

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 State Broadband 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, as well as expand the Manufacturing Benchmark Study component. 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) is being finalized by the recipient agency and will be submitted along with the grant close-out as instructed by NTIA to formalize these changes, align the budget with program priorities, and address the fact that staffing resources needed to be brought on via contract versus direct hire.

REPORTING NOTES:

- [1] In #10.b, per guidance of the Federal Program Office, this table includes only federally paid recipient staff. Please note that the percentage of time dedicated by the federally-funded recipient staff person listed in #10.b. (State Administrative Officer) has changed since Q3-2014, increasing from 50% to 100% overall, as well as shifting focus between project components. This relates to knowledge transfer associated with transition of oversight of the broadband map and other program functions from the Executive Offices to the PA Department of Community and Economic Development in anticipation of the close of the federal grant.
- [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. This quarter, a non-substantive (2 cent) adjustment was made to one line on the Excel attachment to ensure that all values match across reports (e.g. SF-425, PPR, and the Excel attachment).

[5] In #11a (Subcontracts Table), the sum of the subcontracts listed exceeds the Total Approved Budget Subcontracts line in (#12). This discrepancy 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 vs. Personnel.
- This change is part of a larger budget revision, which moves funding from Salary and Fringe to Subcontract. Following acceptance of a budget revision (to be submitted along with the closeout report per guidance from NTIA/NIST), this discrepancy will no longer exist.

PERFORMANCE PROGRESS REPORT (continued)

- [6] In #11a (Subcontracts Table), the amounts of some individual subcontracts have adjusted up or down since Q3-2014. This is related to the evaluation of all contracts in anticipation of close-out and the amendment of some contracts to bring the budgeted amount in line with the latest expenditure estimates projections.
- [7] 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 Q3-2014 and Q4-2014 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.

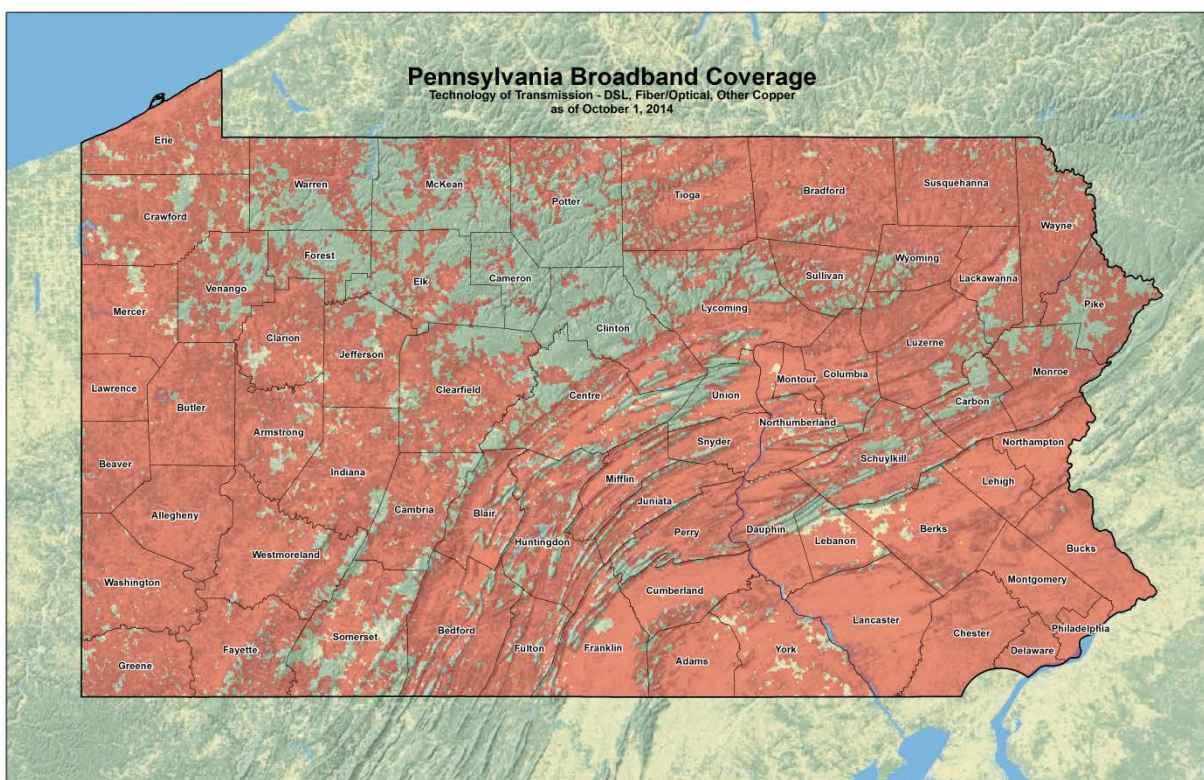
DATA COLLECTION

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

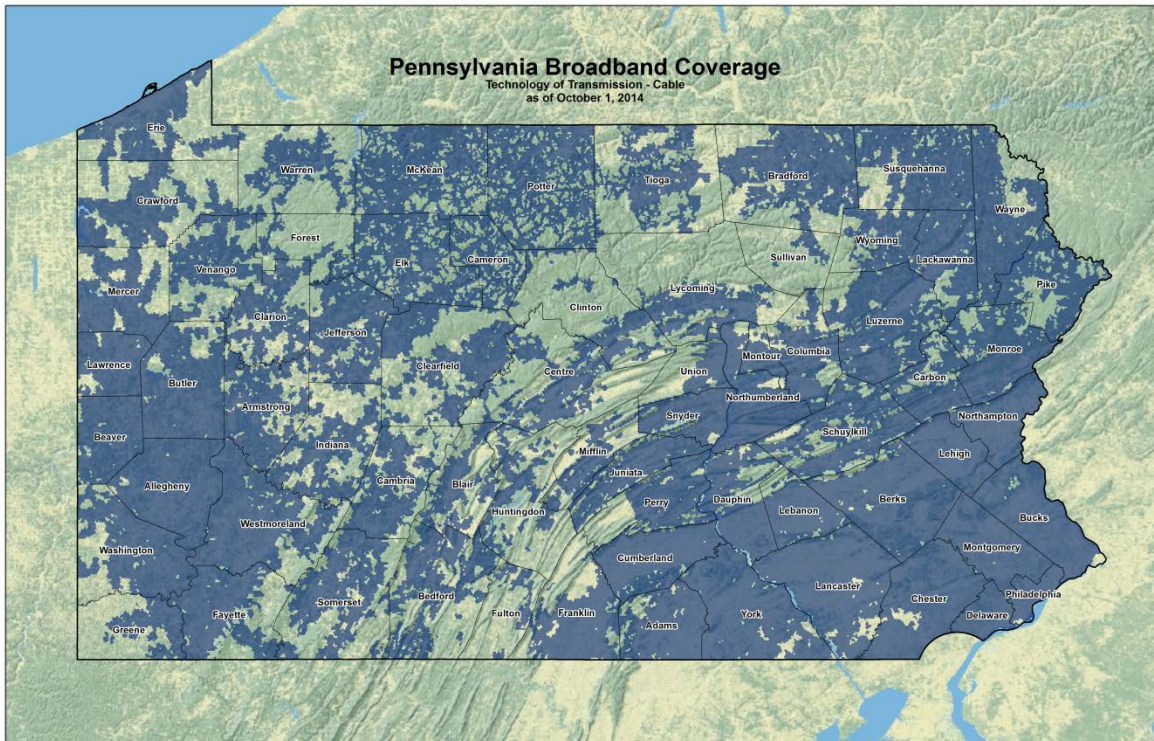
- In accordance with Pennsylvania's work plan, the data collected through the SBDD program is being made available to the public online via a searchable, interactive interface. This mapping tool is available at www.broadbandinpa.com. An official press release about the public mapping tool was released in November 2010. Through Q4-2014, it has received 24,979 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 October 2014 data submission. The PA map is refreshed with each semi-annual data delivery to NTIA.

REPORTED WIRELINE/DSL COVERAGE:

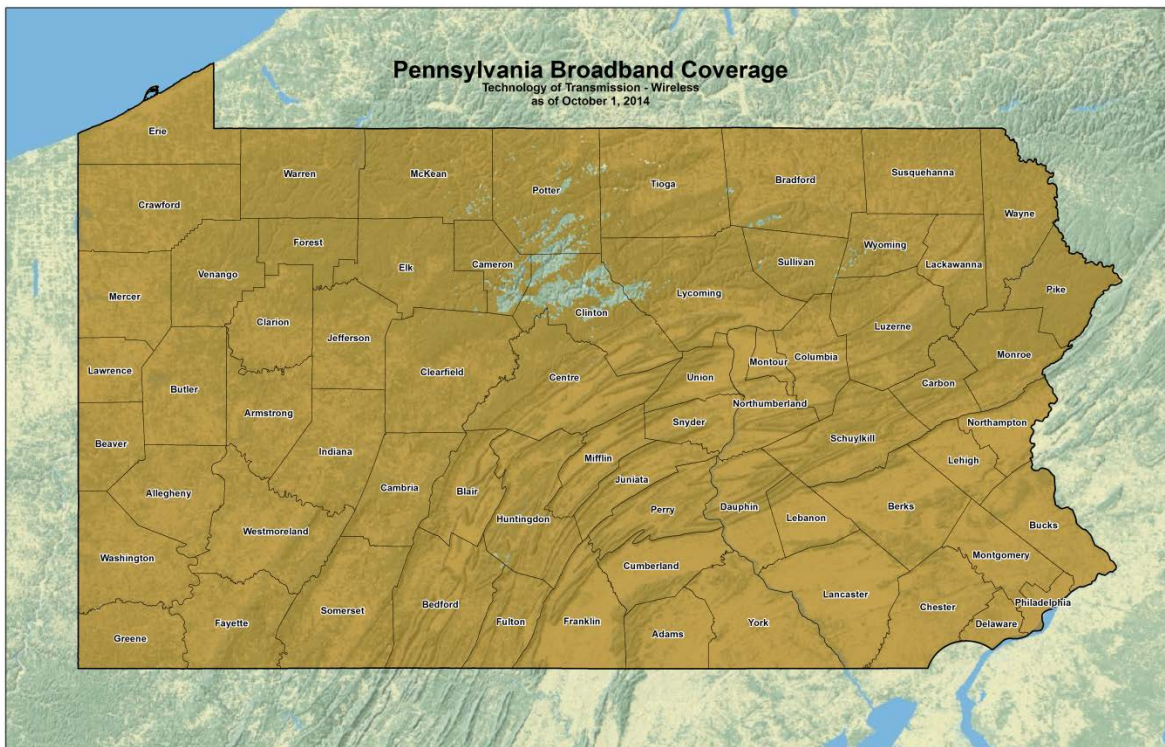


DATA COLLECTION (continued)

REPORTED CABLE COVERAGE:

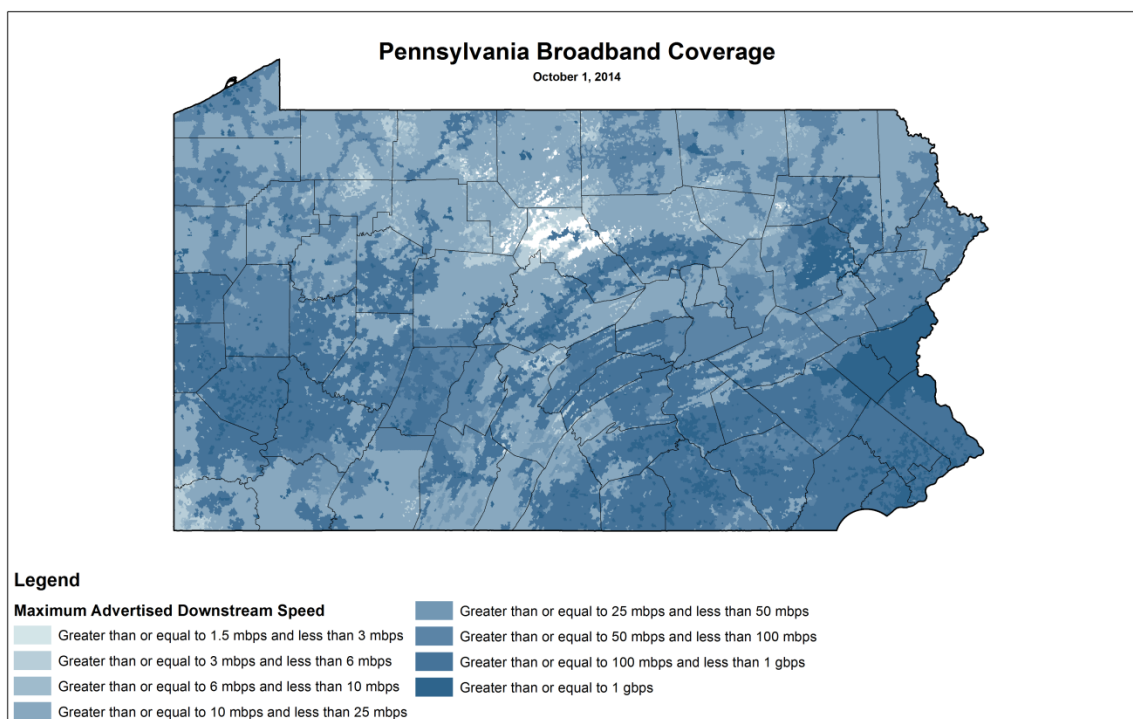


REPORTED WIRELESS COVERAGE:



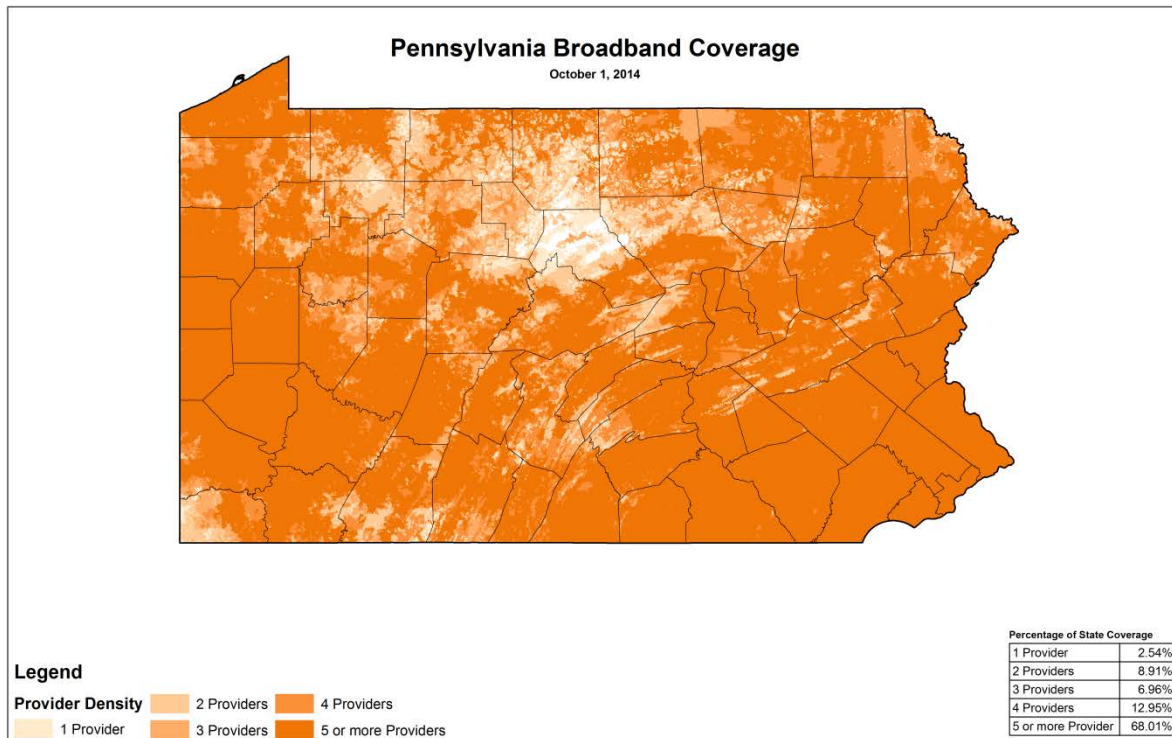
DATA COLLECTION (continued)

- 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 Q4-2014 based on the October 2014 data submission.
- Small Provider Technical Support:** Technical assistance was provided to small providers, in preparation of their data updates for the October 2014 NTIA data submission.
- 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. 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 October 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 October 2014 data submission.



Specific Mapping Enhancements Implemented or In Process:

- **Mobile Device Accessibility Deployed:** During Q4-2014, 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 October 2014 data submission, the project team witnessed increased usage of the broadband mapping provider submission portal. 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 Q4-2014, the data on the website was refreshed with the October 2014 data submission information.
- Propagated Coverages Generated:** For the October 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 94% of identified libraries collected for the October 2014 update. The following table shows the current CAI outreach results.

<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>	4,840	3,112
<i>Libraries</i>	769	721
<i>Post-Secondary Schools</i>	535	104
<i>Police Departments</i>	1,025	284
<i>Hospitals</i>	278	63
<i>Health Departments</i>	616	30
<i>Other Non-Governmental</i>	7	7
<i>Other Governmental</i>	5	5
<i>Total:</i>	8,075	4,326

- 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 October 2014 data submission, the project team included one (1) additional provider who supplied middle mile locations from the previous NTIA data submission.
- Reseller Data Included:** For the October 2014 data submission, reseller data was included. Although it has been a challenge getting resellers to participate, outreach continued to increase their participation in the program. During Q4-2014, the state broadband mapping website was updated to include the participating resellers.

DATA COLLECTION (continued)

- **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. To summarize the Commonwealth of Pennsylvania's broadband mapping project progress, the following table outlines Broadband Provider participation through September 30, 2014.

<i>Status Categories</i>	<i># of Providers</i>
Total ISPs/Providers Identified/Contacted	341
Providers That Report They Do Not Provide Broadband Service in PA	151
Providers That Report They Are Resellers	27
Companies In Which We Are Unsure If They Provide Broadband Service	32
Known Broadband Provider Universe	131
Providers That Have Not Yet Responded to Contacts from the Project Team	9
Providers That "Will Not Provide Data"	15
Providers That "Have Submitted Partial Data"	0
Providers That "Will Provide Data" But Have Not Yet	0
Provider Data That Has Been Validated	107
Providers Included in the October 1, 2014 Delivery	107
Resellers Included in the October 1, 2014 Delivery	4

The matrix below indicates the progress made with each SBI data submittal through October 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	As of Oct. 2014
Total Number of Broadband Providers Identified	101	113	115	120	121	121	125	127	129	131
Providers that Have Agreed to Participate	75	93	99	101	95	98	103	105	105	107
Entities with which we have executed NDAs	40	40	41	41	41	41	41	41	41	41
Entities which we are actively negotiating NDAs	2	1	0	0	0	0	0	0	0	0
Providers that have submitted data	69	89	94	94	92*	96	102	105	105	107

* 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 Q4-2014, 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 statewide assisted small business clients and community anchor. During Q4-2014, the partners' combined efforts had impressive results in driving economic development. Thus far, their clients have reported the following impacts as a result of assistance through this program¹:

- **\$99.5 million** in economic benefits
- **714 jobs** created or retained

Detail on each of the partners' effort follow below:

During Q4-2014, the **Pennsylvania Technical Assistance Program (PennTAP)** at Penn State University (PSU):

- Closed 19 one-on-one technical assistance cases with small business or community anchor institution clients and had another 6 in process. This brings the number of closes cases to 372 (152% of commitment).
- Was engaged in 12 intensive technical assistance cases with businesses and community anchor institutions, bringing the total of intensive cases to date to 108 (270% of commitment).
- Provided training or assistance to 246 individuals, bringing the cumulative total to 2,842 individuals impacted (162% of commitment).
- PSU undergraduate IT students continued to serve as interns within client organizations. The total number of interns placed and mentored is 44 (110% of commitment) to support the intensive technical assistance component to address specific technology issues and business problems related to broadband adoption by implementing broadband solutions.

¹ Impact data collected using methodology developed in partnership with and/or recognized by the U.S. Department of Commerce, Economic Development Administration; National Institute of Science Technology, Manufacturing Extension Partnership, and the Pennsylvania Department of Community and Economic Development.

TECHNICAL ASSISTANCE (continued)

- Of the student internship engagements completed, 10 students have received job offers upon completing their internships, a testament to the students' abilities and the program's success in matching them with the right client organizations. So far, businesses taking on students have reported greater than \$700,000 in economic benefits.
- 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) targeting IT professionals. This course is available on the same platform as Penn State World Campus coursework and is being promoted to PennTAP clients and partners,
- Cyber Security Basics, Search Engine Optimization (SEO) training with assistance for Mobile accessibility and utilizing Credit Card tools on mobile devices continues to be a Hot Topic for both one-on-one and group trainings. PennTAP spoke on "Websites and SEO" in partnership with Penn State SBDC Global Entrepreneurship Week and presented a Cyber Security basics seminar for municipalities in the Northern Tier.
- PennTAP's clients receiving broadband technical assistance have reported the creation or retention of 163 jobs. In addition, \$7,800,000 in economic benefits have been realized due to the assistance provided through this program (includes increased revenues, cost savings, cost avoidance, capital investments, etc.)
- PennTAP has increased its research and assistance around broadband connectivity of rural healthcare facilities and doctor's offices, given rural telemedicine and statewide health information exchange developments.

The **Pennsylvania Department of Education (PDE)** continued rollout of its training and technical assistance effort, with the goal of increasing connectivity and use of connected technologies in Pennsylvania Public Libraries. Through Q4-2014, the following was accomplished:

- Conducted 11 Broadband 101 training sessions: 1 tech summit, 1 statewide leadership training, 9 sessions at locations throughout the state.
- Conducted 5 webinars designed specifically for public library leaders, with a focus on those who needed basic/beginner level skills.
- Completed 20 on-site assessment visits.
- Collected broadband self-assessments from 256 library locations. The information collected includes details on facility preparedness, planning, and information about existing connectivity, switches, routers, workstations, and servers on site. Not only is documentation of this information very helpful to the library staff, but it will be very valuable to inform policy making at the state Department of Education.
- 243 locations submitted project plans for review by the project technical specialists, who provided recommendations to improve internal and external connectivity, as well as enhance the usability of connectivity by replacing out-of-date workstations.
- Reviewed these projects and awarded micro-grants to 84 projects impacting 139 libraries to implement impactful broadband-related projects.

TECHNICAL ASSISTANCE (continued)

Due to this project:

- Many Libraries reported greater understanding of bandwidth, measurement, Wi-Fi, and networks after attending trainings and doing assessments.
- A collection of documents and recorded webinar training sessions was produced that can continue to be used to as part of the groundwork to help libraries with better technology planning and decision-making.
- Libraries that participated in the program, but that did not receive micro-grants now have a clear plan on what they need to do next to improve broadband connections and the use of the technology in their library.

The **Local Development District (LDD) network:**

- Continued to roll out its municipal/community broadband outreach/training program during Q4-2014. Cumulatively, through the end of the quarter, 117 outreach sessions were held, engaging 4,315 individuals. As a result, 1,996 individuals were actively enrolled in the program and 5,563 courses had been completed. In addition 772 technical follow-up sessions with participants were provided.
- Under the LDD-led training program, New Horizons/Skillport provides access to a course library of 110 courses and over 500 online videos, 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).
- Program activity will continue through the end of January 2015. Program partners continued and increased their efforts to promote the program through general marketing (newsletters, emails, press releases) and outreach meetings. Regional program administrators increased their efforts to promote the program by partnering with relevant local and statewide agencies including CareerLinks, libraries, local government associations, Community Colleges, High Schools and Chambers of Commerce. In addition, regional program administrators continue to provide technical assistance to participating users. Program participation continues to increase.
- 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.

TECHNICAL ASSISTANCE (continued)

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 1 Broadband Assessment and 1 Technology Strategic Plan for manufacturers during Q4-2014, bringing the total to 224 Broadband Assessments (112% of commitment) and 222 Broadband Technology Strategic Plans (111% of commitment) to date.
- 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.
 - \$30.5 million in increased sales
 - \$39.5 million in retained sales
 - \$10.9 million in cost savings
 - \$10.8 million in qualified investment
 - 216 jobs created
 - 335 jobs retained

(NOTE: The above impact data above represents only 115 of 224 manufacturing client survey responses with approximately 33% representing multiple engagements.)

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 conceived to incent organizations to actually pull the trigger and implement the technology plan recommendations provided.
- 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 Q4-2014, 146 applications were received and reviewed, of which 119 from 40 of Pennsylvania's 67 counties were approved, totaling \$400,000 in micro-grants, leveraging \$6 in private investment for every \$1 of federal funding (6:1 leverage ratio) to support broadband-related project implementations. These projects are improving the operations of the client companies, and generating significant ROI, economic impact, and job creation.
- In addition, 84 micro-grants were awarded impacting 139 library locations.

TECHNICAL ASSISTANCE (continued)

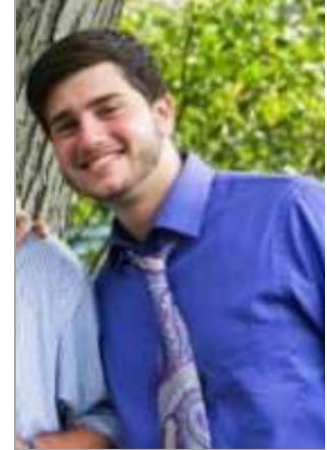
14.b.5. Attach as a separate document any success stories or best practices you have identified.

CASE STUDY

The Gift Garden, a woman-owned, start-up, brick and mortar retail business located in Jeffersonville (Montgomery County) wanted to reach new markets and received assistance from PennTAP on how they could take advantage of broadband to improve and expand its business.

An assessment by a technical expert was done and an intern from Penn State's College of Information Science and Technology was placed to assist the business in implementing a point of sale system, in-store security, as well as developing an online presence. The online presence included an e-commerce website, a social media plan, and marketing where possible. The student reported back to PennTAP on a weekly basis and did a wonderful job of documenting step-by-step updates that the owner would perform once the student was gone.

The Gift Garden has already reported recognized economic benefits of \$105,000 related to increased revenues, cost savings, cost avoidance, etc.



"This was a great experience for my small business (gift shop). I now have an avenue for website revenue and a firm grasp on my IT and security needs."

Debra Shelton

Proprietor, The Gift Garden

www.thegiftgardenpa.com

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:

During Q4-2014, the Industrial Resource Center (IRC) network and its partner:

- Updated and expanded secondary market research in order to paint a broader picture of the digital trends in manufacturing.
- Developed and tested survey instrument and digital intensity graphic.
- Identified and initiated case study documentation with eight (8) different companies.
- Implemented six (6) Best Practice Focus Groups, a vendor Forum, and three (3) OEM Forums.
- Initiated an IT User Group.
- Planned remaining outreach and educational events.
- Coordinated findings from outreach events with the research team and across the working group.
- Made initial plans for report publication and distribution.
- Finalized follow-on outreach and research plans related to Digital Intensity assessment and implementation.
- Initiated Digital Intensity management and working groups to further plan and coordinate implementation of the Digital Intensity project. Initial working group meeting held Sept. 4, 2014, and October 23, 2014.
- Initiated Digital intensity outreach and preliminary research efforts.
- Updated and expanded secondary market research in order to paint a broader picture of the digital trends in manufacturing.
- Developed and tested survey instrument and digital intensity graphic.
- Identified and initiated case study documentation with 8 different companies.
- Implemented Best Practice Focus Groups, Vendor Forums, OEM Forums and initiated IT Users groups.

Relative to the Outreach and Education efforts targeting manufacturers statewide, below is a highlight of the feedback received from the focus groups convened:

- Pain points:
 - Identifying and responding to new technology in the manufacturing process;
 - IT requirements of OEM, Suppliers and workforce;
 - Workforce training issues;
 - Remote access of data and securing at all points of access;
 - Managing the costs of implementing new technology;
 - Environment of rapid change
 - Lack of talent;
 - Cultural barriers;

OTHER – RESEARCH (continued)

- Lack of executive understanding of the intensity, time and resources it takes for a digital presence;
 - Constantly changing and evolving technology requirements;
 - The need to integrate young talent within staid and poorly capitalized organizations;
 - Limited bandwidth speeds inhibits business growth.
- Barriers to technology change:
 - Personnel not fully understanding all the benefits of the change, but mostly just people not accepting change.
 - Having a clear handle on ROI.
 - No clear processes in place to ensure training is provided.
 - Management envisions business interruption.
 - Technology saturation points. When does technology become too much and get in the way of productivity?
 - Outside influences (customer and/or vendors). Some may still require information to be shared by fax.
 - 3D rendering software still not up to par resulting in collaborative engineering difficulties.
- Lessons Learned
 - Without change in technology, existing technology would be a barrier to achieving company goals.
 - Farm out “systems” to experts when administration becomes too taxing.
 - If implementing BYOD, make sure policies are in place prior to allowing these devices into the company environment.
 - Millennials are demanding the “newest and greatest” digital technology in the marketplace to accomplish their jobs. Working remote/mobile with flexibility is key.
 - Need to better understand the information needs of the customer. What are their technological capabilities?
 - Leverage influencers. Find champions in the organization (mother hens) to move change throughout the organization.
 - Implementing a successful social media strategy in a business does not happen overnight. The process can be slow and take a while to yield results.
 - Linked-In and Twitter are the most common used social media outlets by the participants. Pinterest has some use, but all participants felt Facebook brings very little of anything to the table. Outsourcing social media may be beneficial.
- Most important accelerants to enable a digital culture:
 - Treating digitization as an inclusive supply chain;
 - Educational forums and seminars;
 - Clear thinking, strategy and leadership;
 - Building customer intimacy through multimodal education and content feeds;
 - Scalability.