

**Nebraska Public Service Commission
Broadband Methodology Paper**

October 1, 2011

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1.0 Provider Outreach

1.1 Mapping Participants

Apex and the Nebraska Public Service Commission (NPSC) began the mapping project by collecting contact information for providers listed on the FCC's 477 data base and from Nebraska certificated and rural local exchange carriers, communications providers (internet service providers, cellular, fixed, and mobile wireless) that had registered with the NPSC and other potential providers thought to be in the State of Nebraska. The total number of potential internet service providers (ISPs) on the original combined list was 283. Using various research methods (telephone calls, web searches, crowd source) 159 names were identified as either a subsidiary of an ISP already on the list or did not provide internet access service at that time.

Non-disclosure agreements (NDAs) were sent to 124 potential ISPs. In reviewing the NDA information some ISPs determined that they did not meet the broadband speed qualification standard by the National Telecommunication and Information Administration (NTIA) or did not return the NDA. Two ISPs refused to participate in the mapping program. The NE_DataPackage_2011_10_01.xls file in the NE_SBDD_2011_10_01 data submittal provides a current list of ISPs and their status. The NPSC staff and Apex continue to be engaged in ongoing outreach activities to encouraging ISPs to participate and identify new ISPs.

1.2 Non-disclosure Agreement (NDA) Process

The NDA process was completed for most providers during the first quarter of 2010. Prior to that time, Apex developed a standard NDA to be used in this project. Broadband providers were made aware of the NDA through a series of emails and reminder emails, workshops and individual calls to contact persons. Most providers used the standard NDA. However, a few of the providers requested minor changes in the standard NDA. Those changes were accepted whenever possible. In a limited number of instances, several iterations of changes were negotiated. Providers and Apex were able to agree on the final NDA.

NDAs will be executed with new ISPs as they are identified.

2.0 Data Collection

2.1 Data Input

2.1.1 First and Second Round

In the first round a data input template in an Excel spreadsheet format was developed by Apex and given to ISPs for use in the data submission. The template was based on the appendix to the NTIA Notice of Funds Available (NOFA) as amended by the NOFA clarification. The template included the following worksheets associated with the State Broadband Data and Development (SBDD) Grant Program Data transfer deliverable:

- a. BB_Service_Address
- b. BB_ConnectionPoint_MiddleMile
- c. BB_Service_CensusBlock
- d. BB_Service_RoadSegment
- e. BB_Service_Wireless
- f. BB_Service_Wireless_Antenna
- g. BB_ConnectionPoint_LastMile
- h. BB_Service_Overview
- i. BB_Service_CAInstitutions

The wireless worksheet included information requested by the NOFA and information required to generate the propagation patterns for wireless service areas.

In the first round data collection, Apex experienced numerous occasions where Information Service Provider (ISPs) submitted data that was incorrect or insufficient.

In the second round the NPSC, selected ISPs based on geographic coverage and willingness to work with the NPSC to improve the data collection process.

These efforts included on-site meetings with the staff of the ISPs to explain in detail the overall mapping process, sharing of the specific data requirements of the NOFA, examining the results of the first round of data collection, and identifying issues that contributed to difficulties in data collection, submission, and presentation.

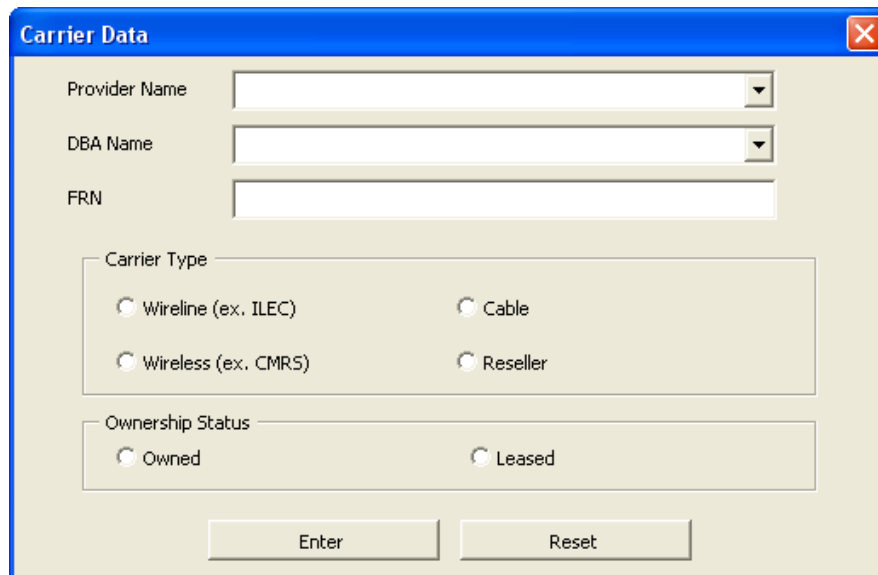
2.1.2 Third Round

After the one-on-one meetings with the selected ISPs in Round 2, the NPSC perceived a need for a more simplified, user-friendly, and standardized method for ISPs to provide the required data in the allowed Microsoft Excel format. Consequently, the NPSC began development of a sophisticated, user friendly, method to allow ISPs the ability to provide broadband data in a standardized, validated format. The DIM was implemented for the third round of data collection.

The DIM provides a uniform method of data entry; minimize the repetitive entry of company specific data, while performing real-time validation of submitted data. The DIM is a robust mechanism, developed in Microsoft Excel, on a Windows platform, with all supporting modules residing in a Visual Basic environment.

The DIM provides for three operations; manual record input, with field verification, import of an entire dataset, with field verification and error logging, and export of a verified dataset to be submitted to the NPSC.

To facilitate these operations, DIM users are guided through an interactive menu environment. Initial menus allow for entry of Provider Name and DBA Name unique pairs based on a dropdown list of predefined entities. The Federal Registration Number (FRN) associated with that unique pair is then populated as a function of the user's entries.¹ Finally, in order to enter the record input stage, an ISP must select the modality and ownership status of service for which broadband data is being provided.



Specific data requirements, also as a function of the user's selections, are then dynamically displayed and made available for entry. The data entry structure is demonstrated below.

Wireline / Cable Carriers

Alternative I

Required Tabs

¹ The NPSC requires all ISPs have an FCC Federal Registration Number (FRN) to submit data, ensuring all data and DBAs are appropriately assigned. The DIM allows the NPSC to manage this requirement as, absent the existence of a valid FRN, an ISP is unable to enter the data entry portion of the DIM. The NPSC enacted this requirement to ensure knowledge of any new ISP entering the Nebraska market, prior to its providing broadband data.

BB_SERVICE_ADDRESS
BB_SERVICE_OVERVIEW
BB_CONNECTIONPOINT_MIDDLEMILE

Optional Tabs

BB_CONNECTIONPOINT_LASTMILE
BB_SERVICE_CAINSTITUTION

Alternative II

Required Tabs

BB_SERVICE_CENSUSBLOCK
BB_SERVICE_ROADSEGMENT
BB_SERVICE_OVERVIEW
BB_CONNECTIONPOINT_MIDDLEMILE

Optional Tabs

BB_CONNECTIONPOINT_LASTMILE
BB_SERVICE_CAINSTITUTION

Wireless Carriers

Required

BB_SERVICE_WIRELESS
BB_SERVICE_OVERVIEW
BB_CONNECTIONPOINT_MIDDLEMILE

Verification Required

BB_WIRELESS_ANTENNA

Optional

BB_CONNECTIONPOINT_LASTMILE
BB_SERVICE_CAINSTITUTION

For each record in a worksheet, key fields are required to initiate and continue the data entry process. Each field is validated upon entry to ensure consistency and compliance with NTIA data model requirements.² Finally, once entry is complete, the ISP utilizes the DIM's export function and provides said results for submittal to the NPSC.

The data entry requirements inherent to the DIM's underlying validation result in a more uniform dataset for mapping purposes, ensuring a more accurate mapping process and effective mapping product. The project mapping vendor, California State University – Chico, found the use of the DIM in the third round of data collection created efficiencies not experienced in earlier rounds.

² To further facilitate the process, each data tab is color coded to indicate those datasets which are mandatory versus voluntary, as well as available help for each field.

The DIM's dynamic, forward-thinking, design gives the NPSC a priceless tool to utilize in its endeavors as it strives to provide an accurate picture of the landscape today, while maintaining focus in an ever-changing environment, on the visions of tomorrow.

2.1.3 Fourth Round

Based upon feedback from the ISPs and the fact that the project mapping vendor, California State University – Chico, found the use of the DIM in the third round of data collection had created efficiencies not experienced in earlier rounds, the DIM was upgraded for Round Four to implement the changes in data fields required by the NTIA.

When compared with previous rounds the Round 4 DIM reduced the amount of data that was being returned to ISPs and allowed the NPSC to provide a longer data submission window to the ISPs. Additional improvements to the DIM are being considered for future rounds of data collection.

2.2 Engage ISP Participants

2.2.1 Workshop

NPSC and Apex conducted a workshop prior to Round 3 data collection to explain how to use the DIM. This workshop was conducted in Lincoln, Nebraska, on October 7, 2010. ISPs that could not attend were able to participate via web based Live Meeting[®]

At the workshop NPSC discussed the data collection and mapping issues faced during the first two data submissions to the NTIA, the lessons learned, plans for the Third Round Data submission and how to use the data submission and review tools. Participants were provided a CD containing the DIM for use in collecting and submitting the next round of data to the Commission and the ESRI ArcReader tool for reviewing their data after processing and before submittal to the NTIA.

No additional workshops were conducted during Round 4 since there had not been any major changes in the method of data collection and the use of SharePoint for ISPs to submit data.

2.2.2 Teleconferences

The NPSC staff and Apex continued to provide “help-desk” service to the broadband providers through teleconferences. During the calls, the NSPC staff and Apex gave in depth guidance to provider questions regarding the DIM, alternative data submission templates and other inquiries from the providers regarding the Nebraska and NTIA projects. In each of these sessions the ISP was walked through the process of loading data into the DIM and submitting the data to Apex using the SharePoint Portal.

2.3 SharePoint Portal for Data and Map

Apex uses a SharePoint portal to collect data and distribute information to broadband providers. General information and announcements are available to all participating providers. In addition, each provider is assigned a unique password protected folder. The provider submits confidential data into the folder. Apex gathers the submitted data from the folders to begin the data processing procedures.

2.4 Data Scrub using DataSlave

During Round 3 data submission the NTIA SBDD data model requirements and python script (SBDD_CheckSubmission.py Version 1.0) checks were implemented in DataSlave. The Python source code was examined and reverse engineered into the DataSlave. ISP data submission in the DIM format was processed in DataSlave and fall outs were addressed with the individual providers.

With the improvements in the Round 4 DIM the DataSlave used in Round 3 was not needed but remains a tool available for future use if needed.

3.0 Community Anchor Institutions

3.1 Community Anchor Institutions (CAI)

The method used to collect data consisted of the NPSC sending emails and making telephone calls to specific groups that represent Community Anchor Institutions (CAI's) in Nebraska such as:

- Chief Information Officer for Nebraska
- Nebraska Hospital Association
- Nebraska Office of Rural Health
- Nebraska Library Commission
- Nebraska Information Technology Commission
- Catholic Health Initiatives and Network Nebraska

These entities provided information on the locations and contact information for hospitals, county health departments, libraries and schools including post-secondary institutions. Network Nebraska is tasked with implementing legislation designed to migrate the past distance learning environment to an IP based system which includes scheduling software. The NPSC is represented on the Network Nebraska steering committee known as the Collaborative Aggregation Partnership (CAP) and significant information on broadband service provided to schools was obtained from Network Nebraska data. ISP's have also provided CAI broadband information.

The primary focus of the NPSC on CAI data during Round 4 was the identification and collection of school and Library ID's. Programmatic efforts resulted in locating the ID numbers for 1,259 K-12 and secondary education schools and Library's. Manual methods will be used to locate the ID numbers for the remaining 481 K-12 and secondary education schools and Library's.

The collection of CAI broadband information requires extensive time and effort to send initial emails, follow-up emails and place telephone calls. The following analysis is a summary of the classification of CAI's contained in our data set:

Nebraska Round 3 CAI Data Analysis	
1 - School - K through 12	1,487
2 - Library	91
3 - Medical/healthcare	147
4 - Public safety	129
5 - University, college, other post-secondary	162
6 - Other community support - government	348
7 - Other community support - nongovernmental	134
TOTAL	2,498

4.0 Data Validation

Four validation techniques were developed and implemented for Round 3 data. First, a direct in-person survey was conducted by Edison Research (Appendix B). Second, Apex developed ProField Drive application to test the wireless signal coverage of major wireless broadband providers. Third, Apex conducted phone and mail survey of Nebraska residential customers. Finally Apex developed an online speed test, however as discussed below, this test was discontinued.

Validation Methods	Wireline	Wireless
ProField - Field Survey	x	x
Drive Test		x
Phone and Mail Survey	x	x
Online Speed Test	x	x

4.1 Edison's Sample Methodology Scope

The sample methodology for the Nebraska broadband study conforms to principles of probability sampling. That is, each census block has a known, and measurable, probability of being selected. Likewise, each household within a census block has a known selection probability. The population consists of all households in Nebraska. The sample frame is a list of all census blocks with households (as reported by the 2000 census) in Nebraska. For additional information on the sample methodology and survey refer to Appendix B.

Stratum	Sample Census Block Allocation	Percent of Households
1 – Douglas County	75	27.3%
2 – Cass, Lancaster, Sarpy counties	37	22.8%
3 – Medium Rural/Urban Area (17 counties)	97	24.7%
4 – Rural West (53 counties)	77	13.7%
5 – Rural East (18 counties)	57	11.1%
6 – Thurston County (Indian Reservation)	7	0.3%

The in-person survey was conducted in 597 Nebraska census blocks. The survey validated ISPs' supplied information that Broadband service was available in 583 (98%) of the survey census blocks. In the remaining 14 (2%) of the census blocks Edison was unable to determine if the offered service qualified as a Broadband service per NTIA's definition.

4.2 ProField Drive Test

Apex used two Nebraska residents to perform the Spectrum Drive Test. The hardware used included a laptop with 3 nationwide ISP data cards. (AT&T, Verizon and Sprint) and customized ProField software. The route was divided into two regions, Eastern and Western Nebraska. A total of over 3,000 road miles were covered during the drive test.

The ProField application cycles through each ISP card and captured the RSSI value and recorded to the database. The data was continuously uploaded to the Database Server. A chart of East and West routes along with the validation charts are contained in Appendix C.

The Spectrum drive test was conducted in 5,637 Nebraska census blocks. The drive test validated ISPs' (AT&T, Verizon and Sprint) supplied information that Broadband service was available in 5,287 (94%) of the census blocks. In the remaining 350 census blocks Apex was unable to determine if the offered service qualified as a Broadband service per NTIA's definition.

4.3 Mail and Phone Survey

Apex procured Nebraska resident data from US Data Corporation. Apex selected a random sample of residents. The sample was divided into two groups. The first group was called over a period of two weeks. The second group received the survey in the mail and was asked to complete the survey and return it in a pre-paid envelope.

The sample was selected to complement the in-person Edison survey and the planning survey. Census blocks already sampled by the Edison survey and the planning survey were excluded from the mail and phone survey.

Mail and phone survey questionnaire collected information that was similar to Edison's in-person survey.

The mail survey was sent to 3,003 Nebraska residents. A total of 506 residents responded to the survey, a response rate of 17%. Of the 506 residents, 445 had broadband service. The broadband customers resided in 433 unique census blocks. The responses indicated that 88% of the residential customers subscribed to a broadband service. The results validated ISPs' submitted data for census blocks with broadband service.³

The phone survey contacted 2,500 Nebraska residents in 293 unique census blocks. Broadband service was available in 63% of the census blocks. The results matched the ISPs' submitted data for the respective census blocks.

³ A mail survey conducted by the Nebraska Planning group (consisting of the University of Nebraska – Lincoln, Nebraska Information and Technology Commission, and the Nebraska Department of Economic Development) in February/March 2010 had a response rate of 47% and identified similar broadband availability. The complete results of this survey were filed with the NTIA program office in the NPSC quarterly report on July 30, 2010.

4.4 Online Speed Test

As a component of verification, the NPSC's vendor, Apex, initially established an Online Speed Test, requesting consumers perform a test to record the speed of their broadband connection. Data collected was to include geographical identifiers, upload and download speeds, and latency. Preliminary review of the testing methodology was conducted by Apex.

In addition to the online availability of the Apex speed test, the NPSC provided a disclaimer to participants noting, in part, the irregular variability inherent to measuring broadband speed availability at a given time, using a given hardware configuration. Further, the NPSC stated, while a speed test may give consumers information on relative speed, the test was not endorsed as a definitive testing method.

Irrespective, subsequent to implementation, the NPSC began fielding numerous complaints regarding the testing results from consumers and industry representatives alike. In an independent effort, the NPSC conducted a review of the testing methodology and determined the testing results to be inconsistent and unreliable. Results deviated significantly when compared to those obtained utilizing Speedtest.net, owned and operated by Ookla, and displayed significant variation across platforms. Further, the results obtained via the Apex Online Speed Test were not consistent with those reported by ISPs themselves.

As such, the NPSC determined it necessary to remove access to the Online Speed Test, rather than risk losing the trust and confidence of consumers and the support of the industry.

5.0 Map Processing

5.1 CSU – Chico (Appendix A) Map Processing

As a result of the improvements in the DIM for Round 4 data collection, new data process methodologies were used as described in the follow sections.

5.1.1 Address Submissions

Internet service providers submit address data in tabular format. Address records are geocoded to the street segment level using E911 reference data. Matched records are preserved as a geographic point layer. Records not meeting the minimum match requirements are selected and exported in tabular format. Non-matching records are run through a second geocoding process using a composite locator built on underlying TeleAtlas reference data. This secondary geocoding process produces match results at the street segment level where possible. Non-matching records are run through a third geocoding process using a composite locator built on underlying 2010 Tigerline reference data. This additional geocoding process produces match results at the street segment level where possible. If no qualifying street segment is found the locator will move to a secondary level of matching based on city/state. City/state matches are represented as a generalized center point of the geographic area considered to be included or related to any city, town, or community within the state. Street segment and city/state matches are preserved as a geographic point layer. The two geocoding match result layers are then merged to create a single geographic point layer representing all records within the submission that were able to be matched with confidence at any particular level. The attribute table of this layer is analyzed to produce a report of how many records were matched to each specific locator through both geocoding processes. The address point layer is then run through a spatial relation process against census block polygons in order to obtain the appropriate FIPS number for each address point location. All non-matching records are preserved in table format and returned to the provider for review.

Optionally, Internet service providers submit address data as longitude and latitude coordinate pairs in tabular format. Longitude and latitude coordinate pairs are plotted on the map and preserved as geographic point locations. This layer is then run through the same spatial relation process as the geocoded points to obtain the appropriate FIPS number for each address point location.

If a combination of address listings and longitude and latitude coordinate information is submitted, the data will be processed accordingly in respect to each data type and then combined upon output to create final address output layer.

5.1.2 Census Blocks from Address Submissions

Final address result layers are run through a spatial relation process against census block polygons. The resulting output is a polygon format representing all census blocks in which each geographic address point resides. All broadband specific attribution is propagated over to the census block polygons from the provider's final address point layer. Census block polygons are then reviewed in regards to their geographic area. Only those census block polygons that are less than two square miles in size are

preserved. All polygons that are greater than two square miles in size are removed. This process can result in duplicate stacked polygon in cases where multiple address points fell within the same census block polygon and have the same underlying characteristics in regards to broadband data attribution. Census block polygons are reviewed for duplicate records and filtered to preserve unique records only.

5.1.3 Street Segments from Address Submissions

Final address result layer is divided into multiple layers specific to technology of transmission and speed characteristics. Each unique class of address is run through spatial relation processes along with a street segment line layer to obtain a unique identifier for the nearest segment to each individual address point. Resulting output is address point features containing the unique identifier of the closest street segment attributed in the address layer's data table. A table join is executed appending the broadband characteristics of the address data to the street segments. The appropriate street segments are called out and preserved. An erase operation is then run using the provider's resulting census block polygon layer to remove any street segments that fall within service census blocks that are less than two square miles in area. All remaining street segments are preserved to represent service in areas where census blocks are greater than two square miles in area.

5.1.4 Census Block Submissions

Internet service providers submit census block data in tabular format. A table join is done using census block centroid points to append longitude and latitude coordinates to each record in the submitted census block table. Output is a standalone representing each census block submitted by the provider and now contains the longitude and latitude coordinates of a point within the relative census block. This information is used to plot coordinate pair events. The output is a point dataset representing each record submitted by the provider. This point layer is then run through a spatial relation process along with the census block polygons. Output is a polygon layer representing all submitted census block records for said provider. Census block polygons are reviewed for duplicate records and filtered to preserve unique records only.

5.1.5 Census Block Migration – 2000 to 2010 Vintage

Consistent with Round 3 many internet service providers submit census block data using vintage 2000 geography. The U.S. census delivered and supplied a crosswalk database to assist in migration of 2000 geography to the equivalent 2010 geography. Using this crosswalk a query table is created to properly cross reference FULLFIPSIDS between 2000 and 2010 census years. The output is a polygon layer representing all 2010 census blocks that are geographically equivalent to the submitted 2000 census block records for said provider. Census block polygons are reviewed for duplicate records and filtered to preserve unique records only.

5.1.6 Street Segment Submissions

Internet service providers submit street segment data by census block in tabular format. A spatial relation process is run using the submitted census block records to call out the specific census blocks in which a provider claims to have service. The appropriate street segments are called out via the census blocks reported, and preserved.

An erase operation is then run using the provider's resulting census block polygon layer to remove any street segments that fall within service census blocks that are less than two square miles in area. All remaining street segments are preserved to represent service in areas where census blocks are greater than two square miles in geographic area.

5.1.7 Street Segment Migration – 2000 to 2010

Consistent with Round 3, many internet service providers submit street segment data using vintage 2000 geography. A spatial relationship process is run using the submitted street segment geography to transfer provider data to all street segments within 50 feet. This is done to insure that all final output data is Tigerline 2010 street data. An erase operation is then run using the provider's resulting census block polygon layer to remove any street segments that fall within service census blocks that are less than two square miles in area. All remaining street segments are preserved to represent service in areas where census blocks are greater than two square miles in geographic area.

5.1.8 County Overview Submissions

Internet service providers submit county overview data in tabular format. A table join is done using county centroid points to append longitude and latitude coordinates to each record in the submitted census block table. Output is a standalone representing each county submitted by the provider and now contains the longitude and latitude coordinates of a point within the relative county. This information is used to plot coordinate pair events. The output is a point dataset representing each record submitted by the provider. This point layer is then run through a spatial relation process along with the county polygons. Output is a polygon layer representing all submitted county records for said provider. County polygons are reviewed for duplicate records and filtered to preserve unique records only.

5.1.9 Middle Mile Submissions

Internet service providers submit middle mile data as longitude and latitude coordinate pairs in tabular format. Longitude and latitude coordinate pairs are plotted on the map and preserved as geographic point locations. The middle mile point layer is then run through a spatial relation process against census block polygons in order to obtain the appropriate FIPS number for each middle mile point location.

5.1.10 Wireless Submissions

Providers who offer wireless service but could not submit a shapefile or geographic representation of their service area give tabular antenna information. Wireless antenna parameters are used to model a service area and shapefiles are created for each provider. The wireless propagation model is based on the Longley-Rice, Irregular Terrain propagation model. Individual unit specifications are used to measure performance based on frequency, transmit power, receiver sensitivity, antenna gain, and height. Signal coverage patterns are produced for each individual unit taking into account terrain and vegetation features that may hinder signal dispersion.

5.2 Provider Verification

During Rounds 2 and 3, broadband providers received static PDF maps which proved to be a less than adequate tool for the broadband providers to review the submitted data. . During Round 3, the project mapping partner produced a preliminary ESRI map file for each broadband provider. This changeover allowed the broadband providers to obtain a more focused and flexible mapping review product and therefore enhanced the confidence of the broadband providers in the mapping process. Apex and the NPSC staff helped the provider community obtain ESRI ArcReader and gave assistance to the providers in using the ESRI ArcReaders. The provider reviewed the map and either accepted the map or returned comments regarding any perceived inaccuracies. Apex, the NPSC staff and the provider discussed the comments and, when necessary, made corrections to the preliminary maps.

The use of the ArcReader maps revealed a problem with geocoding results. Too many locations were stacked at the centroid of a town or zip code rather than at the correct customer site. Apex and the NPSC staff engaged in a detailed analysis of this issue.

At the same time, the NPSC staff worked with selected providers in a one-on-one labor-intensive process comparing the submitted data tables to the preliminary maps. For locations that appeared problematic, the providers were able to collect additional information to improve the data table. In some instances, the additional information was acquired by driving past a customer location with GPS equipment to obtain the exact latitude and longitude of the customer. This improved data was entered into the data tables allowing CSU-Chico to revise the providers' maps.

ArcReader maps continued to be used in Round 4 as a provider verification tool.

6.0 Nebraska Matching Fund

6.1 E911 Data

The NPSC's implementation of enhanced wireless 911 throughout Nebraska required the arduous task of designing the framework to initiate, develop, and maintain the robust, and invaluable, GIS databases vital and necessary for the provision of enhanced wireless 911. These GIS databases are in a standard projection and include; street centerline, depicting all public roadways; railways; political boundaries, including city, township, and county; areas of interest, including parks, cemeteries, hazardous facilities, power plants and substations; water features; fire districts; ambulance districts; law enforcement districts; and emergency service boundaries.

Nebraska GIS data for all 93 counties, 77,358 square miles, has been developed and is continually maintained; all through funding support provided by the Nebraska Wireless E911 Fund. Nebraska data is housed within the NPSC's secure on-line statewide GIS Data Repository.

The NPSC utilized the data, developed through the Nebraska Wireless E911 Fund, to fulfill the matching requirements of the SBDD Grant Program.

Further, during the validation phase of the second round of data collection, the NPSC identified broadband unique field enhancements, when applied in addition to the existing E911 data, resulted in significant geocoding improvements in many rural areas of Nebraska served by smaller ISPs. The NPSC and the project mapping subcontractor worked extensively for several weeks to develop and implement these improvements prior to the third round of data collection. Sample geocoding results analyzed subsequent to completion of all enhancements, indicated an average record resolution increase of just over 51% in those rural areas.

The project mapping vendor, California State University – Chico, utilized the enhanced dataset to develop an Address Locator, unique to Nebraska, which is then used to geocode address data provided by ISPs and ultimately submit to the NTIA for the third round broadband data submission.

The NPSC will continue to utilize the E911 data resources for address processing and geospatial verification throughout the term of the SBDD Grant Program.

Appendix - A Mapping Project Partners

Apex CoVantage LLC

Apex CoVantage is a private, employee-owned company that has helped businesses to develop and execute information and knowledge strategies for more than two decades. Apex was a pioneer in offshore knowledge-based solutions and now has more than 2,500 employees in the US and abroad. Apex is known for developing and improving man-machine processes that optimally combine human creativity with machine processing efficiency, introducing transformative solutions that lead to quantum gains in efficiency.

Apex is recognized as one of the premier firms in its field, working for clients such as AT&T, Exelon, Baltimore Gas and Electric, Qwest, Silver Spring Networks, SMUD, Veridian Connections and more.

California State University (CSU)-Chico



The Geographical Information Center (GIC) at California State University, Chico was established in 1988 to introduce digital mapping and geographical information systems (GIS) technology to the Northern California region and to provide valuable on-the-job training and employment opportunities for our students. The Center's mission is both academic and service oriented. With numerous research opportunities available throughout California, the growth of the GIC has resulted in a renewed University commitment to strengthen ties to the Northern California region.

The GIC employs between 10 and 20 individuals. The staff includes professionals with extensive GIS training mentoring qualified graduates, student assistants and interns. The center runs its own intranet and is connected to the multi-campus CSU-Net, giving it state-of-the-art networking capability.

While the center's primary area of expertise is GIS technology, the GIC also has experience in digital orthophoto development, global positioning system (GPS) applications, computer cartography, image processing and air photo interpretation.

The GIC has the technical expertise to plan, develop, install, serve and maintain an agency's GIS. It uses ESRI GIS software and can develop a customized ArcGIS training workshop to meet an agency's needs. Because it is affiliated with California State University, Chico, it can draw specialized expertise from the academic community. The center's contracts are primarily with federal, state and local agencies, but it also serves a variety of private sector clients. Projects are equally split between urban and natural resource applications. Contracts are administered through the California State University, Chico Research Foundation.

Edison Research

Edison Research conducts market research and exit polling, providing strategic information for businesses and media organizations worldwide.

With an expertise in both quantitative and qualitative research, Edison works with many established corporations looking to keep their edge or expand, as well as young companies just starting to develop their businesses. Edison offers expertise in telephone, Internet and in-person research as well as focus groups and dial testing.

Edison Research has been the sole provider of exit poll information to the six major news organizations - ABC, CBS, CNN, FOX, NBC and the Associated Press - since 2003. Edison has conducted exit polls and collected precinct vote returns to project and analyze results for every major primary and the general election in 2004, 2006 and 2008.

Edison is also the leading provider of consumer exit polling and has conducted face-to-face research in almost every imaginable venue. Edison Research has conducted research at leisure locations (movie theaters, golf courses, health clubs, museums, cruise ships), transit locations (airports, subway stations, bus stations, truck stops, school buses, parking garages, gas stations), retail establishments (shopping malls, restaurants, stores), stadiums/arenas (concerts, sporting events), and many other locations including office buildings, conventions/conferences, and medical centers. Our network of more than 10,000 experienced interviewers allows us to conduct research in almost any location.

Another specialty for Edison is its work for radio stations throughout the world, conducting both strategic and music research for successful stations in North America, South America, Europe and Asia. Additionally, Edison conducts research for the U.S. Government's broadcasting ventures in the Middle East including "Radio Sawa" and "Radio Farda." This research is currently conducted weekly in Abu Dhabi, Egypt, Iraq, Jordan, Lebanon and Morocco.

Appendix - B

Strata Sample Methodology

An in person survey was conducted using personal digital assistants with customized software. The sample included four households or community anchor institutions in each selected census block. The initial phase included 1,400 in person's interviews.

Sample Design Overview

The sample design was a *stratified cluster sample*. The first layer consisted of six strata that encompassed the entirety of Nebraska. The second layer of the design consisted of a sample of 350 census blocks. These census blocks were referred to as the *primary sampling unit* (PSU). The third layer of the design was the household/community anchor. These locations are known as the *secondary sampling unit* (SSU), or observation unit.

Stratification

Six strata encompassing all of Nebraska were created for this sample design. These strata were created based on the relative rural/urban nature of the area, the cultural makeup of the area and the geographic region of the state. All strata boundaries follow county boundary lines.

These strata for Nebraska consist of:

1. Stratum 1 – Douglas County
2. Stratum 2 – Cass, Lancaster, Sarpy counties
3. Stratum 3 – Medium Rural/Urban Area – (17 counties)
4. Stratum 4 – Rural West – (53 counties)
5. Stratum 5 – Rural East – (18 counties)
6. Stratum 6 – Thurston County (Indian Reservation)

Of the sample of 350 census blocks, each strata were allocated a portion of the sample. The allocation was an optimal allocation procedure based on the racial makeup of each stratum. This means that the strata with greater racial variability will be allocated more census blocks than strata with less variability. Consequently, heterogeneous strata had more census blocks and homogeneous strata had fewer census blocks. This resulted in a more efficient use of the sample placing the census blocks where they were most needed. Stratification sample allocation and household distribution:

Stratum	Sample Census Block Allocation	Percent of Households
1 – Douglas County	75	27.3%
2 – Cass, Lancaster, Sarpy counties	37	22.8%
3 – Medium Rural/Urban Area (17 counties)	97	24.7%
4 – Rural West (53 counties)	77	13.7%
5 – Rural East (18 counties)	57	11.1%
6 – Thurston County (Indian Reservation)	7	0.3%

Primary Sampling Units – Census Blocks

The primary sampling units was the census block. These census blocks were nested within a given stratum. Each census block had a known probability of selection based on the number of households that exist within that census block. Every census block was contained within a county. Nebraska has many small census blocks where the number of completed interviews from households/community anchors was less than four (4). In this situation the interviewer was instructed to begin sampling at the nearest neighboring census block contained within the census block group of the sampled census block. They continued interviewing until four interviews are obtained. By keeping the interviewer within the census block group this ensured that interviews obtained outside the original sampled block were still within the same county and consequently the same stratum.

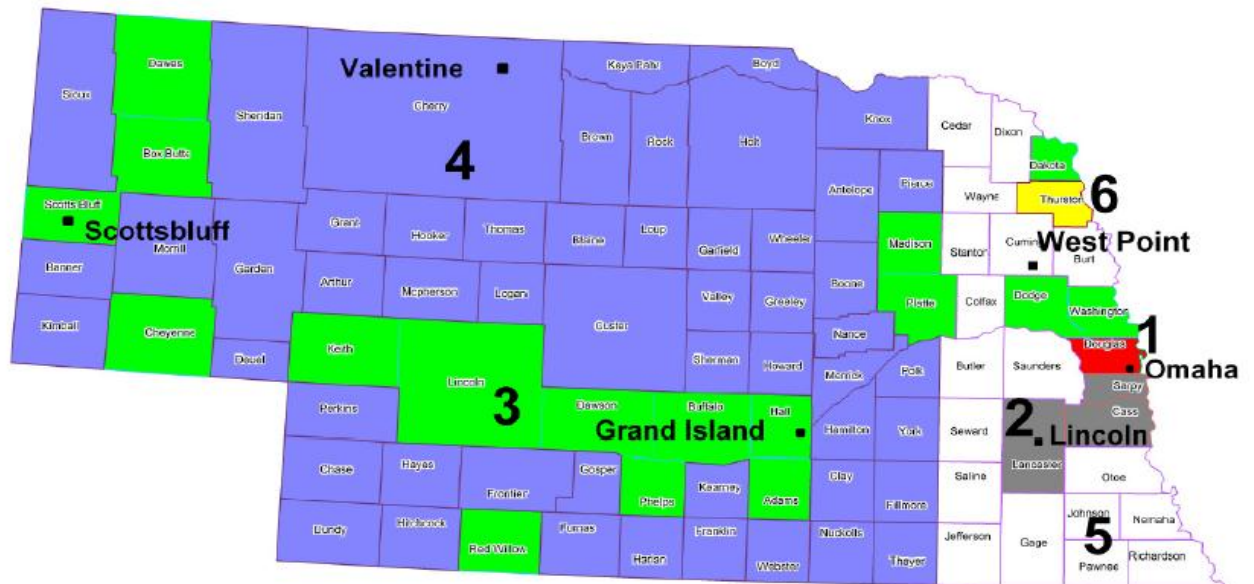
Secondary Sampling Units – Households/CAI

Secondary sampling units, households/community anchors, were selected systematically within a census block. Community anchor locations were not specifically targeted. However, they were included if they fell within the systematic selection. The interviewer was given a random starting point within the census block. The interviewer proceeded to follow their assigned path and interviewing rate until four (4) completed interviews were obtained.

Conclusion

This sampling plan resulted in a statistically valid sample. This sampling plan consisted of an initial sample of size 350 (up to 425 in the final sample). This resulted in a final anticipated statewide margin of error of (+/- 5%). A total of 1,400 households/community anchors were sampled. The results of this sample could be used for further estimation and extrapolation to other census blocks that were not part of the final sample.

Nebraska



Edison In-person Survey Questionnaire

1. Enter census block number (**DO NOT READ**): _ _ _ _
2. Code type of location (**DO NOT READ**)

Household (Use "household")	1	SKIP TO Q.4
Commercial Business (Use "business")	2	
Other location: _____ (Use "location")	3	SKIP TO Q.4
3. What type of business is this? (**RECORD EXACT RESPONSE**)

Don't Know/No Answer	9	
----------------------	---	--
4. Does this (**ANSWER FROM Q.2**) have Internet access? (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE IS AVAILABLE**)

Yes	1	CONTINUE
No	2	SKIP TO Q.10
Don't Know/No one available	9	TERMINATE
5. Which type of Internet access does this (**ANSWER FROM Q.2**) have? If you are not sure, let me know and I can describe the difference between the two. (**READ LIST**)

Dial-up	1	CODE Q.6 AS “DIAL-UP” & SKIP TO Q.10
Broadband	2	CODE Q.6 AS “BROADBAND” & SKIP TO Q.8
Both (DO NOT READ)	3	CODE Q.6 AS “BOTH” & SKIP TO Q.8
Don't Know/No Answer (DO NOT READ)	9	CONTINUE

6. Most people who access the Internet do so through dial-up or broadband. A dial-up connection is where your computer connects to the Internet using your telephone line.

A broadband connection usually uses a cable modem provided by your cable company or a service called DSL. Broadband connections access the Internet at much faster speeds than a dial-up connection, and allow you to always remain connected to the Internet.

Which of these two types of Internet connections does this (**ANSWER FROM Q.2**) have-- a dial-up connection or a broadband connection?

Dial-up	1	SKIP TO Q.8
Broadband	2	SKIP TO Q.8
Both (VOLUNTEERED)	3	SKIP TO Q.8
Don't Know/No Answer (DO NOT READ)	9	CONTINUE

7. Is there anyone else who might know whether or not this (**ANSWER FROM Q.2**) accesses the Internet through dial-up or broadband?

Yes, available	1	ASK FOR THAT PERSON, GO BACK TO Q.5
Yes, not available	2	THANK AND TERMINATE
No	3	THANK AND TERMINATE
Don't Know/No Answer	4	THANK AND TERMINATE

8. Who is the broadband Internet provider for this (**ANSWER FROM Q.2**)? (**READ LIST**) (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE IS AVAILABLE**)

Insert list of known service providers in the census block entered in Q.1
Other: _____ 98

Don't Know/No Answer (**DO NOT READ**) 99

9. Which type of broadband service does your Internet provider supply to this (**ANSWER FROM Q.2**)? (**READ LIST**) (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE IS AVAILABLE**)

Cable	1
DSL	2
Other: _____	3
Don't Know/No Answer (DO NOT READ)	9

10. Code gender (**DO NOT READ**)

Male	1
------	---

Female 2

11. Can you please tell me your age? (**RECORD EXACT RESPONSE**) _____

12. The last few questions are for classification purposes only. Which of the following best describes you? Are you...?

White	1
African-American	2
Asian	3
Or of some other background?	4
Refused/No Answer	9

13. Are you of Hispanic or Latino descent?

Yes	1
No	2
Refused/No Answer	9

IF Q.2 CODED "1", CONTINUE, OTHERWISE, SKIP TO NOTE ABOVE Q.17

14. What is the highest level of education achieved by ANYONE in this household? (**READ LIST**)

High school or less	1
One to three years of college	2
Four year college degree	3
Some graduate credits	4
Advanced degree such as MA, MBA or PhD	5
Don't Know/No Answer (DO NOT READ)	9

15. Including yourself, how many adults age 18 or older live in this household? (**RECORD EXACT RESPONSE**) _____

16. Is there anyone under the age of 18 living in this household?

Yes	1
No	2
Don't Know/No Answer	9

IF Q.6 CODED "1"/DIAL-UP, SKIP TO Q.18, OTHERWISE, CONTINUE

17. The state of Nebraska would also like to know how fast the broadband connection is in this (**ANSWER FROM Q.2**). Login to the Nebraska speed test web site, enter the ID number located on this postcard (**SHOW POSTCARD**) and it will automatically log your speed. No identifying information is captured on the speed test web site. This would be a great help and we would appreciate the additional effort.

UNIQUE ID NUMBER IS GENERATED

Enter the ID number on to the postcard. Hand it to the respondent. (**DO NOT READ**)

18. In case my supervisor needs to verify that I completed this interview, may I please have your first name? **(RECORD EXACT RESPONSE)** _____

Don't Know/No Answer 9

19. And may I have your phone number or email address? It will ONLY be used if my supervisor wants to verify any of the information in this interview. **(RECORD EXACT RESPONSE)**

Phone number (____) ____ - ____
E-mail address _____@_____._____

Don't Know/No Answer 9

20. Thank you for your time and cooperation!

21. Enter respondent's address. **(RECORD AFTER YOU HAVE COMPLETED THE INTERVIEW)**

Address 1: _____

Address 2: _____

City, State, Zip: Insert city, state and zip code as determined by the census block entered in Q.1

Mail Survey Questionnaire

Your response is important! Please fill out and promptly mail the Nebraska Broadband Mapping Survey. Results from these surveys will be used to map the availability of Broadband service for the ENTIRE STATE OF NEBRASKA. Without enough completed surveys, your community may not receive its fair share of government funding to support the build out of the Broadband network in Nebraska!

Please mark the appropriate answers to the survey questions below.

1. Do you have Internet access at your home?

☐ Yes (Continue) ☐ No (Skip to Question 5)

2. Which type of Internet access does your household have? (Mark all that apply)

☐ Dial-up (A dial-up connection is when you will not be able to receive a telephone call using the same telephone line that connects your computer to the Internet.)

☐ Broadband (A broadband connection usually uses a cable modem provided by your cable company or a service called DSL. Broadband connections access the Internet at much faster speeds than a dial-up connection, and allow you to always remain connected to the Internet.)

☐ Don't Know (Skip to Question 5)

3. Who is your broadband Internet provider?

4. Which type of broadband service does your Internet provider supply to your home?
(Mark all that apply)

- ☐ Cable ☐ DSL
☐ Satellite ☐ Other: _____ (specify)

5. Gender: ☐ Male ☐ Female

6. Please provide your exact age: _____

7. Are you...? (Mark all that apply)

- ☐ White ☐ African-American ☐ Asian
☐ Other background

8. Are you of Hispanic or Latino descent?

- ☐ Yes ☐ No

9. What is the highest level of education achieved by anyone in this household?

- ☐ High School or less
☐ One to three years of college
☐ Four year college degree
☐ Some graduate credits
☐ Advanced degree such as MA, MBA, or PhD

10. Including you, how many adults age 18 or older live in this household?

11. Is there anyone under the age of 18 living in this household?

- ☐ Yes ☐ No

The State of Nebraska would also like to know how fast your broadband connection is. Please go to the Nebraska Public Service Commission Web site at www.psc.nebraska.gov. Click on "Speed Test", enter your address and it will

automatically log your speed. No identifying information is captured. This would be a great help and we would appreciate the additional effort.

Thank you for your time and cooperation!

Phone Survey Questionnaire

Please use the script below for Nebraska Broadband Availability Mapping Survey.

1. Does your household have Internet access?
 - 1** _____ Yes **CONTINUE**
 - 2** _____ No **SKIP TO Q.5**
 - 9** _____ Don't Know (**DO NOT READ**) **SKIP TO Q.5**

- 2A. Which type of Internet access does your household have? If you are not sure, let me know and I can describe the difference between the two. (**READ LIST**) (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE MIGHT KNOW AND IS AVAILABLE**)
 - 1** _____ Dial-up **SKIP TO Q.5**
 - 2** _____ OR Broadband **SKIP TO Q.3**
 - 3** _____ Both (**DO NOT READ**) **SKIP TO Q.3**
 - 9** _____ Don't Know (**DO NOT READ**) **CONTINUE TO Q.2B**

- 2B. Most people who access the Internet do so through dial-up or broadband. A dial-up connection is when you will not be able to receive a telephone call using the same telephone line that connects your computer to the Internet.

A broadband connection usually uses a cable modem provided by your cable company or a service called DSL. Broadband connections access the Internet at much faster speeds than a dial-up connection, and allow you to always remain connected to the Internet.

Which of these two types of Internet connections do you have -- a dial-up connection or a broadband connection?

 - 1** _____ Dial-up **SKIP TO Q.5**
 - 2** _____ OR Broadband
 - 3** _____ Both (**DO NOT READ**)

3. Who is your broadband Internet provider? (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE MIGHT KNOW AND IS AVAILABLE**)

_____ **If it was left blank, leave the cell blank.**

9 _____ Don't Know/No Answer (**DO NOT READ**)

4. Which type of broadband service does your Internet provider supply to your home? (**PROBE: IF UNSURE, ASK IF SOMEONE ELSE MIGHT KNOW AND IS AVAILABLE**) (**ACCEPT MULTIPLE RESPONSES**)

1 _____ Cable

2 _____ DSL

3 _____ Satellite

4 _____ Other: _____ (**RECORD EXACT RESPONSE**)

5. Gender of the Resident answering the Survey (**DO NOT READ, BUT USE VOICE AND NAME TO RECORD GENDER**)

1 _____ Male

2 _____ Female

6. Can you please tell me your age? (**RECORD EXACT RESPONSE**) _____

NA _____ No Answer (**DO NOT READ**)

7. The last few questions are for classification purposes only. Which of the following best describes you? Are you...?

1 _____ White

2 _____ African-American

3 _____ Asian

4 _____ Other background

9 _____ No Answer (**DO NOT READ**)

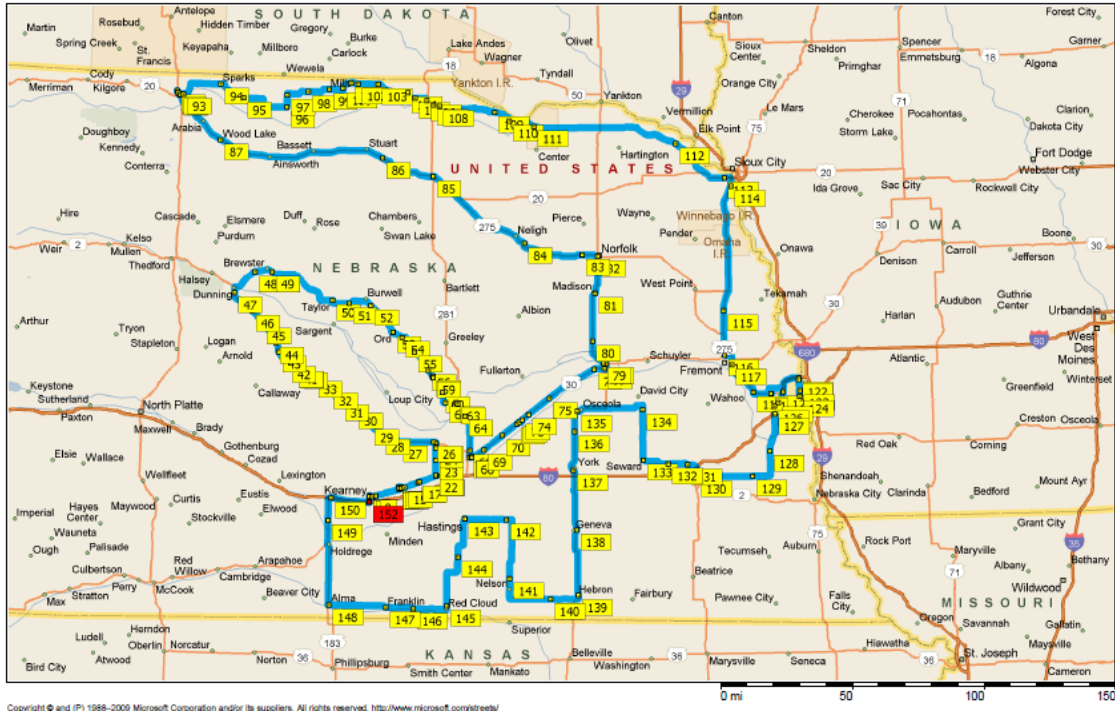
8. Are you of Hispanic or Latino descent?
- 1 _____ Yes
- 2 _____ No
- 9 _____ No Answer (**DO NOT READ**)
9. What is the highest level of education achieved by anyone in this household?
(ACCEPT MULTIPLE RESPONSES)
- 1 _____ High School or less
- 2 _____ One to three years of college
- 3 _____ Four year college degree
- 4 _____ Some graduate credits
- 5 _____ Advanced degree such as MA, MBA, or PhD
- 9 _____ No Answer (**DO NOT READ**)
10. Including yourself, how many adults age 18 or older live in this household?
(RECORD EXACT RESPONSE) _____
- NA _____ No Answer (**DO NOT READ**)
11. Is there anyone under the age of 18 living in this household?
- 1 _____ Yes
- 2 _____ No
- 9 _____ No Answer (**DO NOT READ**)
12. The State of Nebraska would also like to know how fast your broadband connection is. Go to the Nebraska Public Service Commission Web site at www.psc.nebraska.gov. Click on “Speed Test”, enter your address and it will automatically log your speed. No identifying information is captured. This would be a great help and NPSC would appreciate the additional effort.

Thank you for your time and cooperation!

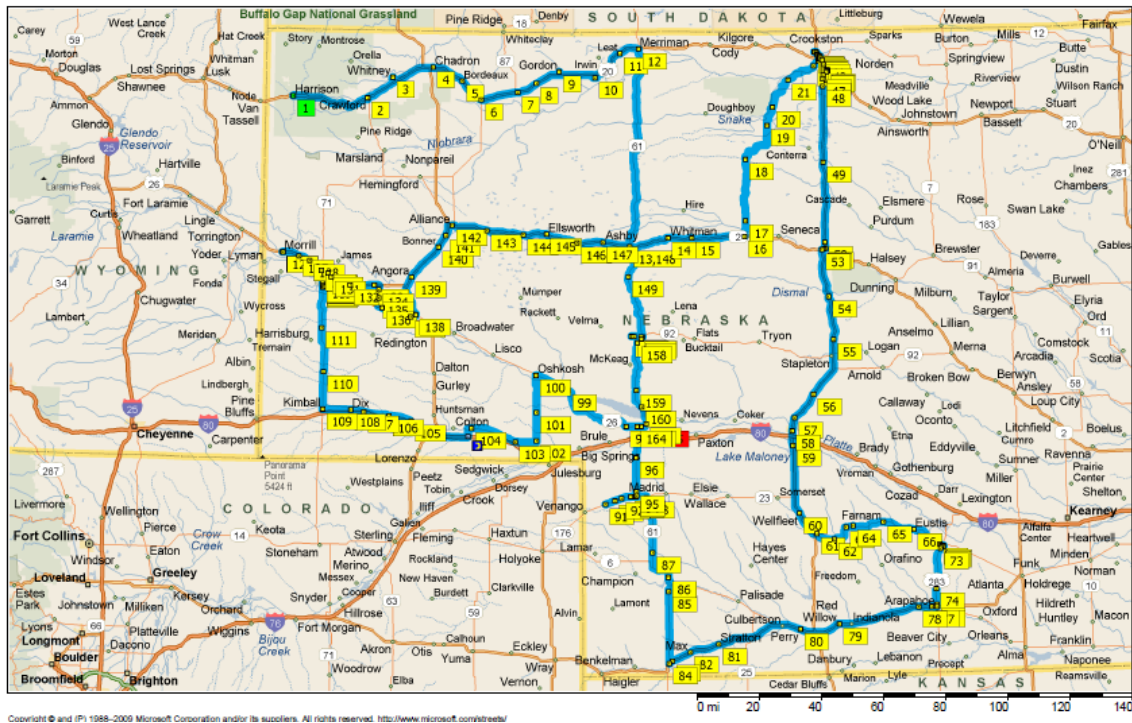
Appendix - C Spectrum Drive Test

ProField Drive Test

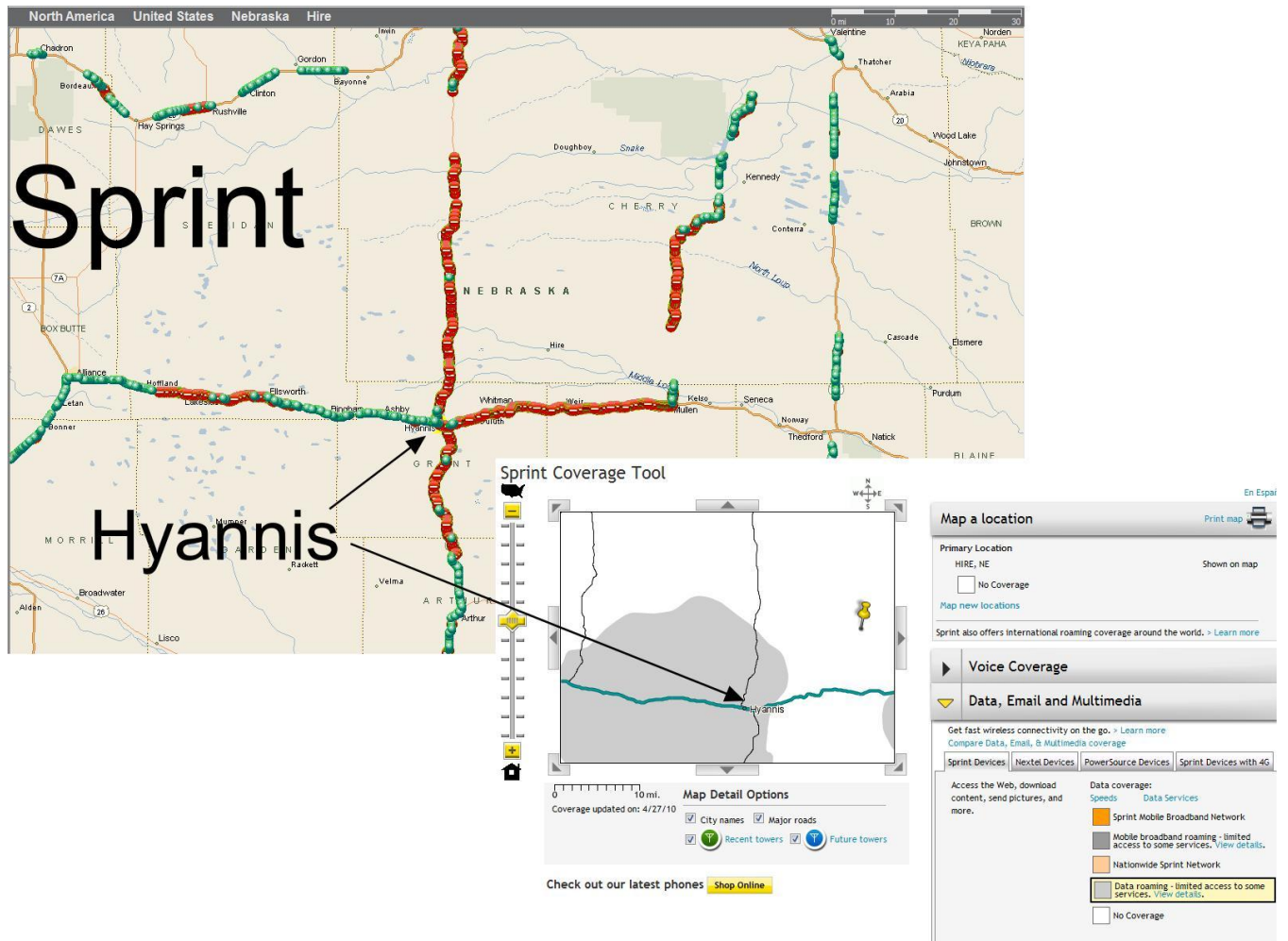
NE BB Eastern Route-2



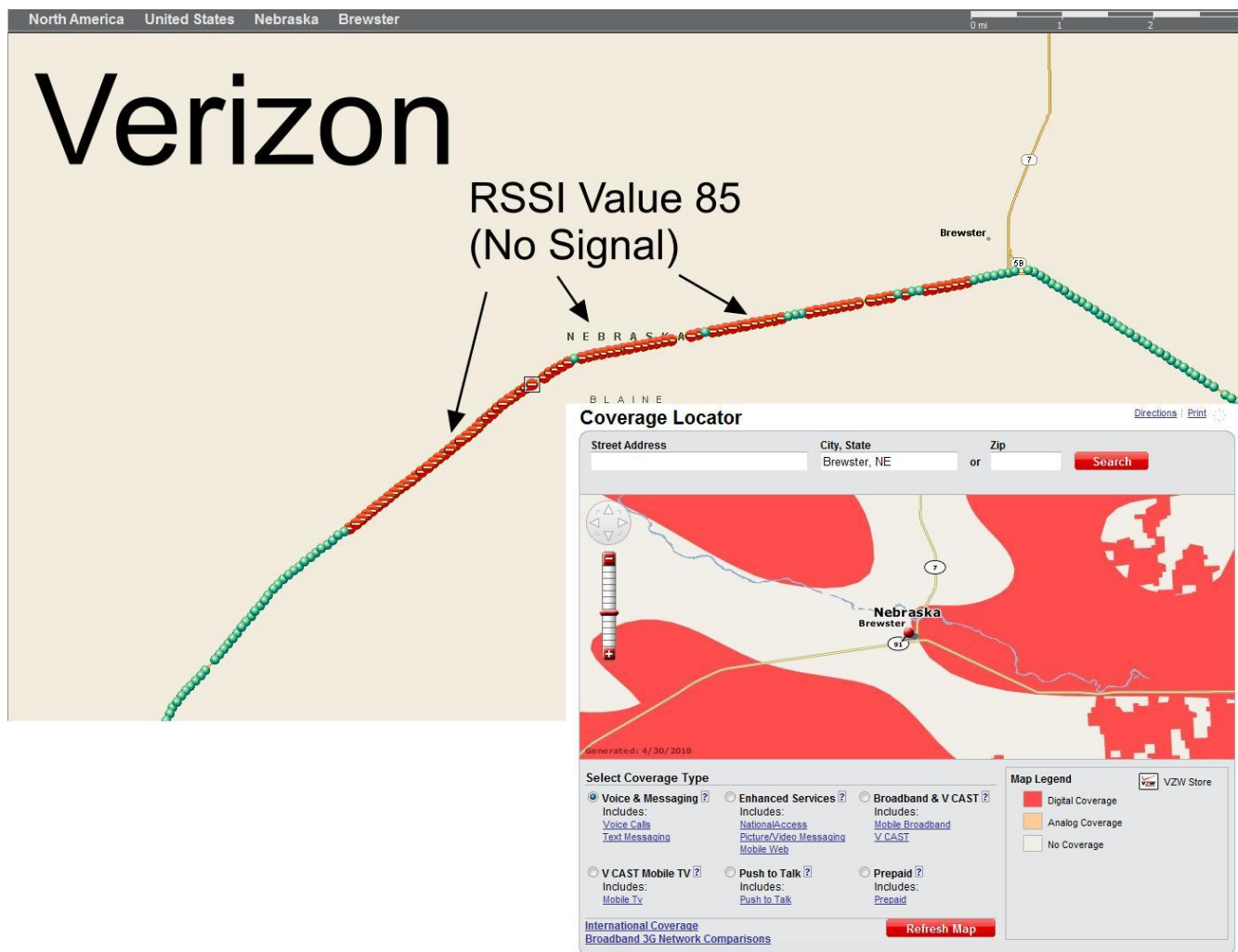
NE BB Western Route



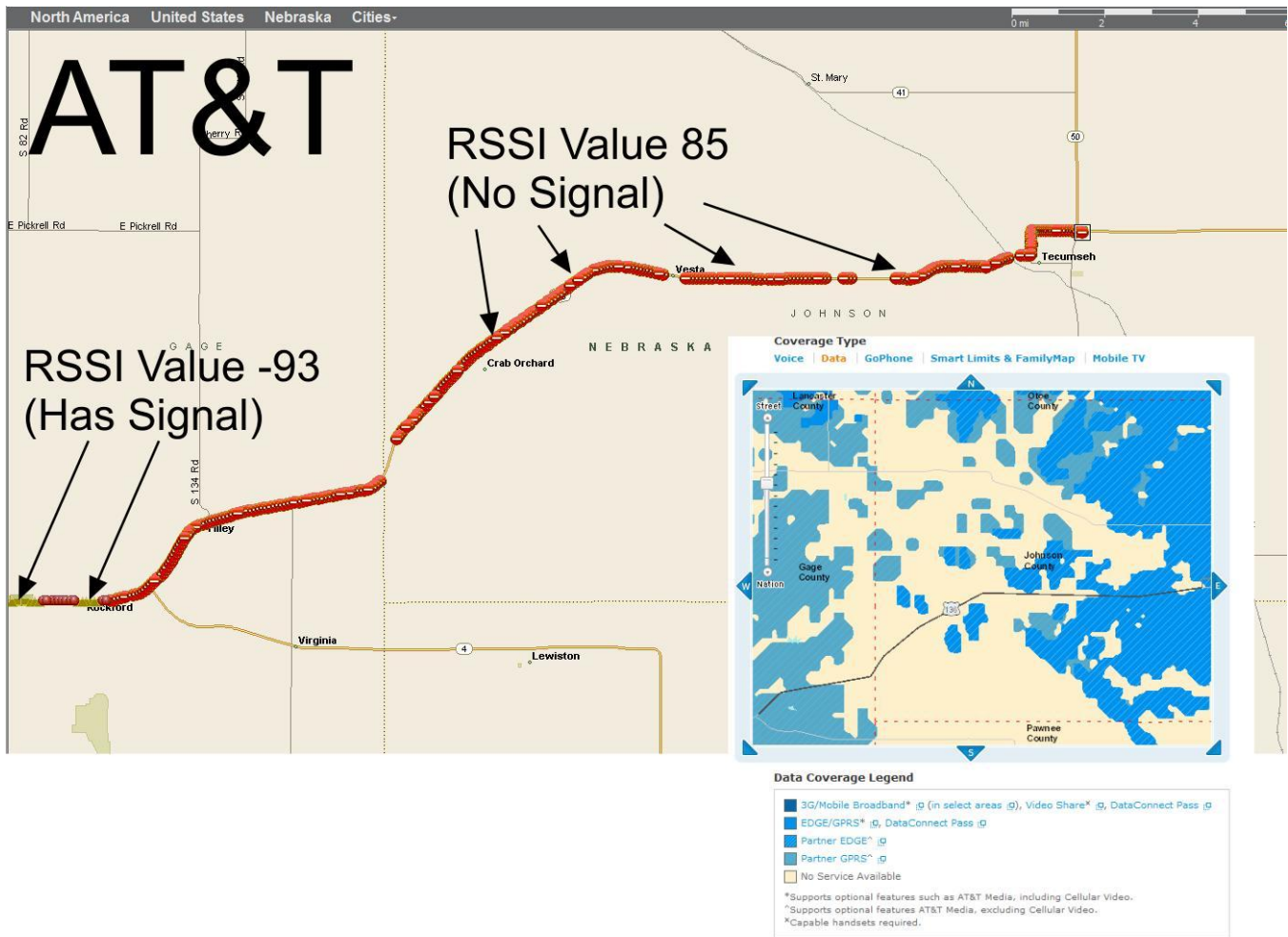
Results from Drive Test



<http://coverage.sprint.com/IMPACT.jsp?ECID=vanity:coverage>



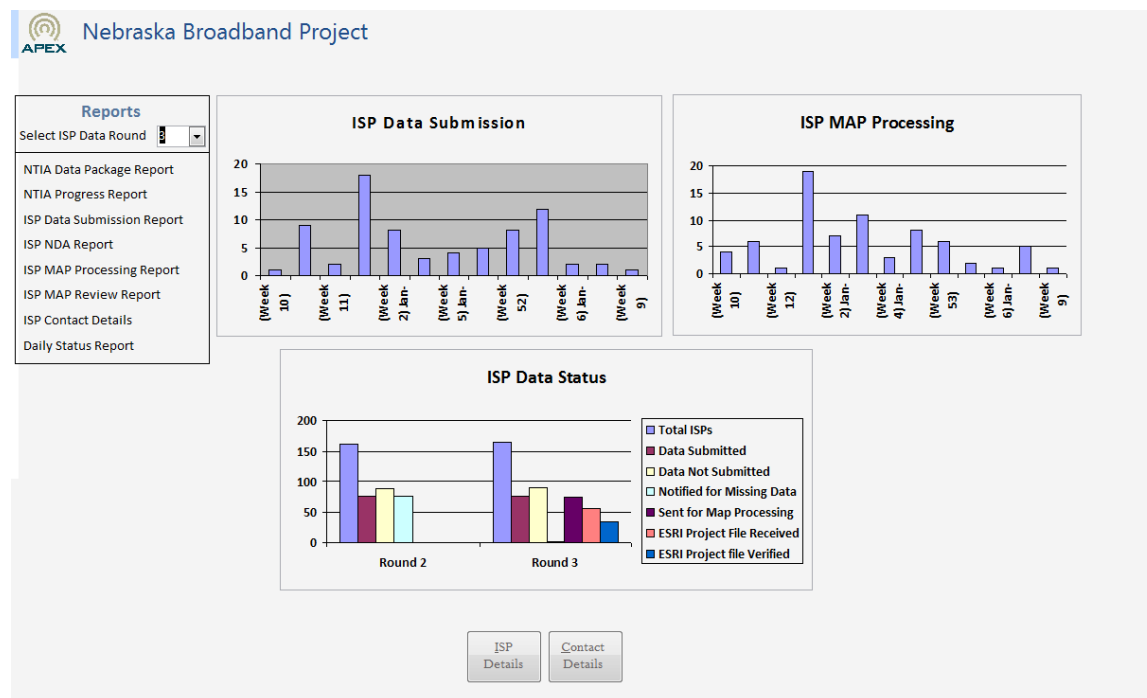
<http://www.verizonwireless.com/wireless-coverage-area-map.shtml>



<http://www.wireless.att.com/coverageviewer/#?type=data>

Appendix - D Access Database

All information regarding Nebraska Broadband Project is available in an Access database. The database tracks the details such as ISP submission filings and contacts,



The ISP details table contains information regarding FRN, Business Name & DBA. It is possible to search the table by field



ISP Details

FRN: Business Name: DBA:

FRN	Business Name	DBA	Address1	Address2	City	State	ZIP	Mail
0006213185	360NETWORKS (USA) I...	360NETWORKS (USA) I...	370 INTERLOCKEN BLV...		BROOMFIELD	CO	80021	303:
9999999001	ABS COMPUTER HEAD...	ABS COMPUTER HEAD...	2535 NORTH CARLETO...		GRAND ISLAND	NE	68803	308:
0004328340	ACN COMMUNICATIO...	ACN COMMUNICATIO...	1000 PROGRESS PLACE		CONCORD	NC	28025	704:
0015312606	ACN DIGITAL PHONE S...	ACN DIGITAL PHONE S...	32991 HAMILTON COURT		FARMINGTON H...	MI	48334	248:
0004337051	AIRNEX COMMUNICA...	AIRNEX COMMUNICA...	3180 CROW CANYON P...		SAN RAMON	CA	94583	925:
9999999003	AIS	AFFORDABLE INTERNE...	PO BOX 3		WAVERLY	NE	68462	402:
0010480978	ALLO COMMUNICATI...	ALLO COMMUNICATI...	610 BROADWAY		IMPERIAL	NE	69033	308:
0003777927	ANTILLES WIRELESS LLC	USA COMPANIES, L.P.	2123 CENTRAL AVE STE...		KEARNEY	NE	68847	
0006764575	APPLIED COMMUNICA...	ARAPAHOE TELEPHON...	524 NEBRASKA AVENUE		ARAPAHOE	NE	68922	308:
9999999004	ARLINGTON TELEPHO...	ARLINGTON TELEPHO...	1638 LINCOLN STREET		BLAIR	NE	68008	402:
0004496774	AT&T CORP.	AT&T INC.	11425 W. 146TH ST.		OLATHE	KS	66062	913:
9999999005	AT&T LONG DISTANCE...	BELLSOUTH LONG DIS...	675 W. PEACHTREE STR...		ATLANTA	GA	30375	404:
0004979233	AT&T MOBILITY	AT&T MOBILITY			REDMOND	WA	98073	425:
0006910426	ATC COMMUNICATIONS	ARAPAHOE TELEPHON...	524 NEBRASKA AVENUE		ARAPAHOE	NE	68922	308:
0004329314	ATCJET.NET LLC	ARAPAHOE TELEPHON...	520 NEBRASKA AVENUE		ARAPAHOE	NE	68922	308:
0000373827	BLAIR TELEPHONE CO...	BLAIR TELEPHONE CO...	1638 LINCOLN STREET		BLAIR	NE	68008	402:
0002331262	BLUE VALLEY TELECO...	BLUE VALLEY TELECO...	1559 PONY EXPRESS HI...		HOME	KS	66438	785:
0008599706	BROADWING COMMU...	LEVEL 3 COMMUNICA...	1025 ELDORADO BOUL...		BROOMFIELD	CO	80021	720:
9999999007	BT COMMUNICATION...	BT COMMUNICATION...	11440 COMMERCE PAR...		RESTON	VA	20191	703:

[NDA](#) [ISP Data](#)

Add New ISP:

Click on add  button to generate the add form populate the form with ISP data and press the save  button.

LEVEL 3 COMMUNICA...	1025 ELDORADO BOUL...	BROOMFIELD
COMMUNICATION...	11440 COMMERCE PAR...	RESTON

ISP

FRN

ID

BusinessName

DBA

Address1

Address2

City

State

ZIP

Phone Number


FAX Number


ISP Type

Ownership


SharePoint Info Sent

SharePoint Login Date














View ISP details:

Double click ISP details in list view or select the ISP from the list view and press view  button.

BLUE VALLEY TELECO...	1559 PONY EXPRESS HI...	HOME
LEVEL 3 COMMUNICA...	1025 ELDORADO BOUL...	BROOMFIELD
BT COMMUNICATION...	11440 COMMERCE PAR...	RESTON

ISP

FRN

ID

BusinessName

DBA

Address1

Address2

City

State

ZIP

Phone Number


FAX Number


ISP Type

Ownership



SharePoint Info Sent

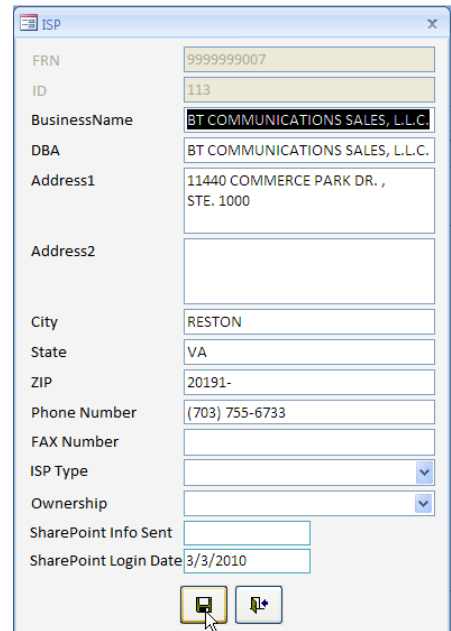
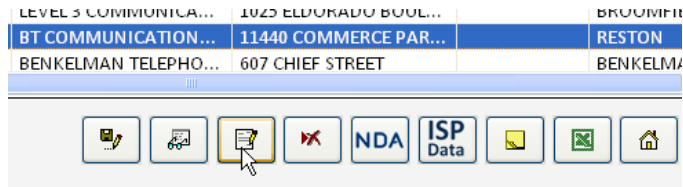
SharePoint Login Date





Edit ISP details:

To edit the ISP details, select the ISP from the list view and press view  button Edit the ISP form and press save  button.



ISP

FRN: 9999999007

ID: 113

BusinessName: BT COMMUNICATIONS SALES, L.L.C.

DBA: BT COMMUNICATIONS SALES, L.L.C.

Address1: 11440 COMMERCE PARK DR. , STE. 1000

Address2:

City: RESTON

State: VA

ZIP: 20191-

Phone Number: (703) 755-6733

FAX Number:


ISP Type:

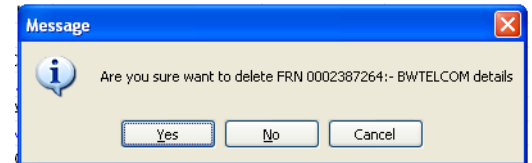
Ownership:

SharePoint Info Sent:

SharePoint Login Date: 3/3/2010

Delete ISP:

To delete an ISP details, select ISP from the list view and press delete  button.




Message

Are you sure want to delete FRN 0002387264:- BWTELCOM details

Yes No Cancel

NDA:

To view the NDA details for an ISP select the ISP from the list view and press NDA button. Click on open  NDA button to view the NDA scanned document.

FRN 0002387264

Abbreviation

NDA Identifier 1007-BENTEL

NDA Sent 2/5/2010


NDA Received 2/22/2010


NDA Contact 6 - RON CROW

NDA \\ACV-FILE-SVR\PROJECT MANA...

Save Open Add

ISP Data:





To get the ISP Broadband Data we need to select ISP from the list view and press ISP Data , then Broadband Data form opened. Using this module we can Add, Edit & View ISP Broadband Data & Data Tracking details of each round of data.


 **Broadband Data**

FRN Business Name DBA



ID	FRN	Round	Request Sent	Request Se...	Reminder S...	Reminder S...	Received	Received F...	Location	Returned
4	0004496774	2	2/10/2010	GREGORY ...	4/12/2010	GREGORY ...	3/5/2010	GREGORY ...		

<




Add Broadband Data:

Click on “Add ISP Data”  button. Broadband Data form will be opened. You need to fill the required fields and press save  button.



FRN	0006213185
Business Name	360NETWORKS (USA) INC.
Data Round	
Data Request Sent	
Data Request Sent To	
Data Reminder Sent	
Data Reminder Sent To	
Data Received	
DataReceivedFrom	
Data Location	
Data Returned	
Data Returned To	
Data Validated	
Data Validated By	
Data Sent To Mapping	
ProjFile Received	
ProjFile Sent	
ProjFile SentTo	
Data Verified	
Data Verified By	

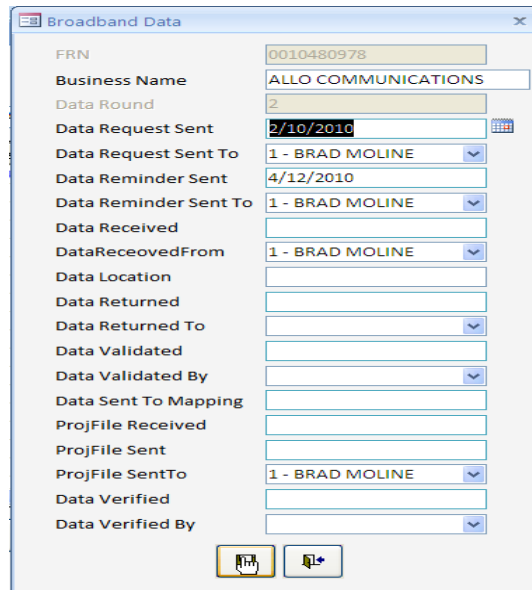
View Broadband Data:

Double click ISP round data in list view or select the round data from the list view and press view  button. You can view all details as shown below.


FRN	0010480978
Business Name	ALLO COMMUNICATIONS
Data Round	2
Data Request Sent	2/10/2010
Data Request Sent To	1 - BRAD MOLINE
Data Reminder Sent	4/12/2010
Data Reminder Sent To	1 - BRAD MOLINE
Data Received	
DataReceivedFrom	1 - BRAD MOLINE
Data Location	
Data Returned	
Data Returned To	
Data Validated	
Data Validated By	
Data Sent To Mapping	
ProjFile Received	
ProjFile Sent	
ProjFile SentTo	1 - BRAD MOLINE
Data Verified	
Data Verified By	

Edit Broadband Data:



Select the round data which you want to edit from the list view and press  button. Update the data and press save  button.

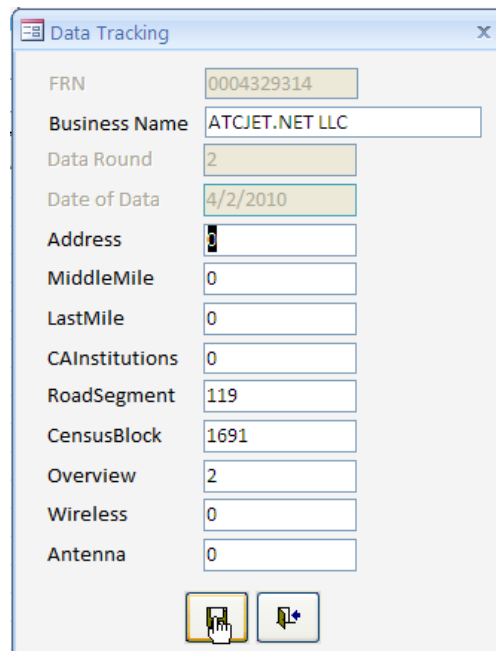


Export Broadband Data:


Click on the export  button to export ISP Broadband Data to excel.

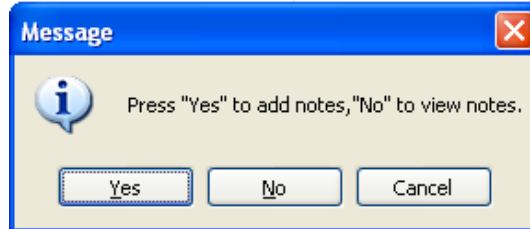
Add & Edit Data Tracking:


The number of records in “Geo Database” submitted by the ISP will be updated in Data Tracking module for each round of data. Select the round from the list view and click on Data Tracking  button. The Data Tracking form will be opened. Update the values and press save  button.

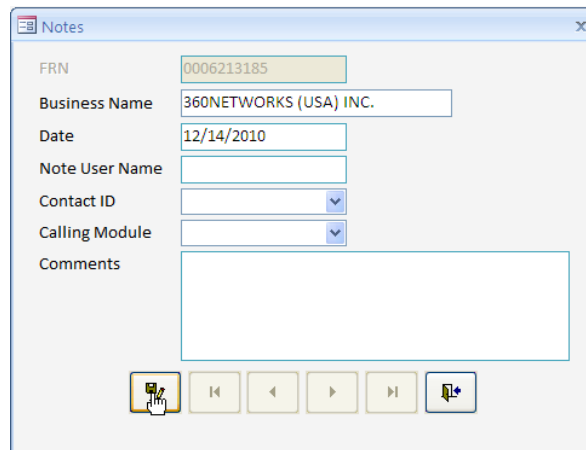


Notes:

Add or view notes by selecting the ISP from the list view and press the Notes  button. Click the notes button you will get a message “Press Yes to add notes, No to view notes” as show below.



If you press “Yes”, the Notes form will be displayed. Key in values and press the save  button.

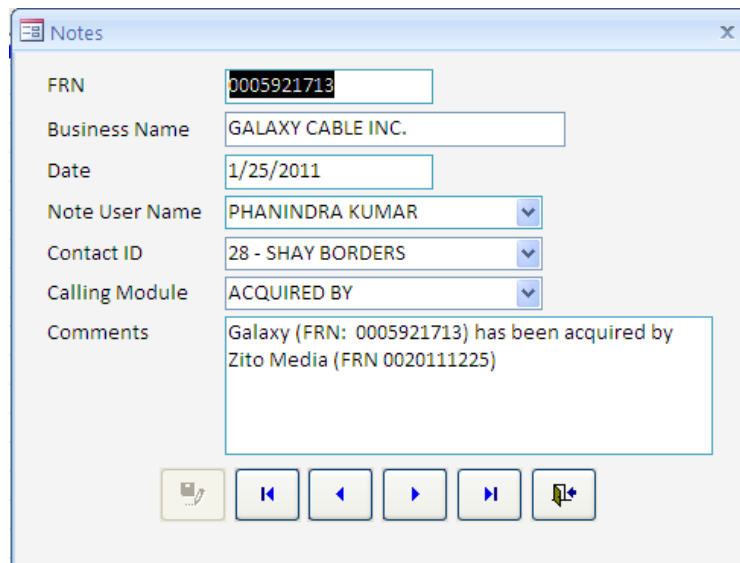
A 'Notes' form window with a title bar. It contains several input fields: 'FRN' with the value '0006213185', 'Business Name' with '360NETWORKS (USA) INC.', 'Date' with '12/14/2010', 'Note User Name' (empty), 'Contact ID' (dropdown menu), and 'Calling Module' (dropdown menu). Below these is a large text area for 'Comments'. At the bottom, there is a row of buttons: a save button (floppy disk icon), a back button (left arrow), a forward button (right arrow), a refresh button (circular arrow), and a delete button (trash can icon).

If you press “No”, Notes form will be displayed. You can view all the notes by pressing navigation  buttons.

Calling Module

- **ISSUES IN SUBMITTED DATA:** - If we have any issues with the data we need to select this option and add the missing data details in the comments. So that when we generate the daily status thes comments will be displayed.
- **ISP COMMENTS:** - If ISP’s give any comments we need to select this.
- **ACQUIRED BY:** - If ISP acquired by any other ISP’s we need to add a note by select this. So that when we generate the daily status this comments will be displayed.


For Exp: - Galaxy (FRN:0005921713) has been acquired by Zito Media (FRN 0020111225)




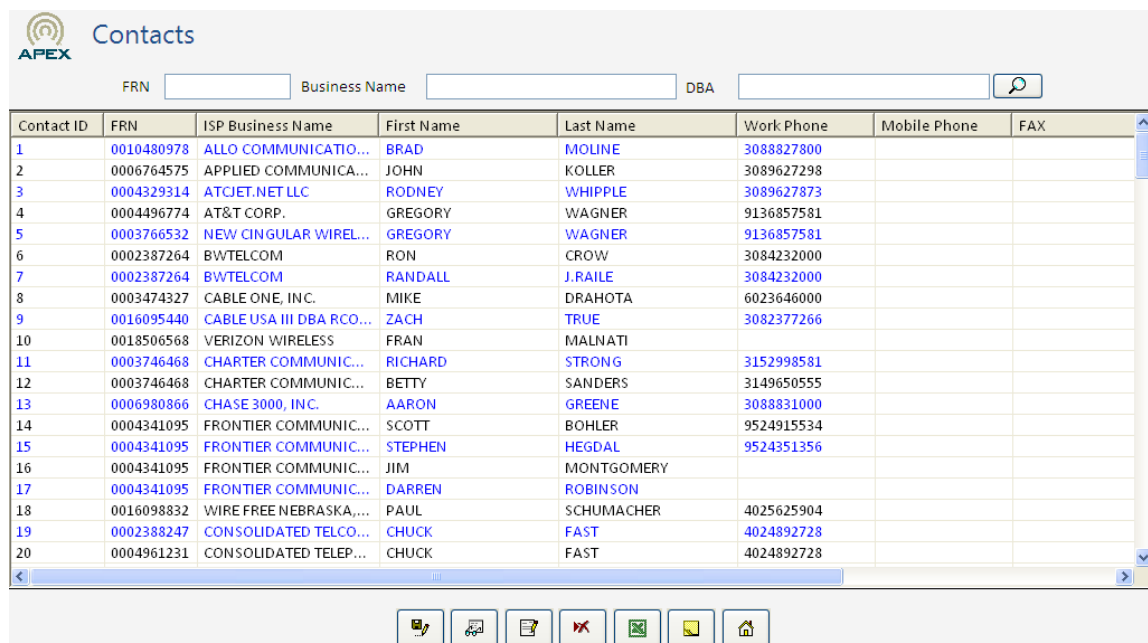
A screenshot of a 'Notes' form window. It contains several input fields: FRN (0005921713), Business Name (GALAXY CABLE INC.), Date (1/25/2011), Note User Name (PHANINDRA KUMAR), Contact ID (28 - SHAY BORDERS), and Calling Module (ACQUIRED BY). A large text area for Comments contains the text: 'Galaxy (FRN: 0005921713) has been acquired by Zito Media (FRN 0020111225)'. At the bottom are icons for saving, navigating, and printing.

- NOTES:-if you want to add any notes select this as a calling module

Export to Excel

To export the ISP details to Excel by press export  button.

Click on the Contact details, to see the below contact details form. It is also possible to search contact details by FRN, Business Name & DBA and press the search  button.



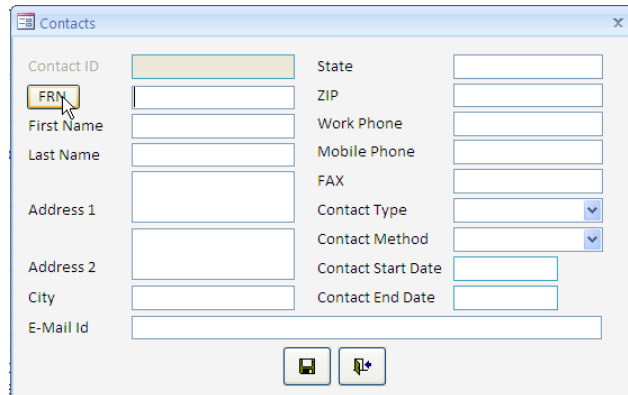
A screenshot of the 'Contacts' interface. It features a search bar with fields for FRN, Business Name, and DBA, and a search icon. Below is a table with 20 rows of contact information. The table has columns for Contact ID, FRN, ISP Business Name, First Name, Last Name, Work Phone, Mobile Phone, and FAX. The data is as follows:

Contact ID	FRN	ISP Business Name	First Name	Last Name	Work Phone	Mobile Phone	FAX
1	0010480978	ALLO COMMUNICATIO...	BRAD	MOLINE	3088827800		
2	0006764575	APPLIED COMMUNICA...	JOHN	KOLLER	3089627298		
3	0004329314	ATCJET.NET LLC	RODNEY	WHIPPLE	3089627873		
4	0004496774	AT&T CORP.	GREGORY	WAGNER	9136857581		
5	0003766532	NEW CINGULAR WIREL...	GREGORY	WAGNER	9136857581		
6	0002387264	BWTELCOM	RON	CROW	3084232000		
7	0002387264	BWTELCOM	RANDALL	J.RAILE	3084232000		
8	0003474327	CABLE ONE, INC.	MIKE	DRAHOTA	6023646000		
9	0016095440	CABLE USA III DBA RCO...	ZACH	TRUE	3082377266		
10	0018506568	VERIZON WIRELESS	FRAN	MALNATI			
11	0003746468	CHARTER COMMUNIC...	RICHARD	STRONG	3152998581		
12	0003746468	CHARTER COMMUNIC...	BETTY	SANDERS	3149650555		
13	0006980866	CHASE 3000, INC.	AARON	GREENE	3088831000		
14	0004341095	FRONTIER COMMUNIC...	SCOTT	BOHLER	9524915534		
15	0004341095	FRONTIER COMMUNIC...	STEPHEN	HEGDAL	9524351356		
16	0004341095	FRONTIER COMMUNIC...	JIM	MONTGOMERY			
17	0004341095	FRONTIER COMMUNIC...	DARREN	ROBINSON			
18	0016098832	WIRE FREE NEBRASKA...	PAUL	SCHUMACHER	4025625904		
19	0002388247	CONSOLIDATED TELCO...	CHUCK	FAST	4024892728		
20	0004961231	CONSOLIDATED TELEP...	CHUCK	FAST	4024892728		

At the bottom of the interface are icons for various actions like saving, deleting, and printing.



Add Contacts:


Click on add contact  button. The Contacts form will be opened.

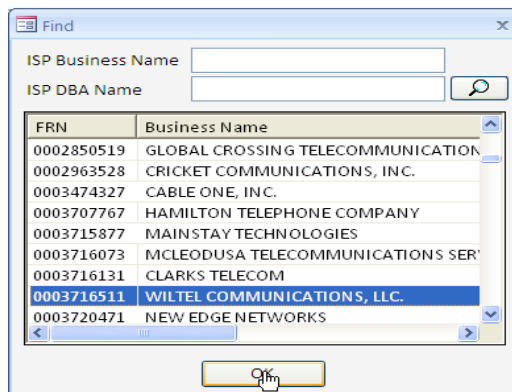


The Contacts form window contains the following fields:

Contact ID		State	
FRN		ZIP	
First Name		Work Phone	
Last Name		Mobile Phone	
		FAX	
Address 1		Contact Type	
		Contact Method	
Address 2		Contact Start Date	
City		Contact End Date	
E-Mail Id			


Buttons:  

Click FRN button and the Find form will be opened. Select the FRN from the list and press Ok button as shown below. Key in First, Last name, etc and click save  button.





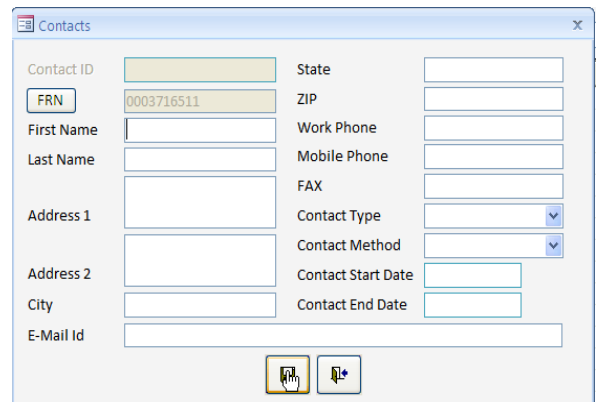
The Find form window contains the following fields:

ISP Business Name	
ISP DBA Name	

Search button: 



FRN	Business Name
0002850519	GLOBAL CROSSING TELECOMMUNICATION
0002963528	CRICKET COMMUNICATIONS, INC.
0003474327	CABLE ONE, INC.
0003707767	HAMILTON TELEPHONE COMPANY
0003715877	MAINSTAY TECHNOLOGIES
0003716073	MCLEODUSA TELECOMMUNICATIONS SER
0003716131	CLARKS TELECOM
0003716511	WITEL COMMUNICATIONS, LLC.
0003720471	NEW EDGE NETWORKS

Buttons:  





The Contacts form window now has the FRN field populated with 0003716511.

Contact ID		State	
FRN	0003716511	ZIP	
First Name		Work Phone	
Last Name		Mobile Phone	
		FAX	
Address 1		Contact Type	
		Contact Method	
Address 2		Contact Start Date	
City		Contact End Date	
E-Mail Id			



Buttons:  

Edit Contacts:


Select contact person from the list view and press edit  button. Update the data and press save  button.

Contacts

Contact ID	10	State	
FRN	0018506568	ZIP	
First Name	FRAN	Work Phone	
Last Name	MALNATI	Mobile Phone	
		FAX	
Address 1		Contact Type	ISP EMPLOYEE
		Contact Method	
Address 2		Contact Start Date	
City		Contact End Date	
E-Mail Id	FRANCIS.MALNATI@VERIZONWIRELESS.COM		






View Contacts:


Double click contact person in list view or select the contact person and press view  button.

Contacts


Contact ID	13	State	NE
FRN	0006980866	ZIP	69033-
First Name	AARON	Work Phone	(308) 883-1000
Last Name	GREENE	Mobile Phone	
	905 DOUGLAS ST	FAX	
Address 1		Contact Type	ISP EMPLOYEE
		Contact Method	
Address 2		Contact Start Date	
City	IMPERIAL	Contact End Date	
E-Mail Id	AARON@CHASE3000.COM		


Delete Contacts:

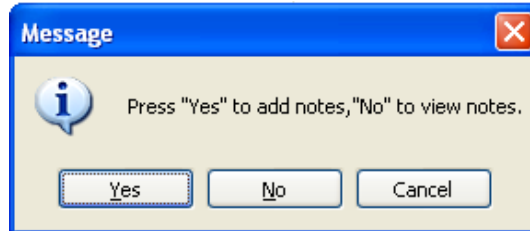
Select contact person whom you want to delete from the list view and press delete  button.


Export to Excel:

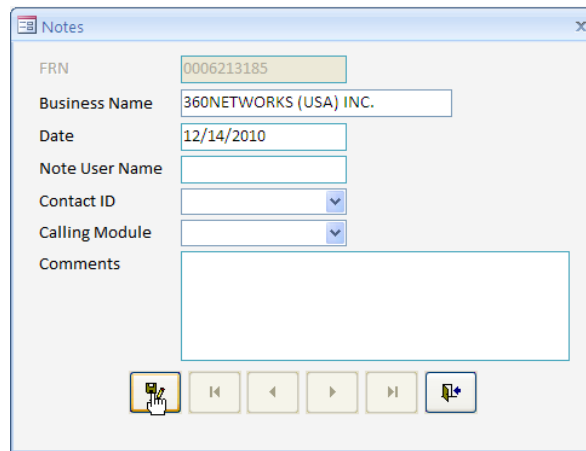
You can even export the Contact details to excel by pressing export  button.


Notes:

To add or view notes, select the contact person from the list view and press the Notes  button. Clicking the notes button and the following message is shown

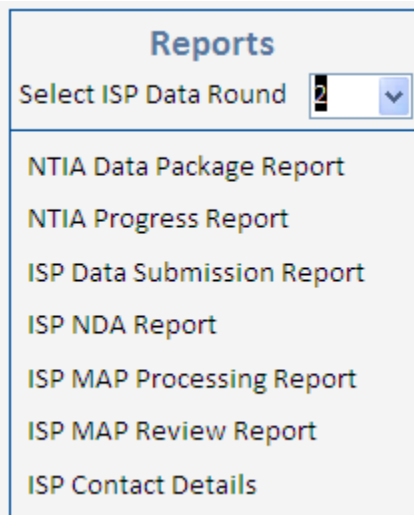


If you press "Yes", the Notes form will be displayed. Key in values and press the save  button.

A form titled "Notes" with a light blue header bar and a close button. It contains several input fields: "FRN" (0006213185), "Business Name" (360NETWORKS (USA) INC.), "Date" (12/14/2010), "Note User Name", "Contact ID" (dropdown), "Calling Module" (dropdown), and "Comments" (text area). At the bottom, there is a "Save" button (with a save icon) and four navigation buttons (first, previous, next, last).

If you press "No", the Notes form will be displayed. You can view all the notes by pressing navigation  buttons.

In access database main form there is a report option. Seven reports are available as shown below. Select ISP data round and click on the report name.

A form titled "Reports" with a light blue header bar. It contains a dropdown menu labeled "Select ISP Data Round" with the value "2" selected. Below the dropdown is a list of seven reports: "NTIA Data Package Report", "NTIA Progress Report", "ISP Data Submission Report", "ISP NDA Report", "ISP MAP Processing Report", "ISP MAP Review Report", and "ISP Contact Details".

Appendix - E DataSlave

DataSlave™ (used in Round 3) is an award winning Windows product designed to help you validate, de-duplicate and transform your data. Quickly move data from in and out of your business applications.

- ❑ Migrate data from one system to another
- ❑ Import leads into your marketing system
- ❑ Validate and correct key data. Includes comprehensive data transformation tools.

DataSlave provides a graphical tool to import, validate, transform and export data. At all times the data can be reviewed in the data panel showing rows that pass validation and those that fail.

Any column can be validated to check, for example,

- The customer ID is in range
- The Contact Name is valid
- The Region is not missing
- The ZIP code is of correct format
- The Phone and Fax numbers are correctly formatted

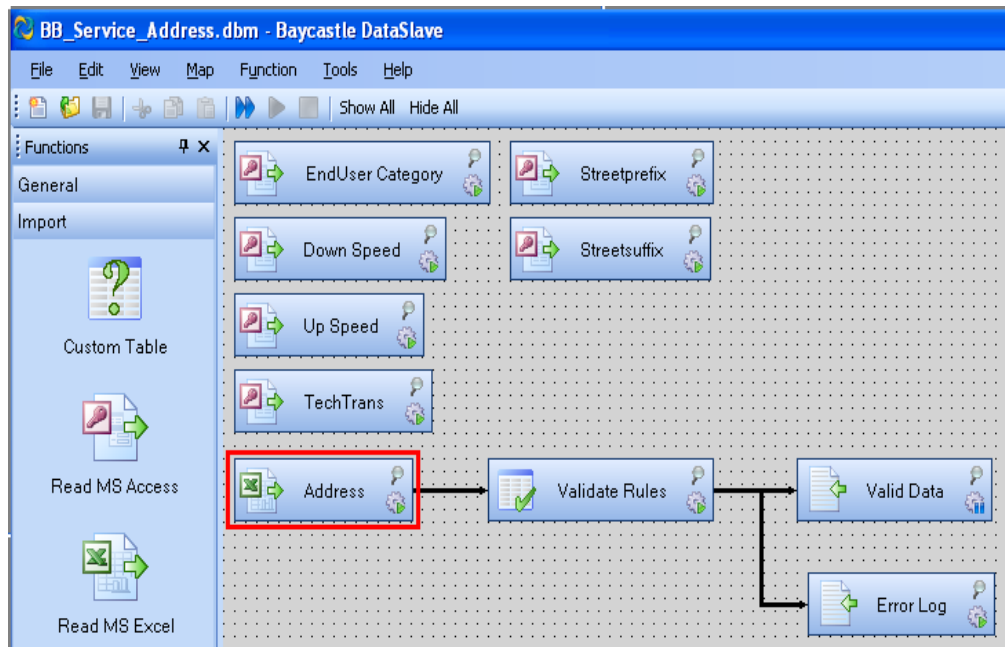
Data can be mapped onto the fields of your database, and where required, transformed. In this case the Contact Name is split into separate FirstName and LastName fields

Validation of Feature Class in DataSlave

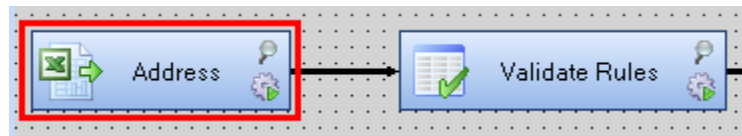
- a) BB_Service_Address.
- b) BB_ConnectionPoint_MiddleMile.
- c) BB_ConnectionPoint_LastMile.
- d) BB_Service_CAInstitutions.
- e) BB_Service_CensusBlock.
- f) BB_Service_RoadSegment.
- g) BB_Service_Overview.
- h) BB_Service_Wireless.
- i) BB_Wireless_Antenna

Steps in DataSlave

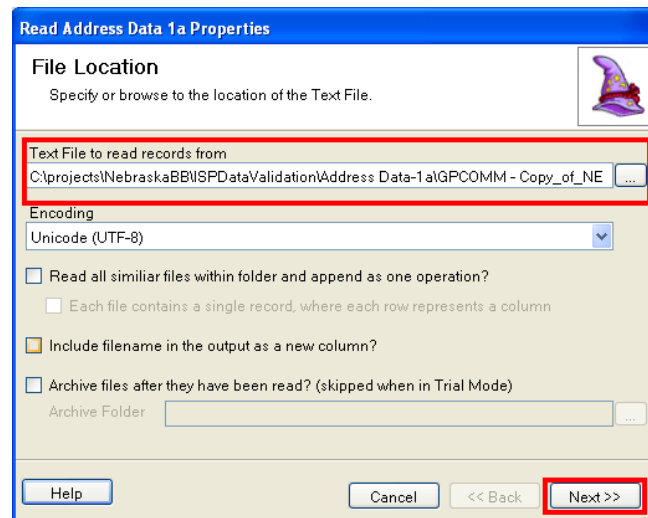
- a) Go to “File” menu, click on “Open Map” and the “Open” dialog will be shown, open the file named “BB_Service_Address.dbm”, for validate “BB_Service_Address” tab data. The BB_Service_Address Map file was open as shown below.



b) Click on the “Address” button for select the file data file



c) Then “File Location” dialog box will apprise as shown below. There select the path of the address file to be validated. Then press Next button.



d) “Record Source” dialog box will apprise as shown below. Select the worksheet. Then press the Next button.

Address Properties

Record Source
Provides information on which records should be returned.

☒ First Row contains Column Headers

☒ Worksheet

BB_Service_Address

☐ Range of cells within Worksheet

☐ Named Range

☐ SQL Statement

Help Cancel << Back Next >>

e) Preview dialog box will apprise as shown below. Then press the Finish button. Once you click on the Finish button you will get the message box asking “Execute Valid Data?” as shown below, press the “No” button.

Address Properties

Preview
Previews the first 50 records that will be returned.


OBJECTID	PROVNAME	DBANAME
1	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
2	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
3	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
4	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
5	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
6	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
7	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
8	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
9	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
10	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION
11	ARAPAHOE TELEPHONE COMPANY	APPLIED COMMUNICATION

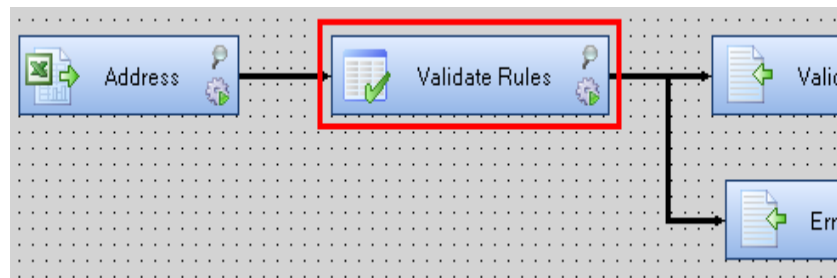
Help Cancel << Back Finish

Execute Function

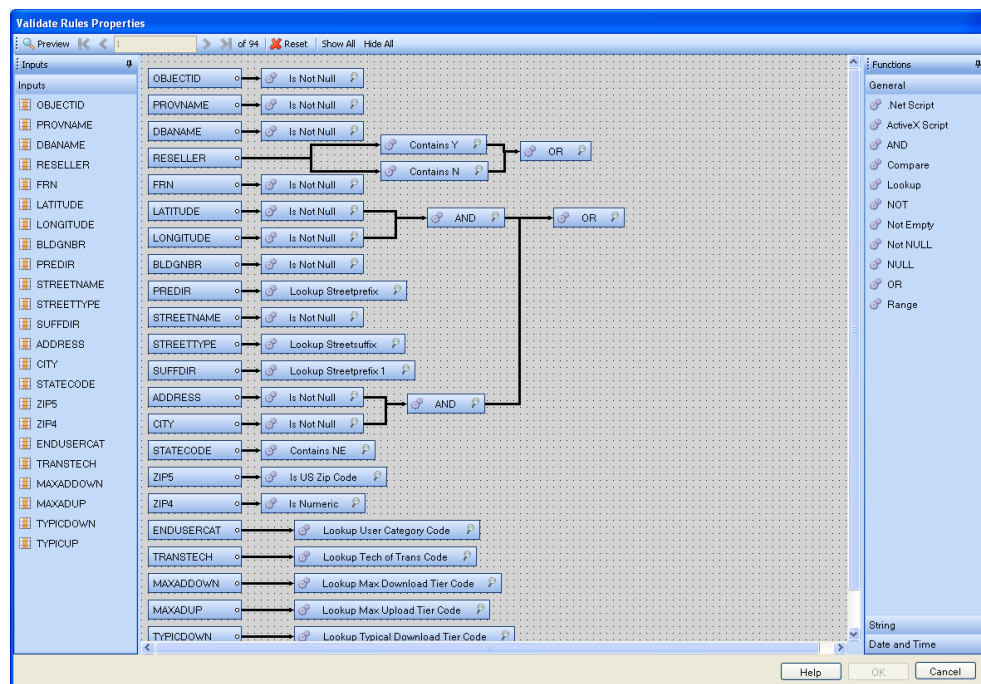
? Execute Valid Data?

Yes No

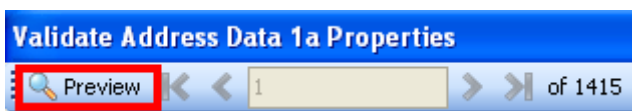
- f) Click the double arrow button  on the toolbar to start validating all the Address Data files.
- g) A summary of the results of the validation will appear in the “Output” area at the bottom. Invalid records are written to a log file called “Address Data Invalid.log” in the ISP Data directory. Valid records are written to “Address Data Valid.csv”.
- h) If you want to see the validation rules for the “BB_Service_Address.dbm”, click on the “Validate Rules” button as shown below.



- i) See the validation rule for the “BB_Service_Address.dbm” as shown below. It is possible to “Add or Delete or Edit” any rules from here.



- j) To preview the validation status for each record, click on the “Preview” button.



k) To check if any record failed the validation checks, the application will mark error (✖ sign.) to the value as shown in the below snapshot.

