

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 put in place, including back lab, field, survey, and independent verification.

2 Non-Disclosure Agreement Development Process

The State Parties to the Non-Disclosure Agreement (NDA) process included the State of Missouri, the University of Missouri, GeoDecisions, and CBG Communications. Each party, along with the individual broadband service provider, is a signatory of each of the over 100 NDAs collected in support of this project.

The standard NDA was developed using an initial template provided by CBG as well as several existing templates from providers. This draft was subsequently edited with inputs from all state parties. This draft 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 all known providers; including data collection guidelines and a draft of the standard NDA (see Attachment A). This letter was initially sent to 129 providers in late March 2010. Most partners to the NDA signed this initial NDA as provided. Some providers asked for some changes to this NDA which then require legal review by all 5 parties to the agreement. These negotiations have taken some time to complete for individual providers thus resulting in a delay of program participation in some cases.

We have also found that just having a signed NDA does not ensure the State that data will be forthcoming as we also have a few providers with signed NDAs that we have not received data from. These continue to be pursued as they occur.

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 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, initial contact was made with the company, primarily through phone but also site visits, to further explore the most pertinent contact.

In addition, we performed internet-based research looking for public websites to determine if there were providers that had not filed a Form 477 with the FCC that should also be included in the data collection process. We researched these companies to obtain 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 field verification process. This list of potential providers is comprised of business names advertised (signage/trucks etc.), labeled infrastructure observed, or by mention from Missouri citizens through our survey or interview processes.

As new providers are identified, the contact information is given to MU for delivery of initial contact letters. These documents are mailed out by MU by both e-mail, in order to expedite the process, and through the USPS so as to provide a formal notification. Based on input from providers in other states, these documents were more typically sent by the State in order to show the importance that the State places on the project. We did not see any negatives effects of this procedure however in Missouri. All correspondence with the providers, including clarification of 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 requested interaction with state personnel (ie. negotiation of NDA).

Due to the quick 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 their signed NDAs within five (5) business days of receipt and submit their data, in as usable a format as possible, by April 15, 2010.

The state parties performed follow-up with providers on an as-needed basis. This included making telephone or email contact with a provider if we did not hear from them after sending out the NDA and Data Request, following up so as to ensure receipt of 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 as well as through their affiliated professional associations.

A spreadsheet was utilized to 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 have been maintained on an ongoing basis as contacts and personnel change within the provider's industry happens rather frequently.



4 Requested Data Format

The overarching goal of the data collection call 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 had indicated that time was of the essence, and that strict deadlines were in place for the delivery of data to the NTIA. As such, timely, accurate data collection was a primary concern. GeoDecisions requested that broadband providers submit their data in a timely manner (i.e. in whatever format the information was currently available) to eliminate the lag that can be expected when providers attempt to meet NOFA formatting compliance themselves. We also realized, however, 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, the State developed a NOFA cover letter. The cover letter provided a background on the project as well as contact information to project team members from the State, GeoDecisions, and CBG. The cover letter stressed the incredibly short initial project timeline and emphasized the requirement to collect this data on an ongoing basis – every 6 months.

In addition to the State's cover letter, GeoDecisions and CBG developed a separate attachment to accompany the NDAs which was then reviewed by the State. This Data Collection Guidelines provided further background and project goals associated with Missouri's State Broadband Data and Development project. The document specified the guidelines to which the project would abide. The Data Collection Guidelines also informed providers of the intended use of the data that they would be submitting. These intended uses included delivery of NOFA-compliant data to the NTIA, data dictionary, the intention of generating static maps, as well as the creation of a Missouri-specific interactive broadband mapping website. Finally, the Data Collection Guidelines specified the NOFA data and format standards that were 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 mock-up sample data as reference for their own data entry. GeoDecisions, under the guidance of the State, initially developed a prototype 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 for the required submission. Providers could access this site and zoom, pan and print census block maps as needed.

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

- 1) Shapefiles or Geodatabase (personal or file)
- 2) CAD files with embedded attributes included
- 3) KML or KMZ Google Earth Images
- 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 then integrate this data into a common model. For each provider, the work was divided into four 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.
4. Final QA of all features and associated attribute data.

The first step was by far the most involved and time consuming. Regardless of the type of data provided, the base-level data (the 2010 census blocks, the 2010 TIGER street segments, and the county boundaries), all came from a single source, making it consistent across all providers. A number of different processes were developed for loading the staging geodatabase, depending on the type and form of data supplied by the provider. Each process was extensively documented through a process checklist to ensure accuracy and consistency. A description of these different processes used to load data into the provider specific staging geodatabase follows:

Availability Area

If a provider supplied their availability area as a single boundary or multiple boundaries drawn on a paper map or image file, those area(s) were geo-referenced and digitized into a shapefile. If the boundary was provided as a CAD drawing or arose from another GIS system, it was also converted to a shapefile format. Some wireless providers defined their area of availability as their wireless coverage area. This may take the form of 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 then used as the availability area.

Once a shapefile of the boundary was created, interpreted, and available, all census blocks intersecting that boundary were identified and 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 supply the technology of transmission and speed information. These transmission and speed attributes were assigned to either the census blocks or street segments. Additional provider information including Name, DBA, and FRN, were also added as attributes.

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 polygon was selected for each listed census block. If the census block's area 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's area 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 associated census block on the list.

The 2010 census block dataset was used for our data processing however a few providers submitted data using 2000 or 2009 vintage census blocks. When a provider submitted in a vintage other than 2010, the 2010 census blocks for the corresponding availability area were coded for that provider. Thus the true coverage of the census blocks were maintained and consistent with the provider's list but represented using the 2010 block structure.

Address Information

If a list of addresses were provided as the availability area, the first step was to obtain the coordinates of these addresses. When geocoded successfully, this resulted in a point for each address located. The census blocks intersecting all the points were collected. If the block's area 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 duplicated census block. For different locations in a census block with the same technology of transmission, the maximum value for each speed was obtained and assigned to the census block.

If the geocoded point lay within a census block with an area greater than two square miles, the nearest street segment was located and the technology of transmission and speed was 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 service area boundary in electronic format or as a paper map. These were converted to a shapefile either by digitizing or by performing a data conversion as appropriate. Some providers supplied tower locations, the angle of coverage, and the distance. In these cases the wireless boundary was constructed from this. Other 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 in future iterations. Finally, some wireless providers have recently taken advantage of websites offering wireless propagation service area boundaries development. Providers can enter key data into the site and a propagation raster image is developed more accurately representing their wireless availability. The output raster image is typically imbedded in a Google Earth format .kml or .kmz file which required our team to create a new process flow for these types of files.

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 and standardize it into provider-specific individual staging geodatabases using the current version of the common National States Geographic information Council (NSGIC) data model suggested for use by the NTIA. Once this was completed, the data could be updated or modified and Quality Checked (QC) using the same processes regardless of how it was originally submitted.

One such process was the creation of 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 then assigned to the county. *The assignment of maximum speed within the group to the county has been discontinued per NTIA's request.*

At this point the dataset for a particular provider was complete. An extensive QC checklist was used to examine the dataset, verify consistency, and ensure that it matched the data submitted by the provider. Once the dataset had passed the quality check, the features were appended into the final database model along with all data from other completed providers. Both the *Validate Topology* and *Validate Features* ESRI tools were run, any corrections necessary were made, and the tools were re-run until they processed without error.

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 also run against the data. Any errors detected were corrected and the tool re-run. A final manual QC review was performed to ensure that all the provider data was present and consistent. This was then followed by a final run of the SBDD Check Submission tool against the master data model to determine if any further corrections / changes were necessary.

Public Data Sources

The University of Missouri (UM) was in charge of the process to obtain and compile 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. This was particularly true in cases where no other authoritative source was available for the given provider. Websites were collected and inventoried through the use of a 'surveymonkey' instrument to standardize and assemble the database from the webcrawling activities. All files and maps found through the webcrawling were then either imported, scanned, or screen-captured to create a digital representation or image of the associated service area. These files were then georeferenced to a common Missouri base map. 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 additional points of reference as well. These files were then held as elements of independent validation for the GeoDecision/CBG files created from Provider sources.

Community Anchor Institutions

The University of Missouri (UM) was lead on the development of the Community Anchor Institution database. The Community Anchor Points were initially compiled in coordination with the Department of Public Safety (SEMA and OHS). 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 initially gathered through phone calls and site visits by UM students and staff. These efforts were coordinated with state agencies or 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.

UM also initially 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. MU further expanded this activity as part of the Structures local review process and engaged all 19 Regional Coordinating Councils through contract to validate, update, attribute, and review all CAI's within their jurisdiction. This approach was very successful in filling in holes as the local personnel could use their network of relationships and associations to further collect information.

Community Anchor Institutions - Regional Planning Commission - Review Status

RPC	#pts-deliv	#pts-return	Response	Added	Deleted	Nature of update						Response Rate
						URL	Address	Provider	Speedtest	Transtech	Location	
Boonslick	155	147	104	0	8	3	2	102	104	73	39	70.7%
Mark Twain	360	353	240	0	6	36	86	153	240	0	204	68.0%
Green Hills	412	412	269	0	13	27	1	18	269	0	3	65.3%
Northwest	225	149	96	0	76	20	9	19	96	69	0	64.4%
Ozark Foothills	203	196	116	0	7	1	2	65	116	0	6	59.2%
Northeast	184	184	107	0	44	10	0	25	107	79	15	58.2%
Meremac	419	418	226	0	10	86	54	179	226	204	24	54.1%
Southwest	982	975	518	5	72	7	2	312	518	191	975	53.1%
Bootheel	480	480	251	0	3	4	38	88	251	0	13	52.3%
SEMO	387	387	199	0	3	61	73	132	199	171	348	51.4%
Lake of the Ozarks	232	232	117	0	15	1	1	49	117	64	15	50.4%
Kaysinger Basin	314	313	153	0	1	15	12	68	153	0	26	48.9%
East-West Gateway	1690	1478	717	0	212	979	0	310	717	616	355	48.5%
SCOCOG	329	297	142	6	32	86	57	92	142	146	120	47.8%
Harry S Truman	336	336	149	0	29	159	44	42	149	42	23	44.3%
MARC	1034	1042	406	8	38	357	2	422	406	414	1	39.0%
Mo-Kan	262	263	102	1	39	74	10	100	102	13	79	38.8%
Pioneer Trails	355	355	137	0	30	10	0	68	137	61	0	38.6%
Mid-Missouri	506	627	138	128	8	119	439	111	138	142	125	22.0%
	8865	8644	4187	148	646	2055	832	2355	4187	2285	2371	
			47.2%	1.7%	7.3%	23.8%	9.6%	27.2%	48.4%	26.4%	27.4%	



The breakdown of Community Anchor institutions by type of Institution for these points can be found below.

Category Code	Category Description	Count	Percent
1	School – K through 12	2371	26.8
2	Library	374	4.2
3	Medical/healthcare	399	4.5
4	Public safety	2449	27.7
5	University, college, other post-secondary	110	1.2
6	Other community support - government	1301	14.7
7	Other community support - nongovernmental	1836	20.8
		8840	

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, density of CAI, and other measurable elements of this mapping. These data were used 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 (see Section 19 of this report) 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) worked with GeoDecisions to develop a field verification guide for use by all members 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.

As we continue to move forward with each submission, our field verification efforts continue to advance. Provider data is used to determine higher success areas having overlapping or common areas as well as including providers not able to be thoroughly verified from prior rounds. Those areas are the initial focus, medium priority areas are determined using similar stepped-down criteria. Lower priority areas are for providers thoroughly verified in past rounds but current data is needed. This also includes locations in between the higher and medium priority areas. Provider data is loaded on laptops or Garmin units for use by field verification personnel.



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 GeoDecisions, CBG, 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 portion lasted ½ day. An additional field-based ½ day session was utilized for actual demonstration of field verification activities. New team members are trained in a similar manner.

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. Initially 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. In subsequent iterations the UM team assembled fewer teams (2) of 2-3 person teams that reviewed targeted areas. In the final stages, MU focused more effort on conducting the surveys and interaction at the Missouri State Fair as discussed in Section 13 of this report.

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 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 initially verified availability 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 Technology Planning Teams involved in the state broadband planning process. 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 we continue to move forward with each submission, our field verification efforts, as with all other aspects of the project, continue to advance. Providers are now categorized from prior verification rounds as unverified, high, medium or low priority. Unverified are new providers or one not able to be verified in previous attempts. High are providers with minimal verification in previous attempts. Medium are providers fairly thoroughly verified in previous verification and low are providers heavily verified in prior verification. Provider data is also used to determine highest provider concentration areas having overlapping or common areas. Those areas are the initial focus for unverified and high priority providers. Medium and lower priority providers and areas are secondary and may include locations between the unverified and high priority areas. Provider data is loaded on laptops or Garmin units for use by field verification personnel.

11 Ookla Speed Test Web Site

As part of the field verification process, State residents and businesses interviewed or visited were given a card briefly explaining the project and directed them to the State's designed speed test website. These cards were broadly distributed at the State Fair and other regional fairs as well. This has led to more responses on the Speed Test. 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.

The screenshot shows a web form for an Ookla speed test. On the left, there are five dropdown menus: 'Technology Type', 'Advertised Download Speeds', 'Cost of Service', 'User Category', and 'Overall Satisfaction with Broadband Service'. On the right, there are text input fields for 'Broadband Service Provider', 'Street Address', 'City', 'State' (a dropdown menu currently showing 'MO'), 'Zip', and 'Email (optional)'. A 'Begin Test' button is located at the bottom right of the form. In the top right corner of the form area, there are two circular logos: the Seal of the State of Missouri and the Missouri Department of Transportation logo. The Ookla logo is in the bottom right corner of the form area.

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:

- a. Laptop with Wi-Fi capability and provider GIS data installed
- b. Cellular 3G/4G and WiMAX aircards (independent card for each provider) for use with laptop
- c. Binoculars, as needed
- d. GPS for verifying and documenting exact locations
- e. Hardcopy forms for documenting verification data
- f. Cell phone with 3G or 4G used in lieu of laptop for certain types of wireless broadband services
- g. Digital recorder for aural field notes, as needed
- h. 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)
- i. Car chargers and/or DC to AC Inverters for equipment chargers
- j. 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 knew of other provider's services being available in the area. This information needed to be confirmed by multiple residents before being considered accurate. Residents often did not know what their service level was or what their speed of service was. Questions such as how much were they paying for the service led to a better understanding of their service level. Residents were encouraged to visit the Ookla speed test site to assist in gathering actual speed data. To date, over 12,200 results have been received.

Missouri State Fair: In order to collect a large amount of information from Missouri residents for verification, the Broadband Mapping Team (BB Team) visited the Missouri State Fair in Sedalia, Missouri. The 2010 Missouri State Fair had an estimated attendance of over 330,000 people. With such a high attendance, it was determined that this event would be useful for data collection. For the 2012 Missouri State Fair, attendance exceeded that of the previous year, estimated at 330,000 to 350,000 attendees. The BB Team had two locations at the fair. The first was in the Mizzou Central Building in the MO-AG Theater organized by the College of Agriculture, Food and Natural Resources. This was the main location for the BB Team, where an informational slide show continuously played and signage was displayed throughout the booth area. At this location, Missouri residents were asked to fill out a survey regarding their internet service. A total of 699 surveys were completed at the 2011 Missouri State Fair, an increase of 117 surveys from the previous year, and were later geocoded to be used as verification and validation for UMs independent assessments.

The second BB Team 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 of the pins was used to differentiate whether or not broadband was available. A total of 320 pins were placed by Missouri residents, denoting presence or absence of broadband. The 2010 Missouri State Fair pin total was 880, a difference of 560 pins down from the previous year due to severe weather that occurred two out of the four days the team was present at the fair.

In addition to the 2011 Missouri State Fair, the BB Team also visited three regional fairs and an extra state fair, the Boone County Regional Fair, Phelps County Regional Fair, the Shelby County Regional Fair and the Southeast Missouri District Fair in the city of Cape Girardeau. The three regional fairs, all located near the University, were chosen specifically to increase the amount of broadband data for the Mid-Missouri region. The Southeast Missouri District Fair was selected because the 2010 Missouri State Fair results displayed little or no data in the southeast Missouri region. In total, 1053 surveys were completed and approximately 390 pins were placed during this verification phase.

For 2012, the BB Team was deployed only to the Missouri State Fair in Sedalia. Unlike previous years, however, the BB Team was able to be present for every day of the event, which ran from Aug



09 to Aug 19. Thanks to favorable weather and the addition of new team members, the BB Team was also able to remain at the fair for more hours during each day, resulting in a significantly increased overall presence. By the end of the 2012 event, the team had collected 2,154 broadband surveys and Missouri residents had placed 1,090 presence/absence pins on the regional maps.

The BB Team returned to the Missouri State Fair in Sedalia in 2013. Following the example set during the previous year, the Team was deployed every day of the event, Aug 08 to Aug 18. The weather cooperated with the collection efforts again, with seasonably mild temperature throughout the duration of the event, allowing the BB Team to collect 2,809 survey responses from Missouri residents and gather information from another 843 presence/absence pins.

The BB Team returned to the Missouri State Fair in Sedalia in 2014. Following the example set during the previous year, the Team was deployed every day of the event, Aug 07 to Aug 17. The weather again cooperated (with the exception of the opening day when it rained) the collection efforts again, with seasonably mild temperature throughout the duration of the event, allowing the BB Team to collect approximately 2,833 survey responses from Missouri residents. We found approximately 283 duplicates (10%) as people attended the Fair on several days and ice cream coupons were being used as an incentive for participation.

At all of the fairs, 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. The BB Team also distributed drinking cups, refrigerator magnets, and pens with the State Broadband speedtest site on them at various times.

In terms of verifying provider coverage, the state fairs have provided valuable data that could not have been otherwise obtained. The color-coded push pin maps have been converted to point-based shapefiles. Combined with additional information collected from the fair attendees while interacting with the push pin maps, the resulting shape file has provided a statewide, grassroots survey of internet service provider, type of internet service (broadband, dial-up, etc.), technology of transmission, subscribed speed, and customer satisfaction. This data has been used in the verification process as a visual comparison to census block provider footprints. The results, so far, have been very positive and the fair points have displayed a high spatial correlation with the census blocks.

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.

16 Upstream and Downstream Connection Speeds for Wireline Providers

The field verification team member:

- a. *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.
- b. *For DSL connection speed testing* – The same procedures were used as for cable modem testing. Findings were documented accordingly on paper or electronic forms.
- c. *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.

The MU BB team also conducted a single more detailed test of fixed mobile wireless coverage areas throughout Boone County using high-speed wireless broadband air cards. For wireless broadband testing purposes, the top five providers, AT&T, US Cellular, T-Mobile, Sprint/Virgin Mobile and Verizon



were tested to understand how mobile broadband varies in different locations by collecting information such as: signal strength, speed, as well as the latitude and longitude coordinates of where the test was performed.

To gather upload and download speed information for each air card, the team members used the MOBroadbandNow Speed Test website on Ookla. During the speed testing it was not uncommon that the speeds varied at a specific point for each air card, therefore the air card was tested a total of three times for analysis and comparison. The signal strength was determined by how many “bars” were displayed for each provider. The bars would vary depending on if the team was in a mobile coverage area or not. The latitude and longitude coordinates were recorded using a GPS unit. The speed, signal strength, and coordinates were tested and recorded in ½ mile increments along selected urban and/or rural routes throughout Boone County.

Limited additional air card testing and verification was subsequently completed in various counties using specific provider footprints. For this testing method, random locations were chosen within the provider footprint and air cards were tested to see how each provider varied in strength and signal.

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:

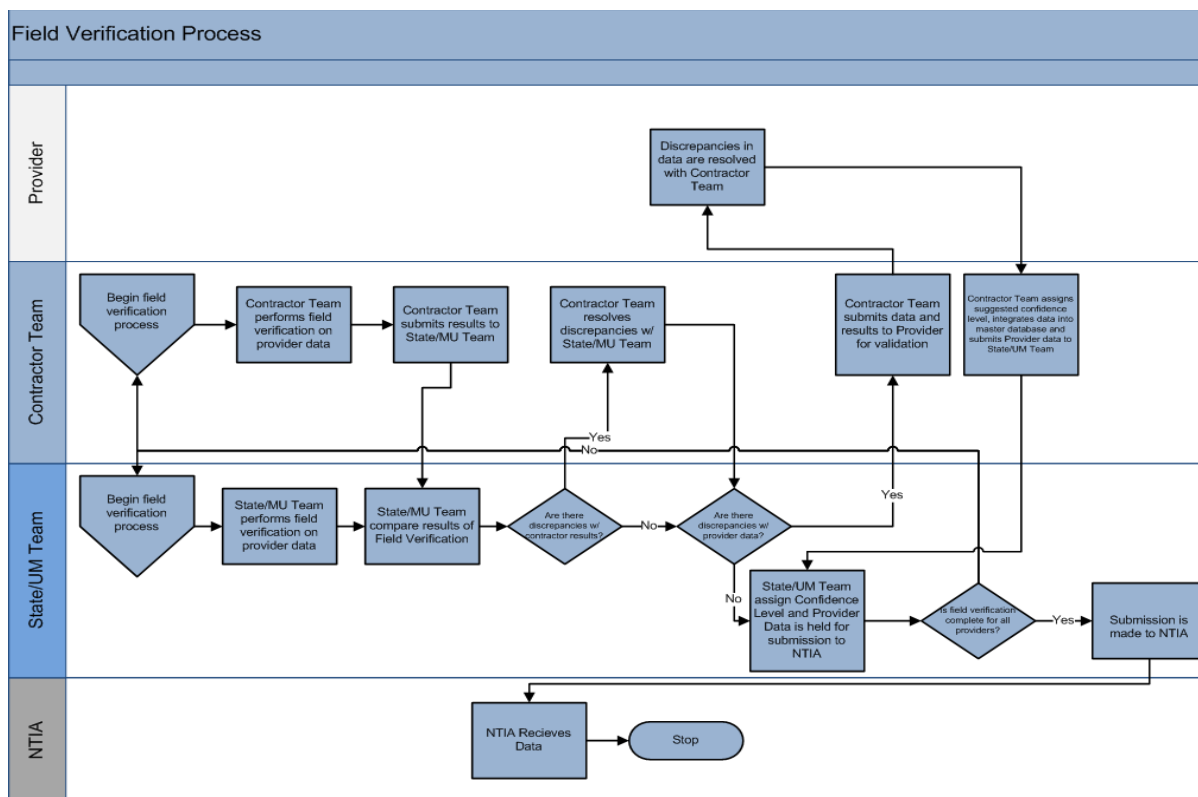


Figure 3: Field Verification Coordination Process



19 Provider Feedback Reporting

Upon completion of the provider submitted data, feedback information was supplied to each of the 131 providers that had submitted data as of Submission 9. This feedback was presented in the following forms:

1. A detailed Data Review Report in MS Word format,
2. All provider attribute data exported into MS Excel format, and
3. Multiple Overview, Wired and Wireless GIS exported image files in pdf format.

This information would allow each provider to review our validation findings, as well as check 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 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 Publications

MoBroadbandNow team conducted a statewide residential survey to assess the current Internet and broadband adoption and availability in 2011, whereby more than 76,400 residential surveys were mailed out and approximately 13 percent (9,825) of the surveys was returned and analyzed. Similarly, a survey of businesses and other targeted surveys of Missouri residents have been conducted. Data and information obtained through needs assessment (different surveys and mapping activities) is being used to create a series of reports on specific broadband topics. The titles of the reports and their short description are as follows:

1. **"The Benefits of Expanded Broadband for Missouri Farms and Agribusinesses."** (October, 2011)

This report was a result of collaboration with the Community Policy Analysis Center (CPAC) at the University of Missouri. This study was supported by the Missouri Internet Innovation Alliance (IIA) which is a national coalition of business and non-profit organizations committed to helping the country achieve universal broadband.

Full report at: <http://mobroadbandnow.com/initiatives/agbroadbandnow/>



2. **"Dissecting Missouri's Digital Divide, An Analysis of Broadband Adoption"** (June, 2012).

This is the first report in series and it analyses the data from MoBroadbandNow's 2011 residential survey of broadband use. The report found that there is a broadband adoption gap of 19 percentage points between Missourians living in rural areas and those living in non-rural areas (63% of rural residents have adopted broadband, compared to 82% of non-rural residents).

Full report at: <http://mobroadbandnow.com/initiatives/broadband-reports/digital-divide/>

3. **"Building Digital Inclusion: Broadband and Missouri's Public Libraries"** (October, 2012)

This is the second report in the MoBroadbandNow series and it discusses Missouri's public libraries and their role in providing access to the Internet.

Full report at: <http://mobroadbandnow.com/initiatives/broadband-reports/public-libraries/>

4. **"Understanding Internet Non-adoption: Fulfilling Missouri's Digital Promise,"** (Jan, 2013).

This is the third report in the series and will address the subject of technology non-adoption and explore reasons for non-adoption in Missouri's regions and across different Missouri demographics. Gaining an understanding of the regions and demographics that lag in technology adoption and any specific reasons for this non-adoption are critical to future efforts by both government and Internet Service Providers (ISPs) to effectively reach non-adopters. This may include programs and promotions to address the disparity in computer and Internet technology adoption and availability in Missouri.

Full report at: <http://mobroadbandnow.com/initiatives/broadband-reports/non-adoption/>

5. **"Regional Disparities in Broadband Speed and Cost in Missouri."** (January, 2014)

This paper presents an analysis of Internet pricing and speed data in order to better understand regional and county-level disparities in broadband cost and speed, and how broadband cost and speed correlate to economic and demographic factors, including median household income, population density and rurality, population change, and number of businesses. The data was obtained from Telogical Inc and covers a one year period from April 2012 to March 2013.

Full report at: <http://mobroadbandnow.com/>

6. **"Missouri Small Business and Broadband: Adoption, Use and Satisfaction."** (June, 2013)

This report analyzes data from *MoBroadbandNow's* 2011 Business Survey covering the level of adoption of Internet technology and its uses, and it explores reasons for non-adoption regionally and across business types. Gaining this understanding of small business is critical to future efforts by both government and Internet Service Providers (ISPs) to effectively reach Missouri's business communities through programs and promotions to address both the broadband needs of businesses and the hurdles they face.



7. "Analyzing the Nature of Missouri's Digital Divide Using Different Measures of Internet Service Provision." (March, 2014)

The disparity in price and speed of an Internet service are two important attributes that not only impact Internet adoption decisions but may also exacerbate the digital divide. In this case study of Missouri counties, we expand the current conceptual basis of digital divide beyond adoption and physical access by including the components of price and speed of Internet service provision in the analysis.

8. "Exploring Barriers to Internet Adoption in Missouri." (February, 2014)

This report focuses on reasons for Internet non-adoption in Missouri based on responses to the survey. A similar report was prepared based on the Residential Broadband Survey conducted in 2011.

21 Mapping

MOBroadbandNow has developed several state mapping products from the data collected for NTIA submissions. These products, which primarily include maps of broadband service areas and maximum advertised speeds, have been well-received but MOBroadbandNow continues to make slight changes based on input from both broadband providers and Missouri residents. Initial attempts to provide statewide maps of broadband availability were directly derived from the data provided during each submission cycle and used the mapping standards set in place by NTIA. Those first steps provided a solid framework for future products, and the statewide broadband service dataset has since been used in conjunction with healthcare facilities, schools, and Congressional districts.

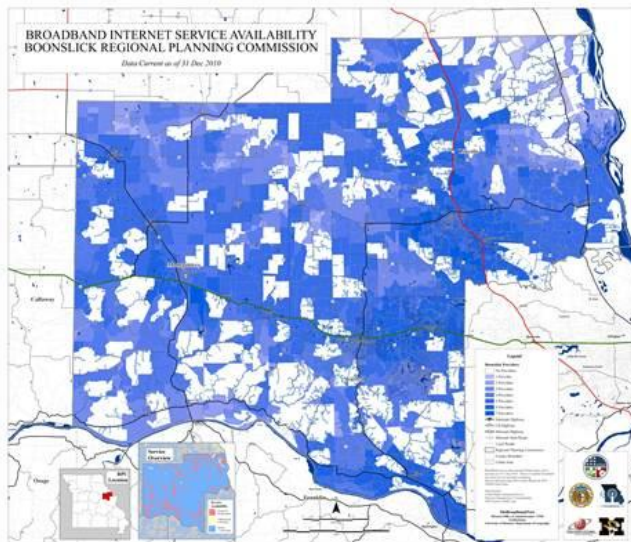
The most common concern of both Missouri residents and broadband providers during the early iterations of the state broadband mapping products was the representation of service availability at the census block level. In many cases, rural areas of Missouri appeared to be completely unserved by broadband because of the NTIA standard that census blocks greater than 2 sq. mi. be represented as road segments. Efforts were made to explain why the larger census blocks were represented as road segments; however complaints continued to be directed towards the MOBroadbandNow office.

In order to remedy these concerns, MOBroadbandNow determine that using the raw service footprints submitted by providers for state mapping products would allow for a more favorable mapping solution. Instead of using the submission data delivered to NTIA that is constrained by census blocks and road segments, MOBroadbandNow compresses all of the raw footprint shapefiles into a single shapefile (Figure 4). The process of combining the footprints of 100+ providers into a single file means that no single provider's service area can be harvested from the data, thus maintaining anonymity, but also provides a much more accurate representation of service boundaries.

Representation of broadband speed is also an area of concern. Missouri broadband providers have voiced complaints that the current distribution of speed tiers is not favorable to older transmission technologies that are inherently unable to achieve faster speeds. Further confusion has developed from the incompatibility between NTIA's speed tiers and the FCC definition of "broadband" as 4 Mbps



download/1 Mbps upload. Unlike the concerns regarding the depiction of service areas, MOBroadbandNow has only a limited number of options to address issues with speed categories.



Missouri broadband depicted using raw footprints as delivered by providers.

Missouri broadband depicted using NTIA standard of only census blocks smaller than 2 sq mi.

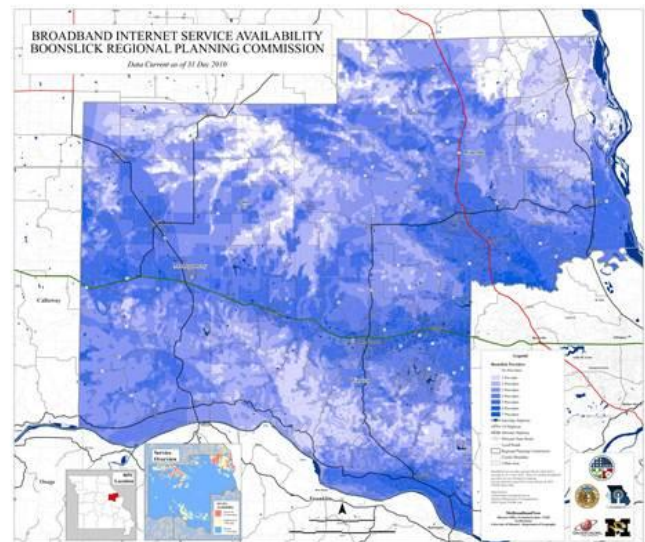
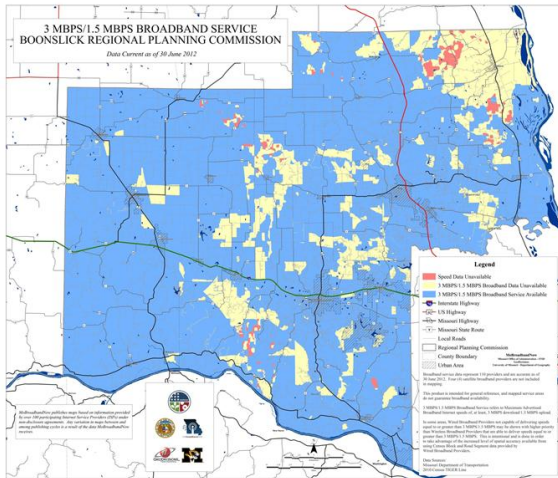


Figure 4: Side-by-Side Comparison of Broadband Service Mapping Methods

Following up from the methodology paper included with the previous broadband submission in April 2013, MOBroadbandNow has begun production on several new products that display speed across Missouri. In addition to the previously proposed maps of ONLY Maximum Advertised Download speed or Maximum Advertised Upload speed, MoBroadbandNow has also been able, thanks to tremendous effort on the part of GeoDecisions, to display broadband speed by provider footprint rather than by census block/road segment (Figure 5). This evolution in the mapping of broadband speeds is not only more accurate, but allows for easier comparison to the service footprint mapping products. In general, these new products have been very favorably received by Missouri citizens, legislators, and providers.



Missouri Broadband Data and Development Data Collection and Processing



Missouri broadband speed depicted using the NTIA standard of census blocks/road segments. Service is divided into speeds that meet the 3MBPS Down/1.5 MBPS Up threshold and speeds that do not.

Missouri broadband speed depicted using raw service footprints. Service is divided into speeds based on NTIA Maximum Advertised Download categories.

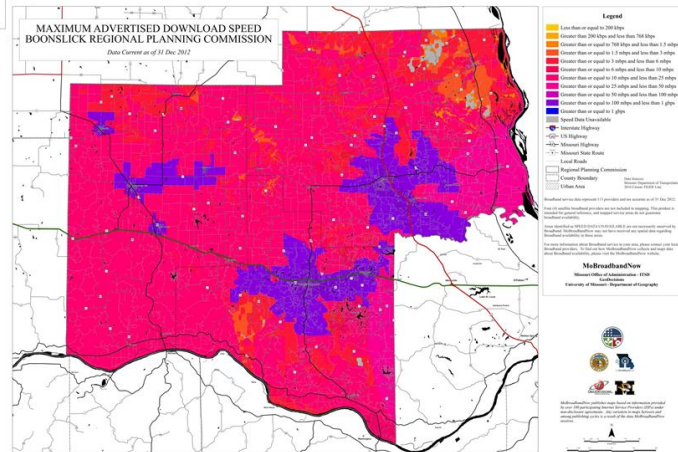


Figure 5: Side-by-Side Comparison of Broadband Speed Mapping Methods



22 Statistics

File Type	Number of Records
<i>Total Records in all Files</i>	588,524
Census Block < 2 sq. miles	473,637
Address-Level	Not Required
Street Segment	104,095
Wireless Shape File	107
BB Service Overview	682
Community Anchor Institution	8,840
Middle Mile	1,162
State Boundary	1
Metadata Provided for Geospatial Data	Yes
Number of ISP's Provided in Submission	132

Providers Completed	132
Pending Additional Data	13
Non-Responsive/Refused	34
Researching	87
Non-Facilities Based	138
Out of Business	14
TOTAL	418



Missouri Broadband Data and Development

Data Collection and Processing

Provider Name	Status	FRN	NDA Execution Date	Notes/Comments
Adams Networks, Inc.	Data Included in Missouri State Submission	0011616356	5/18/2010	No changes submitted for the tenth data call.
Air Link Rural Broadband, LLC	Data Included in Missouri State Submission	0020854725	Not Req'd by Provider	No changes submitted for the tenth data call.
Alma Communications Company	Data Included in Missouri State Submission	0007196207	5/18/2010	No changes submitted for the tenth data call.
Alsaf Wireless	Data Included in Missouri State Submission	0021067509	8/3/11	Tenth data call updates included.
Holway Telephone Company	Data Included in Missouri State Submission	0004746863	4/5/2010	No changes submitted for the tenth data call.
KLM Telephone Company	Data Included in Missouri State Submission	0003772274	4/5/2010	No changes submitted for the tenth data call.
N. W. Communications	Data Included in Missouri State Submission	0003772290	4/5/2010	No changes submitted for the tenth data call.
American Wireless Inc.	Data Included in Missouri State Submission	0021463336	Not Req'd by Provider	No changes submitted for the tenth data call.
AT&T Corp.	Data Included in Missouri State Submission	0004496774	4/7/2010	No changes submitted for the tenth data call.
AT&T Mobility, LLC.	Data Included in Missouri State Submission	0004979233	4/7/2010	Tenth data call updates included.
AT&T Southwest	Data Included in Missouri State Submission	0016657918	4/7/2010	Tenth data call updates included.
Arch Fiber Networks	Data Included in Missouri State Submission	0000000000	Not Req'd by Provider	No changes submitted for the tenth data call.
Bay's Internet	Data Included in Missouri State Submission	0018912576	Not Req'd by Provider	No changes submitted for the tenth data call.
Big River Telephone, LLC	Data Included in Missouri State Submission	0018520320	Not Req'd by Provider	Tenth data call updates included.
BlueBird Network, LLC.	Data Included in Missouri State Submission	0018995944	Not Req'd by Provider	No changes submitted for the tenth data call.
Blue Mule Wireless	Data Included in Missouri State Submission	0023291297	Not Req'd by Provider	No changes submitted for the tenth data call.
Boycom Cablevision, Inc.	Data Included in Missouri State Submission	0007630791	Not Req'd by Provider	No changes submitted for the tenth data call.
Boycom Cablevision, Inc. - Partel Broadband Telecom Inc.	Data Included in Missouri State Submission	0020795449	Not Req'd by Provider	No changes submitted for the tenth data call.
Cable One, Inc.	Data Included in Missouri State Submission	0003474327	4/5/2010	No changes submitted for the tenth data call.
Cable America Missouri, LLC	Data Included in Missouri State Submission	0015466766	6/10/2010	No changes submitted for the tenth data call.
Carthage Water & Electric	Data Included in Missouri State Submission	0007147143	Not Req'd by Provider	No changes submitted for the tenth data call.
Suddenlink Communications - Cebridge	Data Included in Missouri State Submission	0014367650	6/12/2010	Tenth data call updates included.
Suddenlink Communications - Friendship Cable	Data Included in Missouri State Submission	0004999025	6/12/2010	Tenth data call updates included.
Suddenlink Communications - Cequel III Communications II	Data Included in Missouri State Submission	0009725870	6/12/2010	No changes submitted for the tenth data call.
Suddenlink Communications - NPG Cable, Inc.	Data Included in Missouri State Submission	0002508687	Not Req'd by Provider	Tenth data call updates included.
CenturyLink	Data Included in Missouri State Submission	0018626853	4/20/2010	Tenth data call updates included.
Chariton Valley Telephone Corporation	Data Included in Missouri State Submission	0002549392	5/26/2010	No changes submitted for the tenth data call.
Chariton Valley Telecom Corporation	Data Included in Missouri State Submission	0008437147	5/26/2010	No changes submitted for the tenth data call.
Charter Communications	Data Included in Missouri State Submission	0017179383	6/10/2010	Tenth data call updates included.
Citizens Telephone Company of Higginsville Missouri	Data Included in Missouri State Submission	0002504298	4/5/2010	No changes submitted for the tenth data call.
Citizens Communications Corporation	Data Included in Missouri State Submission	0006074470	Not Req'd by Provider	No changes submitted for the tenth data call.
City of Kennett - City Light Gas & Water Office	Data included in Missouri State Submission	0002513240	Not Req'd by Provider	No changes submitted for the tenth data call.
LINKCity	Data Included in Missouri State Submission	0016051450	Not Req'd by Provider	No changes submitted for the tenth data call.
City Utilities Springfield (SpringNet)	Data Included in Missouri State Submission	0004759411	3/23/2011	No changes submitted for the tenth data call.
Cogent Communications, Inc.	Data Included in Missouri State Submission	0019898303	Not Req'd by Provider	No changes submitted for the tenth data call.
Comcast	Data Included in Missouri State Submission	0004441663	5/27/2010	Tenth data call updates included.
Co-Mo Comm, Inc. (Co-Mo Connect)	Data Included in Missouri State Submission	0021854278	Not Req'd by Provider	Tenth data call updates included.
CTC Wireless Internet	Data Included in Missouri State Submission	0017137431	Not Req'd by Provider	No changes submitted for the tenth data call.
Megapath Corporation	Data Included in Missouri State Submission	0003753753	5/18/2010	Tenth data call updates included.
Wireless Investments, LLC. (Easy Net)	Data Included in Missouri State Submission	0020526265	Not Req'd by Provider	No changes submitted for the tenth data call.
Craw-Kan Telephone	Data Included in Missouri State Submission	0002334225	4/5/2010	No changes submitted for the tenth data call.
T-Mobile	Data Included in Missouri State Submission	0006945950	5/4/2010	Tenth data call updates included.
Ellington Telephone Company	Data Included in Missouri State Submission	0003741956	4/5/2010	No changes submitted for the tenth data call.
FairPoint Communications Missouri, Inc.	Data Included in Missouri State Submission	0014710388	9/1/2010	Tenth data call updates included.
FairPoint Kearney	Data Included in Missouri State Submission	0004969697	9/1/2010	Tenth data call updates included.
Farber Telephone Company	Data Included in Missouri State Submission	0003748043	4/5/2010	No changes submitted for the tenth data call.
BPS Telephone Company	Data Included in Missouri State Submission	0003730835	4/5/2010	No changes submitted for the tenth data call.
BPS Networks	Data Included in Missouri State Submission	0016026965	4/5/2010	No changes submitted for the tenth data call.
Brown Dog Networks	Data Included in Missouri State Submission	0009254095	Not Req'd by Provider	No changes submitted for the tenth data call.
Fidelity Cablevision, Inc.	Data Included in Missouri State Submission	0000013326	4/5/2010	Tenth data call updates included.
Fidelity Communications Services I, Inc.	Data Included in Missouri State Submission	0004351722	4/5/2010	Tenth data call updates included.
Fidelity Telephone Company	Data Included in Missouri State Submission	0002550309	4/5/2010	Tenth data call updates included.
Granby Telephone Company	Data Included in Missouri State Submission	0005061189	4/5/2010	Tenth data call updates included.
Grand River Mutual Telephone Corp.	Data Included in Missouri State Submission	0002505519	4/7/2010	No changes submitted for the tenth data call.
Green Hills Technologies	Data Included in Missouri State Submission	0003736246	4/5/2010	No changes submitted for the tenth data call.
Green Hills Telephone ILEC	Data Included in Missouri State Submission	0003736238	4/5/2010	No changes submitted for the tenth data call.
Green Hills Telecommunications Services	Data Included in Missouri State Submission	0003736253	4/5/2010	No changes submitted for the tenth data call.
Google Fiber	Data included in Missouri State Submission	0022069793	1/27/2014	No changes submitted for the tenth data call.
Haug Communications, Inc.	Data Included in Missouri State Submission	0004711735	Not Req'd by Provider	No changes submitted for the tenth data call.
Hughes Network Systems, LLC	Data Included in Missouri State Submission	0017434911	Not Req'd by Provider	No changes submitted for the tenth data call.
IAMO Telephone Company	Data Included in Missouri State Submission	0014067565	Not Req'd by Provider	No changes submitted for the tenth data call.
IAMO Wireless	Data Included in Missouri State Submission	0014067565	Not Req'd by Provider	No changes submitted for the tenth data call.
Invisalink	Data Included in Missouri State Submission	0021350251	Not Req'd by Provider	No changes submitted for the tenth data call.
KC Coyote - Isotech	Data Included in Missouri State Submission	0014669097	Not Req'd by Provider	No changes submitted for the tenth data call.
KTIS (Kingdom Telephone Company)	Data Included in Missouri State Submission	0002212314	4/5/2010	No changes submitted for the tenth data call.
Cricket Communications, Inc. (Leap Wireless International)	Data Included in Missouri State Submission	0002963528	4/20/2010	Tenth data call updates included.
Le-Ru Telephone Co.	Data Included in Missouri State Submission	0002490472	4/7/2010	No changes submitted for the tenth data call.
Level 3 Communications, LLC	Data Included in Missouri State Submission	0003723822	4/27/2010	Tenth data call updates included.
LTO Communications, LLC	Data Included in Missouri State Submission	0019008036	Not Req'd by Provider	No changes submitted for the tenth data call.
Lexsar Solutions, Inc.	Data Included in Missouri State Submission	0020217709	Not Req'd by Provider	No changes submitted for the tenth data call.
Mark Twain Communications Company	Data Included in Missouri State Submission	0002531879	4/5/2010	Tenth data call updates included.
Mark Twain Rural Telephone Co	Data Included in Missouri State Submission	0002549228	4/5/2010	No changes submitted for the tenth data call.
Marshall Municipal Utilities	Data Included in Missouri State Submission	0002487908	Not Req'd by Provider	Tenth data call updates included.
McDonald County Telephone Co	Data Included in Missouri State Submission	0002504058	4/5/2010	No changes submitted for the tenth data call.
MCM Systems, LLC	Data Included in Missouri State Submission	0010662484	Not Req'd by Provider	No changes submitted for the tenth data call.
MCC Missouri LLC (Mediacom)	Data Included in Missouri State Submission	0005184247	9/1/2010	Tenth data call updates included.



Missouri Broadband Data and Development

Data Collection and Processing

Mid States Services, LLC.	Data Included in Missouri State Submission	0018511303	5/26/2010	No changes submitted for the tenth data call.
Missouri Wi-Fi	Data Included in Missouri State Submission	0020235024	Not Req'd by Provider	No changes submitted for the tenth data call.
MyChoice Network LLC	Data Included in Missouri State Submission	0000000000	Not Req'd by Provider	No changes submitted for the tenth data call.
New Florence Telephone Company, Inc.	Data Included in Missouri State Submission	0004374047	4/5/2010	No changes submitted for the tenth data call.
Northeast Missouri Rural Telephone Company	Data Included in Missouri State Submission	0004337044	4/20/2010	Tenth data call updates included.
Northwest Missouri Cellular	Data Included in Missouri State Submission	0002534618	Not Req'd by Provider	Tenth data call updates included.
Oregon Farmers Mutual Telephone Company	Data Included in Missouri State Submission	0003733847	4/5/2010	No changes submitted for the tenth data call.
New Wave Communications	Data Included in Missouri State Submission	0001202938	Not Req'd by Provider	No changes submitted for the tenth data call.
Iland Internet Services	Data Included in Missouri State Submission	0017606898	Not Req'd by Provider	No changes submitted for the tenth data call.
Otelco Mid Missouri LLC	Data Included in Missouri State Submission	0002509040	4/5/2010	No changes submitted for the tenth data call.
Ozark Computers	Data Included in Missouri State Submission	0018658179	Not Req'd by Provider	No changes submitted for the tenth data call.
Peace Valley Telephone Co., Inc.	Data Included in Missouri State Submission	0018539742	4/5/2010	No changes submitted for the tenth data call.
Poplar Bluff, City of	Data Included in Missouri State Submission	0002514529	Not Req'd by Provider	No changes submitted for the tenth data call.
ProTronics Technologies, Inc.	Data Included in Missouri State Submission	0010790061	Not Req'd by Provider	No changes submitted for the tenth data call.
Radio Wire, Inc.	Data Included in Missouri State Submission	0018912626	Not Req'd by Provider	No changes submitted for the tenth data call.
Ralls Technologies (Ralls County Electric Cooperative)	Data Included in Missouri State Submission	0018539916	Not Req'd by Provider	Tenth data call updates included.
Midwest Data Center – Subsidiary of Rock Port Telephone	Data Included in Missouri State Submission	0004362505	4/7/2010	No changes submitted for the tenth data call.
Rock Port Cablevision	Data Included in Missouri State Submission	0004362505	4/7/2010	No changes submitted for the tenth data call.
Rural iNet	Data Included in Missouri State Submission	0018914366	Not Req'd by Provider	No changes submitted for the tenth data call.
Goodman Telephone Company, Inc.	Data Included in Missouri State Submission	0004269775	4/12/2010	No changes submitted for the tenth data call.
Ozark Telephone Company	Data Included in Missouri State Submission	0004269817	4/12/2010	No changes submitted for the tenth data call.
Seneca Telephone Company	Data Included in Missouri State Submission	0004269809	4/12/2010	No changes submitted for the tenth data call.
Sho-Me Technologies, LLC	Data Included in Missouri State Submission	0008875890	1/27/2014	No changes submitted for the tenth data call.
Skycasters	Data Included in Missouri State Submission	0018756155	Not Req'd by Provider	No changes submitted for the tenth data call.
Socket Telecom, LLC	Data Included in Missouri State Submission	0008515595	7/31/2014	Tenth data call updates included.
Sprint Nextel Corporation	Data Included in Missouri State Submission	0003774593	6/11/2010	Tenth data call updates included.
StarBand Communications Inc.	Data Included in Missouri State Submission	0005087457	4/5/2010	No changes submitted for the tenth data call.
Steelville Telephone Exchange Inc.	Data Included in Missouri State Submission	0002549665	4/5/2010	No changes submitted for the tenth data call.
Stouffer Communications	Data Included in Missouri State Submission	0006716666	Not Req'd by Provider	New provider for the tenth data call.
STL WiMax	Data Included in Missouri State Submission	0023311285	Not Req'd by Provider	No changes submitted for the tenth data call.
Miller Telephone Company	Data Included in Missouri State Submission	0004269528	4/5/2010	No changes submitted for the tenth data call.
TDS Telecommunications Corporation – Stoutland	Data Included in Missouri State Submission	0002502243	4/26/2010	Tenth data call updates included.
TDS Telecommunications Corporation – New London	Data Included in Missouri State Submission	0002529733	4/26/2010	Tenth data call updates included.
TDS Telecommunications Corporation – Orchard Farm	Data Included in Missouri State Submission	0003767340	4/26/2010	Tenth data call updates included.
Thunderbolt Broadband Co.	Data Included in Missouri State Submission	0000000000	Not Req'd by Provider	No changes submitted for the tenth data call.
Time Warner Cable	Data Included in Missouri State Submission	0013430244	6/21/2010	Tenth data call updates included.
Total Highspeed Internet Service	Data Included in Missouri State Submission	0017633405	Not Req'd by Provider	Tenth data call updates included.
Townes Tele-Comm, Inc. – Choctaw Telephone Company	Data Included in Missouri State Submission	0004928792	Not Req'd by Provider	No changes submitted for the tenth data call.
Townes Tele-Comm, Inc. – MoKan Dial, Inc.	Data Included in Missouri State Submission	0004928750	Not Req'd by Provider	No changes submitted for the tenth data call.
tw telecom	Data Included in Missouri State Submission	0017348061	4/27/2010	Tenth data call updates included.
United Services, Inc. (United Sky Wireless)	Data Included in Missouri State Submission	0016087876	4/5/2010	No changes submitted for the tenth data call.
Ulink LLC	Data Included in Missouri State Submission	0020090627	Not Req'd by Provider	No changes submitted for the tenth data call.
Valnet	Data Included in Missouri State Submission	0020841573	Not Req'd by Provider	No changes submitted for the tenth data call.
Verizon Wireless – Cellco Partnership	Data Included in Missouri State Submission	0003290673	5/26/2010 & 7/19/2012	Tenth data call updates included.
ViaSat Communications	Data Included in Missouri State Submission	0007843766	5/4/2010	No changes submitted for the tenth data call.
Windstream Iowa Communications, Inc.	Data Included in Missouri State Submission	0019527837	Not Req'd by Provider	Tenth data call updates included.
Windstream Missouri, Inc.	Data Included in Missouri State Submission	0014400220	6/10/2010	Tenth data call updates included.
Wyerless, LLC	Data Included in Missouri State Submission	0018150599	Not Req'd by Provider	Tenth data call updates included.
YHTI	Data Included in Missouri State Submission	0014205504	4/5/2010	No changes submitted for the tenth data call.
Lathrop Telephone Company	Data Included in Missouri State Submission	0003737376	4/7/2010	No changes submitted for the tenth data call.
United States Cellular Corporation	Data Included in Missouri State Submission	0004372322	8/21/2010	No changes submitted for the tenth data call.
Video Direct Satellite & Entertainment	Data Included in Missouri State Submission	0021009246	Not Req'd by Provider	No changes submitted for the tenth data call.
WIFI Midwest, Inc.	Data Included in Missouri State Submission	0018247908	Not Req'd by Provider	No changes submitted for the tenth data call.
Wisper ISP Inc.	Data Included in Missouri State Submission	0016278970	Not Req'd by Provider	No changes submitted for the tenth data call.
Zayo Group	Data Included in Missouri State Submission	0016555849	4/27/2010	No changes submitted for the tenth data call.
Zito Media	Data Included in Missouri State Submission	0000000000	Not Req'd by Provider	No changes submitted for the tenth data call.
Wave internet	Partial Data Received – Still Collecting Data	0018678110	In Progress	Not ready to be submitted yet.
Blue Sky Technologies	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
BSC Net	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
Full Stream Wireless	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
HBE Internet	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
Internet Associates	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
ICG Networks	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
Jaguar Technologies	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
KC Web Internet Services, LLC	Compiling Data – No Data Submitted	0011513751	Not Req'd by Provider	No source data received to date.
Splash Wireless	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
Superhighway 36	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
TRAIN	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
Tranquility Internet	Compiling Data – No Data Submitted	Unknown	Not Req'd by Provider	No source data received to date.
AccuBak Data Systems, Inc.	Non-Responsive	0018543744	Unknown	No source data received to date.
Airdis Telecom	Non-Responsive	Unknown	Unknown	
Aptitude Internet	Non-Responsive	Unknown	Unknown	
ICG Networks	Non-Responsive	Unknown	Unknown	Emails and Phone go unanswered
Iowa Telecommunications Services, Inc.	Non-Responsive	0003911385	Unknown	
Mo-Ark Communications – (Wasp Wireless)	Non-Responsive	0004376919	Unknown	NDA Sent
Battles Xtreme Network	Non-Responsive	Unknown	Unknown	
CorpraNet	Non-Responsive	Unknown	Unknown	NDA Sent
Cox Communications	Non-Responsive	Unknown	Unknown	NDA Sent
Homestead Heartland Electronics	Non-Responsive	Unknown	Unknown	



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Integrity Wireless	Non-Responsive	Unknown	Unknown	
Intellilink Wireless	Non-Responsive	Unknown	Unknown	
KC Web Internet Services LLC	Non-Responsive	Unknown	Unknown	
KEI Internet Service	Non-Responsive	Unknown	Unknown	
True Broadband Networks	Non-Responsive	Unknown	Unknown	No answer at phone numbers and e-mails kick-back
Provincial Cable Data	Non-Responsive	Unknown	Unknown	
Enventis Telecom Inc.	Non-Responsive	0008394322	Unknown	NDA Sent
Dexter Broadband	Non-Responsive	Unknown	Unknown	Phones disconnected and e-mails are unanswered
St Joe Wireless	Non-Responsive	0002545929	Unknown	Attempting to make initial contact.
Finally Broadband, LLC.	Non-Responsive	0018976456	Unknown	
First Cable of MO (Mississippi Valley)	Non-Responsive	Unknown	Unknown	
Galactic Broadband	Non-Responsive	Unknown	Unknown	No contact information found
SES Americom	Non-Responsive	Unknown	Unknown	Attempting to make initial contact.
SureWest Kansas, LLC – Everest Midwest LLC	Non-Responsive	0004069035	Unknown	
Verizon Business Global LLC dba Verizon Business	Non-Responsive	0010856284	Unknown	Submitted data with wireless company only.
Momentum	Non-Responsive	Unknown	Unknown	
Mid Missouri Broadband & Cable LLC	Non-Responsive	Unknown	Unknown	
Ritter Cable Corporation	Non-Responsive	0014054449	Unknown	
St Louis Broadband	Refused to Participate	Unknown	NA	Does not see benefit
Birch Telecom of Missouri, Inc.	Refused to Participate	0003732294	NA	Refuse to sign NDA or participate
Ionex Communications, Inc.	Refused to Participate	0005027453	NA	Refuse to sign NDA or participate - Birch Communications
Pixius Communications	Refused to Participate	0010480176	NA	Refuse to sign NDA or participate at this time
Poplar Bluff Internet, Inc (SEMO)	Refused to Participate	0013662408	NA	Refuse to sign NDA or participate at this time
Semo Communications Inc.	Refused to Participate	0003788775	NA	Poplar Bluff Internet - refuse to sign NDA or participate at this time
1 st 2U Media	Researching To Determine If Broadband Provider	Unknown	Unknown	
Little River Cable and Woodall Wireless	Researching To Determine If Broadband Provider	Unknown	Unknown	
ASDE Computer Services	Researching To Determine If Broadband Provider	Unknown	Unknown	
A+ Technology	Researching To Determine If Broadband Provider	Unknown	Unknown	
BCS Computers	Researching To Determine If Broadband Provider	Unknown	Unknown	
Cass County	Researching To Determine If Broadband Provider	Unknown	Unknown	
CCI Link	Researching To Determine If Broadband Provider	Unknown	Unknown	
CompNet ISP	Researching To Determine If Broadband Provider	Unknown	Unknown	
CopperNet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Fidelity Communication Services II, Inc.	Researching To Determine If Broadband Provider	0005918503	4/5/2010	Researching inclusion with other Fidelity Provider submissions.
Fidelity Networks, Inc.	Researching To Determine If Broadband Provider	0004312963	4/5/2010	Researching inclusion with other Fidelity Provider submissions.
Excel Telecommunications – SureWest	Researching To Determine If Broadband Provider	Unknown	4/12/2010	
TDS Metrocom	Researching To Determine If Broadband Provider	Unknown	4/26/2010	Researching inclusion with other TDS Provider submissions.
TDS Missouri	Researching To Determine If Broadband Provider	Unknown	4/26/2010	Researching inclusion with other TDS Provider submissions.
Telephone and Data Systems	Researching To Determine If Broadband Provider	Unknown	4/26/2010	Researching inclusion with other TDS Provider submissions.
Aurora Communications, Inc.	Researching To Determine If Broadband Provider	0015696180	4/5/2010	Researching inclusion with other YHTI Provider submissions.
Full Stream Wireless	Researching To Determine If Broadband Provider	Unknown	Unknown	
Broadview Networks Holdings, Inc.	Researching To Determine If Broadband Provider	0010296853	Unknown	
Broadwing Communications, LLC	Researching To Determine If Broadband Provider	0008599706	4/27/2010	Researching inclusion with other Level 3 Provider submission
Centratel	Researching To Determine If Broadband Provider	Unknown	Unknown	
Quicbet	Researching To Determine If Broadband Provider	Unknown	Unknown	
WiTel Communications, LLC.	Researching To Determine If Broadband Provider	0003716511	4/27/2010	Researching inclusion with other Level 3 Provider submission
AT&T Services, Inc.	Researching To Determine If Broadband Provider	0008644056	4/7/2010	Researching inclusion with other AT&T Provider submission.
Advanced Digital LLC	Researching To Determine If Broadband Provider	Unknown	Unknown	
BMU Internet	Researching To Determine If Broadband Provider	Unknown	Unknown	
CelDrill	Researching To Determine If Broadband Provider	Unknown	Unknown	
CSMCS	Researching To Determine If Broadband Provider	Unknown	Unknown	
Computer Magic Internet LLC	Researching To Determine If Broadband Provider	Unknown	Unknown	
DNG Electronics	Researching To Determine If Broadband Provider	Unknown	Unknown	
Eagle Network	Researching To Determine If Broadband Provider	Unknown	Unknown	
EldonPC	Researching To Determine If Broadband Provider	Unknown	Unknown	
Extreme	Researching To Determine If Broadband Provider	Unknown	Unknown	
Green City Electric Utility	Researching To Determine If Broadband Provider	Unknown	Unknown	
Human Span	Researching To Determine If Broadband Provider	Unknown	Unknown	
Homestead	Researching To Determine If Broadband Provider	Unknown	Unknown	
Horizon	Researching To Determine If Broadband Provider	Unknown	Unknown	
Howard Electric	Researching To Determine If Broadband Provider	Unknown	Unknown	
Insight Cable	Researching To Determine If Broadband Provider	Unknown	Unknown	
iZones	Researching To Determine If Broadband Provider	Unknown	Unknown	
Jaytec	Researching To Determine If Broadband Provider	Unknown	Unknown	
Jobe Internet Services	Researching To Determine If Broadband Provider	Unknown	Unknown	
Joplin Computers	Researching To Determine If Broadband Provider	Unknown	Unknown	
Keno Telephone	Researching To Determine If Broadband Provider	Unknown	Unknown	
KYA	Researching To Determine If Broadband Provider	Unknown	Unknown	
First Financial Group	Researching To Determine If Broadband Provider	Unknown	Unknown	
Lake View Broadband	Researching To Determine If Broadband Provider	Unknown	Unknown	
Linkdalink LLC	Researching To Determine If Broadband Provider	Unknown	Unknown	
LocalNet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Mailaka	Researching To Determine If Broadband Provider	Unknown	Unknown	
MCM System Wireless	Researching To Determine If Broadband Provider	Unknown	Unknown	
MHE Net	Researching To Determine If Broadband Provider	Unknown	Unknown	
Midwest Internet Technologies (MITI)	Researching To Determine If Broadband Provider	Unknown	Unknown	
Midwest Telecommunications	Researching To Determine If Broadband Provider	Unknown	Unknown	
Microtek Solutions	Researching To Determine If Broadband Provider	Unknown	Unknown	
Mist Valley	Researching To Determine If Broadband Provider	Unknown	Unknown	



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Momentum	Researching To Determine If Broadband Provider	Unknown	Unknown	
MoreNet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Murlin Computer	Researching To Determine If Broadband Provider	Unknown	Unknown	
NetGear	Researching To Determine If Broadband Provider	Unknown	Unknown	
NetZero	Researching To Determine If Broadband Provider	Unknown	Unknown	
NightOwl	Researching To Determine If Broadband Provider	Unknown	Unknown	
North Missouri Internet Services	Researching To Determine If Broadband Provider	Unknown	Unknown	
North West	Researching To Determine If Broadband Provider	Unknown	Unknown	
Optimum Cablevision	Researching To Determine If Broadband Provider	0003301363	Unknown	
Quixnet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Pacific Wireless Internet	Researching To Determine If Broadband Provider	0018044297	Unknown	
Positech	Researching To Determine If Broadband Provider	Unknown	Unknown	
Primary Networks	Researching To Determine If Broadband Provider	Unknown	Unknown	
Regis	Researching To Determine If Broadband Provider	Unknown	Unknown	
Sikeston Internet	Researching To Determine If Broadband Provider	0018375808	Unknown	
Skitter	Researching To Determine If Broadband Provider	Unknown	Unknown	
Straight Talk	Researching To Determine If Broadband Provider	Unknown	Unknown	
Superior Cable	Researching To Determine If Broadband Provider	Unknown	Unknown	
Team Orb	Researching To Determine If Broadband Provider	Unknown	Unknown	
Tiger Tech	Researching To Determine If Broadband Provider	Unknown	Unknown	
Trendnet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Tri-Lakes Internet	Researching To Determine If Broadband Provider	Unknown	Unknown	
Turbo Net	Researching To Determine If Broadband Provider	Unknown	Unknown	
Utopian Wireless Corporation	Researching To Determine If Broadband Provider	Unknown	Unknown	
United Electric	Researching To Determine If Broadband Provider	Unknown	Unknown	
United Fiber	Researching To Determine If Broadband Provider	Unknown	Unknown	
Vaughn's Computer Central	Researching To Determine If Broadband Provider	0019846674	Unknown	
Virgin Mobile	Researching To Determine If Broadband Provider	Unknown	Unknown	
Virson	Researching To Determine If Broadband Provider	Unknown	Unknown	
Wave Internet Technologies LLC	Researching To Determine If Broadband Provider	0020090023	Unknown	
Wireless USA	Researching To Determine If Broadband Provider	Unknown	Unknown	
Wish	Researching To Determine If Broadband Provider	Unknown	Unknown	
Access US	Not Facilities Based	Unknown	NA	
Advanced Digital LLC	Not Facilities Based	Unknown	NA	
Aero-Surf Wireless Internet	Not Facilities Based	Unknown	NA	
Almega Cable	Not Facilities Based	Unknown	NA	
Aurora Communications, Inc.	Not Facilities Based	Unknown	NA	
Board of Municipal Utilities	Not Facilities Based	0016073389	NA	Discontinued offering service
Business Systems Connection	Not Facilities Based	Unknown	NA	
Buzz Broadband	Not Facilities Based	Unknown	NA	
Cass County	Not Facilities Based	Unknown	NA	
CDSINET LLC	Not Facilities Based	Unknown	NA	
McLeodUSA Telecommunications Services, Inc. (PaeTec)	Not Facilities Based	0003716073	NA	
XO Communications, LLC	Not Facilities Based	0006275945	NA	
Telnet Worldwide	Not Facilities Based	Unknown	NA	
Terre Star	Not Facilities Based	Unknown	NA	
TMC Communications	Not Facilities Based	Unknown	NA	
TracFone	Not Facilities Based	Unknown	NA	
Sofnet	Not Facilities Based	Unknown	NA	
Clear Communications, Inc.	Not Facilities Based	Unknown	NA	Equipment seller
Superfone Inc.	Not Facilities Based	0008402202	NA	
Tritel	Not Facilities Based	Unknown	NA	
Missouri Broadband	Not Facilities Based	Unknown	NA	
Mobilcom Pittsburg, Inc.	Not Facilities Based	0002324465	NA	
PneumaTek	Not Facilities Based	Unknown	NA	Not responding to email
City of Newburg	Not Facilities Based	Unknown	NA	
Qwest Communications Company, LLC	Not Facilities Based	0003605953	NA	
South Holt Cablevision	Not Facilities Based	Unknown	NA	Offer Internet through Oregon Farmers Mutual Telephone Co
ADC	Not Facilities Based	Unknown	NA	
Adva Optical Networking North America, Inc.	Not Facilities Based	Unknown	NA	
AFL Communications	Not Facilities Based	Unknown	NA	
Aircell	Not Facilities Based	Unknown	NA	
Air Wave Communications	Not Facilities Based	Unknown	NA	
Airespring, Inc.	Not Facilities Based	0006875322	NA	
Aicon Internet Services	Not Facilities Based	Unknown	NA	
ANPI	Not Facilities Based	Unknown	NA	
Arch Communications	Not Facilities Based	Unknown	NA	
Atlantis Holdings LLC	Not Facilities Based	0018587402	NA	
Bick Group	Not Facilities Based	Unknown	NA	
Bluegrass Cellular	Not Facilities Based	Unknown	NA	
Boost Mobile	Not Facilities Based	Unknown	NA	
Broadband National	Not Facilities Based	Unknown	NA	
BullsEye Telecom, Inc.	Not Facilities Based	0004350930	NA	
Cellular one	Not Facilities Based	Unknown	NA	
Central Communications Internet Services	Not Facilities Based	Unknown	NA	
CHR Solutions	Not Facilities Based	Unknown	NA	
Charles Industries	Not Facilities Based	Unknown	NA	
Chillicothe Municipal Utilities	Not Facilities Based	0004192225	NA	
City of Newburg	Not Facilities Based	Unknown	NA	



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City Wide Web	Not Facilities Based	Unknown	NA	
Cooperative Communications, Inc.	Not Facilities Based	Unknown	NA	
Commenco	Not Facilities Based	Unknown	NA	
CompNet ISP	Not Facilities Based	Unknown	NA	
Curt's Custom Cable	Not Facilities Based	Unknown	NA	
Crystal Broadband	Not Facilities Based	Unknown	NA	
DeSoto ISP	Not Facilities Based	Unknown	NA	
Dexter Broadband	Not Facilities Based	Unknown	NA	
Digital Landing	Not Facilities Based	Unknown	NA	
DirectTV	Not Facilities Based	Unknown	NA	
DSL Extreme	Not Facilities Based	Unknown	NA	
Earthlink	Not Facilities Based	Unknown	NA	
Extel	Not Facilities Based	Unknown	NA	
Excel Telecommunications	Not Facilities Based	Unknown	NA	
Falcon Cablevision	Not Facilities Based	Unknown	NA	
Fiber Net Communications	Not Facilities Based	Unknown	NA	
Freedom Communications	Not Facilities Based	Unknown	NA	
Galactic Broadband	Not Facilities Based	Unknown	NA	
Global Crossing North America, Inc.	Not Facilities Based	Unknown	NA	
GlobalNet	Not Facilities Based	Unknown	NA	
Golden State Cellular	Not Facilities Based	Unknown	NA	
Granite Telecommunications	Not Facilities Based	Unknown	NA	
Green City Electric Utility	Not Facilities Based	Unknown	NA	
Hickory Tech Corporation	Not Facilities Based	Unknown	NA	
Human Span	Not Facilities Based	Unknown	NA	
Illinois Valley Cellular	Not Facilities Based	Unknown	NA	
Innovative Systems	Not Facilities Based	Unknown	NA	
Insight Cablevision	Not Facilities Based	Unknown	NA	
Interglobe Communications, Inc.	Not Facilities Based	0005156229	NA	
Inter-Linc	Not Facilities Based	Unknown	NA	
Iowa Telecom	Not Facilities Based	Unknown	NA	
I-Zones	Not Facilities Based	Unknown	NA	
Jitterbug	Not Facilities Based	Unknown	NA	
Jobe Internet Services	Not Facilities Based	Unknown	NA	
Keno Telephone	Not Facilities Based	Unknown	NA	
Knoxy.net	Not Facilities Based	Unknown	NA	
LightEdge Solutions, Inc.	Not Facilities Based	0015546443	NA	
Link Technologies	Not Facilities Based	Unknown	NA	
Logix Communications	Not Facilities Based	Unknown	NA	
Longview Cable and Data LLC	Not Facilities Based	Unknown	NA	
Metropolitan Telecommunications Holding Company	Not Facilities Based	0009806019	NA	
MHE Net	Not Facilities Based	Unknown	NA	
Mid America Computer Corporation	Not Facilities Based	Unknown	NA	
Midwest Telecommunications	Not Facilities Based	Unknown	NA	
Mist Valley	Not Facilities Based	Unknown	NA	
Mercury Communications	Not Facilities Based	Unknown	NA	
Mohave Wireless	Not Facilities Based	Unknown	NA	
Momentum	Not Facilities Based	Unknown	NA	
MoreNet	Not Facilities Based	Unknown	NA	
My Insight	Not Facilities Based	Unknown	NA	
Netlogic, Inc.	Not Facilities Based	0006825954	NA	
New Edge Holding Company	Not Facilities Based	0003720471	NA	
Nex-Tech Wireless	Not Facilities Based	Unknown	NA	
Night Owl	Not Facilities Based	Unknown	NA	
Nortel Solutions	Not Facilities Based	Unknown	NA	
North Missouri Internet Services	Not Facilities Based	Unknown	NA	
Open Range	Not Facilities Based	Unknown	NA	
OFS	Not Facilities Based	Unknown	NA	
Optimum Cablevision	Not Facilities Based	Unknown	NA	
Pacific Wireless	Not Facilities Based	Unknown	NA	
Preferred Long Distance	Not Facilities Based	Unknown	NA	
Protel	Not Facilities Based	Unknown	NA	
Pulse Broadband	Not Facilities Based	Unknown	NA	Reseller for Ralls Tech.
Quantum	Not Facilities Based	Unknown	NA	
Regis	Not Facilities Based	Unknown	NA	
Rural Wireless	Not Facilities Based	Unknown	NA	
Safe-T Net	Not Facilities Based	Unknown	NA	
Saint Peters Internet Service	Not Facilities Based	Unknown	NA	
SES American	Not Facilities Based	Unknown	NA	
SkyTerra Communications	Not Facilities Based	Unknown	NA	
SkyWay USA	Not Facilities Based	Unknown	NA	
Spirit Telecom	Not Facilities Based	Unknown	NA	
STL Broadband	Not Facilities Based	Unknown	NA	
Stutler Technologies Corp	Not Facilities Based	Unknown	NA	
Tablerock Net	Not Facilities Based	Unknown	NA	
TCO Network, Inc.	Not Facilities Based	Unknown	NA	
TCS Telecom, Inc.	Not Facilities Based	Unknown	NA	
Telecommunications Management LLC	Not Facilities Based	Unknown	NA	
Telefonica Data Corp SA	Not Facilities Based	0018547828	NA	



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Tellabs	Not Facilities Based	Unknown	NA	
Toast.Net	Not Facilities Based	Unknown	NA	
Tower Internet	Not Facilities Based	0016267189	NA	
Vonage	Not Facilities Based	Unknown	NA	
World Communications Center	Not Facilities Based	Unknown	NA	
Worldcom Broadband Solutions	Not Facilities Based	Unknown	NA	
WSI	Not Facilities Based	Unknown	NA	
YourTel America Inc.	Not Facilities Based	Unknown	NA	
Zing Broadband	Not Facilities Based	Unknown	NA	
Zone Telecom, Inc.	Not Facilities Based	Unknown	NA	
Wireless USA	Not Facilities Based	Unknown	NA	
WestLink	Not Facilities Based	Unknown	NA	
Aero-Surf Wireless Internet	Out of Business	Unknown	NA	Appear to be out of business
Almega Cable	Out of Business	Unknown	NA	Phone number no longer in service. Out of business?
Lindalink LLC	Out of Business	Unknown	NA	Appear to be out of business
Longview Cable and Data, LLC.	Out of Business	0013948609	NA	Sold off Assets
Falcon Cablevision	Out of Business	Unknown	NA	Acquired by Charter
Total Wireless Communications	Out of Business	0018726729	NA	Acquired by Total Highspeed Internet Services
Missouri Network Alliance	Out of Business	0015540669	NA	Acquired by BlueBird Network
NuVox, Inc.	Out of Business	0004319414	NA	Acquired by Windstream
Worldcom Broadband Solutions	Out of Business	Unknown	NA	
Global Crossing Telecommunications, Inc.	Out of Business	0002850519	NA	
Sikeston Board of Municipal Utilities	Out of Business	0016073389	NA	
US Cable	Out of Business	Unknown	NA	MO subscribers sold to Charter
Clearwire	Out of Business	0019995628	NA	Acquired by Sprint
Windjammer Communications LLC	Out of Business	0017915182	NA	Acquired by Zito Media



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 6: 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 7: 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:

Company:

GeoDecisions, a Division of Gannett Fleming, Inc.:

By: _____
(Authorized Signature)

By: _____
(Authorized Signature)

Name: _____

Name: _____

Title: _____

Title: _____

**State of Missouri, Office of Administration,
Information Technology and Services Division:**

By: _____
(Authorized Signature)

Name: _____

Title: _____

The Curators of the University of Missouri:

By: _____
(Authorized Signature)

Name: _____

Title: _____

CBG Communications, Inc.

By: _____
(Authorized Signature)

Name: _____

Title: _____

Figure 8: Standard NDA pg 3