

Submitted to:

**National Telecommunications and Information
Administration**

Data Collection and Processing

**Missouri
Broadband Data and Development**

Submitted by:



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1 Introduction

This document provides background for the data collection and processing phases of the Missouri Broadband Data and Development Project. It covers the initial processing of data to meet specific requirements defined by the National Telecommunications and Information Administration (NTIA), governed by the Notice of Funds Availability (NOFA) first published in volume 74, number 129, at page 32545 of the Federal Register and subsequently clarified in volume 74, number 154, at page 40569 of the Federal Register. It also covers the quality control aspects of the project, including both back lab and field verification.

2 Non-Disclosure Agreement Development Process

The parties to the NDA process include the State of Missouri, the University of Missouri, GeoDecisions, and CBG Communications. Each of the above parties, along with the individual broadband service provider, was a signatory of each NDA.

A standard NDA was developed using an initial template provided by CBG which then adjusted based on previously signed agreements provided by AT&T. This template was then reviewed and standardized for Missouri state contracting language as edited with inputs from all state parties. This NDA was then vetted with representatives from the Missouri broadband provider community in order to develop a data sharing document that reflected the concerns of both the state and industry.

The state drafted, signed, and distributed an initial letter to providers; including data collection guidelines and a draft of the standard NDA (see Attachment A). This letter was initially sent to 129 providers initially in late March 2010. Mailing of this agreement has now been sent to 237 different entities within the state. Eighty-three of these entities were found to be resellers. Currently we have 91 providers cooperating with the mapping program.

3 Identifying Providers

The state parties used multiple methodologies to: a) identify broadband providers potentially offering service in the State of Missouri, and b) to acquire / build contact information for each of the providers.

Identification of providers began by accessing the FCC's Form 477 publically available data. This data provides the Holding Company Name, the FCC Registration number (FRN), and the filing company name of all broadband providers in the state that completed the Form 477. We began with this information and performed research tasks, including internet research of each of the companies to obtain a high level contact within the company, as well as their phone and e-mail contact information. If some of this information was not obtainable via Internet research, CBG made initial contact with the company, primarily through phone, to further explore the most pertinent contact.

In addition, we performed research of various websites to determine if there are providers that had not filed a Form 477 with the FCC that should be included in the data collection process. We



researched these companies again for the best contact information through various public records including, but not limited to, Missouri Public Service Commission databases, State Telecommunications Industry Association memberships, FCC Cable TV Community Unit and Physical System ID databases, FCC telephone company databases, business licenses, state and local tax records, etc., as well as various state, local and other departments and agencies, including Division of Corporations, Division of Revenue, Local Franchise Authorities, Chambers of Commerce, etc.

We also continue to identify additional potential providers during our verification processes which include: internet searches, field discoveries (i.e. comprised of business names advertised (signage/trucks etc.), labeled infrastructure observed), CAI calling, and residential surveys/interviews.

As new providers were identified, the contact information was given to MU for delivery of initial contact letters to identified providers. These documents were mailed out by MU via e-mail, in order to expedite the process, and through the USPS as a formal notification. Based on input from providers in other states, these documents were sent by the State in order to show the importance that the State places on the project. All correspondence with the providers, including clarification on the NDA or Data Request, data formatting issues, and data submission by the providers, was then handled by GeoDecisions and CBG personnel unless the provider required interaction with state personnel (ie. Negotiation of NDA).

Due to the initial timeframe for completion (May 31, 2010) for Missouri's first version of the statewide map of broadband provision, the providers were requested to return the signed NDAs within five (5) business days of receipt and submit their data, in as usable a format as possible, by April 15, 2010.

Currently the state parties continue to perform follow-up with providers on an as-needed basis. This includes making contact with a provider if we did not hear from them after sending out the NDA or a new Data Request, following up to receive initial data sets, clarification regarding data sets, etc. Contact with the providers included phone calls, voicemail, and e-mail. In the case where a provider did not respond after numerous attempts, we also followed up with USPS mail.

A spreadsheet was utilized to keep track of all contact information that was developed and contacts that were made to ensure the accuracy of each provider's pertinent contacts for the statewide project. These contacts continue to be updated and maintained.

4 Requested Data Format

The overarching goal of the data collection was to satisfy the requirements of the State Broadband Data and Development (SBDD) grant program, which is governed by the Notice of Funds Availability (NOFA) first published in volume 74, number 129, at page 32545 of the Federal Register and subsequently clarified in volume 74, number 154, at page 40569 of the Federal Register. Both the NOFA and subsequent discussions with the NTIA have indicated that time is of the essence, and strict deadlines are in place for the delivery of data to the NTIA. As such, timely, accurate data collection was of primary concern. GeoDecisions and CBG requested that broadband providers submit data in a timely manner in whatever format the information was currently available to eliminate the lag that can be expected with the providers attempting to meet NOFA formatting compliance themselves; however, it was determined that many national providers, having gone



through this process in other states, could deliver NOFA compliant data as part of their data submittal.

To assist in the NDA execution process and to further facilitate the timely delivery of data from the providers, GeoDecisions and CBG reviewed the State's NOFA cover letter that provides background on the project and provides the contacts to project team members from the State, GeoDecisions, and CBG. The cover letter stressed the incredibly short project timelines and specified the need to collect this data on an ongoing basis.

In addition to the cover letter, GeoDecisions and CBG developed a separate attachment to the NDAs. The Data Collection Guidelines was reviewed by the State, which provided further background and project goals associated with the State Broadband Data and Development project. The document also specified the guidelines to which the project would abide. The Data Collection Guidelines educated providers of the intended use of the data that they would be submitting. The intended uses included delivery of NOFA-compliant data to the NTIA, data dictionary, the intention of GeoDecisions and the State to generate static maps, as well as the creation of a Missouri-specific interactive mapping website. Finally, the Data Collection Guidelines specified the data and format required by the NOFA that was required of the State for delivery to the NTIA.

GeoDecisions also developed a provider data request spreadsheet template document that was distributed upon request and allowed the providers to enter NOFA compliant data as they chose to do so. It included sample data as reference for data entry. GeoDecisions, under the guidance of the State, also developed a preliminary Missouri-centric web site that displayed census blocks, census tracts, counties, and major roads in order to assist providers in correlating their service areas to census blocks. Providers could access this site and zoom, pan and print census block maps as needed. This capability is to be subsequently followed up with the development of web-applications wherein Providers can log-in and update their data via a web interface if they choose to do so. These web sites will also be the forum for their review of service extents, types, etc prior to submission of the Missouri map in the future.

Spatial data was requested from the providers in the following hierarchy of data format preferences. Those preferences were:

- 1) Shapefiles or Geodatabase (personal or file)
- 2) CAD files with embedded attributes included
- 3) Text-based data (MS Access, spreadsheets, comma-delimited files, etc.)
- 4) Paper maps
- 5) Any method in which the provider could readily submit the required data

5 Data Processing

Because of the variety of ways providers could submit their data, one of the major challenges of this project was to consolidate and integrate this data into a common model. For each provider, the work was divided into three main steps:

1. Capture the supplied data into a provider-specific staging geodatabase



2. Process and QA features in the provider's staging geodatabase
3. Move the data from the provider's staging geodatabase into the final deliverable geodatabase model.

The first step was the most involved and time consuming. A number of different processes were developed for loading the staging geodatabase, depending on how the data was supplied (2000 or 2009 census blocks; 2000 or 2009 TIGER roads). Regardless of the type of data provided, the base-level data - the census blocks, the TIGER street segments, and the county boundaries - all came from a single source, so were therefore consistent across all providers. Multiple processes were developed depending on the type of submitted data. Each process was extensively defined on a process checklist to ensure accuracy and consistency. A description of the different processes used to load data into the provider specific staging geodatabase follows:

Availability Area

If a provider supplied their availability area as a boundary or multiple boundaries drawn on a paper map or image file, those area(s) were geo-referenced and digitized into a shape file. If the boundary was provided as a CAD drawing or arose from another GIS system, it was converted to a shape file format. Some wireless providers defined their area of availability as their wireless coverage area. This may be a supplied boundary, but it may also have been defined using the location of the wireless tower, the angle of coverage, and the coverage distance. This would result in a sector of a circle, which was used as the availability area.

Once a shape file of the boundary was created, interpreted, and available, all census blocks intersecting that boundary were collected. Those census blocks less than two square miles were assembled into one feature class. For census blocks greater than two square miles, all street segments that overlapped both the census blocks and the availability area were collected into another feature class. Along with the availability area, the providers also supplied the technology of transmission and the speed information. These attributes were assigned to the census blocks and street segments, as well as information on the provider itself: Name, DBA, and FRN.

Census Blocks

Some providers submitted a list of census blocks for their area of availability, along with technology of transmission and speed information specified for each census block. In these cases, the census block boundaries were selected for each specified census block. If the census block was less than two square miles, it was added to the census block feature class and the technology of transmission and speed information were assigned from the provided list. If the census block was greater than two square miles, all street segments that overlapped it were added to the street segment feature class and the technology of transmission and speed information were assigned from the census block in the list.

The 2000 census block dataset was used for our data processing, however a few providers submitted lists using other vintage census blocks. The newer vintage (2009) census blocks were derived from 2000 census blocks, however in areas that experienced significant population growth, a census block may have been split, possibly multiple times, and each resulting piece has the same census block id as the original but a unique alphabetic suffix appended to the end. When a provider specified a 2009 census block that had subsequently been split from the 2000 version, all of the associated census blocks were coded for that provider. Thus the true coverage of the census blocks were maintained



and consistent with the provider's list but represented in the 2000 block structure. We are now processing all of the older (2000 and 2009 vintage census blocks) into a 2010 representation so that the mapping on the Missouri Broadband mapping web portal will be a single version of geography.

Address Information

If a list of addresses was provided as the availability area, the first step was to geocode, or obtain the coordinates of these addresses. When successful, this resulted in a point for each address located. The census blocks intersecting all the points were collected. If the block was greater than two square miles it was treated separately. If a census block contained address locations with different technologies of transmission, the census block was duplicated, and a distinct technology of transmission assigned to each copy of the census block. For different locations in a census block with the same technology of transmission, the maximum value for each speed was obtained and that maximum assigned to the census block.

If the geocoded point lay within a census block greater than two square miles, the nearest street segment was located and the technology of transmission and speed assigned to that segment. As with census blocks, if there were several locations with different technologies of transmission along the same street segment, the street segment was duplicated and each segment assigned a different technology of transmission. The speed assigned to that segment was the maximum speed for all locations along the segment sharing that segment's technology of transmission.

Wireless Boundary

In most cases, wireless providers supplied a boundary, either in electronic format or as paper maps. These were converted to a shape file either by digitizing or by performing a data conversion as appropriate. Other providers supplied tower locations, the angle of coverage, and the distance. The wireless boundary was constructed from this. Finally, some providers defined their wireless boundary using an exchange boundary or as an aggregate of their customers. Although these boundaries may not accurately represent the wireless availability area, they were initially included in the dataset in order for the providers to submit feedback and more accurately specify boundaries of availability for future iterations.

Middle Mile Points

If middle mile points were supplied on a hardcopy or image file map, the point was digitized. Usually these points were provided with latitude and longitude, so it was a simple matter to add them to the feature class. The elevation data was not always supplied due to the provider not having this information available, but when it was, it was often given as feet above sea level. The model requires elevation to be feet above (or below) grade. In these cases, a digital terrain model was used to obtain the ground elevation at the middle mile structure location, which was subtracted from the height above sea level to obtain the height above grade.

The above processes were used to capture the provider-supplied data into provider specific individual staging geodatabases using a common NSGIC data model. Once this was completed, the data could be updated or modified and Quality Checked using the same processes regardless of how it was originally submitted. One such process was the creation of the overview areas. The census blocks and street segments for a provider were collected and grouped by technology of transmission. County boundaries that overlapped each of these groups were then collected. The technology of



transmission of all census blocks and street segments for the group was assigned to the county. Discontinued per NTIA's request is assignment of maximum speed within the group to the county.

At this point the dataset for a particular provider was complete. An extensive Quality Check (QC) checklist was used to examine the dataset, verify consistency, and that it matched the data submitted by the provider. Once the dataset was successfully checked for quality, the features were appended into final database model along with all data from other completed providers. Both the Validate Topology and Validate Features ESRI tools were run, any corrections were made, and if necessary rerun. As individual provider data sets were appended into the master database and again when all data sets were appended, the NTIA supplied 'SBDD Check Submission' tool was run against the data. Any errors detected were corrected and the tool re-run. A final manual QC review was performed to ensure the all provider data is present and consistent followed by a final run of the SBDD Check Submission tool against the master data model if any corrections / changes were made.

Public Data Sources

This process obtained and compiled cable strand maps, as well as maps of service / coverage areas obtained from the service provider's public offices directly or from their Web sites and advertising materials if no other authoritative source was available for the provider. Websites were initially collected and inventoried through the use of a 'surveymonkey' instrument. This has now moved to the use of an Excel spreadsheet to standardize and assemble the database from webcrawling activities. All files and maps discovered through webcrawling were either screen-captured or imported (from CAD) to create a digital representation or image of the service / coverage area(s). These digital representations were then georeferenced to a base map of the state of Missouri. The spatial transformation methodology used was determined by the image type, confidence in a real representation, and scale of source materials. In addition maps of telephone company exchange areas and cable franchise areas from their respective associations were digitized and attributed to provide reference as well. These files are held as elements of independent validation to be compared with GeoDecisions / CGB that are created from provider sources.

Community Anchor Institutions

The University of Missouri (UM) was lead on the development of the Community Anchor Institution database. Many elements of the Community Anchor Points were initially compiled by the UM in coordination with the Department of Public Safety (SEMA and OHS) providing a starting point for this data collection. The list of Anchor Institutions inventoried and monitored in this project include: Police, Fire, Hospitals, EOC, PSAPs, Municipal Courthouses, Libraries, K-12, Higher Education, Extension Offices, Correctional Facilities, Government Buildings, Community Centers, County Courthouses, and Armories.

The community anchor attribute information was gathered by the University through phone calling, site visits by UM students and staff, and data requests to respective state agencies / associations. In this way these efforts were coordinated with and through state agencies / associations with jurisdiction over these sites. For example, the State Fire Marshall's Office sent out a memo under their letterhead informing their constituency of the inventory and assessment so that the student callers and those conducting site visits would be received positively. We also contacted the State Health Department, ITSD, and MOREnet and requested broadband information for their facilities. UM also used their ongoing local data review, validation, and verification processes in partnership with Regional Planning Councils, Regional Homeland Security Oversight Committees, and associated local



governments to assemble and verify data for some counties within Missouri. This process of data development had already been deployed in some areas of Missouri in association with the development and review of public safety structure-based information and has proven to work well.

The data received from these agencies was cross-checked with our CAI geodatabase and the information was added or updated. The information that they were able to provide included facility name, if they had broadband service, technology used, and speeds.

Website information for the CAIs was collected by calling and asking if they had a website or by searching the internet. Public WiFi for the CAIs were collected by calling and asking if it was available or not.

Unique ID's (CAI ID) of certain types of CAIs, including K-12 schools, libraries, and higher education schools, were collected and added to the database. The National Center for Education Statistics (NCES) provided the codes for the schools and higher education facilities through a website provided by the PO office, <http://nces.ed.gov/ccd/bat> & <http://nces.ed.gov/ipeds/datacenter>. The library ID's were found at <http://harvester.census.gov/imls/data/pls/index.asp>.

6 Data Accuracy – Back Lab Verification Methods

Throughout the project, GeoDecisions and CBG performed numerous verification tasks to determine the level of accuracy of the information gathered from the broadband providers in the State. The initial verification methods were called back lab verification tasks by the NTIA. Unlike the field verification processes (described below), these tasks were performed in a lab or office setting. Each of the following GeoDecisions/CBG back lab processes was utilized to validate the data collected from some or all of the providers:

After the data from a given provider was captured into the geodatabase, the mapped data was then compared against information gleaned from various sources. The FCC had documentation that was used such as the Form 320 (Basic Signal Leakage Performance Report), which is filled out by cable television providers on an annual basis, and Cable TV Community Unit and Physical System databases. These information databases provided high-level information of geographic areas served by cable TV and other broadband providers. This information alerted our team to areas not included in gathered data from a broadband provider.

Additional sources of information utilized during the back lab verification process included franchise and exchange boundaries, cable strand maps, media prints, as well as business and taxation licenses. These sources varied in value to the project, depending on the level of information gathered and maintained by local franchising authorities and state agencies such as the PSC. Telecommunications associations were also queried for information regarding providers and system boundaries or areas of the state where specific providers offer service.

The above processes primarily relate to wireline broadband providers. For wireless broadband providers, we compared information gathered from the providers against FCC and FAA tower databases and private tower databases, as needed.



Independent Validation and Assessment: The UM also performed similar verification tasks as listed above to determine the level of accuracy and confidence in the information delivered by GeoDecisions/CBG as assembled from the broadband providers in the State. Again, these verification methods were called back lab verification tasks by the NTIA as these tasks were performed in a lab or office setting.

In addition to the above, the UM back lab processes took the assembled public sourced data for all providers (where this type of information could be found) and intersected it with the supplied GeoDecisions / CBG provider service areas. As well, Ookla site data, survey data, and presence/absence data assembled were also used to assess these data. From these data, additional analyses were performed to create measures of agreement, confidence indexes, spatial confidence indexes, and to visualize patterns of service and gaps in service.

These gaps and patterns of service are currently being examined to determine common threads for the State of Missouri across socio-economic, demographic, land cover, density of CAI, and other measurable elements of this mapping. We hope to use these data to inform the Regional Technology Planning Teams of opportunities and impediments.

The results of the independent assessment and validation were then combined with findings from GeoDecisions/CBG to form a report that then was delivered back to the provider to initiate the 'provider feedback' element (Section 19) of the assessment and to validate/verify the assessments of these data and their extents by both UM and GeoDecisions/CBG with the respective provider.

7 Development/Implementation of a field verification guide and checklist

Prior to beginning field verification activities, CBG Communications, Inc. (CBG) developed a field verification guide for use by each member of the field verification team. The guide included systematic instructions and a checklist related to verification of each broadband system and service type. The guide and checklist were drafted, reviewed and finalized prior to the beginning of field verification activities.

8 Field verification team training

To ensure uniformity of the team's approach to field verification, field team training was held immediately prior to the beginning of field verification activities. Training was conducted for CBG, GeoDecisions, and University students and staff. The training covered all field verification activities, including:

- Use of the guide, instructions and checklist
- Understanding of each system and service types
- Understanding of coverage characteristics



- Understanding of service attributes, including system technology type, upstream and downstream connection speeds, and other attributes required (by the NTIA) to be documented and verified
- Use of the equipment needed for field verification activities
- Proper documentation of field verification activities

The office tutorial lasted ½ day. An additional field-based ½ day session was utilized for actual demonstration of field verification activities.

9 Team Assignments

Two person teams were utilized the next 2 days after office and field training in order to work together and become more comfortable with the process. Eventually, field verification team members were expected to perform field verification activities on their own, with the exception of University student teams, who continued to participate in pairs of two for safety and security reasons. The State was divided into five (5) large areas encompassing Northwest, Northeast, Southwest, Southeast and Central Missouri. The contractor assembled ten (10) team members, and assigned two for each area. The UM team assembled eight (8) team members to form four (4) teams, and assigned them to certain counties and particular census blocks within those counties. As well, two (2) of these teams conducted the surveys and interaction at the Missouri State Fair discussed in Section 13.

Each team member was provided an official-looking ID card and a letter of certification on Missouri State letterhead in order to mitigate findings early-on that residents were suspicious of individuals asking them unsolicited questions. These two items proved very effective in minimizing these concerns.

10 Verifying Coverage

Broadband system coverage was verified by sampling whether services were available at various locations shown on the providers' system coverage maps randomly chosen from all of the census blocks that are at the ends of the providers' systems. The random sample was developed separately by the UM and contractor teams.

The contractor team verified by looking for a mixture of large and small providers across the state, being sure to hit each of the 19 Regions which would form the basis for the Regional Planning Technology Teams. Efforts were made to locate and verify all providers that had submitted data. Verifying the large providers, especially, in each of these regions was a priority. Each contractor team member collected field gathered data in an MS Access database. The data included: Lat/Lon of verification point, provider name, technology type, speed test results if available, customer comments and notes from team member. All data was compiled and used to not only validate provider submitted data as mapped, but for providing feedback to the providers.

As a cross check, the UM team sampled a selection of counties, looking for more detailed coverage in a subset of the state's counties.



11 Ookla Speed Test Web Site

As part of the field verification process, State residents and businesses were given a card briefly explaining the project and directed them to the State's designed speed test website. This project specific Ookla speed test web site was set up to collect information on providers, users, as well as the upstream and downstream speeds associated with their broadband connection.

Figure 1: Depiction of Ookla Speed Test Site

12 Equipment Utilized for Field Verification Activities

Each team member carried the following equipment in order to perform field verification activities for the various types of services:

- Laptop with Wi-Fi capability and provider GIS data installed
- Cellular 3G/4G and WiMAX aircards (independent card for each provider) for use with laptop
- Binoculars
- GPS for verifying and documenting exact locations
- Hardcopy forms and electronic database for documenting verification data
- Cell phone with 3G or 4G used in lieu of laptop for certain types of wireless broadband services
- Digital recorder for aural field notes, as needed
- Identification documents (business cards, State or other ID badges, letter from the State acknowledging that the team member is part of the verification team, for those with questions)
- Car chargers and/or DC to AC Inverters for equipment chargers
- Census block maps (boundary details shown) and other maps as needed



- k. Postcards advertising the Ookla web site for distribution, as shown below



Figure 2: Postcards Distributed to Residents

13 Other Verification Methods

In addition to utilizing the above mentioned equipment and the methodologies listed below for verifying coverage and characteristics, team members entered into discussions with residents in the various areas. Residents were asked questions such as: Do they currently have broadband service, who their provider is, if they know what speeds they could achieve and if they know of other provider's service available in the area. This information was confirmed by multiple residents before being considered accurate. Residents often times did not know what their service level and speeds are. Questions such as how much were they paying for the service led to a better understanding of their service level. Residents are encouraged to visit the Ookla speed test site to assist in gathering actual speed data.

Missouri State Fair: In order to collect a large amount of information from Missouri residents for the Broadband Project, the Broadband Mapping Team decided to visit the Missouri State Fair in Sedalia, Missouri. The 2010 Missouri State Fair had an estimated attendance of over 330,000 people, therefore with such a high attendance this event would be useful for data collecting. The Broadband Mapping Team (BB Team) had two locations at the fair; one was in the Mizzou Central Building in the MO-AG Theater organized by the College of Agriculture, Food and Natural Resources. Inside the MO-AG Theater was the main location for the BB Team where an informational slide show continuously played and signage was displayed throughout the booth area. This was the survey location where Missouri residents would be asked to fill out a form about their internet service. A total of 582 surveys



were completed and able to be geocoded to be used as verification and validation for UMs independent assessments.

The other location was on the lawn outside of the MO-AG Theater, where a Mizzou Tent was assembled daily and tables were set displaying a large Missouri map divided into four quadrants. Each of the four quadrants represented different regions of Missouri, northwest, northeast, southwest and southeast. At this station, Missouri residents were able to physically place a colored pin on their home location. The color would vary depending on if the person had broadband availability in their area. A total of 880 pins were placed denoting presence or absence of broadband.

At both areas, the broadband speed test cards for the Missouri Ookla site were handed out to residents after filling out a survey or placing a pin on one of the four maps. We also distributed drinking cups, refrigerator magnets, and pens with the State Broadband speedtest site on them. Thus far, over 1050 speed tests have been performed on the site.

14 Verifying Wireline Broadband Coverage Characteristics

Using the specified random sampling technique, field team members searched for the physical endpoints of cable systems, telephone/DSL and fiber optic infrastructure and noted when additional infrastructure was not seen moving outward from the core either in an aerial (overhead) or underground manner. These areas were targeted for discussions with residents and to perform speed tests. Observations and findings were documented accordingly.

15 Wireless Broadband Coverage

Verification team members reviewed the provider's information and looked for network availability near the antenna site or in the middle of the provider's service area to confirm network and test equipment compatibility. Using the specified random sampling technique, the team member tested with pertinent gear to determine when service could and couldn't be achieved by the laptop, cell phone, or other wireless broadband-enabled device. These locations were documented accordingly.

From the University of Missouri, an aircard team was sent out into the field to verify wireless broadband coverage by the top five wireless providers. These providers are AT&T, Sprint, T-Mobile, Verizon and US Cellular. Wireless broadband USB devices were purchased from each provider to test signal strength, upload and download speeds in different locations.

Boone County was the pilot county the team visited to conduct a more intense test of the submitted wireless broadband coverage for these providers. The process we used is still developing as it is a new aspect of the project and will continue to be refined as we continue to analyze wireless coverage. The current process to test aircards is as follows:

- Randomly select a road that preferably branches off a primary road that we are confident has wireless broadband coverage.
- Choose a starting point on the road selected and test each aircard from every provider at ½ mile increments to see how signal strength and speeds vary.



- At the same time, aerial imagery is used to place a point exactly where the team is located in the field to collect the information for each provider into ArcMap.

For each point collected the team collects, signal strength, upload and download speeds, location (road intersections or home address if the team is parked in front of residence), lat/long, and notes describing any technical difficulties the team may run into.

16 Upstream and Downstream Connection Speeds for Wireline Providers

The field verification team member:

- For cable modem* – Upstream and downstream connection speeds were verified using the Ookla speed test at locations within the providers' coverage area using the specified random sampling technique. An already installed cable modem connection was utilized, as available. These included both preselected points with arrangements made for testing (such as at local libraries or at public facilities utilizing cable modem service) and at randomly chosen business and homeowner locations where the business or homeowner consented to test the service. Findings were documented accordingly on electronic or paper forms. In addition, the speed test was documented via the Ookla site.
- For DSL connection speed testing* – The same procedures were used as for cable modem testing. Findings were documented accordingly on paper or electronic forms.
- For fiber optic connection speeds* – For services to homes and small businesses the same procedures were used as above for cable modem and DSL. For higher speed services to larger businesses, institutional network connections, enterprise/wide area network connections, etc., the team member worked with the business or institutions' IT group to perform connection speed testing. If actual testing could not be performed, team members attempted to gain existing end user documentation tests and performance documentation related to speeds of the network. Findings were documented accordingly on paper or electronic reports.

17 Wireless Broadband Service Connection Speed Testing

For cellular broadband 3G and 4G testing – A provider specific air card was needed in order to enable the laptop to access the Ookla speed test to determine the speed of connection. Some service providers provided air cards to conduct this testing. All teams also used both personal and corporate cards to assist in the testing. The speed of connection was tested at randomly selected points beginning close to the providers' tower/antenna infrastructure, at a mid-point and then at the ends of the verified coverage area. Findings were documented accordingly on paper or electronic reports. Documentation was uploaded daily by the team members to ensure timely and uniform oversight and modifications of the processes.



18 Coordination of Contractor and State Parties' Field Verification

The state and contractor utilized the process in the diagrams below to coordinate field verification activities:

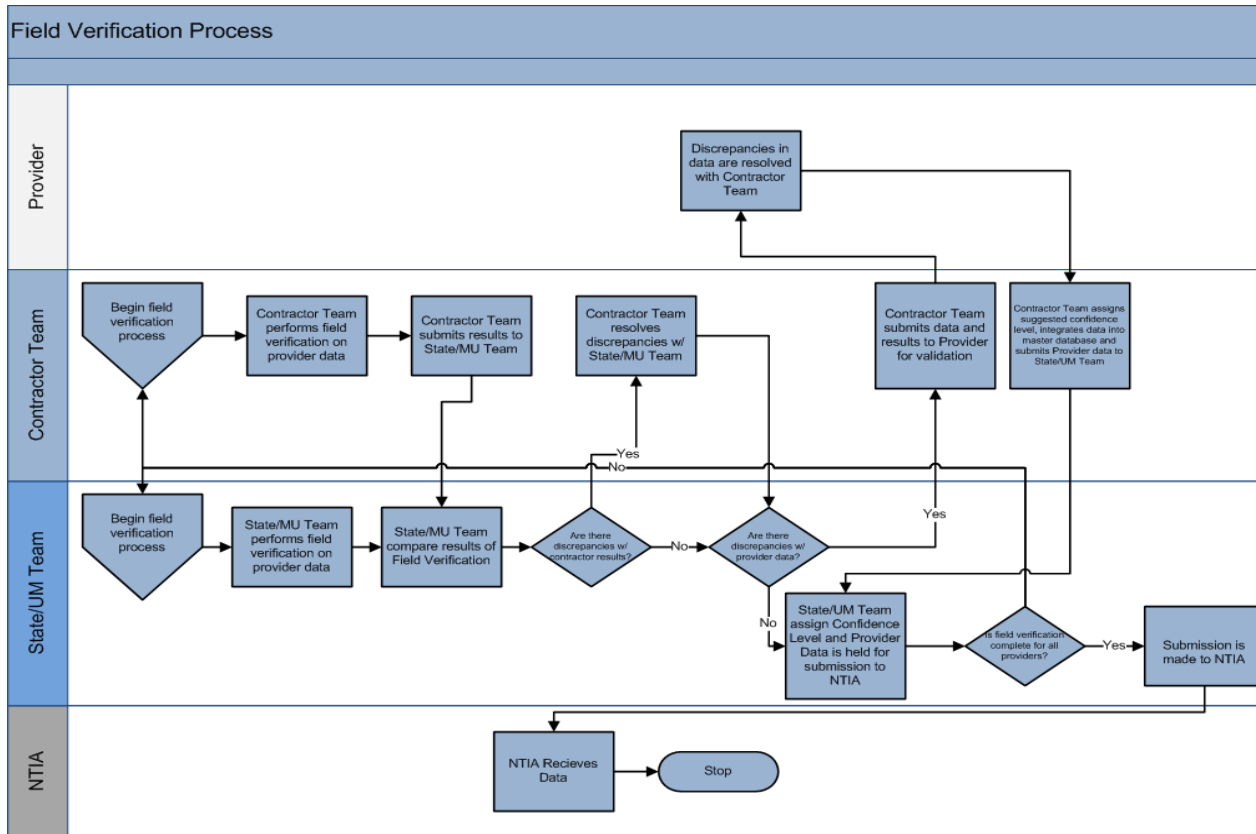


Figure 3: Field Verification Coordination Process

19 Provider Feedback Reporting

Upon completion of the provider submitted data, feedback information was supplied to each of the 91 providers that had submitted data. This feedback was presented in the form of a detailed Data Review Report in MS Word format, all provider attribute data exported into MS Excel format and multiple Overview, Wired and Wireless GIS exported image files in pdf format. This information would allow each provider to review our feedback and findings, as well as their submitted data as depicted in the GIS data model, both in a graphical and tabular form.

The Data Review Report detailed the usability and completeness of their submitted data as well as an estimate of our confidence in their submitted data based on field verification efforts and back lab verification steps as detailed above. The report also requested feedback on the accuracy of how we characterized their availability areas, technologies, speeds etc. Based on the provider's feedback, the data was adjusted and refined accordingly.



Field verification and back lab verification processes and procedures were utilized, as available and as needed, to ensure the highest level of confidence that the information gleaned from the providers was as accurate as possible. During this process, GeoDecisions and CBG contacted providers when we found instances that appeared to conflict with the information they initially provided and worked with the providers to adjust the maps accordingly.

20 Statistics

File Type	Number of Records
<i>Total Records in all Files</i>	485,303
Census Block < 2 sq. miles	326,023
Address-Level	Not Required
Street Segment	151,121
Wireless Shape File	35
BB Service Overview	521
Community Anchor Institution	6,928
Middle Mile	674
State Boundary	1
Metadata Provided for Geospatial Data	YES
Number of ISP's Provided in Submission	91

Providers Completed	91
Pending Additional Data	10
Non-Responsive/Refused	28
Researching	21
Non-Facilities Based	83
Out of Business	4
TOTAL	237



Missouri Broadband Data and Development

Data Collection and Processing

Provider Name	Status	FRN	NDA Execution Date	Notes/Comments
Adams Networks	Data Included in Missouri State Submission	11616356	5/18/2010	No updates submitted in third data call response.
Alma Communications Company	Data Included in Missouri State Submission	7196207	5/18/2010	No updates submitted in third data call response.
Holway Telephone Company	Data Included in Missouri State Submission	4746863	4/5/2010	No updates submitted in third data call response.
KLM Telephone Company	Data Included in Missouri State Submission	3772274	4/5/2010	No updates submitted in third data call response.
N. W. Communications	Data Included in Missouri State Submission	3772290	4/5/2010	No updates submitted in third data call response.
American Fiber Systems, Inc.	Data Included in Missouri State Submission	6651202	4/27/2010	No response to third data call.
AT&T Corp.	Data Included in Missouri State Submission	4496774	4/7/2010	No updates submitted in third data call response.
AT&T Mobility, LLC.	Data Included in Missouri State Submission	4979233	4/7/2010	Third data call updates included.
AT&T Southwest	Data Included in Missouri State Submission	16657918	4/7/2010	Third data call updates included.
Bay's Internet	Data Included in Missouri State Submission	18912576	Not Req'd by Provider	Third data call updates included.
Big River Telephone, LLC	Data Included in Missouri State Submission	18520320	Not Req'd by Provider	No updates submitted in third data call response.
Cable One, Inc.	Data Included in Missouri State Submission	3474327	4/5/2010	Third data call updates included.
Cable America Missouri, LLC	Data Included in Missouri State Submission	15466766	6/10/2010	Third data call updates included.
Carthage Water & Electric	Data Included in Missouri State Submission	7147143	Not Req'd by Provider	No response to third data call.
Suddenlink Communications - Cebridge	Data Included in Missouri State Submission	14367650	6/12/2010	Third data call updates included.
Suddenlink Communications - Friendship Cable	Data Included in Missouri State Submission	4999025	6/12/2010	Third data call updates included.
Suddenlink Communications - Cequel III Communications II	Data Included in Missouri State Submission	9725870	6/12/2010	Third data call updates included.
CenturyLink	Data Included in Missouri State Submission	18626853	4/20/2010	Third data call updates included.
Chariton Valley Telephone Corporation	Data Included in Missouri State Submission	2549392	5/26/2010	Third data call updates included.
Chariton Valley Telecom Corporation	Data Included in Missouri State Submission	8437147	5/26/2010	Third data call updates included.
Charter Communications	Data Included in Missouri State Submission	17179383	6/10/2010	Third data call updates included.
Citizens Telephone Company of Higginsville Missouri	Data Included in Missouri State Submission	2504298	4/5/2010	No updates submitted in third data call response.
LINKCity	Data Included in Missouri State Submission	16051450	Not Req'd by Provider	No updates submitted in third data call response.
City Utilities Springfield (SpringNet)	Data Included in Missouri State Submission	4759411	3/23/2011	Third data call updates included.
Cogent Communications, Inc.	Data Included in Missouri State Submission	19898303	Not Req'd by Provider	No updates submitted in third data call response.
Comcast	Data Included in Missouri State Submission	4441663	5/27/2010	No response to third data call.
Covad Communications Company	Data Included in Missouri State Submission	3753753	5/18/2010	Third data call updates included.
Craw-Kan Telephone	Data Included in Missouri State Submission	2334225	4/5/2010	No response to third data call.
T-Mobile	Data Included in Missouri State Submission	6945950	5/4/2010	Third data call updates included.
Ellington Telephone Company	Data Included in Missouri State Submission	3741956	4/5/2010	Third data call updates included.
FairPoint Communications Missouri, Inc.	Data Included in Missouri State Submission	14710388	9/1/2010	Third data call updates included.
Farber Telephone Company	Data Included in Missouri State Submission	3748043	4/5/2010	Third data call updates included.
BPS Telephone Company	Data Included in Missouri State Submission	3730835	4/5/2010	Third data call updates included.
BPS Networks	Data Included in Missouri State Submission	16026965	4/5/2010	Third data call updates included.
Fidelity Cablevision, Inc.	Data Included in Missouri State Submission	13326	4/5/2010	Third data call updates included.
Fidelity Communications Services I, Inc.	Data Included in Missouri State Submission	4351722	4/5/2010	No updates submitted in third data call response.
Fidelity Telephone Company	Data Included in Missouri State Submission	2550309	4/5/2010	Third data call updates included.
Granby Telephone Company	Data Included in Missouri State Submission	5061189	4/5/2010	No response to third data call.
Grand River Mutual Telephone Corp.	Data Included in Missouri State Submission	2505519	4/7/2010	No response to third data call.
Green Hills Technologies	Data Included in Missouri State Submission	3736246	4/5/2010	Third data call updates included.
Green Hills Telephone ILEC	Data Included in Missouri State Submission	3736238	4/5/2010	Third data call updates included.
Green Hills Telecommunications Services	Data Included in Missouri State Submission	3736253	4/5/2010	Third data call updates included.
Hughes Network Systems, LLC	Data Included in Missouri State Submission	17434911	Not Req'd by Provider	No updates submitted in third data call response.
KTIS (Kingdom Telephone Company)	Data Included in Missouri State Submission	2212314	4/5/2010	No updates submitted in third data call response.
Cricket Communications, Inc. (Leap Wireless International)	Data Included in Missouri State Submission	2963528	4/20/2010	Third data call updates included.
Le-Ru Telephone Co.	Data Included in Missouri State Submission	2490472	4/7/2010	No response to third data call.
Level 3 Communications, LLC	Data Included in Missouri State Submission	3723822	4/27/2010	Third data call updates included.
LTO Communications, LLC	Data Included in Missouri State Submission	19008036	Not Req'd by Provider	No response to third data call.
Mark Twain Communications Company	Data Included in Missouri State Submission	2531879	4/5/2010	No updates submitted in third data call response.
Mark Twain Rural Telephone Co	Data Included in Missouri State Submission	2549228	4/5/2010	No updates submitted in third data call response.
McDonald County Telephone Co	Data Included in Missouri State Submission	2504058	4/5/2010	Third data call updates included.
MCC Missouri LLC (Mediacom)	Data Included in Missouri State Submission	5184247	9/1/2010	No updates submitted in third data call response.
Mid States Services, LLC.	Data Included in Missouri State Submission	18511303	5/26/2010	No response to third data call.
New Florence Telephone Company, Inc.	Data Included in Missouri State Submission	4374047	4/5/2010	No response to third data call.
Northeast Missouri Rural Telephone Company	Data Included in Missouri State Submission	4337044	4/20/2010	No response to third data call.
Northwest Missouri Cellular	Data Included in Missouri State Submission	2534618	Not Req'd by Provider	No response to third data call.
Oregon Farmers Mutual Telephone Company	Data Included in Missouri State Submission	3733847	4/5/2010	No response to third data call.
New Wave Communications	Data Included in Missouri State Submission	1202938	Not Req'd by Provider	Third data call updates included.
iland Internet Services	Data Included in Missouri State Submission	17606898	Not Req'd by Provider	No response to third data call.
Mid Missouri Telephone Co.	Data Included in Missouri State Submission	2509040	4/5/2010	No response to third data call.
Ozark Computers	Data Included in Missouri State Submission	18658179	Not Req'd by Provider	No response to third data call.
Peace Valley Telephone Co., Inc.	Data Included in Missouri State Submission	18539742	4/5/2010	No updates submitted in third data call response.
Poplar Bluff, City of	Data Included in Missouri State Submission	2514529	Not Req'd by Provider	No response to third data call.
Radio Wire, Inc.	Data Included in Missouri State Submission	18912626	Not Req'd by Provider	Third data call updates included.
Midwest Data Center & Rock Port	Data Included in Missouri State Submission	4362505	4/7/2010	No updates submitted in third data call response.
Goodman Telephone Company, Inc.	Data Included in Missouri State Submission	4269775	4/12/2010	No updates submitted in third data call response.
Ozark Telephone Company	Data Included in Missouri State Submission	4269817	4/12/2010	No updates submitted in third data call response.
Seneca Telephone Company	Data Included in Missouri State Submission	4269809	4/12/2010	No updates submitted in third data call response.
Sho-Me Technologies, LLC	Data Included in Missouri State Submission	8875890	Not Req'd by Provider	Third data call updates included.
Sprint Nextel Corporation	Data Included in Missouri State Submission	3774593	6/11/2010	Third data call updates included.
StarBand Communications Inc.	Data Included in Missouri State Submission	5087457	4/5/2010	No updates submitted in third data call response.
Steelville Telephone Exchange Inc	Data Included in Missouri State Submission	2549665	4/5/2010	No response to third data call.
Miller Telephone Company	Data Included in Missouri State Submission	4269528	4/5/2010	No response to third data call.
TDS Telecommunications Corporation - Stoutland	Data Included in Missouri State Submission	2502243	4/26/2010	Third data call updates included.
TDS Telecommunications Corporation - New London	Data Included in Missouri State Submission	2529733	4/26/2010	Third data call updates included.



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TDS Telecommunications Corporation – Orchard Farm	Data Included in Missouri State Submission	3767340	4/26/2010	Third data call updates included.
Time Warner Cable	Data Included in Missouri State Submission	13430244	6/21/2010	No response to third data call.
Total Wireless Communications	Data Included in Missouri State Submission	18726729	Not Req'd by Provider	No response to third data call.
Townes Tele-Comm, Inc. - Choctaw Telephone Company	Data Included in Missouri State Submission	4928792	Not Req'd by Provider	Third data call updates included.
Townes Tele-Comm, Inc. - MoKan Dial, Inc.	Data Included in Missouri State Submission	4928750	Not Req'd by Provider	Third data call updates included.
tw telecom	Data Included in Missouri State Submission	17348061	4/27/2010	Third data call updates included.
United Services, Inc. (United Sky Wireless)	Data Included in Missouri State Submission	16087876	4/5/2010	No updates submitted in third data call response.
Verizon Wireless - Cellco Partnership	Data Included in Missouri State Submission	3290673	5/26/2010	Third data call updates included.
WildBlue Communications, Inc.	Data Included in Missouri State Submission	7843766	5/4/2010	No updates submitted in third data call response.
Windjammer Communications LLC	Data Included in Missouri State Submission	17915182	Not Req'd by Provider	No response to third data call.
Windstream Corporation	Data Included in Missouri State Submission	14400220	6/10/2010	Third data call updates included.
YHTI	Data Included in Missouri State Submission	14205504	4/5/2010	Third data call updates included.
Lathrop Telephone Company	Data Included in Missouri State Submission	3737376	4/7/2010	No response to third data call.
Missouri Network Alliance, LLC	Data Included in Missouri State Submission	15540669	Not Req'd by Provider	No updates submitted in third data call response.
NPG Cable, Inc. (St. Joseph Cablevision)	Data Included in Missouri State Submission	2508687	Not Req'd by Provider	Third data call updates included.
United States Cellular Corporation	Data Included in Missouri State Submission	4372322	8/21/2010	No response to third data call.
Ritter Cable Corporation	NDA Fully Executed	14054449	4/20/2010	No source data received to date.
ExOp of Missouri Inc.	NDA Fully Executed	4969697	9/1/2010	No source data received to date.
IAMO Telephone Company	NDA Fully Executed	14067565	4/7/2010	No source data received to date.
SureWest Kansas, LLC - Everest Midwest LLC	NDA Fully Executed	4069035	4/12/2010	No source data received to date.
KEI Internet Service	Data Not Submitted By Provider		Not Req'd by Provider	No source data received to date.
Tower Internet	Data Not Submitted By Provider		Not Req'd by Provider	No source data received to date.
US Cable of Coastal-Texas, L.P.	Data Not Submitted By Provider		Not Req'd by Provider	No source data received to date.
Wisper ISP, INC	Provider Too Busy w/ Other Projects to Submit	16278970	Not Req'd by Provider	No source data received to date.
AccuBak Data Systems, Inc.	Data Compiled But Not Submitted By Provider	18543744	Not Req'd by Provider	Provider having trouble seeing the benefit to submitting data.
Socket Telecom, LLC	Working Toward Signed NDA	8515595	NA	Reseller. Becoming facilities based provider (in the next 6 mo's.)
Telecommunications Management, LLC, - New Wave Comm	Non-Responsive	9232554		NDA Sent
True Broadband Networks	Non-Responsive			No answer at phone numbers and e-mails kick-back
Mo-Ark Communications – (Wasp Wireless)	Non-Responsive	4376919		NDA Sent
CorpraNet	Non-Responsive			NDA Sent
Cox Communications	Non-Responsive			NDA Sent
HAUG Communications, Inc.	Non-Responsive	4711735		NDA Sent
Enventis Telecom Inc.	Non-Responsive	8394322		NDA Sent
Dexter Broadband	Non-Responsive		NA	Phones disconnected and e-mails are unanswered
St Joe Wireless	Non-Responsive	2545929		Attempting to make initial contact.
ProTronics Technologies, Inc.	Non-Responsive	10790061		
KC Web Wireless	Non-Responsive		NA	Attempting to make initial contact.
Crystal Broadband	Non-Responsive			
First Cable of MO (Mississippi Valley)	Non-Responsive			
Galactic Broadband	Non-Responsive			No contact information found
SES Americom	Non-Responsive			Attempting to make initial contact.
Verizon Business Global LLC dba Verizon Business	Non-Responsive	10856284		Submitted data with wireless company only.
Access US	Non-Responsive			
Aero-Surf Wireless Internet	Non-Responsive			
Boycom Cablevision, Inc.	Non-Responsive	7630791		
Momentum	Non-Responsive			
Mid Missouri Broadband & Cable LLC	Non-Responsive			
TA Highspeed	Non-Responsive			
NuVox, Inc.	Researching - Purchased By Windstream	4319414	6/10/2010	No source data received to date.
Stouffer Communications	Researching - Included as Granby Telephone	5061189		
CenturyTel Fiber Co. II, LLC dba LightCore, a CenturyTel Co	Included in other CenturyLink submission	8612293	4/20/2010	
Falcon Cablevision	Researching – Purchased By Charter Comm		NA	Data included in Charter submission.
New Cingular Wireless Services, Inc.	Researching – Purchased by AT&T	3766532	4/7/2010	Included in AT&T submissions
Fidelity Communication Services II, Inc.	Researching To Determine If Broadband Provider	5918503	4/5/2010	Researching inclusion with other Fidelity Provider submissions.
Fidelity Networks, Inc.	Researching To Determine If Broadband Provider	4312963	4/5/2010	Researching inclusion with other Fidelity Provider submissions.
Excel Telecommunications – SureWest	Researching To Determine If Broadband Provider		4/12/2010	
TDS Metrocom	Researching To Determine If Broadband Provider		4/26/2010	Researching inclusion with other TDS Provider submissions.
TDS Missouri	Researching To Determine If Broadband Provider		4/26/2010	Researching inclusion with other TDS Provider submissions.
Telephone and Data Systems	Researching To Determine If Broadband Provider		4/26/2010	Researching inclusion with other TDS Provider submissions.
Aurora Communications, Inc.	Researching To Determine If Broadband Provider	15696180	4/5/2010	Researching inclusion with other YHTI Provider submissions.
Almega Cable	Researching To Determine If Broadband Provider		Not Req'd by Provider	
Broadview Networks Holdings, Inc.	Researching To Determine If Broadband Provider	10296853		
Longview Cable and Data LLC	Researching To Determine If Broadband Provider	13948609		Sold systems off
Iowa Telecommunications Services, Inc.	Researching To Determine If Broadband Provider	3911385		
Broadwing Communications, LLC	Researching To Determine If Broadband Provider	8599706	4/27/2010	Researching inclusion with other Level 3 Provider submission
WiTel Communications, LLC.	Researching To Determine If Broadband Provider	3716511	4/27/2010	Researching inclusion with other Level 3 Provider submission
AT&T Services, Inc.	Researching To Determine If Broadband Provider	8644056	4/7/2010	Researching inclusion with other AT&T Provider submission.
Suddenlink Communications - Cequel Communications	Researching To Determine If Broadband Provider	15784663	6/12/2010	
Vaughn's Computer Central	Researching To Determine If Broadband Provider	19846674		
St Louis Broadband	Refused to participate at this time			
Birch Telecom of Missouri, Inc.	Refused to Participate	3732294	NA	Refuse to sign NDA or participate
Ionex Communications, Inc.	Refused to Participate	5027453	NA	Refuse to sign NDA or participate - Birch Communications
Pxius Communications	Refused to Participate	10480176	NA	Refuse to sign NDA or participate at this time
Poplar Bluff Internet, Inc (SEMO)	Refused to Participate	13662408	NA	Refuse to sign NDA or participate at this time
Semo Communications Inc.	Refused to Participate	3788775	NA	Poplar Bluff Internet - refuse to sign NDA or participate at this time
Board of Municipal Utilities	Not Facilities Based	16073389		Discontinued offering service
McLeodUSA Telecommunications Services, Inc. (PaeTec)	Not Facilities Based	3716073	NA	
XO Communications, LLC	Not Facilities Based	6275945	NA	
Telnet Worldwide	Not Facilities Based		NA	



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Terre Star	Not Facilities Based		NA	
TMC Communications	Not Facilities Based		NA	
TracFone	Not Facilities Based		NA	
Sofnet	Not Facilities Based		NA	
Clear Communications, Inc.	Not Facilities Based			Equipment seller
Superfone Inc.	Not Facilities Based	8402202		
Tritel	Not Facilities Based		NA	
Missouri Broadband	Not Facilities Based		NA	
Mobilcom Pittsburg, Inc.	Not Facilities Based	2324465	NA	
PneumaTek	Not Facilities Based		NA	
City of Newburg	Not Facilities Based		NA	
Qwest Communications Company, LLC	Not Facilities Based	3605953	NA	
South Holt Cablevision	Not Facilities Based		NA	Offer Internet through Oregon Farmers Mutual Telephone Co
ADC	Not Facilities Based		NA	
Adva Optical Networking North America, Inc.	Not Facilities Based		NA	
AFL Communications	Not Facilities Based		NA	
Aircell	Not Facilities Based		NA	
Airdis Telecom	Not Facilities Based		NA	
Airespring, Inc.	Not Facilities Based	6875322	NA	
ANPI	Not Facilities Based		NA	
Arch Communications	Not Facilities Based		NA	
Atlantis Holdings LLC	Not Facilities Based	18587402	NA	
Bluegrass Cellular	Not Facilities Based		NA	
Boost Mobile	Not Facilities Based		NA	
Broadband National	Not Facilities Based		NA	
BullsEye Telecom, Inc.	Not Facilities Based	4350930	NA	
Cellular one	Not Facilities Based		NA	
CHR Solutions	Not Facilities Based		NA	
Charles Industries	Not Facilities Based		NA	
Chillicothe Municipal Utilities	Not Facilities Based	4192225	NA	
City of Newburg	Not Facilities Based		NA	
Cooperative Communications, Inc.	Not Facilities Based		NA	
Curt's Custom Cable	Not Facilities Based		NA	
DeSoto ISP	Not Facilities Based		NA	
Digital Landing	Not Facilities Based		NA	
DirecTV	Not Facilities Based		NA	
DSL.net, Inc. (Megapath)	Not Facilities Based	4324851	NA	
Earthlink	Not Facilities Based		NA	
Extel	Not Facilities Based		NA	
Freedom Communications	Not Facilities Based		NA	
GlobalNet	Not Facilities Based		NA	
Golden State Cellular	Not Facilities Based		NA	
Granite Telecommunications	Not Facilities Based		NA	
Illinois Valley Cellular	Not Facilities Based		NA	
Innovative Systems	Not Facilities Based		NA	
Interglobe Communications, Inc.	Not Facilities Based	5156229	NA	
Inter-Linc	Not Facilities Based		NA	
Jitterbug	Not Facilities Based		NA	
LightEdge Solutions, Inc.	Not Facilities Based	15546443	NA	
Logix Communications	Not Facilities Based		NA	
Metropolitan Telecommunications Holding Company	Not Facilities Based	9806019	NA	
Mid America Computer Corporation	Not Facilities Based		NA	
Mohave Wireless	Not Facilities Based		NA	
Netlogic, Inc.	Not Facilities Based	6825954	NA	
New Edge Holding Company	Not Facilities Based	3720471	NA	
Nex-Tech Wireless	Not Facilities Based		NA	
Nortel Solutions	Not Facilities Based		NA	
Open Range	Not Facilities Based		NA	
OFS	Not Facilities Based		NA	
Pacific Wireless	Not Facilities Based		NA	
Preferred Long Distance	Not Facilities Based		NA	
Protel	Not Facilities Based		NA	
Ralls Technologies, LLC	Not Facilities Based	18539916	NA	Becoming facilities based in the near future
SkyTerra Communications	Not Facilities Based		NA	
SkyWay USA	Not Facilities Based		NA	
Spirit Telecom	Not Facilities Based		NA	
Stutler Technologies Corp	Not Facilities Based		NA	
Tablerock Net	Not Facilities Based		NA	
TCO Network, Inc.	Not Facilities Based		NA	
TCS Telecom, Inc.	Not Facilities Based		NA	
Telefonica Data Corp SA	Not Facilities Based	18547828	NA	
Tellabs	Not Facilities Based		NA	
Toast.Net	Not Facilities Based		NA	
Tranquility Internet	Not Facilities Based		NA	
Video Direct	Not Facilities Based		NA	
Vonage	Not Facilities Based		NA	
Zayo Group, LLC	Not Facilities Based	15331689	NA	
Zone Telecom, Inc.	Not Facilities Based		NA	
WestLink	Not Facilities Based		NA	



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Longview Cable and Data, LLC.	Out of Business	13948609	NA	Sold off Assets
Worldcom Broadband Solutions	Out of Business		NA	
Global Crossing Telecommunications, Inc.	Out of Business	2850519	NA	
Sikeston Board of Municipal Utilities	Out of Business	16073389	NA	



Attachment A

NONDISCLOSURE AGREEMENT

THIS NONDISCLOSURE AGREEMENT ("Agreement"), dated and effective as of _____, 2010, is made by and among the Parties to this Agreement, which are _____ including its affiliates (collectively referred to hereinafter as "the Company"), and the State of Missouri, Office of Administration ("OA"), The Curators of the University of Missouri on behalf of the University of Missouri - Columbia ("MU"), GeoDecisions, a Division of Gannett Fleming, Inc. ("GeoDecisions"), and CBG Communications, Inc. ("CBG") (collectively referred to hereinafter as "the State Parties," except where otherwise indicated.)

WHEREAS:

- I. The National Telecommunications and Information Administration (NTIA) has made available a grant program to fund broadband mapping known as the State Broadband Data and Development (SBDD) grant program, which is governed by the Notice of Funds Availability (NOFA) first published in volume 74, number 129, at page 32545 of the Federal Register and subsequently clarified in volume 74, number 154, at page 40569 of the Federal Register, both of which are incorporated fully herein; and
- II. Both OA and MU have partnered with the mapping entities, GeoDecisions and CBG, to implement the SBDD grant program; and
- III. The Company possesses confidential and proprietary information necessary to such implementation and acknowledges that it desires to share certain of that information with the State Parties and with the NTIA; and
- IV. When the Company shares that information with the State Parties, the confidential and limited use conditions of this Agreement shall apply; and
- V. Missouri law allows governmental entities to close records that: 1) relate to scientific and technological innovations in which the owner has a proprietary interest pursuant to §610.021(15); and 2) fall within the definition of "trade secret" pursuant to the Uniform Trade Secrets Act, §417.450, RSMo.; and 3) have been submitted to an institution of higher education in connection with a proposal to license intellectual property or perform sponsored research and which contains sales projections or other business plan information the disclosure of which may endanger the competitiveness of a business, §610.021(22); and

NOW THEREFORE, the Parties agree as follows:

TERMS:

- a) "Confidential Information" shall be defined in identical terms to the SBDD NOFA and any subsequent SBDD NOFA Clarification(s).
- b) All Confidential Information received by the State Parties from the Company may be used as follows:
 - i) The State Parties may use the Company's information to derive maps, interactive websites and tabular data representations of the Company's broadband coverage area, network information, coverage attributes, and such other uses as may be required to implement the SBDD, referred to as the State Parties' Work Product; and
 - ii) The State Parties may, at a given location, estimate broadband coverage and identify broadband providers within the associated census block or estimated area, including Company, if applicable; and
 - iii) That State Parties may provide the NTIA with any such State Works as may be reasonably required by the terms and conditions as outlined in any applicable NOFA. The Company acknowledges that such provision may likely result in the disclosure of Confidential Information to governmental authorities and that, once such disclosures are made by the State Parties as required by a Project, the State Parties

Figure 4: Standard NDA pg 1



are fully released from any liability for the actions of the third party governmental authority regarding the disclosure, sharing or use of such Confidential Information; and,

- iv) The State Parties may use the Confidential Information in any other way to the extent such use is consistent with this Agreement and the SBDD program, that does not result in disclosing it, and
- v) The Company waives any claims of ownership to the State Parties' Work Products.
- c) Per the terms of this Agreement, the State Parties will protect Confidential Information provided to it from any use, distribution or disclosure pursuant to §610.021 (14), (15) and (22) and §417.450, RSMo, except as permitted herein.
- d) Confidential Information provided to Recipient in written or other tangible or electronic form shall be marked by Company with a confidential and proprietary notice prior to receipt by the State Parties.
- e) Parties acknowledge that any discrepancy between the SBDD NOFA and the terms provided for herein shall be resolved in favor of the SBDD NOFA. Nothing contained herein shall be construed to limit the State Parties' reporting and data sharing obligations under the SBDD NOFA, including sharing of Company's Confidential Information with NTIA pursuant to the terms of the SBDD NOFA and Clarification.
- f) The State Parties may provide Confidential Information only to those employees, consultants, independent contractors and agents who:
 - i) Have a substantive need to know such Confidential Information in connection with the State Parties' Work Product;
 - ii) Have been advised of the confidential and proprietary nature of such Confidential Information; and
 - iii) Have agreed in writing prior to disclosure to protect from unauthorized disclosure all confidential and proprietary information to which they have access in the course of their participation in the creation of the State Parties' Work Product in accordance with all the terms of this Agreement.
- g) Confidential Information does not include information the State Parties lawfully obtain from any source other than Company, provided that such source lawfully disclosed such information.
- h) If the State Parties are required to provide Confidential Information to any court, government agency or third party pursuant to written court order, subpoena, Missouri Sunshine Law request, or other process of law, they must provide the Company with prompt written notice of such requirement or request and cooperate with the Company to protect against or limit the scope of the disclosure.
- i) All Confidential Information remains at all times the Company's property. Any State Party Recipient may make tangible or electronic copies and notes of Confidential Information only as necessary for use as authorized herein. All such copies or notes must be marked with the same confidential and proprietary notice as appears on the original. All such copies will be destroyed when the State Parties' Work Product is fully completed and finally approved, and all originals shall be either destroyed or returned to the Company, at the Company's option.
- j) The State Parties may publicly identify the Company as a contributing broadband service provider, provided no information covered by this Agreement is revealed. No license for use, beyond that provided for herein, under any trademark, patent, copyright, trade secret or other intellectual property right is either granted or implied by disclosure of Confidential Information to the State Parties.
- k) If and to the extent any provision of this Agreement is held invalid or unenforceable, all other provisions of this Agreement shall remain in full force and effect to the fullest extent permitted by law.

Figure 5: Standard NDA pg 2



l) This Agreement is binding upon and inures to the benefit of the Parties and their heirs, executors, legal and personal representatives, successors and assigns, as the case may be.

m) This Agreement is the entire agreement between the Parties hereunder and may not be modified or amended except by a written instrument signed by all Parties. Each Party has read this Agreement, understands it and agrees to be bound by its terms and conditions. There are no understandings or representations with respect to the subject matter hereof, express or implied, that are not stated herein. This Agreement may be executed in counterparts, and signatures exchanged by facsimile or other electronic means are effective for all purposes hereunder to the same extent as original signatures.

n) This Agreement shall be governed, construed, and enforced in accordance with the laws of the State of Missouri, without regard to its principles of conflict of law.

IN WITNESS WHEREOF, the Parties have read and agreed to this Nondisclosure Agreement as evidenced by the signatures of the Parties' authorized representatives below:

<u>Company:</u>	<u>GeoDecisions, a Division of Gannett Fleming, Inc.:</u>
By: _____ (Authorized Signature)	By: _____ (Authorized Signature)
Name: _____	Name: _____
Title: _____	Title: _____
 <u>State of Missouri, Office of Administration, Information Technology and Services Division:</u>	
By: _____ (Authorized Signature)	
Name: _____	
Title: _____	
 <u>The Curators of the University of Missouri:</u>	
By: _____ (Authorized Signature)	
Name: _____	
Title: _____	
 <u>CBG Communications, Inc.:</u>	
By: _____ (Authorized Signature)	
Name: _____	
Title: _____	

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Figure 6: Standard NDA pg 3