

**PA Public Library
Broadband Connectivity Project:**

Make the Broadband Connection:
A closing message to summarize the results
Direct questions and comments to: c-cacleary@pa.gov

This project was made possible by a grant from the American Reinvestment and Recovery Act funded through the State Broadband Data and Development as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries, and the Commonwealth of Pennsylvania, Tom Corbett, Governor.



Today's Agenda

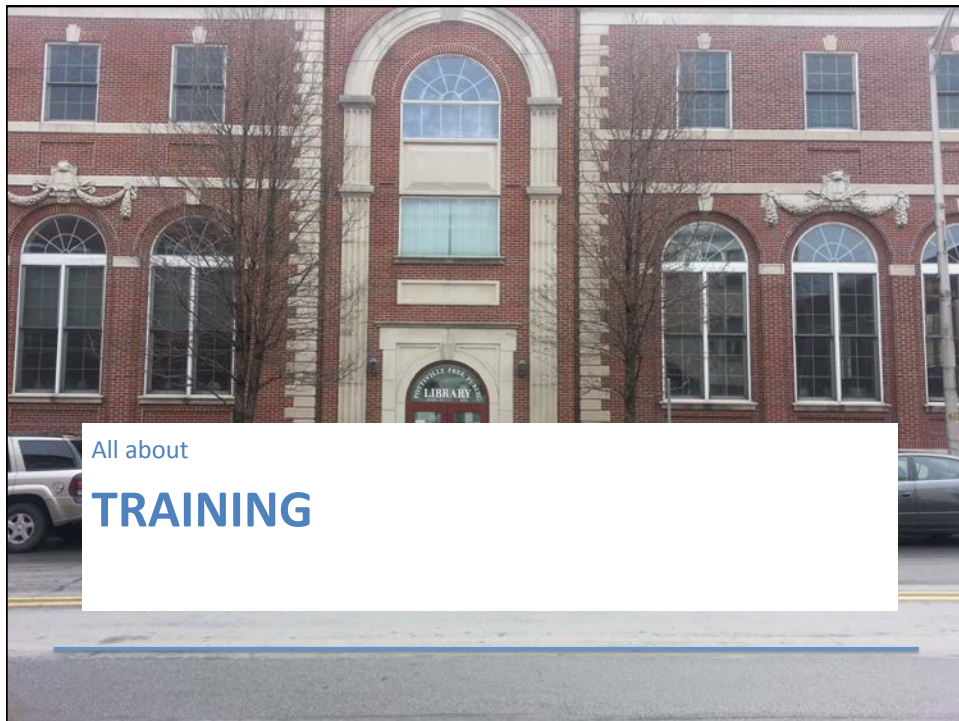
Intro to the Project

Training, Assessments, Micro-grants

- What We Did
- Results & Resources

Challenges / Future Solution Ideas

Thank You and Q&A



Training: What We Did

Planned and scheduled 11 in-person sessions of **Broadband 101** with Christopher Alberts and 1 webinar about ISP Contracts.

Added 3 webinars with Bob Kuntz.

What Did Training Cost?

\$35,000* / 217 = \$161/person attended.

Training Results: By the Numbers

11 in person sessions: 217 attended

- 1 Broadband 101 for the Techs
- 1 at Statewide Leadership Meeting
- 9 around the state

4 Topical webinars offered:

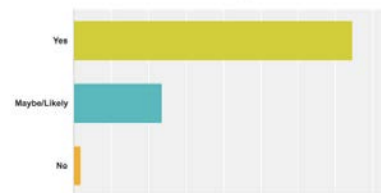
121 Registered / 80 Attended

- Hiring Technology a Consultant: 17/13
- Technology Inventory and Replacement Planning: 44/27
- Technology Policies: 30/20
- Internet Service Provider Contracts: 30/20

Evaluations were very positive.

Will you suggest or try to implement an improvement at your library location(s) because of your attendance at the Broadband 101 training?

Answered: 51 Skipped: 0



Broadband101AttendanceWorkbook; Broadband101Evaluation; EvaluationReportsfromTechnologyWebinars

People Learned from Trainings

- What is bandwidth; transmission types, know your contract with ISPs
- Basics of computer networks
- Measurement: Counting Wi-Fi Sessions on BYOD, Bandwidth Utilization
- Importance of policies and user agreements
 - Splash screen/policy acceptance at Wi-Fi login.
- Libraries need to inventory make/model numbers of hardware and create a replacement plan.

Bandwidth Bandwith Broadband
Connectivity Count Definition Equipment Fiber
Importance Learned Measure Monitoring
Network Terminology Track WiFi Users

Broadband101TopThingsLearned;
EvaluationReportsfromTechnologyWebinars

Reference: Links to Resources

- ISP Contracts (included some Broadband 101 review):
<https://attendee.gototraining.com/19p24/recording/4937636603530015489>
- Creating an Inventory and a Technology Replacement Plan
<https://attendee.gototraining.com/19p24/recording/7215879671856800769>
- Hiring a Technology Consultant:
<https://attendee.gototraining.com/19p24/recording/8726008314905950721>
- Technology Policies:
<https://attendee.gototraining.com/19p24/recording/3351553697884830978>

Other Documents:

- [Broadband Quickguide](#)
- [Connectivity Glossary](#)
- [What is this Network Stuff](#)
- [Inventory Template Sample](#)
- **MANY MORE** sample policies, etc...

Best Thing from Training:

Tech staff want to work together and share knowledge.

Next Step Idea: Offer Advanced Sessions for the IT Crowd and sharing time so techs can gather (online or in-person) and compare expertise and learn from each other about what works and how to do it.



Assessment Overview: What We Did

Started with a plan to assess and fund recommendations to “lowest 75” with no more than 3 per county using PALIBS

Survey (Realized we couldn’t accurately identify “lowest 75”—too many libraries just didn’t know contracted speed; it was hard to get responses and schedule. Had difficulty with reports.)

- Created and refined **Assessment Tool**
- Conducted 20 On-Site Visits with PennTAP
- Wrote **Individual Reports with Recommendations**
- Wrote **Summary Report from 20 On-Site Visits**

Changed Course:

- Self-Assessments with Initial Review Process: Hired New Tech Consultant.
 - Created **Self-Assessment Survey** Tool and process for **Initial Review** Process for Micro-grants.
-

Assessment and Initial Review: Overview of Outcome

20 On-site Assessments gave an overview of needs at selected lower-bandwidth facilities.

256 Self-Assessments (after duplicates removed)

221 Initial Project Reviews (some duplicates)

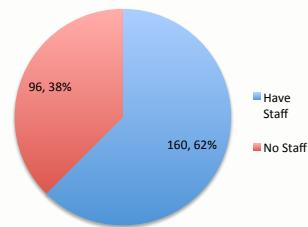
Data is only as good as the accuracy and intention of the person who enters and reports it. There were a lot of guesses, incorrect, uncertain, and vague answers.

Know what you don’t know, so you can find out.

Staff for Technology

If no one at the location understands how the network is configured, it's hard to plan to improve it or trust it.

Question Asked: Does the library have a dedicated paid staff member (local or system level) who understands how the computer network at this location is configured?



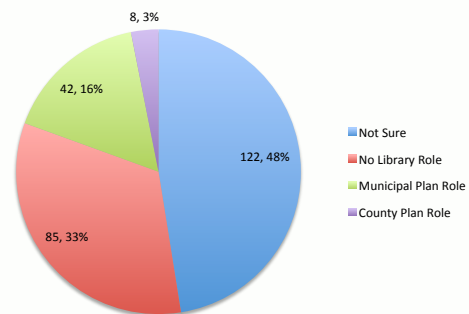
Role in Emergency Plans

Very few library locations report being a formal part of community or county emergency plan.

Remember that your library is a Community Anchor Institution.

Use your high-speed connectivity service to build and strengthen community role/relationships.

Question Asked: Does the library have a role in a community emergency plan?



Connectivity Reported

Many libraries are not aware of the bandwidth they receive and what they are paying for:

- Where systems handle Internet decisions, libraries don't have as much knowledge.
- Some libraries still haven't asked providers how much bandwidth they receive.

There was a low understanding of ISP and bandwidth. Donated or no-contract available connections were common.

Locations should know:

- **Who** is the Internet Service Provider
- **What amount** of bandwidth they contract to receive
- **How much** they pay

Question asked: Use these fields to report ALL the lines of connectivity.

Answers varied widely:

- Some guesses.
- I don't know.
- Weren't always accurate or based on contracts.
- Lots of speedtest measurements; which vary based on your network.

We've tried to collect bandwidth data **many ways**. None of them have been accurate.

It is complicated, constantly changing, and service-provider dependent.

Bandwidth Speed

Internet Costs and Your Budget

It is difficult to isolate this cost center.

There is no consistent method to report how much Internet costs PA Public Libraries.

If your library isn't using e-rate, ask why not?

Question Asked: Where does the cost of internet appear in your budget?

Answers varied widely:

- With the phone bill as communications.
- Utilities
- Collections/Library Materials
- Separate line item as internet (but sometimes include other services from ISP)
- Some don't have it in the budget at all
 - Donated (these gifts don't always appear in state annual data collection)
 - It is a system service, so not on local budgets.

Question Asked: Do You Use e-rate?
These answers were inconsistently reported.
Lots of people used e-rate for phone only.

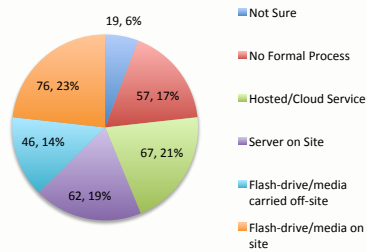
Backup of Data

There is no standard backup practice; some have no process.

Library staff and trustee created documents (Board agendas, policies, publicity, program materials etc.) aren't always well-organized/backed up.

If you haven't tested your solution in the last year, it may not be effective.

Question Asked: How do you handle backups of data created at this location?



*This question allowed you to select ALL that apply. Many use more than one way for different types of data.

Policy Data

Staff Policies:

- 38% said they didn't have a policy for staff use of tech. 19% said they did, but it needed an update.
- 43% had No policy/practice for safe passwords.



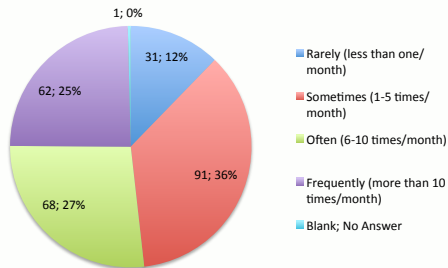
Public Internet Policies:

- 82% said they had one and it was reviewed in last 3 years, though in reviewing links to policies, many were NOT.
- 52% reported use of the same policy for Wi-Fi as for public access computers though there are often very different procedures/access rules/networks—this could be an issue.

Policy Folder

Frequency of Negative Comments about Technology / Internet

Question Asked: How frequently do you hear negative comments about internet speed and technology?



Complaints are far too common.

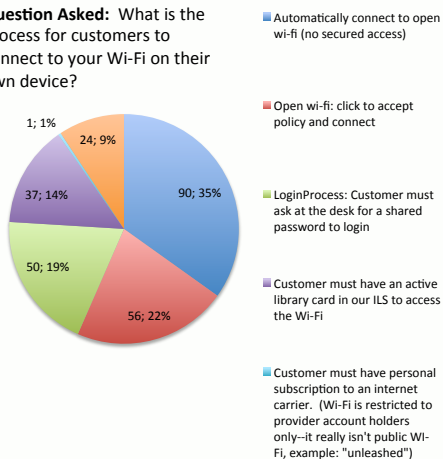
These are only what people report to you.

The time to improve technology is NOW!

Customers want to trust the library.

Connecting to Wi-Fi?

Question Asked: What is the process for customers to connect to your Wi-Fi on their own device?



Unsecured access was most common.

Libraries don't always have a splash screen with policy acceptance to get Wi-Fi.

Look at your service:

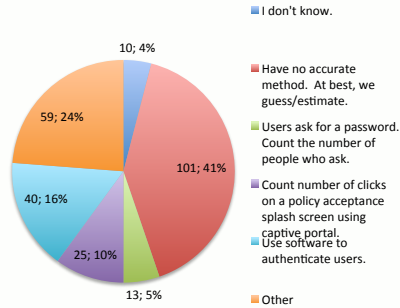
- Remove barriers to customer access.
- Reduce risk to library.
- Increase range/offers.

Counting Library Wi-Fi Sessions

Question Asked: How do you measure the number of customers who use your Wi-Fi on their own devices?

There is not a consistent method for counting in **many** facilities.

What constitutes a “session” is locally determined.



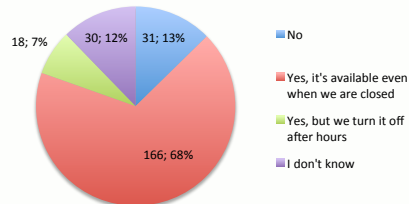
Wi-Fi Access Rules

Many libraries didn't know or haven't talked about why.

Question Asked: Does Wi-Fi coverage extend outside the physical building?

This is a local decision with many factors:

- Do you have the need?
- Do you have the support of your ISP?
- Do you have enough bandwidth, hardware, a building that allows radio-signal strength to penetrate?
- Can you afford it?
- Risk Aversion (Are you doing it right? policy, terms of use, monitoring responsibilities)
- **Does it build your tech strategy?** Can you use it to build a relationship/strengthen your role as a community anchor institution?



Facility Readiness for Fiber

To effectively plan, we need to know our buildings and wiring.

Lots of locations had network hardware in public areas, unsecured, near water, not on UPS.

Question Asked: Libraries reported information about their MPOE (Main Point of Entry) and/or demarcation point.

It was a look at where data lines currently come into the building and where network hardware is kept.

This type of data is used if when your facility is considering upgrading its connection and needs a new line, for fiber or cable brought into the building.

Summary Result from Assessments

Libraries have a long way to go.
We learned a starting point.

- Bandwidth wasn't the first complaint for many.
 - Public workstations weren't great for end-users.
 - XP and outdated public workstations
 - Infrequent updates
 - Limited access to software/browsers/speakers/peripherals
 - Space / design issues for real uses
 - Libraries didn't always know what customers really wanted to do with technology. We haven't asked customers.
-

Best Thing about Assessments

Identify starting points for improvements.

Know directions for future planning.

Initiated micro-grant process and big conversations about tech plans.



Steps In The Micro-Grant Process

Process to apply:

- Assessment (on-site or self-assessment)
- Submitted Initial Review of project idea.
- Received advice from Tech Consultants. Worked until there was a “go-ahead” plan.
- Got specific cost quotes using your local procurement process.
- Submitted application with selected vendor quotes.
- Notified of award
- Signed Contract (\$750,000 early, final \$167,162 delayed)
 - Sent pre-payment Invoice (some only reimbursement)
 - Completed project
 - Did final invoice, submitted completion records/documentation
 - Completed final survey

Results from the Micro-grant

Summary of what we funded with **\$917,162**

84 contracts funded / **139** locations

38 of 67 Counties had at least 1 contract

22 of 29 Districts had at least 1 contract



MicrograntAwardApplicationsSummary

Micro-grant Summary

Funded Applications: 84 Contracts / 139 locations
\$917,162 awards to projects that cost **\$986,343**

Increased bandwidth expected: **28 applications**

Workstations (some with monitors): 304

Laptops: 74

Tablets / Other Internet Devices: 95

Gigabit Capable Switches: 106

Routers and/or Firewalls: 43

Wi-Fi Access Points (often with power supplies): 287

UPS (Uninterruptible Power Supplies): 76

Other: (cabinets, servers, cables,
wiring, GBIC cards, software, etc.): 30

Professional Services/Installation: 36

Micro-grant Award Applications Summary

Outstanding Needs: Projects Not Funded

Unfunded Applications = 59 applications

Requested \$661,998 to fund \$713,972

Workstations: 363

Laptops, Tablets, and other Internet devices: 94

Switches: 63

Routers and/or Firewalls: 45

Wi-Fi Access Points: 128

UPS: 39

Other: (cabinets, servers, cables,
wiring, software, etc.): 36

Professional Services/Installation: 52

Even though funding wasn't available, locations that applied or worked through Initial Review process gained perspective for future planning.

Locations who participated had the benefit of review of their "Initial Review" by our tech consultants.

Note: Many more needs unreported that went unfunded. Some didn't submit application in time or didn't complete the assessment and initial review process.

Micro-grant Award Applications Summary

We Learned

About Grant Process:

- We need to be perfectly clear, simplify, and set priorities.
- First come/first served was not the best idea, but we learned from it.
- There's a "What Went Wrong" of hindsight.

About Library needs/next steps:

- There is no one-size fits all tech solution.
- We need better local plans. We needed remediation.
- Measurement is important.

WhatWentWrongLessonsinFailure

Best things about Micro-grants

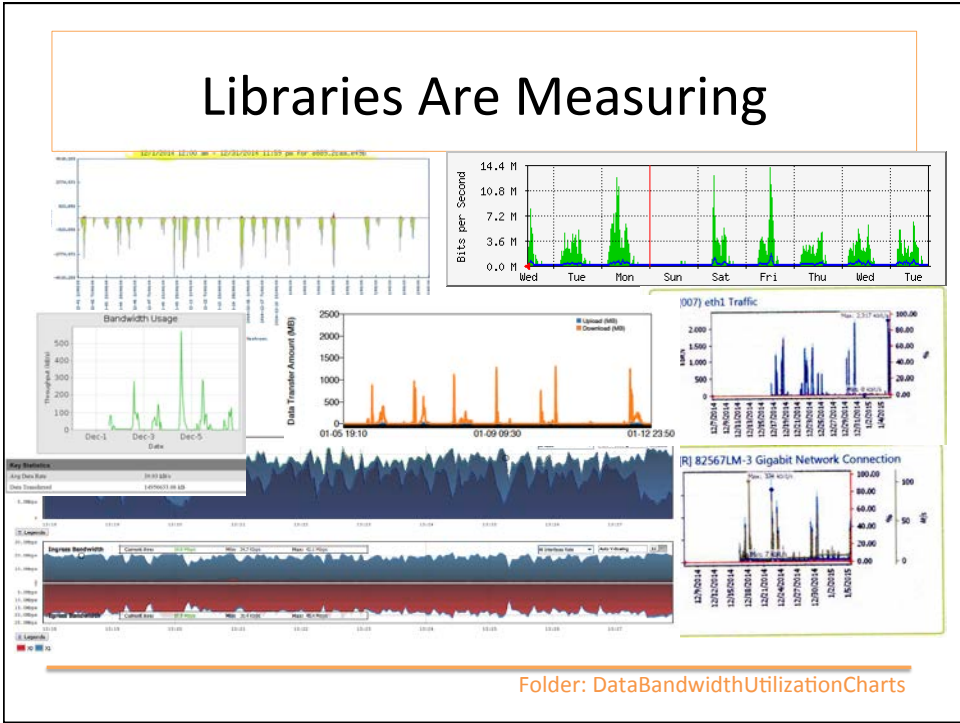
Brought many locations up-to-date
Truly advanced some
Wi-Fi is greatly improved

Objective Accomplished: Effectively deployed ARRA funding allocated for broadband connectivity gains in community anchor institutions to the Pennsylvania public libraries.

Achieved **Desired Outcomes of the Project:**

- Increased understanding and readiness for deploying high-speed broadband technology in public library locations that can lead to a statewide network of better-connected and more technologically advanced libraries to serve residents.
- Increased accuracy of baseline data and measurement of use of internet connected technologies in public libraries.
- Increased customer access to internet connected technologies in public libraries.
- Increased operational effectiveness in public libraries.

Micro-grant Guidelines



Sample Project: Bucks County Library System

Has fast fiber internet; used grant for hardware upgrades to fully utilize a 200Mbps Connection.
 17 locations served
 41 Wi-Fi Access Points
 27 Switches / 2 Supervisors

LIBRARY	SWITCHES	WIRELESS ACCESS POINTS
Doylstown	5 switches and 2 supervisors in chassis, 4 switches	7
Bensalem	1	2
Langhorne	2	3
Lansdale	2	3
Perkasie	1	3
Quakertown	1	3
Neddy	1	2
Fallsington	1	1
Feasterville	1	3
Morrisville	1	2
New Hope	1	1
Northampton	2	3
Pipersville	0	1
Stagsville	1	1
Southampton	1	3
Warminster	1	2
Wrightstown	1	1
TOTAL	5 switches and 2 supervisors in chassis, 22 switches	41

Bucks County Broadband Micro-grant Result of Speedtests on Wi-Fi

Before	During Wi-Fi access points installed	After Switches and W-Fi access installed
<p>PING: 29 ms DOWNLOAD: 8.01 Mbps UPLOAD: 6.73 Mbps</p>	<p>PING: 22 ms DOWNLOAD: 101.06 Mbps UPLOAD: 103.61 Mbps</p>	<p>PING: 16 ms DOWNLOAD: 190.98 Mbps UPLOAD: 116.33 Mbps</p>

Sample Project: Apollo Memorial Library

Had slow 1.5Mbps DSL, used grant to update network hardware and offerings.

Increased bandwidth to 75Mbps/15Mbps Cable

Before we received this grant our library was operating with slow DSL internet, outdated and malfunctioning workstations, and insufficient ability to gather network data. Basic tasks on the computer took longer than necessary, making it both slow and frustrating for patrons using our computer and internet services, as well as for staff from a workflow perspective. Applying for this grant gave us the impetus, support and resources we needed to update our technology services. While changing over to Comcast Business internet was not a part of our grant funding, it did come about because of this project, and consequently we now have a more reliable and faster internet service. Using funds from the grant we were able to purchase a firewall and a wireless access point which has enabled us to monitor and gather data about our network. Our new patron and staff computers have been jubilantly received by all who use them; many patrons have commented on the ease and the proficiency of the new machines. This grant has allowed us to update our technology and has brought to the forefront the need for staff and board members to understand and consistently evaluate our technology and our technology policies.

- Updated 7 workstations and monitors (no more XP)
- 1 laptop
- Router/Firewall
- Wi-Fi Access Point
- 1 Cabinet
- 3 UPS



Success Story

This project allowed us to replace seven very out-of-date, public-access computers with aging operating systems and connectivity issues. We are sorry to say that prior to this project, we had seven old Pentium 4 PCs that barely ran Windows XP. In addition, we were able to install UniFi wireless routers which have improved tremendously our wireless connectivity. The very moment those wireless improvements were made, our staff "tried it out," so to speak, by going to every corner of our building with mobile devices in hand to check the connection. What we found was a consistently strong WiFi connection -- something we never experienced prior to this project. Depending on the day or the "mood" of the router, our wireless connection would go down with absolutely no warning. One day after the new equipment was installed, a group of high school students came in to work on a project they had to do for class. They planned to work on their own laptops as well as our computers, because they knew our public access connectivity was limited. It was so exciting for the staff to show them our upgrades and to see their expressions of appreciation. As it turned out, they worked on the public computers first, but then went and found a more private corner in the library to finish their work on their own devices -- with no worries that the WiFi connection would be interrupted or cut off. The computers have only been in for a few weeks now, but we have already noticed considerably fewer issues with the public -- in the past, patrons who needed certain programs or program capabilities found difficulty using our computers because of their age. They would appeal to the staff for help, but the staff could only do so much with what we had. It was frustrating for them as well as for the public. Since the project's inception, we have had at least a few folks already comment on how much nicer and "user friendly" our computers are now.

FollowupSurveyResults

More Success Stories

We replaced and end of life wi-fi access point with a new one. We are able to support mobile platforms better now, and more devices throughout the day. Before we had numerous people being logged off or not being able to access our wi-fi. Now walking around through the library we see people with various devices accessing the wi-fi. The staff has gotten no complaints about the library wi-fi since the new access point was installed.

The huge noticeable change for both our patrons and the library staff is the speed of the processors in the new computers. I can finally work at lightning speed at my desk without waiting for applications to open or waiting for a screen to change to a different screen or for a webpage to load. It's similar to having a great stereo system at home for movies and music, but if you have junky speakers, you'll never be able to take advantage of a great system. In our world, it doesn't matter what the speed is of the internet service being provided if you don't have computer equipment that can process that speed and make it meaningful to the user. Our patrons have been thrilled with the speed of the new computers for whatever reasons they are using them. My staff is thrilled with having an updated system to work on, instead of feeling like we're in the dark (working on no-longer-supported XP operating systems.)

This grant allowed the library to add range to our wireless service. This range included the ability to extend service to support an Eagle Scout project that is currently in progress. A local Boy Scout is building a picnic area outside the library for his Eagle badge. The library wireless signal now reaches this picnic grove area with strong signal. Patrons will be able to use their own devices while they enjoy the improvements.

We learned so much!

I and some of the library staff spend a lot of time researching and learning about broadband internet connectivity when the possibility of this grant started. We learned a lot! It was an opener. We are now enjoying the increased speed and we can also explain the improvements to our patrons. We are now able to speak with our ISP and know what they are referring to when questions come up. We are now an educated consumer.

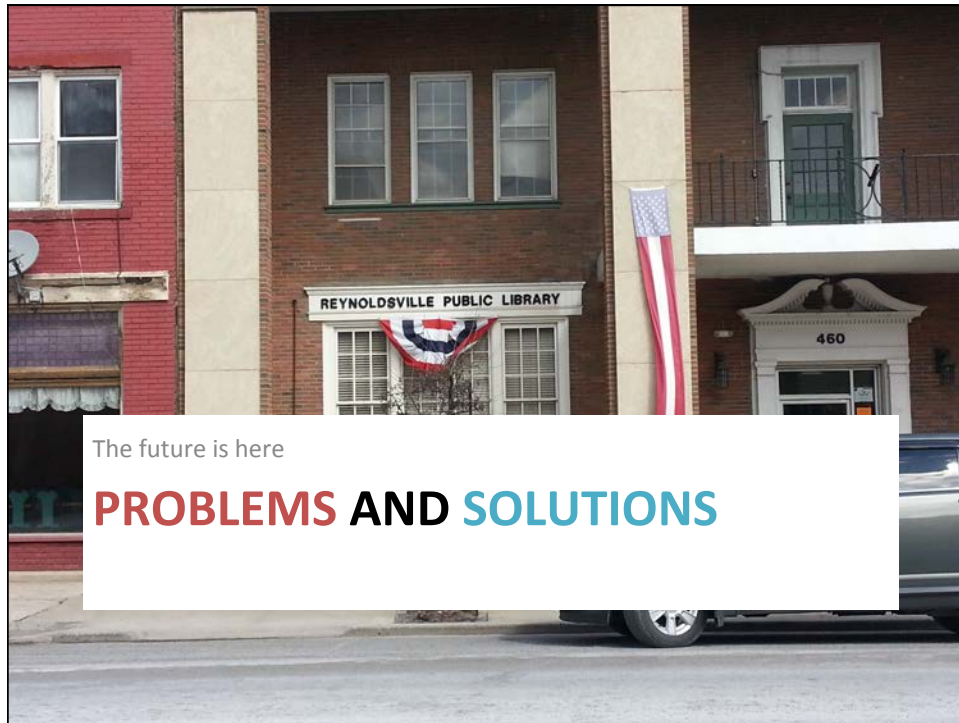
We learned that new equipment allows more data to transfer at a time which increases overall speed. We learned what WIFI sessions are and how they can help us see the growth in use of wireless devices by our patrons.

We learned a lot more about data speeds, network drops, IP addresses, access points, how all of these connectivity features are inter-related, and how they come together to create quality service for our patrons.

I learned how to use the software for monitoring wireless use in the library.

As a result of this project, not only do we have mostly new hardware for our network, we also have a better understanding of our internal set-up and Internet connections that will allow us to better plan for future technological work.

We learned to ask MORE questions if we didn't understand something completely



The future is here

PROBLEMS AND SOLUTIONS

Complaints from the Field

- The directions and paperwork weren't perfect. (We know.)
- There are too many things. We don't have time to... ; we're busy keeping the doors open. Technology is not a priority for all locations.
- It's unfair for "small" libraries. It's hard to get cost quotes from vendors. Libraries with dedicated tech staff had an advantage because...
- There are librarians who can't afford mobile devices, librarians without Internet at home. We expect a lot from some librarians. Many work for low-wages and often have other jobs.
- "I wouldn't do my taxes or banking on a public library computer." PA residents and library visitors need security and privacy information they understand.
- Website hosting/management, backups, emails, and other "library operations" may be more efficiently handled at a higher level.
- "We teach staff how to scan to PDF, but they forget by the time they need to use the skill." Many scanners are only for staff use currently.

Solutions Now!

This project started the conversation.

We still have a long way to go.

- **Everyone learned.** OCL and the PA libraries who did assessments, attended training and participated in the project have new ideas.
 - Libraries who got micro-grants are doing it.
 - Those who applied have a plan.
-

Create a Technology Plan

Tech is tool:

- Business Uses
- Tech as a Public Service

Both use your internet and trained staff.

Evaluate and Update Often.

Start NOW to plan for new hardware in 3-5 years.

Note: Windows 10: (Windows 7 : EOL (End of Life) / end of extended support: **January 14, 2020.**) Plan your migrations to a newer operating system. Be ready.

Be Patient; Technology Takes Time

Know who is assigned the role of testing and updating public computers.

Tech Ownership is like Car Ownership

Planning for tech, writing grants, implementing projects, learning to use, takes time.

- Have a plan at the ready for opportunities.
 - Don't give up because **it's hard**.
-

Improve Wi-Fi

Action Ideas:

- Reduce the risk that libraries face by having open Wi-Fi by putting up a splash screen that asks customers to accept your Wi-Fi policy before they use your service.
- Have a local conversation with staff/trustees to ensure your policy is up-to-date.
- Make sure you understand why you choose to offer or not offer Wi-Fi access outside the building or during closed hours.

Result:

You'll know what you offer your community and will be able to defend an answer for why. Those who turn "on" Wi-Fi after hours may see increased use and community needs met/new customers..

Improve Paperwork Processes

Working with so many libraries with detailed contracts taught us about what we aren't always doing:

- Consider putting invoice numbers on checks to easily reconcile books.
 - Think about how you use accounting software.
 - Creating an invoice or filling out a W-9 form was not an easy task for many.
 - There were locations who used personal credit cards and checks and library reimbursed when payment funds arrived. Build a reserve fund.
 - Have a process for receiving mail. More mail was lost in this project that I've ever seen before.
 - Read your contracts and be sure to adhere to them.
 - Learn to scan to PDF. (Don't send upside-down scans.)
 - Get organized. Save your invoices. Know your bank statement cycle and how to get copies of cancelled checks.
 - **Keep good records/files on this project.**
-

Set Technology Training Goals

Training Attendance was low.

Reasons: Short notice scheduling. We may not have advertised widely enough. We didn't target the message effectively to a specific audience. No one has time. Trustee engagement was lower than hoped. People say they don't attend webinars. They'd rather have it in-person, because then they can focus. There's room to improve how we deliver webinars.

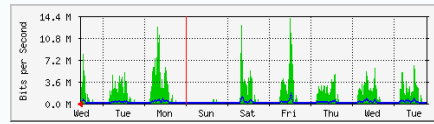
Action Ideas: Quarterly training calendar. Read your Compendium. Staff should have a place and time for webinars without interruptions in a facility with minimum technology. Someone at each building should attend a digital training hour every month.

What Next for Training? We asked, you answered: *see EvaluationIdeasNextTraining

Gather the Techs: Give them a space, a topic, and a facilitator: See what happens!

Collect Better Data

- **Bandwidth Utilization:** **how often** you max out speed you expect from your Internet Service Provider (measured in bits/second (bps))
- **Throughput/Data Use:** **amount** of data transferred on your internet connection (measured in Bytes)
- **Sessions of Use:** typically measured by **hours** or **logins**.
 - For public computers
 - For Wi-Fi on BYOD



Address Bandwidth Utilization: Use What You Have; Measure and Plan Expansion as Needed

From the Post-Project Survey data so far:

- Data is only from a few weeks, Need to review frequently.
- We all have different products/standards of measurement.

Generalizations:

- Libraries aren't taking full advantage of upload speeds. (**Consumption** by far exceeds **Creation**.)
- Using bandwidth maximum is rare for libraries with high-speed fiber connections.
- **There's GREAT VALUE in a new proposal to promote more use of Internet and broadband related technologies in public libraries.**

Encourage Content Creation

Many libraries have low upload speed and little use of upload. People are **consuming** at the library, but aren't using the tech for **creation**.

- Shift more focus to community content creation. Get scanners for every library so people can scan, preserve and share.
 - Ask the community to learn what they want to do with what the technology/internet you offer.
-

You Can Do It: More Ideas

Ask, survey, engage. Engage with your community to build capacity. Libraries need to talk with their community to ensure technology meets user needs. Libraries need to **plan** to maintain a network with bandwidth standards.

Update Your Technology (Specifics to Address):

- Understand your technology contract. Call your ISP. Ask for a copy of your contract. Review it. Be friendly. Tell them the library plays an important role in providing access to information. Ask if they have any ideas how you can work together.
- Improve scanning/printing. Offer scanning access to your customers. Buy and install a scanner that scans to email; teach all your staff and trustees to use it.
- Improve backups. Make sure your data is protected and secure. Offsite data backup would be a potential service for districts/systems to cooperatively provide.
- Move network hardware to a secure location not in public area. Make sure it is on a UPS. Reduce the risk of someone tampering with network hardware or losing power.

Update your Policies/Procedures for Tech:

- Update Your Policy: Set aside time to read/update your Internet policies. Make sure you have procedures that enforce them, or change them. Make sure customers click "accept" on your policy before you allow them on your Wi-Fi.
- Create a staff policy for tech use and safe passwords.

Buy some books about tech.

Develop staff and trustees to lead: Raise the bar. Update job descriptions, send them to training. Expect more!

Big Ideas for OCL to Consider

Offer a "Tech Badge" program, to indicate libraries who meet minimum competencies. [\(draft\)](#)

Solve Bad Data Problems: Focus on one primary platform for data collection. (Perhaps take advantage of the pa.countingopinions.org online subscription and use all the features of it.) Do a new "bandwidth contract" survey.

Improve grant processes with clear priorities and better instructions. Start grant projects with a Checklist of Technology Skills needed: (This project involved the following: Create a pdf file, Use a scanner to capture an image of a document created by others, Use a website to input data, Ability to use a phone, Send and receive email timely.)

Provide more templates to help libraries of all types:

- Technology budget template sample
- Technology plan template (started concept)
- [Inventory worksheet](#)
- [Policy samples](#) (Folder)

Host a campaign to encourage tech-minded community members to inquire about being trustees/volunteers.

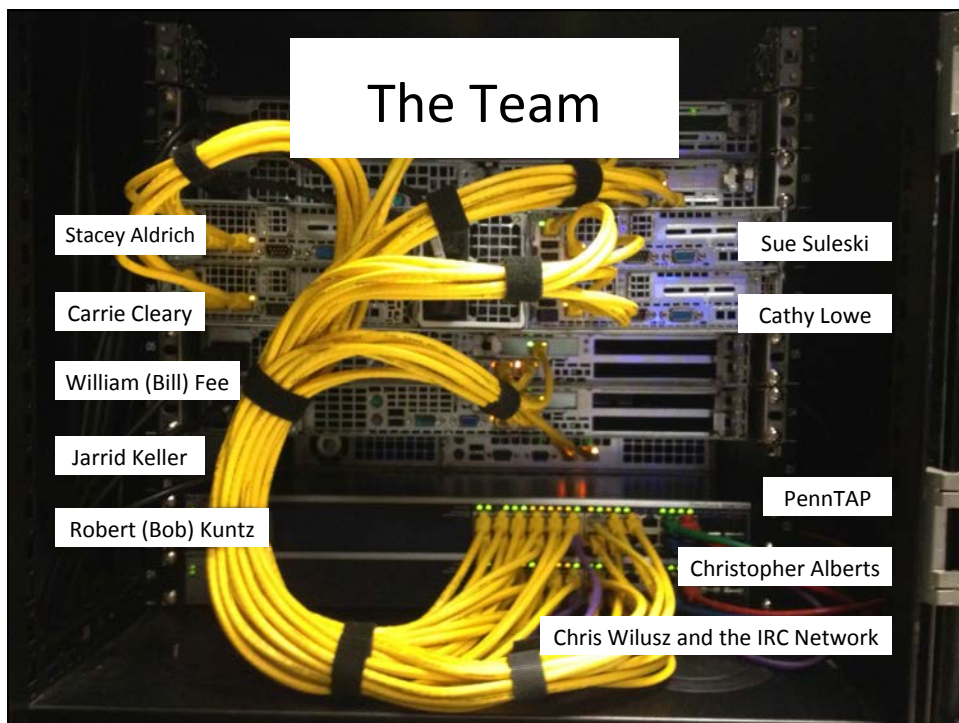
More Training: Calendar, By group/specialty

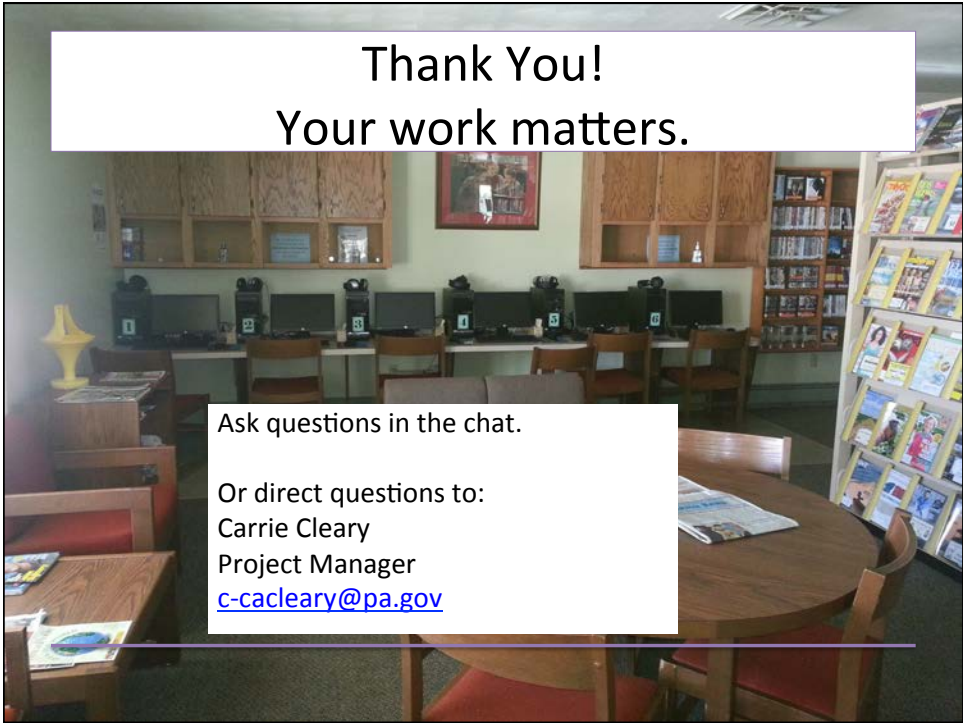
To Make Any Idea Successful, Invest the Necessary Resources

- Staff and Trustee time, interest, and desire to learn
 - A reliable high-speed broadband connection with enough bandwidth to serve needs.
 - Internet capable hardware/software and places to use it in your building.
 - Accept accountability for taking action
-

Imagine the conversation...

You don't have to be a techie to understand broadband technology issues and how they effect your community.





Thank You!
Your work matters.

Ask questions in the chat.

Or direct questions to:
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Project Manager
c-cacleary@pa.gov