the ability for municipal and other entities to download the non-confidential data from the public website after completing a short request form.

DATA COLLECTION (continued)

14.a.4. Provide any other information or statistics that you think would be useful to NTIA as it assesses your broadband data collection, validation and publication activities.

Provider Stats: The Pennsylvania broadband mapping team is working hard to fulfill the obligations under the program and we are pleased with the progress thus far. To summarize the Commonwealth of Pennsylvania’s broadband mapping project progress, the following table outlines Broadband Provider participation through June 30, 2014.

<i>Status Categories</i>	<i># of Providers</i>
<i>Total ISPs/Providers Identified/Contacted</i>	334
<i>Providers That Report They Do Not Provide Broadband Service in PA</i>	151
<i>Providers That Report They Are Resellers</i>	22
<i>Companies In Which We Are Unsure If They Provide Broadband Service</i>	32
<i>Known Broadband Provider Universe</i>	129
<i>Providers That Have Not Yet Responded to Contacts from the Project Team</i>	9
<i>Providers That "Will Not Provide Data"</i>	15
<i>Providers That "Have Submitted Partial Data"</i>	0
<i>Providers That "Will Provide Data" But Have Not Yet</i>	0
<i>Provider Data That Has Been Validated</i>	105
<i>Providers Included in the April 1, 2014 Delivery</i>	105
<i>Resellers Included in the April 1, 2014 Delivery</i>	4

The matrix below indicates the progress made with each SBI data submittal through April 2014.

	As of May 2010	As of Oct. 2010	As of Apr. 2011	As of Oct. 2011	As of Apr. 2012	As of Oct. 2012	As of Apr. 2013	As of Oct. 2013	As of Apr. 2014
Total Number of Broadband Providers Identified	101	113	115	120	121	121	125	127	129
Providers that Have Agreed to Participate	75	93	99	101	95	98	103	105	105
Entities with which we have executed NDAs	40	40	41	41	41	41	41	41	41
Entities which we are actively negotiating NDAs	2	1	0	0	0	0	0	0	0
Providers that have submitted data	69	89	94	94	92*	96	102	105	105

* NOTE: Three (3) broadband providers who supplied data in previous data submissions but are no longer providing service and one (1) broadband provider supplying data for the 1st time.

TECHNICAL ASSISTANCE

14.b.2. Describe your progress meeting each major activity/milestone approved in the Project Plan for this project; any challenges or obstacles encountered and mitigation strategies you have employed; planned major activities for the next quarter; and any additional project milestones or information.

During Q2-2014, the network of 20 economic, community, and workforce development partners involved in this effort continued to carry out this scope of work to assist businesses and community anchor institutions adopt and/or make better use of broadband.

Technical Assistance cases are underway statewide and small business clients/community anchor institutions are being referred to and assisted through the program. During Q1-2014:

- The Pennsylvania Technical Assistance Program (PennTAP) at Penn State University (PSU) closed 28 one-on-one technical assistance cases with small business or community anchor institution clients and had another 33 in process. This brings the number of closes cases to 315 (131% of commitment).
- PennTAP completed 9 additional cases of intensive technical assistance with businesses and community anchor institutions, bringing the total of intensive cases to date to 89 (223% of commitment).
- PennTAP provided training or assistance to 213 individuals, bringing the cumulative total to 2,368 individuals impacted (135% of commitment).
- PennTAP placed an additional nine (9) PSU undergraduate IT students as interns within client organizations to date, bringing the total placed and mentored to 39 (98% of commitment) as part of an intensive technical assistance component to address specific technology issues and business problems related to broadband adoption by implementing broadband solutions. Plans are in the works for summer internships and currently eight (8) more students are lined up for placement within client businesses and organizations.
- Prospective technical assistance clients continue to be referred to this educational webinar: https://online.ist.psu.edu/sites/ist402penntap/files/presentation/penntap_broadband.swf
- PSU's College of Information Sciences and Technology (IST) completed development of the "IT Professional Coursework on Personal Computer Security" (PerSec) which will target IT professionals. This course will be ready for delivery in early Q3-2014 and PSU is exploring offering the training on line as a non-credit offering with Outreach Professional Education.
- Social Media Marketing, Search Engine Optimization training with assistance for mobile accessibility and utilizing credit card tools on mobile devices continued to be hot topics for both one-on-one and group trainings provided through the program. PennTAP spoke on Social Media at the recent Sustainable Energy Fund Conference held in the Poconos.

TECHNICAL ASSISTANCE (continued)

- PennTAP's clients receiving broadband technical assistance have reported the creation or retention of 145 jobs. In addition, \$6,200,000 in economic benefits have been realized due to the assistance provided through this program (includes increased revenues, cost savings, cost avoidance, capital investments, etc.)
- The PA Department of Education's (PDE) State Librarian and the contracted project manager worked in partnership with PennTAP to develop a comprehensive broadband assessment tool to aid technical assistance to libraries through this project. A total of 20 site assessment visits were completed, with additional assessments, technical assistance, training, and micro-grant assistance to be rolled out in Q3-2014.
- The Local Development District (LDD) network continued to roll out its municipal/community broadband outreach/training program during Q2-2014. Through the end of the quarter, 34 outreach sessions were held, engaging 1,452 individuals. As a result, 953 individuals (25% of commitment) were enrolled in the program and 988 broadband-related courses had been completed. In addition 150 technical follow-up sessions with participants were provided.
- Under the LDD-led training program, New Horizons/Skillport will provide access to an online course library of 110 courses and over 500 online videos to a minimum of 3,750 individual users across Pennsylvania, with special emphasis on engaging community anchor institution personnel. Courses will cover broadband-related or supportive topics such as Online Marketing, Email Marketing, Website Development, Social Media, Advanced Wireless Technologies, Cloud Computing, Internet Security, Information Security of End Users, Quickbooks, Microsoft Applications (Word, Excel, Outlook, PowerPoint & Access), Graphics / Graphic Design, Business Skills, Project Management, SharePoint/web collaboration, etc.
- The training program, branded as Online Broadband & Technology Training (OBTT) is being marketed through newsletters, press releases, events, trainings, and the website (www.paobtt.com). A copy of the program brochure also accompanies this quarterly report as an attachment.
- The program has seen strong interest from job seekers, nonprofits and small businesses. In particular, CareerLinks and other nonprofit job training facilities have embraced the program and see it as particularly useful to their clients. One partner is currently promoting OBTT to a company that has multiple manufacturing facilities across the state. After learning about the program, their training coordinator is proposing accepting OBTT training as company approved (and required) training if the employee provides a certificate. This will both increase the use of the program and directly benefit PA manufacturing facilities.
- The Industrial Resource Center (IRC) Network and its regional partners (who are also the federally-designated entities charged with assisting manufactures through NIST's Manufacturing Extension Program (MEP)) completed 26 Broadband Assessments and 28 Technology Strategic Plans for manufacturers during Q2-2014, bringing the total to 221 Broadband Assessments (110% of commitment) and 219 Broadband Technology Strategic Plans (109% of commitment) to date.

TECHNICAL ASSISTANCE (continued)

- Manufacturing client companies assisted by the IRC Network to date through this program have reported the following impacts as a result of implementing the broadband recommendations provided.
 - \$21.2 million in increased sales
 - \$21.9 million in retained sales
 - \$9 million in cost savings
 - \$8.4 million in qualified investment
 - 183 jobs created
 - 241 jobs retained
- (NOTE: The above impact data above represents only 84 manufacturing client survey responses with 33% representing multiple engagements.)*
- Outreach and communication continue throughout the state and the subrecipients are continuing to actively engage manufacturers to strengthen their knowledge and use of Broadband technology. Some manufacturers are now positioned to implement recommendations made in the Technology Strategic Plans are beginning to utilize the Broadband Implementation Micro-grants to support their project implementations.

MICRO-GRANT IMPLEMENTATION ASSISTANCE:

Recommendations are one thing, but if the company cannot or does not implement them, what good are they?

- For this very reason, the Broadband Implementation Micro-grant program component was launched in Q1-2013 to incent firms to actually pull the trigger and implement the technology plan recommendations provided. \$400,000 in total will be deployed to businesses and community anchors statewide to incent the implementation of broadband recommendations resulting from the Technical Assistance initiative. Clients are eligible to apply for 50% of their broadband project costs up to \$10,000, which will be reimbursed upon project completion. Application rounds are held monthly. All recipients will report on the economic impacts resulting from assistance received, metrics include job creation/retention, increased revenues, cost savings, cost avoidance, capital investments, etc.
- Only companies who have graduated from the technical assistance process are eligible to apply and the project must be signed off on by the sponsor organization providing the assessment/plan indicating that it aligns with the broadband recommendations provided.
- Cumulatively, at the close of Q2-2014, a total of 14 micro-grant funding rounds had been completed. In total, 146 applications were received and reviewed in that time, of which 116 from 40 of Pennsylvania's 67 counties were approved, totaling \$397,717 in micro-grants (99% of commitment), leveraging \$2,546,198 in private company investment (6:1 leverage ratio) to support broadband-related project implementations. These projects will improve the operations of the client companies, while generating significant ROI, economic impact, and job creation.

OTHER - RESEARCH

14.b.2. Describe your progress meeting each major activity/milestone approved in the Project Plan for this project; any challenges or obstacles encountered and mitigation strategies you have employed; planned major activities for the next quarter; and any additional project milestones or information.

Manufacturing Benchmarking Study:

Overview: The broadband technology manufacturing study and research will combine state and regional economic data with competitive insights from leading manufactures. The study is focused on the availability and contribution of broadband technology to the Pennsylvania manufacturing sector to provide an understanding of the barriers in accessing broadband technology and best practices in order to accelerate the adoption of broadband technology by manufactures to be globally competitive, impact growth, productivity, job creation/retention, and economic wealth in Pennsylvania. The study will include lessons learned from the state's leading manufactures, and in-depth understanding of the technology base of manufacturing in the Commonwealth and of each of the state's regional economies, and conclusions from the research that take the lessons and understanding to an actionable level, providing recommendations on ways to eliminate barriers and provide resources to accelerate the adoption and implementation of broadband technology in manufacturing, to improve the competitive position of manufacturing employers through the use of broadband technology.

Status: In addition to the contract management and reporting, activity during Q2-2014 included reviewing the final report and meetings to discuss the findings and future opportunities. A white paper was drafted to outline additional potential follow-on research opportunities. A draft report was shared with the Commonwealth for review. The research report is expected to be finalized and printed in Q3-2014.

Cumulatively, the following have been accomplished on this component:

- Research methodology, approach, and timeline have been developed.
- Secondary research completed.
- Survey methodology was agreed upon.
- Survey questions were finalized.
- On-line survey tool was selected.
- On-line survey was designed and questions uploaded.
- Survey was deployed to manufacturers within Pennsylvania.
- Received more than 70 survey responses.
- Completed survey data analysis.
- Developed interview protocol and targeted companies.
- Completed five company interviews.
- Documented and transcribed all company interviews and data.
- Identified trends evident throughout the company interviews.
- Identified needs for additional data.

OTHER – RESEARCH (continued)

- As a corollary effort, the IRC Network has completed over 100 broadband technology assessments and plans for companies across the state. In addition, over 50 technology improvement projects have been initiated. As appropriate, the results from these corollary efforts will be integrated into the analysis for the research report.
- Summarized results of Broadband Technical Assessments and Implementation grants.
- Issued sub-contract for the final report.
- Analyzed all data and formulated results/ findings.
- Wrote Draft Final Report and submitted it for review.
- Made initial plans for report publication and distribution.
- Drafted a white paper outlining potential follow-on research opportunities.

For Pennsylvania small to mid-sized manufacturers to fully capitalize on broadband implementation requires additional investment at both the public and private level. Preliminary research results indicate several key gaps that need to be addressed relative to broadband technology:

- PA small to mid-sized manufacturers as a whole do not grasp the potential of digitally enabled manufacturing and thus do not appreciate the need for high speed communications and data transmissions that will require broadband technology. This suggests a need for education and assistance programs focused on digital manufacturing, the competitive dynamics of digitally enabled business models, and the building blocks that will be needed in the hardware and software infrastructure. However, successful technology implementation needs to be driven by business needs not the other way around. As a result, broadband capabilities need to be clearly linked and expressed in terms of current business issues they address.
- There is a need for clear case studies in multiple sectors, based on companies of a range of sizes and revenues, and targeted to a range of manufacturing types to better portray the implications of digitally based technologies on manufacturing.
- New metrics need to be developed that can capture the value added by digital technologies, specifically broadband. Both tangible and intangible value need to be explored.
- Models need to be developed that help SMEs assess what their needs are for future computing.
- A better understanding of the security implications must be developed. Information and training about privacy and security need to be articulated.
- While most manufacturers have a website, the level of interactivity and the importance of this in the future is perhaps poorly understood and undervalued.
- Serious consideration needs to be given to the targets for upload and download speeds that PA manufacturers will need to be more competitive relative to other national manufacturers.

These findings suggest not only additional areas for research but also pilot implementation strategies. In particular, there is interest in developing a tool kit that would be used to help companies determine their current position along a digital continuum of broadband enabled technologies. The objective would be to help companies fully realize the technologies potential and develop an appropriate plan of action matched to their particular business priorities and needs.

The following list highlights the remaining tasks to be completed under the current project:

- Finalize the report
- Publish and distribute report
- Pursue follow- on research and efforts as appropriate.