

OFFICIAL APRIL 2013 UPDATE SUBMISSION TO
THE NATIONAL TELECOMMUNICATIONS AND INFORMATION
ADMINISTRATION UNDER THE
STATE BROADBAND INITIATIVE GRANT PROGRAM FOR THE STATE OF
ILLINOIS



APRIL 2013

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COVER LETTER

April 2013

Ms. Anne W. Neville
SBDD Grant Program Director
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW Room 4716
Washington, DC 20230

Dear Ms. Neville:

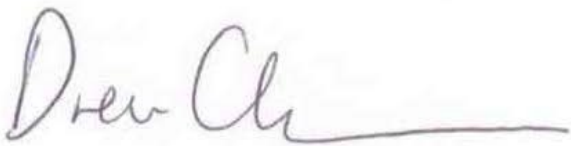
Please accept this submission from the Partnership for a Connected Illinois (PCI), the Designated Entity for Illinois.

These artifacts should be found to be compliant with the April 1, 2013, deadline for the semi-annual data update and in accordance with the terms of the July 1, 2009, Notice of Funds Availability (NOFA) and all subsequent clarifications.

This cycle, PCI continued its data-collection activities from broadband providers in the State. This role allows the State to achieve goals with regard to improving broadband access and adoption – which are in turn central objectives of the Partnership for a Connected Illinois. All facets of this data-collection transition, and the activities that flowed from it, are included in the narrative that follows.

If you have any questions about this Data Narrative, please do not hesitate to contact me at 217-816-4151.

Respectfully submitted,



Drew Clark
Executive Director
Partnership for a Connected Illinois, Inc.

INTRODUCTION

The data submission cycle ending on April 1, 2013 marks the fourth round that PCI has held the full responsibility of data collection and publishing for the entirety of the six months. In this round, PCI used creative new strategies in its outreach to the carriers. PCI continued to establish Non-Disclosure Agreements (NDAs) with broadband providers for confidential information. The data that accompanies this narrative contains edited data for 63 out of the 151 carriers included in the submission. This round PCI continued to refine its data verification process through the use of GeoPDF maps and third party data sources. PCI also continued to make improvements to its Community Anchor Institution database through telephone verification of data and a focus on library public Wi-Fi and URL variables, as well as improvements in the schools dataset.

In the spirit of cooperation with the other 55 State Broadband Initiatives (SBIs), PCI was in contact with other states to help its outreach for this cycle. PCI used the National Broadband Map to find if other states had been able to contact and map providers that have never participated in Illinois. Specifically, PCI made contact with CostQuest Associates (AL, WI, ID, and WY), the SBI in Indiana and the SBI in Georgia. PCI also tried to help other states by working with them on providers that cross Illinois' boarder, posting on the SBDD wiki forum website, and participating in webinars held by the NTIA. PCI aspires to be a leader in the SBI world, and to make the National Broadband Map as accurate as possible.

In this round, the Partnership for a Connected Illinois (PCI) took major steps in its three-fold mission to collect and publish broadband data, to ensure broadband access throughout the State, and to maximize broadband's impact. Assuming this data collection role is vital to achieve the State's goals with regard to improving broadband access and adoption. PCI appreciates the assistance provided by NTIA as PCI improved its collection, processing, and verification of broadband data for submission according to NTIA standards.

PCI has continued to refine the Broadband Illinois web site. This consumer-friendly interface allows residents of the State to intuitively access the information collected by PCI – it is a portal to actual speed data, and a tool that consumers can use to verify the data provided by broadband providers. The Broadband Illinois website contains county-level GeoPDFs for each of Illinois's 102 counties, as well as pages for each broadband provider in the State of Illinois. These maps can be downloaded and edited using the TerraGo Technologies toolbar, which will be explained in great depth in various parts of this narrative.

This narrative will summarize the carrier outreach, the data production methods, carrier data verification, and the community anchor institution data. It will conclude with an examination of the Broadband Illinois website and the ways in which PCI is publishing carrier data in a user-friendly manner that allows for feedback from the consumer.

Carrier Outreach

From January 15 - through January 25, 2013, all providers currently in the PCI census block and wireless layers were sent GeoPDFs that displayed their coverage area in the State of Illinois. The GeoPDFs were fully editable by the provider using the TerraGo technologies' toolbar. As part of this e-mail, PCI requested that updated data be submitted to PCI for its Cycle 7 submission to the NTIA and for the update to the Illinois Broadband map. For those providers who had not previously established a Non-Disclosure Agreement with PCI, a copy of PCI's draft version accompanied these maps.

This entire outreach process was tracked on Salesforce, PCI's contact management tool. As maps were created, distributed, and verified, fields were populated in Salesforce to denote that a map that met the approval of the provider had been created. For those providers who did not respond to their initial map request, multiple follow-up e-mail and phone call attempts were made. PCI also tracked whether there would be an update to the data for this submission, what version number of the data PCI would be submitting, and the dates in which an NDA had been established.

This section will explain the way in which PCI conducted its outreach to the carriers and the different ways in which it received data. It will outline some of the major updates that were received in this round as well as describe both quantitatively and qualitatively the extent to which data was updated in this round.

NDA

PCI continues to offer and abide by the terms of our NDA. If providers did not establish an NDA in a previous round, they were given the opportunity to do so in this round. In other instances, NDA's were individually negotiated to address specific provider concerns.

When an NDA was established with a provider, the date that the NDA was established was recorded in Salesforce. A field in Salesforce was also populated as to whether or not the provider would be submitting new data for this Cycle 7 submission. If a provider responded with no change to the data, PCI removed priority from that provider and refocused attention on those providers who reported that there was a change to their data up to December 31, 2012. PCI wanted to establish the NDAs by focusing on those providers with new data to submit.

UPDATES TO DATA

Of these 151 providers submitted as part of the data package in this round, edited data has been submitted for 63 of them. This data comes in the form of new infrastructure, speed changes, and corrections from PCI's previously submitted data. In this round, the Partnership for a Connected Illinois added 18 new carriers:

No.	Carrier Name
1	BLIP Networks
2	City of Princeton
3	City of Springfield/CWLP
4	Convergence Technologies Inc.
5	Cox Communications
6	DerbyNet
7	DJ K Link
8	DLS Internet Services
9	EOS Inc.

10	Everywhere Wireless
11	Illinois Network Alliance
12	LiteWire Internet Services Inc.
13	Logonix
14	Nova Cablevision
15	Peoples State Bank
16	Rochelle Municipal Utilities
17	Urban Communications Inc.
18	Wonderwave

Broadband service providers submitted coverage in terms of the areas that they served, either in edited GeoPDFs, direct geospatial formats, CAD files, Excel databases, Google Earth files, or as paper maps. The submitted polygons were overlaid on the census block polygons and those blocks touching were selected and used. The proper speed tier categories were assigned as necessary.

Throughout February and early March, the PCI data team formatted data as it was received. A cutoff date of March 15, 2013 was established for the acquisition of new data to include in this submission. However, PCI continued to accept data well after that date, and all providers who submitted updated coverage in this round are included in this submission.

The table below summarizes the status of data among providers.

No update to coverage area/ verified previous data/previous data submitted	88
Previous provider provided an update to coverage area that was included in this cycle.	45
New provider for this round	18
Total number of providers included in this submission	151

Total number of providers included in this submission	151
Identified Illinois providers that have never participated in mapping project	34
Total number of providers identified in the State of Illinois	185

Changes and Corrections

On August 19, 2011, PCI along with the other SBDD's designated entities submitted a changes and corrections document to the NTIA for the data that was submitted in Round 3. PCI felt this was a very useful document, and would like to incorporate it into this narrative to demonstrate the extent to which PCI updated its data in this round. While the last section quantitatively expressed how data was changed, this section qualitatively explains each

of the updates that were made. Some of the more extensive changes and corrections will be described in later sections.

Provider	Change	Correction	Description
ATT	X		Added FTTH, Increase in 4G and 4G LTE coverage, and provided a full dataset of DSL coverage.
BLIP Networks		X	New fixed wireless provider.
Broadband Heaven Inc.		X	Format issue, merged 4 records with the same speed and spectrum info together, no update in speed or coverage.
Cass Telephone Company/CassComm	X		Added FTTH in Ashland, Philadelphia, and east of Chandlerville areas.
CenturyLink	X		Slight increase in coverage area, provided full dataset with changes.
Charter	X		Little change, submitted updated road segments and census block shapefiles of their coverage.
City of Princeton		X	New Provider, commercial only fiber provider.
City of Springfield/CWLP		X	New FTTP provider (Commercial only).
Clearwire	X		Little change, submitted updated shapefile of their coverage.
Comcast	X		Little change, submitted updated road segments and census blocks of their coverage area.
Computer Dynamics	X		Expanded coverage by adding 4 new towers.
Convergence Technologies, Inc.		X	New fixed wireless provider.
Cox Communications		X	New provider offering fixed wireless and cable (FT41).
CyberBroadcasting	X		Added infrastructure and increased speeds.
Delta Comm/Clearwave	X		Added two central offices.
DerbyNet		X	New provider. Towers, speeds, and frequency info were collected from the website and a RF Propagation was ran assuming 100ft, customer radio at 20 feet above ground and the band used was the 5.7 GHz band for all sites.
DJ K Link		X	New fixed wireless and FTTH provider.
DLS Internet Services		X	New provider.
EOS.Inc		X	New provider.
Everywhere Wireless		X	New provider.
Fairport	X		Increased speeds, fresh set of addresses.

Frontier	X	X	Corrected company names to correct, TransTech 20 was corrected to TransTech 10, Frontier is rolling out bonded ADSL 2 and VDSL in some offices.
Harrisonville Telephone Company	X		Increase of a DSL speed near Dupu, IL from new remote terminal near Dupu, IL.
Home Telephone		X	Corrected Upload Speeds
Illinois Consolidated	X	X	Increased speeds in Blue Mound, deleted all TT30 as Consolidated does not have, corrected the FTTH.
Illinois Network Alliance		X	New Middle Mile provider.
Illinois Rural Electric Coop	X		Expanded bandwidth and Added 2 towers.
Joink	X		Added towers and increased speeds.
La Harp	X		Fiber project complete.
Leap Wireless	X		Leap provided a shapefile of their coverage. Slight expansion of coverage in the St. Louis area.
Level 3	X	X	Updated Middle Mile, provided an updated address list, PCI has selected the census blocks associated with the addresses.
LiteWire Internet Services, Inc.		X	New fixed wireless provider, data was given to us from CostQuest Associates and the Wisconsin SBI.
Logonix		X	New fixed wireless provider.
Madison Communications Company, Inc.	X		Upgraded cable to Docsis 3.0
Mediacom	X	X	Updated all Illinois coverage to TT40 (Docsis 3.0), went county by county looking at geocoded addresses, city limits, and census blocks to fill in holes in coverage.
MegaPath	X		Updated road segments, Middle Mile, and census blocks of their coverage.
Metro Service Center	X		Installed new Wi-Max tower.
Mid Century	X		Increased DSL speeds, removed DSL in Yates city & replaced it with FTTH.
Mount Vernon Net	X		Increased speeds, took two towers off line.
Network Business Systems	X		Acquired D-Max.Inc(Maxiss), increased speed in D-Max.Inc territory.
Nova Cablevision		X	New provider.
Now Wireless	X		Upgraded speeds, no change to FTTH.
Park TV and Electronics	X		Added 8 new fixed wireless towers, added FTTP census blocks that are for commercial use only.
Peoples State Bank		X	New fixed wireless provider.

RCN	X		RCN provided an updated address list, PCI has selected the census blocks associated with the addresses, added almost 800 more census blocks. Updated Middle Mile as well.
Rochelle Municipal Utilities		X	New fixed wireless provider.
Royell	X		Upgraded infrastructure to increase speeds.
Rural Enterprises.Inc (Rural Comm)	X		Expanded coverage in Cumberland county.
Sidera	X		Added more Middle Mile data.
Sprint	X		Expanded 4G coverage in Chicago region.
T6	X		Acquired Barbeck Communications, IL portion of Prairie iNet, and Comlec Services Inc., Stateline ISP.
Telecommunications Management, LLC/NewWave	X		Acquired Cequel III Communications II, LLC, upgraded most of Cequel's coverage to 15mbps down 1.5mbps up.
Time Warner Cable Inc.	X		Little change, submitted updated road segments and census blocks shapefile. Updated FRN number.
T-Mobile	X		Increased 4G (HSPA+42) and Middle Mile.
Tonica Telephone Company	X		Speed increase, no footprint change.
TW Telecom	X		Updated Middle Mile, provided an updated address list, PCI has selected the census blocks associated with the addresses.
Urban Communications, Inc.		X	New provider, added Middle Mile data, added fixed wireless data.
US Cellular	X		Expanded 4G LTE coverage.
US Signal Company	X		One new Middle Mile point.
Verizon	X		Increased 4G LTE coverage.
Wisper ISP	X		Upgraded infrastructure to increase speeds, added 1 tower.
Wonderwave		X	New fixed wireless provider with Middle Mile data.
Zayo		X	Added census blocks as part of their submission. This is a commercial provider only.

SBDD DATA TRANSFER MODEL METHODOLOGY

The submission of the broadband dataset for April 1, 2013 is contained within the SBDD Data Transfer Model. PCI has reviewed all literature that relates to the release and use of this data transfer model and recognizes that it does not replace or dictate how data is stored, processed, or displayed for the State, as it is meant primarily as a means to transfer the broadband data from all states and territories and populate the National Broadband Map in a seamless fashion.

In addition to the narratives and methodologies contained herein, as well as the DataPackage.xls containing contact information, the data dictionary, and a provider summary table, the following feature classes are submitted within the SBDD Data Transfer Model for the state of Illinois.

Inventory of Deliverables, Partnership for a Connected Illinois: April 1, 2013:

<u>NOFA Requirement</u>	<u>Data Transfer Model</u>	<u>Data Description</u>
Appendix A: 1(a)	BB_Service_Address	List of addresses at which broadband service is available to end users in the provider's service area.
Appendix A: 1(a)(i)	BB_Service_CensusBlock	Broadband Service Availability of Facilities-Based Providers in Census blocks of No Greater Than Two Square Miles in Area
Appendix A: 1(a)(ii)	BB_Service_RoadSegment	Broadband Service Availability of Facilities-Based Providers by Road Segment in Census blocks Larger in Area Than Two Square Miles
Appendix A: 1(b)	BB_Service_Wireless	Broadband Service Availability of Wireless Services Not Provided to a Specific Address
Appendix A: 3(b)	BB_ConnectionPoint_MiddleMile	Broadband Service Infrastructure Middle-Mile and Backbone Interconnection Points
Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing

The provider data collected by PCI on behalf of the State of Illinois have been formatted per the given specifications and uploaded into the appropriate feature classes of the SBDD Data Transfer Model. Wireline availability is contained within census blocks and road segments. Wireless availability is contained as polygons of coverage areas. Middle-mile connections and community anchor institutions are contained as point data. The subscriber weighted nominal speed (if available) is contained within the overview feature class. All speed data is contained at the census block, road segment, or wireless polygon level of availability. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information as possible.

In this round, we are again including the state boundary. Commenting on previous round of data submission, NTIA cited issues with data gaps near the borders of the state and recommended using the U.S. Census Bureau state boundary data. Thus, in this round of data submission, we are including the U.S. Census Bureau 2010 Census Illinois state boundary in GCS_WGS_1984 coordinate system.


DATA PRODUCTION METHODS

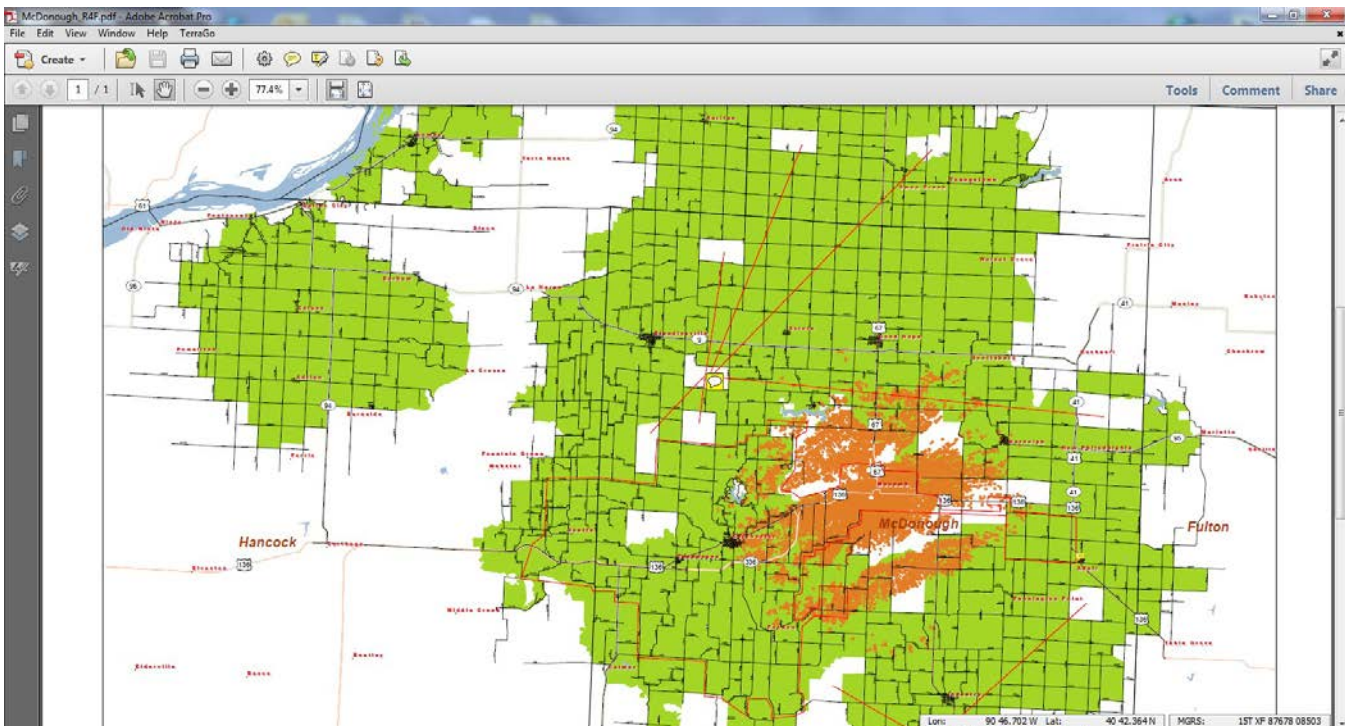
As mentioned, data was received in a number of formats that required processing in order to prepare the data for submission in accordance with NTIA requirements. This section discusses how PCI processed provider data, as well as how PCI assisted the provider in making the update process as easy as possible. It examines each layer and the steps PCI took in making the updates.

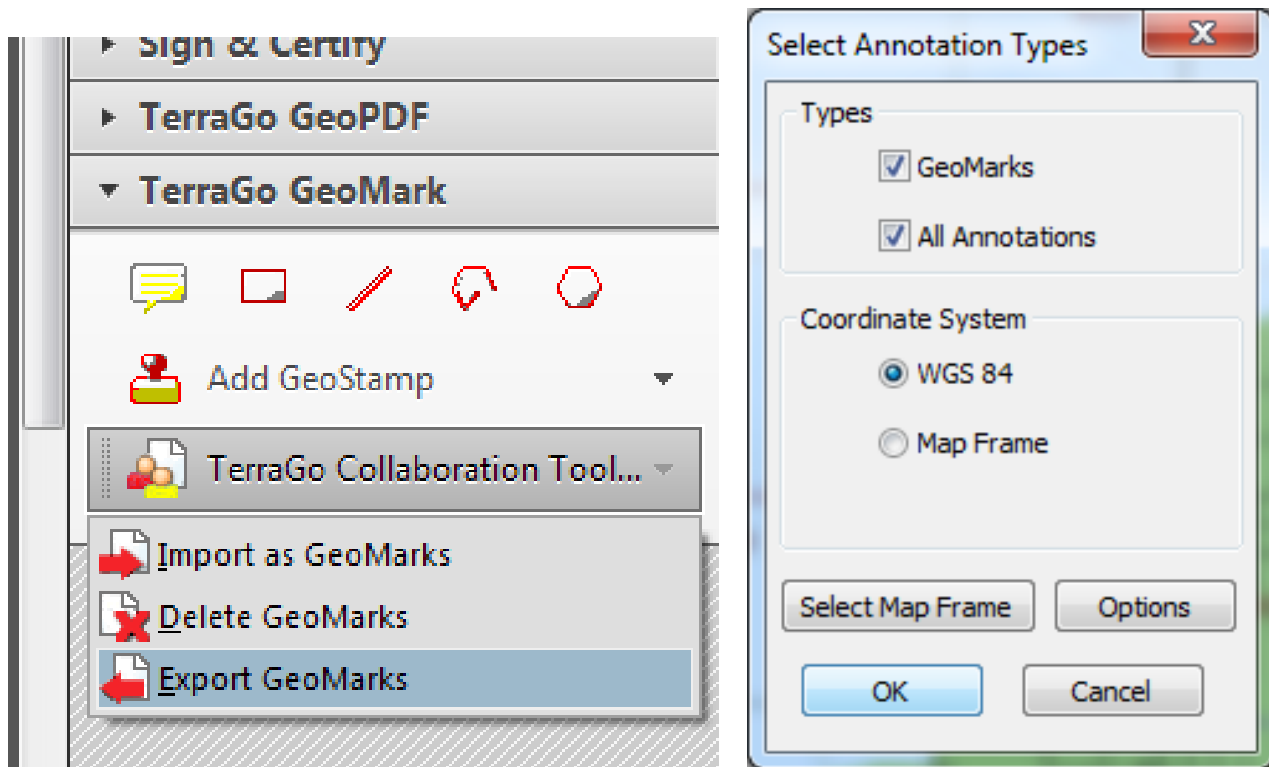
GEOPDF AND TERRAGO TECHNOLOGIES TOOLBAR (DSL & FTTH)

In the initial outreach made to the providers from January 15 - through January 25, 2013, they received a map of their existing coverage area. These maps are in the TerraGo Technologies GeoPDF format. This allows the provider to mark up the map with corrections and allows PCI to bring those corrections into ArcGIS. Instructions on how to install and use TerraGo GeoPDF were made available here: <http://broadbandillinois.org/maps/Carrier-Maps/About-GeoPDF-Maps.html>.

This toolbar created several opportunities for the provider to really zoom in and edit their coverage area. When it comes to verifying carrier level data, PCI felt the GeoPDF and the virtual meetings where PCI and the provider started carving up the data were extremely useful. The images on the next several pages demonstrate how DSL and FTTH providers were able to use the toolbar to carve up coverage areas to update their data.

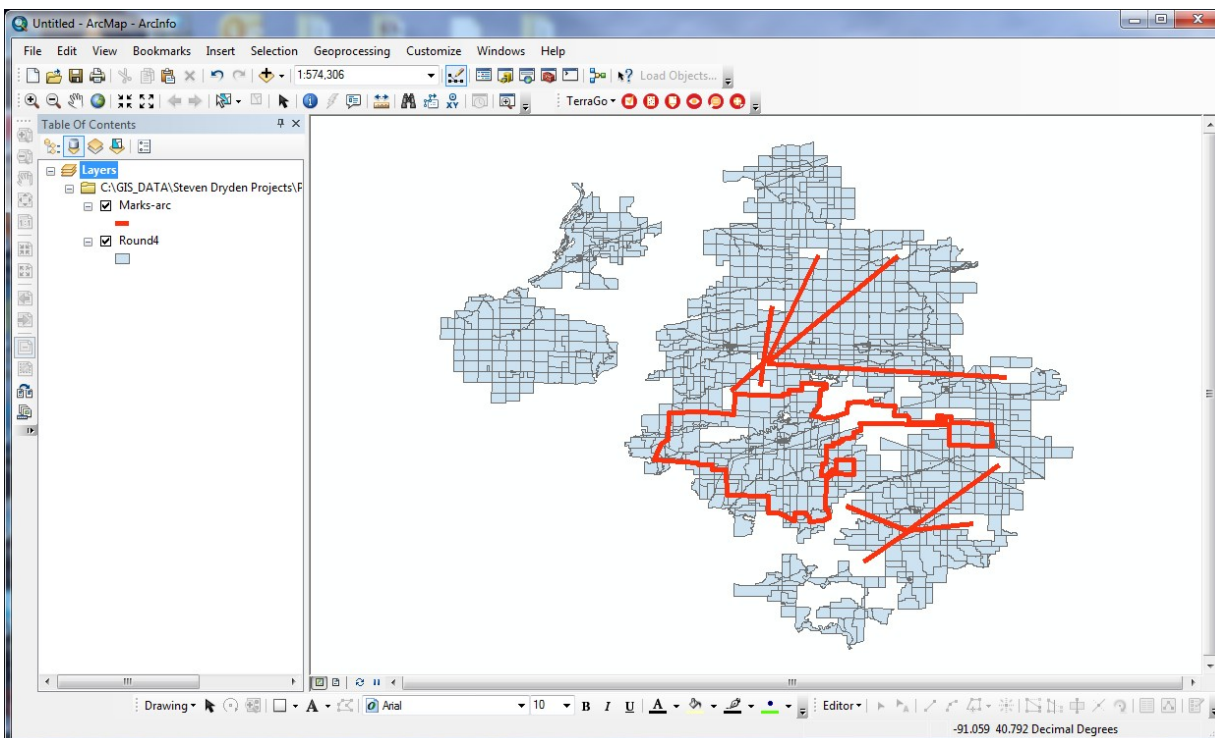
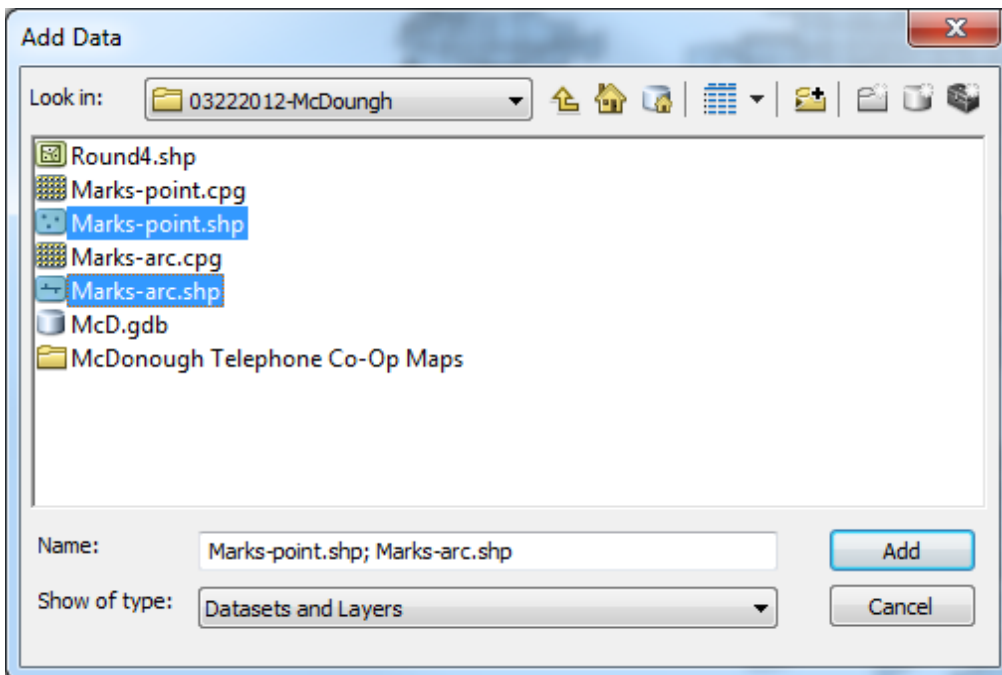
The provider, upon opening the map was instructed to use the  icon to turn layers on and off, and follow the instructions to mark up the map. The image below is a marked up GeoPDF of McDonough Telephone Cooperative in which they indicate where they have had FTTH deployment since their previous submission.



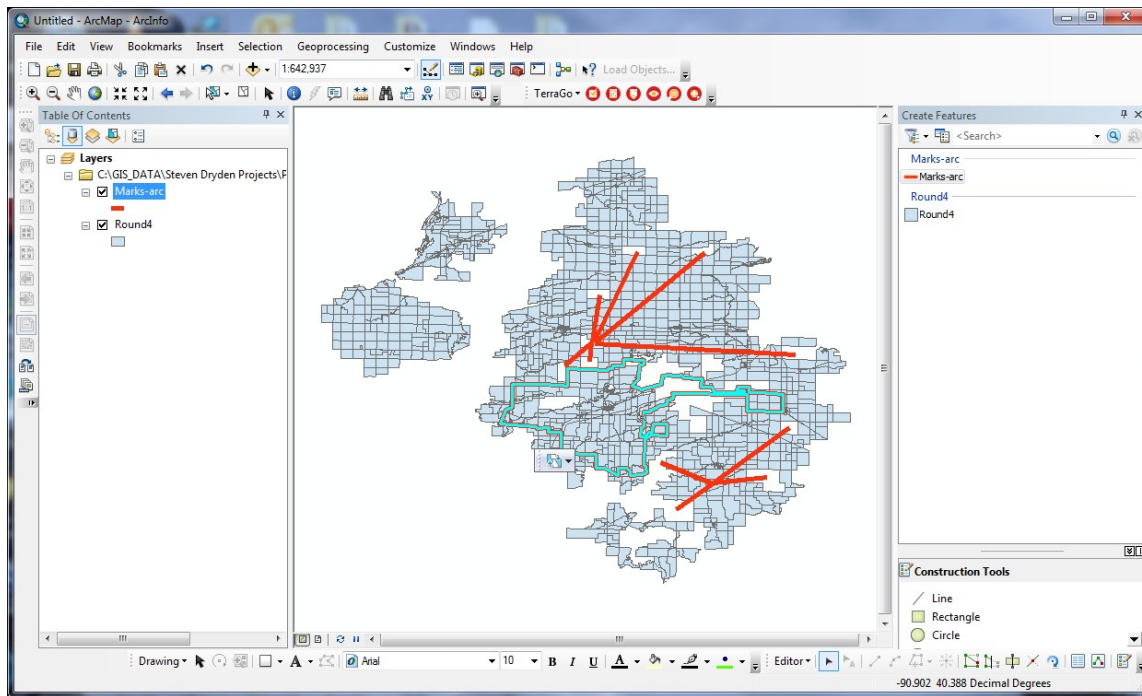


With this tool, providers can draw lines, comments, polygons, and points as indicated in the image to the top-left. From here we can export comments and geomarks as an ESRI Shapefile as demonstrated by the images above.

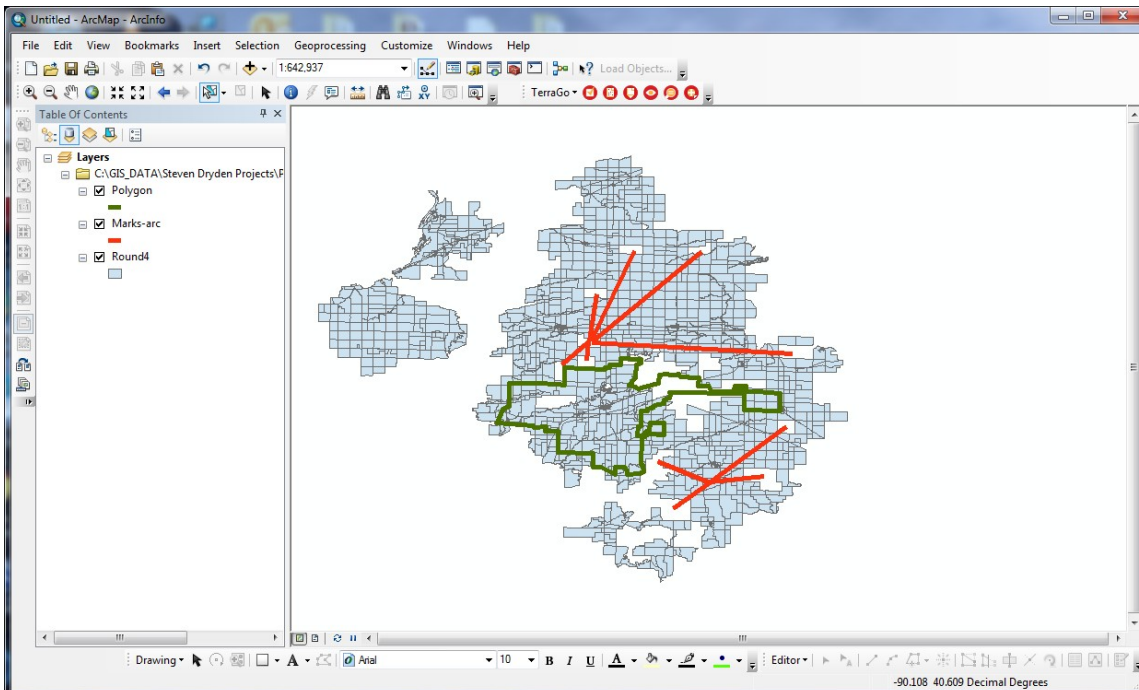
After exporting the geomarks from the GeoPDF, we can now import them into ArcGIS. This provider has drawn lines to show where they have added FTTH and where they want us to fill in holes in their other census block coverage. The geomarks are indicated by the red lines on the bottom image.



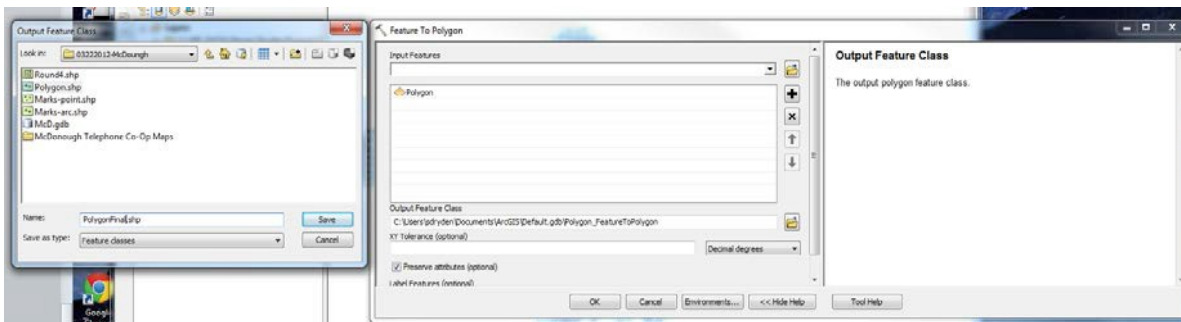
From here, we add Census Blocks as needed. For lines that represent an area, we can convert to a polygon so we can easily select Census Blocks. First we select the lines that need to be converted into a polygon (highlighted in Blue), we will export the selected.



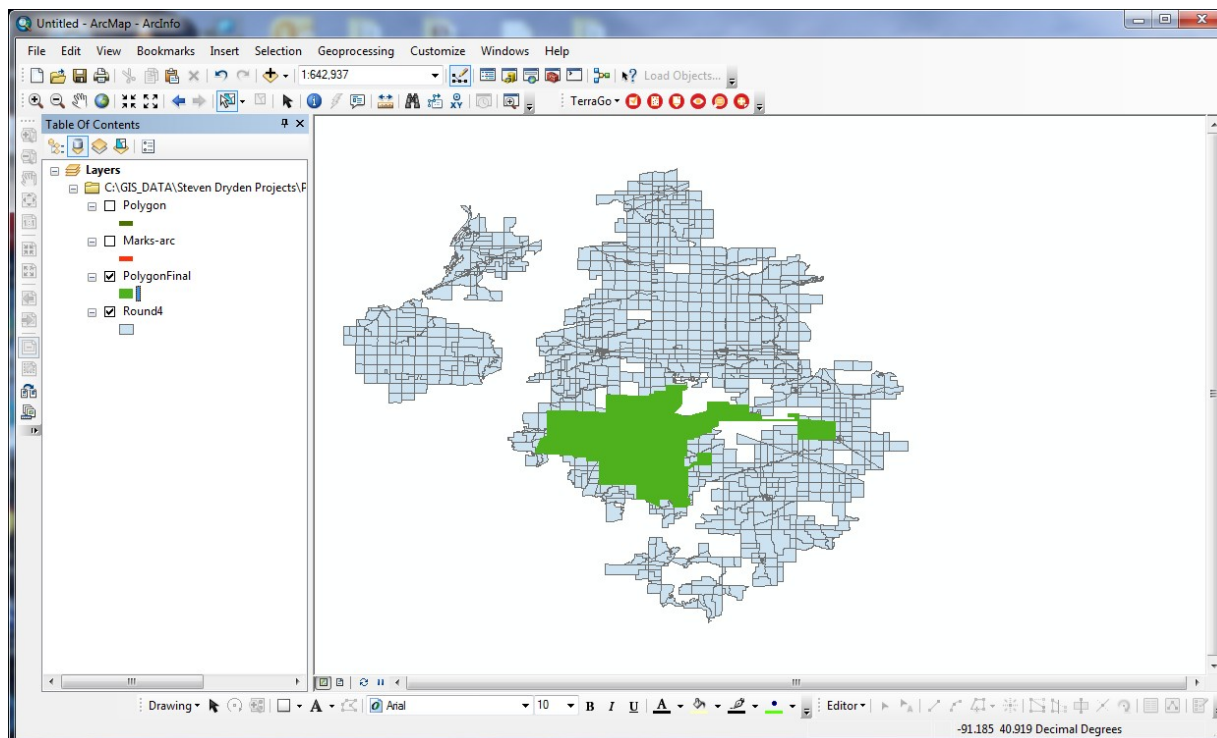
Here you can see we now have separated the polygon line we need. Now we can convert this to a true polygon.



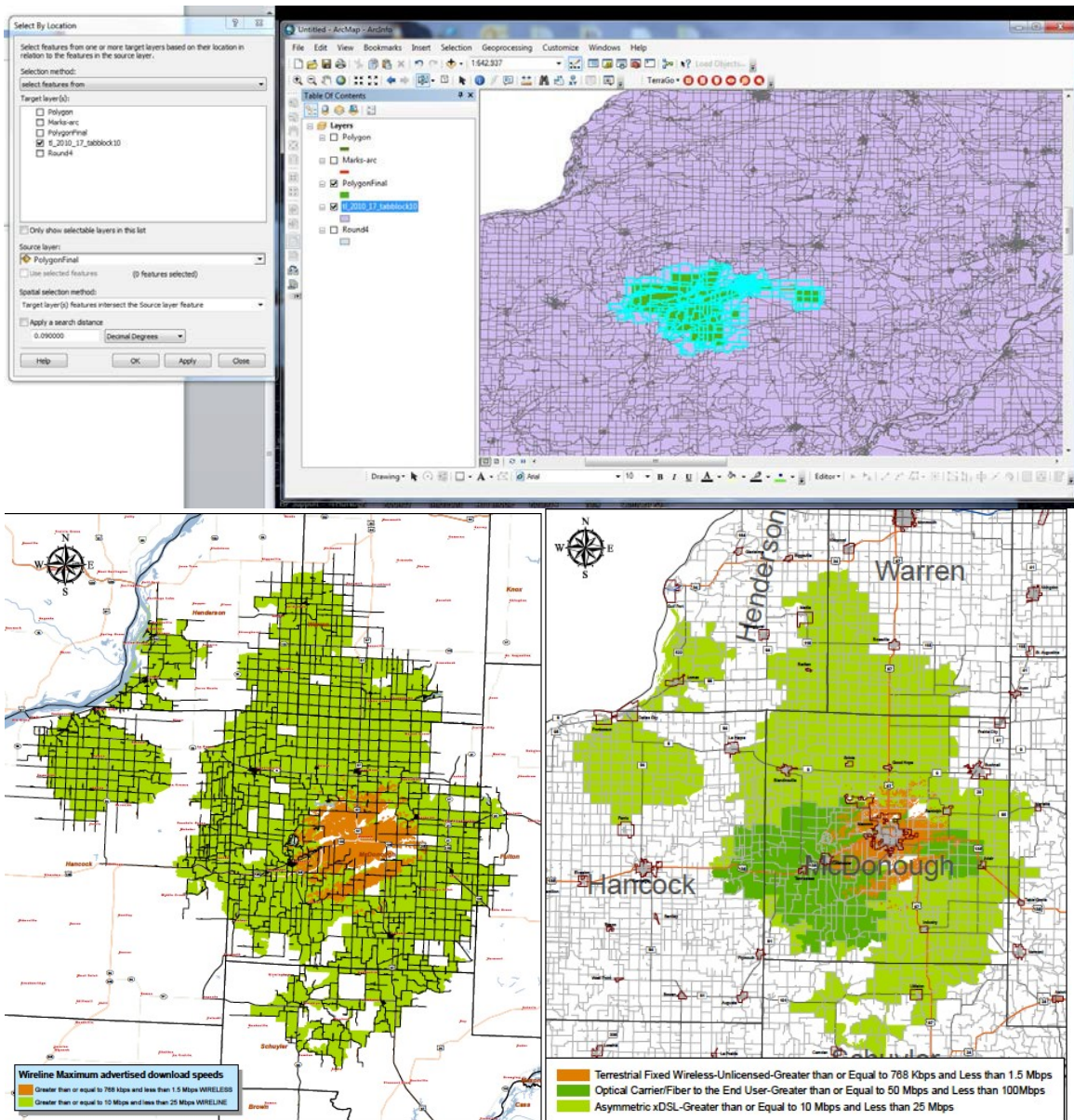
To convert a line to a Polygon, we used the Feature To Polygon tool in ArcGIS



The end result is a polygon that will be used to select census blocks that are inside or touch the boundary of the polygon.

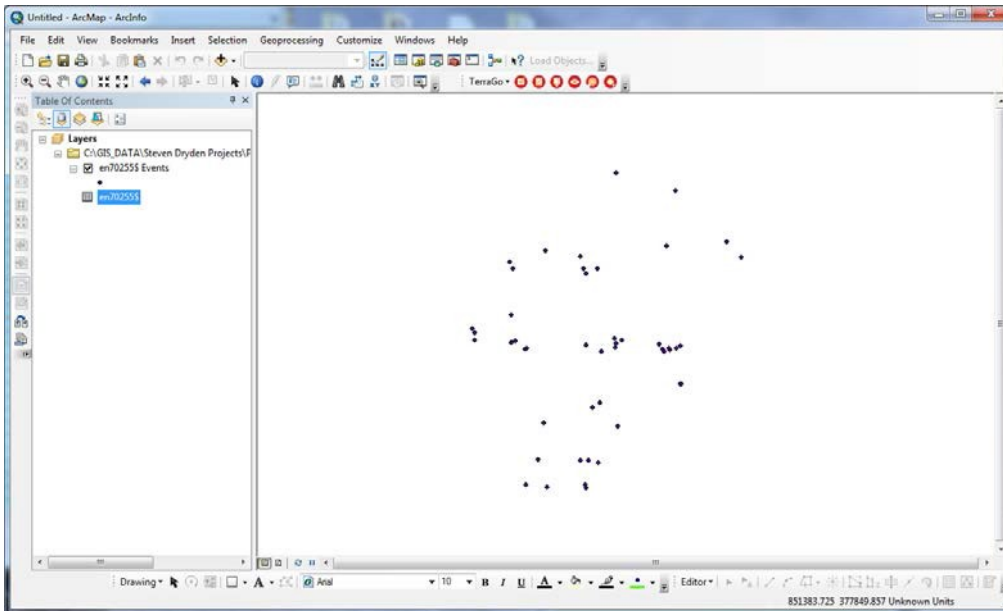


To obtain the Census Blocks needed, we used Select By Location process. As you can see, the census blocks are now selected. All that is needed now is to export the specified census blocks out, and provide the data with attributes as indicated by the provider. The maps below show the initial data and the data after the updates are made through the GeoPDF software.

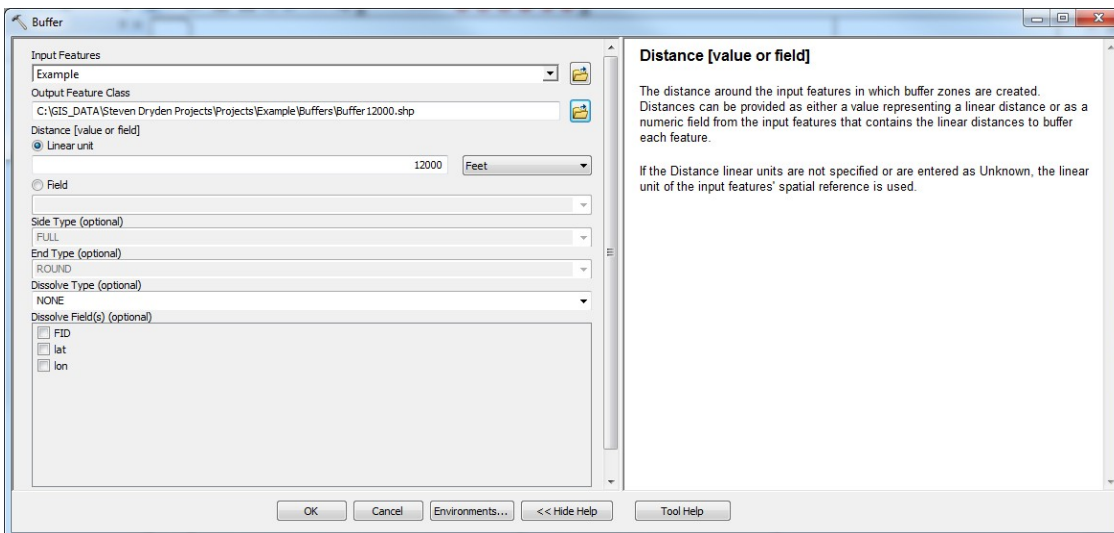


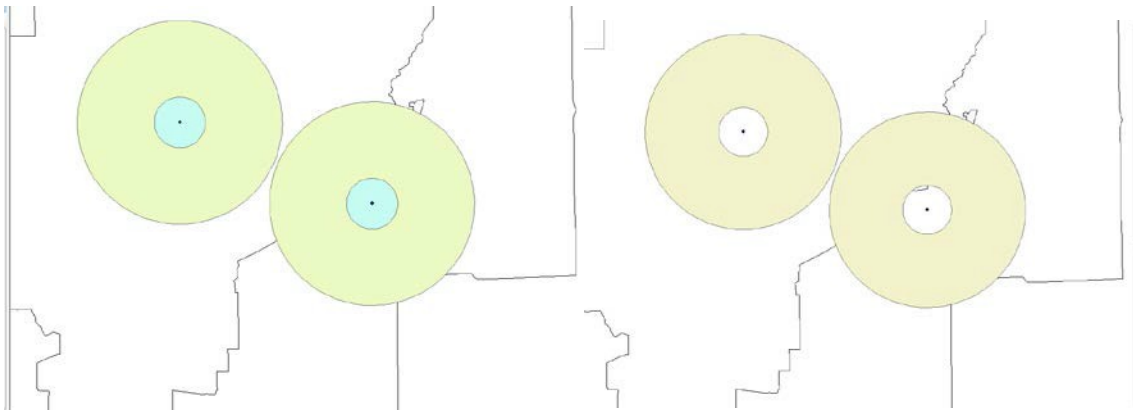
WIRE CENTER BOUNDARY CLIPPING

Some DSL providers sent an Excel table that displays latitude and longitude for central office and remote terminal locations. This creates a special challenge for us because DSL service extends 12,000 feet from the center, but is not allowed to cross the wire center boundaries. Also, we must factor in that at 3000 feet from the wire center, speed decreases from speed tier 5 to speed tier 4. First, we load the Excel table into ESRI ArcGIS. In ArcGIS, we can use latitude and longitude information to display data on a map using the Display XY Data function. We use this here to get a working shapefile.



With a working shapefile, we next buffer around each point for speed and coverage. We use two buffers of 3000ft and 12000ft.



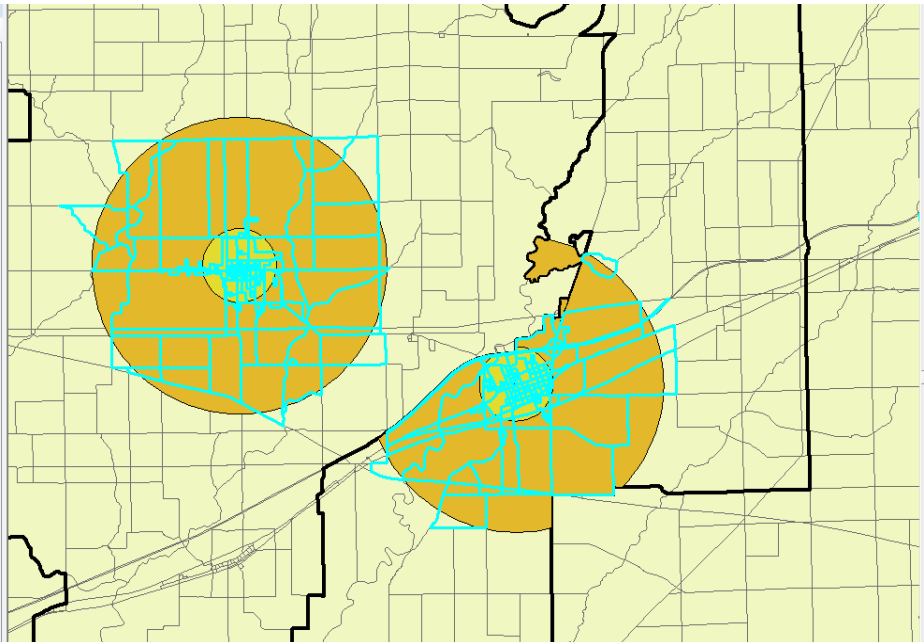
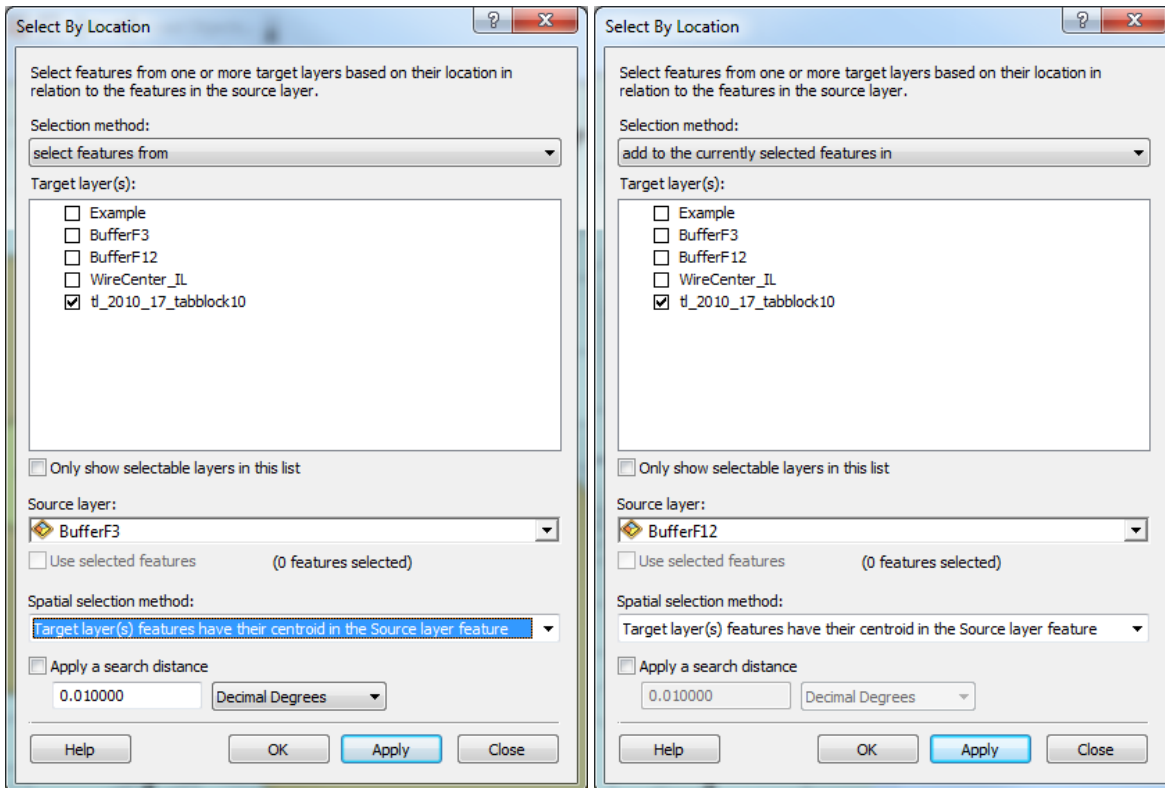


The resulting buffers are found in the above image to the left. We next clip the innermost 3000 feet from the 12,000 foot buffer. In the image on the right, we have turned off the 3000ft Buffer to show that there is nothing under them now. Coverage for wire centers can not cross wire center boundaries, so we now need to trim the buffers so that they remain inside the boundary where they are located. We next use the Intersect tool to break apart the coverages based on the wire center boundaries.

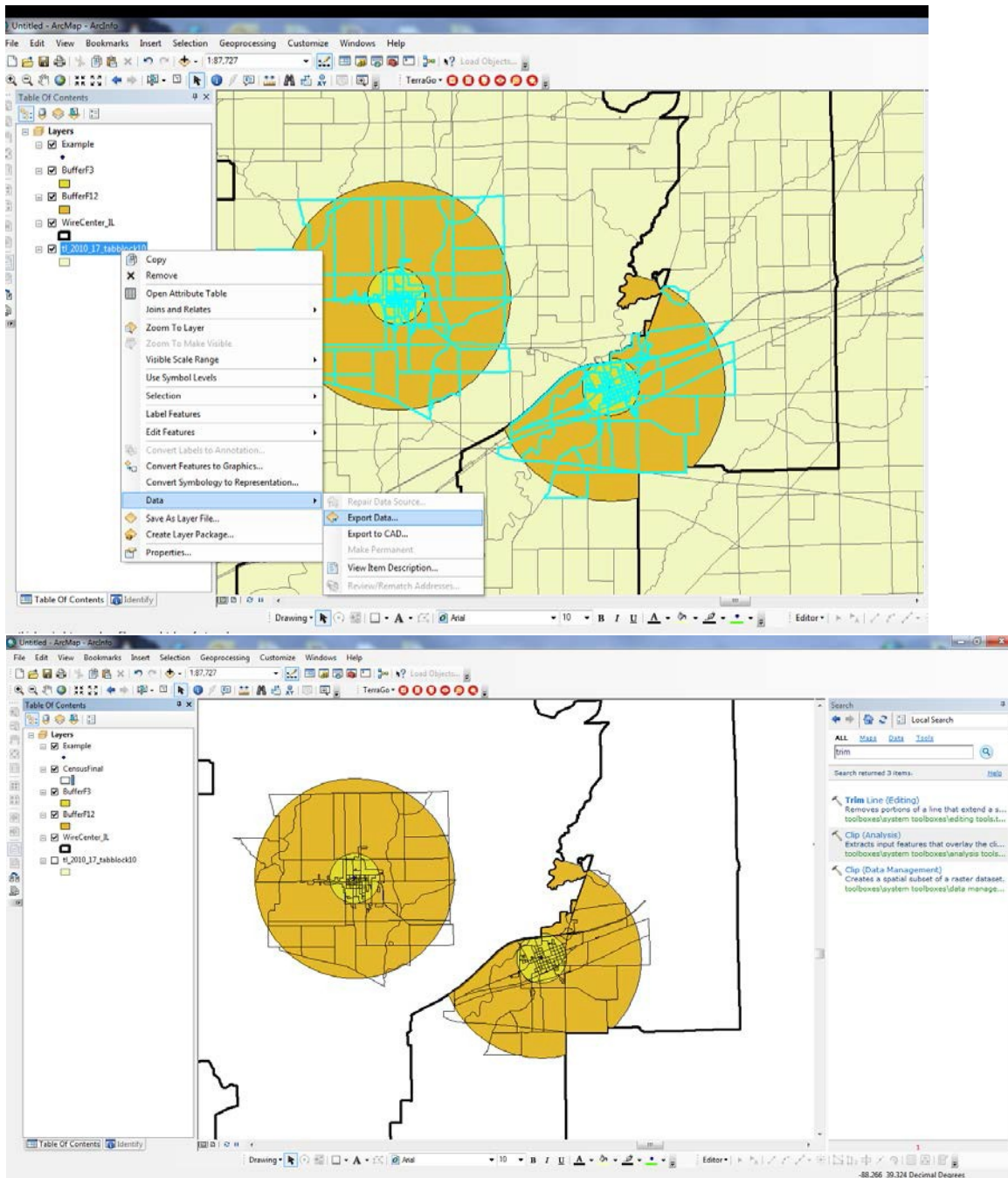


As you can see, the polygon is now broken apart by the wire center lines. From here, we next start an editing session and delete those areas that fall outside the wire centers boundary. Select the area outside the boundary and press “delete” to remove those census blocks.

We do this for all wire centers, and then save our edits. After we are through with this, we next use these buffers to select census blocks by location. In this case we specify that a census block centroid be within either the 3000ft buffer or the 12000ft buffer in order to count.

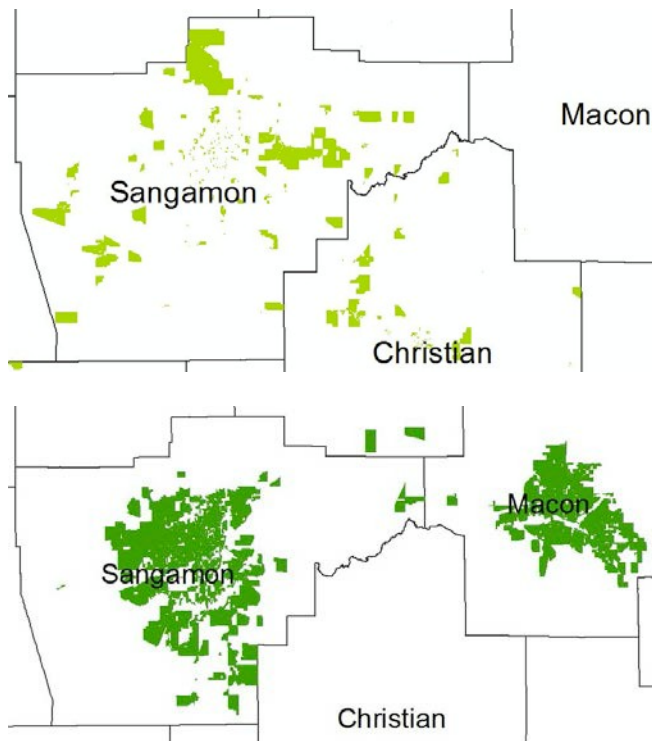


At this point we are ready to export the selected Census blocks, and assign speeds based on which buffer the census blocks fall within.



After we provide the census blocks with attribute information, we next send a GeoPDF to the carrier for approval, and then load it into the master geodatabase.

CABLE COVERAGE



Some cable carriers submitted their service area coverage data in the form of a spreadsheet citing customer addresses. These addresses were converted to a point layer via a geocoding process. These points were then superimposed on top of a 2010 census block layer, and all of the census blocks that had one or more address-derived points associated with them were selected. The selected blocks were then converted into a polygon layer which was attributed with appropriate broadband provider information such as provider name, technology of transmission, maximum advertised downstream speed and so on. A portion of the Mediacom map above indicates an example of this in the above map.

Other cable carriers including Comcast submitted a series of spreadsheet records which were matched with the corresponding Illinois 2010 census blocks polygon layer. The matching polygons were then superimposed on the Census CBSA layer which was joined with the provided maximum advertised (MAXAD) speeds spreadsheet. This way each individual census block was attributed with the

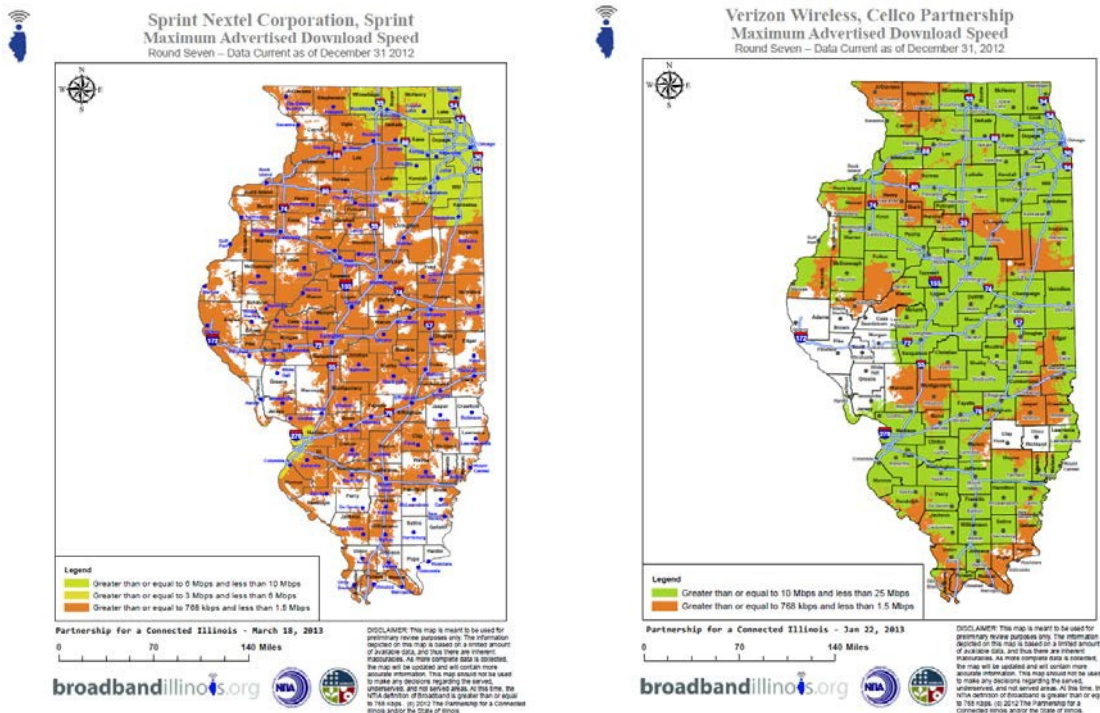
corresponding MAXADDOWN and MAXADUP value.

Street segment spreadsheet data records were geocoded based on mid-point value of the reported street segment address range. A point layer thus derived was next overlaid with the 2010 census street layer. Census street layer segments that were associated with the geocoded points were then examined, one-at-a-time, to make sure that they matched the reported street, city and census block information. Some of the reported records had to be discarded as they could not be located via the above process.

A GeoPDF map depicting both, census block and road segment data, was reviewed by Comcast and a number of census block records were deleted as a result of Comcast feedback.

MOBILE WIRELESS COVERAGE

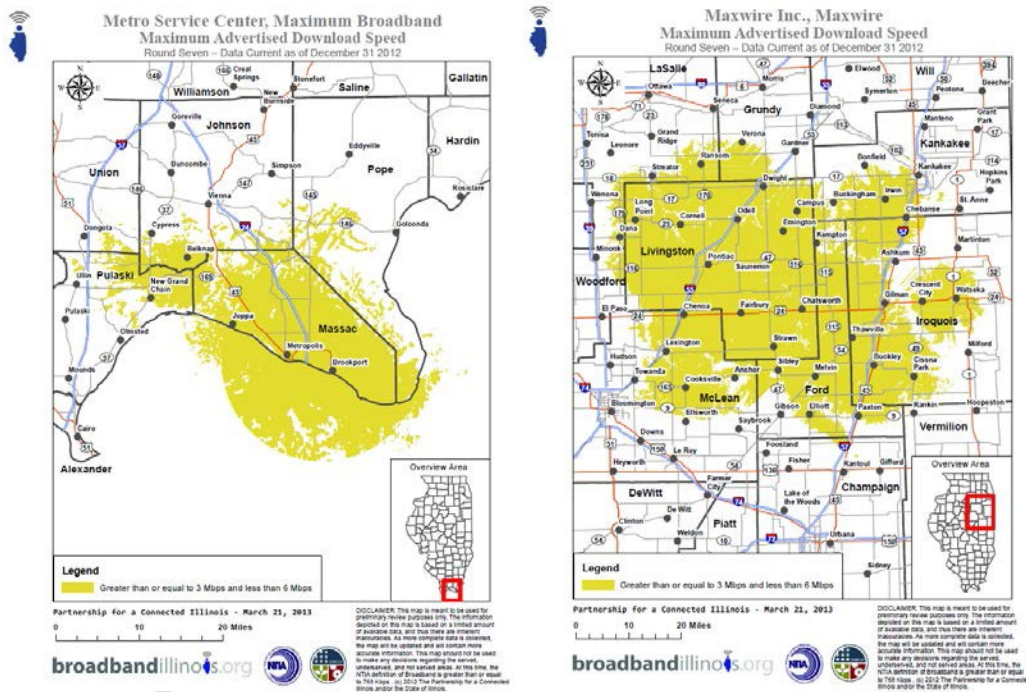
PCI has collected mobile wireless coverage from most providers in the State. These shapefiles were imported into the database and assigned attributes. An example of this data is below.



WIRELESS METHODOLOGY

Once again, almost every fixed wireless provider allowed us to use their tower locations, antenna heights, equipment selection and direction/spread of coverage to derive coverage areas. With the provided tower information, professionally prepared radio frequency coverage studies were conducted and converted to shape file format. These studies have proven to be very accurate and represent service areas where the maximum advertised speeds can be delivered. These studies take into account full consideration for terrain and tree clutter data. For any carriers who could not provide their own RF propagation coverage polygon, RF propagation studies were done in house. The Longley-Rice propagation model was used. Studies were conducted using 10 meter resolution terrain data. Tree and vegetation clutter data resolution is 30 meters. All propagation results had a minimum of a 10 dB signal fade margin built into the results in addition to losses calculated for clutter. Signal level minimum thresholds were set on the study maps to a level that each carrier deems reliable and serviceable at those speed tiers, not just the minimum to establish a connection. These maps are not based on the manufacturers best case scenario radio capabilities in a lab environment. These coverage polygons represent what can be delivered in the face of interference in the shared spectrum used for those with transtech codes of 70 and spectrum code 6.

There appears to be some variation on how the NOFA coverage definition is met. In other words, there seems to be a disparity on the necessary strength (e.g. -80 dB, -98 dB, -120 dB, etc.) to provide the appropriate quality of service for data services and still be able to deliver the maximum advertised speeds. While we took these issues into account for our internally generated RF propagation studies, we do not have specific details for carrier provided polygons such as cellular mobile data and 4G service footprints.



SATELLITE

This round of data updates includes four broadband satellite service providers – ViaSat, HughesNet, Skycasters and StarBand. All of these providers communicated that their service area encompasses the full extent of the state of Illinois.

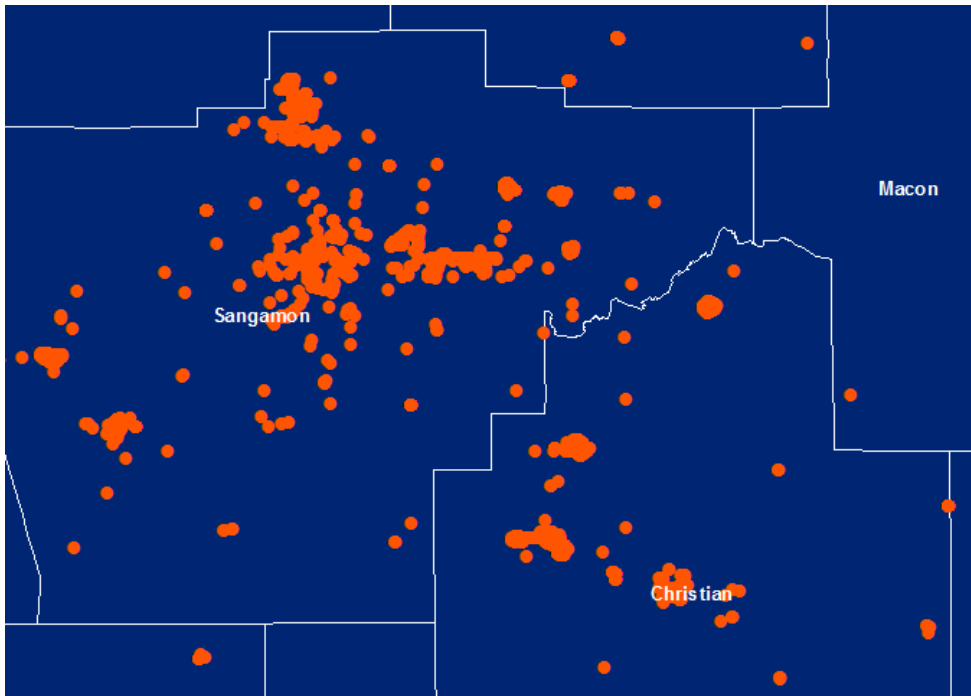
MIDDLE MILE

Middle-Mile (MM) data is acquired via either a direct carrier submission in the form of a spreadsheet or a text document citing specific MM hub coordinate pair values, or by obtaining the general MM hub location from the carrier's web site.

In the case where specific coordinate pair values are available, a point layer is generated using ArcGIS software. This process entails bringing tabular XY coordinate pair values into ArcGIS, and creating an “event theme”. The “event theme” is then exported into a stand-alone point layer which is then attributed with the necessary information.

General, web-derived locations are converted to a point layer by citing towns where the MM hub presence is identified by the carrier. Town point locations are next attributed with relevant data.

ADDRESS LAYER DATA



Service address information in this round was provided by the same three carriers that provided it in the last round - Mediacom Illinois LLC, FairPoint Communications and RCN Telecom Services of Illinois, Inc. Mediacom and RCN reported new data in this round; FairPoint data did not change.

Supplied address data was geocoded. Great care was taken to successfully rematch addresses that were not matched during the initial geocoding run. Spelling errors were the most common reason an address failed to geocode correctly. Such errors were resolved via web or Google Earth searches. The resulting point layer was used to

derive the missing LATITUDE and LONGITUDE coordinate pair values which were then added to the Service Address layer attribute table. The geocoded results were also used to generate data for the census block layer. Above map illustrates the service address layer.

METADATA

Metadata, which literally means data about data, represent PCI's attempt to document procedures, coding, and overall methodology used in managing broadband supply data. Both short and long terms goals of developing PCI's metadata are to improve communication on Geographic Information Systems (GIS) data management issues for both internal and external partners. PCI's metadata is organized and structured around Federal Geographic Data Committee (FGDC) standards associated with key information impacting the following issues:

- What GIS data layers are managed by an organization?
- How is data coded or classified in assisting outside partners or organization use of the GIS data developed?
- When was the data developed and how often is it updated?
- Who developed the data layers and who should be contacted if anyone has questions?

The net result of developing PCI's metadata connects to the idea of communication and standards. When applied correctly over time PCI's metadata will assist in educating other users on essential questions needed when applying GIS data. In addition, it will assist PCI internally as metadata will help the organization identify and document critical developing issues shaping data development. Any new employee or organization will be pointed to metadata files when asking questions relating to methodology, attribute codes, dates of data edits or updates, and follow-up contact information within PCI's data team.

DATA VERIFICATION

Verification has become an evolving and ongoing process at PCI. The continued evolution of the Broadband Illinois website, along with the use of the GeoPDF process has created a feedback loop between provider and consumer and PCI that allows PCI to verify the carrier level data that it submits semi-annually to the NTIA. PCI continues to cultivate eTeams throughout the state that are able to take county and provider level maps and visualize the data and begin indicating areas where the data may not be accurate. PCI has also published a Supply Side Inventory in which PCI developed a system to rank Illinois's counties by broadband connectivity and looked at two major sets of third-party data to verify the data it had collected. The following sections go in to greater detail on the verification process but the outline below shows the basis for the verification process:

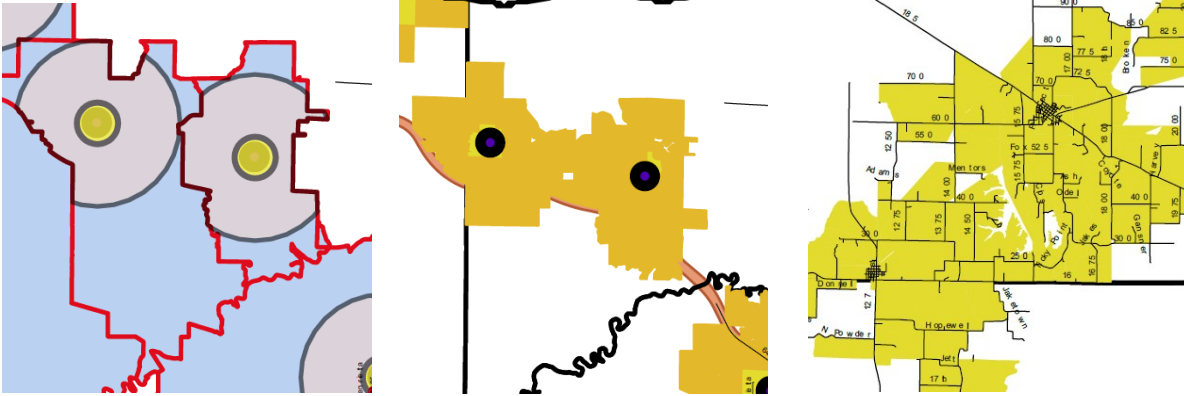
- Provider verification through extensive mapping GeoPDF process
- User verification through online web tools
- Trusted user verification through eTeam groups
- Third Party verification using third party data sets (ex. Gadberry, FCC Speed Test)

PROVIDER

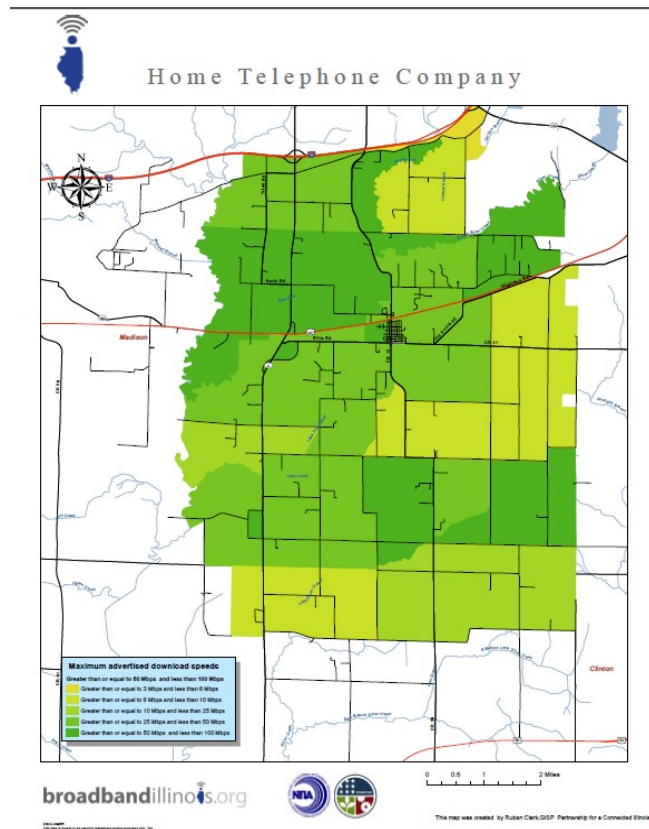
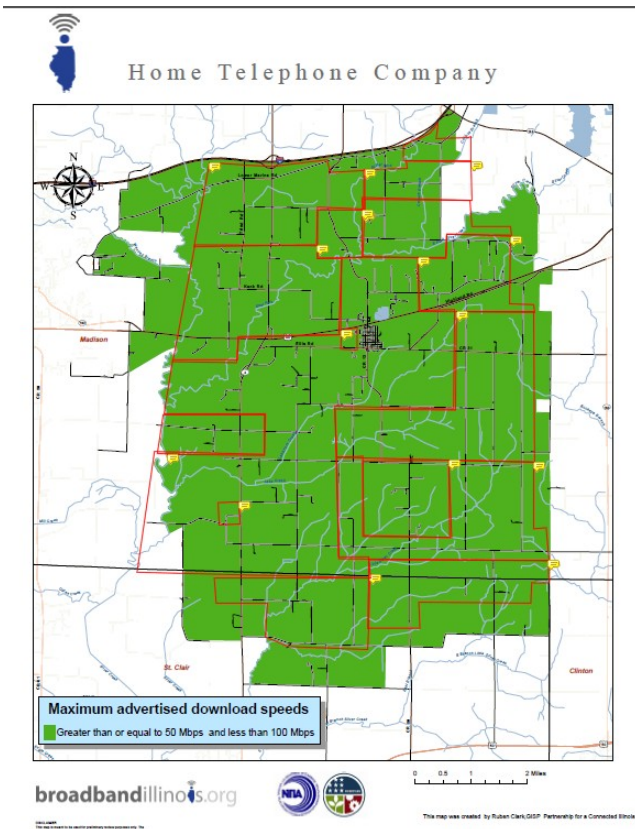
In this Round, PCI worked very closely with the provider sending back versions of the GeoPDF until the data was represented according to the provider. PCI considers this process to be the first of five forms of verification PCI has and will continue to carry out to ensure the data that is submitted to the National Broadband Map is as accurate as possible.

Previously, PCI purchased a set of wire center boundaries, which PCI used to map out DSL coverage for a couple of providers. Knowing that a DSL provider's Central Office or Remote Terminal that fell in a certain wire boundary could not extend service outside that boundary allowed PCI to map out these locations and create buffers around these locations based upon the speed. PCI recognized that locations 7500 feet from a DSL C.O. or R.T. would not receive the same speeds as locations only 1000 feet from that location. These buffers allowed PCI to make these changes. Due to confidentiality of these locations, maps that contain these locations with these buffers and boundaries are protected under the NDAs that have been established.

However, the images below provide an example of how PCI would use a C.O. or R.T. location to map out the coverage that a provider is able to provide in that wire center boundary. The image on the left shows two wire center boundaries that contain a C.O. The buffers are indicating that the areas closest to the C.O. receive speeds that are in Tier 5 while areas outside that initial ring receive download speeds in Tier 4. The second image shows how the data beneath these buffers looks when the wire boundaries and buffers are removed. The third image shows how the previous mapping contractor would have submitted this data in a previous round. As you can see, the same flat speed is dispersed across the entire region surrounding C.O. and R.T. locations. This is undoubtedly a form of verification.



PCI has worked through this process for one of the two largest DSL providers in Illinois as well as a handful of small telephone companies throughout the State. In some instances, small telephone companies admittedly provided this data without sharing the locations and the GeoPDFs made this possible. The images of Home Telephone Company on the next page demonstrate how they used the TerraGo toolbar to reel back the previous data that was incorrectly submitted as DSL data with speeds across the region in Tier 9.



USER

PCI views the user as the second form of verification and has developed a tool to allow feedback on the data that is on the Illinois Broadband Map and in the semi-annual submission to the NTIA. When a consumer clicks on Broadband Illinois's search map they see the carriers that service that census block. The widget below allows the consumer to give PCI feedback on the providers that service that location.

3 carriers serve this area

Sort by **Fastest** Slowest Carrier Technology

CARRIER	MAX	TYP	MAX	TYP
Cass Telephone Company Asymmetric xDSL	 3-6 Mbps	 3-6 Mbps	 1.5-3 Mbps	 0.2-0.7 Mbps

Accurate? 20 Yes 10 No

Is this service available to you at the reported speeds?

Why do we ask?

Share your thoughts...

Save Cancel

TRUSTED USER

The third form of verification comes from the Trusted User. PCI has created GeoPDFs of all 102 of Illinois's counties that are available on the Broadband Illinois website. In this round, the Partnership for a Connected Illinois made great progress with its regional outreach strategy. PCI now has ten functional eTeam groups in ten regions throughout the State. The purpose of the groups are to aggregate demand for broadband, work with providers to fill gaps in access, find creative applications for the maps and data, and to educate consumers and businesses on the benefits of a high speed Internet connection. Over the last year, each regional eTeam has hosted at least one, in some cases as many as six regional meetings where area broadband providers and economic developers are invited to come and talk about using broadband as an economic development tool and work together on broadband related opportunities. While some eTeam groups are certainly further along than others, projects exist in each region to help utilize broadband to bring the region to the next level. Among these projects are working with providers on eRate in underserved regions, hosting an agriculture technology summit to talk to local farmers about the benefits of a broadband connection, and bringing together healthcare professionals to talk about needs with Health Information Exchanges.

Since the last round of data collection, the www.broadbandillinois.org has uploaded a multitude of new features and content with several other structural changes planned for this upcoming round. PCI has made available several of

the maps they have created through analysis of the data. Among these maps are broadband competition maps and regional, educational, and county ranking maps. Also at <http://www.broadbandillinois.org/maps/Carrier-Maps.html>, there are individual pages for each carrier in the State of Illinois. Contact information, mapping data, and any news stories that have been published about that provider are available on these pages. These provider pages are also geotagged so that they are available as providers are referenced throughout the rest of the website. As per the previous two rounds, geotagged county map pages also exist at <http://www.broadbandillinois.org/maps/County-Data-Maps.html>. The raw data that PCI provides to the NTIA semi-annually has also been made available.

The website also has an events section, where regional eTeam meetings, other broadband interest events, and computer training opportunities have been made available to website visitors. In this round, PCI has also developed a newsletter that serves as regular communication to upwards of 1,500 stakeholders in Illinois. These newsletters and other special interest news stories are available in the news section of the website. Finally, in the eTeams section, eTeam groups are able to have a repository for mapping data, events, and news most relevant to their region.

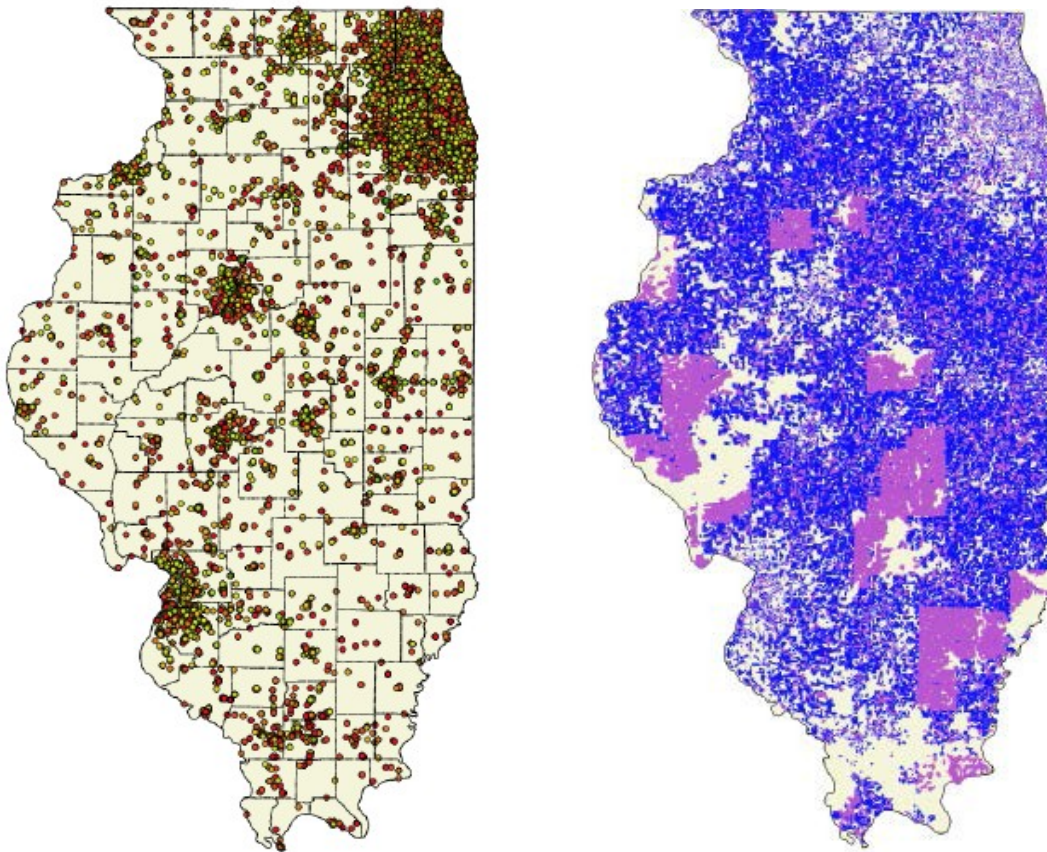
THIRD PARTY DATA SOURCES

PCI published Supply Baseline Study, “Broadband Access in Illinois: A Baseline Snapshot”, that summarized the state of broadband supply in Illinois. The report, a product of data analysis by the PCI data team, aims to quantify what is known about broadband data in Illinois and publish it along with an analysis of Third-Party data sources. An update of this report is under way.

The first method of third-party verification used in this examination was user speed test data through the broadband.gov website. Through this website, the NTIA and the FCC solicited street address information with each speed test. They provided PCI with speed test data gathered over a 12 month period. This has been mapped and some limited studies have been conducted. These speed tests were accompanied by mini surveys which allowed for some analysis. The users were asked to input their street address and the type of internet connection they were using.

The second set of third-party data used for verification in this study was gathered by the Gadberry Company. The Gadberry data is a combination of various user/crowd sourced data sets. They indicate if there is broadband activity at the street address level and they then incorporate that information at the census block level. We have compared blocks showing coverage as stated by the carriers against the user reported information. There are some areas of the state where there are low or no user reported information.

The maps below show these third party data sources projected on a map of Illinois. The map on the left shows the location and results of the FCC speed tests, while the image on the right shows census blocks where the Gadberry dataset did not provide enough results for a significant analysis. On the Gadberry map, census blocks in blue indicate where there is a low sample rate, and census blocks in pink show where no samples were obtained. For more information on these third party data analyses, the Supply Side Baseline report is available on the following PCI website: <http://www.broadbandillinois.org/Research/Infrastructure.html>



ILLINOIS COMMUNITY ANCHOR INSTITUTIONS

PCI has established an ongoing procedure for gathering data on the physical location and broadband connectivity of Community Anchor Institutions (CAIs) in accordance with the data requirements of the SBDD NOFA Technical Appendix.

The table below summarizes the set of data that PCI is submitting in this round. Over the last three rounds of data submission, the total number of anchor institutions with connectivity data has continued to increase. The total number of anchor institutions stands at 12,338 – 45 records have been deleted since the last submission cycle as a thorough examination of the database netted a number of duplicate records. This culling out of records has improved the overall quality of the database.

Cat	April 2012			Oct 2012			April 2013		
	Total	Connected Points	% with connectivity	Total	Connected Points	% with connectivity	Total	Connected Points	% with connectivity data
1	5,331	3,278	61.49%	5,302	3,258	61.45%	5290	3254	61.51%
2	1,338	710	53.06%	1,321	703	53.22%	1262	742	58.8%
3	1,373	200	14.57%	1,336	191	14.30%	1338	192	14.35%
4	2,314	496	21.43%	2,302	492	21.37%	2392	580	24.25%
5	294	146	49.66%	285	143	50.18%	297	151	50.84%
6	1,527	1,526	99.93%	1,520	1,519	99.93%	1422	1420	99.86%
7	321	135	42.06%	317	134	42.27%	337	152	45.1%
Totals	12,498	6,491	51.94%	12,383	6,440	52.01%	12338	6491	52.61%

In Round 5, some of the most substantial increases have occurred within the healthcare, public safety, higher education, and other non-governmental categories. In Round 6, PCI focused on updating the library records in our CAI database. In this round, library Wi-Fi unknown connectivity category was reduced to zero. Public Wi-Fi and URL fields were updated through individually contacting each library. The following table summarizes vast improvements brought about by this effort:

Library Records Update Summary

	R6		R7	
Total Libraries	1321	100%	1262	100%
Public Wifi Yes	1053	79.7%	1115	88.35%
Public Wifi No	133	10.1%	147	11.65%
Public Wifi Unknown	135	10.2%	0	0%
Libraries with Websites	1050	79.5%	1122	88.91%

Additional improvements in this round include better connectivity data and further refinements in the schools dataset.

In the past, the non-governmental anchor institution category included only workforce development centers and other computer training centers. The anchor institutions that are now in category 7 include economic development centers, park districts, farm bureaus, and other community hubs.

PREVIOUS ROUNDS

Outreach in Round 1 focused on collecting the point and address data while subsequent submissions in Rounds 2 & 3 focused heavily on survey development, web site database research and teleconferences. Together with the Illinois Department of Commerce and Economic Opportunity (DCEO), PCI engaged in a process of working with CAIs on an organized basis. Other state agencies and organizations have included the Illinois Commerce Commission, Illinois Board of Education, and the Illinois State Police.

PCI created a survey using Survey Monkey and both carrier and price information were requested, and the speed test became a required item for completion of the survey. The speed test(s) that was administered was the one on the Federal Communications Commission web site.

PCI worked with a number of organizations in gathering data for these submissions. We are encouraged that the relationships with these organizations have continued to develop and facilitate other facets of our organization. These organizations are listed below:

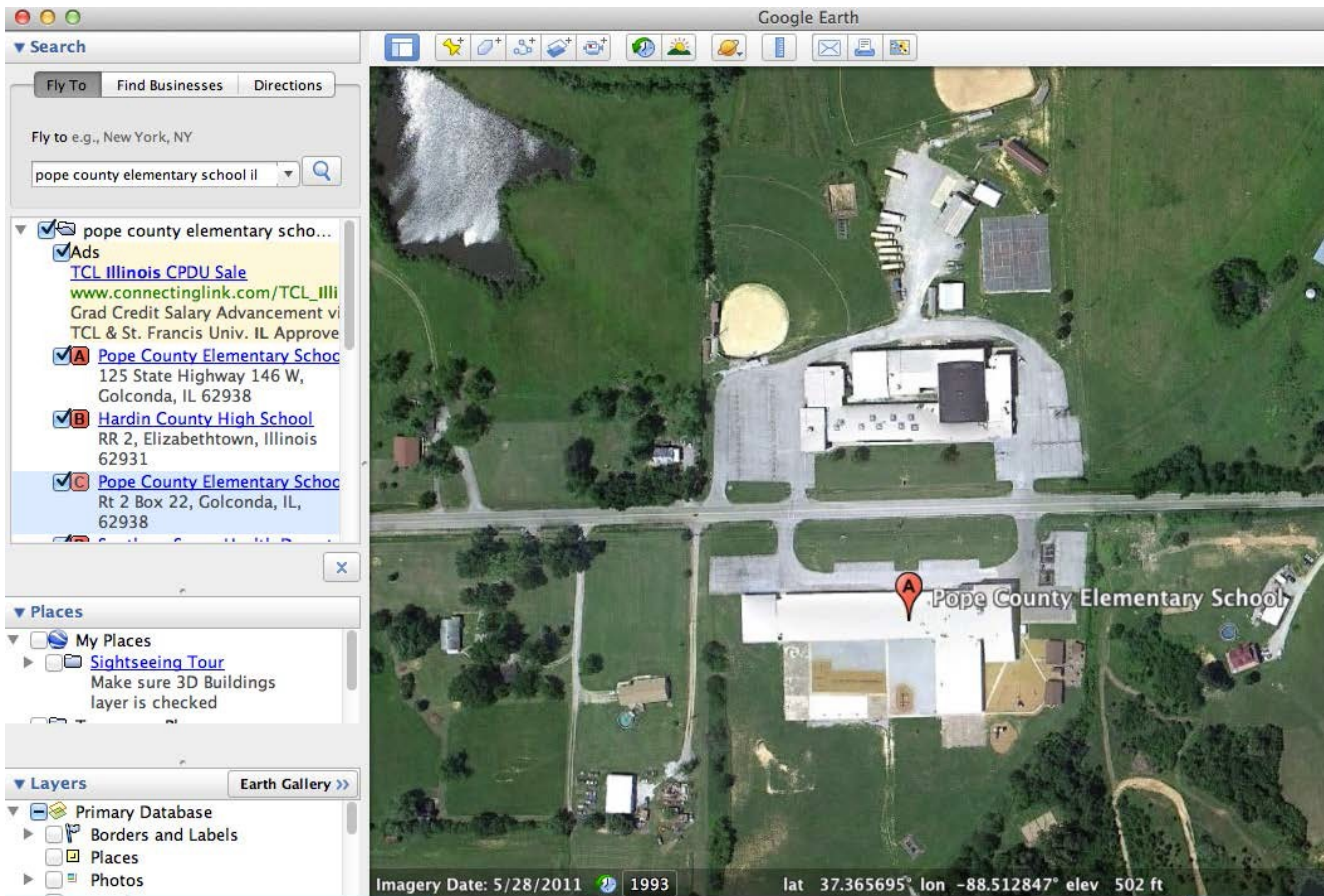
K-12	Illinois Association of Regional School Superintendents, Illinois State Board of Education
Libraries	Illinois Library Association
Healthcare	Illinois Critical Access Hospital Network, Illinois Rural HealthNet, Illinois Healthcare Association
Public Safety	Existing Database
Colleges & Universities	Illinois Community Colleges Board
Other Government	Existing Database
Other Non-Government	Illinois Workforce Development

In Round 4, as opposed to previous rounds where PCI submitted secondary CAI's that did not fit perfectly into NTIA parameters, PCI decided to submit only those CAI's that clearly fell into the seven categories laid forth by the NTIA. This led to a significant decrease in the total number of CAI's submitted, but a significant increase in the quality of the data that was submitted.

For example, of the 26,599 locations submitted in April 2011, there were 14,000 Category 3 Healthcare locations which were geocoded, yet had no connectivity data. Many of these were for actual practitioners as opposed to clinics, or what might be considered institutions. PCI elected to remove this larger number for the October filing. PCI also removed duplicates where they existed in the other categories. For instance, the previous mapping contractor included a record for each individual college and university in both the K-12 and Higher Education categories. PCI felt it made sense to include only one record of this category in only the Category 5 Higher Education category.

Also, in Round 4, PCI enhanced the quality of the data in the K-12 category through the use of an eRate database that showed what schools had applied for the eRate and what providers were servicing their location. This allowed PCI to populate the BBService and TransTech fields for those CAI's.

In Round 5, a total of 787 anchor institutions geocoded to the center of the city due to rural route addresses, PO Box addresses, slight misspellings, and/or incomplete addresses. All 787 of the anchor institutions were individually mapped using Google Earth software. The image below shows a county elementary school with a rural route address. In previous rounds, the anchor institution geocoded to a location within the county but 15 miles away from the actual anchor institution. In round 5, the latitude and longitude that was indicated in Google Earth was captured.



Since this process resulted in moving the geometry of the issue CAI points, the associated attribute table XY coordinate pair values were recalculated to accurately reflect the new point locations. Corresponding census block code (FULLFIPSID column) values were likewise recalculated via a spatial join between the CAI points and the 2010 census block layer.

BROADBAND ILLINOIS WEBSITE

The Partnership for a Connected Illinois is constantly expanding and improving our website. Since October of 2012, our additions and improvements include:

- **Coverage crowd sourcing** – When a user searches for available broadband on broadbandillinois.org, carrier information is displayed. Users can now vote with a “thumbs up” or “thumbs down” on the validity of the carrier reported speeds and availability.

Find broadband near you [\(Find me\)](#)

Latitude, Longitude (40.505446,-90.26367)

Search

Not your location? Type a new address in the box above.

3 carriers serve this area

Want better options?
Request better service

Sort by **Fastest** Slowest Carrier Technology

CARRIER	MAX	TYP	MAX	TYP
WildBlue Communications, Inc. Satellite	3-6 Mbps	-- Mbps	1.5-3 Mbps	-- Mbps
Accurate? 1 Yes, 20 No				
U.S. Cellular Cellular	1.5-3 Mbps	1.5-3 Mbps	0.7-1.5 Mbps	0.7-1.5 Mbps
Accurate? 3 Yes, 0 No				
WildBlue Communications, Inc. Satellite	1.5-3 Mbps	-- Mbps	0.2-0.7 Mbps	-- Mbps
Accurate? 1 Yes, 20 No				
Verizon Wireless Cellular	0.7-1.5 Mbps	0.7-1.5 Mbps	0.2-0.7 Mbps	0.2-0.7 Mbps
Accurate? 15 Yes, 13 No				

- **Embeddable Widget** - The addition of an embeddable widget to be placed on any website or blog, and allows anyone to find broadband by entering an address

Broadband Widget

Interested in helping Illinois residents find high speed internet service in their area? PCI wants to help you help others. Just select and copy the code below, and paste it on your blog or website. It's that simple. Have questions? Contact Tara at tara.davin@broadbandillinois.org or (217) 886-4037.

Customize your widget

Width pixels ☐ Auto width
Height pixels

Grab the code

Copy and paste this code into your website. Data will be submitted to our servers without taking your users off of your website.

```
<script
src="http://www.broadbandillinois.org/w
idget.js" type="text/javascript">
</script>
<script type="text/javascript">new
BBIL.Widget({width:"250",height:"440"})
</script>
```

Live preview

Find Broadband

Looking for high speed internet in a particular location? Use this widget to get a list of providers that serve that area.

Enter your address above to see broadband carriers in your area.

Share this on Facebook
 Tweet this on Twitter

© 2012 Broadband Illinois. All rights reserved.

- **Newsletter Pages:** PCI has a weekly newsletter that is sent to a group of broadband enthusiasts and stakeholders. We have devoted a section of our website to these newsletters so that they may be accessible anytime.
- **County Pages:** We have created a page for each and every county in Illinois. These pages contain the latest coverage maps, as well as a link to each carrier page available in that county.

- **Carrier Pages:** We have created a page for each carrier in Illinois. Each carrier page contains the latest coverage maps as well as contact information for each carrier.
- **Maps:** We continue to make more and more of our maps available online. We have added all previous rounds' raw data files and shape files, as well as broadband competition maps, and area ranking maps.
- **Events Page:** Our "Events" page technology has been upgraded to allow for easier downloads through iCal and Google Calendar. Users can also subscribe to specific categories through our RSS feeds.
- **Videos:** We have added multiple videos to our site to allow this additional medium to relay our messages regarding grant opportunities, broadband adoption, and carrier relationships.



Upcoming Additions

- **"Census Block Concept"** - We are currently working on a major upgrade to our website that will allow users to easily search all available data (news, events, training, coverage maps, carrier information, grant and employment opportunities) by region, county, zip code, address or even census block.

Due to the size of Cook County, with this addition each of the 77 Chicago neighborhoods will have their own broadbandillinois.org page where users can find pertinent information for their local area, and not just Chicago-wide data.

- **Blogs** - Each region will have its own blog, where eTeam coordinators can communicate publicly and private with their volunteers and members.
- **Public Wi-Fi Locations** - PCI has been awarded the Institute for Emerging Issues' Rural Digital Advocacy Grant to build a Wi-Fi locator mobile application. We have been working with a company called Softweb to develop the iOS and Android app variants. We have also partnered with the University of Illinois Extension to collect Community Anchor Institution (CAI) and Wi-Fi hotspot data for the app. The Wi-Fi app is scheduled to be completed in the next couple of weeks, and should be released soon.

-
- **Raw Data** – The web site provides access to raw, non-confidential data submitted to NTIA as well as analysis data produced in-house.

PCI's web site is built around an open source Application Program Interface. This free tool allows software developers to build upon, and add to, the data on the Broadband Illinois website. Documentation for the PCI's API is available at <http://developer.broadbandillinois.org>.

CONCLUSION

The data submission cycle ending on April 1, 2013, has been the fourth round that the Partnership for a Connected Illinois has conducted every facet of the data collection process. PCI is confident many of the issues that were found in previous PCI submittals have been resolved thanks in large part to the experience of previous rounds. Now that PCI has assumed full control over this process, it has brought the data “closer to home” for Illinois. PCI has taken major steps in its three-fold mission to collect and publish broadband data, to ensure broadband access throughout the State, and to maximize broadband's impact, and the data has helped drive each of these steps.

Appendix

Partnership for a Connected Illinois Annual Report 2012.



Partnership for a Connected Illinois
broadbandillinois.org

AnnuAl RepoRt 2012

Convene, Connect, Collaborate



Rural buyers of fiber to the home; an X-ray technician using broadband at Hardin County General Hospital in the heart of the Shawnee Forest; gigabit project meeting on Chicago's South Side; mapping telecom infrastructure in Western Illinois; reception at the new Broadband Illinois offices. (Clockwise from upper left.)



Broadband has the power to transform our lives. Illinois is leading the way.

A Big Year for Broadband in Illinois

In 2012, we saw major expansions and upgrades in high-speed Internet infrastructure in Illinois. Our Broadband Illinois web site, supported by the U.S. Department of Commerce's State Broadband Initiative, began to accelerate its return by giving providers and economic development officials the tools they need to get their communities connected—and in 2012 their joint efforts lit the way for significant advances in Illinois broadband.

Our **eTeams** field support personnel are now active in all 10 of the State's economic regions. They have been busy throughout 2012 facilitating new efforts in high-capacity broadband deployment, such as the **Illinois Gigabit Communities Challenge** launched by Gov. Pat Quinn on February 1, 2012. This program is gaining national traction; by the end of the year, the the Federal Communications Commission had launched its own **Gigabit City Challenge**.

Throughout 2012, Broadband Illinois pushed aggressively into cooperative programs that encouraged broadband education and usage. Our \$500,000 **Broadband Innovation Fund** prompted 14 entrepreneurial and community organizations to launch programs that leveraged more than \$2 million in investment capital.

These Partnership for a Connected Illinois programs are promoting, and will continue to promote in coming years, jobs, education, agriculture, civic engagement, and healthcare – through broadband. They are presently funded through an award from the U.S. Small Business Administration and the Illinois Department of Commerce and Economic Opportunity.

Most recently, on December 19, 2012, we received word from the FCC of support for our **Better Broadband, Better Lifeline** pilot program. In partnership with seven telecommunications companies in Western and Southern Illinois, we have been chosen to invest \$1.5 million to help low-income Illinoisians to gain access to broadband services.

We work in partnership with each of you, and we rely on each of you in our common goal of building *Better Broadband, Better Lives*. The year 2013 is poised to be an even bigger, and better success. This annual report outlines our activities in 2012.

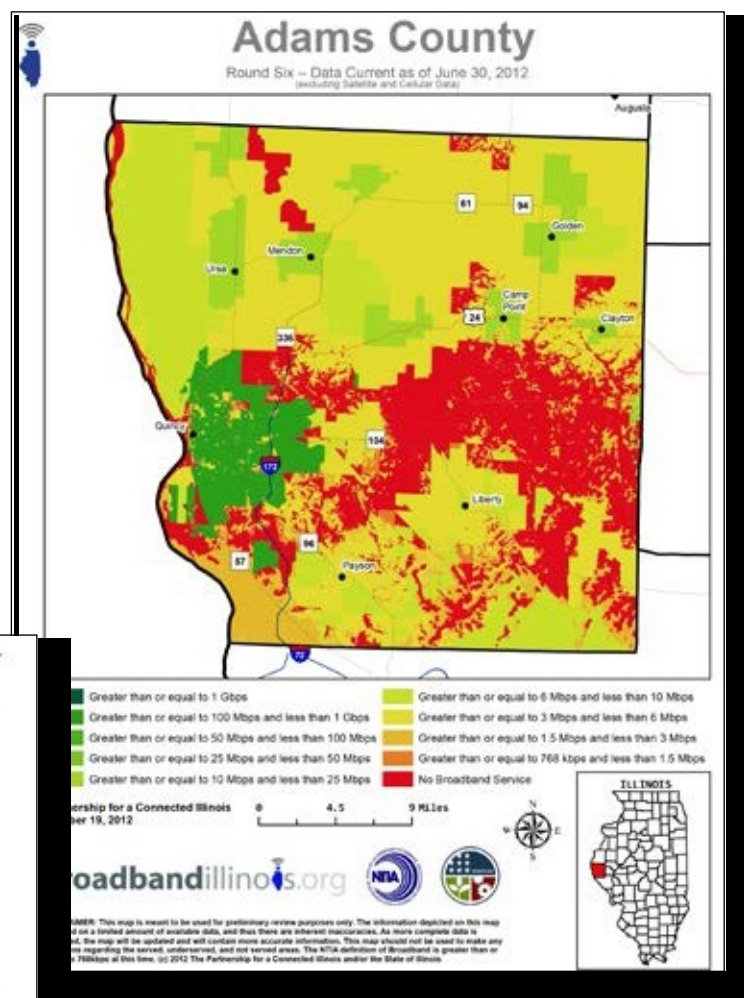
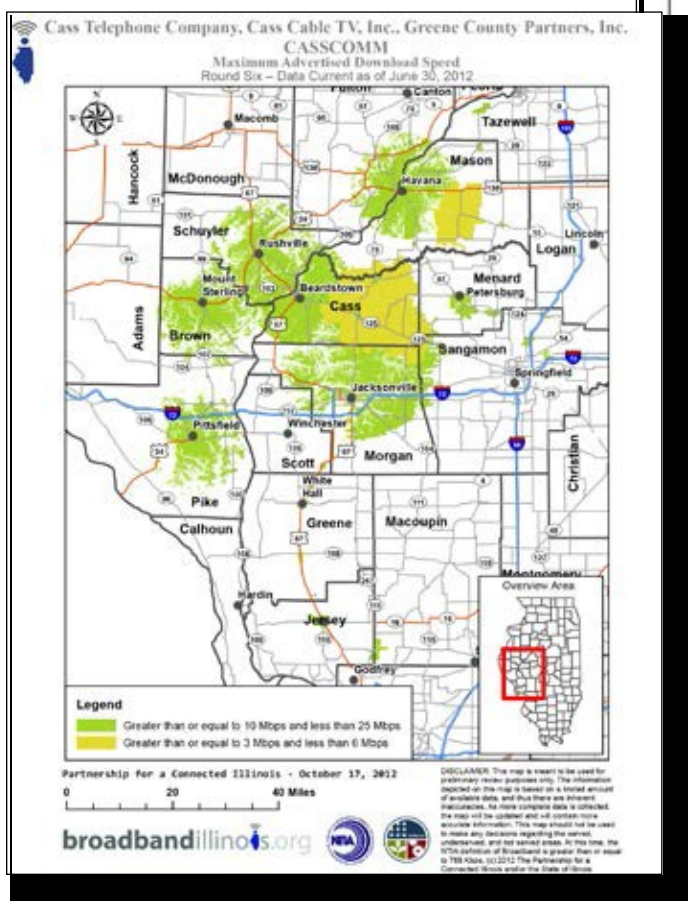
Drew Clark

A handwritten signature of Drew Clark in black ink.

Executive Director

What We Do

Broadband mapping and data collection is a backbone of our organization. Our Geographic Information Systems team contacts each Illinois broadband provider and creates detailed, interactive census-block level maps of broadband speed and availability throughout the state.



Why We Do It

Our regional eTeams help broadband providers identify areas that are in need of service. Our **Find Broadband Tool** and **Request Broadband Tool** allow users to enter a street address to see all available broadband carriers in their county. And economic developers, government officials and other businesses are discovering creative uses of broadband data for promoting healthy communities and regions.

"Broadband Illinois mapping is the first area we look at when deploying new towers."

- nathan Stooke, Ceo, Wisper ISp

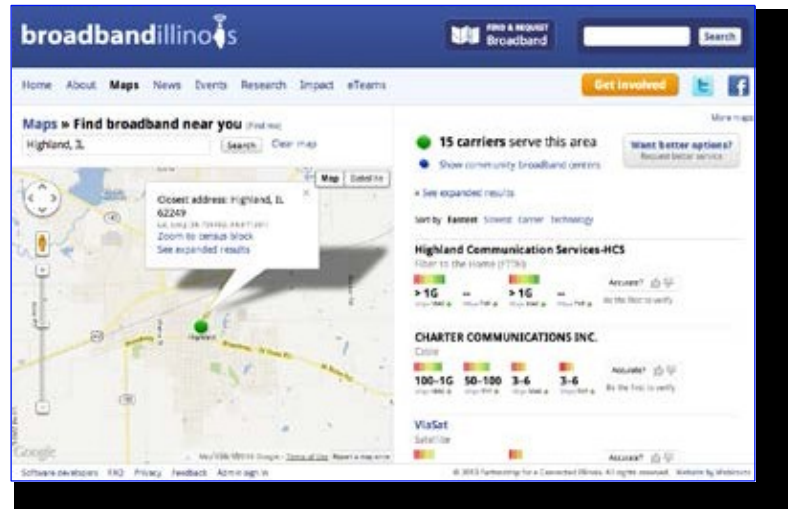
Find Broadband

Our data helps users get service and providers find customers. In 2012, more than 60,000 users visited our web site, viewing more than 176,000 pages. The **Find Broadband Tool** enables users to learn about broadband services, speeds and community broadband centers in their area.

"We have gained customers who were unaware of Joink and found unserved areas to more strategically plan how to get high speed Internet to those who have none."

-Brian Gray, Joink IIC, Connectivity Manager

broadbandillinois.org
provides the tools that
Illinois needs to get online.



Request Broadband

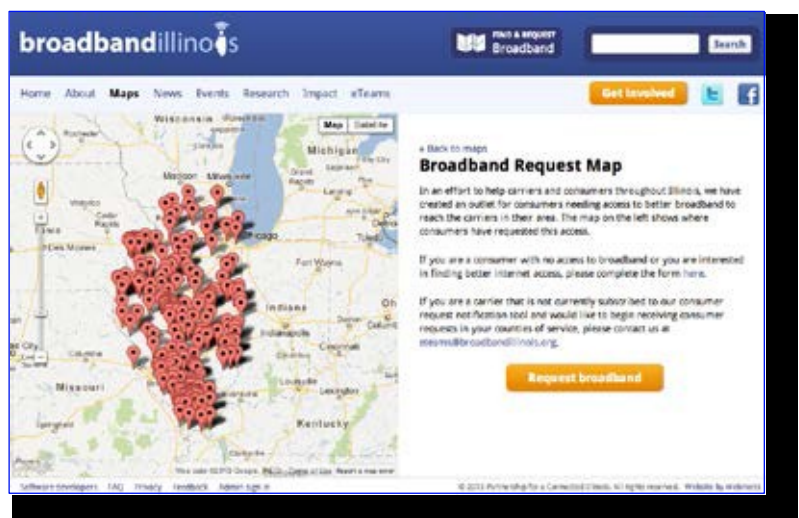
Adequate service isn't always available. Our **Request Broadband Tool** can help. more than 13,000 users took advantage of these tools in 2012. Our request tool sends alerts to all the providers of broadband in the user's county. Providers are then able to identify pockets of aggregated demand and work out economical and strategic methods to reach these new customers.

"The growth rate of Illinois' connectivity, particularly its commercial subscribers, is due in large part to the important efforts of Broadband Illinois to develop a network of support, track real-time data and support projects on the ground in the most-needed areas."

-Alya Adamany Woods, Director of Innovation and Special Initiatives, Illinois Science and technology Coalition

For more information:

<http://broadbandillinois.org/maps>



eteams from Shawnee Forest to Michigan Avenue

In 2012, Broadband Illinois' **eTeams** convened economic development officials and providers of broadband in each of 10 regions of the State to create grassroots action plans for *Better Broadband, Better Lives*.

The work of our eTeams is incredibly diverse. From the most remote areas of the Shawnee Forest to Chicago's Michigan Avenue, eTeam coordinators are "in the field" each day, promoting the significant benefits of high-speed internet service.

eTeams have helped connect individual users, hospitals and schools. They've worked with economic developers and local businesses. And they maintain close relationships with providers and local businesses. The goal is to expand broadband infrastructure and connect more Illinoisans.

In Chicago, we continued efforts to increase broadband education. Major initiatives focused on ensuring the city is one of the most connected in the world. From Mayor Emanuel's **Chicago Broadband Challenge** to the gigabit infrastructure projects recently announced in Chicago's South Side, and in Aurora and Evanston, Broadband Illinois eTeams convened, connected and collaborated with key stakeholders in each region.



eTeam director Brad Housewright (center) conducts a meeting in Carthage.

2012 eTeam Highlights

- Helped create partnerships and form gigabit-level broadband plans for 17 of 40 **Illinois Gigabit Communities Challenge** applicants.
- Assisted in increasing the number of **Eliminate the Digital Divide** grant applications from 168 to 321.
- Launched the **Illinois Broadband Innovation Fund** throughout each eTeam region, generating 113 applications for creative broadband adoption programs during the innovation fund's first year.
- Hosted industry-specific regional broadband gatherings and summits on education, health-care and agriculture.
- Utilized Broadband Illinois' mapping and data to host provider meetings and identify pockets of aggregated demand in underserved regions, allowing providers to see new areas for business.
- In 2012, we convened broadband events in each of our 10 eTeam regions. Broadband providers, economic development and government officials, community leaders, business owners, and others attended these eTeam events.

For more information:

<http://broadbandillinois.org/eteams>

"At an eTeam meeting in the Northwest and North Central region, eTeam coordinators showed me a regional speed-tier map. I noticed a few areas were 'red' and that we would be able to serve them. We built towers in these areas and got high-speed, fixed wireless service to these residents. Our newest tower in Cullom (population 563) was lit by Christmas!"

- Cesare Bratta, president, Cyber Broadcasting LLC in Coal City, Illinois

Staffing the Broadband Deployment Council

Founded in 2005 by then Lt. Governor Pat Quinn, the **Broadband Deployment Council** works to improve access to broadband networks for residential consumers and public, private, and nonprofit organizations in Illinois.

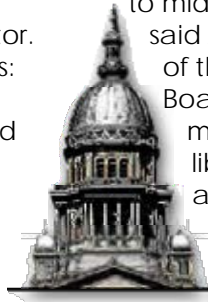
The BDC has more than 20 members, including appointees from Illinois government and the private sector. The council has three committees: Access and Infrastructure, Adoption and Use, and Information and Research.

"The Broadband Deployment Council has been instrumental in moving the State of Illinois into a competitive broadband technology region," said Herb Kuryliw, Chief Network Architect for Northern Illinois University, and a council member.

Meetings are conducted on a quarterly basis and address infrastructure projects, right-of-way issues and the needs

of community organizations like libraries and hospitals. Broadband Illinois facilitates and staffs the Broadband Deployment Council, and meetings are open to the public.

"Public libraries face a crisis in providing high-speed access to library users due to middle mile and last mile issues," said Alice Calabrese-Berry, President of the River Forest Public Library Board of Trustees and a council member. "Internet use in public libraries is sometimes the only access Illinois residents have in rural less populated areas. The Broadband Deployment Council is determined to allow for more digital inclusivity by expanding broadband across the state."



For more information and past agendas:

<http://broadbandillinois.org/events>

"Our schools are increasingly turning to the web to learn, adding computers in the classroom, and putting more courses and instructional materials online. We need widespread high-speed Internet connections to handle that demand. Broadband Illinois has taken on the online testing issue in working with the Illinois State Board of Education."

-John Meixner, Regional Superintendent of Schools, Hancock & McDonough Counties of Illinois

Working to eliminate the Digital Divide in Illinois

The Digital Divide prevails in areas of Southern and Western Illinois, where less than 60 percent of residents use high-speed internet at home. This was discovered in a research project undertaken by Broadband Illinois and subsequently published in a report release in November 2012, "Broadband Adoption In Illinois." Identifying who has high-speed internet, who doesn't and how broadband adoption can be expanded to more Illinois homes were key themes of the study, led by Broadband Illinois Research Director John Horrigan, Ph.D.

The study provides a breakdown of broadband adoption and usage patterns for all 10 of our eTeam regions. It shows why some Illinoisans aren't connected. Overall, the data revealed that 68 percent of Illinois adults surveyed had broadband at home, as well as 56 percent of African Americans and 56 percent of Hispanics. However, in four eTeam regions - Northwest, Southeast Central, Southern and West Central - home broadband rates were less than 60 percent. The 32 percent of Illinois adults without

broadband at home tend to be older, more rural and have lower incomes than broadband users in the state.

The report also provided details on the emergence of mobile and smart phone usage. Smart phones are cited as a "strong foothold" in how Illinoisans are accessing the internet and adoption rates are particularly high for African American (52 percent) and Hispanic (60 percent) users.



John Horrigan

The full report and regional breakdowns are available for download at <http://broadbandillinois.org/research>

Our "Better Broadband, Better Lifeline" pilot program (see page 12) will help to address these disparities through efforts to promote broadband usage in Western and Southern Illinois.

Raising the Bar on Broadband Speeds

Broadband is about more than basic internet speeds for e-mail, Skype and social networking. Broadband is about high-band-width capacity. It's also about immersive telepresence systems, cloud computing for advanced manufacturing, and biomedical health monitoring. Broadband Illinois is raising the bar on bandwidth. In 2012, we worked to promote gigabit-level broadband connections by working in partnership with Gov. Pat Quinn's **Gigabit Communities Challenge**.

Unveiled in the State of the State address on February 1, 2012, the Gigabit Communities Challenge presented \$6 million in funding to companies or private-public partnerships that proposed innovative ways to connect at least 1,000 end-users to gigabit-level broadband. The first three winners have been selected: Gigabit Squared, in partnership with Cook County, the City of Chicago, and the University of Chicago, received \$2 million to deploy gigabit fiber and wireless to neighborhoods in Chicago's South Side. OnLight Aurora and Northwestern University/City of Evanston also each received \$1 million each to help connect their cities.

For more information:

<http://broadbandillinois.org/gigabit>



Government
Broadband provides more accessible and transparent services to citizens.



Gov. Pat Quinn announcing the first recipient of the Gigabit Communities Challenge in the Woodlawn neighborhood of Chicago.



Nor should we forget the considerable ongoing investment in broadband fiber upgrades made through the **Broadband Technology Opportunities Program** of the U.S. Department of Commerce, and the **Broadband Infrastructure Program** of the U.S. Department of Agriculture. From 2009 until 2013, more than \$350 million in federal, state and private investment has enhanced the capacity of private companies and public-private organizations in the construction of new fiber infrastructure in Illinois.

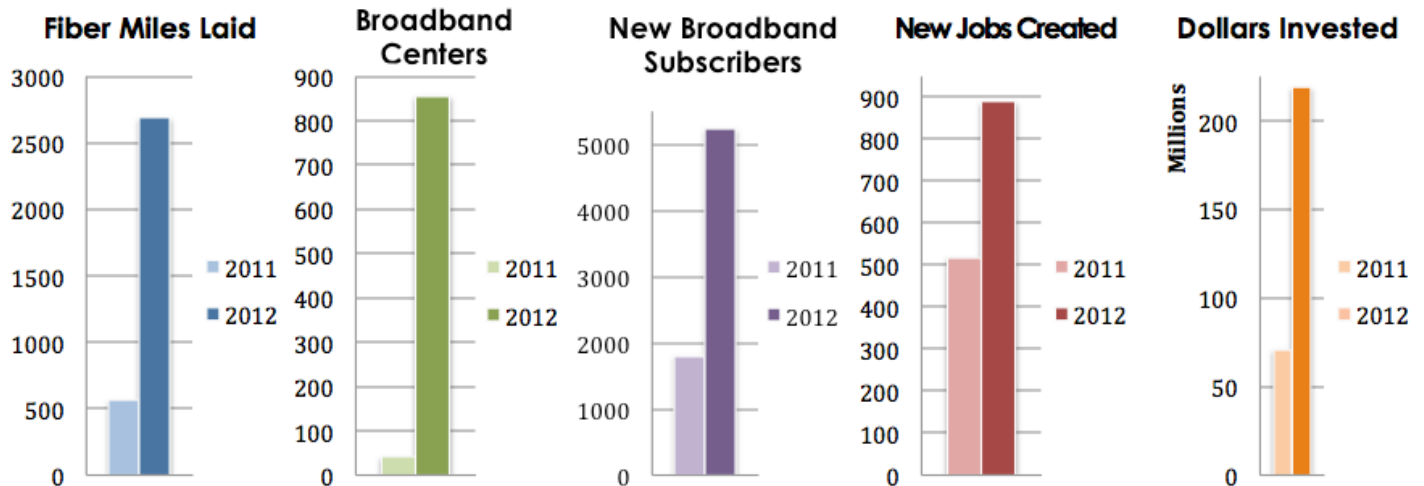
In Broadband Illinois's role as the non-profit designated State Broadband Initiative entity, we play a key oversight role over these projects. We compile monthly reports that provide accountability and document progress in building infrastructure and boosting subscribers. For example, Southern Illinois awardee Shawnee Communications began connecting community centers in the fall of 2011, and had completed their build-out by May 2012.

"From participating in our strategy and visioning sessions to coaching us through our team development; from touring the anchor institutions to hosting the webinar that lifted up our work, Broadband Illinois has been there to promote and inform our broadband infrastructure plan that will support the Woodlawn community vision."

-pierre Clark and laura lane, Co-Directors, Woodlawn Broadband expansion partnership

Metrics for State-wide Broadband Success

this Broadband Illinois dashboard showing progress by federal broadband stimulus projects is updated monthly at <http://broadbandillinois.org/projects>



"Broadband Illinois has been dedicated to expanding broadband to the underserved and unserved communities of Illinois. They continue to work with the providers and communities in our region to push for the availability and adoption of broadband, and for expanding the opportunities for all people in our region."

- Bill Buchanan, Vice president of operations,
McDonough telephone Cooperative



the Illinois Broadband Innovation Fund

The **Illinois Broadband Innovation Fund** is a key project that defined much of our work in 2012 and received attention on a statewide and national scale. The first-of-its-kind internet adoption and usage program prompted 113 private, public and nonprofit organizations to create innovative applications aimed at improving the quality of life in their region. In October, the Innovation Fund awarded \$500,000 to 14 organizations throughout Illinois.

The program complimented other initiatives focused on infrastructure (like the **Illinois Gigabit Communities Challenge**, page 8.) and encouraged entrepreneurial and nonprofit organizations to ask “Now that we have broadband, can we use high-speed connections to make a difference in our region?”

The Broadband Innovation Fund gave Illinoisans a platform to think creatively about high-speed Internet usage. We received applications aimed at using broadband to improve everything from agriculture and energy to telemedicine and public safety.

In Carlinville School District, students are learning digital story-telling and preservation skills through interviews with local WWII Veterans. The Broadband Innovation Fund will allow the Illinois Veterans Classroom Project to expand to four other schools and create online professional development modules.



program Manager Anne Madonia-Hubbard

The City of Monmouth is creating the Warren County Virtual Museum and will share the web application with other communities in Illinois.

In Chicago, the Family Christian Health Center will create a patient web portal to allow local underserved residents better access to their primary care providers.

And in rural Central Illinois, Integrated Therapy Services will use broadband to provide specialized health and education services to families that wouldn't have access otherwise.

For more information (details, videos, slides):

<http://broadbandillinois.org/innovation>



Agriculture

Farmers sell and manage their crops, and monitor weather forecasts.



energy

The “smart grid” improves reliability and provides savings.



Healthcare

Rural residents consult with doctors and specialties via internet video.

“Broadband Illinois has facilitated contacts between the Illinois Rural Health Network and rural hospitals and clinics, so that new possibilities for improved health care can be brought to fruition.”

- Doug power, project Coordinator, Illinois Rural Healthnet



public Safety

Faster and more efficient fire and police response relies on better broadband.

“Broadband Illinois is a valuable partner in strengthening our regional economy so that our communities, both urban and rural, can prosper.”

-nick Hayward, planner,
tri-County Regional planning Commission

entrepreneurship, Agriculture & Digital Skills

Preparing high-school students in rural Illinois to be self-reliant, enterprising and innovative are foundations of the Creating Entrepreneurial Opportunities class (CEO) based in South Central Illinois. In its 5th year, the widely-successful CEO class is currently open to students in Effingham county with an interest in becoming leaders. As a **Broadband Innovation Fund** awardee, the program will grow and replicate its successes in other areas.

"Thanks to the Broadband Innovation Fund, we'll be able to expand to communities that otherwise might not have been able to afford launching a CEO program," said Craig Lindvahl, head of the Midland Institute for Entrepreneurship and class instructor. "In our day-to-day work, broadband is essential for learning, teaching and interacting."

CEO classes aren't conducted in a typical classroom. Instead, students travel to local business each week and engage with local entrepreneurs who are tackling real world problems. Though hands on learning, each CEO student creates a business plan using a laptop, high speed internet, and interactive web collaboration tools. To date, about 80 real life businesses have been started by young entrepreneurs, adding to the economy of rural Central Illinois.



Job Creation
Businesses grow by locating in areas with broadband.



Western Illinois university Agriculture Department personnel use sonogram technology to examine sheep.



Molly neimerg, a Ceo student, discusses a project with local businessperson Ann Deters.

"We recently partnered with the Effingham Helen Matthes Library and University of Illinois Extension representatives to pilot Connecting Generations, a community volunteer program that matches tech-savvy school students with area seniors to learn Internet skills. Through a Broadband Innovation Fund award, our partners are now working to expand student-to-senior mentoring program to 10 other public libraries in the region."

-Jean Anne Grunloh, executive Director,
east Central Illinois Development Corp.



Makayla, an eighth-grade student, and Nancy learn to Skype at the Helen Matthis Library in Effingham.

A lifeline For low Income Broadband

In December, the Federal Communications Commission announced that residents in 35 rural Illinois counties are set to receive \$1.5 million in discounted internet services, digital literacy training, and low-cost internet devices. The goal is to study the effects on users as the FCC transitions to providing low-cost phone service to broadband technology.

Broadband Illinois' pilot program **"Better Broadband, Better Lifeline"** is designed to target citizens who need broadband the most—the 37 percent of Illinoisans without high-speed connections at home. We've also made

sure to address each of the three barriers to getting low-income individuals online: cost, digital literacy and relevance.

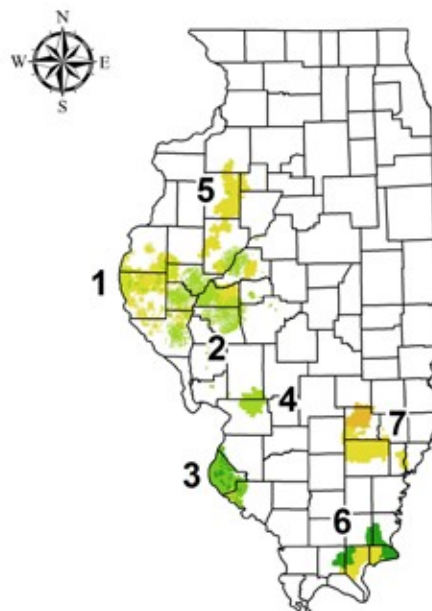
Through convening seven broadband providers, two world-class training entities, and the marketing muscle of our on-the-ground regional eTeams, we'll have the opportunity to show how Better Broadband can enhance individual lives.

For those eligible, one-on-one digital literacy training and outreach will be provided by Broadband Illinois, Connected Living and the Citizens Utility Board.



For more information:

<http://www.broadbandillinois.org/lifeline>



Participating Providers:

1. Adams Networks
2. Cass Communications Management
3. Harrisonville Telephone Cooperative
4. Madison Communications
5. Mid Century Telephone Cooperative
6. Shawnee Telephone Cooperative
7. Wabash Telephone Cooperative



Regional eTeam leader Barbara Webster and Kim Harber

"As we continue to develop the synergies brought about by private sector investment, the governor's Broadband Deployment Council and the FCC's lifeline pilot, Broadband Illinois can facilitate and coordinate the "think tank" leadership required to address the expanding role that technology will play in successful community and economic development efforts throughout every region of Illinois."

- Kim Harber, Vice president, Madison telephone



education
Students do homework
and take courses online.

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Bruce Montgomery speaks during a press conference at which Gov. Pat Quinn announced Evanston would receive a \$1 million Gigabit Communities award.



Charles Benton, left, receives the Everett C. Parker ethics in telecommunications Award.



Karen Poncin greets guests at an e-team meeting.

"Broadband Illinois has played a major role in laying the groundwork for new partnerships with communities, businesses and organizations seeking enhanced broadband services. Convening internet service providers alongside community and organizational leaders has created a new conversation. By working together, service providers and communities are finding new ways to help each individual and to increase broadband adoption."

-Kathie Brown, extension educator, Community & economic Development, university of Illinois extension

Broadband Illinois Staff



Regional eTeam Leader Clayton Black, Brad Housewright, Drew Clark and Gov. Pat Quinn's Deputy Chief of Staff Ryan Croke; Gov. Pat Quinn and Regional eTeam Leader Ernie Sanders; Drew Clark explaining broadband at the Illinois State Fair in Springfield; on the Broadband Innovation Tour. (Clockwise from upper left.)

DREW CLARK | Executive Director
CLAYTON BLACK | Regional eTeam Leader
LACEY BUSS | Administrative Coordinator
STEVE DRYDEN | GIS Database Technician
AARON FACEMIRE | Communications Assistant
DAN GAVRILOVIC | GIS Database Technician
TARA DAVLIN HOLCOMB | Information Architect
BRAD HOUSEWRIGHT | eTeam Director
DAVID KRAUS | Technical Support
AMY LAWSON | Administrative Associate

ANNE MADONIA-HUBBARD | Communication Director
ROXANA RYAN | Communication Specialist
ERNEST SANDERS | Regional eTeam Leader
BARBARA WEBSTER | Regional eTeam Leader
NATHAN WOODSIDE | Editorial Assistant
CONSULTANTS:
JOHN HERRIGAN | Research Director
JEFFREY PIRMANN | Director of Finance/Administration
DEBORAH STRAUSS | Consultant
BRIAN WEBSTER | Telecom Project Coordinator



Broadband Illinois partners

Below is a sampling of the businesses, foundations, economic developers, plus the community and civic organizations with whom we have partnered.





Broadband Illinois is located on the fifth floor at
531 East Washington St. in downtown Springfield, Illinois,
across the street from the Old State Capitol building.

Contact us

Phone: (217) 886-4228

Fax: (217) 718-4546

info@broadbandillinois.org

<http://broadbandillinois.org>