New Jersey Broadband Mapping Project:

Methodology Report on Data Integration and Validation Procedures for October 2013 Submission

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1 Data Processing: Collection, Reception, Loading, Validation

This document describes the process used by the New Jersey Office of Information Technology (OIT) and Applied Communication Sciences to collect, receive, load, validate and verify broadband availability and usage data submitted to us by wireless and wireline service providers, CAIs, and other sources and organizations in the State of New Jersey. Individual provider data reports attached hereto provide details on the processing of each provider's submission and explain how the policies presented in this document were applied to the data. The CAI summary report, also attached, provides details on the CAI data processing, including the implementation of additional validation rules on CAI data. This report also describes some of the complexities and challenges we have encountered to date in this project.

1.1 *Structure of this Report*

This methodology report consists of the following:

- Section 2 summarizes our *Data Outreach* efforts to collect data
  - This section also describes some of the challenges in determining what service providers are in and out of scope for this work and our approach to service provider categorization, in addition to summarizing our efforts to engage CAI constituencies
- Section 3 provides an overview of our process for *Service Provider Data Reception*
- Section 4 provides an overview of our process for *Service Provider Data Loading*
- Section 5 provides an overview of our process for *Data Validation and Verification*
  - This section includes a table of business rules and how they were implemented.
- Section 6 describes our *Handling of Special Cases*, including verification procedure, validation warnings and handling of fixed wireless providers
- Appendix A: NJ Provider Data Reports
  - This appendix concatenates 32 files, one file for each provider whose data were included in the submission. Each report provides a narrative describing the steps involved in collecting, verifying, loading, and validating the provider data, including a log of the interactions with the provider.
- Appendix B: CAI Data Processing Report
  - This is a summary of the details of the CAI processing for this submission.
- Appendix C: Third Party Comparisons
  - This summarizes analysis of feedback received during the summer of 2012 from NTIA/Michael Baker based on their comparison of NJ June 2011 and Dec 2011data submissions with third-party data, and responses from them to questions raised by our analysis.
- Appendix D: Data Confidence Scale White Paper
  - This describes our work to develop a data confidence scale that captures an estimation of the underlying confidence we have in the data elements of our submission, based primarily on data *source*, *currency* and *verification*.
- Appendix E: Provider Data Confidence Assessment
  - This document describes further details of the methodology and the application of the data confidence methodology to the most recently submitted data from October 2012. The work described in this document was focused on provider data alone and does not include any assessment of CAI data.
- Appendix F: Speed Test Website White Paper
  - This summarizes our evaluation of the OOKLA and M-Lab NDT broadband speed test tools and our design for a New Jersey speed test web service based on NDT.
- Appendix G: Study of Discrepancy on Comcast Service in Cumberland and Atlantic Counties

- New Jersey has four Non-Franchised Areas: Estell Manor City in Atlantic County; Greenwich Township and Stowe Creek Township in Cumberland County; and Walpack Township in Sussex County. This document reports efforts to verify and remove service coverage data submitted by Comcast for these areas.

- Appendix H: CAI Confidence Level Estimation
  - This document describes the methodology for the confidence level assessment for New Jersey's CAI data based on data source, currency and verification. We applied the methodology to the April 2013 submitted CAI data which resulted in a confidence level between 1 and 5 assigned to each CAI record.
- Appendix I: End User Category Estimation
  - This document describes the methodology used to estimate end user categories from New Jersey Land Use / Land Cover (LU/LC) Data. The LU/LC data was used to estimate end user categories for those service providers who did not provide it. For example, if a Census Block is categorizes as residential land use, then the residential end user category would not estimated for fixed broadband service in that Census Block.
- Appendix J: USAC E-rate Data Processing
  - This document describes the methodology used to analyze the data scraped from the New Jersey Form 471 applications to the USAC E-rate program.

2 Data Outreach

2.1 *Provider Data Outreach*

Applied Communication Sciences and NJ-OIT have conducted further outreach to identify additional potential providers not previously participating. Once again in this round, we particularly focused on getting responses from previously "nonresponsive" or "uncooperative" providers known to provide service in neighboring states who have previously submitted data for other states to the NTIA, e.g., Fiber Technologies Networks, Windstream Corp. and Zayo LLC. For the Fall 2013 round, we contacted these providers by email and certified mail which described the potential benefits of participation and included instructions on data requirements, including how to submit via our custom-designed Web site found at http://connectingnj.state.nj.us/. We are happy to report that we received responses from Fiber Technologies Networks and Zayo, and their data are included in our Fall 2013 submission.

Most providers who had participated in the past were willing to participate again. However, we are not submitting data for two previous providers. Advanza switched its subscribers to other networks and no longer does business in New Jersey; and we no longer are submitting data for Tata since they only provide service to two small business customers in the state. As in the past, several providers, listed below, opted not to provide data updates in this round. As previously reported, New Edge/Earthlink opted out because of data accuracy concerns about their map data. The large national providers clearly have processes in place to collect and submit data, while the small local providers require greater assistance. Applied Communication Sciences offers assistance where possible, allowing providers to submit whatever data they have available in any convenient format. This increases the complexity of the data collection and processing operations, but enables greater coverage of providers. As examples, some smaller wireline providers simply submitted a list of addresses where they offer service and some small cable operators submitted the names of the municipalities they cover. Others provided spreadsheets with data copied from their most recent FCC Form 477.

- We contacted 35 organizations that were potential or known service providers, via email, postings to their Web site and/or telephone calls, and certified mail, broken down as follows:
  - 32 facilities-based providers who had contributed data in the Spring 2013 round;
  - 3 other service providers with FRNs to deliver broadband service in NJ and/or already deliver it to neighboring states (more on these below).

- We are submitting data for 32 providers. This list includes 30 providers for whom we submitted data in the Spring 2013 round. Note that AT&T and Cablevision each provided data for two FRN's. :
    - 20 providers submitted data for this round, including two who submitted data for the first time: Fiber Technologies Networks and Zayo Bandwidth, LLC.
    - 5 providers instructed us to use previously submitted data.
    - 7 providers failed to respond to repeated contact attempts via email and phone, but had submitted data during previous rounds. We elected to submit legacy data for these providers:
        - Appia Communications (formerly known as NetLogic/Voxitas), Global Online Electronic Services Telecom, Hometown Online, Netcarrier Telecom, and Service Electric Cable TV of NJ.
        - Jersey Shore Wireless/Duxpond Communications. While they did not respond to our request, maps published on their website suggest that their service areas have not changed since the Fall 2012 submission.
        - Cogent Communications has given us a standing order to acquire data from their website for our submission
    - 1 provider (Windstream) responded saying they would not be submitting data in this round.
    - 2 providers for whom we submitted data in Spring 2013 were "set aside" in this round:
        - Tata Communications (America) only serves two small business locations in NJ and cannot provision service within the 30-day window.
        - Advanza Telecom has moved all of its subscribers to other providers and no longer does provides broadband services in NJ.
- Among these 32 providers:
    - 8 reported offering wireless data services in NJ.
        - AT&T
        - Clearwire
        - Global Online Electronic Services, Inc.
        - Jersey Shore Wireless/Duxpond Communications
        - Leap/Cricket
        - Sprint
        - T-Mobile
        - Verizon Wireless
    - In addition to the wireless service providers listed above, 4 reported offering satellite data services in NJ.
        - Hughes Network Systems
        - Skycasters, LLC
        - StarBand Communications
        - ViaSat, Inc.
    - 7 reported offering cable data services in NJ.
        - Comcast
        - CSC (Cablevision/Lightpath)
        - Fiber Technologies Networks
        - Service Electric of Hunterdon
        - Service Electric of Sparta
        - Time Warner
        - Zayo Bandwidth

- We have previously disqualified the following organizations, many with FRNs associated with New Jersey, for reasons stated below:
    - *Six companies that are not in business at this time:* FARIOUS.NET, Near You Networks, SeaWaves Technology, SuperNet WISP, WEBNJ.net, and Wave2Wave.
    - *Four companies that are not service providers:* American Telephone Company (sells equipment), MeTel Metropolitan Telecommunications (reseller), Reallinx (consulting group), and World Discount Telecommunications (reseller).
    - *Five companies not providing service in New Jersey:* Broadstar, Frontier Communications, Metrocast/Harron Communications, Sidera (formerly RCN), and Convergence Technologies.
    - *Three companies that provide service in New Jersey but cannot meet a 7-10 day service window:* Atlantech Online, Azirband Communications Holdings, and Global Crossing North America.
    - *Broadview* had no data to submit, and *New Edge/OneCommunications/EarthLink* has repeatedly responded with email saying they did not believe the data they had was complete or accurate enough for submission.
    - *None of the following ever responded to our requests:* Abry Partners, Airespring, Bandwave Systems, BCN Telecom, Broadcore, Cooperative Communications, Copper.net, CTI Networks, Everest Broadband Networks, eVolve/Cinncinati Bell, Hickory Tech Corporation/Enventis Telecom, Hotwire Communication, Interglobe, Lightower, Link Technologies, Natural Wireless, Reynwood Communications, Savvis, SmartChoice, Stage 2 Networks, T2 Technologies, Tele-Data Solutions, TouchTone Communications, Towerstream, Transbeam, Vocal IP Networks, and VoicePulse.
    - *The following were either unreachable or email was returned from their published addresses:* 1800HIGHSPEED.com, Data Network Solutions, EmbraceCORTEL Technologies, and MetroPCS Wireless.

2.1.1 Service Provider Classification

We have classified Service Providers into the four categories as follows:

Type 1 = Broadband
These are broadband providers that meet the NOFA definition of a facilities-based provider with a 7-10 service provision time frame.

Type 2 = Reseller
These are broadband providers who do not meet the NOFA definition of a facilities-based provider because they resell facilities that belong to another service provider.

Type 3= Other
These are broadband providers who are known not to be of Type 1 or Type 2. Typically this is either because they cannot meet the 7-10 day service provision time frame or because their service architecture is complex and is neither facilities-based nor a reseller.

Type 4 = N/A
We used this classification for providers who did not respond to our requests, because we did not have sufficient information to assign them to another class.

Since it is only Type 1 providers who are squarely in scope for this program, these are the only ones for whom we have ensured that the NDA, provider_ind and submit_ind columns in the service_provider_info spreadsheet are completed. Our rationale for this is the following -- we would not want to categorize a non-Type-1 organization as “will not provide data” or “non-responsive” under provider_ind, as this may appear pejorative.

In our ongoing efforts to reach out to the full set of broadband service providers in New Jersey, we work to identify potential providers and screen them to determine if they are providing or reselling broadband services in the state. We maintain a commented list of those organizations that we have determined not to be New Jersey broadband providers or resellers and of those organizations that remain under investigation. Some of these organizations are no longer active business concerns; some are no longer independent organizations, but have been acquired by other entities; some offer or resell broadband service in other locations but not in New Jersey; some are companies that provide engineering or consulting support around broadband, but do not provide or resell service; and some are firms for which further interaction is needed to definitely determine their situation.

2.2 *CAI Data Outreach*

Applied Communication Sciences and OIT used a variety of means to collect Community Anchor institution data. We updated our reference data for universities, public schools and libraries and we obtained new broadband data on libraries. We offered our website for individual institutions to enter broadband data, but there was no new activity during this round.

We obtained broadband data on libraries from three sources – 1) a list of New Jersey libraries that connect to the JerseyConnect broadband service from the New Jersey State Library, 2) broadband data from the Libraries of Middlesex Automation Consortium and 3) information from Universal Service Administration Company (USAC) entities that applied for broadband service (scraped data from Form 477 provided by Florida). Appendix J provides more details on the processing of the USAC E-rate data. We received updated data from NJEdge on broadband services provided to universities and other educational institutions.

For each CAI category, the following table provides the number of records we obtained from the reference source, the number of broadband access records we obtained and, the total number of records we submitted to the NTIA and the number of complete records, with verified address information and broadband access information where available.

CAI Category	Reference Records	Broadband Records	Total Records Submitted
School K-12 (Public)	2596 (NCES + DOE)	2428 (DOE) 796 (Web)	3745 *With downspeed and upspeed: 2180 or 58%*
School K-12 (Private)	1159 (NCES)		
Libraries	464 (IMLS)	81 (NJ State Library) 31 (LMxAC) 199 (USAC)	468 *With downspeed and upspeed: 210 or 45%*
Medical/Healthcare	9349	5	9264
Public Safety	343 (NJ 911 Comm.)	120	337
University	170 (NCES IPEDS)	48 (NJEdge)	169
Other – State and Local Government		2007 (state gov't) 54 (Web)	1692
Other – Non Government		8	8
Abbreviations and Acronyms:			

911 Comm	New Jersey 9-1-1 Commission
IMLS	Institute of Museum and Library Services
IPEDS	Integrated Postsecondary Education Data System
LMxAC	Libraries of Middlesex Automation Consortium
NCES	National Center for Education Statistics
NJHA	New Jersey Hospital Association
NJ-DHHS	New Jersey Department of Health and Human Services

New Jersey has a strong tradition of home rule and, like many eastern states, a plethora of small governance entities – towns, townships, boroughs, cities, and other local municipalities. Among the major challenges we face in collecting broadband CAI data in the state are the dearth of strong, state-level organizations that might compel members to provide data (as opposed to comparatively weaker coordinating bodies) and the lack of existing broadband data sources. NJEdge's data on the higher education institutions to which they provide service and JerseyConnect's data on libraries to which they provide service are among the very few such resources in the state.

NJ OIT executives have worked through state-level contacts in public safety, education and libraries, etc., to encourage their constituencies to participate and submit data through the website. While some groups have been more responsive than others, many have expressed concerns about placing additional burdens in a time of shrinking budgets and cutbacks. We did not receive any additional data from the website in this round.

We have encountered a few issues with collection, interpretation and processing of CAI data:

- For some institutions we obtained information on multiple connections to the internet, each with its own technology of transmission and maximum speeds. These may represent separate redundant connections for a large institution that provides critical services or separate facilities for different classes of users (e.g., staff and clients). In order to avoid the occurrence of duplicate entries for a CAI we have chosen to only report a single connection, either the one in which we have the most confidence, or the highest speed.
- Satellite institutions such as branch libraries or campus outreach centers can complicate the CAI picture. Our policy is to attempt to collect data for each separate geographic location as a separate CAI.
- Sometimes multiple government offices are co-located in one geographic location; e.g., a large building or complex that may include county government offices, court, jail, and/or other government offices. Here the challenge is avoid incorrectly overstating broadband capability or understating the need for broadband services.
- It remains challenging to convince busy employees at CAIs to take the time to provide this data.
- The CAI transfer model requires a street number and for some CAIs this is not readily available as institutions may use a cross street for directions, a PO box for paper mail, etc. In some cases we are able to identify a valid address through web research.

3 Service Provider Data Reception

Applied Communication Sciences defined a process for handling provider data upon receipt. The following steps describe that process:

These steps must be performed upon receipt of provider data. These steps set up the file system and database for later processing, including both the initial assessment and load, and protect the confidentiality of the information.

1. Update the provider interaction log spreadsheet with the date of receipt and other metadata.

2. Copy the email or decrypt the uploaded files to individual directory on dedicated and secure server.
3. Test that the files can be opened, read, etc. This may require using ESRI ArcCatalog to check a shapefile or file geodatabase.
4. Send an acknowledgement to the provider of receipt of readable submission, or request re-send as needed.
5. Create empty provider data report into the new folder, using the appropriate wireless or wireline template**.**
6. Connect to the PostgreSQL database and instantiate a schema for the provider.
7. Perform an evaluation on the submitted data, evaluating the completeness of the submission and the validity and reasonableness of the included values. In addition, run the NTIA validations against the submitted data to determine if there are any errors or warnings. Interact with provider to address any questions or issues.

4 Service Provider Data Loading

The provider data submissions vary in form, format and content and in the ease versus complexity of the processing and loading tasks.

In general, the most straightforward data to process are shape files submitted by wireless providers. Wireline providers who submit census block data are a step up in terms of complexity. Some cable providers simply list the municipalities which they serve. A number of smaller providers submit a list of addresses corresponding to locations where they provide service. These are much more challenging to process as we must first manipulate the address information and then geocode the locations; these operations can be time consuming and subject to inaccuracies. In fact, due likely to algorithmic changes made in online geocoding services that we use for this purpose, some of the geolocations we obtained for addresses in this Spring 2013 submission were judged less accurate than ones computed for the same addresses in previous rounds. Consequently for the Spring 2013 round we chose to relax the threshold on data quality values returned by these services. For the Fall 2013 submission, we employed both Google and Yahoo geolocation services. Google was tried first and, if no value was returned or the value had a low quality rating, we used Yahoo. However, since these services limit the number of geolocations that can be returned within a 24-hour period, we sometimes used them together for the processing of lengthy address lists. The service provider reports attached in Appendix A give the full details per provider on all steps taken to extract, transform, and load the contents of the provider tables into the NTIA tables. Note that every NTIA table has a “shape” column where a map object such as a point, line (e.g., road segment) or area (e.g., census block) must be submitted.

Here is a summary of some of our key policies and challenges:

- All non-disclosure agreements executed with providers prohibit us from disclosing customer addresses. Although some providers have not executed NDAs, we have chosen to treat all providers similarly. We have chosen to obfuscate the address data by transforming it to census blocks or street segments. This carries a slight risk of overstating coverage, but that seems more appropriate than simply dropping the data because it is sensitive. In addition we had one provider who sent us proprietary subscriber-weighted nominal speed data. Given the proprietary restrictions associated with these data, we did not include them in the submission.
- Speeds associated with address data from some providers represent the price plan chosen by the customer; they are definitely neither the max advertised speed nor the typical speed. Our decision was to keep the maximum speeds encountered in the census block and report them in the maximum advertised fields and to report typical as null.
- Maximum advertised speed, combined with the 7-10 day availability requirement, results in variable interpretations. In particular, the concept of advertised speed is well suited for providers who offer services to extended areas, such as large telephone and cable television companies. Its

application is less clear for providers who offer service to defined set of specific addresses. They deliver services to those specific addresses, and could offer the same service to a new tenant within the time limit. In some cases, they could increase the speed within that time period as well. They could not easily deliver service to any neighboring location with a two-week period. We have operationalized the notion of maximum advertised speed by determining the maximum speed a provider could offer on the facilities they have in place at customer locations, and then reporting that speed for census blocks or street segments.

- After initial poor results in geo-coding the customer address lists provided by some cable providers who had no geospatial capabilities, we identified an alternate approach that leveraged the franchise-nature of cable television service in the state. We asked those cable TV providers to send us the list of municipalities that they are licensed to serve. We build the submission by locating the municipality shapes and using those shapes to find all census blocks contained within them. For large census blocks, we report all the Tiger/Line street segments that are contained within those blocks.
- For middle mile data, the exact definition of a connection point remains open to interpretation and requires further development. We are not completely sure that all providers interpret middle mile in the same fashion and do not have a clear enough picture ourselves to provide appropriate guidance or validation. Despite this, we have submitted the middle mile information that we received.
- All but one provider submitted 2010 Census Blocks (CBs). One satellite provider (Hughes) submitted data using 2000 CBs. Given that we had to convert this to a single shape, rather than map to Y2010 census blocks, this was not an issue.

  For the Fall 2013 submission, the NTIA requested grantees to submit *End User Category* data for both wireline and wireless service providers. The following guidance was provided for assigning End User Category Codes: *1= Residential; 2 = Governmental, Small Business, Medium or Large Enterprise; and 5 = Other* (i.e. Provider does not distinguish between residential and business/government). Many NJ providers don't distinguish (or find it difficult to distinguish) residential from business users, so preferred to assign "5" to their data. A few others provided a single code, e.g., "2", for all of their service areas. Still others did not submit any end user categorization. For these, we developed a methodology that made use of land use data to interpolate the likely end user categorization for service areas. In New Jersey, land use data is created as a statewide product by a consistent process that is closely controlled and, according to those at NJ-OIT who use it, land use data quality are very good. Since these data are organized by watershed, we appended all watersheds into one geodatabase feature class, which matched-up nicely with statewide coverage. For census blocks, we created an overlay layer from the intersection of census blocks with land use, and then computed summary statistics on the resulting attribute table. This procedure yielded a table with total area of each land use contained in each census block. We included agriculture categories as an approximate equivalent of low-density residential in this methodology, i.e., if there was broadband service in an agriculture area, we assumed it served farm houses. We then used a mapping of land use categories to End User categories to assign an appropriate code to each census block. Areas with mixed usage were assigned the majority End User Category, i.e., the one with the largest proportion of the census block's area. Details on this process are provided in Appendix I.

5 Validation and Verification Operations

In addition to the usual V&V procedures we normally apply to each submission, as described below and previously reported, we typically provide additional feedback to service providers as preparation to a submission. Our first feedback was based on the NTIA/Michael Baker comparisons between our 2011 submissions and their third-party data (already reported with the Fall 2012 submission). For this Spring

2013 submission, we provided feedback to some service providers based on comparisons between our Fall 2012 NJ service provider data and CAI data; and other feedback based on our donut hole analysis of the Fall 2012 service provider data. In each case, service providers were informed of map discrepancies and encouraged to investigate these with the hope of improving the quality of their data in the Spring 2013 submission. Once again, for the Fall 2013 submission we provided feedback to both wireline and wireless providers along with our data requests. More on this recent feedback is reported later in this section.

5.1 *Custom Data Verification and Validation*

Incoming data was subjected to a number of validation checks. When incoming data failed a validation check, we first investigated our process to ensure that we were not inadvertently creating an issue. If the problem was determined to be with the submitted data, we notified the provider concerned and recorded the interaction in the provider data report as provided in Appendix A.

We have observed a few issues that arose when processing the current submission:

- New Jersey placenames can be difficult. We validate against data from the following sources: State of New Jersey geographic information (https://njgin.state.nj.us/NJ_NJGINExplorer/DataDownloads.jsp), the Federal Government placename information (http://geonames.usgs.gov/domestic/download_data.htm), and the US Postal Service data (available for a fee).
- A survey of 3100 New Jersey households was conducted in November and December of 2010 by Rutgers University as Applied Communication Sciences' subcontractor under this program. Householders who responded that they were broadband users were asked who their service provider was and this was compared against service provider serving areas. 95% of the responses aligned with service provider information. In the remaining 63 cases, the survey respondents reported being served by a provider whose coverage area did not appear to cover that location. Through these cases we have identified an area for additional investigation which may lead to improvements in service provider coverage. The technique, based on geo-spatial analysis of neighboring CBs is briefly described in Section 6.2.
- T-Mobile submitted wireless coverage data that provided one of the more interesting validation issues. T-Mobile provided separate information about three different varieties of 3GPP-based wireless technology, each of which supports broadband data services through mobile terrestrial wireless service capability; namely: UMTS, HSPA21 (i.e., HSPA) and HSPA42 (i.e., HSPA+)[1]. In order to avoid duplicates – that is, rows of T-Mobile data with identical shapes and the same technology and spectrum codes, differing only in maximum speed, we performed spatial joins separately for each of UMTS, HSPA21 and HSPA42. We then submitted one shape for each technology. For the Fall 2013 submission, T-Mobile submitted Speed Tier 8 (25-50 Mbps) for its LTE service. This encoding was at odds with NTIA Speed Tier 7 (10-25 Mbps), the maximum advertised downstream speed for LTE. Following NTIA directives, we reduced any Speed Tier 8 submitted by T-Mobile to Speed Tier 7.
- The End_User_Category for Census Blocks or Road Segments is an optional field for designating the geography as being primarily Residential, Non-Residential, or Other (primarily neither Residential nor Non-Residential). In the past, we elected not to complete this field since we had no trusted data source for this information. In the Fall 2013 round, we have interpolated values for this field, as described in Section 4 and Appendix I.

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[1] Here are a few more technical details. UMTS is based upon 3GPP release 99 and is the oldest and slowest of the three varieties. HSPA (HSPA21) is 3GPP R6 which supports HSDPA and HSDPU for downlink and uplink high-speed packet access and offers intermediate speeds. HSPA+ (HSPA42) is 3GPP R7. It is the most advanced of the three and supports high-speed packet access evolution with peak data rate increases from MIMO and higher-order modulation, among other technical advances.

- We use Yahoo and Google online geolocation services to compute geographical coordinates for subscriber addresses. These geocodes are provided along with a quality rating for each. For some of the Spring 2013 data, we noticed that geocodes with lower ratings were provided for some of the same addresses we submitted in the past. We can only assume that there have been changes made to the data or algorithms used by Yahoo and Google to compute geolocations. The impact of this on the submission is a small reduction in the number of census blocks reported for some providers, e.g., Hometown Online, compared to previous submissions.
- Some of the street lines we received from data providers, e.g., Cablevision/Lightpath, were missing street names. We still included shapes bounded by these as part of a provider's service area, even though they cannot be associated with a Census Block.

We applied the business rules in the script supplied by the NTIA and other data-specific validations after the data were loaded into the tables. These were applied as a check on both the data supplied by the providers and on the process we used for data collections, reception and loading. Moreover, other business rules were applied above and beyond those in the NTIA script, as described below.

We checked uniqueness of the entries in each table, using the following definitions of uniqueness:

Layer	Unique key	Notes
Middle Mile	frn, latitude, longitude	
CAI	anchorname, address	
Census Block	frn, fullfipsid, transtech	
Street Segment	frn, tlid, transtech	Tlid is an internal column.
Wireless	frn,transtech, spectrum, maxadup, maxaddown	

We also performed the following additional validations:

Layer	Validation Rules
Middle Mile	• Check (dbaname, provname, frn) against our FRN reference table • Valid census block id within the state of New Jersey • Check latitude not between 38.7 and 41.4 • Check longitude not between -75.6 and -73.8 • Shape should not be empty • All check_submission rules
CAI	• Valid zip code • Check latitude not between 38.7 and 41.4 • Check longitude not between -75.6 and -73.8 • SubScrbDown is less than SubSrbUP • CAIID is null for schools and libraries • Mismatch of transtech with SubScrbDown and SubSrbUp (either speed mismatch or symmetric transtech technology with SubScrDown not equal to SubScbUp) • Shape should not be empty • All check_submission rules

Census Block	• Check (dbaname, provname, frn) against our FRN reference table • Valid census block id within the state of New Jersey • The area of a census block should be less than < 2 square Mile • Shape should not be empty • All check_submission rule
Street Segment	• Check (dbaname, provname, frn) against our FRN reference table • Street segment is present in a census block >= 2 square miles • Shape should not be empty • All check_submission rule
Wireless	• Check (dbaname, provname, frn) against our FRN reference table • Shape should not be empty • All check_submission_rule

5.2 *Verification through Gap Analysis of Neighboring Census Blocks*

We have continued to assess coverages in the latest data using gap or what we call "gap" or "donut hole" analysis, first described in 2012 submissions. As part of our process to continually improve the quality of broad band Service Provider data that we provide to the NTIA, we have been analyzing data from our Oct. 2012 submission, described later in this section.

5.2.1 Gap Analysis

The analysis of the survey data identified some instances where a survey respondent identified their service provider and then the service provider's data did not show coverage in that respondent's Census Block. Further analysis indicated that a number of these instances occurred in 'gaps' or 'holes' in submitted provider coverage data. One way to define a simple hole is that it is a single CB that is not in the stated provider coverage area when all neighboring CBs are in the stated coverage area. Our investigations of these simple holes showed that some are associated with zero-population CBs – e.g., a CB that comprises a strip of land neighboring a major roadway. Other simple holes, however, appear to be anomalies in service provider data as we find examples of a residential CB, surrounded by other residential CBs, and no clear rationale to explain why the initial (middle) CB would not have coverage when all neighboring CBs do have coverage.

The next figure shows a few simple holes in Comcast data from Cranbury Township at a fine resolution.

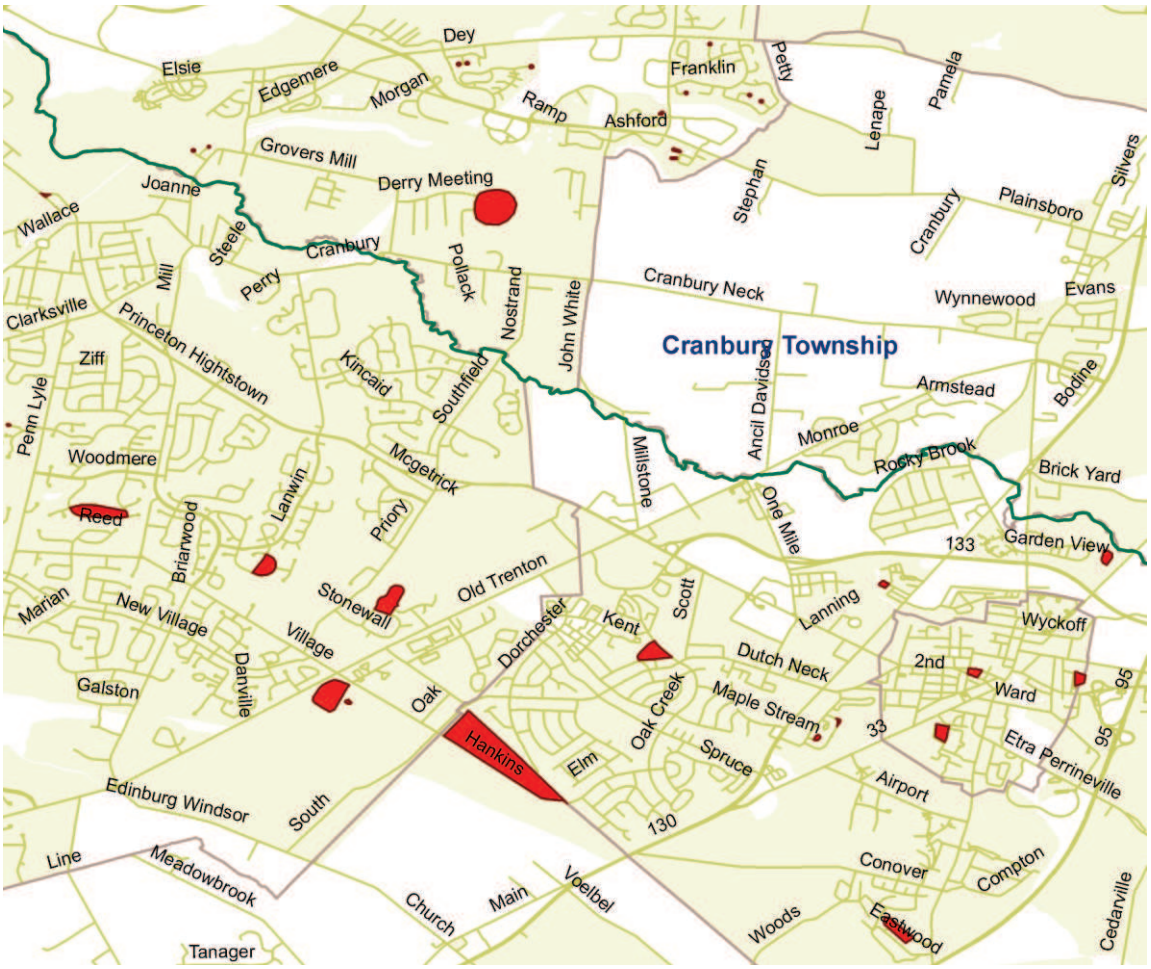

Figure 1: Detailed view of "Doughnut Holes" in coverage

Our analysis of the simple holes shows that some are anomalies that may provide a way to improve the accuracy of provider data. To pursue such possible improvements, we developed software that automates the identification of simple holes. Somewhat to our surprise, when we ran this software on the data for this submission, we found rather sizeable numbers of holes for some of the providers. For example, we identified almost 250 simple holes for Cablevision (including Lightpath) and over 1400 for Comcast. The following graphic illustrates the simple holes for Comcast.

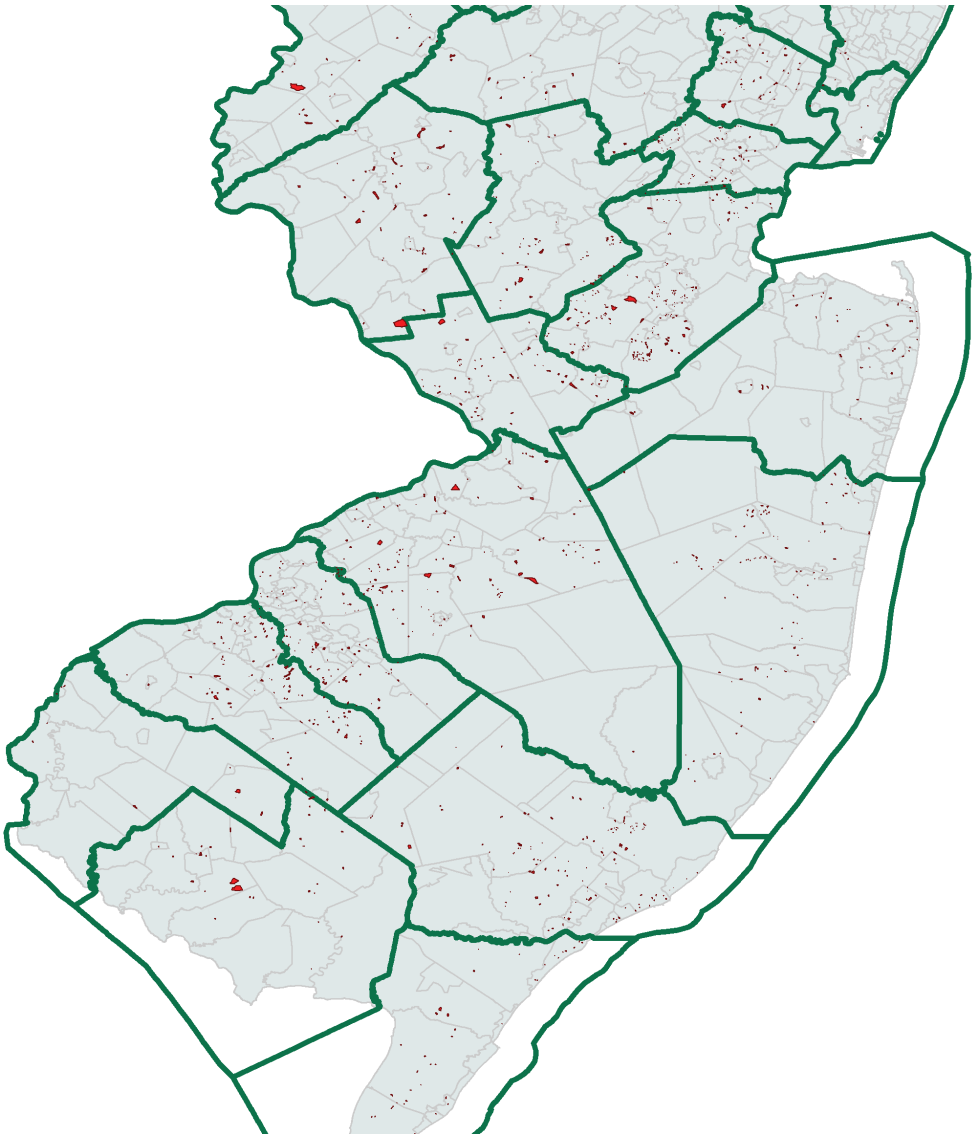

Figure 2: Graphic of Holes in Comcast Data:

For the providers where we identified such holes in the data they submitted for the Fall 2011 round, we generated a complete listing of the holes and a document containing a description of the process of identifying the holes and a detailed analysis of a few sample holes that appear in the provider's coverage. This information was sent to the providers along with the request for revised data for the Fall 2012 round. In the course developing the tools for this analysis, we noticed that Verizon has made changes in their process for generating submitted data, because while such holes had been present in the data they submitted previously, their Fall 2012 data had no such holes.

5.2.2 Gap Analysis for Spring 2013 Submission

In December 2012 we sent gap analysis feedback to 12 service providers with the hope that they might find it useful for improving the accuracy of their submitted service area data: Advanza Telecom,

Cablevision-Lightpath, CenturyLink, Comcast, Hometown Online, Level3, Megapath, Monmouth, Netcarrier Telecom, Service Electric of Sparta, Verizon Online, and Xo Communications Services. This feedback included for each "donut hole" census block both the census block ID and the number of its residents. We provided this feedback to demonstrate to providers that these supposedly "unserved" census blocks were also populated. An example of the feedback sent to these providers is shown below.

Ms. Mudge,

As part of our process to continually improve the quality of broad band Service Provider data that we provide to the NTIA, we have been analyzing data from our Oct. 2012 submission. One analysis we conduct discovers what we call "donut holes" -- these are unserved (but populated) census blocks, which are surrounded by census blocks for which you have reported service.

The results from our donut hole analysis of your recent data are attached to this note. These results include for each "donut hole" census block both the census block ID and the number of its residents. We are providing this feedback with the hope that it might be useful for improving the accuracy of your submitted service area. We wanted to do this well-enough in advance of the next submission round -- which will be due to us in the late January timeframe -- so as to give you an opportunity to revise your data for these census blocks, as you see fit.

Thank you again for you continued participation in the NJ Broadband Mapping Program.

Cliff Behrens
Manager - NJ BB Data Collection
Applied Communication Sciences
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provName	FRN	holeCBID	Population
megapath	3753753	340155007023041	57
megapath	3753753	340230085021066	58
megapath	3753753	340230085031001	56
megapath	3753753	340230088001012	28
megapath	3753753	340258121002029	28
megapath	3753753	340270461061037	95
megapath	3753753	340270461061038	4
megapath	3753753	340297202021009	20
megapath	3753753	340297202021038	21
megapath	3753753	340350522011005	29
megapath	3753753	340350522012061	104
megapath	3753753	340350534022002	37

In this particular example, the response of Megapath was:

Cliff,

We have looked these over and they are situations near coverage borders where we have smaller blocks surrounded by large, odd-shaped blocks that have partial coverage. When the partial coverage is

considered, these cases are not actually donuts. It's an artifact of the geometry and granularity of these blocks, and this is why the number of cases is relatively small (12 blocks compared to a coverage area of 94,419 blocks).

Thus, I can confirm that what we submitted is our best representation of our coverage area.

Thanks,

Stefanie

5.2.3 Gap Analysis for Fall 2013 Submission

As with previous submissions, feedback was included in the data requests sent to some providers for the Fall 2013 submission. Our list of providers receiving feedback included Advanza Telecom, Cablevision/Lightpath, CenturyLink, Comcast, Hometown Online, Level3 Communications, Monmouth Telephone & Telegraph, Netcarrier Telecom, Service Electric Cable TV of NJ, Verizon Online, and XO Communications Services. Each of these providers was given the results of our gap or "donut-hole" analysis, a list of unserved (but populated) census blocks, which are surrounded by census blocks for which a provider reported service. As in the past, we informed providers that we were giving them this feedback with the hope that it might be useful for improving the accuracy of their service area data in the Fall 2013 submission.

5.3 *Analysis of FCC Third Party Data Comparisons*

For the Fall 2012 submission the NJ BB Mapping Team benefited from having received feedback from NTIA/Michael Baker with results of comparisons they made between the data we had submitted in June-11 and Dec-11 and their third-party data. After a careful analysis of these results (provided in Appendix C) we determined that most of the discrepancies reported back to us could be attributed to data submitted by the following six providers: Comcast, DIECA/COVAD/Megapath, Sprint, T-Mobile, Verizon Online, and Verizon Wireless/Cellco. It is important to note that the NJ BB Mapping Team was not given copies of the third-party data, so the reasons for mismatches between the data we submitted and these third-party data were not clear. Our intent was two-fold: (1) to try and understand the scope of possible reasons underlying the discrepancies and (2) share with providers problematic fields, such as provider name or speed tier, which seemed to generate a lot of mismatches, and do some further inquiry to better validate the providers' data. Obviously, by working more closely with providers in this way, we hope to continue to improve data quality in future submissions. The table below summarizes the apparent source of discrepancies and the provider's explanation, for those who responded.

Provider	Probable Source of Discrepancy	Provider Explanation
Comcast	• Most mismatches on max advertised downstream speed (principally tier 10) and maximum advertised upstream speed (principally tier 7) for Cable Modem DOCSIS 3.0.	I believe this issue is one that we have encountered in other states, and results from the method by which we submit data. We provide maximum advertised speed data by MSA, but not all Census blocks within an MSA may offer D3 service--in which case, a D2 Census block may reflect a maximum advertised speed coded as "10." Similarly, but less frequently, Comcast may be in the process of upgrading service to D3 but has not yet initiated advertising for D3 speeds in that area--in which case, a D3 Census block may reflect a maximum advertised speed coded as "7."

		Accordingly, if a D2 Census block is in a MSA in which the overwhelming majority of Census blocks are coded as a "10," those D2 blocks should be coded as a "7." If a D3 Census block is in an MSA coded as a "7," that is likely due to the fact that Comcast has not begun advertising the D3 speeds in that MSA. I believe in our last submission, Comcast showed 100% D3 blocks throughout the state of New Jersey and a maximum advertised download speed of "10." I am waiting for this cycle's data to confirm that this remains the case. Comcast provides D3 throughout New Jersey, so there should be no disconnect between the Census block data and maximum advertised speeds.
DIECA/COVAD/Megapath	• Many provider name mismatches. Might this be attributed to recent M&A activities? • On records where provider name matches third-party data, large number of transfer technology mismatches, primarily involving transtech code 20 (SDSL) and code 30 (Other Copper Wireline). • Most mismatches on max advertised downstream speed involve tiers 5 & 7. • Most mismatches on max advertised upstream speed involve tiers 3, 5 & 7.	More than half of our lines in each state are supplied via ISP resellers, where we provide the underlying internet connectivity in a wholesale capacity for service that is otherwise branded, billed and supported as the ISP's own service. For over 90 of our resellers, we perform a layer 2 network handoff, such that the reseller's IP address space is what would be visible via the internet as well. This makes it impossible for a third party data collector to know these are being served by our last mile infrastructure without detailed cooperation from each ISP. Of course, if supplied a few example instances of these purported mismatches, we could readily provide an exact analysis. Our branding does not necessarily make it clear what underlying technologies are being used to provide service, so it is likely that a third party data collector has made incorrect assumptions in some situations. For example, we offer "TeleSpeed" and "Ethernet" branded services that may be utilizing symmetric DSL or other copper wireline technology. In a few cases, we also have legacy residential "TeleSurfer" services that may be utilizing symmetric or asymmetric DSL technology. Again, if we could be supplied a few examples, we could readily provide a exact analysis. In the case where a third party data provider may have found faster than reported speed, this may be due to the filing requirement that we report only services that can be installed within a typical service interval. From time to time, we also change our network deployment which could result in an increase or decrease in maximum available speed. Also, in our own

		direct business, we did not always sell our maximum provisionable speed, even though we made these offerings available to our resellers. We will be happy to provide more precise explanation if given actual examples.
Sprint	• Most mismatches on max advertised downstream speed tier 3. Possibility that tier 3 understates downstream speed? • Most mismatches on max advertised upstream speed for tier 2. Possibly understating upstream speed?	No explanation offered
T-Mobile	• Most mismatches on max advertised downstream speed tiers 4 & 6. Possibly understated downstream speed in lowest tiers? • Most mismatches in max advertised upstream speed for tier 2. Possibly understating your upstream speed?	No explanation offered
Verizon Online	• Most mismatches on max advertised downstream speed involve tiers 4, 5 & 6 for ADSL. • Most mismatches on max advertised upstream speed involve tiers 2 (ADSL) & 7 (Optical Fiber). • Mismatches have to do with the way provider identifies ADSL speed tiers?	No explanation offered
Verizon Wireless/Cellco	• Most mismatches on max advertised downstream speed tiers 3 & 7. Possibility 3 understates downstream speed and 7 overstates it? • - Most mismatches in max advertised upstream speed is for tier 2. Possibly understating upstream speed?	No explanation offered

The complete set of email exchanges with these providers regarding these analyses is included in their respective data reports (see Appendix A). A set of six questions related to this analysis of discrepancies between NJ and third-party data was also transmitted to the NTIA/Michael Baker team and discussed in a teleconference call involving members of this team and the NJ Broadband Mapping Team. These questions, along with answers provided by the NTIA/Michael Baker participants, are provided in Appendix C.

5.4 *CAI – Service Provider Comparisons*

In preparation for the Spring 2013 submission, we also compared reported coverage areas submitted by service providers in Fall 2012 with names of those reported by community anchor institutions (CAIs), e.g., public libraries, who provide their broadband service. The results from our comparison identified census blocks containing CAIs that reported receiving service from a provider that was not covered by the provider's service area data. We gave feedback to 3 service providers (CableVision-Lightpath, Comcast and Verizon Online) with the hope that this feedback would be useful for improving the accuracy of the service area data they submitted in the Spring 2013 round. An example of the feedback given to providers is shown below.

Mr. Baecher,

As part of our process to continually improve the quality of broad band Service Provider data that we provide to the NTIA, we have been analyzing data from our Oct. 2012 submission. One analysis we conduct compares your reported coverage with names of broadband service providers reported by ***community anchor institutions*** (CAIs), e.g., public libraries.

The results from our comparison of CAI service provider reports to your recent data are attached to this note. These results list census blocks containing CAIs that reported receiving service from you that were not covered by your service area data. We are providing this feedback with the hope that it might be useful for improving the accuracy of your submitted service area. We wanted to do this well-enough in advance of the next submission round -- which will be due to us in the late January timeframe -- so as to give you an opportunity to revise your data for these census blocks, as you see fit.

Thank you again for you continued participation in the NJ Broadband Mapping Program.

Cliff Behrens
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Provider	CensusBlockID
CABLEVISION	340030451005010
CABLEVISION	340030571012002
CABLEVISION	340130206002001
CABLEVISION	340170067003000
CABLEVISION	340258062023017
CABLEVISION	340297132022000
CABLEVISION	340297132031007
CABLEVISION	340297132031010
CABLEVISION	340297134022010
CABLEVISION	340297134022018
CABLEVISION	340297136001006
CABLEVISION	340297139003018

CABLEVISION	340297142004004
CABLEVISION	340390394002007

5.5 *Data Confidence Scale*

In the Fall of 2012 our team began work on the development of a data confidence scale for quantifying the quality of data submitted by service providers. We reviewed data confidence scales as implemented by other states and territories, along with current NTIA guidance. We prepared a white paper that outlined a comprehensive approach for developing a data confidence scale, and developed an initial scale for test implementation in 1Q2013 (see Appendix D). Results from both donut-hole analyses and CAI-Service Provider comparisons mentioned above were tried before including them as factors in data confidence scale estimation. Based on the factors used to compute confidence values for service provider data, we expanded our internal data schema to include fields needed to compute *source*, *currency* and *verification* metrics that comprise our confidence scale (see Appendix E). This approach has now been extended to estimate confidence scores for CAI data (see Appendix H). We will deliver our CAI data to NJ-OIT with confidence scores in Fall 2013.

5.5.1 Confidence in Provider Data

We applied the methodology for computing confidence scores outlined in our white paper (Appendix D) to data submitted by 32 providers for the October 2012 round. One factor considered for computing an overall score is data *source*. Since service providers typically submit their data in a variety of formats, some submission require more translating and transformation to convert them to the format needed by the NTIA, which is an ESRI Shapefile. Hence, we have different confidence in the data based on the submitted format, where the less specific and fine-grained information we receive, the lower our confidence in the data. The highest confidence grade is given to providers that submit data as a GIS vector. Grades obtained for providers were computed and their distribution is given in Appendix E.

We also considered data *currency*, i.e., how up-to-date the data submitted by a provider were, as a measure of data confidence. The older the data, the less confidence we have in its accuracy. A complete set of rules for assigned grades to providers data based on their currency, and the resulting distribution of provider grades obtained from the application of these rules is presented in Appendix E.

Another factor we used to estimate data confidence is the data quality assessment that the FCC/NTIA perform using data from third party sources (e.g., Appendix C). This assessment reports the number of mismatches for the provider name, technology code, and maximum advertised upstream and downstream speeds. We use this feedback to obtain a data *verification* grade for each provider's data: the mismatch count used as a measure of the confidence we have in a provider's data. The rules used to grade provider data on this factor are complex. As with the other two factors, a distribution of verification grades obtained for our sample of 32 providers is presented in Appendix E.)

5.5.2 Confidence in CAI Data

We have received CAI broadband data from a variety of sources that have inherently different levels of integrity. Some of the data were received directly from the providers of the broadband service to the CAIs, e.g. NJEdge, JerseyConnect. Such data is intrinsically of high quality as the providers accurately track and manage the broadband service which they deliver. We received other broadband data as a result of surveys, such as the survey conducted by the NJ DOE and the data from NJ BBMAP website. The broadband data from the surveys is inherently less accurate. For CAI data received directly from providers, assuming that the broadband data is up-to-date, we wanted to assign the highest confidence number, but also assign a lower initial confidence level to survey data, then adjust it upwards or downwards based on the currency of the data and on validation against provider broadband data.

The detailed methodology and estimation of data confidences obtained, by applying it to New Jersey's provider data, were described in an earlier document (see Appendix E). A similar set of factors were used for the CAI assessment – *source* of the data, *currency* and *verification*. We applied the methodology to the April 2013 submitted CAI data which resulted in a confidence level between 1 and 5 assigned to each CAI record. A more detailed discussion of the logic and algorithm used for these confidence level assignments to the NJ CAI data is presented in Appendix H.

5.6 *NJ Broadband Speed Testing*

The FCC and a number of NTIA grantees are already collecting speed test data with MLabs Network Diagnostic Tool (NDT) and OOKLA speed test technology. However, some NTIA grantees have recognized that, for speed test data to be useful for data validation purposes, they must be correlated with ancillary information, particularly test-taker location and service provider. We have developed a plan that applies crowd-sourcing to acquire speed test and associated ancillary information useful for validating access data collected directly from NJ broadband service providers. The plan is based on lessons learned and reported by other NTIA grantees, and reuses to the degree possible existing technology. The proposed approach features two essential components: (1) a website that acquires speed data and associated ancillary address and broadband service data, and (2) media used by social networks of interest with incentives that draw members of these networks to the aforementioned website. With standardized speed tests, that are both geolocated and labeled by service type and provider, it should be possible to validate and, thus, improve the quality of data used to map broadband access in New Jersey. We have prepared a white paper outlining our approach and web server design for collecting standardized speed test data through the NJ-OIT BB mapping website using the MLabs Network Diagnostic Tool (NDT) (see Appendix F). Moreover, NJ-OIT has developed a survey instrument for collecting online broadband connectivity data from CAIs. Using address location and timestamp as keys, it should be possible to correlate speed test data for a CAI with other survey data.

Working with NJ-OIT, we deployed this NJ broadband speed test service in August 2013. The service can be found at http://njbbmap-ndt.appcomsci.com/toolkit/acs/spdtststart.htm. We are currently working on an Android client which extends the capabilities of the M-Labs NDT Android client. An important new feature of this client is the ability to store the time and location where a test fails for lack of network access, and automatic forwarding of these data to the speed test service once a wireless connection is established.

5.7 *Resident Feedback and Provider Data Discrepancy Analysis*

One of the objectives of the SBI is to empower citizens by providing more information about broadband services available to them. With this is the hope that non-served or under-served areas will be identified. For this to happen, feedback from residents in these areas is critical to the success of the SBI program. We offer the following as a nice case study that nicely illustrates how residents' feedback can foster greater customer-provider interactions. Maps and support documentation are provided in Appendix G.

In May of 2013, residents challenged Comcast coverage in Greenwich Township, Cumberland County, NJ. The data we received from Comcast showed that the residents should have "coverage," but the residents in the area claimed they had no broadband access. The NJ Board of Public Utilities agreed with residents since Greenwich township is one of the few Non-Franchised Areas in the state. However, since the Broadband Map showed service coverage, these residents were having a difficult time getting assistance to remedy their situation. This challenge resulted in the following actions. Along with Greenwich Township, other non-franchised areas in NJ were identified, including Stow Creek Township (also in Cumberland County) and Estell Manor City (Atlantic County). More specifically, there were 44 Census Blocks of overstated coverage in these towns submitted by Comcast as of June 30 2012, and this increased to 72 Census Blocks in the Dec 31 2012 data. These findings were shared with Comcast, and they were asked to revise their service coverage data for the Fall submission; otherwise, we would make

the appropriate changes to their data. They agreed to the latter remedy. Moreover, in our data requests for the Fall 2013 submission we asked wireline and wireless service providers, particularly those who claimed to provide service in these non-franchised areas, to closely examine their coverage data before submitting them. Other possible discrepancies have since been identified, e.g., Verizon's LTE wireless broadband coverage in these areas, and we have informed them of this and requested their help in improving our map's accuracy.

6 Handling of Special Cases

6.1 *Fixed Wireless Processing*

NTIA had questioned us about the coverage areas associated with two providers who offer fixed-wireless service in New Jersey. In one case, the provider, Global Online Electronic Services, uses fixed wireless links as a substitute for wireline connections and serves a single location with each link. We therefore generated a "coverage area" by using the census block that contains the address. This is clearly not the result of propagation model analysis, but due to the nature of the service they provide accurately reflects their capabilities.

We also receive information from a new fixed wireless provider, Jersey Shore Wireless. They provided us with image files (e.g., jpegs) with coverage maps that had been hand-drawn based on a drive-test they had conducted in 2008. Given the source of the information, the shapes tend to align with major roadways. Jersey Shore Wireless did not have the resources available for propagation modeling and we did not have sufficient time to assist them in performing this task. For this round, we manually converted their images into shape files. It was clear that these shapes would understate, rather than overstate coverage, and thus it seemed reasonable to include them.

6.2 *Process Verification*

We have instituted a thorough review of our process steps. The review involved investigation of each process step by an individual other than the person who had created the process or executed it in the past. As a result of this process, we have implemented several process improvements. The corrections and improvements include:

- For CenturyLink, altered Census Block process to allow provider's speed values, with validation-related adjustments, rather than setting all values the same.
- For Hometown Online, adjusted Census Block process to account for the fact that provider reported different transtech and speed values in one census tract.
- For Service Electric – Sparta, set middle mile capacity and type values, which had inadvertently been left null in the previous submission. Adjusted technology and speed values to reflect DOCSIS 3.0.
- For ViaSat, corrected spectrum value to reflect that they offer satellite service.
- For Verizon, corrected the ownership value of the middle mile locations, which had been inadvertently left as null in previous rounds.
- For Xchange Telecom, set provider type to "reseller", based on interaction with provider that indicated that they lease facilities from Verizon.
- Revised CAI processing rules to insert "NA" for building number when no value was available.
- Made multiple improvements to CAI address processing to enhance the automated address extraction and mapping to reference data.

6.3 *Validation Warnings*

We received warning messages from the NTIA data validation tool when processing submission data from several providers. The details of these warnings and our reaction to them are included in the

individual provider reports later in this document. Here we provide a convenient summary of those warnings that are still present in the submitted data.

6.3.1 Provider Warnings

Data from all providers were checked using the NTIA validation script. The validation script did not produce any errors. We received warnings from the validation script related to 10 providers' data. The following table describes the warnings we received and our responses to them

Provider	Warning
AT&T Mobility LLC	*Issue:* We received a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless) for the LTE service. *Resolution:* The maximum advertised speed tier provided in the cover letter that came with the provider's submission is 7. The provider confirmed that the value is correct.
CenturyLink	*Issue:* We received warnings on 7,180 census blocks and 1,779 street segments for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). *Resolution:* The provider had originally reported speeds exceeding 25 Mbps, or a speed code of 8. When we questioned these, the provider could not confirm those values, but asserted that all areas were covered with speeds exceeding 10 Mbps.
Comcast	*Issue:* We received warnings on 74,813 census blocks and 3,141 street segments for the combination of an upstream speed code of 9 (50-100 Mbps) with a transtech code of 40 (DOCSIS 3.1). *Resolution:* The provider confirmed that the speed was verified with their engineers. A search of their Web site, *http://www.comcast.com/ned-305*, shows the downstream speed of 305 Mbps. The provider said that we have to contact customer service reps to get the upstream speed. We called them and were told that the upstream speed is 65 Mbps in our area.
Global Online Electronic Services, Inc.	*Issue:* We received warnings on the wireless shape record for the combination of upstream and downstream speed codes of 7 (10-25 Mbps) with a transtech code of 70 (Fixed Wireless - Unlicensed). *Resolution:* The provider has only a single fixed wireless site, and it is used for point-to-point links, rather than to provide a coverage area. The provider confirmed that the speed is 10 Mbps.
Hometown Online	*Issue:* We received warnings on 405 census blocks for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). *Resolution:* We searched the provider's Web site for speed information. We only found one reference to speed packages, and these values and the Web page seemed out of date. We sent a request for clarification to the provider. The provider acknowledged the validation requirements, indicated that the Web page found by our search was in error and confirmed the submitted speed values. The president of the company also indicated that they would be launching a new Web site with corrected speed information in the near future.
Megapath	*Issue:* We received warnings on 9,681 census blocks for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). *Resolution:* The provider confirmed that they support 15 Mbps with their ADSL2+ service in limited regions of the state.

Service Electric Broadband Cable (Sparta)	*Issue:* We received warnings on 5,265 census blocks and 985 street segments for the combination of a downstream speed code of 8 (25-50 Mbps) with a transtech code of 40 (DOCSIS 3.1). *Resolution:* The provider was not willing to commit that they offered anything faster. A search of their Web site confirmed that the fastest speed they advertise is 35 Mbps down and 3 Mbps up.
T-Mobile	*Issue:* We received a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless). *Resolution:* Investigation of the T-Mobile Web site showed that they are advertising average speeds "approaching 10 Mbps" and peak speeds of 27 Mbps. We sent a note to the provider to verify the value, and the provider confirmed that these values are correct. While T-Mobile submitted Speed Tier 8 (25-50 Mbps) for its LTE service, this encoding was at odds with NTIA Speed Tier 7 (10-25 Mbps), the maximum advertised downstream speed for LTE. Following NTIA directives, we reduced any Speed Tier 8 submitted by T-Mobile to Speed Tier 7.
Verizon Wireless	*Issue:* We received a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless). *Resolution:* The maximum advertised speeds provided in the cover letter that came with the provider's submission are 600 - 9.99 mbps down and 3.00 - 5.99 mbps up. The typical speeds are provided as ranges: 5 - 12 Mbps down and 2 - 5 Mbps up. For max adv speeds we had originally encoded the submitted down speed as value 6 (range 6-10Mbps) and encoded the submitted up speed as value 5 (range 3-6mbps). Based on the email from Anne Neville data 2/21/2012, we modified the down speed to code 7.
Xchange Telecom	*Issue:* We received warnings on 1,012 census blocks for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). *Resolution:* The provider confirmed, and we validated via their Web site, that they advertise 10 Mbps, which is just at the bottom of the range for code 7.

6.3.2 CAI Warnings

The validation script produced 11,304 warnings on our CAI data for 11,285 null values of transtech and 19 zero values of transtech. This is a result of our decision to include all the CAIs that we could reliably identify and geo-locate, even if we have not been able to ascertain the broadband usage at the site as yet. The 19 records with zero for transtech are a result of two forms of data submission. 12 of these records were a result of submissions to our website where the CAIs selected it to signify a technology other than the NTIA defined ones. These are accompanied by valid speed tiers. The remaining 7 were from records where the technology, downstream speed and upstream speed were all zero. We are in the process of ascertaining if this indicates that there is no broadband connection or if it is unknown.

This full list provides us with a target for our outreach efforts to these institutions. The set of "complete records", which include full broadband access information, is a key metric we are using to track progress in obtaining information about the broadband access. The counts of these records by category are included in the table above and in the CAI data processing section in Appendix B.

Appendix A: New Jersey Provider Data Reports

Connecting New Jersey - Broadband Provider Data Report

Provider: Appia Communications, Inc.
Received: August 2010
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy voxitas_apr2013.BB_Service_CensusBlock to voxitas_oct2013. BB_Service_CensusBlock.
2. Update the endusercat column in the voxitas_oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.

For April 2013:
We changed the provname and dbaname changed from "Netlogic, Inc." and "Voxitas" to "Appia Communications, Inc.". We also changed the FRN from "0006825954" to "0018898650".

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

3. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy voxitas_oct2012.BB_Service_CensusBlock to voxitas _apr2013. BB_Service_CensusBlock.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Section 1: NDA Status
Executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	Netlogic, Inc. Voxitas 0006825954
FOR WIRELINE		
Filetypes	Excel spreadsheet	
File size	9767 bytes, 4 data rows	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	
Typical-upstream		Not provided	Address rows with speed entries were provided, probably the speed promised to the customer. Not averaged over an area so not typical; no advertised speeds provided.
Typical-downstream		Not provided	
Advertised-upstream		Not provided	
Advertised-downstream		Not provided	
Subscriber-weighted-up		Not provided	
Subscriber-weighted-down		Not provided	

Technology Type	Not provided; Web site search indicates and provider confirmed "Copper – Other"
End-user specification	Not provided
Comments:	
INTERCONNECTION DATA	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: Not provided	

Section 3: Submission File Details

Received 1 file by secure upload.

Size	Name
9767	NJBroadband.xlsx

The file has 4 (four) rows of data. All have customer names and addresses. Three records describe DS1 service, one describes something else. Speeds listed are probably the provisioned speeds, not typical or advertised. No cover letter with DBA name, FRN, or other company data is present. No coded representations of data such as end user type, technology of transmission, etc. are provided.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

Loaded from supplied file "NJBroadband.xlsx" (4 rows). The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Netlogic, Inc."
DBANAME	Set to "Voxitas"
RESELLER	Set to "N"
FRN	Set to "0006825954"
STATEFIPS	Set to "34" (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to "30"
MAXADDOWN	As supplied in column Downstream
MAXADUP	As supplied in column Upstream
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	Copied from Census Bureau TigerLine 2000, as matched by spatial join on geocoded address

Internal processing notes:

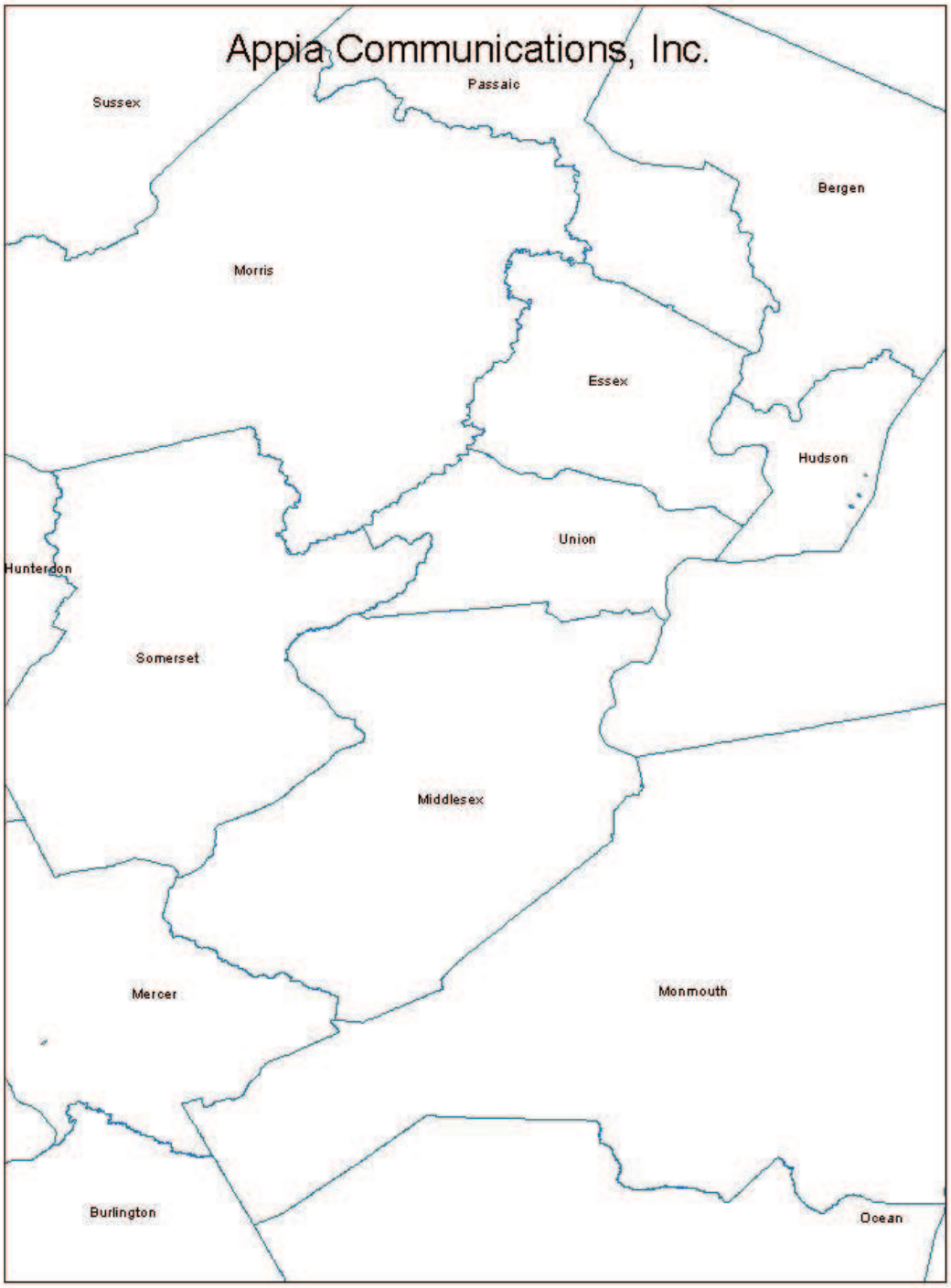
1. Following steps were performed when data was initially submitted and results were reused in this round

    a. Geocoded the addresses using the Google geocoder.
    b. Created an excel sheet and imported to a geodatabase table.
    c. Added point shapes corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
    d. Added a column containing the ID of the containing year 2000 census block via a spatial join of the point shapes and the census block shapes from reference data.
    e. Discarded NN rows with duplicate census blocks.
2. Ran NTIA validations and all passed

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: AT&T Mobility LLC
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NDA was executed with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	AT&T Mobility LLC AT&T Mobility LLC 0004979233 for mobility NB: "AT&T Corporation, Inc." with FRN 0004979244 for middle mile
FOR WIRELESS		
Filetypes	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.	Spreadsheet (XLSX) and shapefile that uses projection GCS_WGS_1984
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Upstream max adv: State Downstream max adv: State Upstream typical: Not provided Downstream typical: Not provided Subscriber-weighted: Not provided	
Technology Type	Spectrum (Mhz, FCC code)	Cellular (code 1) and PCS (code 3)
Comments:		
INTERCONNECTION DATA		

ID	
File size	Single row
Ownership	Code 0
Transport Type	Code 1
Data Rates/Capacity	Code 6
Location	Newark, NJ
Comments: Single location provided	

Data overview:

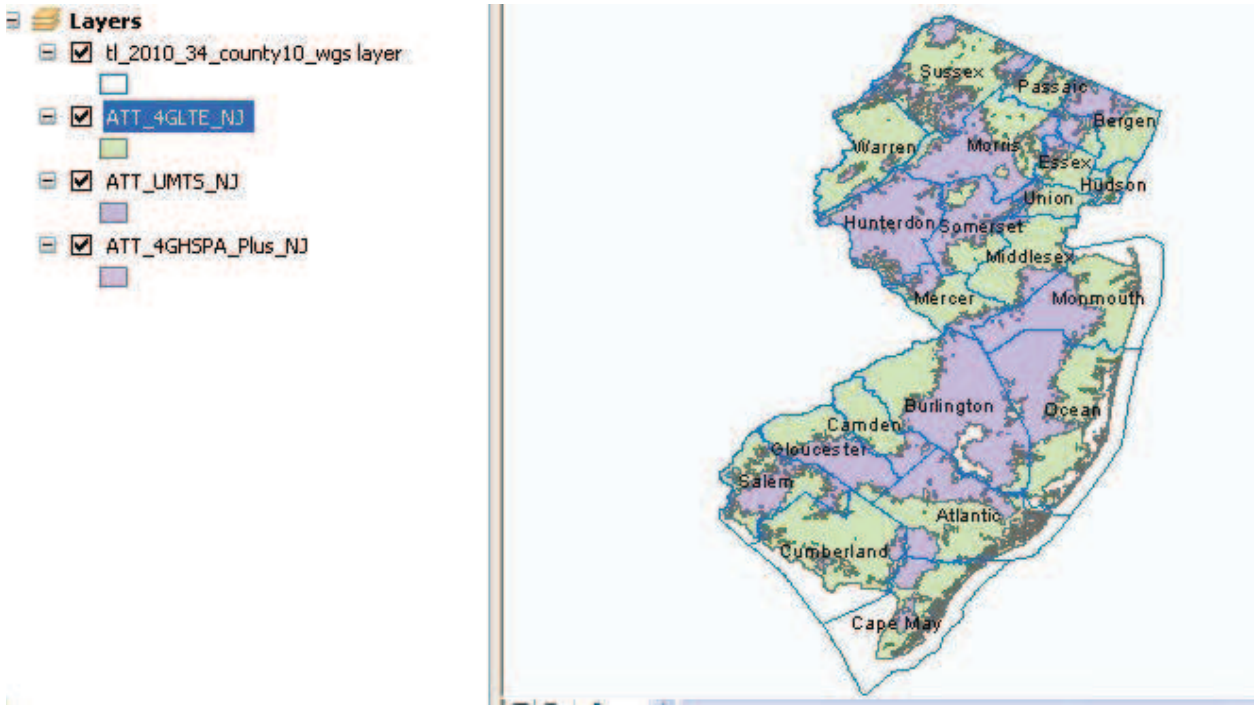


Figure 1. Quick load of data into ArcMap

Section 3: Submission File Details

Received files by SECURE UPLOAD:

Name	Size
ATT Router Locations June 2013 New Jersey.xlsx	9 KB
ATT_4GHSPA_Plus_NJ.DBF	1 KB
ATT_4GHSPA_Plus_NJ.PRJ	1 KB
ATT_4GHSPA_Plus_NJ.shp	2,266 KB
ATT_4GHSPA_Plus_NJ.SHX	1 KB
ATT_4GLTE_NJ.DBF	1 KB
ATT_4GLTE_NJ.PRJ	1 KB
ATT_4GLTE_NJ.shp	2,545 KB
ATT_4GLTE_NJ.SHX	1 KB
ATT_UMTS_NJ.DBF	1 KB
ATT_UMTS_NJ.PRJ	1 KB
ATT_UMTS_NJ.shp	2,262 KB
ATT_UMTS_NJ.SHX	1 KB
Mobility Response Template June 2013 New Jersey.xlsx	9 KB

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Oct 2013:
Loaded from supplied Excel Spreadsheet "ATT Router Locations June 2013.xlsx" (1 row). Since data is identical to that included in previous submission, we copied the previous data.

Apr 2013:
The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied
DBANAME	As supplied
FRN	Added leading zeroes to read 0004496774 (see below)
OWNERSHIP	As provided in column "Ownership"
BHCAPACITY	As provided in column "Serving Facility Capacity"
BHTYPE	As provided in column "Serving Facility Type"
LATITUDE	As provided in column "Latitude_geo"
LONGITUDE	As provided in column "Longitude_geo"
ELEVFEET	Set to "0" (zero)
STATEABBR	Set to "NJ"
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

3. Used the provider name, DBA name, and FRN as supplied, after adding back leading zeros to the FRN. Note that the middle-mile entity is different than the mobility entity and per clarification from AT&T during the October 2010 submission round, should indeed be reported differently.
4. Imported the excel sheet to a geo-database table.
5. Added point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
6. Mapped to separate shape file to correct tolerance.
7. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data.

NTIA Table BB_Service_Wireless

October 2013:
There are 3 shape files submitted: ATT_UMTS_NJ, ATT_4GHSPA_Plus_NJ, and ATT_4GLTE_NJ. Each shape file has only one record.

April 2013:
There are 3 shape files submitted: ATT_3G_Dec2012_NJ, ATT_4G_Dec2012, and ATT_4GLTE_Dec2012. Different from the last submission, each shape file has only one record.

October 2012:
Different from the last submission where only one shape file, UMTS, is submitted, there are 3 shape files submitted this time: ATT_LTE_July2012_NJ with 47 records, NJ_ATT_3G_July2012 with 25 records, and NJ_ATT_4G_July2012 with 9 records.

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "AT&T Mobility LLC"
DBANAME	As supplied in file Mobility Response NJ June 2011.xlsx
FRN	Set to 0004979233
TRANSTECH	As supplied in file Mobility Response NJ June 2010.xlsx
SPECTRUM	Set to "3" per translation shown below
MAXADDOWN	Set to "4", see below.
MAXADUP	Set to "3", see below.
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to "NJ"
SHAPE	As supplied.

Internal notes on processing:
1. File "Mobility Response Template June 2013 New Jersey.xlsx" (same as the one

in the previous submission) contains three rows with provider name, DBA name, FRN, technology of transmission, a specification of the spectrum bands used, and the maximum advertised up/down speeds. The FRN is missing the leading zeros. The TechTrans code is valid. The max speed values are plausible.

2. The shape files have no text attributes associated with the row. The coverage area is most of the State of New Jersey, broken into separate shapes by various horizontal and vertical lines. The map strongly resembles the map shown at www.wireless.att.com.
3. The supplied shapes use geographic coordinate system name GCS_WGS_1984. The NTIA data model requires the same coordinate system. No geographic transformation was required, but the XY Tolerance value differs from the required value. Imported shape then mapped to separate shape with proper tolerance which resulted in a new feature class with the suffix "_tol".
4. NTIA requires shapes to be contained in the NJ state boundary. Although we visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature classes have the suffix "_clip"
5. This step is not needed in the October 2013 submission as each shape has only one record: Coalesced the single-part polygons into one multi-part polygon using the ArcGIS "Dissolve" tool, which resulted in a new feature class with the suffix "_Dissolve".
6. Spectrum: AT&T Mobility provided multiple columns of data about their spectrum use. Searching on the web suggests that AT&T 3G uses frequencies 850MHz and 1900Mhz. The NTIA data model has a single column for spectrum. No mapping is provided for frequency 850MHz. Frequency 1900MHz corresponds to NTIA "SPECTRUM USED" code value 3 – this was used for the 3G and 4G services.
7. Speeds were given as index values conforming to the NTIA model.
8. Set the endusercat column to 5.
9. The only data imputed was the state abbreviation.

Validation rules produced a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless) for the LTE service. The maximum advertised speed tier provided in the cover letter that came with the provider's submission is 7. Provider confirmed that the value is correct.

Section 5: Clarification Questions and Responses

```
From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Friday, August 31, 2012 3:17 PM
To: WAGNER, GREGORY G
Subject: Re: NJ Broadband Data Collection - Fall 2012
```

Greg,

Before we submit provider data to the NTIA it must be validated by an NTIA script. When we processed your submission with this script, it generated a warning and recommended that for transtech=80 the maxaddown speed should be changed from "7" to "6." In other words, the NTIA believes that the maximum advertised downstream Service Speed for Terrestrial Mobil Wireless cannot equal 10 mbps or greater (hence the
recommended value "6", see table below). I just need to confirm from you that you think "7" is the value you intended to submit and the speed you support.

Best regards,

Cliff
Subject: RE: NJ Broadband Data Collection - Fall 2012
Date: Tue, 4 Sep 2012 13:15:02 +0000
From: WAGNER, GREGORY G <gw5604@att.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Cliff,

We have determined that speed tier 7 is the appropriate designation for our LTE product.

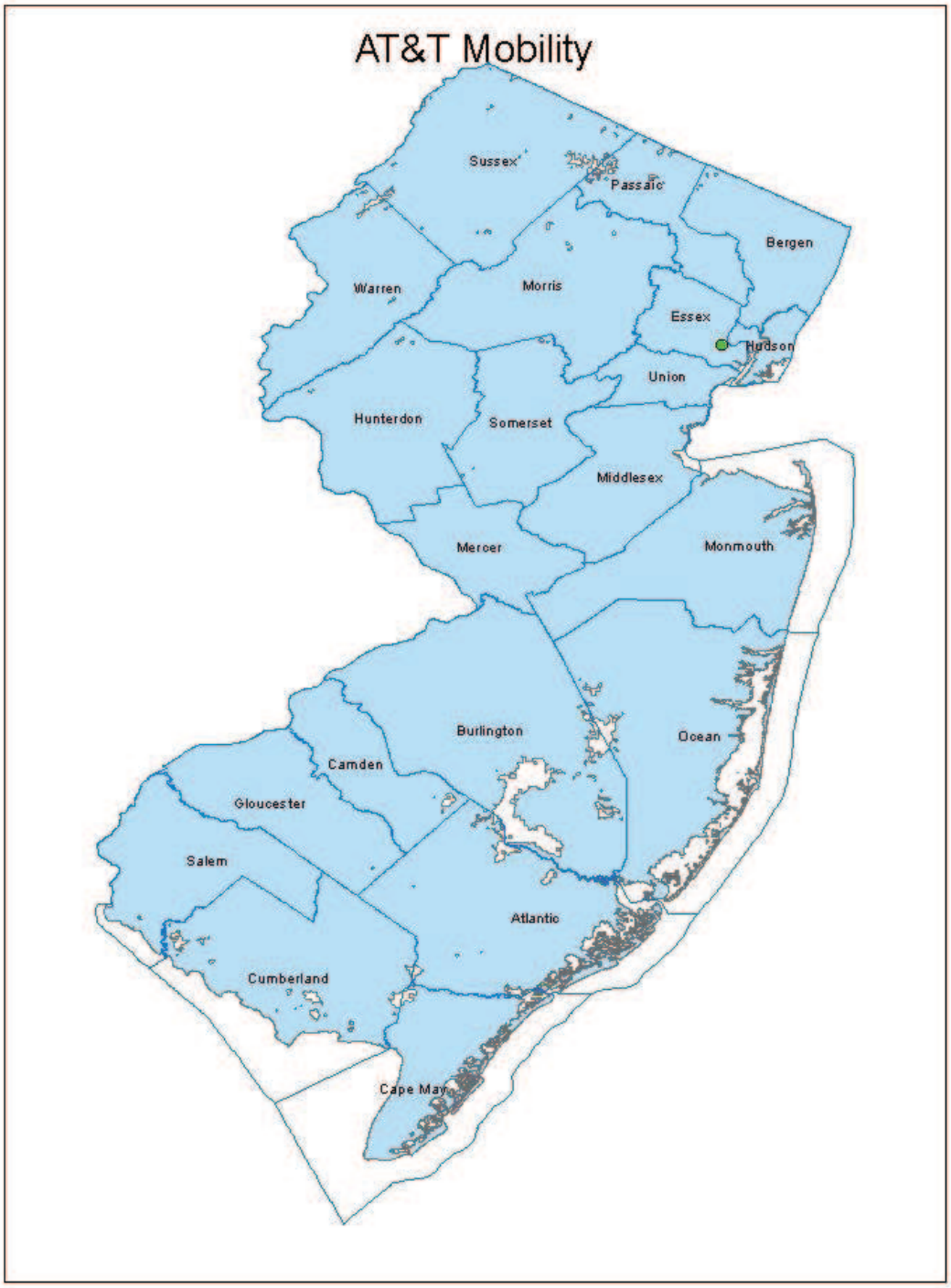
Greg

Gregory G. Wagner
(210)246-8157

Note: This e-mail message is confidential and intended only for the named recipient(s) above. It contains information that may be privileged, attorney work product, or exempt from disclosure under applicable law. If you have received this message in error, or are not the named recipient(s), please immediately notify me at (210)246-8157 and delete this e-mail message from your computer. Thank you.

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Cablevision
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

1. NDA Status
2. Submission Overview
3. Submission File Details
4. Data Validations and Results
5. Data Transformation and Loading
6. Clarification Questions and Provider Responses
7. Notes and Open Issues

Section 1: NDA Status

Executed with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name	CSC HOLDINGS INC
	"Doing business as" name	CABLEVISION / LIGHTPATH
	FRN	0003735909, 0003510195
	Holding company name	CSC Holdings, Inc.
	Holding company number	130370
FOR WIRELINE		
Filetypes	Shapefile with Census Block Year 2010 data	
File size	Multiple tables and shapes, for cable modem and optical (Lightpath) technologies.	
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
	Typical-upstream	Not provided
	Typical-downstream	Not provided
	Advertised-upstream	Census block and street segment
	Advertised-downstream	Census block and street segment

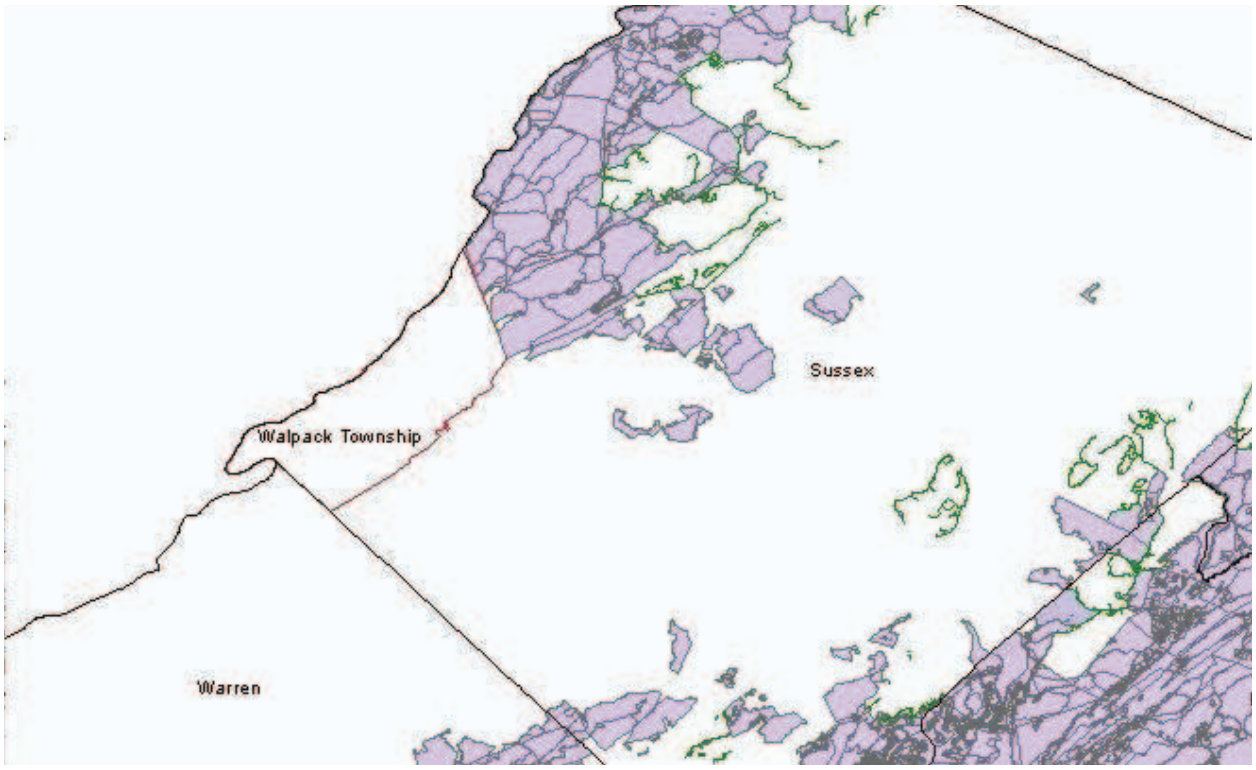
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
Technology Type	40 (Cable Modem DOCSIS3.0), 41 (Cable Modem - Other), 50 (Optical carrier)			
End-user specification	Yes. Address data provided in 2 shape files (for both cable and optical) with street segment ID. (a field is called TLID, which is assumed means Tiger Line ID).			
Comments: Street data is comprised solely of polylines in the shapefile while the other files are polygons representing coverage. No subscriber weighted data found.				
INTERCONNECTION DATA: PROVIDED AFTER REQUEST				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: None.				

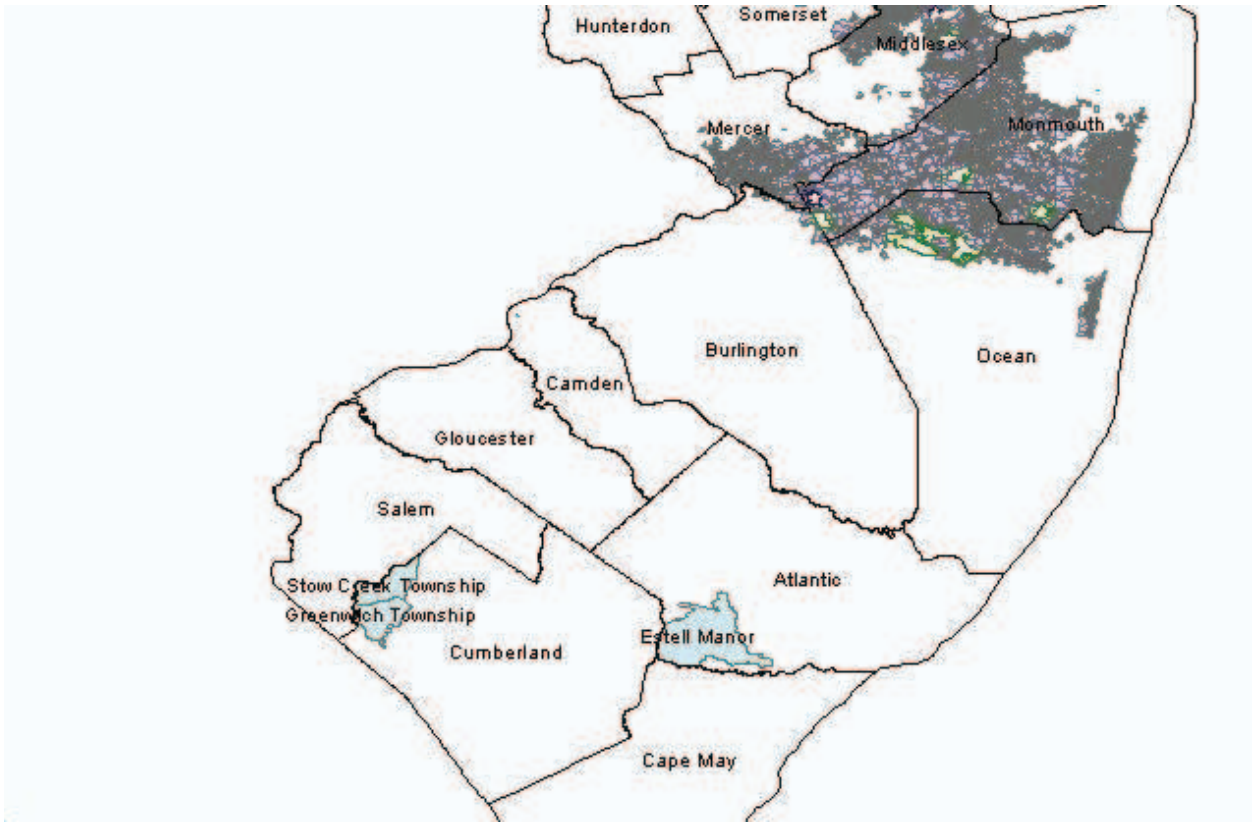
Section 3: Submission File Details

Received one (1) file by SECURE UPLOAD. The zip archive contains 2 shapefiles: small census blocks (Cablevision), and roadsegments (Cablevision). The email stated that the Lightpath data remain same. The data and shapes appear to use Year 2010 Census Bureau geometry. The shapefiles use the XY Coordinate System GCS_North_American_1983.

Name	Size
tbaecher@cablevision.com	
CABLEVISION_NJ_07_2013.zip	20,004 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.dbf	1,092 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.prj	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp	450 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp.xml	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shx	10 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.dbf	20,180 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.prj	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	31,222 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp.xml	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shx	458 KB

Preview: the following screenshots show that Cablevision does not provide services non-franchised townships: Walpack township (Sussex County) , Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) and Estell Manor City (Atlantic County)


Sussex
Walpack Township
Warren


Hunterdon
Somerset
Middlesex
Mercer
Monmouth
Burlington
Ocean
Camden
Gloucester
Salem
Stow Creek Township
Greenwich Township
Cumberland
Atlantic
Estell Manor
Cape May

Section 4: Data Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Oct 2013:
Since data was not provided for the October 2013 submission, the April 2012 data was copied.

Apr 2013:
The following describes how the data was loaded in previous submission.
Loaded from data supplied in the XLS sheet. Only one row describes a connection point in New Jersey. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “CSC HOLDINGS INC”
DBANAME	Set to “CABLEVISION”
FRN	As supplied in column frn_name
OWNERSHIP	Set to code 1, leased
BHCAPACITY	Set to code 4; 1gbps falls in range 600mbps – 2.4gbps
BHTYPE	Set to code 1, fiber
LATITUDE	Obtained by geocoding the address
LONGITUDE	Obtained by geocoding the address
ELEVFEET	Set to “0” (zero)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Point shape created using ESRI ArcDesktop

Internal notes on processing:

8. Reused the table created for the October 2010 submission, but mapped Lat/Long to 2010 census block.
9. Since the data was not provided for the April 2012, the October 2010 data was reused.

NTIA Table BB_Service_CensusBlock

Loaded from the supplied feature class (shapefile) with census blocks for Cablevision. The following table explains the transformations that were applied to load the target table. The Cablevision has 58,538 records.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column proname
DBANAME	As supplied in column dbaname
PROVIDER_TYPE	Set to 1

FRN	As supplied in column frn
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from cenblock (digits 3-5)
TRACT	Populated from cenblock (digits 6-11)
BLOCKID	Populated from cenblock (digits 12-15)
FULLFIPSID	As supplied in column cenblock
TRANSTECH	As supplied - For Cablevision: column trechtrans2 - For Lightpath: column techtrans
MAXADDOWN	As supplied in column maxaddnsp
MAXADUP	As supplied in column maxadupsp
TYPICDOWN	Set to null, not supplied
TYPICUP	Set to null, not supplied
ENDUSERCAT	As supplied in column endusercat
SHAPE	As supplied in column shape

Internal processing notes:

1. Import the features with XY Coordinate System " GCS_North_American_1983" via the following three-step process. (A simple Import using ArcCatalog yields an incompatible tolerance value.)
    a. First, copy the data from the shapefiles to the geodatabase using a geographic transformation “NAD_1983_to_WGS_1984_5”. This yields feature classes with the required coordinate system but an incorrect tolerance value. The name is "cv_nj_ar_av_cb_lt_2mi_wgs".
    b. Second, create new feature classes with the same schema as the provided shapefile feature classes and the required coordinate reference system (GCS_WGS_1984) and tolerance (0.000000002 degrees). The name is " cv_nj_ar_av_cb_lt_2mi _wgs_tol".
    c. Third, load the data into the newly created feature classes to ensure perfect compatibility with the required coordinate reference system and tolerance.
    d. Copy “lp_nj_ar_av_cb_lt_2mi _wgs_tol” from the last submission
2. Ignored the column "techtrans1" in the Cablevision feature class. The presence of two transport technologies indicates that they can support both DOCSIS 3.0 and Other on the all lines.
3. All of the cenblock values correspond to valid Year 2010 Census Block IDs.
4. All census blocks were confirmed to be less than 2 square miles.
5. There were no duplicates in terms of census block and transtech.
6. Cablevision submitted Census block and Road segment data with endusercat = 5. As we were instructed to use the previous data for Lightpath (which does not have endusercat), we decided to use endusercat = 5 in this case as well.

NTIA Table BB_Service_RoadSegment

Loaded from the supplied feature with line segments. The following table explains the transformations that were applied to load the target table. The Cablevision has 1,246 records.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column prvd_name
DBANAME	As supplied in column dba_name
PROVIDER_TYPE	Set to 1
FRN	As supplied in column frn_name
ADDMIN	Set to the least of the non-empty address numbers
ADDMAX	Set to the greatest of the non-empty address numbers
PREDIR	Set to null (no value supplied)
STREETNAME	As supplied (has all street components, not just name)
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)
CITY	Set to null (no value supplied)
STATECODE	Set to “NJ”
ZIP5	Set to null (no value supplied)
ZIP4	Set to null (no value supplied)
TRANSTECH	As supplied in column tech_trans
MAXADDOWN	As supplied in column max_ad_dwn
MAXADUP	As supplied in column max_ad_up
TYPICDOWN	Set to null (no value supplied)
TYPICUP	Set to null (no value supplied)
ENDUSERCAT	See below
SHAPE	As supplied

Internal processing notes:

1. The feature class was imported exactly as discussed above for table BB_Service_CensusBlock.
2. Ignored the column "techtrans1" in the Cablevision feature class. The presence of two transport technologies indicates that they can support both DOCSIS 3.0 and Other on the all lines.
3. Three records in the Cablevision set and one record in Lightpath were determined to be duplicates, in terms of county and Tiger Line ID. These records were discarded. 1353 records were loaded.
4. Cablevision submitted Census block and Road segment data with endusercat = 5. As we were instructed to use the previous data for Lightpath (which does not have endusercat), we decided to use endusercat = 5 in this case as well.

Section 5: Clarification Questions and Responses

Subject: CSC Holdings Broadband Submission
Date: Thu, 22 Aug 2013 15:50:04 -0600
From: Davis Black <davis@frontiergeotek.com>
To: <ConnectingNJ@groups.appcomsci.com>
CC: 'Roxanne Smestad' <roxanne@frontiergeotek.com>, <TBAECHER@cablevision.com>

Greetings Mr. Behrens,

This email is to inform you that the Broadband Stimulus data for CSC Holdings, Inc. DBA Cablevision has been uploaded to the New Jersey State Broadband portal. The zip file is approximately 20 megabytes in size. I apologize for the delay in submission as we had some resource confusion on our end.

The information for CSC Holdings, Inc. DBA Lightpath did not change since last round and thus a new submission was not necessary.

Please let me know if you have any issues with the data or need any additional information.

Thanks,
Davis

Davis Black
GIS Analyst
Frontier GeoTek, Inc.
6377 S. Revere Pkwy, Suite 300
Centennial, CO 80111
Phone: (303)350-4104 ext. 20
Fax: (303)350-4109
davis@frontiergeotek.com

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Tuesday, February 21, 2012 10:14 PM
To: 'tbaecher@cablevision.com'
Cc: 'NJ Broadband Data Collection'
Subject: NJ Broadband Clarification

Ted,

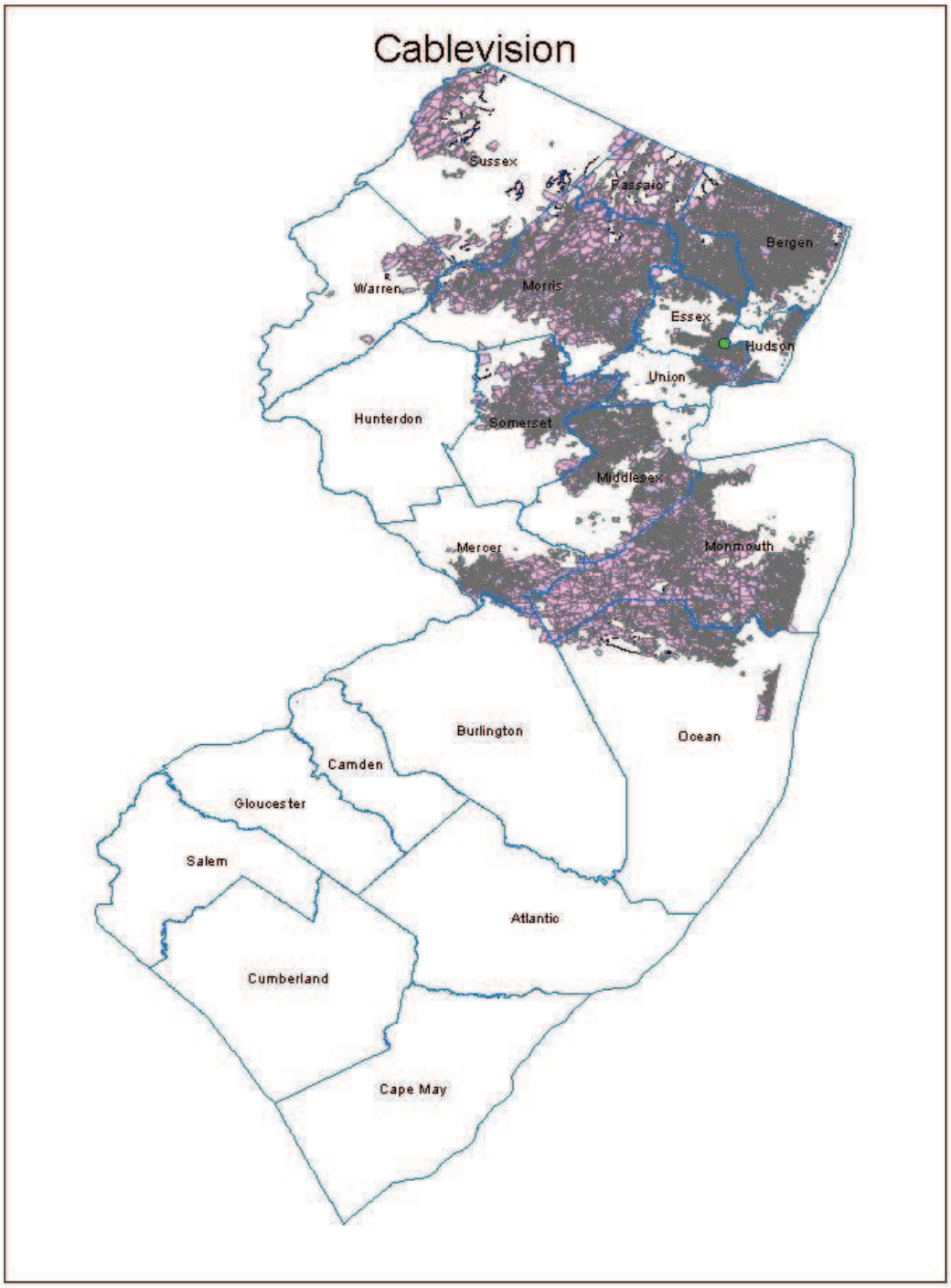
We have performed our initial review of the data you submitted and we have a clarification question. Your recent submission did not include any middle mile information. The last middle-mile data you submitted is from a year ago. Is that data still valid? If not, could you please supply us with revised information?

Thanks for your cooperation.

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: CenturyTel DBA Century Link
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

8. NDA Status
9. Submission Overview
10. Submission File Details
11. Data Validations and Results
12. Data Transformation and Loading
13. Clarification Questions and Provider Responses
14. Notes and Open Issues
15. Overview Map of Submitted Data

Section 1: NDA Status

Century Link executed an NDA with NJ OIT; the data files refer to the NDA.

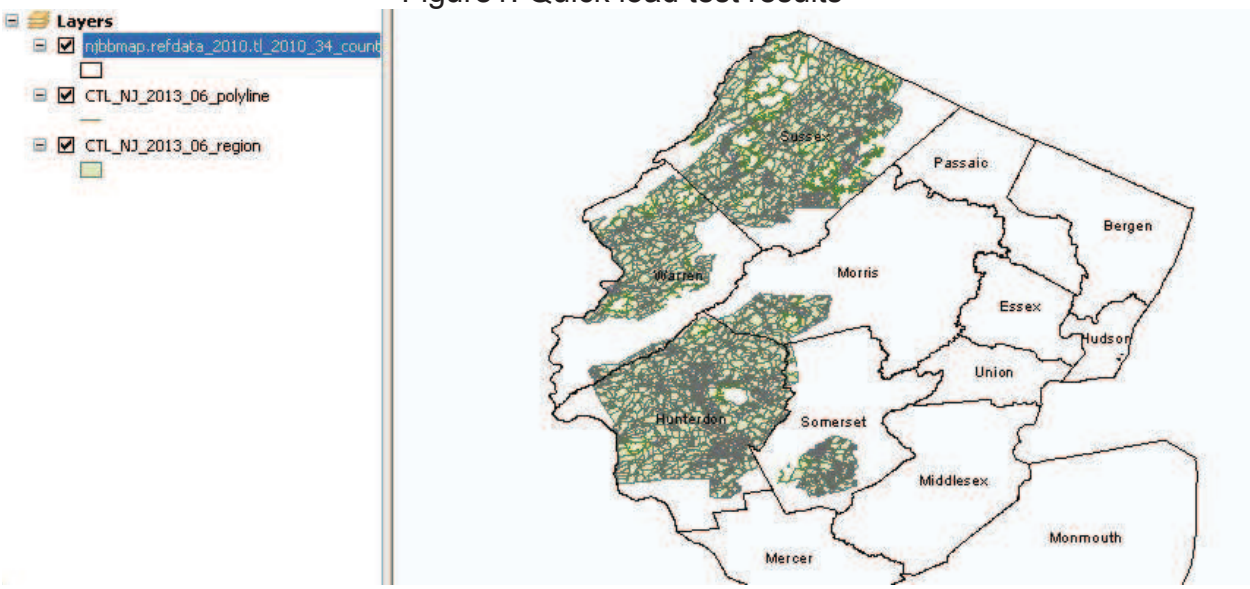
Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	CenturyLink, Inc. (per email) Century Link 0018626853
FOR WIRELINE		
Filetypes	Shapefiles “CTL_NJ_2013_06_polyline” and “CTL_NJ_2013_06_region”	
File size		
Speeds		

Type		Spatial Resolution: county
Typical-upstream		Census block and street segment
Typical-downstream		Census block and street segment
Advertised-upstream		Census block
Advertised-downstream		Census block
Subscriber-weighted-up		Not provided
Subscriber-weighted-		

	down			
Technology Type	10 (ADSL)			
End-user specification	Not provided			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: Middle-mile data was not provided this submission.				

Figure1. Quick load test results



Section 3: Submission File Details

Name	Size
CTL_NJ_2013_06_polyline.dbf	1,036 KB
CTL_NJ_2013_06_polyline.prj	1 KB
CTL_NJ_2013_06_polyline.shp	619 KB
CTL_NJ_2013_06_polyline.shx	25 KB
CTL_NJ_2013_06_region.dbf	2,497 KB
CTL_NJ_2013_06_region.prj	1 KB
CTL_NJ_2013_06_region.shp	11,488 KB
CTL_NJ_2013_06_region.shx	59 KB
CTL_NJ_2013_08_07.zip	8,902 KB

Section 4: Data Validation,Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Since the middle mile data is not submitted, we assume that there is no change in this submission. The data is copied from the 2013 April submission.

The following table explains the transformations that were applied in earlier submission.

Table Column	Data Source / Transformation
PROVNAME	Set to “CenturyLink, Inc.” per email
DBANAME	As supplied in DbaName
FRN	As supplied in FRN
OWNERSHIP	As supplied in Own
BHCAPACITY	As supplied in BHCap
BHTYPE	As supplied in BHType
LATITUDE	As supplied in Lat
LONGITUDE	As supplied in Long
ELEVFEET	Set to “0” (zero)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Point shape created using ESRI ArcDesktop

Internal notes on processing:

10. Loaded 1 row of data from Excel Spreadsheet “middlemile_NJ.txt” (1 row) that was supplied for the April 2011 submission. Data in that table had previously been spatially joined to find containing census block.

NTIA Table BB_Service_CensusBlock

Loaded from supplied shapefile feature “CTL_NJ_2013_06_region”. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “CenturyLink, Inc.” per email
DBANAME	As supplied in column “dba_name”
PROVIDER_TYPE	Set to 1
FRN	Set to "0018626853"
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from census_blo (digits 3-5)
TRACT	Populated from census_blo (digits 6-11)
BLOCKID	Populated from census_blo (digits 12-15)
BLOCKSUBGROUP	Set to null
FULLFIPSID	As supplied in column census_blo
TRANSTECH	As supplied in column technology
MAXADDOWN	Set to 7 for all records
MAXADUP	Set to 4 for all records
TYPICDOWN	Set to null
TYPICUP	Set to null
SHAPE	As supplied

Internal notes on processing

10. Differently from the 2012 April submission, the supplied shapes use geographic coordinate system GCS_North_American_1983. The NTIA data model requires coordinate system GCS_WGS_1984. To change the projection we applied the ESRI geographic transformation NAD_1983_To_WGS_1984_5 (per ESRI KB article 24159). The resulting table is named with suffix “_wgs”.
11. We had to create a new feature class and reload the data so that the tolerance value matches the NTIA transfer model’s tolerance value exactly, resulting in a feature class with a suffix of “_tol”.
12. Shapefile (feature class) CTL_NJ_2013_06 _region provides coverage data for census blocks with an area less than or equal to 2 square miles. It contains 7,472 records. All of the IDs shown in the shapefile correspond to valid Year 2010 Census Block IDs and all are smaller than 2 square miles.
13. The feature class "region" has 292 rows with duplicate census block IDs and identical technology codes (confusingly the speeds are different for the some of these duplicates). We discarded these to avoid creating duplicate shapes in the table.
14. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.
15. We loaded 7180 records into the bb table.

NTIA Table BB_Service_RoadSegment

Loaded from supplied shapefile feature “CTL_NJ_2013_06_polyline”. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “CenturyLink, Inc.” per email
DBANAME	As supplied in column “dba_name”
PROVIDER_TYPE	Set to 1
FRN	Set to "0018626853"
ADDMIN	Set to the least of the non-empty address numbers
ADDMAX	Set to the greatest of the non-empty address numbers
PREDIR	Set to null (no value supplied)
STREETNAME	As supplied
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)
CITY	Set to null (no value supplied)
STATECODE	Set to “NJ”
ZIP5	Set to null (no value supplied)
ZIP4	Set to null (no value supplied)
TRANSTECH	As supplied
MAXADDOWN	Set to 7
MAXADUP	Set to 4
TYPICDOWN	Set to null
TYPICUP	Set to null
TLID	Set to Null – not supplied
SHAPE	As supplied

Internal notes on processing:

1. Shapefile (feature class) CTL_NJ_2013_06 _polyline shows street segments for census blocks larger than 2 square miles. In contained 3098 records.
2. Differently from the 2012 April submission, the supplied shapes use geographic coordinate system GCS_North_American_1983. The NTIA data model requires coordinate system GCS_WGS_1984. To change the projection we applied the ESRI geographic transformation NAD_1983_To_WGS_1984_5 (per ESRI KB article 24159). The resulting table is named with suffix “_wgs”.
3. We had to create a new feature class and reload the data so that the tolerance value matches the NTIA transfer model’s tolerance value exactly, resulting in a feature class with a suffix of “_tol”.
4. We checked for uniqueness using the county number, street name, min and max address and the string portion of the shape object. Including the string description of the shape object had the effect of including the number of points in the shape as part of the uniqueness test. We discarded 1319 records as duplicates using this method. There is a chance that this discarded some non-duplicates, but our manual inspection of the data made it appear valid.
5. Based on provider instructions that they have 10 Mbps coverage in all their NJ exchanges, we set all down/up advertised speeds to 7/4.

6. Using the tlid field as a key, we populated the endusercat column from the end_user column in tl_2010_34_large_streets_10_wgs.
7. We loaded 1779 rows.

Validation rules produced a warning on 7180 census blocks and 1779 street segments for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). The provider had originally reported speeds exceeding 25 Mbps, or a speed code of 8. When we questioned these, the provider could not confirm those values, but asserted that all areas were covered with speeds exceeding 10 Mbps.

Section 5: Questions

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Friday, March 09, 2012 6:42 AM
To: Flurer, Gerry F
Cc: NJ Broadband Data Collection
Subject: NJBB Data Clarification - CenturyLink

Gerry,
We have reviewed the data you submitted and have a few questions:

1. The NTIA wants us to verify cases where speeds over 10 Mbps are reported for DSL. You reported instances of download speeds in the 10-25 Mbps and 25-50 Mbps for your DSL service. Are these correct values?
2. In previous rounds, you had submitted a single middle mile point. Do you have updated information, or should we use that same data for this round?
3. In prior submissions, your street-segment data included the TigerLine ID of each segment. Is it possible for you to include that information this round?

We appreciate your participation in the program.

```
John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687
```

From: Flurer, Gerry F [mailto:Gerald.F.Flurer@CenturyLink.com]
Sent: Friday, March 09, 2012 10:59 AM
To: NJ Broadband Data Collection
Cc: Bonsick, David
Subject: RE: NJBB Data Clarification - CenturyLink

John: See response inserted, below.

Gerry Flurer

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Friday, March 09, 2012 6:42 AM
To: Flurer, Gerry F
Cc: NJ Broadband Data Collection
Subject: NJBB Data Clarification - CenturyLink

Gerry,
We have reviewed the data you submitted and have a few questions:

1. The NTIA wants us to verify cases where speeds over 10 Mbps are reported for DSL. You reported instances of download speeds in the 10-25 Mbps and 25-50 Mbps for your DSL service. Are these correct values?

[G. Flurer] Yes. CTL uses ADSL2 and VDSL2 in certain areas to achieve those speeds.

2. In previous rounds, you had submitted a single middle mile point. Do you have updated information, or should we use that same data for this round?

[G. Flurer] No updates for that data.

3. In prior submissions, your street-segment data included the TigerLine ID of each segment. Is it possible for you to include that information this round?

[G. Flurer] In several other states we found Tiger ID data from Pitney Bowes to be invalid. For this round we adopted the use of the TIGER street data. I'm looking at possibly including the TIGER ID in future submissions.

We appreciate your participation in the program.

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Friday, March 09, 2012 10:08 AM
To: Flurer, Gerry F
Cc: NJ Broadband Data Collection
Subject: RE: NJBB Data Clarification - CenturyLink

Gerry,
Thanks for the quick response. Can you give us any sense of where you have the ADSL2/VDSL2 operational? The NTIA would prefer not to overstate capabilities.

Thanks,

John

From: Flurer, Gerry F [mailto:Gerald.F.Flurer@CenturyLink.com]
Sent: Friday, March 09, 2012 11:58 AM
To: NJ Broadband Data Collection
Subject: RE: NJBB Data Clarification - CenturyLink

John: We have 10 mbps service available in all our NJ exchanges. The few spots we have listed as Speed Tier 8 look pretty remote to me. I'll have to check into them more specifically. For now, though, can we consider them as a lower speed tier for this round? Let's make them tier 7 and I'll look into them for the next round.

Gerry Flurer

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data

Connecting New Jersey - Broadband Provider Data Report

Provider: Clearwire
Received: July 2013
Submission date: October 2013

This report presents details on processing of broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Unknown

Section 2: Submission Overview

AVAILABILITY DATA			
ID	PROVIDER NAME DBA NAME FRN Holding company name: Holding company number:		Clearwire Corporation Clearwire Corporation 0017775628
FOR WIRELESS			
Filetypes	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.		The shape file contains 518 polygon shapes, as well as an attribute, ID_UNIQUE (6 digit number)
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	**This data was not included with submitted shape file, but advertised speed, technology and spectrum data from prior rounds was verified with provider.**
	Upstream max adv	no.	
	Downstream max adv	no.	
	Upstream typical	no.	
	Downstream typical	no.	
	Subscriber-weighted	no.	
Technology Type	Spectrum : no		
Comments:			
INTERCONNECTION DATA			

ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: no IC data provided.	

Section 3: Submission File Details

Received the zip file by email

Size	**Name**
4060KB	NJ_WiMAX_063013_region.zip

The1 zip file containing 4 files:

Name	**Size**
NJ_WiMAX_063013_region.dbf	14 KB
NJ_WiMAX_063013_region.prj	1 KB
NJ_WiMAX_063013_region.shp	11,836 KB
NJ_WiMAX_063013_region.shx	5 KB

Section 4: Data Validation,Transformation and Loading

NTIA Table BB_Service_Wireless

Loaded from the supplied shapefiles as augmented by email and phone conversations. The following table explains the transformations that were applied.

Table Column	**Data Source / Transformation**
PROVNAME	Set to “Clearwire Corporation” per email
DBANAME	Set to “Clearwire Corporation” per email
FRN	Set to “0017775628”
TRANSTECH	Set to “80” (terrestrial mobile wireless) based on statement of WiMAX
SPECTRUM	Set to “5” per email
MAXADDOWN	Set to “5” (code for range of 3-6Mbps) per email
MAXADUP	Set to “3” (code for range that includes 1Mbps) per email

TYPICDOWN	Set to null
TYPICUP	Set to null
STATEABBR	Set to “NJ”
SHAPE	As supplied.

Internal notes on processing:

16. The shape file contains 518 polygon shapes, as well as an attribute, ID_UNIQUE (a 6 digit number).
17. The supplied shapes use Z coordinate. We need to remove it using ArcToolbox > Conversion Tools > To Geodatabase-> Feature Class to Geodatabase (multiple) tool. The resulting tables are named with suffix “_z”.

    http://support.esri.com/en/knowledgebase/techarticles/detail/35818

    Procedure

    1. Browse to ArcToolbox > Conversion Tools > To Geodatabase.
    2. Open the Feature Class to Geodatabase (multiple) tool.
    3. Add all the feature classes into the Input Feature Class parameter.
    4. Select an Output Geodatabase.
    5. Click the Environments button at the bottom of the tool dialog box.
    6. Expand the General Settings.
    7. For the parameter, Output has Z Values, change the value to Disabled.
    8. For the parameter, Output has M Values, change the value to Disabled.
    9. Click OK in the Environments dialog box.
    10. Click OK to execute the geoprocessing tool

18. The supplied shape file uses geographic coordinate system name GCS_WGS_1984. The NTIA data model requires the same coordinate system. No geographic transformation was required. Loaded into our geo-database to feature class name NJ_WiMAX_063013_region.
19. The XY Tolerance value differs on the supplied data from the required NTIA model. Imported the table schema and the table data in two separate operations, thereby ensuring perfect compatibility with the NTIA data model. The table has the suffix “_tol”.
20. The shape extends beyond the NJ State boundary. Clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip". 269 rows are left after clip operation.
21. Coalesced the single-part polygons into one multi-part polygon using the ArcGIS ESRI: Data Management Tools->Generalization->Dissolve (without choosing

anything in the Dissolve_Field(s) option), which resulted in a new feature class with the suffix "_dissolved" with a single row.

22. Set the endusercat column to 5.

Section 5: Clarification Questions and Responses

The email has no info about advertized and typical speed. (7/16/2013)

The email has no info about advertized and typical speed. (7/12/2012)

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Wednesday, February 15, 2012 5:23 PM
To: Tajit Mehta
Cc: ConnectingNJ@groups.appcomsci.com
Subject: RE: NJ Broadband Data Collection - Spring 2012

Taj,
A few additional questions regarding the service you deliver over the covered area. From your previous submissions, we have the following information:

Provider Name = Clearwire Corporation
FRN = "0017775628"
Transmission technology = 80 (wireless)
spectrum = 5 (Broadband Radio Service/Educational Broadband Service spectrum (2496-2690 MHz))
Maximum Advertised Download Speed = "5" (Greater than or equal to 3 mbps and less than 6 mbps)
Maximum Advertised Upload Speed = "3" (Greater than or equal to 768 kbps and less than 1.5 mbps)

Are these values still accurate?

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Tajit Mehta [mailto:tajit.mehta@clearwire.com]
Sent: Wednesday, February 15, 2012 5:24 PM
To: NJ Broadband Data Collection
Subject: RE: NJ Broadband Data Collection - Spring 2012

Hi John,

Yes the date stays the same.

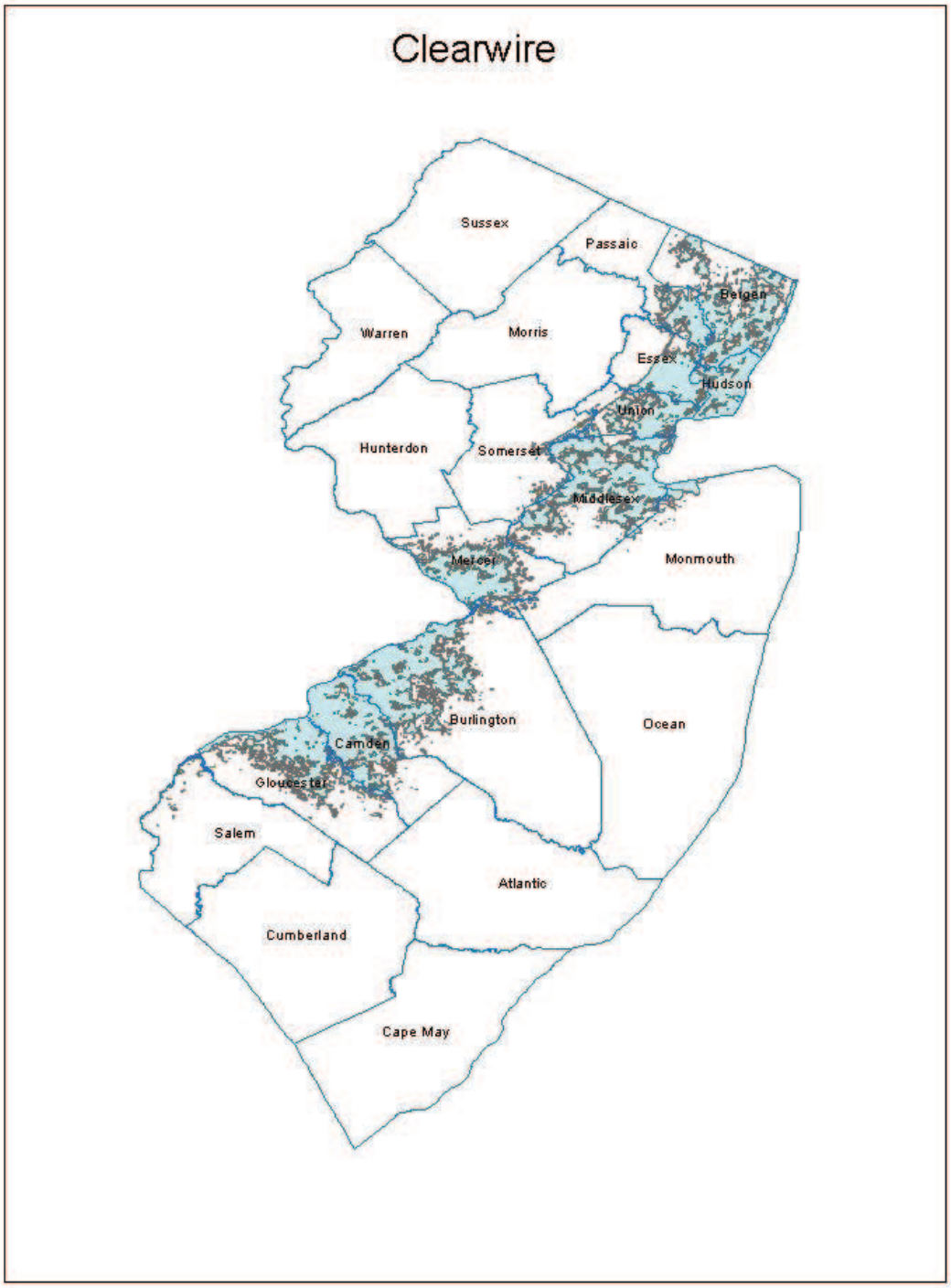
Regards,
Taj

Taj Mehta – clearwire - Spectrum Development

593 Herndon Parkway, Herndon, VA 20170 - Office 571-490-8577 - Mobile 571-220-4657 – Fax 571-490-8491

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Cogent Communications
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

16. NDA Status
17. Submission Overview
18. Submission File Details
19. Data Validations and Results
20. Data Transformation and Loading
21. Clarification Questions and Provider Responses
22. Notes and Open Issues

Section 1: NDA Status

No NDA was executed. All data were taken from the provider's public web site, FCC filings and/or information supplied by the provider via email

Section 2: Submission Overview

<table>
<tr><th colspan="4">MAPPING DATA</th></tr>
<tr><td>ID</td><td colspan="2">Provider name
"Doing business as" name
FRN</td><td>Cogent Communications, Inc.
Not provided
0019898303</td></tr>
<tr><th colspan="4">FOR WIRELINE</th></tr>
<tr><td>Filetypes</td><td colspan="2">Txt, xls, pdf, etc.</td><td>Email and pointers to Web site and SEC filings</td></tr>
<tr><td>File size</td><td colspan="2">Number of records, data elements</td><td>List of 23 addresses where they offer service</td></tr>
<tr><td>Speeds</td><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td><td rowspan="6">Provided building addresses. Adver down and up are 10/11, very fast.</td></tr>
<tr><td></td><td>Adver down</td><td>Address</td></tr>
<tr><td></td><td>Adver up</td><td>Address</td></tr>
<tr><td></td><td>Typical down</td><td>Not provided</td></tr>
<tr><td></td><td>Typica up</td><td>Not provided</td></tr>
<tr><td></td><td>Subscriber-weighted</td><td>Not provided</td></tr>
</table>

Technology Type	DOCSIS, xDSL, fiber, etc.	Fiber
End-user specification	Business, consumer, gov't etc	
Comments: They offer service directly to businesses at the addresses they provided. They are a reseller of broadband access to businesses at other locations. They had previously refused to provide data on Typical and Subscriber Weighted speeds.		
INTERCONNECTION DATA		
ID	Provider name "Doing business as" name FRN	
File size	Number of records, data elements	
Ownership	Leased/owned	
Transport Type	Fiber, wireless, copper	
Data Rates/Capacity		
Location	Street address, lat/lon, elevation	
Comments: We had previously extracted data for Middle Mile sites, based on the assumption that Cogent's Data Centers were interconnection points. We were instructed by the provider that these sites did not meet the definition of Middle Mile sites and thus should be removed.		
DATA COMPLETENESS		
Data Validation/ Verification		

Section 3: Submission File Details

Data received and processed in previous submissions was updated (address information) via a query of "Service Locations" from provider's Web site (http://www.cogentco.com/?lang=en&option=com_content&view=article&id=40&action=search). The CDNC fields together with information obtained in previous rounds were used to determine the advertised speeds. Data was stored in the file Cogent_ServiceLocations_201310.xls.

Section 4: Validations and Results

During previous rounds provider reported data rates were confirmed with their published information and SEC filings.

The only other validation to be done is whether each address can be successfully geocoded. See next section. One address is not

Section 5: Data Transformation and Loading

The standard NDA prohibits us from submitting address-level data to the NTIA. Instead, we discover the census block for each customer address, then report the census block shape drawn from Census Bureau TigerLine reference data.

NTIA Table BB_Service_CensusBlock

We copied the information to a spreadsheet. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Cogent Communications, Inc.”
DBANAME	Same as PROVNAME
PROVIDER_TYPE	Set to 1
FRN	Set to “0019898303”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to “50”
MAXADDOWN	Populated from column “Maximum Advertised Speed Down”
MAXADUP	Populated from column “Maximum Advertised Speed Up
TYPICDOWN	Set to null
TYPICUP	Set to null
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on geocoded address

Internal processing notes:

11. Geocoded the addresses using the Google geocoder to obtain a Latitude, Longitude pair for each..
12. Created an excel sheet and imported it to a geodatabase table.
13. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
14. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data.
15. Discarded 5 rows with duplicate census blocks.
16. Update the endusercat column by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.

Section 6: Clarification Questions and Responses

From: Zulager, Ried [mailto:RZulager@Cogentco.com]
Sent: Thursday, July 07, 2011 11:11 AM
To: Wullert, John R II
Subject: For your information: NJ Broadband Data Collection

Fine. The website may have changed slightly, but you can still get a list of address locations fairly easily from Cogent's public facing data. Just limit your searches to NJ as the jurisdiction of interest.

http://www.cogentco.com/en/network/service-locations

Ried Zulager
Corporate Secretary
Cogent Communications Group, Inc.
1015 31st St. NW
Washington, DC 20007
tel: +1-202-295-4274
rzulager@cogentco.com

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Tuesday, March 01, 2011 4:45 PM
To: 'Zulager, Ried'
Cc: ConnectingNJ@research.telcordia.com
Subject: RE: NJ BB Data Collection - Spring 2011
Sensitivity: Private

Ried,
The attached spreadsheet integrates the data you submitted to us last year with and the data we could obtain from your Web site and SEC filings. We will use this data as the basis for the submission to the NTIA. If you have any comments or corrections on the data, please let me know.
We did notice that the "Service Location" form on your Web site did not return a valid zip code for the 5851 Westside Ave in North Bergen. We assigned an zip code of 07047 based on a Google search.
Of the data requested by NTIA, we were not able to obtain data on Typical speeds and the Subscriber Weighted Nominal Speed. You indicated last time that you were not prepared to offer this information. If your position on this matter has changed, we would be happy to receive the data.

Thanks for your cooperation

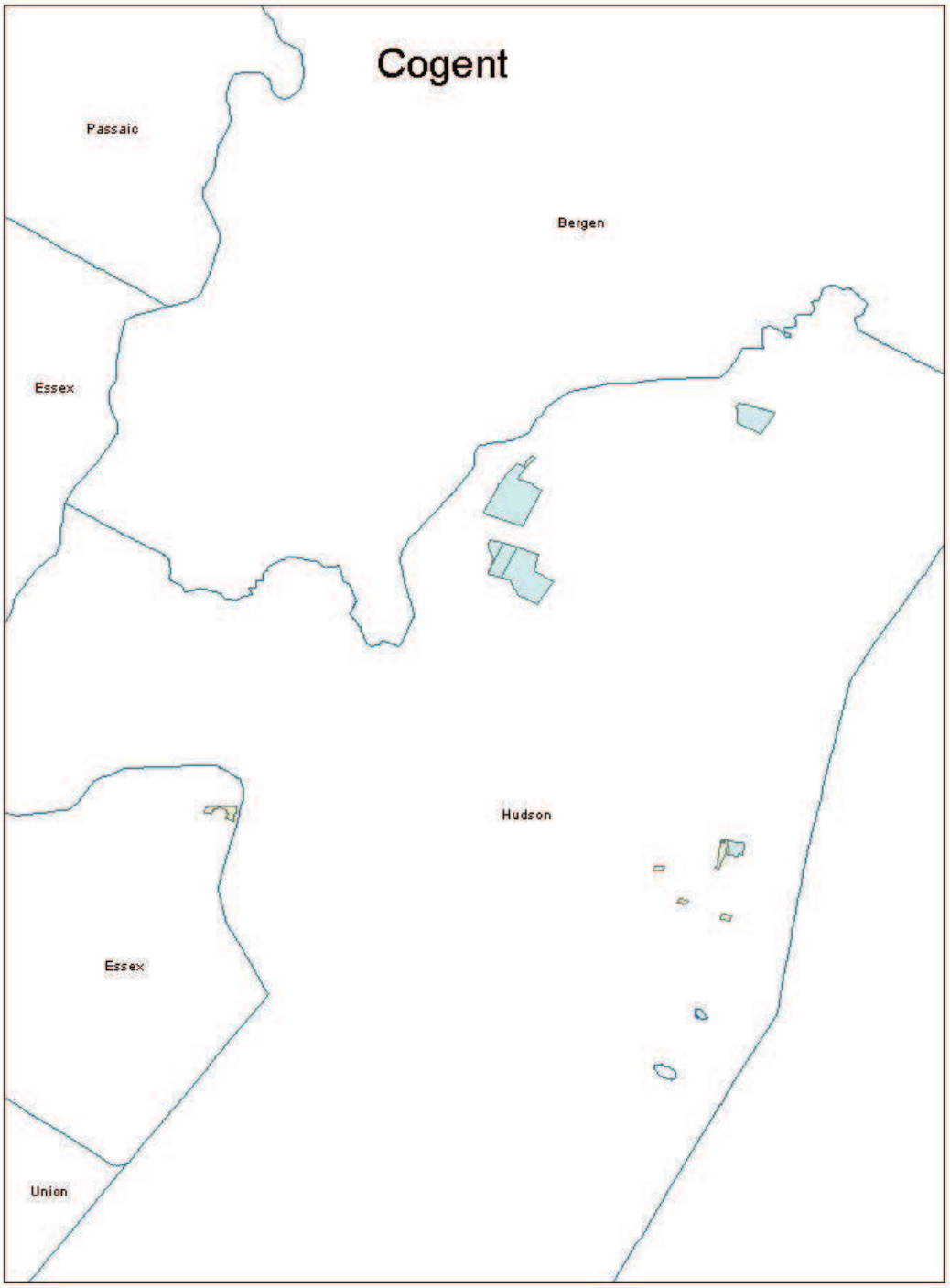
John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

From: Zulager, Ried [mailto:RZulager@Cogentco.com]
Sent: Tuesday, March 01, 2011 6:03 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJ BB Data Collection - Spring 2011
Sensitivity: Private

"We did notice that the "Service Location" form on your Web site did not return a valid zip code for the 5851 Westside Ave in North Bergen. We assigned an zip code of 07047 based on a Google search." Seems reasonable; since zip codes are fairly irrelevant to Cogent's business the zip code is not something that hits out A list of priorities in any database – nor is geocode.

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Comcast
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	COMCAST CABLE COMMUNICATIONS LLC COMCAST 0004-4416-63
FOR WIRELINE		
Filetypes	Excel files w. Census Block Year 2010 data. Street segment level and CB level availability tables for CB’s less than and greater than 2 sq. mi.	
File size	see files	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		yes (CBSA/RSA level)
Advertised-downstream		yes (CBSA/RSA level)
Subscriber-weighted-up		no
Subscriber-weighted-down		no.

Technology Type	40 (Cable Modem DOCSIS3.0)
End-user specification	Comcast provides availability at the Census Block and Street Segment level.
INTERCONNECTION DATA: PROVIDED AFTER REQUEST	

ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

Received three (3) files by SECURE UPLOAD.

Size	**Name**
103KB	34-streets-NJ.xlsx
3971KB	34-blocks-NJ.xlsx
9KB	New Jersey Maximum Advertised Speeds June 30 2013.xlsx

Section 4: Validation, Data Transformation and Loading

NTIA Table BB_Service_CensusBlock

The following table explains the transformations that were applied to load the target table.

Table Column	**Data Source / Transformation**
PROVNAME	As supplied in column “Provider_Name” but without trailing period
DBANAME	As supplied in column “DBA_NAme”
PROVIDER_TYPE	Set to 1
FRN	As supplied in column “FRN”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census_Block_FIPS_Code (first 3 digits)
TRACT	Populated from Census_Block_FIPS_Code (next 6 digits)
BLOCKID	Populated from Census_Block_FIPS_Code (last 4 digits)
FULLFIPSID	As supplied in column Census_Block_FIPS_Code
TRANSTECH	As supplied in column Technology_of_Transmission
MAXADDOWN	Set “10” (see below)
MAXADUP	Set to “9” (see below)
TYPICDOWN	Set to null, not supplied
TYPICUP	Set to null, not supplied
SHAPE	Copied from Census Bureau TigerLine 2010,

	As matched by Census block 2010 ID

Processing notes:

1. File 34-blocks-NJ.xlsx contains 74,881 records. No shape was provided, but a Census Block ID is provided. Every ID is 15 digits long.
2. Census Blocks: Comcast supplied Census 2010 block IDs. We referenced the Census Bureau reference database for Year 2010 to extract and submit geographic features (i.e., shapes) for each census block based on the supplied Census_Block_FIPS_Code.
3. Speeds: Data for maximum advertised down and up speeds were taken from file "New Jersey Maximum Advertised Speeds June 30 2013.xlsx". Comcast listed the same upload speed (9) and download speed (10) for all seven MSAs they serve, technology of transmission was 40 in all cases.
4. Remove 67 census blocks that belongs to Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) or Estell Manor City (Atlantic County)
5. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.

NTIA Table BB_Service_RoadSegment

Loaded as discussed below. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Comcast Cable Communications, LLC"
DBANAME	Set to "Comcast"
PROVIDER_TYPE	Set to 1
FRN	Set to "0004441663"
ADDMIN	Set to the least of the non-empty address numbers for the line segment
ADDMAX	Set to the greatest of the non-empty address numbers for the line segment
PREDIR	Set to null (no value supplied)
STREETNAME	As obtained with the procedure outlined bellow (has all street components, not just name)
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)
CITY	Set to null (no value supplied)
STATECODE	Set to "NJ"
ZIP5	Set to value of zipl column for the line segment
ZIP4	(no value supplied)
TRANSTECH	As supplied (40)
MAXADDOWN	Set to 10
MAXADUP	Set to 9

TYPICDOWN	Set to null
TYPICUP	Set to null
SHAPE	Copied from Census Bureau TigerLine 2010, As matched by County + Tiger Line ID

File 34-streets-NJ.xlsx contains 972 records. No shape is provided, and no reference ID such as Tiger Line ID is provided either. We cannot validate these segments against reference data, nor can we accurately generate shapes for these segments. Instead we gathered a list of segments in large census blocks based on the municipalities served by Comcast. We processed 3142 street segments.

For municipalities served in their entirety by Comcast, the following approach was used. (Note: steps 1-4 were performed previously and not repeated for this round.)

1. Adjusted the Municipality names provided by Comcast with the following rules to enable matching with official New Jersey Municipality reference data
    a. Changed to upper case
    b. Performed the following string replacements on the Municipality field
        i. TOWNSHIP -> TWP
        ii. BOROUGH -> BORO (only when preceded by a space)
        iii. MT. -> MOUNT
        iv. PT. -> POINT
        v. ORANGE CITY -> CITY OF ORANGE TWP (ORANGE at start of line)
    c. Removed any additional information in parentheses (I.e., appended county name)
2. Performed join between two data sources, using Municipality and County as keys
3. Dropped four military bases that did not match any municipality
4. Generated a file with Municipality, Type, County and Municipal Code
5. Joined this information with the large census blocks for each municipality, and then joined that result with the street segments for each large census block.
6. Loaded the resulting set of street segments and shapes after removing duplicates.
7. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_large_street_10_wgs.

Download Speed

1. Speeds: Data for maximum advertised down and up speeds were taken from file “New Jersey Maximum Advertised Speeds June 30 2013.xlsx”. Comcast listed the same upload speed (9) and download speed (10) for all seven MSAs they serve so these values were used.

We received warnings on 74,813 census blocks and 3,141 street segments for the combination of an upstream speed code of 9 (50-100 Mbps) with a transtech code of 40 (DOCSIS 3.1).The provider confirmed that the speed was verified with their engineers. A search of their Web site, http://www.comcast.com/ned-305, shows the downstream

speed of 305 Mbps. The provider said that we have to contact customer service reps to get the upstream speed. We called them and were told that the upstream speed is 65 Mbps in our area.

Section 5: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Wednesday, February 22, 2012 6:51 AM
To: 'Ruger, Michael'
Subject: NJBB Clarification

Michael,
We wanted to verify that our processing strategy is still appropriate. During the previous rounds, we had difficulties in mapping the street-level data you provided for the large census blocks. The data is generally the same, so we anticipate similar issues. The approach we have taken was to assume Comcast offered full coverage for a set of municipalities (the list you provided is attached.) You also named three municipalities where that approach would not be advisable (Mount Olive Twp, Toms River, Berkeley Twp.). Can we use that same approach during this submission? Can you provide an updated list of municipalities or confirm that the attached list still applies?

```
John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687
```

From: Ruger, Michael [mailto:Michael_Ruger@comcast.com]
Sent: Wednesday, February 22, 2012 6:53 AM
To: 'connectingnj@groups.appcomsci.com'
Subject: Re: NJBB Clarification

John--
We have not changed our communities served so the same list and logic apply. Would it help if we provided address data?
Thanks--
Michael

From: Wullert, John R II
Sent: Wednesday, February 22, 2012 6:58 AM
To: 'Ruger, Michael'; 'connectingnj@groups.appcomsci.com'
Subject: RE: NJBB Clarification

Michael,
The process we defined works well for the communities you serve completely. However, if it is still the case that you do not cover Mount Olive Twp, Toms River, Berkeley Twp completely, then address level data might be helpful there.

John

From: Ruger, Michael [mailto:Michael_Ruger@comcast.com]
Sent: Wednesday, February 22, 2012 9:15 AM
To: Wullert, John R II
Subject: RE: NJBB Clarification

John—

Let me know if this helps.

Thanks--
Michael

Michael Ruger
Senior Director, Government Affairs
Comcast Cable Communications, LLC
One Comcast Center
Philadelphia, Pennsylvania 19103
(215) 286-7586

Note: attachment was a list of 5284 addresses, all in large census blocks, including Technology of Transmission.

From: Ruger, Michael [mailto:Michael_Ruger@comcast.com]
Sent: Wednesday, February 22, 2012 1:25 PM
To: NJ Broadband Data Collection
Subject: RE: NJBB Clarification

John—

I took another look at what I sent…it's not sufficiently comprehensive to help you.

Thanks--
Michael

Michael Ruger
Senior Director, Government Affairs
Comcast Cable Communications, LLC
One Comcast Center
Philadelphia, Pennsylvania 19103
(215) 286-7586

Michael Ruger
Senior Director, Government Affairs
Comcast Cable Communications, LLC
One Comcast Center
Philadelphia, Pennsylvania 19103
(215) 286-7586

Mr. Behrens--

I believe this issue is one that we have encountered in other states, and results from the method by which we submit data. We provide maximum advertised speed data by MSA, but not all Census blocks within an MSA may offer D3 service--in which case, a D2 Census block may reflect a maximum advertised speed coded as "10." Similarly, but less frequently, Comcast may be in the process of upgrading service to D3 but has not yet initiated advertising for D3 speeds in that area--in which case, a D3 Census block may reflect a maximum advertised speed coded as "7."

Accordingly, if a D2 Census block is in a MSA in which the overwhelming majority of Census blocks are coded as a "10," those D2 blocks should be coded as a "7." If a D3 Census block is in an MSA coded as a "7," that is likely due to the fact that Comcast has not begun advertising the D3 speeds in that MSA.

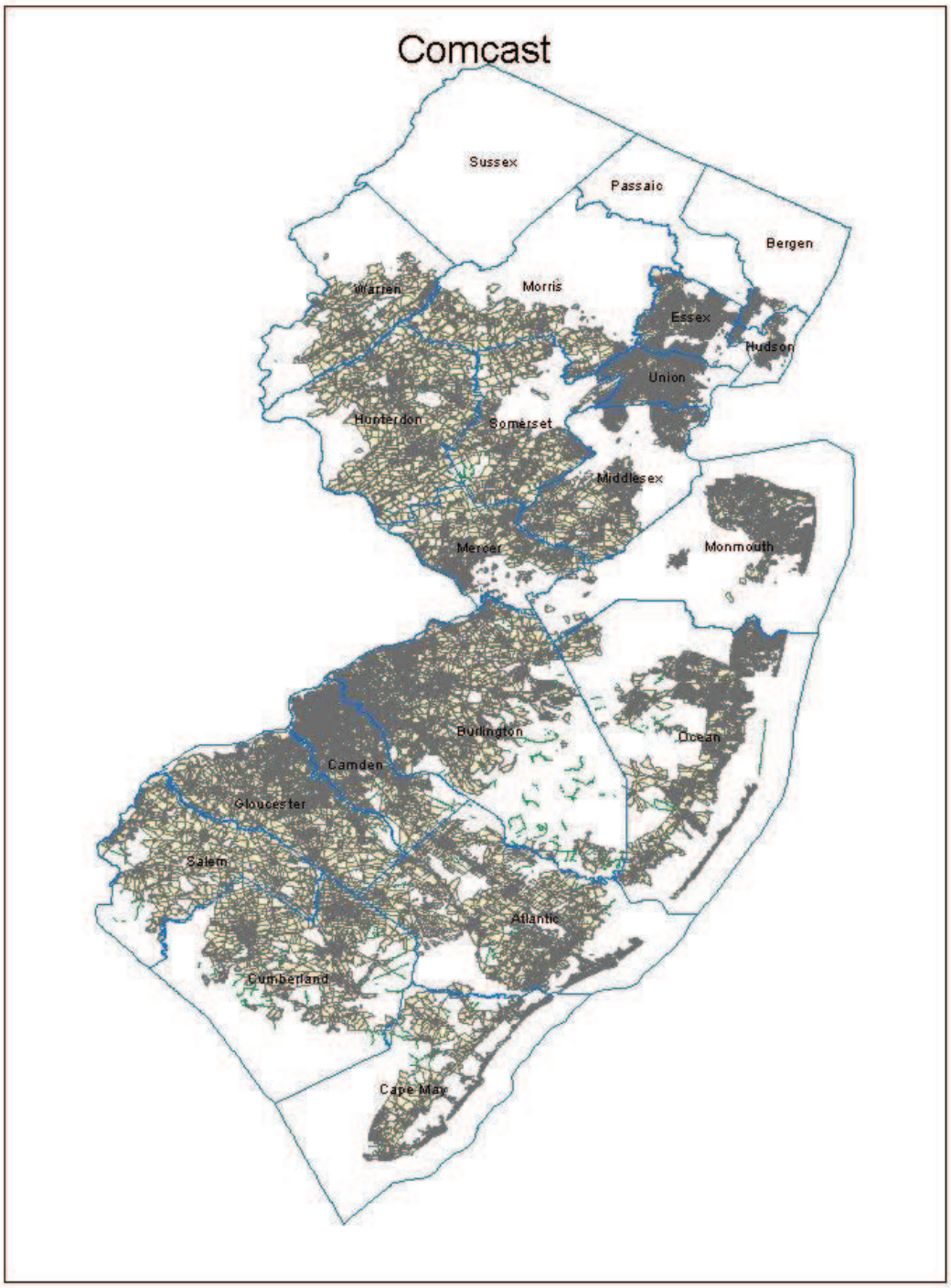
I believe in our last submission, Comcast showed 100% D3 blocks throughout the state of New Jersey and a maximum advertised download speed of "10." I am waiting for this cycle's data to confirm that this remains the case.

Please let me know if this helps, or if you would like to discuss.

Thanks--
Michael

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Fiber Technologies Networks, L.L.C.
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

23. NDA Status
24. Submission Overview
25. Submission File Details
26. Data Validations and Results
27. Data Transformation and Loading
28. Clarification Questions and Provider Responses
29. Notes and Open Issues

Section 1: NDA Status

Section 2: Submission Overview

MAPPING DATA			
ID	Provider name “Doing business as” name FRN		Fiber Technologies Networks, L.L.C. Fibertech 0006797849
FOR WIRELINE			
Filetypes	Txt, xls, pdf, etc.		One .xls file
File size	Number of records, data elements		21 records in the file
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	Provided census blocks level data.
	Adver down	Census block	
	Adver up	Census block	
	Typical down	Census block	
	Typica up	Census block	
	Subscriber-weighted	Not provided	
Technology	DOCSIS, xDSL, fiber, etc.		Fiber to the End User

Type		
End-user specification	Business, consumer, gov't etc	4 - Medium or Large Enterprise
Comments:		
INTERCONNECTION DATA		
ID	Provider name "Doing business as" name FRN	
File size	Number of records, data elements	
Ownership	Leased/owned	
Transport Type	Fiber, wireless, copper	
Data Rates/Capacity		
Location	Street address, lat/lon, elevation	
Comments:		
DATA COMPLETENESS		
Data Validation/ Verification		

Section 3: Submission File Details

Data received in form of an .xlsx file NJBB_0006797849_CensusBlockAvailability.xlsx (14,639 bytes) containing 21 records.

All records indicate the same value (code 10) for all speeds (including typical speeds).

Section 4: Validations and Results

The following validation checks were performed:

- validity of the Census Block IDs provided for each submitted record
- duplicate Census Block IDs
- Census Block area within 2 sq miles limit

Fiber tech submitted the data with endusercat = 4. Since only 1,2, and 5 are supported, we decided to change this value to 2.

Section 5: Data Transformation and Loading

NTIA Table BB_Service_CensusBlock

The following table explains the transformations that were applied while loading the submitted data.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider Name
DBANAME	As supplied in column DBA
PROVIDER_TYPE	Set to 1
FRN	As supplied in column FRN
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block Full ID (first 3 digits)
TRACT	Populated from Census Block Full ID (next 6 digits)
BLOCKID	Populated from Census Block Full ID (remaining 4 digits)
FULLFIPSID	As supplied in column Census Block Full ID
TRANSTECH	As supplied in column Tech Code
MAXADDOWN	As supplied in column Max Dwnld Speed
MAXADUP	As supplied in column Max Upload Speed
TYPICDOWN	As supplied in column Typ Dwnld Speed
TYPICUP	As supplied in column Typ Upload Speed
ENDUSERCAT	Set to 2
SHAPE	As found in Census Bureau year 2010 reference data

Internal processing notes:

17. Census Block Group codes were eliminated from data submitted by this provider. See note below.

Section 6: Clarification Questions and Responses

```
Subject:     RE: NJ Broadband Data Collection – Fall 2013
Date: Thu, 29 Aug 2013 14:49:34 +0000
From: Newkirk, Judy <jnewkirk@fibertech.com>
To:   Connecting NJ <ConnectingNJ@appcomsci.com>



Hi Cliff
Our census block full ID is based on the following:
State Code               2 digits
County Code        3 digits
Census Tract             6 digits
Census Block Group       1 digit
Census Block       4 digits

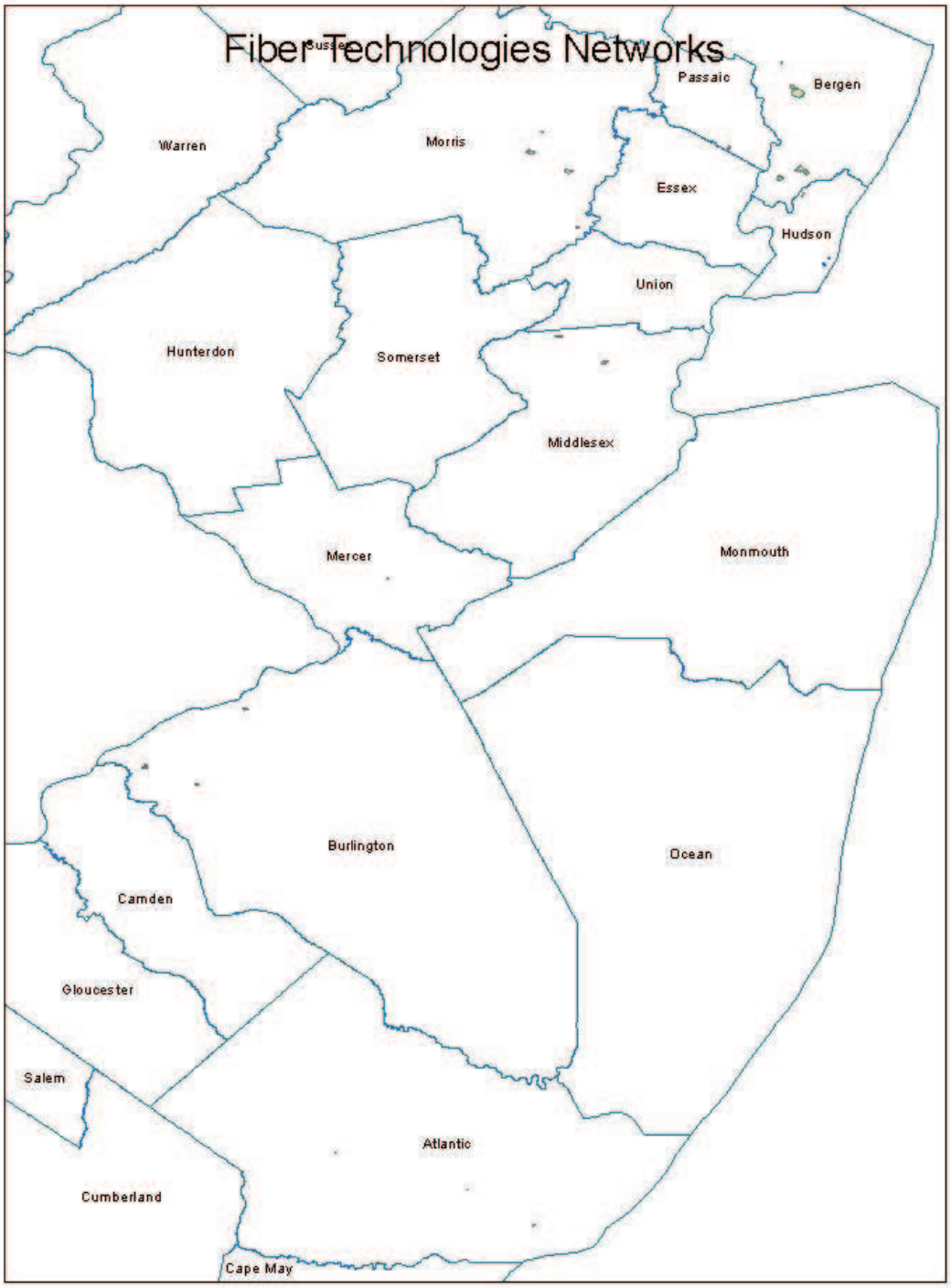
If you want me to eliminate the Census Block Group I would be glad to do so. Some
states request 15 or others 16. Your example on page 6 shows 16 digits.
```

Just let me know.
Judy

Judy Newkirk
Director of Regulatory Affairs and Compliance Fiber Technologies Networks, L.L.C.
300 Meridian Centre
Rochester, New York 14618
Office Phone: 585-568-8485
Fax: 585-442-8845

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: GOES Telecom
Received: February 2013
Submission date: April 2013

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

4. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy goes_apr2013.BB_Service_Wireless to goes_oct2013. BB_Service_Wireless.
5. Set the endusercat column in the goes_oct2013.BB_Service_Wireless table to 5.
6. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy goes_apr2013.BB_Service_CensusBlock to goes _oct2013. BB_Service_CensusBlock.
7. Update the endusercat column in the goes_oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.
8. Update the provname and dbaname from 'Global Online Electronic Services, Inc.' to 'GOES Telecom'

For April 2013:
This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

None

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name	GOES Telecom
	“Doing business as” name	Not provided
	FRN	0011437746
	Holding company name	GOES
	Holding company number	130548

FOR WIRELINE	
Filetypes	1 Excel
File size	worksheet 22 data rows
Speeds	<table><tr><th>Type</th><th></th><th>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</th></tr><tr><td>Typical-upstream</td><td></td><td>Not provided</td></tr><tr><td>Typical-downstream</td><td></td><td>Not provided</td></tr><tr><td>Advertised-upstream</td><td></td><td>Not provided</td></tr><tr><td>Advertised-downstream</td><td></td><td>Not provided</td></tr><tr><td>Subscriber-weighted-up</td><td></td><td>Not provided</td></tr><tr><td>Subscriber-weighted-down</td><td></td><td>Not provided</td></tr></table> Submitted 22 addresses with upload and download speeds (generally in kbps) for each address. These are delivered speeds to customers. We located advertised speeds on their Web site, and provider confirmed that those speeds were available at each location they served. We will use the data from Web site as advertised speeds. Note that for two addresses, submitted speeds “10mpbh”. They confirmed this should be 10Mbps. Note also that some speeds are listed as having faster upload speeds than download speeds. All of these values are less than broadband speeds, so are not relevant. No typical or subscriber weighted speeds were provided.
Technology Type	10 (ADSL) and 70 (Terrestrial fixed wireless)
End-user specification	None
Comments: Provided a list of 22 customers and the speeds they are subscribed to. Most are 128K up, 512K down.	
INTERCONNECTION DATA	
ID	None provided
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

Received 1 file by email:

Size	Name
33,792	20130131 Telcordia.xls

The file contains a list of addresses and max speeds; e.g., the "up-to" limit of their rate plan. The addresses in this file appear to be for individual customers (as opposed to addresses of multi-tenant buildings in a central business district).

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

Loaded from supplied file "20130131 Telcordia.xls" (22 data rows). The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Global Online Electronic Services, Inc."
DBANAME	Not supplied; set same as PROVNAME
PROVIDER_TYPE	Set to 1
FRN	Set to "0011437746"
STATEFIPS	Set to "34" (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (digits 2-5)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	As supplied in column Technology Code
MAXADDOWN	Set to code 4 per March 2011 email response to questions
MAXADUP	Set to code 3 per March 2011 email response to questions
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	Copied from Census Bureau 2010, as matched by spatial join on geocoded address point

Internal processing notes:

6. Geocoded the addresses using the Google geocoder to obtain latitude, longitude value pairs. Of 22 original records, all were successfully geocoded.
7. Created point shapes using ESRI from lat, long value pairs.
8. Spatially joined the points with Census Bureau Year 2010 reference data to find the containing census block. This yielded census-block attributes including the

block ID (“geoid10”).
9. Verified that all 22 records joined successfully with NJ census blocks
10. Dropped 15 records that did not have broadband speeds
11. Dropped 1 records because of duplicate census blocks (caused by multiple customer addresses in the same census block).
12. All remaining records were verified to be in small (< 2 square miles) census blocks.
13. Loaded the resulting data into an SDE feature class.

NTIA Table BB_Service_Wireless

Loaded using shapes from reference data for the records that indicates wireless technology. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “Global Online Electronic Services, Inc.”
DBANAME	Not supplied; set same as PROVNAME
FRN	Set to "0011437746"
TRANSTECH	Set to 70 as supplied in XLS sheet
SPECTRUM	Set to 6
MAXADDOWN	Set to 7
MAXADUP	Set to 7
TYPICDOWN	Set to null
TYPICUP	Set to null
STATEABBR	Set to “NJ”
SHAPE	Year 2010 Census Block shape obtained from reference data.

Internal processing notes:
23. Processed, as described above (points 1 – 7).
24. Spectrum: Set to 6, Unlicensed
25. Speeds: The fixed-wireless link is reported with 10Mbph, which we confirmed with provider is actually 10Mbps in each direction (symmetric). That corresponds to NOFA speed code 7. Provider also noted that they only have one fixed-wireless site.

Validation rules produced a warning on the wireless shape record for the combination of upstream and downstream speed codes of 7 (10-25 Mbps) with a transtech code of 70 (Fixed Wireless - Unlicensed). The provider has only a single fixed wireless site, and it is used for point-to-point links, rather than to provide a coverage area. The provider confirmed that the speed is 10 Mbps.

Section 5: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]

Sent: Friday, March 02, 2012 7:15 AM
To: 'georgeb@tricaps.com'
Subject: RE: Goes Telecom Telicordia data

George,
I wanted to confirm the speed values you included in the data you submitted. I have three questions:

1. In the past, we had used the data from your Web site to determine your maximum advertised upload and download speeds. I still see 1536K Downstream/768K Upstream as the fastest DSL speed you deliver. Is that correct?
2. You report two fixed wireless sites as "10mpbh". Is that really mega-bits-per-hour? That comes to about 2.8 Mbps. Is that correct?
3. When we have spoken in the past, you reported that you use fixed wireless for point-to-point links, rather than to cover a wider area. Is that still correct?

Thanks for your participation,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences

From: georgeb@tricaps.com [mailto:georgeb@tricaps.com]
Sent: Monday, March 05, 2012 11:08 AM
To: NJ Broadband Data Collection
Subject: Re: Goes Telecom Telicordia data

Hi John,
I got the answers. See blow.
Thanks,
George

George,
I wanted to confirm the speed values you included in the data you submitted. I have three questions:

1. In the past, we had used the data from your Web site to determine your maximum advertised upload and download speeds. I still see 1536K Downstream/768K Upstream as the fastest DSL speed you deliver. Is that correct?
   Yes

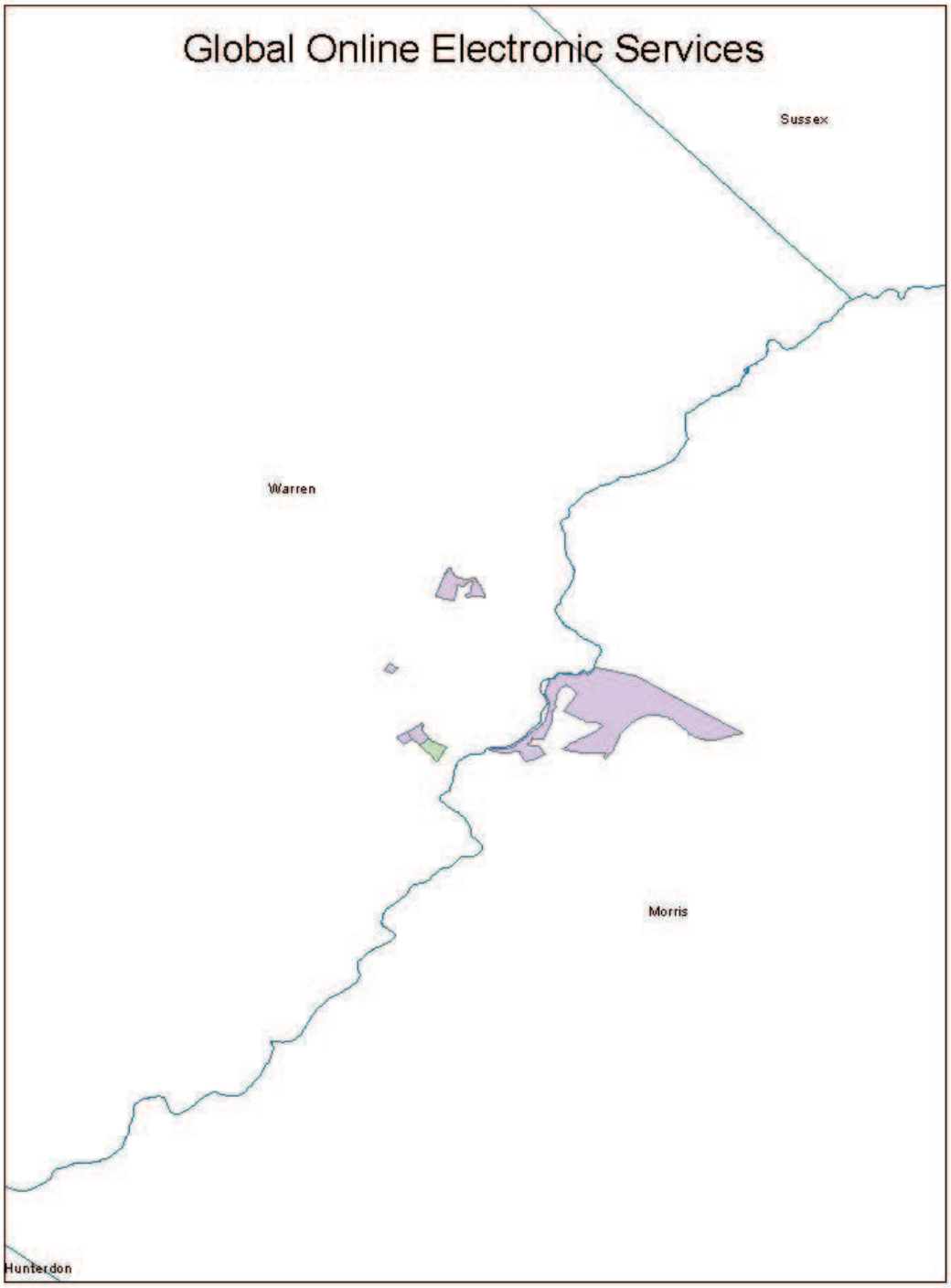
2. You report two fixed wireless sites as "10mpbh". Is that really mega-bits-per-hour? That comes to about 2.8 Mbps. Is that correct?
   No, the correct speeds are 10mbps and we now only have a single fixed wireless link instead of two.

3. When we have spoken in the past, your reported that you use fixed wireless for point-to-point links, rather than to cover a wider area. Is that still correct?

Yes

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Hometown Online
Received: February 2013
Submission date: October 2013

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

9. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy hometown_apr2013.BB_Service_CensusBlock to hometown _oct2013. BB_Service_CensusBlock.
10. Update the endusercat column in the hometown _oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.

For April 2013:
This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

No NDA in place.

Section 2: Submission Overview

<table>
<tr><th colspan="4">AVAILABILITY DATA</th></tr>
<tr><td rowspan="3">ID</td><td colspan="2">Provider name</td><td>Hometown Online Inc.</td></tr>
<tr><td colspan="2">“Doing business as” name</td><td>Warwick Online</td></tr>
<tr><td colspan="2">FRN</td><td>0006-6512-44</td></tr>
<tr><th colspan="4">FOR WIRELINE</th></tr>
<tr><td>Filetypes</td><td colspan="3">Text</td></tr>
<tr><td>File size</td><td colspan="3">1,062,217 bytes; 7,054 rows</td></tr>
<tr><td>Speeds</td><td colspan="2"><table><tr><th>Type</th><th></th><th>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</th></tr><tr><td>Typical-upstream</td><td></td><td>Not provided</td></tr><tr><td>Typical-downstream</td><td></td><td>Not provided</td></tr></table></td><td>Provided list of customer locations with column “DSL speed avail”. This is probably downstream speed, but need to verify with provider.

Communications with provider and validation via their Web</td></tr>
</table>

	Advertised-upstream		Not provided	site resulted in clarification: Max advertised ADSL speeds are: Downstream: 15 Mbps Upstream: 800 Mbps.
	Advertised-downstream		Not provided	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
Technology Type	DSL – Previous interactions with provider revealed that Census tract 3714 has SDSL, all others are ADSL			
End-user specification	Not provided			
Comments: Address data with some indications of qualification for different data services.				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: No connection-point data provided				

Section 3: Submission File Details

Received one (1) file by EMAIL:

Size	**Name**
1,062,217	NJ Final 8-14-12.xlsx

The file contains 7054 rows of data. Each row has a street address. All rows have an indication of maximum possible DSL speed. Some indicate 5Mbps, some 15Mpbs and some 30Mbps. Also has information about TV qualification, which we will ignore.

Section 4: Data Validation, Transformation and Loading

This section details the validations and transformations we applied to the provider submitted data.

NTIA Table BB_Service_CensusBlock

Loaded from the supplied file after geocoding. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Hometown Online Inc.”
DBANAME	Set to “Warwick Online”
PROVIDER_TYPE	Set to 1
FRN	Set to “0006651244”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block 2010 (digits 2-5)
TRACT	Populated from Census Block 2010 (next 6 digits)
BLOCKID	Populated from Census Block 2010 Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block 2010 Code
TRANSTECH	Census blocks in census tracts starting with 3714 were set to code “20” (SDSL) All others set to code “10” (ADSL), (per provider email)
MAXADDOWN	Set to code “7” (range includes 15Mbps, per email)
MAXADUP	For ADSL: Set to code “3” (range includes 1Mbps, per email) For SDSL: Set to code “7” (range includes 15Mbps, per email)
TYPICDOWN	Set to null, not supplied
TYPICUP	Set to null, not supplied
SHAPE	Copied from Census Bureau TigerLine 2000, as matched by spatial join on geocoded address point

Internal processing notes:

14. The following steps were performed when the data was submitted and the results were re-used for this round
    a. 7050 addresses were successfully geocoded using Arroyo with the Yahoo geocoder. One record failed to spatially join on 2010 NJ Census Block shapes.
    b. Created an excel sheet and imported to a geodatabase table.
    c. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
    d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data.
15. Discarded 6585 rows with duplicate census blocks, leaving 464 unique census blocks.
16. Discarded 3 census blocks larger than 2 square miles.
17. Loaded 461 blocks.
18. Validation rules produced a warning on 405 census blocks that had a transtech of 10 (ADSL) and a download speed code of 7 (10-25 Mbps). We searched the

provider's Web site for speed information. We only found one reference to speed packages, and these values and the Web page seemed out of date. We sent a request for clarification to the provider. The provider acknowledged the validation requirements, indicated that the Web page found by our search was in error and confirmed the submitted speed values. The president of the company also indicated that they would be launching a new Web site with corrected speed information in the near future.

Section 5: Clarification Questions and Responses

From: Scott Sommerer [mailto:s.sommerer@wvtcg.com]
Sent: Wednesday, February 22, 2012 7:21 PM
To: NJ Broadband Data Collection
Cc: shelley.bates@oit.state.nj.us
Subject: RE: Reminder - NJ Broadband Data Collection

Dear Sir or Madam:

I have investigated with technicians and engineers. Our data is totally unchanged from last year's submission

Have A GREAT DAY

J. Scott Sommerer
845 986 2250

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Thursday, February 23, 2012 8:11 PM
To: 'Scott Sommerer'
Cc: NJ Broadband Data Collection
Subject: RE: Reminder - NJ Broadband Data Collection

Scott,
As I mentioned, we have additional validations to perform. NTIA is questioning reported DSL speeds over 10 Mbps. In our previous interactions, you had given us the following speeds:

ADSL: 15 Mbps and uploads of 800 kbps.
SDSL: 15 Mbps up and down (available in Census tract 3714)

I see on your Web site now the packages you offer are at 512, 1 Mbps and 2 Mbps. Should we be using 2 Mbps as the download speed? Does this apply for both ADSL and SDSL?

Thanks in advance for the clarification.

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Scott Sommerer [mailto:s.sommerer@wvtcg.com]
Sent: Tuesday, February 28, 2012 10:35 AM
To: NJ Broadband Data Collection
Cc: Ginny Quackenbush
Subject: RE: Reminder - NJ Broadband Data Collection

John

I appreciate your validation requirements.

No, do not use 2 Mbps. Our website is inaccurate. Please use the submission from last year. With the higher speeds.

J. Scott Sommerer

From: Ginny Quackenbush [mailto:g.quackenbush@wvtc.com]
Sent: Tuesday, February 28, 2012 11:51 AM
To: Scott Sommerer; NJ Broadband Data Collection
Cc: Jean Beattie
Subject: RE: Reminder - NJ Broadband Data Collection

Good Afternoon,

FYI, we will be launching a new website by or before the end of March.
Our new website will have the correct information.

Thank you very much.

Virginia Quackenbush
President, Warwick Valley Telephone Company
47 Main Street - PO Box 592
Warwick, NY 10990

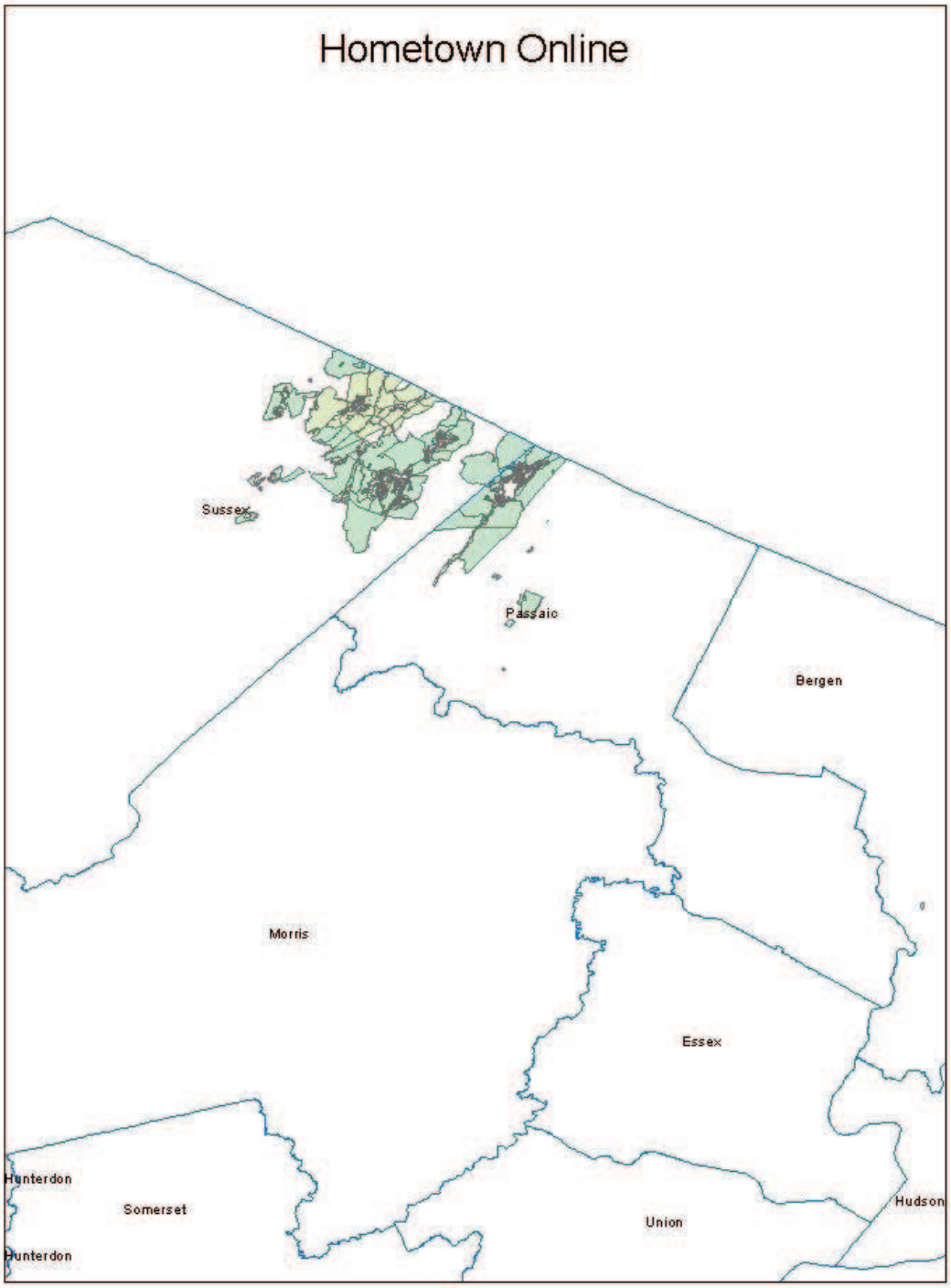
Section 6: Notes and Open Issues

Provider had provided the following information via email in prior rounds and confirmed again this round:

Maximum advertised download speed is 15 Mbps for both ADSL and SDSL
Maximum upload speed for ADSL is 800 Kbps

SDSL is available in census tract 3714xx, all other locations are ADSL

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: HughesNet Communications Inc.
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NONE

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Hughes Network Systems, LLC HughesNet 0017434911
FOR WIRELINE		
Filetypes	CSV file with list of Year 2000 census blocks, plus email information on speed	
File size		
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		Provided
Advertised-downstream		Provided
Subscriber-weighted-up		Not provided
Subscriber-weighted-down		Not provided

Submitted CSV file with list of zip codes of US.

Email message contained a description of speeds:10-20Mbps down, 1.5-3Mbps up. The corresponding speed range codes are 7 down, 4 up.

Spectrum is 9, satellite.

Technology Type	Code 60 (Satellite)
End-user specification	
Comments:	

INTERCONNECTION DATA: NONE	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: Not provided	

Section 3: Submission File Details

With an exception of a change in reported speeds, information from previous rounds was reused.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_Wireless

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "Hughes Network Systems, LLC"
DBANAME	Set to "HughesNet"
FRN	Set to 0017434911
TRANSTECH	Set to 60
SPECTRUM	Set to 9 per translation shown below
MAXADDOWN	Set to 7, see below.
MAXADUP	Set to 4”, see below.
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to “NJ”
SHAPE	Single shape created from CBs (See below).

Oct 2013:

Different from the 2013 April submission, we’ve received a file of a list of zip codes, “NTIA 2013 Zip List.csv”.

Internal notes on processing:

1. Read the file from Excel with setting of the type of the zip column to TEXT, not GENERAL. The output file is ntia_2013_zip_list_fixed.
2. Export the file to dbase from ArcCatalog, ntia_2013_zip_list_exported.
3. Select data for NJ, ntia_2013_zip_list_exported_nj.
4. Data join the file with refdata.nj_zip_ploy_wgs with the zip columns (all the 553 data are joined), ntia_2013_zip_list_joined
5. Dissolve it to a single shape, ntia_2013_zip_list_joined_dissol
6. Cliff it with refdata_2010.tl_2010_34_state10_wgs, ntia_2013_zip_list_joined_dissol_clip
7. Set the endusercat column to 5.

April 2013:

Internal notes on processing:

26. Spectrum: No statement was provided. The NTIA data model has a single column for spectrum. As per the latest clarifications, satellite corresponds to NTIA "SPECTRUM USED" code value 9.
27. We concatenated the fips code, census tract and block values into a census block ID. In some cases the census tract values had less than six digits. In some cases the block id had less than four digits. In these cases, leading zeros were added to the values to pad the values to the correct length.
28. In 21 cases, the values for block ID and census tract were filled in with spaces. We attempted to pad these out with zeros, but the resulting census block IDs did not match any NJ census block. These 21 records represent the amount by which the submission exceeded the count of Y2000 NJ census blocks. These were dropped.
29. We verified that all of the resulting census block IDs were unique.
30. We compared the census block IDs generated from the submission with the set of 141,342 Y2000 census blocks for New Jersey. All NJ census blocks (large and small) were matched. .
31. Speeds: For maximum advertised speeds we encoded the down speed as value 7 (range 10-20 Mbps) and encoded the up speed as value 4 (range 1.5 Mbps – 3 Mbps).
32. We merged the census blocks into a single shape with the suffix "_dissol" using the ArcGIS "Dissolve" tool.
33. The resulting shape passed all NTIA validations

Section 5: Clarification Questions and Responses

From: Alok Mathur [mailto:Alok.Mathur@hughes.com]
Sent: Monday, March 12, 2012 1:17 PM
To: Wullert, John R II
Cc: Mark Wymer
Subject: RE: NJ Broadband Data Collection

John

You may download listing of each of the FIPS Code, Census Tract and Block where Hughes Network coverage is available at download speeds of up to 2 mbps and upload speeds of up to 300 kbps.
https://REDACTED
username: REDACTED
password: REDACTED

For the most recent data, please use the following folder;
/ Home/ ex_hns_pickup/ 201201 - Census 2000/

Thanks
Alok

Alok Mathur
PMP, CISA, CIPP, CRISC
Senior Director – Revenue Management
Hughes Network Systems, LLC., Germantown, MD 20876, USA.

On 9/6/2012 9:47 AM, Alok Mathur wrote:

Cliff

HughesNet broadband is available in the entire state. Detailed information about each of the FIPS Code, Census Tract and Block may be downloaded from the following URL location.

https://dlft02.datalabusa.com/

username: ex_hns_pickup

password: 2zpnH9!Q

Thanks

Alok

On 9/7/2012 2:17 PM, Alok Mathur wrote:

Please check folder /Home/ex_hns_pickup/201201. Folders were updated on 8/14/2012, as highlighted below. I have also attached the CSV version for your convenience. File contains 141,363 records. - Thanks

From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Friday, September 07, 2012 6:00 PM

To: Alok Mathur
Subject: Re: URGENT: Response Requested: Get your Broadband Services on the National Broadband Map

Alok,

Sorry for another note but the word I am getting back from the person who is loading all of the data we receive is that the attached CSV file is effectively identical to the zipped file (and to the file from your previous submission). Moreover, after downloading the files once again (from the exact location you indicated) and comparing the data with the previous submission, there are no differences. After unzipping, the date on the file is 1/27/2012 even though the zip file itself has the date 8/14/2012.

Please understand that, if necessary, we are willing to resubmit your data without updates; I just was operating on the impression that you wished to submit data more recent than the last April submission.
Please let me know what you want to do.

Regards,

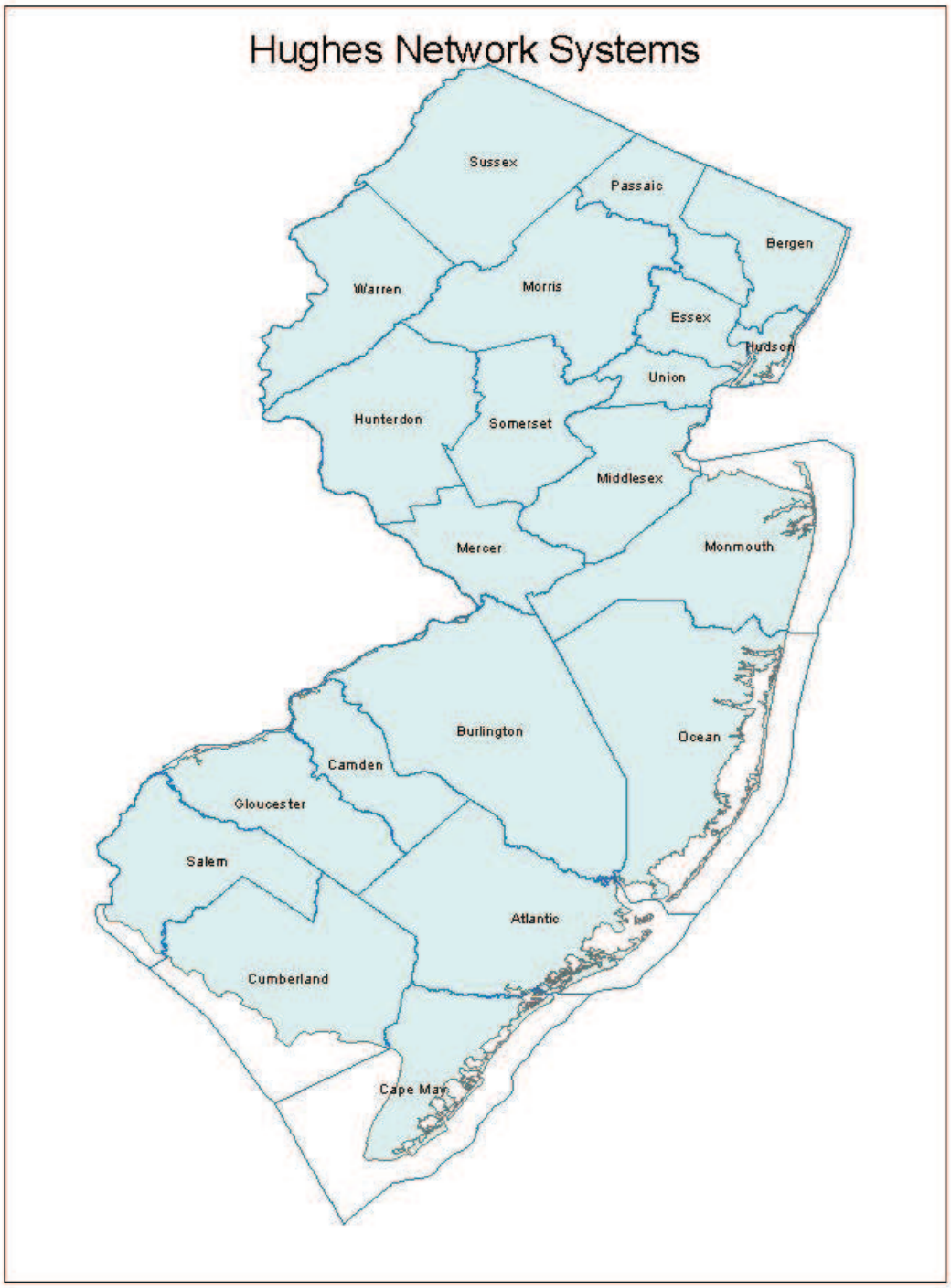
Cliff

Subject: RE: URGENT: Response Requested: Get your Broadband Services on the National Broadband Map
Date: Mon, 10 Sep 2012 08:39:08 -0400
From: Alok Mathur <Alok.Mathur@hughes.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Cliff
Your observation is correct. There is no change in the HughesNet coverage since last submission. HughesNet is available in the entire state of New Jersey.
Files were updated on 8/14 to ensure that we have the most recent data.
Thanks
Alok

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Jersey Shore Wireless
Received: March 2012
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

11. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy jsw_apr2013.BB_Service_Wireless to jsw_oct2013.BB_Service_Wireless.
12. Set the endusercat column in the jsw_oct2013.BB_Service_Wireless table to 5.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy jsw_oct2012.BB_Service_Wireless to jsw_apr2013.BB_Service_Wireless.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Section 1: NDA Status

None

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Jersey Shore Wireless Duxpond Communications 0011543782
FOR WIRELESS		
Filetypes	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.	Images files (jpegs) depicting coverage maps in various regions in New Jersey
Speeds		

Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	
Upstream max adv	10 Mbps listed on Web site	
Downstream max adv	Not specifically advertised. Listed as 800 kbps	
Upstream typical	N/A	
Downstream typical	N/A	
Subscriber-weighted	N/A	

Technology Type	Spectrum (Mhz, FCC code)	Unlicensed
Comments:		

INTERCONNECTION DATA	
ID	NONE
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

Provider pointed us to information on their Web site, including coverage maps and speed offerings.

Section 4: Data Validation, Transformation and Loading

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “Jersey Shore Wireless”
DBANAME	Set to “Duxpond Communications”
FRN	Set to 0011543782
TRANSTECH	Set to 70, for fixed wireless
SPECTRUM	Set to “6” for unlicensed
MAXADDOWN	Set to “6”, see below.
MAXADUP	Set to “3”, see below.
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to “NJ”
SHAPE	Generated, see below

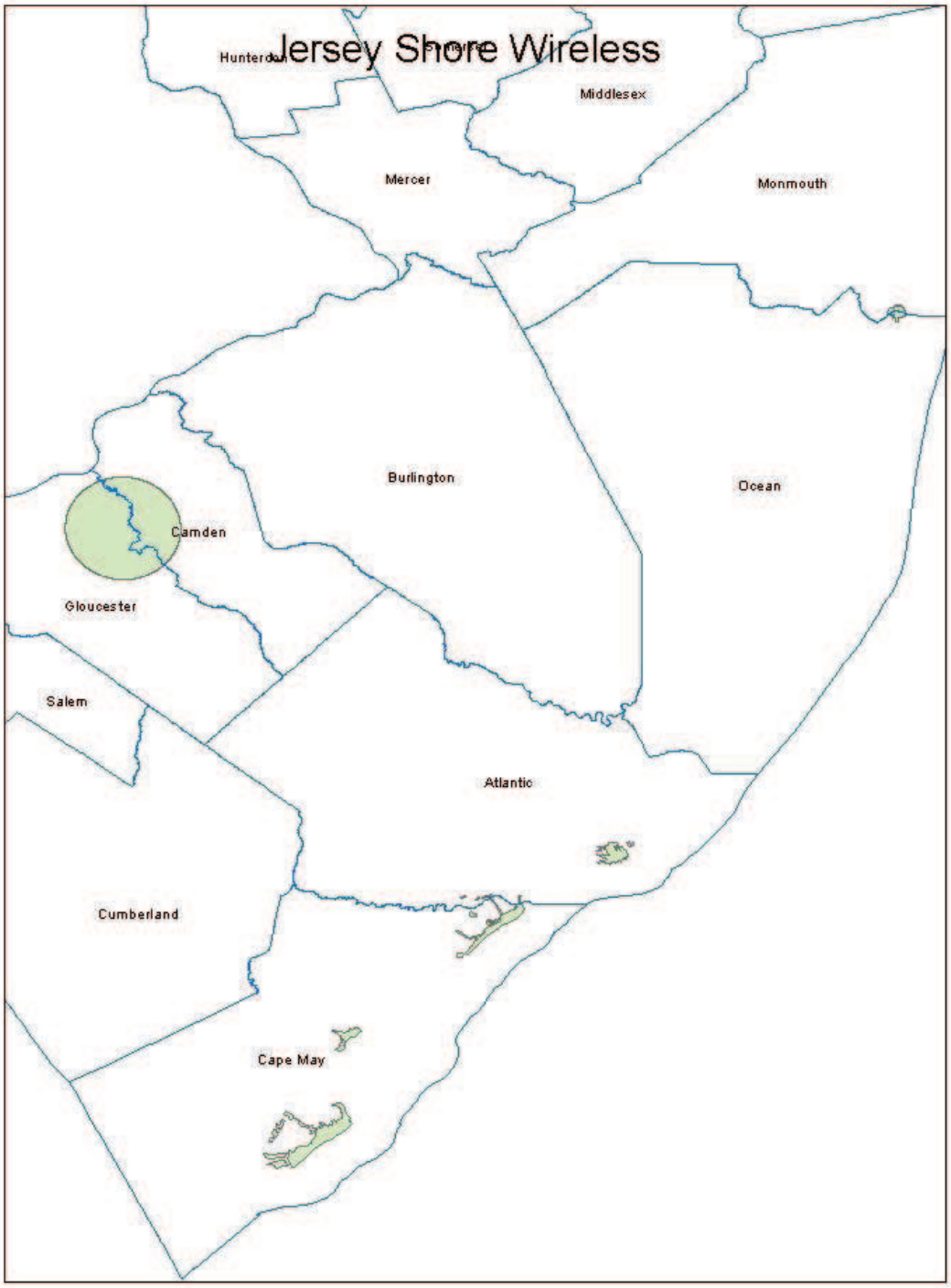
Internal notes on processing:

1. Provider directed us to their Web site, which included image files (jpeg) depicting coverage maps, along with listings of the speed plans they offer.
2. We manually created shape files that replicated the coverage in their image files to produce the SHAPE
3. Their Web site had two different listings for download speeds, one showing speeds of 1, 2 and 5 Mbps and the other showing speeds of 1, 2, 3 and 10 Mbps. Given the discrepancy between the two lists, and without any confirmation from the provider, we elected to map this to speed tier 6, ranging from 6 to 10 Mbps.
4. The Web site did not include advertised upload speeds. There was an indication of typical upload speeds of 800 Kbps. We mapped that value to a speed tier of 3.

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Leap Cricket
Received: August 2013
Submission date: Ocotober 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NDA with NJ OIT in place

Section 2: Submission Overview

AVAILABILITY DATA		
ID	PROVIDER NAME DBA NAME FRN Holding company name: Holding company number:	Leap Wireless International, Inc. Cricket Communications, Inc. 0002963528 Leap Wireless International, Inc." 130730
FOR WIRELESS		
Filetypes	shapefile corresponding to NJ terrestrial mobile wireless coverage (type 80)	
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Upstream max adv: yes (for entire shapefile) given in tier Downstream max adv: yes (for entire shape) given in tier Upstream typical: no. Downstream typical: no. Subscriber-weighted: no.	
Technology Type	Spectrum : yes	3 (PCS) and 4(AWS)
Comments:		
INTERCONNECTION DATA		
ID		

File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: no IC data provided.	

Quick loading results:

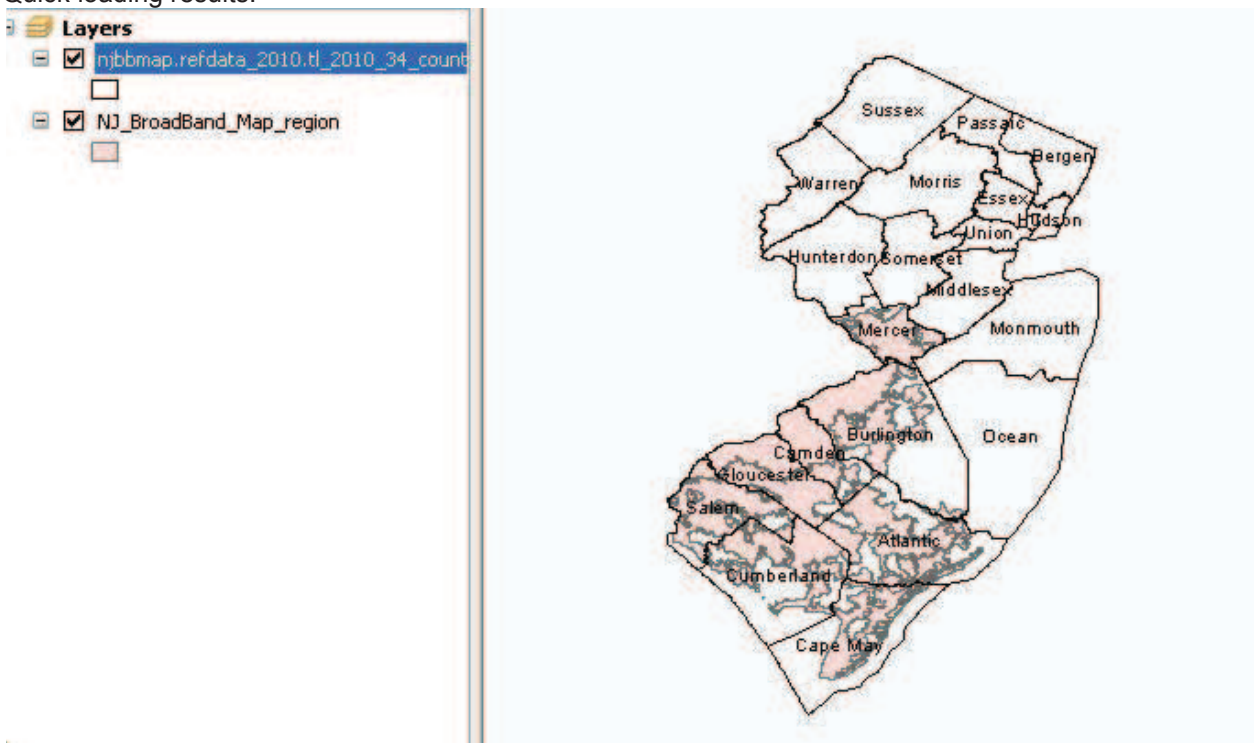


Figure 1. Loading results

Section 3: Submission File Details

1 zip file containing the following files by (EMAIL):

Name **Size**

Cricket Communications_End User Category - Wireless Record Format.xlsx	12 KB
NJ Broadband Data Maps 081513.zip	2,706 KB
NJ_BroadBand_Map_region.dbf	2 KB
NJ_BroadBand_Map_region.ID	1 KB
NJ_BroadBand_Map_region.MAP	1,446 KB
NJ_BroadBand_Map_region.prj	1 KB
NJ_BroadBand_Map_region.shp	2,835 KB
NJ_BroadBand_Map_region.shx	1 KB
NJ_BroadBand_Map_region.TAB	2 KB

Section 4: Data Validation, Transformation and Loading

Loaded from the supplied file, with transformations as:

Table Column	Data Source / Transformation
PROVNAME	As supplied in column prov_name
DBANAME	As supplied in column dba_name
FRN	Set to " 0002963528"
TRANSTECH	As supplied in column tech_trans
SPECTRUM	Set to “4” per translation shown below
MAXADDOWN	As supplied in column down_speed.
MAXADUP	As supplied in column up_speed..
TYPICDOWN	Not supplied, set to null
TYPICUP	Not supplied, set to null.
STATEABBR	Set to “NJ”
ENDUSERCAT	As supplied in column end_user
SHAPE	As supplied.

Internal notes on processing:

5. The shape file contains 6 rows with a multipolygon shape (see above for preview picture). The columns identify that the technology of transmission is wireless and that two different spectrum ranges are in use.
6. The supplied shape uses geographic coordinate system GCS_WGS_1984, same as that required by the NTIA data model. No geographic transformation was required, but the XY Tolerance values differ if the shape file is imported trivially into the geo-database. Imported shape then mapped to separate shape with proper tolerance which resulted in a new feature class with the suffix “_tol”.
7. NTIA requires shapes to be contained in the NJ state boundary. Although we visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip"
8. Fixed values in order to coalesce shapes since NITA requires one shape per each unique of (spectrum, and maxaddown, and maxadup). The following table shows the current data:

prov_name	dba_name	pcs	aws	down_speed	up_speed
Leap Wireless International, Inc.	Cricket Communications, Inc.	Y	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	Y	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	6	4
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	6	4
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	6	4

As shown in the step 6, since the column, pcs, is not used and only the column, aws, is used, the values of pcs are changed to "Y".

9. Coalesced the single-part polygons into one multi-part polygon using the ArcGIS ESRI: Data Management Tools->Generalization->Dissolve (with choosing everthing except objectid, polyg_name, st_area, and st_length in the Dissolve_Field(s) option), which resulted in a new feature class with the suffix "_dissol" with 2 records.
10. Spectrum: Leap provided "Y" value in the columns spectrum_pcs and spectrum_aws. In response to previous queries on this, the provider had indicated that they covered separate areas, with PCS coverage limited to a few counties, but did not provide separate shapes. We sent a request again. Therefore, we uniformly use value 4 (AWS) for the entire coverage, at this time.
11. Set the endusercat column to 1.

Section 5: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Thursday, February 23, 2012 8:42 PM
To: 'Douglas White'
Cc: 'ConnectingNJ@research.telcordia.com'
Subject: RE: State broadband mapping, 5th round submission for Cricket

Doug,
We had asked previously, but wanted to see if there was any change. Are you able to generate separate shape files for the AWS and PCS coverage areas?

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Tuesday, February 28, 2012 10:05 AM
To: Douglas White
Cc: ConnectingNJ@research.telcordia.com
Subject: NJ Broadband Clarification

Doug,

We have reviewed the data you submitted and have discovered two anomalies:

1. The FRN included in your shape file is 5927056. We have your FRN number as 0002963528. Is this latter number still correct?
2. The transtech number in your shape file is 160. This is an invalid value. We have your transtech as 80 (Terrestrial Mobile Wireless). Is this still correct?

Thanks for your help.

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Douglas White [mailto:dougwhite@cricketcommunications.com]
Sent: Friday, March 02, 2012 7:18 PM
To: NJ Broadband Data Collection
Cc: ConnectingNJ@research.telcordia.com
Subject: RE: NJ Broadband Clarification

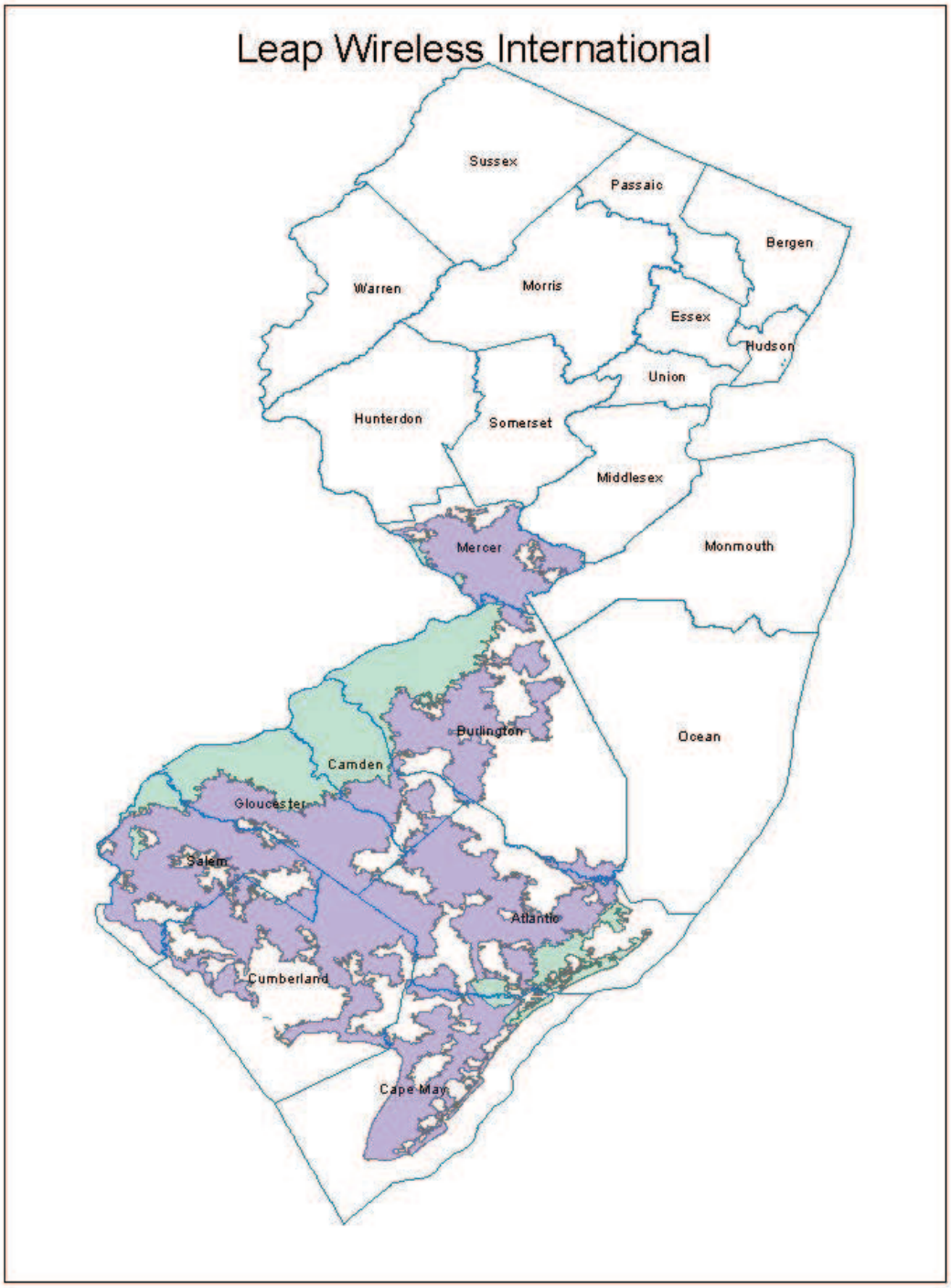
John –

I'm told that the NJ data we previously sent was incorrect. Please find attached the tables with the correction. The FRN is 2963528 and the technology is 80, are correct though.

Please contact me with any questions. Thanks,
-Doug

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Level3 Networks, Inc.
Received: August 2013
Submission date: October 2013

This report presents details on processing of broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

30. NDA Status
31. Submission Overview
32. Submission File Details
33. Data Validations and Results
34. Data Transformation and Loading
35. Clarification Questions and Provider Responses
36. Notes and Open Issues

Section 1: NDA Status

No NDA executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Level 3 Communications, LLC Level 3 Communications, LLC 0003723822
FOR WIRELINE		
Filetypes	Text file spreadsheets	
File size	3096 data rows	
Speeds		

Type		Address level data	
Typical-upstream		Yes	All set to same value: 11 (>= 1gpbs)
Typical-downstream		Yes	
Advertised-upstream		Yes	
Advertised-downstream		Yes	
Subscriber-weighted-nominal speed		Not provided	

Technology Type	50 (optical carrier/fibre)
End-user	Yes (addresses)

specification	
Comments: typical and Advertised UP and DOWN are ALL THE SAME VALUE: 11 (>= 1gpbs)	
INTERCONNECTION DATA	
ID	
File size	text spreadsheet with 98 rows. (See comment)
Ownership	Not provided
Transport Type	provided
Data Rates/Capacity	provided
Location	Address provided as well as lat/long
Comments: A number of rows were duplicates. In the past, provider has indicated that they are separate instances and should NOT be removed as duplicates.	

Section 3: Submission File Details

Received 2 files by secure upload:

Size kb	Name
367	AddressAvailability_New Jersey-Merged_8-15-2013.txt
12	MiddleMile_New Jersey_8-15-2013.txt

Section 4: Validations and Results

The “address” file has 3096 rows. All speed codes set the same, code 11 (1+ Gbps), suggesting these are all commercial customers.

The “middlemile” file has 98 rows, including some that are exact duplicates which we will have to discard despite the provider’s past assurances that they are “different”.

Section 5: Data Transformation and Loading

The standard NDA prohibits us from submitting address-level data to the NTIA. Instead, we discover the census block for each customer address, and then report the census block shape drawn from Census Bureau TigerLine reference data.

NTIA Table BB_ConnectionPoint_MiddleMile

Loaded from the supplied tab-separated file. The following table explains the

transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column “DBA” (no provider name supplied separately)
DBANAME	As supplied in column “DBA”
FRN	As supplied in column “FRN” after removing dashes
OWNERSHIP	Set to null (not supplied)
BHCAPACITY	As provided in column “Serving Facility Capacity”
BHTYPE	As provided in column “Serving Facility Type”
LATITUDE	As supplied
LONGITUDE	As supplied
ELEVFEET	As supplied (all zero values)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Point shape created using ESRI ArcDesktop

Internal notes on processing:

18. Imported the data to a geodatabase table
19. Added a point for each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
20. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. All records successfully spatially joined on 2010 NJ Census Block shapes.
21. Discarded 21 records with identical lat, long values and addresses.
22. Loaded 77 records.

NTIA Table BB_Service_CensusBlock

Loaded from the supplied tab-separated file. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column “DBA” (no provider name supplied separately)
DBANAME	As supplied in column “DBA”
PROVIDER_TYPE	Set to “1”
FRN	As supplied in column “FRN”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	As supplied in column “Technology of Transmission”

MAXADDOWN	As supplied in column “Maximum Advertised Download Speed”
MAXADUP	As supplied in column “Maximum Advertised Upload Speed”
TYPICDOWN	Set to null (see below)
TYPICUP	Set to null (see below)
ENDUSERCAT	Set to null (see below)
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on the geocoded address

Internal processing notes:

19. Geocoded the addresses using an Arroyo flow and the Yahoo geocoder, leaving the result with address and lat, long data in an Excel spreadsheet. Large number of records was rejected due to poor geocoding accuracy, resulting from badly abbreviated town names.
20. Imported the spreadsheet to an ESRI geodatabase table
21. Added point shapes corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option
22. Added a column containing the ID of the containing year 2010 census block using ArcCatalog's spatial join feature. The newly created point shapes are joined against census block shapes from reference data.
23. Discarded typical speeds since they were in all cases identical to maximum advertised speeds, not measured values.
24. The end user category value as originally supplied applied to an address, but we must anonymize the addresses and report census blocks. The NTIA directs us to report the “predominant” end-user category, which is not supplied here. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.
25. Discarded 973 duplicate census block records, which result from multiple addresses in the same census block. Discarded 7 records located in the large census block.
26. Loaded 1119 records.

Section 6: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Wednesday, August 24, 2011 9:14 AM
To: Diamond, Greg
Cc: ConnectingNJ@research.telcordia.com
Subject: NJBB Data Clarification

Greg,

We have reviewed the data you submitted to the New Jersey Broadband Mapping program. We have one question. The middle-mile data you submitted in MiddleMile_New Jersey_8-18-2011.txt includes many rows that are duplicates. Can we safely discard these duplicate entries?

Thanks for you participation,

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

From: Diamond, Greg [mailto:Greg.Diamond@Level3.com]
Sent: Wednesday, August 24, 2011 1:17 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJBB Data Clarification

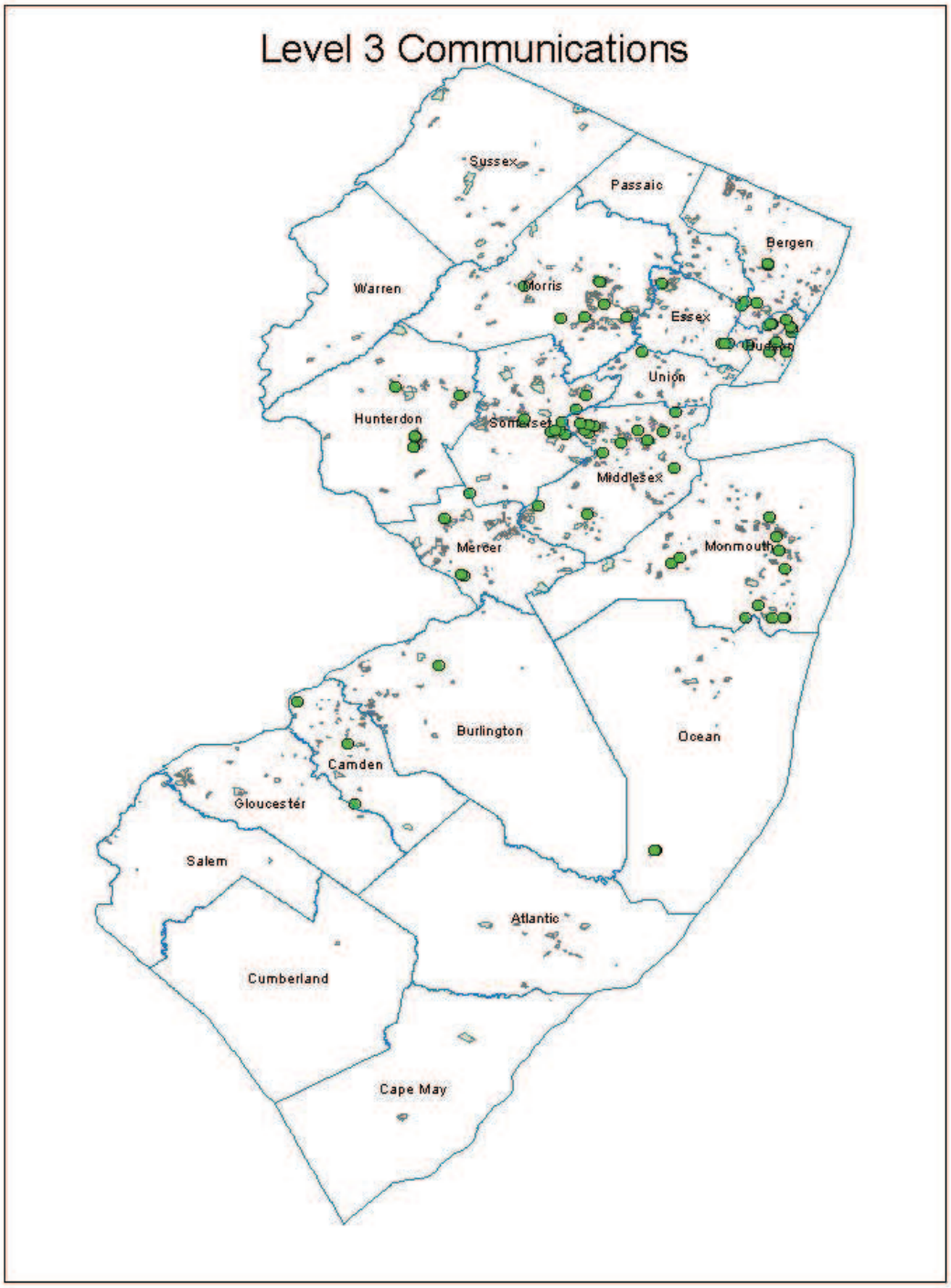
John, this issue came up with our CA submission as well. We investigated and determined that there were in fact some differences, albeit small, with some of the sites such that each site is in fact unique. Give that, I would not treat them as duplicates.

Greg

PLEASE NOTE MY NEW ADDRESS AND TELEPHONE NUMBER
Gregory T. Diamond
Regulatory Counsel
Level 3 Communications
1505 5th Avenue
Suite 501
Seattle, WA 98110
Desk: 206-652-5608
Mobile: 303-562-7378

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: MegaPath Corporation (formerly Dieca DBA Covad)
Received: July 2013
Submission date: October 2013

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

37. NDA Status
38. Submission Overview
39. Submission File Details
40. Data Validations and Results
41. Data Transformation and Loading
42. Clarification Questions and Provider Responses
43. Notes and Open Issues
44. Overview Map of Submitted Data

Section 1: NDA Status

NDA was executed with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	MegaPath Corporation MegaPath Corporation 0003753787
FOR WIRELINE		
Filetypes		
File size		
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	
Typical-upstream		Address & block	Speeds are provided at address (line segment) and census block granularity.
Typical-downstream		Address & block	
Advertised-upstream		Address & block	
Advertised-downstream		Address & block	
Subscriber-weighted-up		county level	

	Subscriber-weighted-down		county level	
Technology Type	10 (ADS), 20 (SDSL), 30 (other copper)			
End-user specification	Not provided			
Comments:				
INTERCONNECTION DATA				
ID	File **MiddleMileConnection*.txt			
File size	1kb			
Ownership	1			
Transport Type				
Data Rates/Capacity	4, 5			
Location	5 locations			
Comments: Five (5) data rows provided				

Section 3: Submission File Details

Received a zip file by SECURE UPLOAD in July 2013:

Name	Size
MegaPathCorporation_NJ_CONFIDENTIAL.zip	608KB

The original archive contains the following five (5) files:

Name	Size
NJBB_0003753787_AddressSegmentAvailability_MegaPathCorporation_CONFIDENTIAL.txt	52471
NJBB_0003753787_CensusBlockAvailability_MegaPathCorporation_CONFIDENTIAL.txt	12007002
NJBB_0003753787_CMAAdvertisedAvailability_MegaPathCorporation_CONFIDENTIAL.txt	1489
NJBB_0003753787_MiddleMileConnection_MegaPathCorporation_CONFIDENTIAL.txt	395
NJBB_0003753787_SubscriberWeightedNominalSpeed_MegaPathCorporation_CONFIDENTIAL.txt	1287

Section 4: Data Validation and Results

Section 5: Data Transformation and Loading

The following describes the validations and transformations that were applied to the submitted data.

NTIA Table BB_ConnectionPoint_MiddleMile

Oct 2013:
The middle mile data are almost identical except it is 1 less. Since the data are identical, they are copied from the April 2013 submission and the 1 record is deleted.

Apr 2013:
Loaded from supplied file "..MiddleMileConnection..". The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider Name
DBANAME	As supplied in column DBA Name
FRN	As supplied in column FRN
OWNERSHIP	As supplied in column Ownership
BHCAPACITY	As supplied in column Serving Facility Capacity
BHTYPE	As supplied in column Service Facility Type
LATITUDE	As supplied in column Latitude
LONGITUDE	As supplied in column Longitude
ELEVFEET	As supplied in column Elevation
STATEABBR	Set to "NJ"
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau reference data
SHAPE	Point shape created using ESRI

Internal notes on processing:

23. The data included the following fields:
    a. Provider Name
    b. DBA Name
    c. FRN
    d. Ownership
    e. Serving Facility Capacity
    f. Service Facility Type
    g. Latitude
    h. Longitude
    i. Street Address (blank)
    j. Elevation
24. There are 4 rows, which is different from the last submission. Viewing the data in ArcMap indicates that all points are in New Jersey.
25. Created an Excel sheet and imported to a geodatabase table.
    (The column data format of the FRN should be Text, not General. Save the excel in the 97-2003 format)
26. Added a point shape to each row corresponding to the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option. Specify WGS84 for the coordinate system of the

points. Result is feature class middlemile_point_tol.

27. Added a column “geoid10” with the ID of the containing year 2010 census block via a spatial join of the points. Result is feature class middlemile_point_tol_cb.
28. Populated stateabbr and FRN column during data transformation and loaded table.

NTIA Table BB_Service_CensusBlock

Loaded from supplied file “..CensusBlockAvailability..”. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider_Name
DBANAME	As supplied in column DBA_Name
PROVIDER_TYPE	Set to 1
FRN	As supplied in column FRN
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census_Block_ID (digits 3 to 5)
TRACT	Populated from Census_Block_ID (next 6 digits)
BLOCKID	Populated from Census_Block_ID (remaining 4 digits)
FULLFIPSID	As supplied in column Census_Block_ID
TRANSTECH	As supplied in column Technology_of_Transmission
MAXADDOWN	As supplied in column Maximum_Advertised_Downstream_Speed
MAXADUP	As supplied in column Maximum_Advertised_Upstream_Speed
TYPICDOWN	As supplied in column Typical Downstream Speed
TYPICUP	As supplied in column Typical Upstream Speed
ENDUSERCAT	Set to null because not supplied
SHAPE	As found in Census Bureau year 2010 reference data

Internal processing notes:

7. Following data fields were supplied:
    a. Provider Name
    b. DBA Name
    c. FRN
    d. Census Block ID
    e. Street NameStreet Segment ID (TLID)
    f. Technology of Transmission
    g. Maximum Advertised Downstream Speed
    h. Maximum Advertised Upstream Speed
    i. Typical Downstream Speed
    j. Typical Upstream Speed
8. The supplied text file has 196,833 rows.
9. Typical speeds were used as provided.
10. We used Census Bureau reference data for Year 2010 to locate and submit geographic features (i.e., shapes) for each census block.

11. The endusercat column is set to 2 as requested by the provider.

12. Total rows (shapes) loaded is196,832.

NTIA Table BB_Service_RoadSegment

Loaded from supplied File "..AddressSegmentAvailability..". The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider_Name
DBANAME	As supplied in column DBA_Name
PROVIDER_TYPE	Set to 1
FRN	As supplied in column FRN
ADDMIN	Set to the least of the non-empty address numbers from TigerLine
ADDMAX	Set to the greatest of the non-empty address numbers from TigerLine
PREDIR	Set to null (no value supplied)
STREETNAME	As supplied (has all street components, not just name)
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)
CITY	Set to null (no value supplied)
STATECODE	Set to "NJ"
ZIP5	Set to zipl from TigerLine
ZIP4	Set to null (no value available in reference data)
TRANSTECH	As supplied in column Technology_of_Transmission
MAXADDOWN	As supplied in column Maximum_Advertised_Downstream_Speed
MAXADUP	As supplied in column Maximum_Advertised_Upstream_Speed
TYPICDOWN	As supplied in column Typical Downstream Speed
TYPICUP	As supplied in column Typical Upstream Speed
ENDUSERCAT	Set to "2"
SHAPE	Road segment shape from Year 2010 TigerLine reference data, as matched by TLID

Internal processing notes:

1. The following data fields were submitted
    a. Provider Name
    b. DBA Name
    c. FRN
    d. Census Block ID
    e. Technology of Transmission
    f. Maximum Advertised Downstream Speed
    g. Maximum Advertised Upstream Speed
    h. Typical Downstream Speed
    i. Typical Upstream Speed

2. There were 629 input rows. One was row was removed as a duplicate, in terms of county and Tiger Line ID. After a join against Census Bureau 2010 reference data, no rows were discarded based on compound key of county, TLID, and tech_transmission fields. Total rows (shapes) loaded is 628.
3. The endusercat column is set to 2 as requested by the provider.

NTIA Table BB_Service_Overview

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider_Name
DBANAME	As supplied in column Provider_Name; DBA_Name column is empty
FRN	As supplied in column FRN
GEOUNITTYPE	Set to “CO” for county
STATECOUNTYFIPS	Concatenated state code (“34”) with value from column “County ID”, after padding county ID out to three digits.
TRANSTECH	As supplied in column Technology_of_Transmission
ARPU	Not provided, set to NULL
SWNOMSPEED	As supplied in column “Subscriber Weighted Nominal Speed”
STATEABBR	Set to “NJ”
SHAPE	County shape as found in Census Bureau year 2010 reference data

Internal processing notes:

1. The following data fields were submitted
    a. Provider Name
    b. DBA Name
    c. FRN
    d. County ID
    e. Technology of Transmission
    f. Subscriber Weighted Nominal Speed
2. Created county FIPS by padding County ID with leading zeros to make it three digits in length and pre-pending “34” as the state code
3. Converted Transtech to “short” and ARPU and SWNOMSPEED to Double
4. Checked to ensure that there were no duplicates, based on FIPS and Transtech
5. Joined with shape data based on STATECOUNTYFIPS

We received warnings on 9,681 census blocks for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). The provider confirmed that they support 15 Mbps with their ADSL2+ service in limited regions of the state.

Section 6: Clarification Questions and Responses

Subject: RE: NJ Broadband Data Collection – Fall 2013
Date: Mon, 29 Jul 2013 21:20:26 +0000
From: Stefanie Santa-Esparza <Stefanie.Santa-Esparza@megapath.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Cliff,
The correct end user category code for MegaPath Corporation is #2.

Thanks,
Stefanie

Stefanie Santa-Esparza

Legal Project Manager

***Effective July 18th my office number will change to **408-952-7294.
Please update your records accordingly**. *

MegaPath

*T *408.952.7394 *F*408.952.7539 *C*408.981.7421

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Thursday, February 23, 2012 9:00 PM
To: 'Stefanie Santa-Esparza'
Cc: NJ Broadband Data Collection
Subject: NJ Broadband Clarification

Stefanie,
The NTIA has provided additional validation rules for us to apply to the data during this round. One of these rules raises and warning, and requires additional clarification, in cases where ADSL is reported with a speed code of 7 (10-25 Mbps). In the data you supplied, there are about 15,000 census blocks that meet this condition. Can you please confirm that these values are correct? A few of the census blocks with this combination are listed below.

Thanks for your help,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

340030010005000
340030010005001
340030010005002
340030010005003
340030010005004

340030010005005
340030010005006
340030010005008
340030010005010

From: Stefanie Santa-Esparza [mailto:Stefanie.Santa-Esparza@megapath.com]
Sent: Friday, February 24, 2012 12:21 PM
To: 'NJ Broadband Data Collection'
Subject: RE: NJ Broadband Clarification

John,

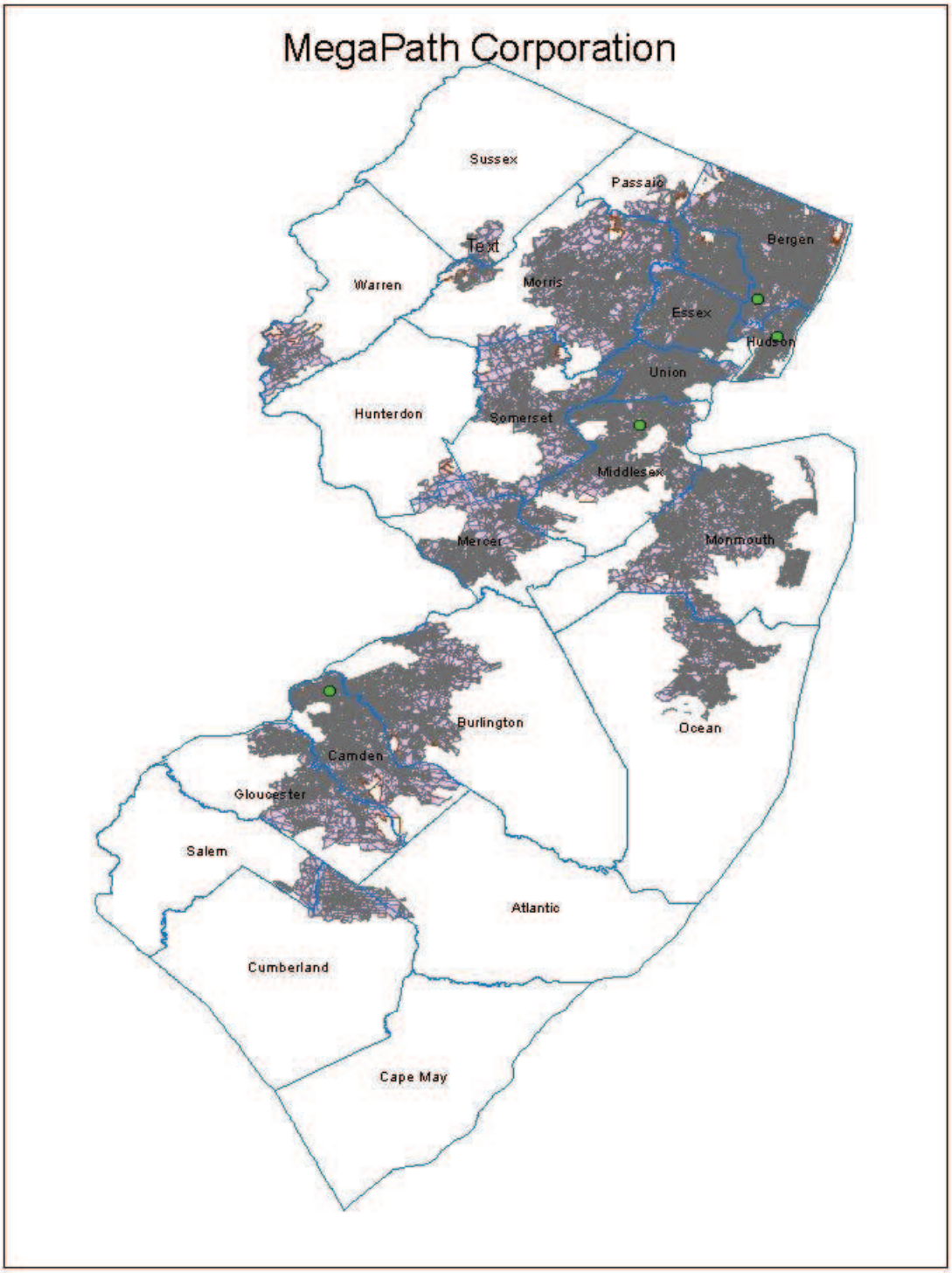
Our highest bandwidth asymmetric DSL is ADSL2+ for which we have a 15.0Mbps/1.0Mbps offering, in limited parts of the state. Actually, at the beginning of this month, we reduced our ADSL2+ deployment in NJ from 54 central offices down to 35 central offices, but the blocks specified in our Round 5 submission indeed represent our 2011 Year End coverage.

Thanks,
Stefanie

Section 7: Notes and Open Issues

The provider submitted the file "..CMAAdvertisedAvailability..", which provides three technology codes (10, 20, 30), MSA codes, and max advertised up and down speed codes. The max speed for a given technology is different for different MSAs. We did not use this data since max speed codes were provided on a row-by-row basis.

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Monmouth Telephone and Telegraph
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Signed NDA is in place with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	Monmouth Telephone & Telegraph same 0004325205
FOR WIRELINE		
Filetypes	Csv (AddressLevelAvailability June 30, 2013.csv)	
File size	90 Kbytes, 894 records	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Address
Typical-downstream		Address
Advertised-upstream		Address
Advertised-downstream		Address
Subscriber-weighted-up		None provided
Subscriber-weighted-down		Not provided

Technology Type	Code 30 – other copper line Code 50 - Optical Carrier/Fiber to the End User
End-user specification	Code 4 – Medium or Large Enterprise
Comments:	

INTERCONNECTION DATA	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: No middle mile was provided at this time. Monmouth gave the following explanation: Please note that Table 8, “Middle-mile and Backbone Interconnection Points Data”, is not included per instructions on page 11 of the Data Submission Specifications” “Middle-mile and Backbone Interconnection Point information should focus on the connectivity at a point. That is, if a point at which network elements or segments are joined would not reasonably offer the possibility of technical connectivity with the network[s], it should not be reported”.	

Section 3: Submission File Details

The data are very similar to the last submission.

Received 1 zip file:

Size	Name
20Kb	Broadband Mapping.zip

The zip archive contains the following files:

Size	Name
84Kb	AddressLevelAvailability June 30, 2013.csv
2Kb	CMA Advertised Availability June 30, 2013.csv
2Kb	SubscriberWeightedNominalSpeed June 30, 2013.csv
23Kb	Read Me.doc

File details:

AddressLevelAvailability June 30, 2013.csv:

The file contains 848 records. Note that data file does not have a header row, but follows (largely) the ADDRESS DATA table from the NTIA “State Broadband Data and Development Grant Program” document. The columns and the corresponding headers are:

A - Provider Name
C - FRN

D-L - Address
M - EndUserCat
N - TransTech
O - MaxAdvDown
P - MaxAdvUp
Q - TypicDown
R - TypicUp

The FRN is missing leading zeros. Most of the zip codes do not have the required leading zeros. It was established (prior interactions) that the DBA is Monmouth Telephone & Telegraph. Certain addresses will need to be fixed for geocoding (also per prior interactions).
Some records have speed tiers of 2 or less.

CMA Advertised Availability June 30, 2013.csvv

The file contains 18 records. Note that data file does not have a header row, but follows the CMA data submission template that we posted on the connectingnj web site. The columns and the corresponding headers are:

A - Provider Name
C - FRN
D - CMA
E - TransTech
F - MaxAdvDown
G - MaxAdvUp

SubscriberWeightedNominalSpeed June 30, 2013.csv

The file contains 18 records. Note that data file does not have a header row, but follows the Subscriber-Weighted Nominal Speed data submission template that we posted on the connectingnj web site. The columns and the corresponding headers are:

A - Provider Name
C - FRN
D - CMA
E - TransTech
F - SubsWeightedSpeed

Read Me.doc

The file contains explanations of the submission.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

We loaded from supplied Excel spreadsheet after suitable geo-spatial operations that obtained latitude/longitude pairs for each address. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Monmouth Telephone & Telegraph”
DBANAME	Set same as PROVNAME
PROVIDER_TYPE	Set to 1
FRN	Set to “0004325205”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	As supplied in column TransTech
MAXADDOWN	As supplied in column MaxAdvDown
MAXADUP	As supplied in column MaxAdvUp
TYPICDOWN	Set to null
TYPICUP	Set to null
SHAPE	Copied from Census Bureau TigerLine 2000, as matched by spatial join on geocoded address

Internal processing notes:

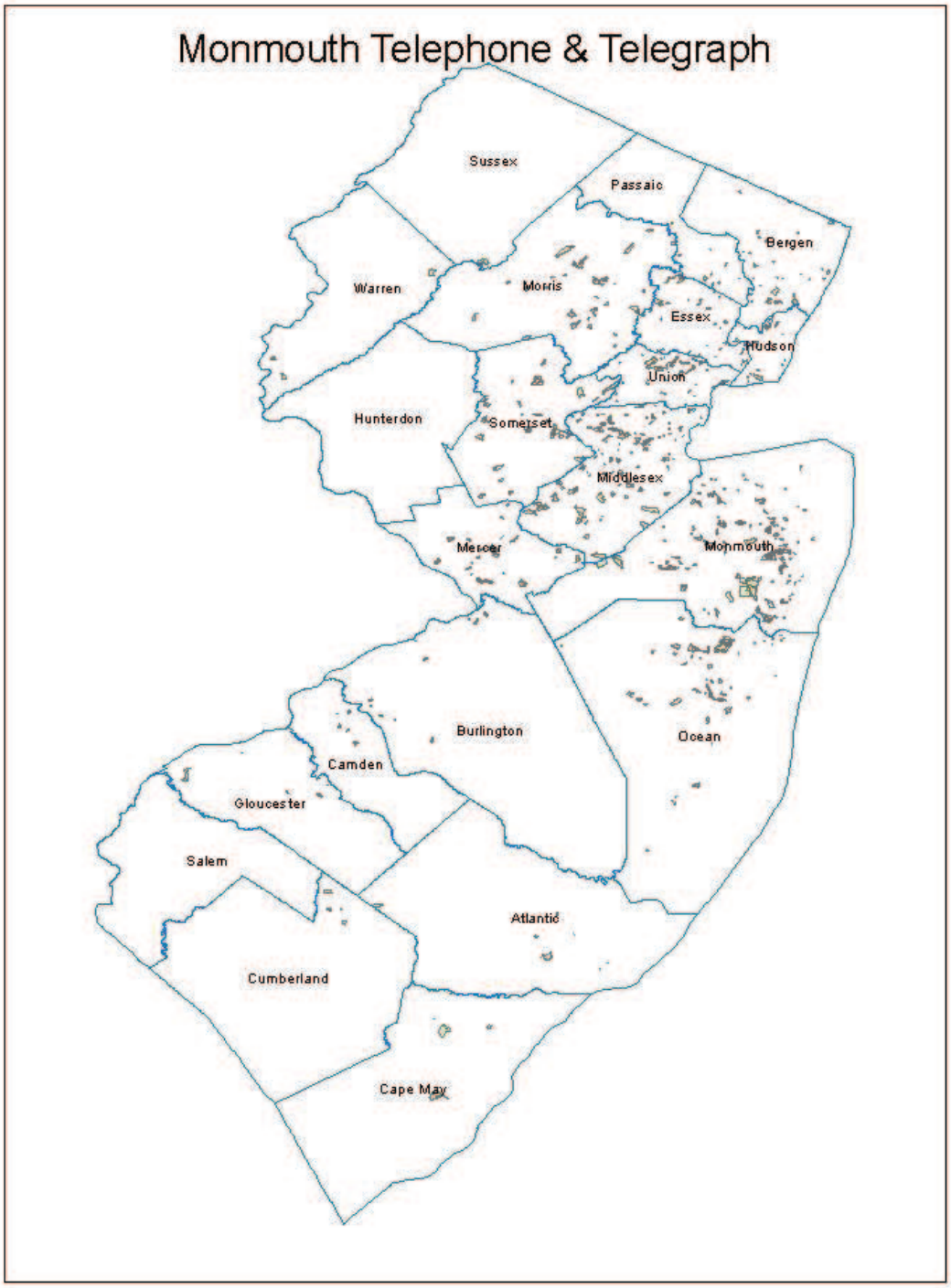
27. All but two record in AddressLevelAvailability June 30, 2013.csv were successfully geo-coded using the Google geocoder to obtain a Latitude, Longitude pair for each. Created an Excel sheet and imported it to a geodatabase table.
28. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
29. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data.
30. Discarded six record that failed to properly spatially join on the 2010 NJ Census Block shapes.
31. Discarded 53 rows because the max adv down speed code was 1 or 2, which is not broadband according to the requirements of the NOFA
32. Discarded 101 rows with duplicate census blocks while preserving the greatest speed. These result from multiple customers in the same census block.
33. Discarded 6 large census blocks (greater than 2 square miles).
34. Final record count loaded is 680

35. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Network Billing Systems
Received: February 2012
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy nbs_apr2013.BB_ConnectionPoint_MiddleMile to nbs_oct2013. BB_ConnectionPoint_MiddleMile

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

13. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy nbs_oct2012.BB_ConnectionPoint_MiddleMile to nbs_apr2013. BB_ConnectionPoint_MiddleMile.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

For April 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

For October 2011:

Section 1: NDA Status
None

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	Network Billing Systems LLC 0004965141
FOR WIRELINE		
Filetypes		
File size		
Speeds		

Type		Spatial Resolution: **address**
Typical-upstream		
Typical-downstream		
Advertised-upstream		
Advertised-downstream		
Subscriber-weighted-up		
Subscriber-weighted-down		

Technology Type	Types:
End-user specification	
Comments:	
INTERCONNECTION DATA	
ID	
File size	
Ownership	Confirmed via email - Leased
Transport Type	Fiber
Data Rates/Capacity	T1 to OC 48 (2.488 Gbps)
Location	Provided by street address
One email with three addresses of their fiber ring interconnections, two in New Jersey.	

Section 3: Submission File Details

Received information via email:

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “Network Billing Systems LLC”
DBANAME	Set to “Network Billing Systems LLC”
FRN	Set to “0004965141”
OWNERSHIP	Set to null, not provided
BHCAPACITY	Set to 5, OC-48 is 2.5Gbps
BHTYPE	Set to 1, transport facility is fiber
LATITUDE	As computed from address
LONGITUDE	As computed from address
ELEVFEET	Set to “0” (zero)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

29. Used the provider name, DBA name, and FRN from FCC Form 477 reference data.
30. The following steps were performed for the October 2011 submission and the results re-used here:
    a. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
    b. Imported the resulting data to a geodatabase table.
    c. Added a point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
    d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. All records successfully spatially joined on 2010 NJ Census Block shapes.
31. Based on provider email response, set ownership value to leased.
32. Loaded 2 records.

Section 5: Clarification Questions and Responses

Subject: RE: NJ Broadband Data Collection - Spring 2013
Date: Mon, 7 Jan 2013 17:21:08 -0500
From: Ray Wood <RayW@nbsvoice.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Hello,

There have been no changes since the last time we submitted info (July - 2012).

Can you please resubmit the info used then.

Thank you,

Ray Wood

From: Ray Wood [mailto:RayW@nbsvoice.com]
Sent: Wednesday, February 22, 2012 4:07 PM
To: NJ Broadband Data Collection
Cc: shelley.bates@oit.state.nj.us
Subject: FW: Reminder - NJ Broadband Data Collection

John/Shelley,

Nothing has changed on our end – sorry this is late, in this chain you will see my other responses.

If this does not suffice, please let me know.

Ray Wood
NBS
973-638-2155

From: Ray Wood
Sent: Tuesday, August 16, 2011 3:11 PM
To: 'ConnectingNJ@research.telcordia.com'
Cc: shelley.bates@oit.state.nj.us
Subject: RE: Reminder - NJ Broadband Data Collection

This is what I submitted – I think last summer.

Does this suffice?

To: Telcordia (NJ BB Data Collection)
From: Ray Wood (NBS, Product Manager).
Re: NJ BB Data Collection

I believe that we qualify for the BB Data Collection. However, what we do have that qualifies is only a portion of our business.

I don't believe we qualify as a fixed broadband or mobile broadband service provider.

However, we probably do qualify as a middle mile infrastructure provider.

We have a fiber ring that runs through the addresses listed below:

60 Hudson Street
NY, NY
(Carrier Hotel)

155 Halsey Street
Newark, NJ 07102
(Carrier Hotel)

282 Main Street
Little Ferry NJ
(Verizon Central Office)

We can offer bandwidth increments from T1 to OC-48.

Please let me know if you require further detail on this.

Thank you,

Ray Wood
Product Manager
NBS
973-638-2155

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Wednesday, February 22, 2012 5:57 PM
To: 'Ray Wood'; 'NJ Broadband Data Collection'
Cc: 'shelley.bates@oit.state.nj.us'
Subject: RE: Reminder - NJ Broadband Data Collection

Ray,
This is great. The NTIA is collecting data every six months, and wants us to get revised data or verify previous data.

A couple of clarifications:

1. I am assuming you lease space at these facilities, rather than own them. Is that true in all three cases?
2. When you say you can offer T1 to OC-48, how is that configured? Do you resell facilities from other providers to connect to your locations?

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Ray Wood [mailto:RayW@nbsvoice.com]
Sent: Wednesday, February 22, 2012 6:00 PM
To: NJ Broadband Data Collection
Cc: shelley.bates@oit.state.nj.us
Subject: RE: Reminder - NJ Broadband Data Collection

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Wednesday, February 22, 2012 5:57 PM
To: Ray Wood; 'NJ Broadband Data Collection'
Cc: shelley.bates@oit.state.nj.us
Subject: RE: Reminder - NJ Broadband Data Collection

Ray,
This is great. The NTIA is collecting data every six months, and wants us to get revised data or verify previous data.

A couple of clarifications:

1. I am assuming you lease space at these facilities, rather than own them. Is that true in all three cases?

Yes.

2. When you say you can offer T1 to OC-48, how is that configured?

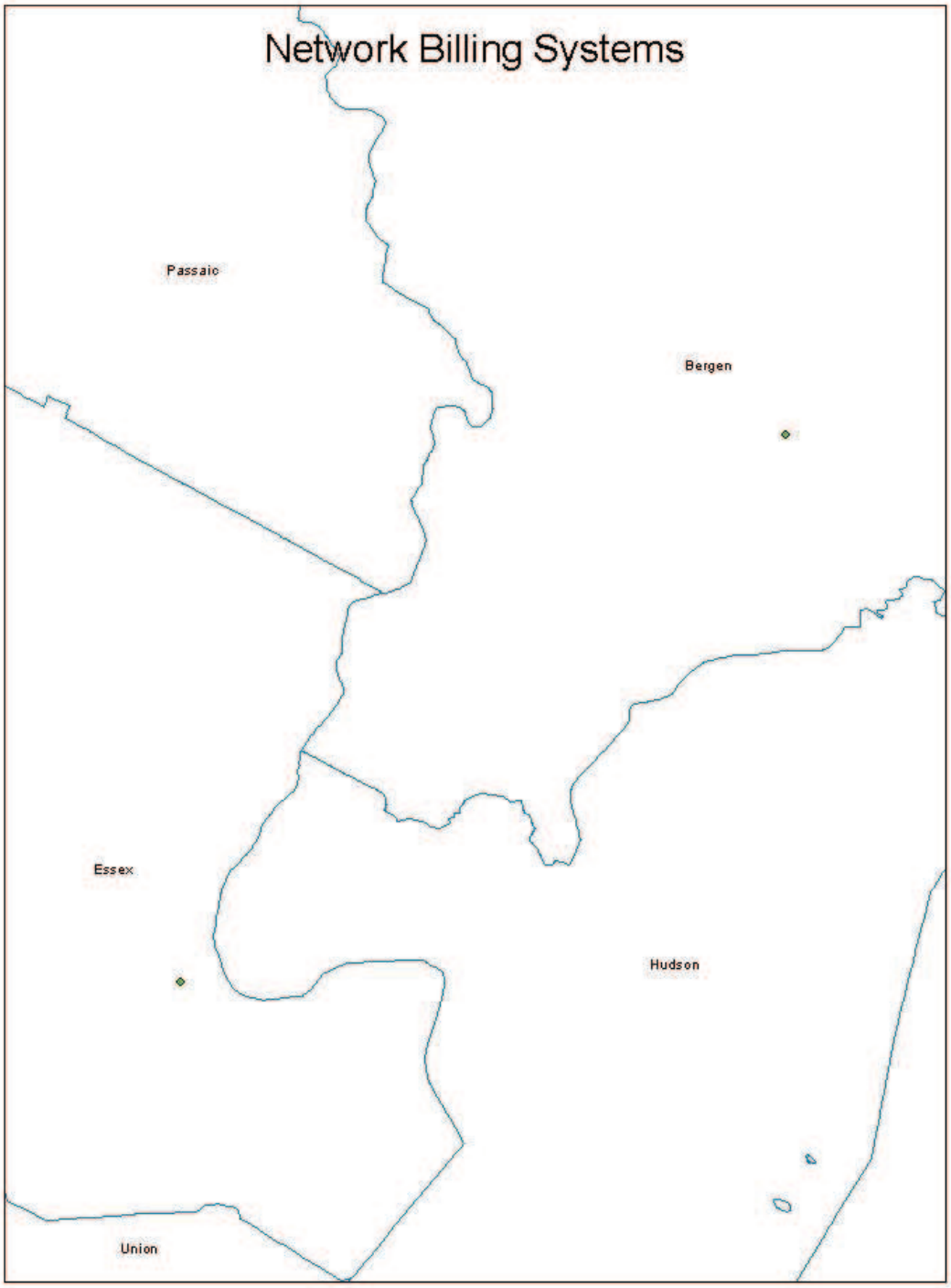
I don't understand.

Do you resell facilities from other providers to connect to your locations?

Yes.

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Netcarrier
Received: March 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

14. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy netcarrier_apr2013.BB_Service_CensusBlock to netcarrier_oct2013. BB_Service_CensusBlock.
15. Update the endusercat column in the netcarrier_oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.
16. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy netcarrier_apr2013.BB_ConnectionPoint_MiddleMile to netcarrier_oct2013. BB_ConnectionPoint_MiddleMile

For April 2013:
Netcarrier only provided the Address Level data for this round, processing of which is outlined in the corresponding section of this document. As we are going to reuse data from previous submissions for the Middle Mile table, corresponding sections are copied from the previous Provider Data Report.

Section 1: NDA Status

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Netcarrier Netcarrier Telecom, Inc. 0005043195
FOR WIRELINE		
Filetypes	Excel	

File size	119 KB (595 rows)
Speeds	<table><tr><th>Type</th><th></th><th>Spatial Resolution: **address**</th></tr><tr><td>Typical-upstream</td><td></td><td>Address-level</td></tr><tr><td>Typical-downstream</td><td></td><td>Address-level</td></tr><tr><td>Advertised-upstream</td><td></td><td>Address-level</td></tr><tr><td>Advertised-downstream</td><td></td><td>Address-level</td></tr><tr><td>Subscriber-weighted-up</td><td></td><td>Not provided</td></tr><tr><td>Subscriber-weighted-down</td><td></td><td>Not provided</td></tr></table> Provides a .xls file with 895 rows of information (end user addresses).
Technology Type	Types: 10, 30, 50
End-user specification	Address level.
Comments: 1. This pertains to the data received in previous rounds. 2. Provider did not respond to requests for revised information for Spring 2012 submission. Their Web site indicates that they offer T1/T3 and fiber-based services. They do not specifically list ADSL. They do offer fractional T1 services, indicating that they could potentially support new customers at existing locations. Based on this information, it was decided to reuse their prior data for this round.	
INTERCONNECTION DATA	
ID	NJ_Broadband_Mapping-Backbone-090711
File size	12 kb
Ownership	Not provided
Transport Type	Facility type provided (code 1 and 2 used)
Data Rates/Capacity	Not provided
Location	Provided by street address (elevation provided as well)
Comments: 2 other fields called V-COORD and H-COORD (5 digit #'s) are provided.	

Section 3: Submission File Details

Received 1 file by secure upload:

Size	**Name**
195 kb	477 Workbook-013113-broadband only-NJBroadband.xls

Section 4: Data Transformation and Loading

The following describes the processing applied to load the tables

NTIA Table BB_ConnectionPoint_MiddleMile

Since there is no change, we copied the 2012 October middle mile data.

This pertains to data processed in previous rounds.

Loaded from the supplied Excel Spreadsheet. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column “Provider Name” but changed “c” to “C”
DBANAME	As supplied in column “DBA” but changed “c” to “C”
FRN	As supplied in column “FRN”
OWNERSHIP	As provided in column “Ownership”
BHCAPACITY	As provided in column “Serving Facility Capacity”
BHTYPE	As provided in column “Serving Facility Type”
LATITUDE	As computed from address
LONGITUDE	As computed from address
ELEVFEET	Set to “0” (zero); values such as “Fl 1” were not parsed
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

33. Used the provider name, DBA name, and FRN as supplied.
34. Following steps were performed for Fall 2011 submission and the results reused:
    a. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
    b. Imported the resulting data to a geodatabase table.
    c. Added a point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
    d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. All records successfully spatially joined on 2010 NJ Census Block shapes.
    e. Loaded 11 records.
35. These records were copied over into a new BB_ConnectionPoint_MiddleMile

table

36. Results passed all NTIA validations.

NTIA Table BB_Service_CensusBlock

The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Not supplied, taken from the previous round data.
DBANAME	Not supplied, taken from the previous round data.
PROVIDER_TYPE	Set to “1”
FRN	Not supplied, taken from the previous round data.
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Take from column “Technology Code”, after transformation (see below)
MAXADDOWN	Take from column “Download Speed”, after transformation (see below)
MAXADUP	Take from column “Upload Speed”, after transformation (see below)
TYPICDOWN	Set to null (see below)
TYPICUP	Set to null (see below)
ENDUSERCAT	Set to null (see below)
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on geocoded address

Internal processing notes:

36. Following steps were performed for the April 2013 submission:
    a. Geocoded the addresses using an Arroyo flow and the Yahoo geocoder, leaving the result with address and lat, long data in an Excel spreadsheet. All addresses (793) were successfully geocoded.
    b. Imported the spreadsheet to a simple ESRI geodatabase table
    c. Added point shapes corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option
    d. Added a column containing the ID of the containing year 2010 census block using ArcCatalog's spatial join feature. The newly created point shapes are joined against census block shapes from reference data. All but three records successfully spatially joined on 2010 NJ Census Block shapes.
    e. Discarded 286 duplicate census block records, which result from multiple

addresses in the same census block.

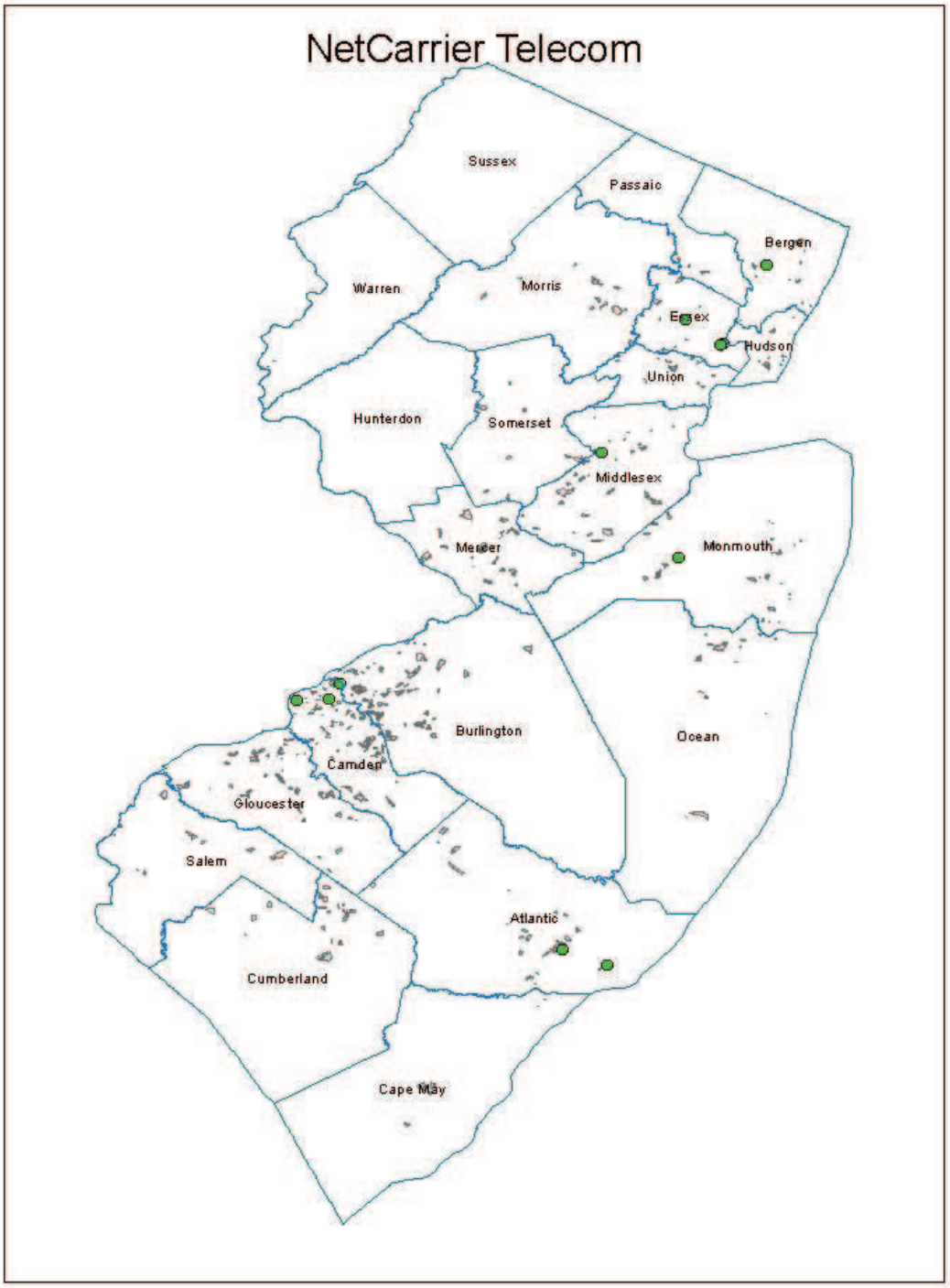
f. Discarded 1 large census block record.
g. Loaded 506 records.

37. Copied result into new BB_Service_CensusBlock

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data\



Connecting New Jersey - Broadband Provider Data Report

Provider: Service Electric Cable TV of Hunterdon
Received: August 2010/April 2012
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

17. Set endusercat column to the BB_Service_CensusBlock table.Set to “5” as per communication with the provider.
18. Set endusercat column to the BB_Service_RoadSegment table.Set to “5” as per communication with the provider.
19. Set download speed to “10” and transtech ti “40” as per communication with the provider.
20. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelechunterdon_apr2013.BB_Service_CensusBlock to svcelechunterdon_oct2013. BB_Service_CensusBlock.
21. Same is applied to svcelechunterdon_oct2013.BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelechunterdon_oct2012.BB_Service_CensusBlock to svcelechunterdon_apr2013. BB_Service_CensusBlock.
2. Same is applied to svcelechunterdon_apr2013.BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable

differences from the processing done on the previous submission are listed next.

Section 1: NDA Status

None.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	Service Electric Cable TV of Hunterdon, Inc. DBA not provided 0003760014
FOR WIRELINE		
Filetypes	Text (a letter, not structured data)	
File size		
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		Municipality
Advertised-downstream		Municipality
Subscriber-weighted-up		Not provided
Subscriber-weighted-down		Not provided

In telephone conversation, provider indicated that their footprint has not changed from previous submissions, that speeds were 15 Mbps down and 1 Mbps up. While they are testing DOCSIS 3.0, it is not yet available commercially for residential customers.

In previous submissions, provider had given a list of municipalities that they covered completely.

Technology Type	Docsis 2.0 (use code 41)
End-user specification	Not provided
Comments: Provider also indicated they deliver fiber service to business customers, but were not in a position to deliver location data for this round. We will pursue this further for the next round.	
INTERCONNECTION DATA	
ID	
File size	
Ownership	Leased
Transport Type	Fiber
Data	1 Gbps

Rates/Capacity	
Location	List of addresses
Comments: In telephone conversation, Provider described locations of interconnection huts and provided information on technology and speeds.	

Section 3: Submission File Details

Received email for October submission with information on the municipalities served in entirety, the technology of transmission, and the speed tiers offered to customers. Confirmed that information via phone on March 4, 2011

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "Service Electric Cable TV of Hunterdon, Inc."
DBANAME	Not supplied; set same as PROVNAME
PROVNAME	As supplied
DBANAME	As supplied
FRN	Set to "0003760014"
OWNERSHIP	Set to 1 for leased
BHCAPACITY	Set to 4 for 1 Gbps
BHTYPE	Set to 1 for fiber
LATITUDE	Obtained by geo-coding addresses
LONGITUDE	Obtained by geo-coding addresses
ELEVFEET	Set to "0" (zero)
STATEABBR	Set to "NJ"
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

1. Provider gave a set of addresses. These addresses were geo-coded using Google geo-coder into an Excel spreadsheet.
2. Imported the Excel sheet to a geo-database table.
3. Added point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
4. Mapped to separate shape file to correct tolerance.

5. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data.

NTIA Table BB_Service_CensusBlock

Loaded based on email received on August 23, 2010. We submitted all census blocks in the named municipalities. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Service Electric Cable TV of Hunterdon, Inc."
DBANAME	Not supplied; set same as PROVNAME
RESELLER	Set to "N"
FRN	Set to "0003760014"
STATEFIPS	Set to "34" (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (first 3 digits)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to 40 (Cable Modem – DOCSIS 3.0) per provider supplied information
MAXADDOWN	Set to 10 (100 Mbps – 1 Gbps) per provider supplied information
MAXADUP	Set to 3 (1 Mbps) per email
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	Copied from Census Bureau TigerLine 2000, as matched by spatial join on geocoded address

Internal processing notes:

38. Following steps were performed for October 2011 submission
    a. Created a file with municipality names that match exactly names in the "name" column in the Year 2000 Census Bureau TigerLine database. Primarily this meant changing "Boro" to "Borough".

Municipality	County
Alexandria Township	Hunterdon
Alpha Borough	Warren
Bloomsbury Borough	Hunterdon
Frenchtown Borough	Hunterdon
Greenwich Township	Warren
Harmony Township	Warren
Holland Township	Hunterdon
Kingwood Township	Hunterdon
Lopatcong Township	Warren

Milford Borough	Hunterdon
Phillipsburg	Warren
Pohatcong Township	Warren

b. Joined against municipalities against reference data to identify corresponding list of census blocks.

39. Ran all NTIA validations.

NTIA Table BB_Service_RoadSegment

Loaded with street segments in census blocks larger than 2 square miles as listed in Census Bureau TigerLine reference data. The following table explains the transformations that were applied to load the target table.

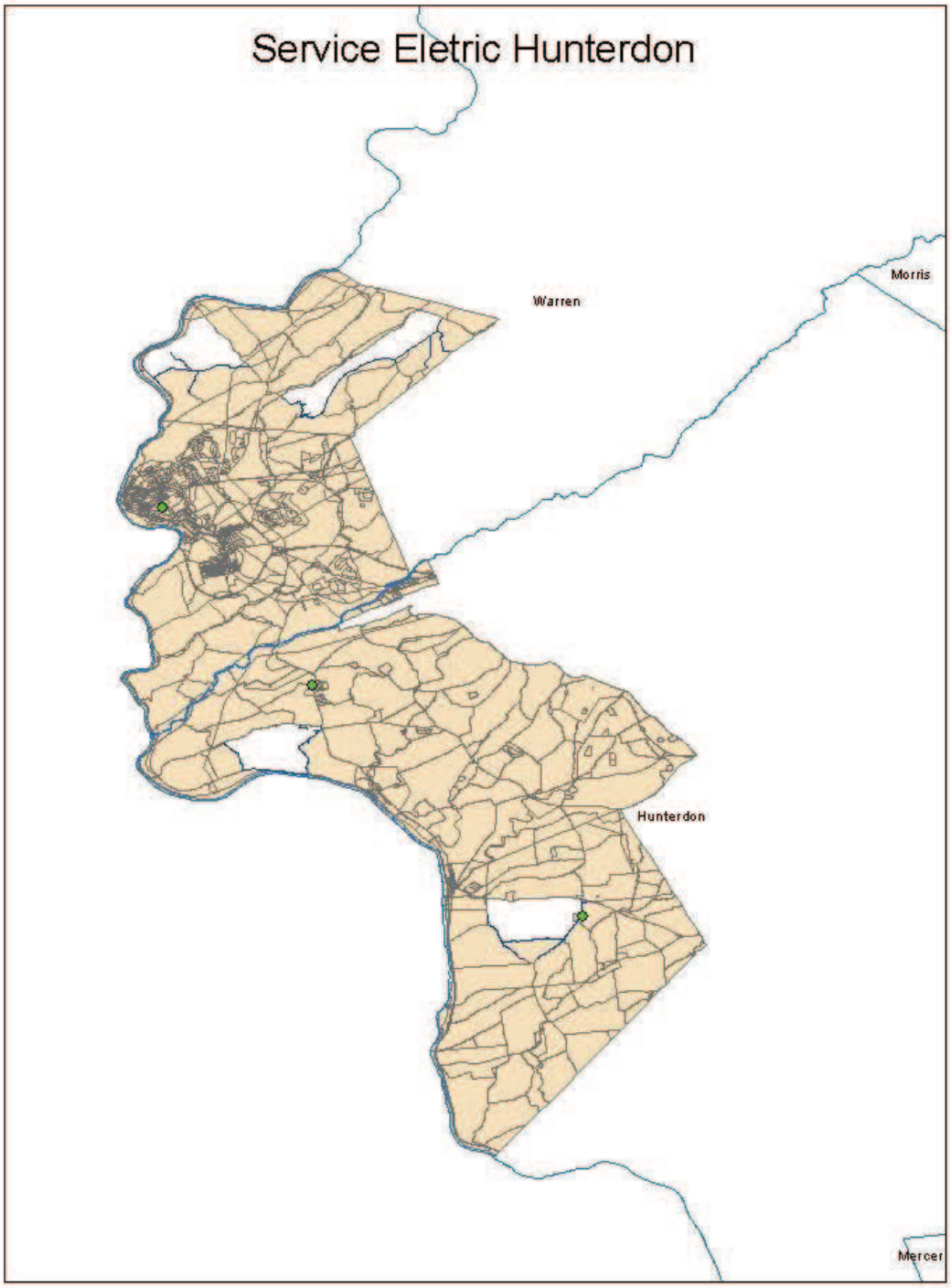
Table Column	Data Source / Transformation
PROVNAME	Set to “Service Electric Cable TV of Hunterdon, Inc.”
DBANAME	Not supplied; set same as PROVNAME
RESELLER	Set to “N”
FRN	Set to “0003760014”
ADDMIN	From reference data
ADDMAX	From reference data
PREDIR	From reference data
STREETNAME	From reference data
STREETTYPE	From reference data
SUFFDIR	From reference data
CITY	From reference data
STATECODE	From reference data
ZIP5	From reference data
ZIP4	From reference data
TRANSTECH	Set to 41 (Cable Modem – Other) per email Docsis-2.0
MAXADDOWN	Set to 7 (10Mbps) per email
MAXADUP	Set to 3 (800Kbps) per email
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	From reference data

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Their data remains the same, so resubmit previous data. HOWEVER, they will be making significant changes to their service offering between now and the Fall, i.e., from DOCSIS 2 to DOCSIS 3, from 15x2 to 50x5.

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Service Electric Cable TV of Sparta
Received: March 2012
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For Octoberl 2013:
This is a stub report, since data from the previous submission was reused. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

22. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelecsparta_apr2013.BB_Service_CensusBlock to svcelecsparta _oct2013.BB_Service_CensusBlock.
23. Same is applied to svcelecsparta_oct2013.BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.
24. Update the endusercat column in the BB_Service_RoadSegment table. Loaded from tl_2010_34_large_streets_10_wgs reference table.
25. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelecsparta_oct2012.BB_Service_CensusBlock to svcelecsparta _apr2013. BB_Service_CensusBlock.
2. Same is applied to svcelecsparta_apr2013.BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Section 1: NDA Status

No NDA executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN	Service Electric Cable TV of NJ Inc. Service Electric Broadband Cable 0005007125
FOR WIRELINE		
Filetypes	Text	
File size	9728 bytes	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		Municipality
Advertised-downstream		Municipality
Subscriber-weighted-up		Not provided
Subscriber-weighted-down		Not provided

Provided list of municipalities they serve. Provider indicated that they do not cover all streets in the rural area they serve. Rather than overstate coverage, we elected to omit streets in large census blocks that are more likely to represent rural areas.

Provider indicated in email exchange that they offer DOCSIS 3.1 over their entire footprint. He provided list of speeds, which we confirmed with him.

Technology Type	Docsis 3.1 (will use code 40)
End-user specification	Not provided
Comments:	

INTERCONNECTION DATA	
ID	
File size	Several addresses provided
Ownership	Owned
Transport Type	Fiber
Data Rates/Capacity	One says "Fiber 10 gbps"; others have no statement - Clarified this via email. See answers below.
Location	Address
Comments:	

Section 3: Submission File Details

Received one (1) file by EMAIL:

Size	Name
9728	Broadband data Information.xls

Received a spreadsheet with information on the municipalities served in entirety, the technology of transmission, the modem speeds offered to customers, and some connection points.

We will gather all the census blocks in the municipality based on the TigerLine reference data and report those shapes in the BB_service_censusblock table.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Loaded from 8 rows in the supplied Excel spreadsheet. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “Service Electric Cable TV of NJ Inc.” per email response
DBANAME	Set to “Service Electric Broadband Cable” per email response
FRN	Set to “0005007125” per email response
OWNERSHIP	Set to 0 to indicate owned
BHCAPACITY	Set to 6 or 4, see below
BHTYPE	Set to 1, provider indicated fiber.
LATITUDE	Created by geocoding the supplied address
LONGITUDE	Created by geocoding the supplied address
ELEVFEET	Set to “0” (zero)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2000 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

6. Following steps were performed during prior submission
    a. Created an excel sheet and imported to a geodatabase table.
    b. Added points corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class

from XY Table" option.

c. Added a column containing the ID of the containing year 2000 census block via a spatial join of the points and the census block shapes from reference data.

7. Provider indicated that two sites are served by dual 10 Gbps links (code 6) and the rest are served by dual 2 Gbps links (code 4).

NTIA Table BB_Service_CensusBlock

Loaded based on the supplied file "Broadband data Information.xls". We submitted all census blocks less than 2 square miles in the named municipalities. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Service Electric Cable TV of NJ Inc." per email response
DBANAME	Set to "Service Electric Broadband Cable" per email response
PROVIDER_TYPE	Set to 1
FRN	Set to "0005007125" per email response
STATEFIPS	Set to "34" (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (digits 3-5)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code (next 5 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to 40 per file (DOCSIS 3.0)
MAXADDOWN	Set to code 8 as reported by provider
MAXADUP	Set to code 5 as reported by provider
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
ENDUSERCAT	Loaded from tl_2010_34_tabblock10_wgs reference table
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on geocoded address

Internal processing notes:

40. Created a file with municipality names supplied by provider in a form that match exactly names the "name" column in the Year 2010 Census Bureau TigerLine database. Primarily this meant changing "Boro" to "Borough".
41. Joined against reference data to discover census blocks, for a total of 4,135 blocks.

NTIA Table BB_Service_RoadSegment

Loaded with street segments in census blocks larger than 2 square miles as gathered from Census Bureau TigerLine reference data. The following table explains the

transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Service Electric Cable TV of NJ Inc.” per email response
DBANAME	Set to “Service Electric Broadband Cable” per email response
PROVIDER_TYPE	Set to 1
FRN	Set to “0005007125” per email response
ADDMIN	From reference data
ADDMAX	From reference data
PREDIR	Set to null, not available in reference data
STREETNAME	From reference data
STREETTYPE	Set to null, not available in reference data
SUFFDIR	Set to null, not available in reference data
CITY	From reference data
STATECODE	Set to "NJ"
ZIP5	From reference data
ZIP4	Set to null, not available in reference data
TRANSTECH	Set to 40 (DOCSIS 3.0)
MAXADDOWN	Set to code 8 as reported by provider
MAXADUP	Set to code 5 as reported by provider
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
ENDUSERCAT	Loaded from tl_2010_34_large_streets_10_wgs reference table
SHAPE	From reference data

Internal processing notes:

1. Discovered all street segments that touch census blocks larger than 2 square miles in the municipalities served by the provider as discussed for table BB_Service_Censusblock.
2. Joined against reference data to discover street segment, for a total of 2,223 entries.

Validation rules produced a warning on 5265 census blocks and 985 street segments for the combination of a downstream speed code of 8 (25-50 Mbps) with a transtech code of 40 (DOCSIS 3.1). Provider was not willing to commit that they offered anything faster. Internet search confirms that the fastest speed they advertise is 35 Mbps down and 3 Mbps up.

Section 5: Clarification Questions and Responses

From: James Galliford [mailto:jamesg@secable.com]
Sent: Monday, March 05, 2012 4:04 PM
To: Fiuk, Marek J
Cc: Wullert, John R II
Subject: Re: Tiger lines

Marek,

Thank you for your understanding.

These are the changes in speeds:

- 1.5/256 -> 2.0/256
- 7/1 -> 8/1
- 12/2 - 15/2
- 35/3 - No Change

We are going to work on compiling the detailed information using information that apparently has become available from our billing system recently. As soon as we get this information, we'll pass it on to you.

Thanks again.

-James

On 3/12/12 12:30 PM, Fiuk, Marek J wrote:
James,

Thank you for your cooperation in providing us with data needed for the forthcoming New Jersey Broadband submission.
While processing your data we have encountered some issues that we would like to clarify with you, in order to assure the best possible quality of the information we are going to submit.
You have provided us with a list of speed tiers that you support. Are all these speeds (in particular, the highest one) advertised in ALL municipalities from the list you supplied to us ?
If this is not the case, would you be able to provide the speed list on the per-municipality basis?

We also have a similar question regarding the cable technology - DOCSIS 3.0 and DOCSIS 1.1. Our current understanding is that you provide both of these in all covered municipalities. Is that correct ? If not, would you be able to provide us with the per-municipality list?

Regards,

Marek Fiuk

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data

Connecting New Jersey - Broadband Provider Data Report

Provider: Skycasters, LLC
Received: September 2012
Submission date: April 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

26. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy skycasters_apr2013.BB_Service_Wireless to skycasters_oct2013.BB_Service_Wireless.
27. Set the endusercat column in the skycasters _oct2013.BB_Service_Wireless table to 5.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

28. Although it appears that the shape is inside of the NJ site, we did clip it as this is an important issue to NTIA. Clipped skycasters_oct2012.BB_Service_Wireless using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_Clip".
29. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy skycasters_oct2012.BB_Service_Wireless_Clip to skycasters_apr2013.BB_Service_Wireless.

For October 2012:

Section 1: NDA Status

NONE

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Skycasters, LLC Skycasters, LLC 0018756155
FOR WIRELESS		
Filetypes	Excel file with data gleaned from the Skycasters WEB site	
Speeds	Type / Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	Skycasters WEB site lists multiple speed plans, the highest speed combination offered is 6.09M / 1.5M
	Upstream max adv / 1.5M	
	Downstream max adv / 6.09M	
	Upstream typical	
	Downstream typical	
	Subscriber-weighted	
Technology Type	Code 60 (Satellite)	
Comments: Skycasters WEB site indicates that Ku-Band (12-18 GHz) satellites are being used. None of the spectrum ranges available in the NTIA document covers Ku-Band.		
INTERCONNECTION DATA		
ID		
File size		
Ownership		
Transport Type		
Data Rates/Capacity		
Location		
Comments:		

Section 3: Submission File Details

The Excel file was created from data gleaned from the Skycasters WEB site: http://www.skycasters.com/satellite-internet-coverage/skycasters-coverage-NewJersey.html

There are 729 records. The file has latitude and longitude for county, city, zip code, and area code. It looks like the latitude and longitude is a centroid of area codes. Since we

do not have shape files for area codes, we will use the latitude and longitude as a centroid of zip codes.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_Wireless

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "Skycasters, LLC"
DBANAME	Set to "Skycasters, LLC"
FRN	Set to 0018756155
TRANSTECH	Set to 60
SPECTRUM	Set to 9 per translation shown below
MAXADDOWN	Set to 6.
MAXADUP	Set to 4.
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to “NJ”
SHAPE	Single shape created from Municipalities (see below).

Internal notes on processing:

12. The excel sheet is imported to a geodatabase table.
13. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option. The name is skycasters_cov.
14. Refdata.nj_zip_poly_wgs is our reference data that contains shapes for zip codes in NJ. Spatial join nj_zip_poly_wgs with skycasters_cov, using the “contains match” option and unselecting “keep all target features”. The output is skycasters_cov_zip_poly. This is a subset of the nj_zip_poly_wgs table that contains the points in the skycasters_cov table.
15. Coalesced the single-part polygons into one multi-part polygon using the ArcGIS “Dissolve” tool, which resulted in a new feature class with the suffix “_dissol”.
16. Spectrum: Skycasters uses Ku-Band spectrum (12-18 GHz band). While this is not specifically included in the list of satellite frequencies associated with Code 9, we used code 9 anyway. This is consistent with the approach taken for WildBlue.

Section 5: Clarification Questions and Responses

Subject: RE: NJ Broadband Data Collection – Spring 2013
Date: Mon, 7 Jan 2013 20:52:23 +0000

From: Trisa Struckman <trisa.struckman@satventuresmanagement.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Please note that there have been no changes in our service or coverage areas, everything has remained the same.

Thanks MUCH~!

Trisa

> from SBDD Grantee Workspace

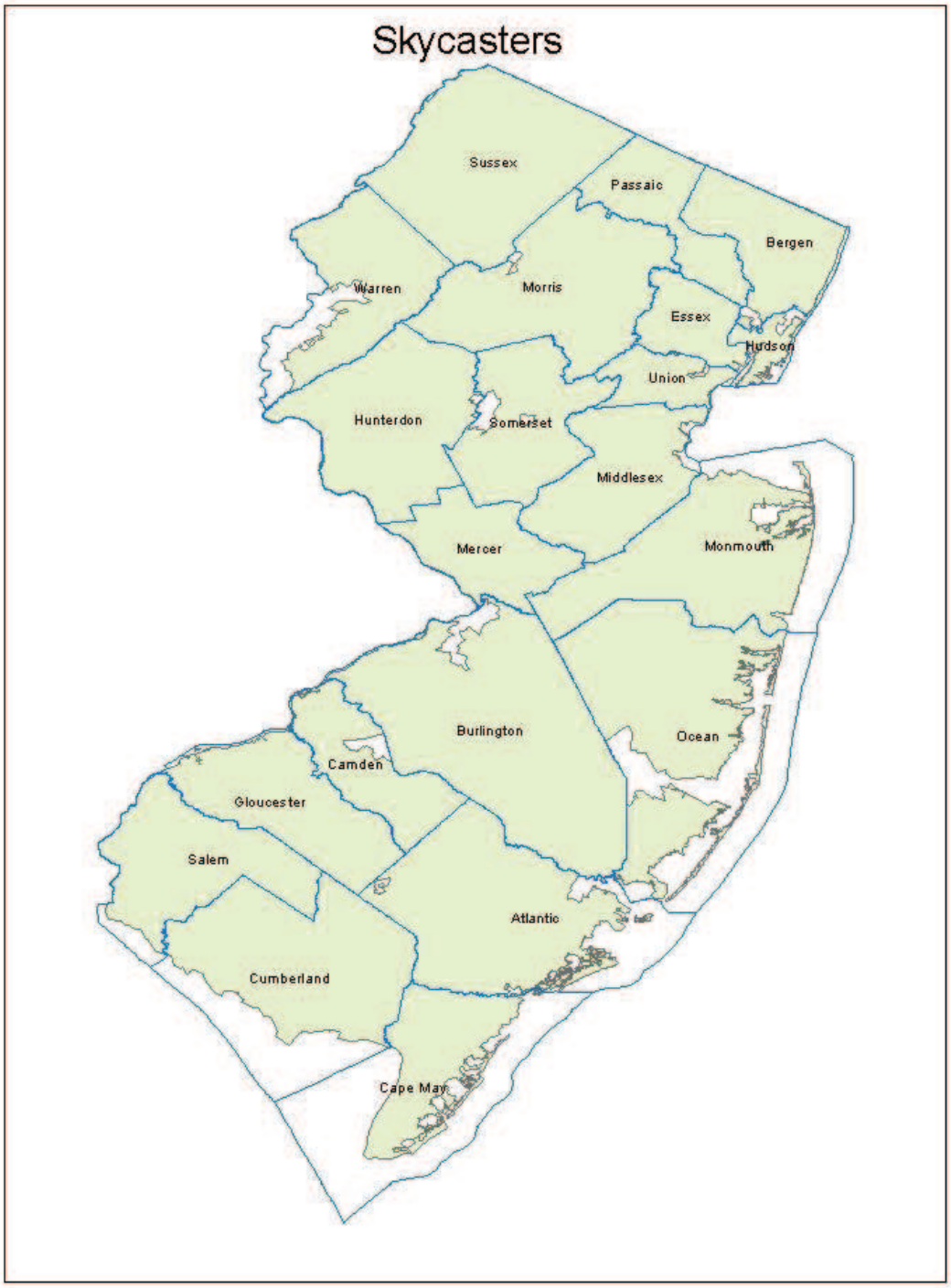
<https://sbdd-granteeworkspace.pbworks.com/> activity-thumb
<https://sbdd.pbworks.com/n/users/profile?uid=2478ac959c4cb82332e1cbe48d38c6ce49fd00b8>
Melony Liebel
<https://sbdd.pbworks.com/n/users/profile?uid=2478ac959c4cb82332e1cbe48d38c6ce49fd00b8>commented
on HomePage
<https://sbdd-granteeworkspace.pbworks.com/w/page/25793681/HomePage>
Akins, we recently received a note from NTIA regarding satellite data which questioned our use of spectrum code "10" for this technolgy type. One of our satellite providers reports Ka band for their spectrum used. This band is not provided as an option in the current data model which is the reasonfor our use of the spectrum code 10. Can you please provide guidance on how NTIA would like us to report the Ka band spectrum? We are also looking for guidance regarding satellite providers that are non-responsive to our request for data. Do you want us to do an estimate that shows their presence in the entire state or report them as non-responsive and not submit data for them? Thanks for your help.

> from SBDD Grantee Workspace

Yes, this is a two-pronged issue. The KA band for the spectrum and the fact that Viasat-Wildblue claims 12Mbps downstream speeds, both don't work in the current geodatabase. Currently we are going to use the standard 'satellite' (even though it doesn't include KA band) choice for spectrum and put in tier 7 for downstream speed with a note in the text file, unless we are directed otherwise.

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Sprint
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

45. NDA Status
46. Submission Overview
47. Submission File Details
48. Data Validations and Results
49. Data Transformation and Loading
50. Clarification Questions and Provider Responses
51. Notes and Open Issues

Section 1: NDA Status

NDA was executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Sprint Nextel Communications Sprint 0003-77-45-93
FOR WIRELINE		
Filetypes	Txt, xls, pdf, etc.	
File size	Number of records, data elements	
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Upstream: Downstream: Typical: Advertised: Subscriber-weighted:	
Technology Type	DOCSIS, xDSL, fiber, etc.	

End-user specification	Business, consumer, gov't etc	
Comments:		
FOR WIRELESS		
Filetypes	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.	**Supplied a shapefile (zip archive) with a two rows that uses projection GCS_WGS_1984. The actual shape in the archive is a multi-polygon. The 2 rows correspond to spectrums 3 and 5.**
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Upstream max adv: Single shape, single speed Downstream max adv: Single shape, single speed Upstream typical: Single shape, single speed Downstream typical: Single shape, single speed Subscriber-weighted: County; but all values are identical	Max advertised up 2, down 3; typical upstream 2, down 3. Max advertised up 3, down 5; typical upstream 3, down 5.
Technology Type	Spectrum (Mhz, FCC code)	**3 and 5 (PCS 1850-1915 MHz, 1930-1995)**
Comments:		

INTERCONNECTION DATA		
ID	Provider name "Doing business as" name FRN	Sprint Nextel Corporation Sprint 0003-77-45-93
File size	Number of records, data elements	4
Ownership	Leased/owned	Leased = 1, owned = 0
Transport Type	Fiber, wireless, copper	Fiber
Data Rates/Capacity		2.4 GBPS < < 10GBPS
Location	Street address, lat/lon, elevation	Lat/Long
Comments:		

DATA COMPLETENESS	
Data Validation/ Verification	- Sprint provided a map showing coverage areas covering the majority of the state of New Jersey - Sprint provided a single set of attribute data, to be applied to the entire coverage area on 2 polygons o They included typical and maximum advertised upload and download speeds - Sprint provided spectrum data

Section 3: Submission File Details

Received these files by upload to the secure web site:

Size	**Name**
1KB	Confidential_Middlemile_NJ.zip
2331KB	Sprint_AreaAvailability_NJ.zip

The zip archives contained these files:

Name	**Size**
Confidential_MiddleMile_NJ.txt	1 KB
readme.txt	1 KB
Sprint_AreaAvailability_NJ_region.dbf	2 KB
Sprint_AreaAvailability_NJ_region.prj	1 KB
Sprint_AreaAvailability_NJ_region.shp	7,672 KB
Sprint_AreaAvailability_NJ_region.shx	1 KB

Sprint submitted the end_user_category value, 5 for the 2 shapes.

April 2013:

Sprint submitted non-overlapped 2 polygons in the past, in which the higher speed polygon clipped the lower speed polygon. According to the NTIA guidelines (refer to the emails in section 6), it is not recommended. Sprint submitted new data with overlapped polygons.

Second submission with overlapped polygons:

Size	**Name**
2076KB	Sprint_AreaAvailability_NJ.zip

The zip archives contained these files:

Name	**Size**

readme.txt	1 KB
Sprint_AreaAvailability_NJ_region.dbf	2 KB
Sprint_AreaAvailability_NJ_region.prj	1 KB
Sprint_AreaAvailability_NJ_region.shp	3,191 KB
Sprint_AreaAvailability_NJ_region.shx	1 KB

Section 4: Validations and Results

Section 5: Data Transformation and Loading

October 2013:
Since the data is identical to the previous submission, we copied the previous data.

April 2013:
Loaded 4 rows from the text file “Confidential_Middlemile_NJ.txt” supplied. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column “provider_name”
DBANAME	As supplied
FRN	As supplied in column “frn”, after removing hyphens
OWNERSHIP	As supplied
BHCAPACITY	As supplied in column “servingfacilitycapacity”
BHTYPE	As supplied in column “servicefacilitytype”
LATITUDE	As supplied
LONGITUDE	As supplied
ELEVFEET	As supplied in column “elevation” (all zero)
STATEABBR	Set to “NJ”
FULLFIPSID	Year 2010 Census Bureau TigerLine reference data
SHAPE	Created via ArcMap “Add XY Data” feature for lat/long value pairs

Internal notes on processing:

8. Removed a space in the longitude of the last line of the input file: "-74.1610 " (This is no longer true in the 2013 April submission.)
9. Created an excel sheet. Import the data from the input file. Save the excel in the 97-2003 format. Make sure the types of latitude and longitude are double.
10. Created a feature class from the table by creating a Point shape using ArcMap’s “Add XY Data” feature corresponding to each Latitude, Longitude pair, using the wgs 1984 coordinate. The name of the feature class is sprint_middlemile_shape_wgs_tol.
11. Added a column containing the census block id of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data, refdata_2010.tl_2010_34_tabblock10_wgs. The name of the

feature class is sprint_middlemile_shape_wgs_tol_cb.

12. The only data imputed was the state abbreviation.

NTIA Table BB_Service_Wireless

Loaded two rows from from the supplied shapefile “Sprint_AreaAvailability_NJ_region. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column “provider_name”
DBANAME	As supplied in column “dbaname”
FRN	As supplied in column “frn” after removing hyphens
TRANSTECH	As supplied in column “techtrans”
SPECTRUM	Set to 3 or 5 per translation shown below
MAXADDOWN	As supplied in column “maxaddnsp”
MAXADUP	As supplied in column “maxadupsp”
TYPICDOWN	As supplied in column “typdnsp”
TYPICUP	As supplied in column “typupsp”
STATEABBR	Set to “NJ”
SHAPE	As supplied.

October 2013:

17. The supplied shapes use Z coordinate. We need to remove it using ArcToolbox > Conversion Tools > To Geodatabase-> Feature Class to Geodatabase (multiple) tool.

http://support.esri.com/en/knowledgebase/techarticles/detail/35818

Procedure

11. Browse to ArcToolbox > Conversion Tools > To Geodatabase.
12. Open the Feature Class to Geodatabase (multiple) tool.
13. Add all the feature classes into the Input Feature Class parameter.
14. Select an Output Geodatabase.
15. Click the Environments button at the bottom of the tool dialog box.
16. Expand the General Settings.
17. For the parameter, Output has Z Values, change the value to Disabled.
18. For the parameter, Output has M Values, change the value to Disabled.
19. Click OK in the Environments dialog box.

20. Click OK to execute the geoprocessing tool

April 2013:

Internal notes on processing:

1. The supplied shape uses geographic coordinate system name GCS_WGS_1984 The NTIA data model requires the same coordinate system. No geographic transformation was required, but the XY Tolerance values differ when the shapefile is imported into the geodatabase. Imported the table schema and the table data in two separate operations, thereby ensuring perfect compatibility with the NTIA data model. The table has the suffix "_tol".
2. NTIA requires shapes to be contained in the NJ state boundary. Although we visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip"
3. Set the endusercat column to 5.
4. The only data imputed was the state abbreviation.

Section 6: Clarification Questions and Responses

Subject: Wireless Data Review Webinar Follow-Up
Date: Fri, 8 Feb 2013 12:19:56 -0500
From: Dorota Wilke <DWilke@ntia.doc.gov>
To: Anne Neville <ANeville@ntia.doc.gov>, Akins Lawal <Alawal@ntia.doc.gov>, Dorota Wilke <DWilke@ntia.doc.gov>
CC: Brian T. Gibbons <BGibbons@ntia.doc.gov>, Lynn Chadwick <LChadwick@ntia.doc.gov>

Dear Grantees,

Thank you for attending the Wireless Data Review webinar that was held on January 23, 2013.

Ultimately, the Program Office would like the grantees to submit a separate, closed polygon whenever there is a variation in any of the required fields. However, if the carrier has already provided clipped wireless coverage data to the maximum advertised speed and it is unclear whether you can assume that the areas that were "clipped out" contain the lesser speed, then we will accept this data for the December 31, 2012 data submission.

The table below represents the wireless data submitted for June 30, 2012 for the four largest wireless providers: AT&T, Sprint, Verizon, and T-Mobile.

- If your state is in any of the providers in row A: No action required.

- If your state is in any of the providers in row B: Request that the provider submit un-clipped data and/or do not clip data if the provider is already submitting unclipped data.
- If your state is in any of the providers in row C: Ensure that you are submitting a closed polygon for any variation in any of the required fields, including spectrum and, depending on the nature of the delivery by the provider and your own knowledge, speed.

Wireless Data Representation	**AT&T**	**Sprint**	**Verizon**	**T-Mobile**
	Spectrum Code: 1, 2, 3 Speed Code: 4 (≥1.5 mbps < 3 mbps speed), 5 (≥3 < 6 mbps speed), 7 (≥10 < 25 mbps speed)	Spectrum Code: 3, 5 Speed Code: 3 (≥768 kbps < 1.5 mbps speed), 5 (≥3 < 6 mbps speed)	Spectrum Code: 1, 2, 3, 4, 5 Speed Code: 3 (≥768 kbps < 1.5 mbps speed), 7 (≥10 < 25 mbps speed)	Spectrum Code: 4 Speed Code: 4 (≥1.5 mbps < 3 mbps speed), 6 (≥6 < 10 mbps speed), 7(≥10 < 25 mbps speed)
A.Overlapping different speed coverages	Grantees: AL,CA,CO, DC, DE, GA, HI, ID, IL, IN, KS, ME, MD, MS, MO, MT, NE, NV, NH, NJ, NM, NY, PA, PR, RI, SC, SD, TN, VI, WV, WI, WY, VA	Grantees: CA, CT, DC, FL, IL, IN, KS, ME, MD, MI, MN, MO, NE, NV, ND, OH, OK, SC, TN, TX,	Grantees: AL, AZ, AR, CA, CO, CT, DC, DE, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY	Grantees: AL, AR, CA, DC, DE, FL, GA, HI, ID, IL, IN, IA, KS, MD, MS, MO, NV, NH, NJ, NM, NY, OR, PR, RI, SC, TN, UT, VA, WV, WI
B.Clipping higher speed coverage in to a lower speed coverage **within a spectrum**	Grantees: AK,AZ,AR,CT,FL,IA,KY,LA,MA, MI, MN, NC, ND, OH, OK, OR, TX, UT, VT, WA			Grantees: AZ, CO, CT, KY, LA, MA, MI, MN, NC, OH, OK, PA,TX, WA
C.Clipping higher speed coverage into a lower speed coverage **(these speeds are offered in different spectrums)**		Grantees: CO, DE, GA, HI, ID, KY, MA, NH, NJ, NY, NC, OR, PA, RI, UT, VA, WI	Grantees: MI, VT	

If you have any questions regarding this email, please feel free to contact Dorota Wilke at (202) 482-3878 or Akins Lawal at (202) 482-2738.

Sincerely,

Dorota Wilke
Contractor, State Broadband Initiative
National Telecommunications and Information Administration
U.S Department of Commerce
Tel: (202) 482 - 3878

Subject: New maps - New Jersey Broadband Mapping Program Spring 2013 Submission for Sprint
Date: Fri, 1 Feb 2013 19:37:11 +0000
From: Scott, Cyrus J [LEG] <Cyrus.Scott@sprint.com>
To: cbehrens@appcomsci.com <cbehrens@appcomsci.com>, Connecting NJ <ConnectingNJ@appcomsci.com>

Cliff - Several states indicated that NTIA is now requesting carriers to provide overlapping polygons in areas where multiple speeds and spectrum bands are used. In previous submissions only the highest speed polygon was provided for area with multiple tiers. The new maps replace the previous submission to accommodate the NTIA request.

Thank You,

Cyrus Scott
Director, Legal Information Systems and Spectrum Licensing Support Sprint Nextel
12502 Sunrise Valley Drive
Mail Stop VARESA0205-2D101
Reston, VA 20196
Office: (703)433-4229 Wireless: (703)906-3857 cyrus.scott@sprint.com
<mailto:cyrus.scott@sprint.com>

The midde mile data is almost identical except the last line has 5 instead of 6 for the “Serving Facility Capacity” column

2012_april_data_Confidential_MiddleMile_NJ.txt - WordPad

File Edit View Insert Format Help

"Provider Name"	"DBA Name"	"FRN"	"Ownership"	"Serving Facility Capacity"			"Service Facility Type"	"Latitude"	"Longitude"	"Elevation"
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"1"	"5"	"1"	"40.8622"	"-74.0547"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"0"	"6"	"1"	"40.6085"	"-74.7147"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"1"	"6"	"1"	"39.9839"	"-75.0262"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"0"	"6"	"1"	"40.7425"	"-74.1610á"	"0"	

Confidential_MiddleMile_NJ.txt - WordPad

File Edit View Insert Format Help

"Provider Name"	"DBA Name"	"FRN"	"Ownership"	"Serving Facility Capacity"			"Serving Facility Type"	"Latitude"	"Longitude"	"Elevation"
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"1"	"5"	"1"	"40.8622"	"-74.0547"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"0"	"6"	"1"	"40.6085"	"-74.7147"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"1"	"6"	"1"	"39.9839"	"-75.0262"	"0"	
"Sprint Nextel Corporation"	"Sprint"	"0003-77-45-93"		"0"	"5"	"1"	"40.7425"	"-74.1610 "	"0"	

Subject: RE: NJ BB data update for Fall 2012
Date: Fri, 13 Jul 2012 14:46:42 +0000
From: Delaney, Jack L [LEG] <Jack.Delaney@sprint.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Cliff,

Thanks for alerting me to that. Yes, that's correct. It is a correction. It should have been '5' in the last round. By next round, it should be '6' again, since we are in the process of upgrading the system.

Thanks again,

Jack Delaney
Manager, Systems Operations
Legal Department
Sprint Nextel
Office: 913-315-9705
Cell: 703-906-9533

-----Original Message-----
From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Friday, July 13, 2012 8:41 AM
To: Delaney, Jack L [LEG]
Subject: NJ BB data update for Fall 2012

Mr. Delaney,

I just wanted to confirm that we have received your data update for the Fall 2012 NJ BB submission to NTIA. Thank you for being "out in front" of this. We do have the following question regarding this update.

As you can see in the attachment, the middle mile data is almost identical to the 2012 April data except the last line has a value of "5"

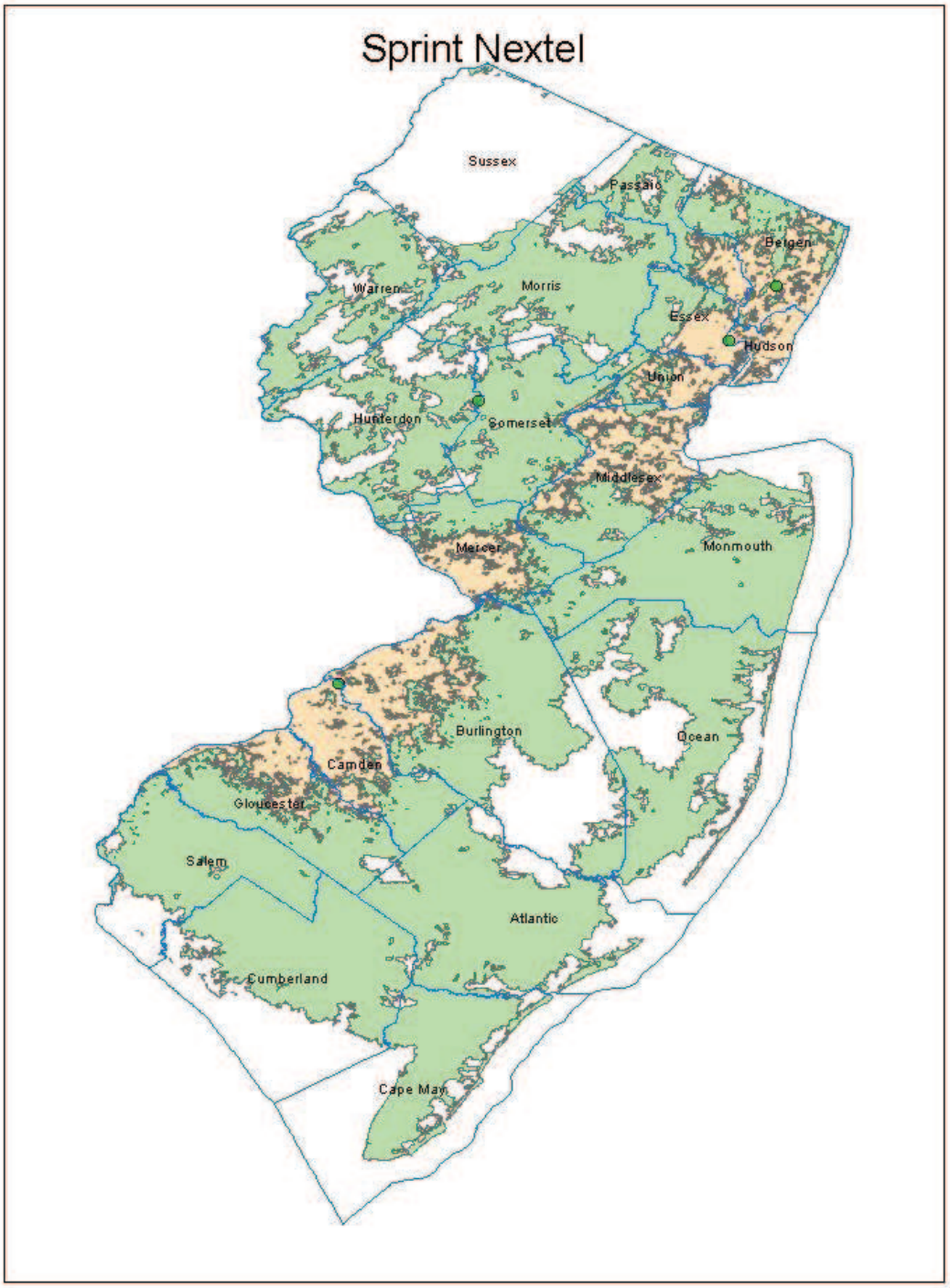
(instead of "6") for the "Serving Facility Capacity" column. Is this intentional?

Sincerely,

Cliff Behrens

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: StarBand Communications Inc.
Received: March 2011
Submission date: April 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

30. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy starband _apr2013.BB_Service_Wireless to starband _oct2013.BB_Service_Wireless.
31. Set the endusercat column in the starband _oct2013.BB_Service_Wireless table to 5.

For April 2013:

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

32. Although it appears that the shape is inside of the NJ site, we did clip it as this is an important issue to NTIA. Clipped starband_oct2012.BB_Service_Wireless using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_Clip".
33. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy starband _oct2012.BB_Service_Wireless_Clip to starband _apr2013.BB_Service_Wireless.

For October 2012:

Total rows loaded: 1 (shape of The State of New Jersey).

Since there is no change in the data and NTIA data model, the table is copied from the 2012 April table, using an ESRI tool, "ArcToolBox->Data Management Tools->General->Append" with NO_TEST in the Schema Type option.

As per the latest clarification, the value in column “SPECTRUM” was set to 9.

For April 2012:

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

For October 2011:

Since there is no change in the data and NTIA data model, the table is copied from the 2011 October table, using an ESRI tool, "ArcToolBox->Data Management Tools->General->Append" with NO_TEST in the Schema Type option.

For April 2011:

Sections:

52. NDA Status
53. Submission Overview
54. Submission File Details
55. Data Validations and Results
56. Data Transformation and Loading
57. Clarification Questions and Provider Responses
58. Notes and Open Issues

Section 1: NDA Status

NONE

Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name “Doing business as” name FRN			StarBand Communications Inc. Not provided 0005087457
FOR WIRELINE				
Filetypes				
File size				
Speeds	Type		Spatial Resolution	Max advertised up is Code 2

			(address, street seg, census block, RSA/MSA, zipcode,etc)	(256 Kbps), down is Code 3 (1.5 Mbps)
	Typical-upstream		Not provided	
	Typical-downstream		Not provided	
	Advertised-upstream			
	Advertised-downstream			
	Subscriber-weighted-up		256Kbps	
	Subscriber-weighted-down		1.5Mbps	
Technology Type	Code 60 (Satellite)			
End-user specification	Not provided			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: Not provided				

Section 3: Submission File Details

Received email explaining their service offering. Satellite service is provided in all of New Jersey.

On subscriber weighted values, they say:
"Since we have only 1 service that meets the definition of broadband service, the weighted average is the same as the average for that service. Upload speed is 256 Kbps and download speed is 1.5Mbps."

Section 4: Validations and Results

No rows of data need to be validated.

Section 5: Data Transformation and Loading

NTIA Table BB_Service_Wireless

Loaded county shapes from reference data for counties in the State of New Jersey based on emailed statements that all counties are covered. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "StarBand Communications Inc."
DBANAME	Set to "StarBand"
FRN	Set to 0005087457
TRANSTECH	Set to 60
SPECTRUM	Set to 7 per translation shown below
MAXADDOWN	Set to 4, see below.
MAXADUP	Set to 2, see below.
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to “NJ”
SHAPE	County shape read from reference data.

Internal notes on processing:

18. Spectrum: No statement was provided. The NTIA data model has a single column for spectrum. Satellite corresponds to NTIA “SPECTRUM USED” code value 7.
19. Speeds: The maximum advertised speeds provided in the emailed brochure are as discussed above For max adv speeds we encoded the submitted down speed as value 4 (range 1.5-3 Mbps) and encoded the submitted up speed as value 2 (range 200 Kbps -- 768 Kbps).

Section 6: Clarification Questions and Responses

```
Subject:    RE: NJ Broadband Data Collection - Spring 2013
Date: Tue, 15 Jan 2013 16:04:41 -0500
From: Lesley Cooper - McLean <Lesley.Cooper@spacenet.com>
To:   Connecting NJ <ConnectingNJ@appcomsci.com>


Dear Cliff,
```

This is to advise you that StarBand Communications has no changes to report since our last data submission.

Regards,

Lesley Cooper

Sr. Counsel

StarBand Communications

Subject: RE: NJ Broadband Data Collection - Fall 2012
Date: Tue, 24 Jul 2012 18:14:36 -0400
From: Lesley Cooper - McLean <Lesley.Cooper@spacenet.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Dear Scott,

This is to advise you that StarBand Communications Inc. does not have any changes to report at this time.

Regards,

Lesley Cooper

From: Lesley Cooper - McLean [mailto:Lesley.Cooper@spacenet.com]
Sent: Monday, January 23, 2012 5:42 PM
To: NJ Broadband Data Collection
Subject: RE: NJ Broadband Data Collection - Spring 2012

Dear Sir/Madam:

As of December 31, 2011, StarBand Communications does not have any changes to report.

Regards,

Lesley

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Friday, February 03, 2012 2:05 PM
To: 'Lesley Cooper - McLean'
Cc: NJ Broadband Data Collection
Subject: RE: NJ Broadband Data Collection - Spring 2012

Lesley,
Does Starband have any information on actual coverage areas, taking into account topography, building shadows, etc? Such data, perhaps from modeling and simulations, could improve the accuracy of the

coverage map.

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Lesley Cooper - McLean [mailto:Lesley.Cooper@spacenet.com]
Sent: Tuesday, March 20, 2012 4:58 PM
To: NJ Broadband Data Collection
Subject: RE: NJ Broadband Data Collection - Spring 2012

Dear John,

Sorry for my delay in getting back to you. For each site that StarBand installs, prior to the actual installation our installers will go out to the site and make an assessment as to where the antenna should be placed so that it has adequate line of site.

Hope this helps.

Thanks,

Lesley

1. What is DBA name if different than provider name?

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Friday, March 18, 2011 10:51 AM
To: 'Lesley Cooper - McLean'
Cc: 'NJ Broadband Data Collection'
Subject: Starband NJBB CLarification

Lesley,
One quick clarification: we have your provider name as Starband Communications Inc. Do you have any other “doing-business-as” name that we should include in the submission to the NTIA?

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

From: Lesley Cooper - McLean [mailto:Lesley.Cooper@Spacenet.com]
Sent: Tuesday, March 22, 2011 5:48 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: Starband NJBB CLarification

John,

No, we do not. StarBand is the provider of consumer broadband. StarBand is a part of another company, Spacenet Inc., but Spacenet is not a provider of consumer broadband services.

Please let me know if you have any further questions.

Lesley

From: Lesley Cooper - McLean [mailto:Lesley.Cooper@Spacenet.com]
Sent: Tuesday, July 12, 2011 11:54 AM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJ Broadband Data Collection

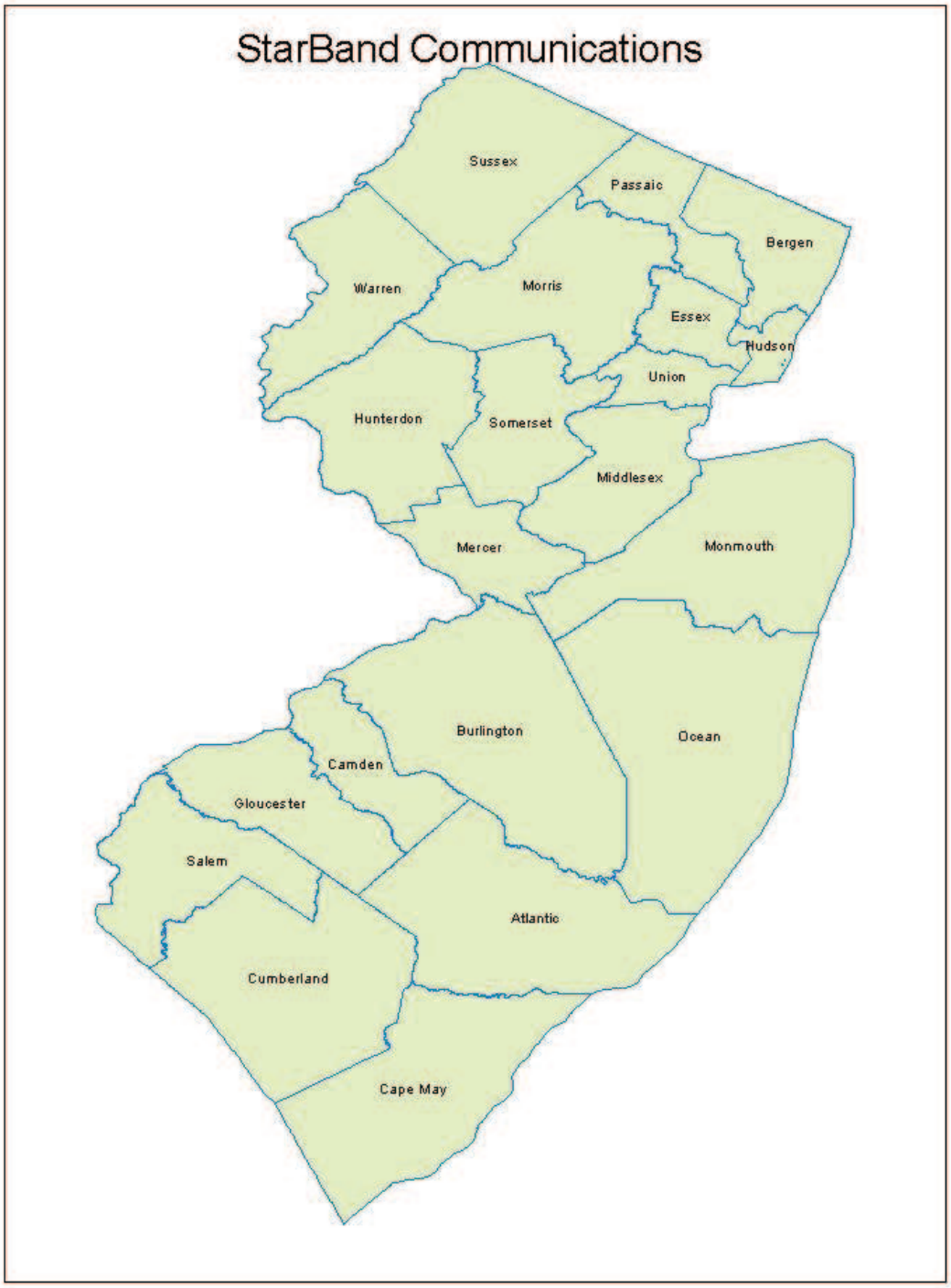
This is to advise you that StarBand Communications does not have any changes to report.

Regards,

Lesley Cooper
Senior Counsel
StarBand Communications

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Time Warner
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NDA established with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	PROVIDER NAME DBA NAME FRN Holding company name Holding company number	Time Warner Cable, LLC Time Warner Cable 0013430244 Time Warner Cable Inc. 131352
FOR WIRELINE		
File types	Time Warner supplied 1 pdf file and a shapefile showing coverage on FIPS census block level.	
Speeds		

Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
Upstream max adv	yes (code 5). census block.
Downstream max adv	yes (code 9). census block
Upstream typical	not provided.
Downstream typical	not provided
Subscriber-weighted	not provided

Technology Type	40
Comments:	
INTERCONNECTION DATA: INSTRUCTED TO USE PREVIOUS DATA	

ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: **not provided** with initial submission. Sent request for updated information.	

Section 3: Submission File Details

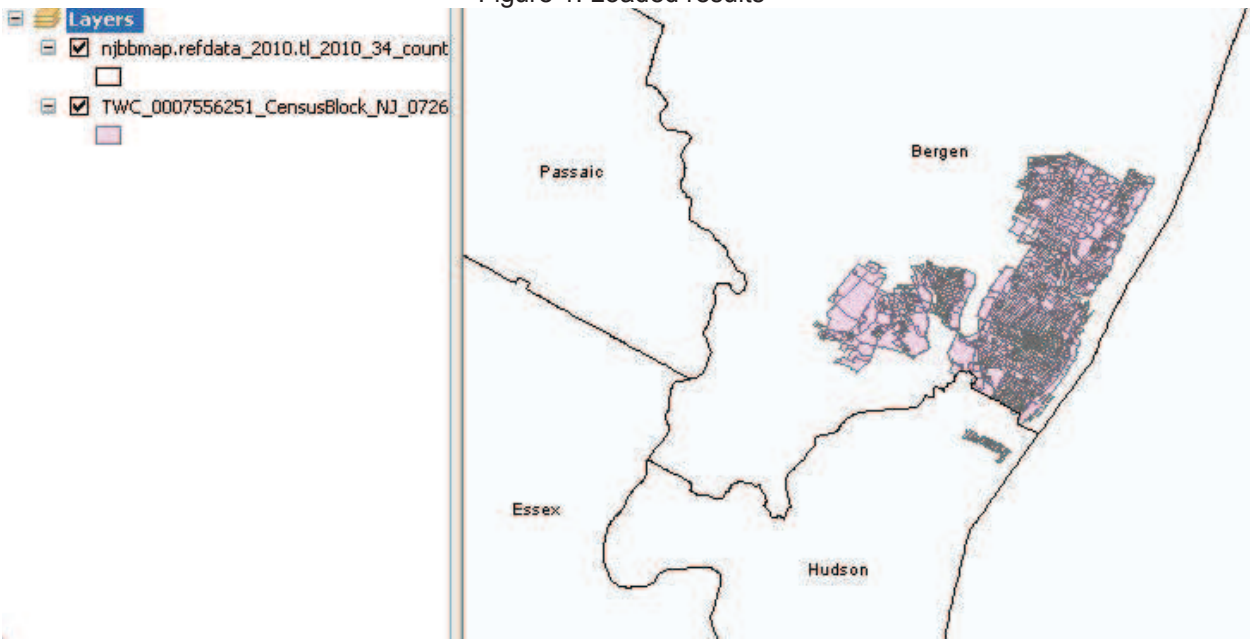
Received 1 archive file by EMAIL:

Name	Size
NJ 8th BB Cltr.pdf	94 KB
TWC_0007556251_CensusBlock_NJ_07262013.dbf	644 KB
TWC_0007556251_CensusBlock_NJ_07262013.prj	1 KB
TWC_0007556251_CensusBlock_NJ_07262013.sbn	19 KB
TWC_0007556251_CensusBlock_NJ_07262013.sbx	1 KB
TWC_0007556251_CensusBlock_NJ_07262013.shp	529 KB
TWC_0007556251_CensusBlock_NJ_07262013.shp.xml	2 KB
TWC_0007556251_CensusBlock_NJ_07262013.shx	16 KB

Later we have received
0007556251_blendedaverage_NJ_06302013.txt 1KB

Quick loading results: 1973 polygons in shapefile, spanning 2 counties in NJ.

Figure 1. Loaded results



Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

NJ 7th BB Cltr.pdf states that the middle mile data has not been changed. Therefore we copied the 2013 April middle mile data.

The following describes how to create the middle mile data in the 2010 October submission.

Loaded from supplied file “0013430244_middlemile_NJ_06302009.txt” (19 rows, only 1 in New Jersey) received in **June 2010** (and apparently unchanged since). The following table explains the transformations that were applied.

Table Column	**Data Source / Transformation**
PROVNAME	Set to “Time Warner Cable LLC” (“LLC” was missing)
DBANAME	As supplied in column ”DBAName”
FRN	Set to “0013430244”
OWNERSHIP	As supplied in column ”Ownership”
BHCAPACITY	As supplied in column ”Serving Facility Capacity”
BHTYPE	As supplied in column ”Serving Facility Type”
LATITUDE	As supplied in column “Latitude”
LONGITUDE	As supplied in column “Longitude”
ELEVFEET	As supplied in column “Elevation”
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau reference data
SHAPE	Point corresponding to Lat, Long created using ESRI

Internal processing notes from prior report:

13. Created an excel sheet and imported to a geodatabase table.
14. Added points corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
15. We dropped all locations outside the New Jersey state boundary, leaving just one. In this row, the elevation value is 30, and we were told in June 2010 that the connection point is on the 7th floor of a building, so we did not change the value.
16. Added a column with the ID of the containing Year 2000 Census block via a spatial join of the points and the census block shapes from reference data.

NTIA Table BB_Service_CensusBlock

The census block information was loaded from the supplied shape file. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Time Warner Cable LLC” (“LLC” was missing in submitted data)
DBANAME	As supplied in column ”DBAName”
PROVIDER_TYPE	Set to 1
FRN	Set to “0013430244”
STATEFIPS	Set to “34”
COUNTYFIPS	Populated from cb_fips (digits 3-5)
TRACT	Populated from cb_fips (next 6 digits)
BLOCKID	Populated from cb_fips (next 4 digits)
FULLFIPSID	As supplied in column cb_fips
TRANSTECH	As supplied in column tech_trans
MAXADDOWN	As supplied in column max_ad_dwn
MAXADUP	As supplied in column max_ad_up
TYPICDOWN	Submitted as “0” in provided data, set to null
TYPICUP	Submitted as “0” in provided data, set to null
ENDUSERCAT	Not provided, set to null
SHAPE	As supplied

Internal notes on processing

1. The shapefile TWC_007556251_CensusBlock_NJ_07262013 contains 1973 rows (polygons). See above for a preview picture.
2. The shapes use XY coordinate system GCS_North_American_1983. Provides census-block shapes and associated speed data. All census block IDs are length 15. All submitted block IDs are unique and were found in Census Bureau Year 2010 reference data. Only technology code 40 is present. Maximum advertised speed codes are present.
3. Geographic coordinate system: The supplied shape uses geographic coordinate system name GCS_North_American_1983. The NTIA transmittal data model requires coordinate system GCS_WGS_1984. To change the projection we applied the geographic transformation NAD_1983_To_WGS_1984_5 (per ESRI KB article 24159). We also had to load the data into a second feature class such that the tolerance value matches the NTIA transmittal model’s value of 0.000000002. The table has the suffix “_wgs_tol”.
4. Checked that all census blocks were valid NJ blocks and that no duplicates were present.
5. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.

NTIA Table BB_Service_Overview

The following data were submitted in 0007556251_blendedaverage_NJ_06302013.txt. However, the service provider stated that the data are proprietary, not for public consumption or dissemination in any form as shown in the email below.
Since we are not sure if the BB_Service_Overview table has proper protection, we did not to submit the data.

```
NAME  DBA   FRN   COUNTY      STATE TECH CODE   SWNOMSPEED
 Time Warner Cable Inc.        Time Warner Cable       0007556251        003   34
      40     9,138.5
 Time Warner Cable Inc.        Time Warner Cable       0007556251        017   34
      40     7,710.2
```

Section 5: Clarification Questions and Responses

*From:*Crawford, Monique [mailto:monique.crawford@twcable.com]
Sent: Thursday, August 29, 2013 2:34 PM
To: Bates, Shelley
Cc: Crawford, Monique
Subject: NJ State Broadband Mapping Program - 8th Round Blended Averages

Hello Shelley:

Attached is the Time Warner Cable Confidential Subscriber-Weighted Nominal Speed data showing the blended average of our advertised maximum broadband download speeds as of June 30, 2013. This information is highly Confidential and is protected under the confidentiality requirements set forth in Section 106 (h) of the Broadband Data Improvement Act and the Nondisclosure Agreement. The information is not for public disclosure.

If you have any questions regarding this submission please let me know.

Best regards,

Monique R. Crawford

Regulatory Affairs

Time Warner Cable

13820 Sunrise Valley Dr.

Herndon, VA 20171

(703) 345-3175 Office

(703) 554-5019 Mobile

(704) 697-4933 E-fax

Subject: FW: NJ State Broadband Mapping Program - 7th Round
Date: Wed, 20 Mar 2013 01:18:47 +0000
From: Sandy Nye <Sandy.Nye@northhighland.com>
To: Cliff Behrens (cbehrens@appcomsci.com) (cbehrens@appcomsci.com) <cbehrens@appcomsci.com>
CC: Diane Duffy (dduffy@appcomsci.com) <dduffy@appcomsci.com>, Scott Kloss <Scott.Kloss@northhighland.com>, Rania Kort <RANIA.KORT@northhighland.com>

Hi Cliff,

See attached (and below) for Time Warner Cable data to be added to the master inventory for this round of data submission.

Let me know if you have any questions or need additional support on this.

Thx,
Sandy

SANDY NYE, PMP

northhighland
103 Carnegie Center Suite 300 | Princeton, NJ 08540
C: 610.505.2126

#1 Best Place to Work in New Jersey, NJ Biz

Facebook | LinkedIn | Twitter

From: Kloss, Scott [mailto:Scott.Kloss@oit.state.nj.us]
Sent: Monday, March 18, 2013 1:13 PM
To: Sandy Nye
Subject: FW: NJ State Broadband Mapping Program - 7th Round

From: Bates, Shelley
Sent: Monday, March 18, 2013 1:11 PM
To: Kloss, Scott
Subject: FW: NJ State Broadband Mapping Program - 7th Round

From: Crawford, Monique [mailto:monique.crawford@twcable.com]
Sent: Monday, March 18, 2013 12:48 PM
To: Bates, Shelley
Cc: Crawford, Monique
Subject: RE: NJ State Broadband Mapping Program - 7th Round

Hello Shelley:

Attached is the Time Warner Cable Confidential Subscriber-Weighted Nominal Speed data showing the blended average of our advertised maximum broadband download speeds as of December 31, 2012. This information is highly Confidential and is protected under the confidentiality requirements set forth in Section 106 (h) of the Broadband Data Improvement Act and the Nondisclosure Agreement. The information is not for public disclosure.

If you have any questions regarding this submission please let me know.

Best regards,

Monique R. Crawford
Regulatory Affairs
Time Warner Cable
13820 Sunrise Valley Dr.
Herndon, VA 20171

(703) 345-3175 Office
(703) 554-5019 Mobile
(704) 697-4933 E-fax

From: Bates, Shelley [mailto:Shelley.Bates@oit.state.nj.us]
Sent: Monday, January 28, 2013 2:07 PM
To: Crawford, Monique
Subject: RE: NJ State Broadband Mapping Program - 7th Round

Thanks Monique. We will contact you if we have questions.

Happy Belated New Year!

From: Crawford, Monique [mailto:monique.crawford@twcable.com]
Sent: Monday, January 28, 2013 2:06 PM
To: Bates, Shelley
Cc: Crawford, Monique
Subject: NJ State Broadband Mapping Program - 7th Round

Hello Shelly:

Attached is Time Warner Cable's 7th round broadband mapping submission. Please let me know if you have any questions or concerns.

Best regards,

Monique R. Crawford
Regulatory Affairs
Time Warner Cable
13820 Sunrise Valley Dr.

Herndon, VA 20171

(703) 345-3175 Office
(703) 554-5019 Mobile
(704) 697-4933 E-fax

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Monday, February 27, 2012 10:26 AM
To: 'monique.crawford@twcable.com'
Cc: 'NJ Broadband Data Collection'
Subject: NJ Braodband Clarification

Monique,

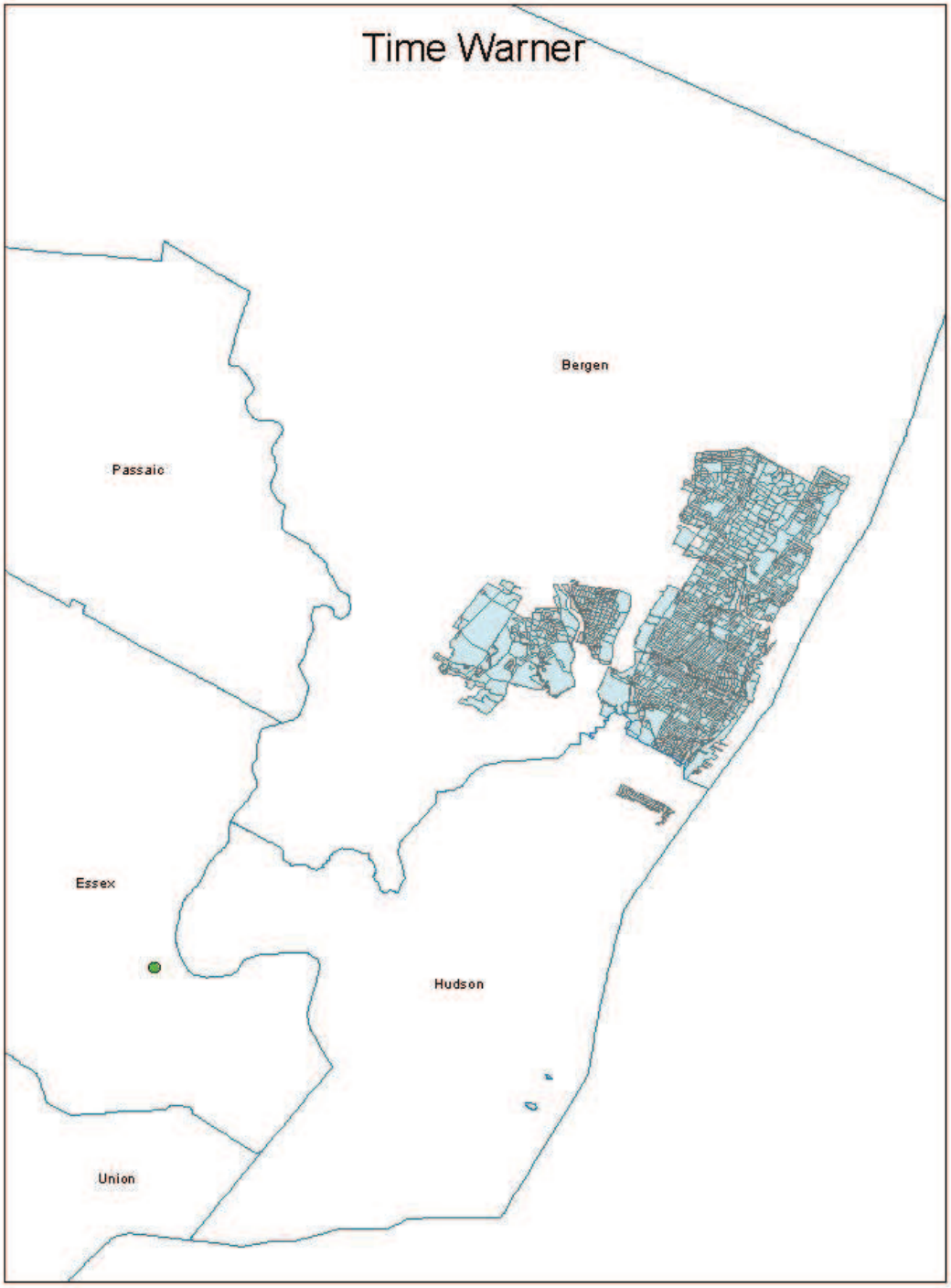
We have begun reviewing your latest broadband availability data and noticed that this round you did not include any information on middle mile. Do you have updated middle mile information or should we use the data you submitted in the previous round?

Thanks,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data


Time Warner
Bergen
Passaic
Essex
Hudson
Union

Connecting New Jersey - Broadband Provider Data Report

Provider: T-Mobile
Received: August 2013
Submission date: October 2013

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Executed with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	PROVIDER NAME DBA NAME FRN Holding company name Holding company number	T-Mobile USA, Inc. T-Mobile 0006945950 T-Mobile USA 130403
FOR WIRELESS		
Filetypes	T-mobile supplies .xls, .txt. and shapefiles (availability). They supply 5 sets of shape files: 2 for HSPA+ coverage, UMTS, U1900, and LTE coverage.	
Speeds		

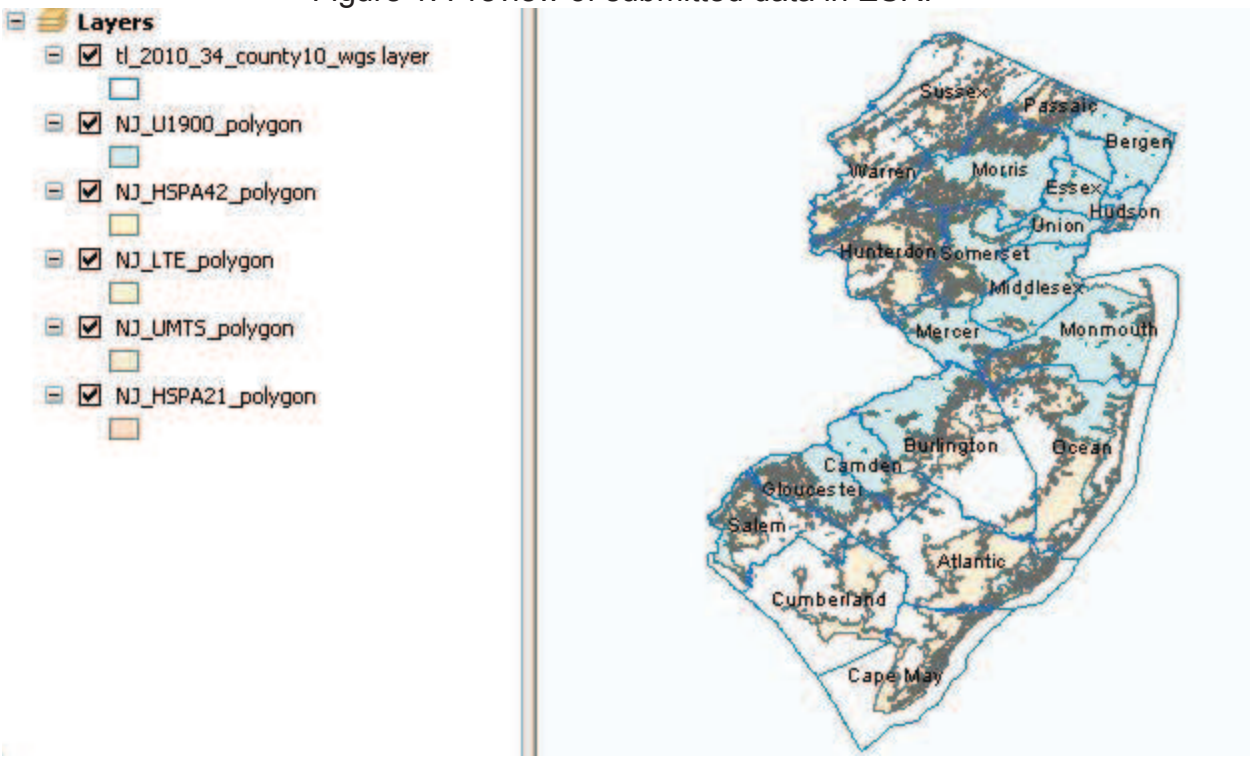
Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
Upstream max adv	yes
Downstream max adv	yes
Upstream typical	yes
Downstream typical	yes
Subscriber-weighted	Provided as a table of values in mbps (not kbps) correlated to 21 FIPS codes (code 80)

Notes: "T-Mobile submitted 5 sets of map files for this state. The file names correspond with maximum advertised speed data above. HSPA42 represents increased 4G download speed (it does not affect upload speed)."

Technology Type	Spectrum (Mhz, FCC code)	Advanced Wireless Services spectrum (1710-1755 MHz; 2100-2155)
Comments:		

INTERCONNECTION DATA	
ID	
File size	10 rows
Ownership	Code 1
Transport Type	Type 1
Data Rates/Capacity	codes 4 and 6
Location	lat/longs given for all (either A or Z end is in NJ)
Comments: T-Mobile had reported with their submission that this information would be delayed	

Figure 1. Preview of submitted data in ESRI



Section 3: Submission File Details

The original submission includes the following files:

Name	Size
ghia.jones@t-mobile.com	
area_availability_NJ.txt	4 KB
Area_Availability_NJ.zip	9,746 KB
avg_speed_NJ.xlsx	12 KB
confidential_NJ.txt	1 KB
Cover Letter_NJ.pdf	18 KB
middle-mile_NJ.xlsx	10 KB
NJ_HSPA21.DAT	1 KB
NJ_HSPA21.ID	1 KB
NJ_HSPA21.MAP	1,292 KB
NJ_HSPA21.TAB	1 KB
NJ_HSPA21_polygon.dbf	1 KB
NJ_HSPA21_polygon.prj	1 KB
NJ_HSPA21_polygon.shp	4,879 KB
NJ_HSPA21_polygon.shx	1 KB
NJ_HSPA42.DAT	1 KB
NJ_HSPA42.ID	1 KB
NJ_HSPA42.IND	2 KB
NJ_HSPA42.MAP	652 KB
NJ_HSPA42.TAB	1 KB
NJ_HSPA42_polygon.dbf	1 KB
NJ_HSPA42_polygon.prj	1 KB
NJ_HSPA42_polygon.shp	2,221 KB
NJ_HSPA42_polygon.shx	1 KB

NJ_LTE.DAT	1 KB
NJ_LTE.ID	1 KB
NJ_LTE.MAP	1,293 KB
NJ_LTE.TAB	1 KB
NJ_LTE_polygon.dbf	1 KB
NJ_LTE_polygon.prj	1 KB
NJ_LTE_polygon.shp	4,898 KB
NJ_LTE_polygon.shx	1 KB
NJ_U1900.DAT	1 KB
NJ_U1900.ID	1 KB
NJ_U1900.IND	1 KB
NJ_U1900.MAP	1,304 KB
NJ_U1900.TAB	1 KB
NJ_U1900_polygon.dbf	1 KB
NJ_U1900_polygon.prj	1 KB
NJ_U1900_polygon.shp	4,924 KB
NJ_U1900_polygon.shx	1 KB
NJ_UMTS.DAT	1 KB
NJ_UMTS.ID	1 KB
NJ_UMTS.MAP	1,426 KB
NJ_UMTS.TAB	1 KB
NJ_UMTS_polygon.dbf	1 KB
NJ_UMTS_polygon.prj	1 KB
NJ_UMTS_polygon.shp	5,355 KB
NJ_UMTS_polygon.shx	1 KB
T-Mobile_BB Data_NJ.zip	9,776 KB

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

October 2013:
The Middlemile data is the same as the last submission. Copy tmobile_apr2012.BB_ConnectionPoint_MiddleMile to tmobile_oct2013.BB_ConnectionPoint_MiddleMile using ESRI: Data Management Tools->General->Append with NO_TEST schema type.

April 2013:
The Middlemile data is the same as the last submission. Copy tmobile_oct2012.BB_ConnectionPoint_MiddleMile to tmobile_apr2013.BB_ConnectionPoint_MiddleMile using ESRI: Data Management Tools->General->Append with NO_TEST schema type.

October 2012:
Below is description of the Oct 2012 data.
Loaded from supplied file “middle_mile_NJ.xlsx” (8 rows). The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “T-Mobile USA, Inc."
DBANAME	Set to "T-Mobile"
FRN	Set to “0006945950”
OWNERSHIP	As provided in column Ownership (value 1)l
BHCAPACITY	As provided in column Serving Facility Capacity
BHTYPE	As provided in column Serving Facility Type
LATITUDE	Created by geocoding the supplied address
LONGITUDE	Created by geocoding the supplied address
ELEVFEET	Set to “0” (zero)
STATEABBR	As provided in column State
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau reference data
SHAPE	Point created using ESRI tools

Internal notes on processing:

17. Created an excel sheet with the original data, remove the first 3 header lines, add the Latitude and Longitude columns, copied the NJ lat/long from the A or Z lat/long to the Latitude and Longitude columns, and imported to a geo-database table. (If A and Z are all NJ, copy Z which is arbitrarily chosen.)
18. Added points corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
19. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the Year 2010 census block shapes from Tiger Line reference data. Ensured that all entries were successfully mapped to 2010 census blocks.
20. Dropped 4 records that were as duplicate census blocks
21. Loaded 4 records.

NTIA Table BB_Service_Wireless

Loaded from the supplied shapefiles NJ_HSPA21_polygon (1 row), NJ_HSPA42_polygon (1 row), NJ_UMTS_polygon (1 row)., NJ_LTE_polygon (1 row), NJ_U1900_polygon (1 row), and NJ_UMTS_polygon (1 tow). The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "T-Mobile USA, Inc." per area_availability_NJ.txt
DBANAME	Set to “T-Mobile" per area_availability_NJ.txt
FRN	Set to “0006945950”
TRANSTECH	Set to 80 per area_availability_NJ.txt
SPECTRUM	Set to “4” per translation shown below
MAXADDOWN	Set as follows:

	• HSPA 21 is 6; • HSPA 42 is 7; • UMTS is 4; • LTE is 7 (as per NTIA directions - despite input from the provider claiming it to be 8) • U1900 is 6 as specified in file area_availability_NJ.txt
MAXADUP	Set as follows: • HSPA 21 is 4; • HSPA 42 is 4; • UMTS is 2; • LTE is 6 • U1900 is 4 as specified in file area_availability_NJ.txt
TYPICDOWN	Set to as follows: • HSPA 21 is 5; • HSPA 42 is 6; • UMTS is 2; • LTE is 7; • U1900 is 5 as specified in file area_availability_NJ.txt
TYPICUP	Set to as follows: • HSPA 21 is 3; • HSPA 42 is 3; • UMTS is 1; • LTE is 5 • U1900 is 3 as specified in file area_availability_NJ.txt
STATEABBR	As supplied in column “state” with “NJ”
SHAPE	As supplied.

Internal notes on processing:

20. Received three shape files; see above for preview of shapefiles in ESRI. (Note that we do not check duplicate since the shapes will be merged to a single shape for each technology) Different from last submissions where NJ_HSPA21 has 5944 records, NJ_HSPA4 has 3171 records, and NJ_UMTS has 2286 records, this submission has only one record per each.
    a. NJ_HSPA21
        i. 1 candidates
    b. NJ_HSPA42
        i. 1 candidates
    c. NJ_UMTS
        i. 1 candidates
    d. NJ_LTE

        i. 1 candidates
    e. NJ_U1900
        i. 1 candidates

21. The data rows carry no technology, speed, or other broadband data. This data is provided in a separate file. File “area_availability_NJ.txt” provides technology and spectrum codes that are within the valid set. It also provides maximum-advertised speeds for each wireless technology.
22. Spectrum: NOFA defines 7 spectrum columns. T-Mobile provided a “Y” value in column 4 (Advanced Wireless Services, ranges 1710-1755 MHz; 2100-2155) in file area-availability_NJ.txt, so we coded the value as '4'.
23. The supplied shapes use Z coordinate. We need to remove it using ArcToolbox > Conversion Tools > To Geodatabase-> Feature Class to Geodatabase (multiple) tool. The resulting tables are named with suffix “_z”.

http://support.esri.com/en/knowledgebase/techarticles/detail/35818

Procedure

21. Browse to ArcToolbox > Conversion Tools > To Geodatabase.
22. Open the Feature Class to Geodatabase (multiple) tool.
23. Add all the feature classes into the Input Feature Class parameter.
24. Select an Output Geodatabase.
25. Click the Environments button at the bottom of the tool dialog box.
26. Expand the General Settings.
27. For the parameter, Output has Z Values, change the value to Disabled.
28. For the parameter, Output has M Values, change the value to Disabled.
29. Click OK in the Environments dialog box.
30. Click OK to execute the geoprocessing tool

24. The supplied shapes use geographic coordinate system GCS_North_American_1983. The NTIA data model requires coordinate system GCS_WGS_1984. To change the projection we applied the ESRI geographic transformation NAD_1983_To_WGS_1984_5 (per ESRI KB article 24159). The resulting tables are named with suffix “_wgs”.
25. The supplied shapes use tolerance values different from the NTIA transmittal model. The transformed feature classes with suitable tolerances are named with suffix “_tol”.
26. NTIA requires shapes to be contained in the NJ state boundary. Although we can visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class

refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip".

27. Set the endusercat column to 5.

Validation rules produced a warning with the HSPA42 having a Maximum Advertised Download Speed code of 7(10-25 Mbps) and the LTE having a Maximum Advertised Download Speed code of 8(25-50 Mbps) Investigation of the T-Mobile Web site showed that they are advertising average speeds “approaching 10 Mbps” and peak speeds of 27 Mbps. Sent a note to the provider to verify the values. Provider confirmed that those values are correct. Despite having verified these speeds with T-Mobile, we reduced any Speed Tier “8” values submitted by T-Mobile to Speed Tier “7,” as directed by Akins Lawal (NTIA) in email received on 9/17/13.

NTIA Table BB_Service_Wireless

T-Mobile provided data on subscriber weighted nominal speed in a spreadsheet avg_speed_NJ_edit.xlsx that listed these speeds in Mbps on a per-county basis. We verified these data and clarified the values with the provider, as demonstrated in the email exchange shown below.

The spreadsheet was prominently labeled “Confidential”. Given that we are not sure if the BB_Service_Overview table has proper protection to meet this stated restriction, we did not to submit the data.

Section 5: Clarification Questions and Responses

```
Subject:    RE: FW: NJ Broadband Data Collection - Fall 2013
Date: Fri, 30 Aug 2013 10:24:33 -0700
From: Jones, Ghia <Ghia.Jones@t-mobile.com>
To:   Connecting NJ <ConnectingNJ@appcomsci.com>
CC:   Jones, Ghia <Ghia.Jones@t-mobile.com>



Yes, that's what our Engineering department conveyed to us.



-----Original Message-----
From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Friday, August 30, 2013 10:24 AM
To: Jones, Ghia
Cc: 'connectingNJ@appcomsci.com'
Subject: Re: FW: NJ Broadband Data Collection - Fall 2013

Ghia,

While processing your data we noticed that you submitted LTE data with a maximum
advertised download speed of "8", meaning 25-50Mbps. We would like to confirm
```

that this is the correct speed, since this seems higher than what we have seen before from other LTE providers.

Thanks,

Cliff

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Tuesday, February 28, 2012 8:21 AM
To: 'jeni.wilcox@t-mobile.com'
Cc: 'NJ Broadband Data Collection'
Subject: NJ Broadband Clarification

Jeni,
As part of the validation of the Broadband Data, the NTIA has defined a set of speed ranges associated with various technologies and asked us to verify any submission values outside those ranges. In the case of the T-Mobile data, the value of 7 (10 to 25 Mbps) associated with download on HSPA42 is outside the NTIA's expected range. Can you please confirm that you are reporting download speeds of greater than or equal to 10 Mbps and less than 25 Mbps?

Thanks,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Wilcox, Jeni [mailto:Jeni.Santana@t-mobile.com]
Sent: Tuesday, March 20, 2012 12:41 PM
To: NJ Broadband Data Collection
Subject: RE: NJ Broadband Clarification

Hi John,

Sorry, this one slipped by me. Yes, T-Mobile is reporting **≥ 10 mbps < 25 mbps** as the maximum advertised download speed for its HSPA+42 network.

Thank you,

Jeni Wilcox
Senior Specialist, State Regulatory Affairs

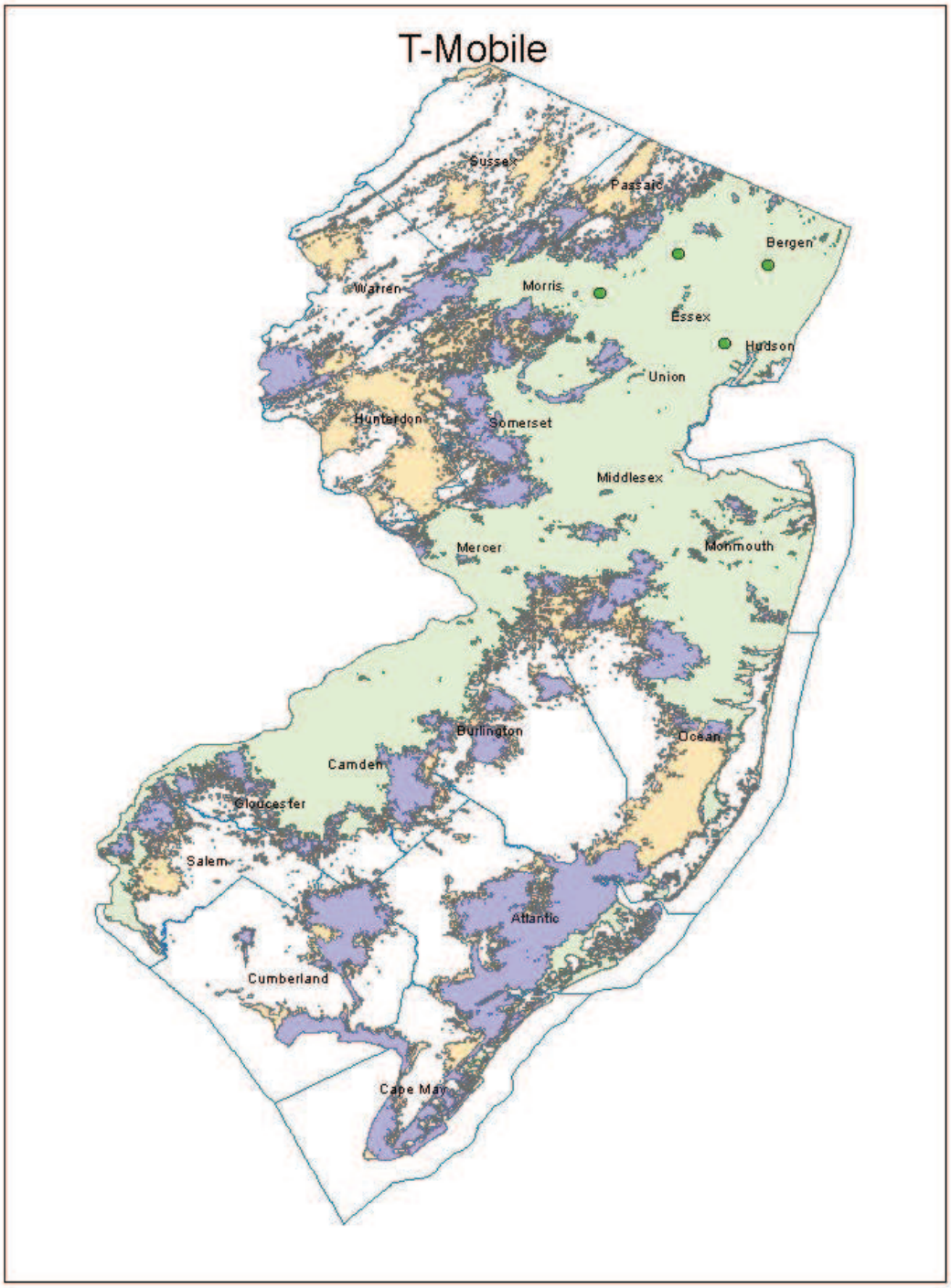
Section 6: Notes and Open Issues

This provider has given us three sets of shapes, one for "HSPA21", one for "HSPA42" and one for "UMTS". All are submitted to us as technology code 80 and all in spectrum

code 4. But they have different speeds. The validations complain about duplicate rows, based on the shape column and the technology code. Here it seems the technology and spectrum codes do not adequately capture what we have received from the provider.

We solved the problem by using the ArcGIS “Dissolve” tool to merge all the polygons in each submitted feature class into a single polygon. The submission has exactly three rows, one shape for each speed tier, and is not flagged as duplicates.

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: T-Mobile
Received: August 2013
Submission date: October 2013

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Executed with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	PROVIDER NAME DBA NAME FRN Holding company name Holding company number	T-Mobile USA, Inc. T-Mobile 0006945950 T-Mobile USA 130403
FOR WIRELESS		
Filetypes	T-mobile supplies .xls, .txt. and shapefiles (availability). They supply 5 sets of shape files: 2 for HSPA+ coverage, UMTS, U1900, and LTE coverage.	
Speeds		

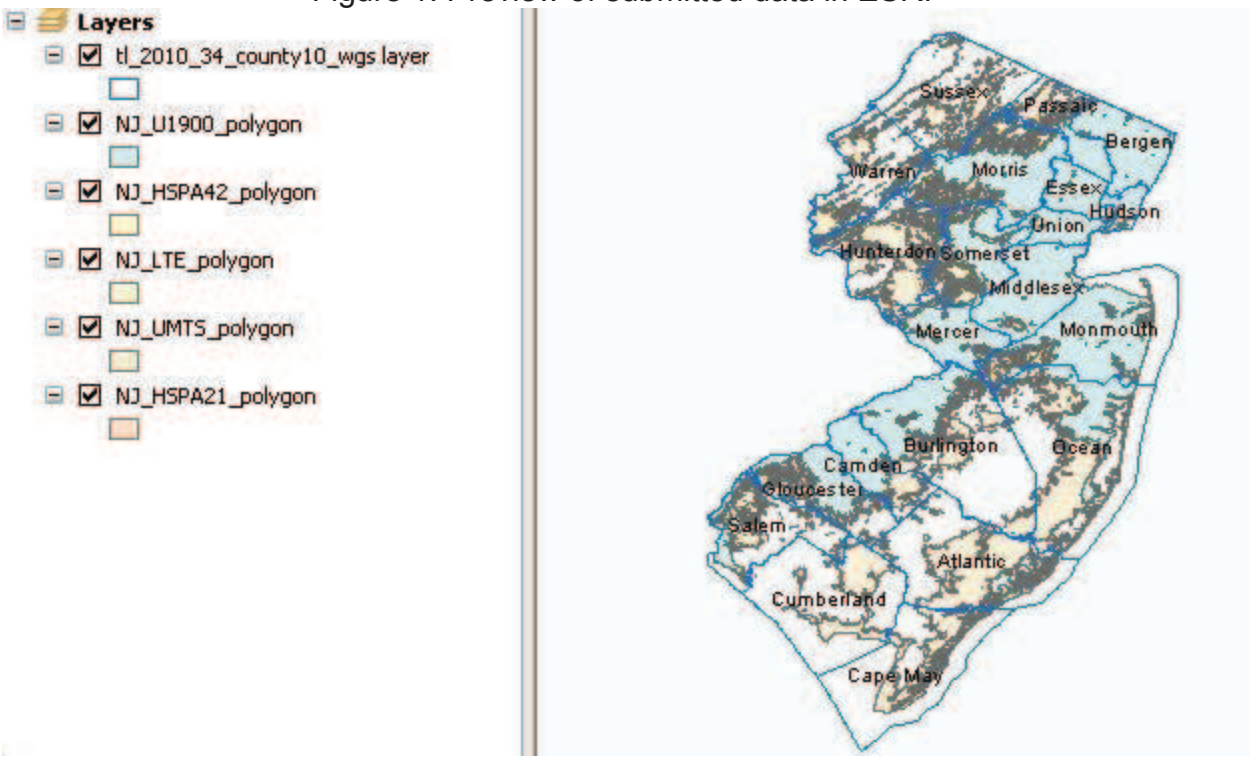
Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
Upstream max adv	yes
Downstream max adv	yes
Upstream typical	yes
Downstream typical	yes
Subscriber-weighted	Provided as a table of values in mbps (not kbps) correlated to 21 FIPS codes (code 80)

Notes: "T-Mobile submitted 5 sets of map files for this state. The file names correspond with maximum advertised speed data above. HSPA42 represents increased 4G download speed (it does not affect upload speed)."

Technology Type	Spectrum (Mhz, FCC code)	Advanced Wireless Services spectrum (1710-1755 MHz; 2100-2155)
Comments:		

INTERCONNECTION DATA	
ID	
File size	10 rows
Ownership	Code 1
Transport Type	Type 1
Data Rates/Capacity	codes 4 and 6
Location	lat/longs given for all (either A or Z end is in NJ)
Comments: T-Mobile had reported with their submission that this information would be delayed	

Figure 1. Preview of submitted data in ESRI



Section 3: Submission File Details

The original submission includes the following files:

Name	Size
ghia.jones@t-mobile.com	
area_availability_NJ.txt	4 KB
Area_Availability_NJ.zip	9,746 KB
avg_speed_NJ.xlsx	12 KB
confidential_NJ.txt	1 KB
Cover Letter_NJ.pdf	18 KB
middle-mile_NJ.xlsx	10 KB
NJ_HSPA21.DAT	1 KB
NJ_HSPA21.ID	1 KB
NJ_HSPA21.MAP	1,292 KB
NJ_HSPA21.TAB	1 KB
NJ_HSPA21_polygon.dbf	1 KB
NJ_HSPA21_polygon.prj	1 KB
NJ_HSPA21_polygon.shp	4,879 KB
NJ_HSPA21_polygon.shx	1 KB
NJ_HSPA42.DAT	1 KB
NJ_HSPA42.ID	1 KB
NJ_HSPA42.IND	2 KB
NJ_HSPA42.MAP	652 KB
NJ_HSPA42.TAB	1 KB
NJ_HSPA42_polygon.dbf	1 KB
NJ_HSPA42_polygon.prj	1 KB
NJ_HSPA42_polygon.shp	2,221 KB
NJ_HSPA42_polygon.shx	1 KB

NJ_LTE.DAT	1 KB
NJ_LTE.ID	1 KB
NJ_LTE.MAP	1,293 KB
NJ_LTE.TAB	1 KB
NJ_LTE_polygon.dbf	1 KB
NJ_LTE_polygon.prj	1 KB
NJ_LTE_polygon.shp	4,898 KB
NJ_LTE_polygon.shx	1 KB
NJ_U1900.DAT	1 KB
NJ_U1900.ID	1 KB
NJ_U1900.IND	1 KB
NJ_U1900.MAP	1,304 KB
NJ_U1900.TAB	1 KB
NJ_U1900_polygon.dbf	1 KB
NJ_U1900_polygon.prj	1 KB
NJ_U1900_polygon.shp	4,924 KB
NJ_U1900_polygon.shx	1 KB
NJ_UMTS.DAT	1 KB
NJ_UMTS.ID	1 KB
NJ_UMTS.MAP	1,426 KB
NJ_UMTS.TAB	1 KB
NJ_UMTS_polygon.dbf	1 KB
NJ_UMTS_polygon.prj	1 KB
NJ_UMTS_polygon.shp	5,355 KB
NJ_UMTS_polygon.shx	1 KB
T-Mobile_BB Data_NJ.zip	9,776 KB

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

October 2013:
The Middlemile data is the same as the last submission. Copy tmobile_apr2012.BB_ConnectionPoint_MiddleMile to tmobile_oct2013.BB_ConnectionPoint_MiddleMile using ESRI: Data Management Tools->General->Append with NO_TEST schema type.

April 2013:
The Middlemile data is the same as the last submission. Copy tmobile_oct2012.BB_ConnectionPoint_MiddleMile to tmobile_apr2013.BB_ConnectionPoint_MiddleMile using ESRI: Data Management Tools->General->Append with NO_TEST schema type.

October 2012:
Below is description of the Oct 2012 data.
Loaded from supplied file “middle_mile_NJ.xlsx” (8 rows). The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to “T-Mobile USA, Inc."
DBANAME	Set to "T-Mobile"
FRN	Set to “0006945950”
OWNERSHIP	As provided in column Ownership (value 1)l
BHCAPACITY	As provided in column Serving Facility Capacity
BHTYPE	As provided in column Serving Facility Type
LATITUDE	Created by geocoding the supplied address
LONGITUDE	Created by geocoding the supplied address
ELEVFEET	Set to “0” (zero)
STATEABBR	As provided in column State
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau reference data
SHAPE	Point created using ESRI tools

Internal notes on processing:

22. Created an excel sheet with the original data, remove the first 3 header lines, add the Latitude and Longitude columns, copied the NJ lat/long from the A or Z lat/long to the Latitude and Longitude columns, and imported to a geo-database table. (If A and Z are all NJ, copy Z which is arbitrarily chosen.)
23. Added points corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
24. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the Year 2010 census block shapes from Tiger Line reference data. Ensured that all entries were successfully mapped to 2010 census blocks.
25. Dropped 4 records that were as duplicate census blocks
26. Loaded 4 records.

NTIA Table BB_Service_Wireless

Loaded from the supplied shapefiles NJ_HSPA21_polygon (1 row), NJ_HSPA42_polygon (1 row), NJ_UMTS_polygon (1 row)., NJ_LTE_polygon (1 row), NJ_U1900_polygon (1 row), and NJ_UMTS_polygon (1 tow). The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "T-Mobile USA, Inc." per area_availability_NJ.txt
DBANAME	Set to “T-Mobile" per area_availability_NJ.txt
FRN	Set to “0006945950”
TRANSTECH	Set to 80 per area_availability_NJ.txt
SPECTRUM	Set to “4” per translation shown below
MAXADDOWN	Set as follows:

	• HSPA 21 is 6; • HSPA 42 is 7; • UMTS is 4; • LTE is 8 • U1900 is 6 as specified in file area_availability_NJ.txt
MAXADUP	Set as follows: • HSPA 21 is 4; • HSPA 42 is 4; • UMTS is 2; • LTE is 6 • U1900 is 4 as specified in file area_availability_NJ.txt
TYPICDOWN	Set to as follows: • HSPA 21 is 5; • HSPA 42 is 6; • UMTS is 2; • LTE is 7; • U1900 is 5 as specified in file area_availability_NJ.txt
TYPICUP	Set to as follows: • HSPA 21 is 3; • HSPA 42 is 3; • UMTS is 1; • LTE is 5 • U1900 is 3 as specified in file area_availability_NJ.txt
STATEABBR	As supplied in column “state” with “NJ”
SHAPE	As supplied.

Internal notes on processing:

28. Received three shape files; see above for preview of shapefiles in ESRI. (Note that we do not check duplicate since the shapes will be merged to a single shape for each technology) Different from last submissions where NJ_HSPA21 has 5944 records, NJ_HSPA4 has 3171 records, and NJ_UMTS has 2286 records, this submission has only one record per each.
    a. NJ_HSPA21
        i. 1 candidates
    b. NJ_HSPA42
        i. 1 candidates
    c. NJ_UMTS
        i. 1 candidates
    d. NJ_LTE
        i. 1 candidates

e. NJ_U1900
    i. 1 candidates

29. The data rows carry no technology, speed, or other broadband data. This data is provided in a separate file. File “area_availability_NJ.txt” provides technology and spectrum codes that are within the valid set. It also provides maximum-advertised speeds for each wireless technology.
30. Spectrum: NOFA defines 7 spectrum columns. T-Mobile provided a “Y” value in column 4 (Advanced Wireless Services, ranges 1710-1755 MHz; 2100-2155) in file area-availability_NJ.txt, so we coded the value as '4'.
31. The supplied shapes use Z coordinate. We need to remove it using ArcToolbox > Conversion Tools > To Geodatabase-> Feature Class to Geodatabase (multiple) tool. The resulting tables are named with suffix “_z”.

http://support.esri.com/en/knowledgebase/techarticles/detail/35818

Procedure

31. Browse to ArcToolbox > Conversion Tools > To Geodatabase.
32. Open the Feature Class to Geodatabase (multiple) tool.
33. Add all the feature classes into the Input Feature Class parameter.
34. Select an Output Geodatabase.
35. Click the Environments button at the bottom of the tool dialog box.
36. Expand the General Settings.
37. For the parameter, Output has Z Values, change the value to Disabled.
38. For the parameter, Output has M Values, change the value to Disabled.
39. Click OK in the Environments dialog box.
40. Click OK to execute the geoprocessing tool

32. The supplied shapes use geographic coordinate system GCS_North_American_1983. The NTIA data model requires coordinate system GCS_WGS_1984. To change the projection we applied the ESRI geographic transformation NAD_1983_To_WGS_1984_5 (per ESRI KB article 24159). The resulting tables are named with suffix “_wgs”.
33. The supplied shapes use tolerance values different from the NTIA transmittal model. The transformed feature classes with suitable tolerances are named with suffix “_tol”.
34. NTIA requires shapes to be contained in the NJ state boundary. Although we can visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip".
35. Set the endusercat column to 5.

Validation rules produced a warning with the HSPA42 having a Maximum Advertised Download Speed code of 7(10-25 Mbps) and the LTE having a Maximum Advertised Download Speed code of 8(25-50 Mbps) Investigation of the T-Mobile Web site showed that they are advertising average speeds “approaching 10 Mbps” and peak speeds of 27 Mbps. Sent a note to the provider to verify the values. Provider confirmed that those values are correct.

NTIA Table BB_Service_Wireless

T-Mobile provided data on subscriber weighted nominal speed in a spreadsheet avg_speed_NJ_edit.xlsx that listed these speeds in Mbps on a per-county basis. We verified these data and clarified the values with the provider, as demonstrated in the email exchange shown below.

The spreadsheet was prominently labeled “Confidential”. Given that we are not sure if the BB_Service_Overview table has proper protection to meet this stated restriction, we did not to submit the data.

Section 5: Clarification Questions and Responses

```
Subject:    RE: FW: NJ Broadband Data Collection - Fall 2013
Date: Fri, 30 Aug 2013 10:24:33 -0700
From: Jones, Ghia <Ghia.Jones@t-mobile.com>
To:   Connecting NJ <ConnectingNJ@appcomsci.com>
CC:   Jones, Ghia <Ghia.Jones@t-mobile.com>



Yes, that's what our Engineering department conveyed to us.



-----Original Message-----
From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Friday, August 30, 2013 10:24 AM
To: Jones, Ghia
Cc: 'connectingNJ@appcomsci.com'
Subject: Re: FW: NJ Broadband Data Collection - Fall 2013

Ghia,

While processing your data we noticed that you submitted LTE data with a maximum
advertised download speed of "8", meaning 25-50Mbps. We would like to confirm
that this is the correct speed, since this seems higher than what we have seen
before from other LTE providers.

Thanks,

Cliff
```

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Tuesday, February 28, 2012 8:21 AM
To: 'jeni.wilcox@t-mobile.com'
Cc: 'NJ Broadband Data Collection'
Subject: NJ Broadband Clarification

Jeni,
As part of the validation of the Broadband Data, the NTIA has defined a set of speed ranges associated with various technologies and asked us to verify any submission values outside those ranges. In the case of the T-Mobile data, the value of 7 (10 to 25 Mbps) associated with download on HSPA42 is outside the NTIA's expected range. Can you please confirm that you are reporting download speeds of greater than or equal to 10 Mbps and less than 25 Mbps?

Thanks,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Wilcox, Jeni [mailto:Jeni.Santana@t-mobile.com]
Sent: Tuesday, March 20, 2012 12:41 PM
To: NJ Broadband Data Collection
Subject: RE: NJ Broadband Clarification

Hi John,

Sorry, this one slipped by me. Yes, T-Mobile is reporting **≥ 10 mbps < 25 mbps** as the maximum advertised download speed for its HSPA+42 network.

Thank you,

Jeni Wilcox
Senior Specialist, State Regulatory Affairs

Section 6: Notes and Open Issues

This provider has given us three sets of shapes, one for "HSPA21", one for "HSPA42" and one for "UMTS". All are submitted to us as technology code 80 and all in spectrum code 4. But they have different speeds. The validations complain about duplicate rows, based on the shape column and the technology code. Here it seems the technology and spectrum codes do not adequately capture what we have received from the provider.

We solved the problem by using the ArcGIS “Dissolve” tool to merge all the polygons in each submitted feature class into a single polygon. The submission has exactly three rows, one shape for each speed tier, and is not flagged as duplicates.

Section 7: Overview Map of Submitted Data

Connecting New Jersey - Broadband Provider Data Report

Provider: tw telecom of new jersey l.p.
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NONE

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN Holding company name Holding company number	tw telecom of new jersey l.p. Not provided 0004351409 tw telecom inc. 160153
FOR WIRELINE		
Filetypes	Text	
File size	4329 bytes, 45 records	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		Address; values 2..11
Advertised-downstream		Address; values 2..11
Subscriber-weighted-up		Not provided
Subscriber-weighted-down		Not provided

Technology Type	30 (Other copper) and 50 (fiber)
End-user specification	4 (medium – large enterprise) in all cases

Comments:	
INTERCONNECTION DATA	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments: None provided	

Section 3: Submission File Details

Received 1 file by secure upload:

Size	**Name**
1KB	NJBB_0004351417_AddressLevelAvailability_2nd_submission.txt

The file has 8 records. All are addresses; no apartment/suite/unit numbers are provided. Some addresses are repeated, sometimes with different speed numbers, suggesting that these entries are customer service addresses. Several are the addresses of multi-tenant buildings. Technology code 30 is present with symmetric speeds, codes range from 4 to 7. Technology code 50 is present with symmetric speeds; codes range from 4 to 11. This is a result of the provider collecting information about the services subscribed to by current customers at these addresses.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

Loaded from supplied file "NJBB_0004351417_AddressLevelAvailability_2nd_submission.txt". The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column "Provider Name", but removed "l.p." from the end of the address.
DBANAME	Not supplied; set same as PROVNAME
PROVIDER_TYPE	Set to 1

FRN	As supplied in column “FRN”, with leading zeroes appended
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block FIPS Code (digits 3-5)
TRACT	Populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Populated from Census Block FIPS Code (next 5 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	As supplied in column Technology of Transmission
MAXADDOWN	For technology 30: Set to 7, the max val in MaxAdDown For technology 50: Set to 11, the max val in MaxAdDown
MAXADUP	For technology 30: Set to 7, the max val in MaxAdDown For technology 50: Set to 11, the max val in MaxAdDown
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	Copied from Census Bureau TigerLine 2000, as matched by spatial join on geocoded address

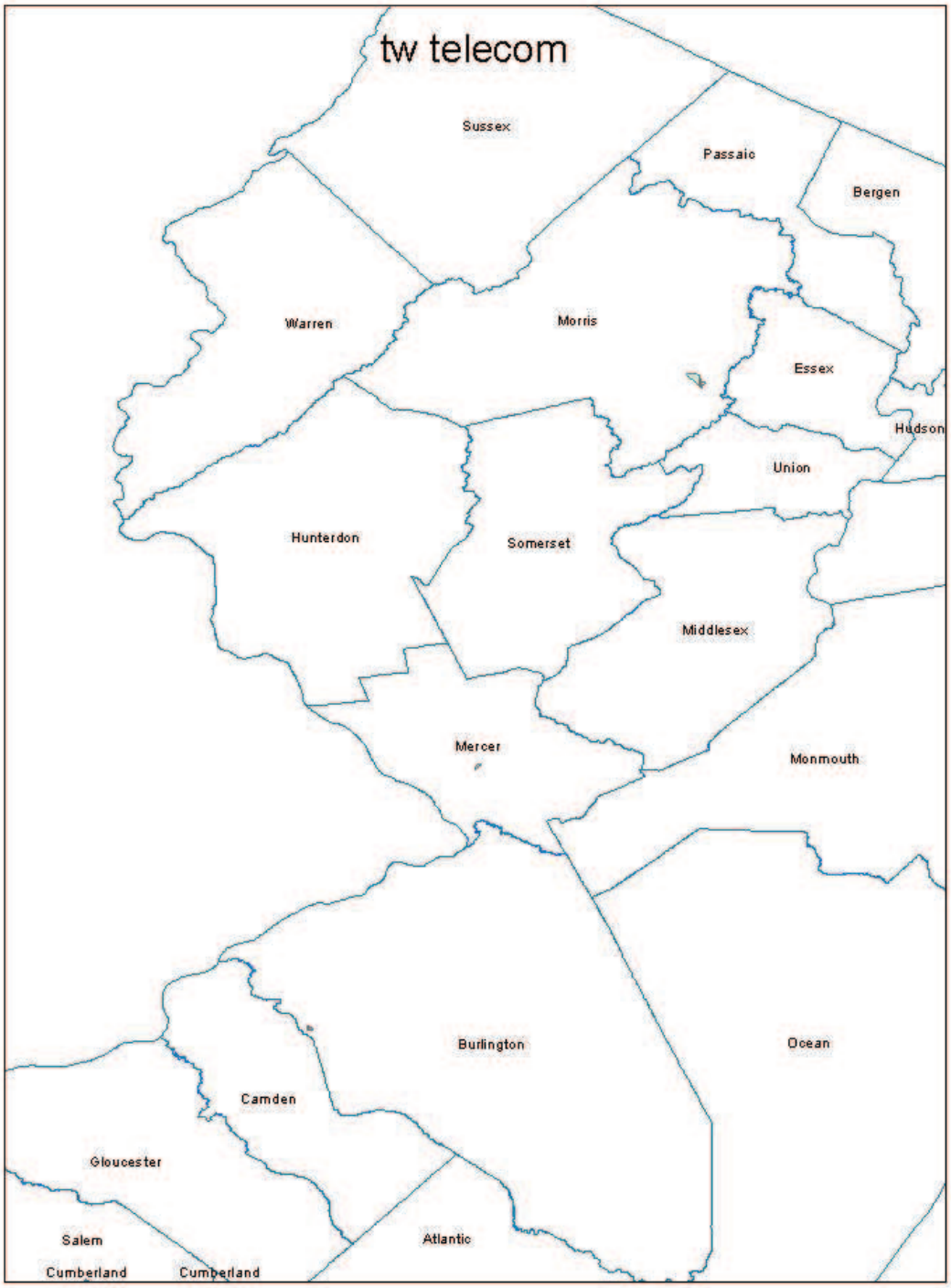
Internal processing notes:

27. Geocoded the addresses using the Google geocoder to obtain a Latitude, Longitude pair for each.
28. Created an excel sheet and imported it to a geodatabase table.
29. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
30. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data. All addresses were successfully joined with a census block.
31. Discarded 2 rows with duplicate census blocks, generated from the multiple entries at the same addresses
32. Verified that all census blocks were in New Jersey and that no census block was greater than 2 square miles
33. Loaded 6 records into the transfer model table.
34. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.

Section 5: Clarification Questions and Responses

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Verizon
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

Verizon executed an NDA with NJ OIT.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN Holding company name Holding company number	Verizon Online LLC Verizon 0012254363 Verizon Communications Inc. 131425
FOR WIRELINE		
Filetypes	Text and excel	
File size	See below	
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode, etc)
Typical-upstream		Not provided
Typical-downstream		Not provided
Advertised-upstream		Census Block
Advertised-downstream		Census Block
Subscriber-weighted-up		Not provided
Subscriber-weighted-down		Not provided

Technology Type	DSL (10) and FTTP (50)
End-user specification	Not provided
Comments:	

INTERCONNECTION DATA	
ID	
File size	Excel file, 3 POP rows provided, see below
Ownership	Specified in cover letter as being owned by Verizon's affiliate, MCI Communications Services, Inc.
Transport Type	Not provided
Data Rates/Capacity	Not provided
Location	Address
Comments: Sent email to Verizon requesting additional information on Middle Mile points.	

Section 3: Submission File Details

Received these files via email, sent to Scott Kloss in an encrypted zip archive.

Name	Size
NJ - Broadband Data Cover Letter (1-29-13).pdf	123 KB
NJ - POP List (Dec 2012).pdf	32 KB
NJ - Pricing (Dec 2012).txt	3 KB
NJ - Wireline Service By Census Block with Speeds (Dec 2012).txt	6,485 KB
NJ - Wireline Service By Street Segment with Speeds (Dec 2012).txt	138 KB
VZ-NJ-BB (Dec 2012).zip	1,134 KB

Section 4: Data Validation Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Oct 2013:
There is no change on the data. Thus it is copied from the April 2013 submission.

Apr 2013:
Loaded from supplied text file "NJ – POP List (Dec 2012).pdf".
The following table explains the transformations that were applied in this submission.

Table Column	Data Source / Transformation
PROVNAME	Set to "Verizon Online LLC""
DBANAME	Set to "Verizon"
FRN	Set to "0012254363"
OWNERSHIP	Set to 0, owned, based on cover letter information
BHCAPACITY	Set to null

BHTYPE	Set to null
LATITUDE	Created by geocoding the supplied addresses
LONGITUDE	Created by geocoding the supplied addresses
ELEVFEET	Set to “0” (zero)
STATEABBR	Set to “NJ”
FULLFIPSID	ID of containing census block from Year 2010 Census Bureau TigerLine reference data
SHAPE	Created using ESRI ArcDesktop

Internal notes on processing:

35. We geocoded the addresses to obtain latitude, longitude value pairs. Both addresses were found. Verizon did not supply information on the elevation, serving facility capacity, and service facility type of these addresses. Sent request to Verizon regarding this information.
36. Created an excel sheet and imported to a geodatabase table.
37. Added points corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
38. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. The table name is verizon_middlemile_wgs_tol_cb.

NTIA Table BB_Service_CensusBlock

Loaded from supplied text file “NJ - Wireline Service By Census Block with Speeds (June 2013).txt”. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Verizon Online LLC”
DBANAME	Set to “Verizon”
PROVIDER_TYPE	Set to 1
FRN	Set to “0012254363”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from 2010_Census_Block_FIPS_Code (Digits 3-5)
TRACT	Populated from 2010_Census_Block_FIPS_Code (next 6 digits)
BLOCKID	Populated from 2010_Census_Block_FIPS_Code (next 4 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	First 15 digits of 2010_Census_Block_FIPS_Code See discussion of Census blocks below.
TRANSTECH	As supplied in column Technology_of_Transmission
MAXADDOWN	As supplied
MAXADUP	As supplied
TYPICDOWN	Set to null

TYPICUP	Set to null
SHAPE	Copied from Year 2000 Census Bureau reference data, As matched by Census block 2000 ID

Internal processing notes:

1. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_tabblock10_wgs table for the same census block id.
2. No anomalies were noted in the data

NTIA Table BB_Service_RoadSegment

Loaded from supplied text file "NJ - Wireline Service By Street Segment with Speeds (June 2013).txt txt" and from road segments discovered in large census blocks our calculations put at slightly larger than two square miles (See item 2 above). The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to "Verizon Online LLC"
DBANAME	Set to "Verizon"
PROVIDER_TYPE	Set to 1
FRN	Set to "0012254363"
ADDMIN	Set to the least of the address numbers, if any
ADDMAX	Set to the greatest of the address numbers, if any
PREDIR	Set to null (no value supplied)
STREETNAME	As supplied (has all street components, not just name)
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)
CITY	Set to null (no value supplied)
STATECODE	Set to "NJ"
ZIP5	Set to null (no value supplied)
ZIP4	Set to null (no value supplied)
TRANSTECH	As supplied
MAXADDOWN	As supplied
MAXADUP	As supplied
TYPICDOWN	Set to null (no value supplied)
TYPICUP	Set to null (no value supplied)
TLID	As supplied
ENDUSERCAT	Copied from the end_user column of the 2010 NJ Census Block table
SHAPE	Copied from Census Bureau TigerLine 2010, As matched by County + Tiger Line ID

Internal notes on processing:

1. All rows were supplemented with a line-segment shape from the Census Bureau's TigerLine data set.
2. We removed 111 records from the Verizon submitted data that were duplicates, based on county and tlid.
3. We removed 12 records from the Verizon submitted data that had entries in the tlid field that did not match our list of street segments in large census blocks.

NTIA Table BB_Service_Overview

Table Column	Data Source / Transformation
PROVNAME	Set to "Verizon Online LLC"
DBANAME	Set to "Verizon"
FRN	Set to "0012254363"
GEOUNITTYPE	Set to "CO" for county
STATECOUNTYFIPS	Concatenated state code ("34") with value from column "County", after padding County out to three digits.
TRANSTECH	As supplied in column TransTech
ARPU	Not provided, set to NULL
SWNOMSPEED	As supplied in column "SWNS"
STATEABBR	Set to "NJ"
SHAPE	County shape as found in Census Bureau year 2010 reference data

Internal processing notes:

1. The following data fields were submitted
    a. ProvName
    b. DBAName
    c. FRN
    d. County
    e. State
    f. TransTech
    g. SWNS
2. Created county FIPS by padding County ID with leading zeros to make it three digits in length and pre-pending "34" as the state code
3. Converted Transtech to "short" and ARPU and SWNOMSPEED to Double
4. Checked to ensure that there were no duplicates, based on FIPS and Transtech
5. Joined with shape data based on STATECOUNTYFIPS

Section 5: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Tuesday, February 21, 2012 8:48 AM
To: 'laura.a.shine@verizon.com'

Cc: 'Clemons, Keefe B'
Subject: Question on NJ Broadband Data from Verizon

Laura and Keefe,
I believe we raised this issue in the past, but the NTIA wants us to ensure that we have the most accurate and complete data possible. The data you submitted on the middle mile access points (NJ - POP List (Dec 2011).xls) does not include information on elevation, serving facility capacity, or service facility type at these addresses. Would you be willing and able to provide this information?

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Clemons, Keefe B [mailto:keefe.b.clemons@verizon.com]
Sent: Tuesday, February 21, 2012 9:43 AM
To: 'NJ Broadband Data Collection'; Shine, Laura A
Subject: RE: Question on NJ Broadband Data from Verizon

John:

The data we provided is consistent with the data that we have provided for all prior rounds of data collection, and is consistent with the level of detail we provide in every state in which we provide this data. Given the sensitivity of this information, we are not prepared to provide additional information regarding our middle mile facilities.

Feel free to contact me if you have any additional questions.

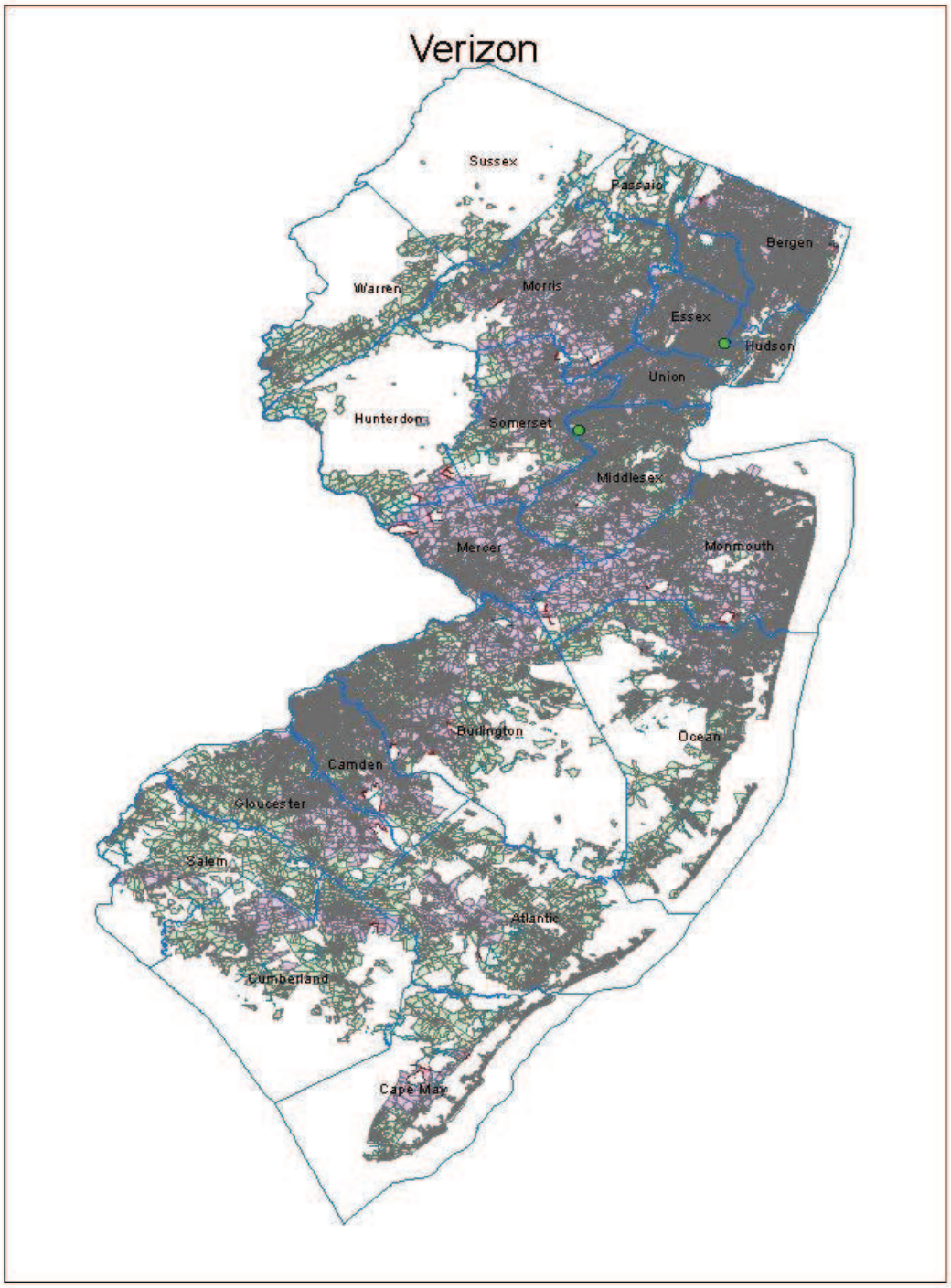
Sincerely,

Keefe

Keefe B. Clemons
General Counsel - Northeast Region
Verizon
140 West Street, 27th Floor
New York, New York 10007-2109
(212) 321-8136 (Phone)
(212) 962-1687 (Fax)
keefe.b.clemons@verizon.com

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: ViaSat, Inc.
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NONE

Section 2: Submission Overview

<table>
<tr><th colspan="4">AVAILABILITY DATA</th></tr>
<tr><td>ID</td><td colspan="2">Provider name
“Doing business as” name
FRN</td><td>ViaSat, Inc.
ViaSat, Inc.
0004963088</td></tr>
<tr><th colspan="4">FOR WIRELESS</th></tr>
<tr><td>Filetypes</td><td colspan="3">text file, shape file</td></tr>
<tr><td>File size</td><td colspan="3"></td></tr>
<tr><td>Speeds</td><td colspan="2"><table>
<tr><th>Type</th><th></th><th>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</th></tr>
<tr><td>Typical-upstream</td><td></td><td>Not provided (‘0’)</td></tr>
<tr><td>Typical-downstream</td><td></td><td>Not provided (‘0’)</td></tr>
<tr><td>Advertised-upstream</td><td></td><td>yes. Entire state.</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>yes. Entire state</td></tr>
<tr><td>Subscriber-weighted-up</td><td></td><td>Not provided</td></tr>
<tr><td>Subscriber-weighted-down</td><td></td><td>Not provided</td></tr>
</table></td><td>Submitted shape file describing the entire state of NJ with attributes for technology and maximum advertised up/down speed codes. Spectrum is listed as “Satellite”.

Second submission from WildBlue included values in Mbps for maximum advertised up/down speeds for Exede 5
Download: 2.5 Mbps
Upload: 0.25 Mbps

These correspond to the speed tiers 4 and 2, respectively.

They also provided maximum advertised up/down speeds for Excede 12,
Download: 12 Mbps
Upload: 3 Mbps
These correspond to the speed</td></tr>
</table>

		tiers 7 and 5, respectively.
Technology Type	Code 60 (Satellite)	
End-user specification		
Comments: From the provider's input package: WildBlue notes that of the possible 'Spectrum Used' options provided, none list Ka-Band as an option for Satellite Providers.		
INTERCONNECTION DATA: NONE		
ID		
File size		
Ownership		
Transport Type		
Data Rates/Capacity		
Location		
Comments: Not provided		

Section 3: Submission File Details

Name	Size
NJ.zipx	76 KB
ViaSat_AreaAvailability_NJ_region.dbf	2 KB
ViaSat_AreaAvailability_NJ_region.prj	1 KB
ViaSat_AreaAvailability_NJ_region.shp	176 KB
ViaSat_AreaAvailability_NJ_region.shx	1 KB

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_Wireless

The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	Set to "ViaSat, Inc."
DBANAME	Set to "ViaSat, Inc."
FRN	~~Set to 0007843766~~ Set to 0004963088
TRANSTECH	Set to 60
SPECTRUM	Set to 9 per translation shown below

MAXADDOWN	As provided, confirmed from speed data
MAXADUP	As provided, confirmed from speed data
TYPICDOWN	Not provided, set to null
TYPICUP	Not provided, set to null
STATEABBR	Set to “NJ”
SHAPE	County shape read from reference data.

Internal notes on processing:

36. Spectrum: WildBlue uses Ka-Band spectrum (uplink in the 29.5 – 30 gigahertz band and downlink in the 19.7 – 20.2 gigahertz band). While this is not specifically included in the list of satellite frequencies associated with Code 9, we used code 9 anyway. This is a change from previous submissions. (from the last submission)
37. The shape file contains 2 polygon shapes.
38. The supplied shape file uses geographic coordinate system name GCS_North_American_1983. The NTIA data model requires GCS_WGS_1984 geographic coordinate system. Thus transformation is required. The XY Tolerance value differs on the supplied data from the required NTIA model. Imported the table schema and the table data in two separate operations, thereby ensuring perfect compatibility with the NTIA data model. The table has the suffix “_wgs_tol”.
39. NTIA requires shapes to be contained in the NJ state boundary. Although we visually verified that it is the case, we clipped the shape using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip"
40. Set the endusercat column to 5.
41. This is no longer true since the April 2013 submission since the data model and validation rules have changed: Validation rules produced a warning on the wireless shape record for the combination of downstream and upstream speed code of 7 (10-25 Mbps) with a transtech code of 60 (Satellite). Provider said that in most locations, speeds are significantly in excess of the speeds set forth in the NTIA Tiers for “Satellite Technology” so they are reporting the actual maximum advertised upload and download speeds. Provider confirmed that they launched two new services named Exede 5 and Exede 12 and Exede 12 has a maximum advertised upload speed of 3 Mbps and a maximum advertised download speed of 12 Mbps.

Section 5: Clarification Questions and Responses

```
Subject:    Round 7 Broadband Mapping Project NJ
Date: Thu, 24 Jan 2013 21:52:34 +0000
From: O'Connell-Pike, Peggy <Margaret.O'Connell-Pike@viasat.com>
To:   ConnectingNJ@appcomsci.com <ConnectingNJ@appcomsci.com>
```

Greetings,

The attached data is being submitted by ViaSat, Inc. for Round 7 of the Broadband Mapping Program. Please note the following:

1.The speed of the service depends on which satellite is covering the particular area. The attached data consists of the maximum advertised upload and download speeds at the census block level. In most locations, ViaSat's speeds are significantly in excess of the speeds set forth in the NTIA Tiers for "Satellite Technology" so we are reporting the actual maximum advertised upload and download speeds.

2.During the first quarter of 2012, ViaSat launched two new services named Exede 5 and Exede 12. Exede 5 has a maximum advertised upload speed of 1 Mbps and a maximum advertised download speed of 5 Mbps. Exede
12 has a maximum advertised upload speed of 3 Mbps and a maximum advertised download speed of 12 Mbps. The attached data shows which of the two services are available on a census block basis. In limited geographic areas, neither of the two new services are available, in which case the data reflects the maximum advertised upload and download speeds for ViaSat's legacy service called the WildBlue service. The WildBlue service has a maximum advertised upload speed of 256 Kbps and a maximum advertised download speed of 2.5 Mbps.

3.The attached data is current as of December 31, 2012.

Thank you for the opportunity to participate. We look forward to seeing ViaSat's updated information included in your state's broadband map. If you have any questions, feel free to contact me.

Regards.

Peggy

Peggy O'Connell-Pike

Corporate Paralegal – ViaSat

Direct: 720-493-6320

cid:image001.png@01CD8B7D.D925ABF0

Subject: Round 6 Broadband Mapping Project New Jersey
Date: Tue, 24 Jul 2012 21:45:30 +0000
From: Hill, Janel <Janel.Hill@viasat.com>
To: connectingnj@appcomsci.com <connectingnj@appcomsci.com>

Greetings,

The attached data is being submitted by ViaSat, Inc. for Round 6 of the Broadband Mapping Program. Please note the following:

1.ViaSat, Inc. is the parent company of ViaSat Communications, Inc. which was formerly known as WildBlue Communications, Inc. Prior submissions were made in the name of WildBlue Communications. Please update your state's map to reflect that ViaSat, Inc. is now the name of the provider.

2.ViaSat provides high speed internet service over several ka band satellites which together cover the entire United States.

3.The speed of the service depends on which satellite is covering the particular area. The attached data consists of the maximum advertised upload and download speeds at the census block level. In most locations, ViaSat's speeds are significantly in excess of the speeds set forth in the NTIA Tiers for "Satellite Technology" so we are reporting the actual maximum advertised upload and download speeds.

4.During the first quarter of 2012, ViaSat launched two new services named Exede 5 and Exede 12. Exede 5 has a maximum advertised upload speed of 1 Mbps and a maximum advertised download speed of 5 Mbps. Exede 12 has a maximum advertised upload speed of 3 Mbps and a maximum advertised download speed of 12 Mbps. The attached data shows which of the two services are available on a census block basis. In limited geographic areas, neither of the two new services are available, in which case the data reflects the maximum advertised upload and download speeds for ViaSat's legacy service called the WildBlue service. The WildBlue service has a maximum advertised upload speed of 256 Kbps and a maximum advertised download speed of 1.5 Mbps.

5.The attached data is current as of June 30, 2012.

Thank you for the opportunity to participate. We look forward to seeing ViaSat's updated information included in your state's broadband map. If you have any questions, feel free to contact me.

Kind Regards,

Janel Hill//

Paralegal | ViaSat, Inc | 6155 El Camino Real | Carlsbad, CA 92009

janel.hill@viasat.com| 760-476-4716

Subject: RE: Round 6 Broadband Mapping Project New Jersey
Date: Wed, 25 Jul 2012 20:41:37 +0000
From: Hill, Janel <Janel.Hill@viasat.com>
To: Connecting NJ <ConnectingNJ@appcomsci.com>

Hi Cliff,

The filing is being sent by ViaSat, Inc., which is the parent company of ViaSat Communications, Inc. It is not a DBA situation but rather, a parent/subsidiary relationship.

We have two FRN's, please use these:

ViaSat: 0004963088
ViaSat Communications: 0007843766

Kind Regards,

Janel Hill
Paralegal | ViaSat, Inc | 6155 El Camino Real | Carlsbad, CA 92009
janel.hill@viasat.com | 760-476-4716

-----Original Message-----
From: Connecting NJ [mailto:ConnectingNJ@appcomsci.com]
Sent: Wednesday, July 25, 2012 10:03 AM
To: Hill, Janel
Subject: Re: Round 6 Broadband Mapping Project New Jersey

Janel,

We have a couple of questions regarding your name change:

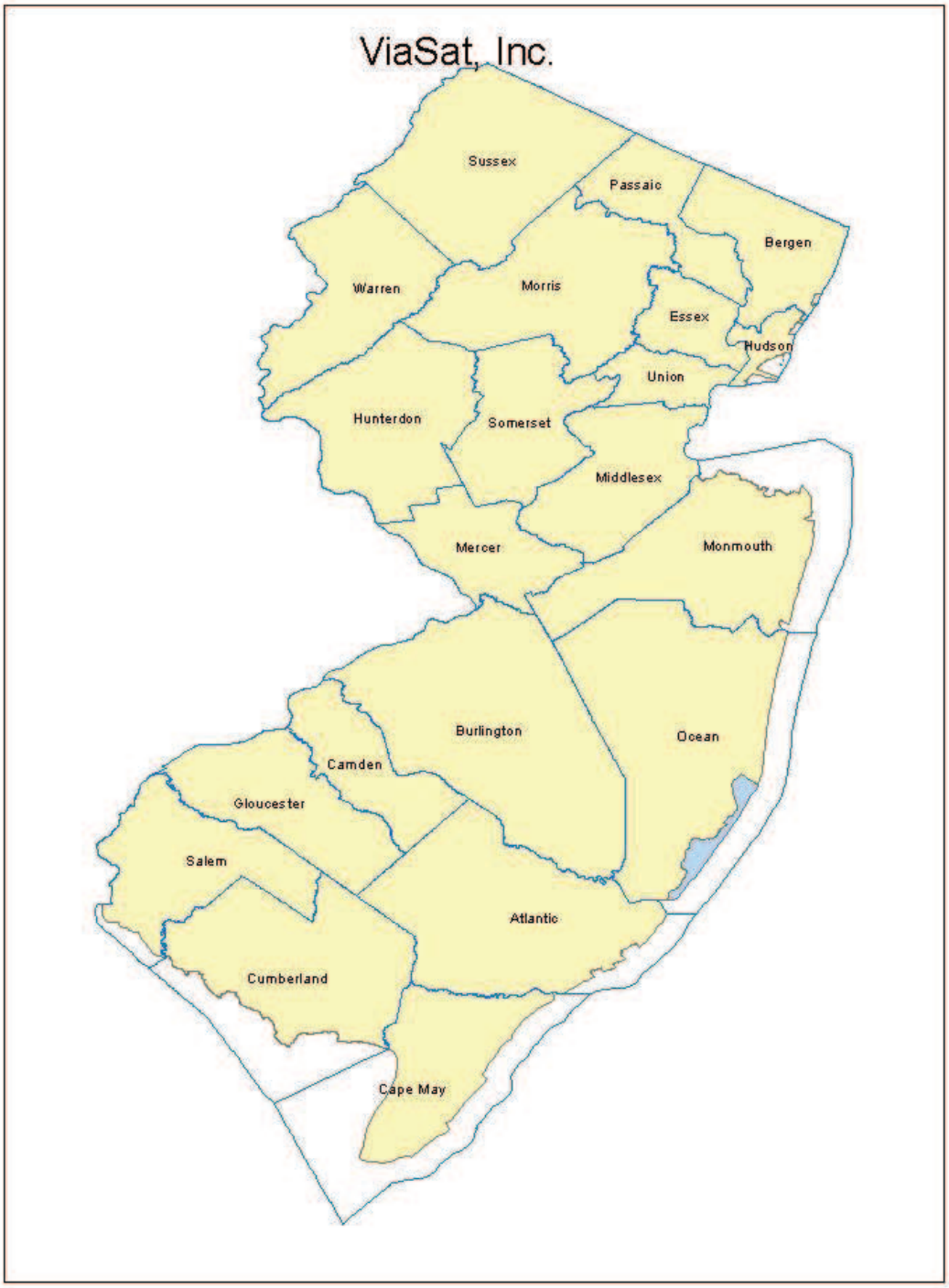
1. We are using "0007843766" for your FRN. Should we use this or do you have another?
2. What is your DBA name? Should we also use ViaSat for this?

Thanks,

Cliff

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Verizon Wireless
Received: July 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Section 1: NDA Status

NDA was executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name "Doing business as" name FRN Holding company name Holding company number	Cellco Partnership Verizon Wireless 0003290673 Verizon Communications Inc. 131425
FOR WIRELESS		
Filetypes	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc. Two sets of data provided – one for EVDO and one for LTE (this was not explicitly stated - infered from the file names).	Supplied 2 shapfiles (zip archive) with 21 and 39 rows. Shapefiles use projection GCS_WGS_1984..
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Upstream max adv: 500 kbps - 800 kbps Downstream max adv: 600 kbps - 1.4 mbps Upstream typical: 500 kbps -800 kbps Downstream typical: 600 kpbs-1.4 mbps Subscriber-weighted: Not provided	Ranges provided instead of single values. Lower end of the Down Typical range is ~~OUTSIDE~~ of the Broadband speed definition (will use upper end values for the time being).
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	

	Upstream max adv	5 mbps	Ranges provided instead of single values.
	Downstream max adv	12 mbps	
	Upstream typical	2 mbps -5 mbps	
	Downstream typical	8.5 mbps	
	Subscriber-weighted	Not provided	
Technology Type	Spectrum (Mhz, FCC code)		Code 80 [Cellular (824-849Mhz, 869-894Mhz); PCS 1850-1990Mhz; AWS (1710-1755Mhz, 2110-2155Mhz); 700 (757-758Mhz, 776-779Mhz, 787-788Mhz, 805-806Mhz)] One of the provided Spectrum ranges (1st set) is 869-894 Mhz, which is not within ranges defined for that spectrum The shapefiles are named “NJ_evdo” and NJ_lte suggesting that the availability is only for EVDO and LTE. Verizon Wireless documents on the web suggest the company uses spectrum 850 MHz and 1900 MHz for their EVDO.
Comments:			

INTERCONNECTION DATA	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

A link to download the data was supplied by email.

Received overview file “Verizon Wireless Broadband Statistics - June 2013 Update.pdf" with spectrum and speed information.

Received 2 zip files:

- NJ_evdo.zip (1,465 KB)
- NJ_lte.zip (1,542 KB)

2 shapefiles contain the following contents. The NJ_EVDO shapefile has 21 polygons, and the NJ_lte shapefile has 21 polygons.

Name	Size
NJ_evdo.dbf	1 KB
NJ_evdo.prj	1 KB
NJ_evdo.sbn	1 KB
NJ_evdo.sbx	1 KB
NJ_evdo.shp	2,008 KB
NJ_evdo.shp.xml	24 KB
NJ_evdo.shx	1 KB
NJ_lte.dbf	1 KB
NJ_lte.prj	1 KB
NJ_lte.sbn	1 KB
NJ_lte.sbx	1 KB
NJ_lte.shp	2,394 KB
NJ_lte.shp.xml	197 KB
NJ_lte.shx	1 KB

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_Wireless

Loaded from the supplied shapefiles. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in Word document
DBANAME	As supplied in Word document
FRN	Set to "0003290673"
TRANSTECH	Set to 80 per Word document

SPECTRUM	NJ_EVDO: Set to “3” per translation shown below VZW_NJ_LTE: Set to "2"
MAXADDOWN	NJ_EVDO: Set to “3”, see below. VZW_NJ_LTE: Set to "7" per email clarification
MAXADUP	NJ_EVDO: Set to “2”, see below. VZW_NJ_LTE: Set to "5" per email clarification
TYPICDOWN	NJ_EVDO: Set to “3”, see below. VZW_NJ_LTE: Set to "6" per email clarification
TYPICUP	NJ_EVDO: Set to “2”, see below. VZW_NJ_LTE: Set to "5" per email clarification
STATEABBR	Set to “NJ”
SHAPE	As supplied.

Internal notes on processing:

42. Shapefile NJ_evdo: The total shape apparently covers the entire state of New Jersey. Some differences are visible along the water body edges. No need to check duplicates since they will be coalesced into 1 polygon. The supplied shape uses geographic coordinate system name GCS_WGS_1984. The NTIA data model requires the same coordinate system. No geographic transformation was required.
43. Shapefile NJ_lte: The shape covers portions of New Jersey; the NJ Turnpike appears to be covered for its entire length. No need to check duplicates since they will be coalesced into 1 polygon. The supplied shape uses geographic coordinate system name GCS_WGS_1984. The NTIA data model requires the same coordinate system. No geographic transformation was required.
44. The XY Tolerance value differs on the supplied data from the required NTIA model. Imported the table schema and the table data in two separate operations, thereby ensuring perfect compatibility with the NTIA data model. The tables have the suffix “_tol”.
45. Coalesced the EVDO single-part polygons into one multi-part polygon using the ArcGIS ESRI: Data Management Tools->Generalization->Dissolve (with choosing state in the Dissolve_Field(s) option), which resulted in a new feature class with the suffix “_dissolved”.
46. Coalesced the LTE single-part polygons into one multi-part polygon using the ArcGIS ESRI: Data Management Tools->Generalization->Dissolve ((with choosing state in the Dissolve_Field(s) option), which resulted in a new feature class with the suffix “_dissolved”.
47. NTIA requires shapes to be contained in the NJ state boundary. Although we visually verified that it is the case, we clipped the shapes using ESRI: Analysis Tools-> Extract -> Clip with, select feature class refdata_2010.tl_2010_34_state10_wgs. The feature class has the suffix "_clip"
48. Spectrum:
    a. NJ_EVDO: Verizon Wireless provided a statement in their cover letter about their licensed spectrum. Searching on the web indicates that EV-DO uses frequencies 850MHz and 1900Mhz. The NTIA data model has a single column for spectrum. No mapping is provided for frequency

850MHz. Frequency 1900MHz corresponds to NTIA “SPECTRUM USED” code value 3.

b. VZW_NJ_LTE: Verizon wireless web site advertises "nationwide contiguous 700 Mhz 4G spectrum. The NTIA coding table provides value 2 for 700Mhz spectrum.

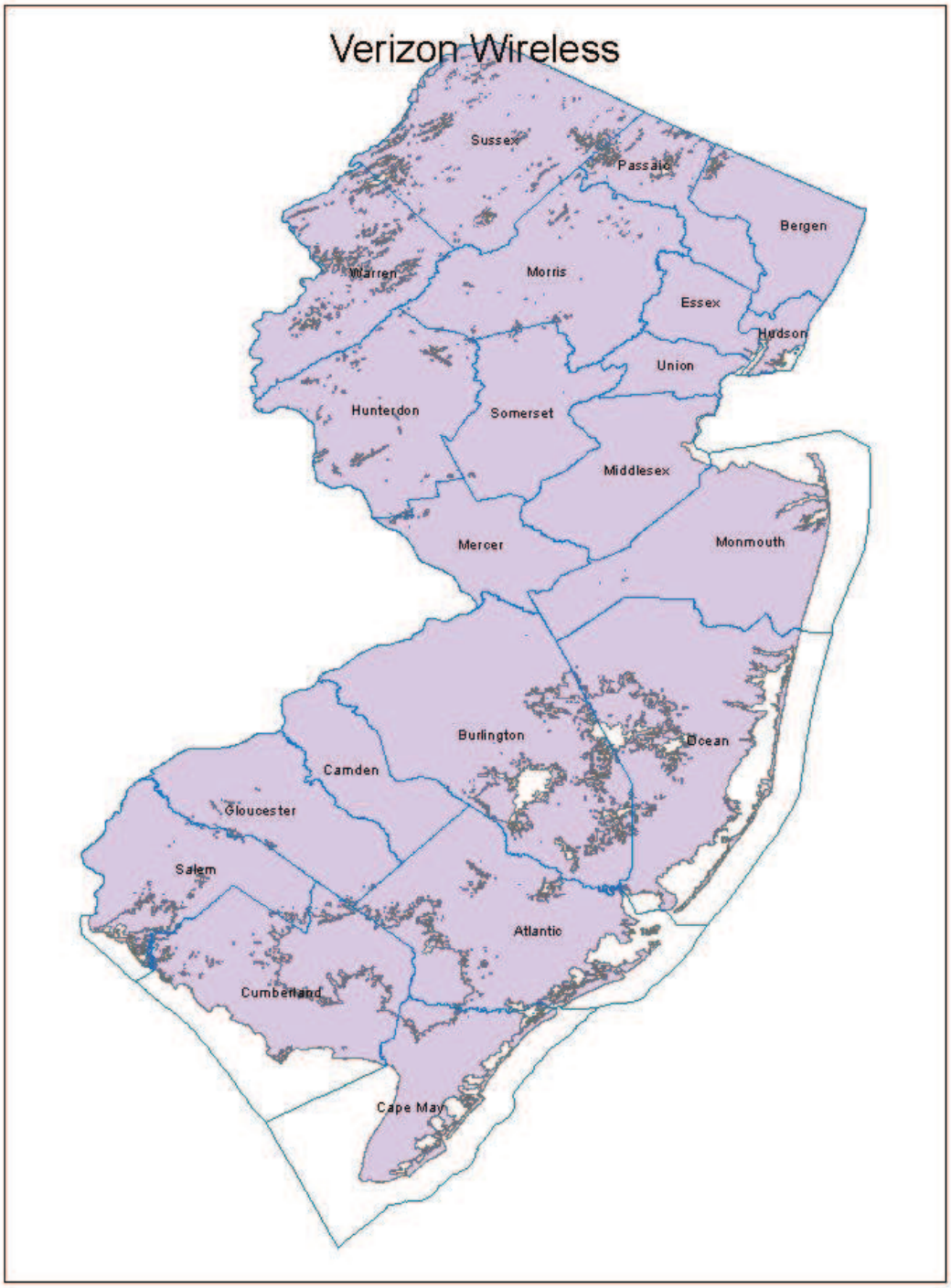
49. Speeds:
    a. NJ_EVDO: The maximum advertised speeds provided in the cover letter are 600 kbps - 1.4 mbps down and 500 - 800 kbps up. The typical speeds are provided as ranges: 600k to 1.4 mbps down and 500 kbps-800 kbps up. For max adv speeds we encoded the submitted down speed as value 3 (range 768k-1.5Mbps) and encoded the submitted up speed as value 2 (range 200-768kbps).
    b. VZW_LTE_NU: The supplied Word document suggests speeds are "10 times EVDO". The maximum advertised speeds provided in the cover letter are 12 mbps down 5 mbps up. The typical speeds are provided as ranges: 8.5 mbps down and 2 - 5 mbps up. For max adv speeds we encoded the submitted down speed as value 7 (range 10-25 mbps) and encoded the submitted up speed as value 5 (range 3-6 mbps). Compliant with the same NTIA email directive, we encoded typical down speed as “6” (range 6 mbps – 10 mbps), and typical up speed as “5” (range 3 mbps – 6 mbps).
50. The only data imputed was the state abbreviation.
51. Set the endusercat column to 5.

Section 5: Clarification Questions and Responses

We received a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless). The maximum advertised speeds provided in the cover letter that came with the provider’s submission are 12 mbps down and 5 mbps up. The typical speeds are provided as ranges: 8.5 mbps down and 2-5 mbps up.

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Xchange Telecom
Connecting New Jersey - Broadband Provider Data Report

Provider: Xchange Telecom
Received: March 2011
Submission date: March 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. However, the endusercat column needs to be properly set.
The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

34. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy xchange_apr2013.BB_Service_CensusBlock to xchange _oct2013. BB_Service_CensusBlock.
35. Update the endusercat column in the xchange _oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

36. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy xchange_oct2012.BB_Service_CensusBlock to xchange _apr2013. BB_Service_CensusBlock.

For October 2012:

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Section 1: NDA Status

None

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	Xchange Telecom Corp Xchange Telecom 0006831713
FOR WIRELINE		
Filetypes		
File size		
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		
Typical-downstream		
Advertised-upstream		2 Mbps (code 4)
Advertised-downstream		10 Mbps (code 7)
Subscriber-weighted-nominal speed		

Information provided via email exchange (see below).

Provider originally indicated that their coverage was limited to the area supported by a single central office. In further exchanges, the provider indicated that their coverage is limited to city of Lakewood and that they cover the entire city limits.

Technology Type	ADSL (code 10)
End-user specification	In response to inquiry, provider reported residential and small business.
Comments:	

INTERCONNECTION DATA	
ID	
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	

Comments:

Section 3: Submission File Details

Received no file submission, only statements by email.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

Based on the emailed statement coverage area, we selected all of the census blocks in Lakewood Township, Ocean county, New Jersey. We submitted all census blocks less than 2 square miles in this municipality. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	Set to “Xchange Telecom Corp” per email response
DBANAME	Set to “Xchange Telecom”
PROVIDER_TYPE	Set to 2 (reseller leasing plant from Verizon)
FRN	Set to “0006831713” per email response
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Pre-populated from Census Block FIPS Code (digits 3-5)
TRACT	Pre-populated from Census Block FIPS Code (next 6 digits)
BLOCKID	Pre-populated from Census Block FIPS Code (next 5 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to 10 (ADSL) per email
MAXADDOWN	Set to code 7 per email
MAXADUP	Set to code 4 per email
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	Census block

Internal processing notes:

42. Created a file with a municipality name that matches exactly the “name” column in the Year 2010 Census Bureau TigerLine database.
43. Joined against reference data to discover census blocks, for a total of 1012 blocks.
44. Verified that all the census blocks discovered for Lakewood Township are smaller than 2 square miles, so no road segments were loaded.
45. Validation script produced a warning on 1012 census blocks regarding downstream speed code of 7 (10-25 Mbps). We were unable to obtain any

confirmation of advertised speeds from provider Web site, because it required entry of a specific phone number. The provider confirmed via email that they offer 10 Mbps download speeds.

Section 5: Clarification Questions and Responses

Key provider Data submission messages:

```
Subject:    RE: NJ Broadband Data Collection – Spring 2013
Date: Wed, 20 Mar 2013 21:15:19 +0000
From: Duvid Rottenberg <DRottenberg@xchangetele.com>
To:   Connecting NJ <ConnectingNJ@appcomsci.com>



Hi,

There are no changes to our previous submissions. We are providing service in
Lakewood township, offering DSL service, with download speeds of 10 Mbps and
upload speeds of 2 Mbps.

Thank You,

Duvid Rottenberg
```

From: Duvid Rottenberg [mailto:drottenberg@xchangetele.com]
Sent: Tuesday, March 08, 2011 3:36 PM
To: ConnectingNJ@research.telcordia.com
Cc: 'Shelley Bates'
Subject: RE:

John,
We are a UNE-L company, we lease the loop from Verizon and provide broadband for the end user on the leased circuits. I believe we do cover the whole city of Lakewood.

Duvid Rottenberg
Xchange Telecom, Corp.
drottenberg@xchangetele.com
(646) 722-7258

From: Duvid Rottenberg [mailto:drottenberg@xchangetele.com]
Sent: Monday, March 14, 2011 4:31 PM
To: ConnectingNJ@research.telcordia.com
Cc: 'Shelley Bates'
Subject: RE:

2 Mbps Upstream and 10 Mbps downstream.

Duvid Rottenberg

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Monday, March 14, 2011 4:46 PM
To: 'Duvid Rottenberg'; 'ConnectingNJ@research.telcordia.com'
Cc: 'Shelley Bates'
Subject: RE:

Thanks for this.

One other question – do you serve both residential and business customers?

John

From: Duvid Rottenberg [mailto:drottenberg@xchangetele.com]
Sent: Monday, March 14, 2011 4:57 PM
To: ConnectingNJ@research.telcordia.com
Cc: 'Shelley Bates'
Subject: RE:

Yes we do.

Duvid Rottenberg

Spring 2012 Interactions

From: Duvid Rottenberg [mailto:DRottenberg@xchangetele.com]
Sent: Wednesday, February 29, 2012 1:20 PM
To: NJ Broadband Data Collection
Subject: RE: New Jersey Broadband Data Collection - Third Notice

You can reuse our previous data.

Thank You,
Duvid Rottenberg

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Wednesday, February 29, 2012 2:07 PM
To: 'Duvid Rottenberg'
Cc: NJ Broadband Data Collection
Subject: RE: New Jersey Broadband Data Collection - Third Notice

Duvid,
The data we have states that you cover all of Lakewood township, offering DSL service, with download speeds of 10 Mbps and upload speeds of 2 Mbps. Is that all correct?

Thanks,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Duvid Rottenberg [mailto:DRottenberg@xchangetele.com]
Sent: Wednesday, February 29, 2012 2:10 PM
To: NJ Broadband Data Collection
Subject: RE: New Jersey Broadband Data Collection - Third Notice

Yes.

Thank You,
Duvid Rottenberg

Fall 2012 Interactions

Subject: Fwd: NJ Broadband Data Collection - Fall 2012
Date: Mon, 30 Jul 2012 12:03:17 -0400
From: Connecting NJ <ConnectingNJ@appcomsci.com>
To:NJ Broadband Data Collection <ConnectingNJ@appcomsci.com>

All,

I talked to D. Rottenberg this morning and he instructed us to use previous data since Xchange Telecom only provides service in Lakewood and nothing has changed since last submission.

Cliff

-------- Original Message --------
Subject: NJ Broadband Data Collection - Fall 2012
Date: Thu, 12 Jul 2012 12:36:11 -0400
From: Connecting NJ <ConnectingNJ@appcomsci.com>
To: drottenberg@xchangetele.com

Mr. Rottenberg,
We are writing to you on behalf of the New Jersey Office of Information Technology (NJ-OIT) which is responsible for collecting broadband availability data for the National Telecommunications and Information Administration (NTIA) State Broadband Data and Development Grant Program.

We thank you for your participation in the previous round of broadband data collection. We now ask once again for your assistance by submitting data describing your broadband service offerings in the State of New Jersey. To meet the NTIA's data submission timeline, we will need your data submission no later than Friday, August 10, 2012. The data should

represent your broadband service offerings as of 6/30/2012.

For this round, the NTIA is particularly interested in receiving from providers "typical" downstream and upstream speeds. By the NTIA definition, "typical" is the "data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed can achieve consistently during expected periods of heavy network usage."

We encourage you to submit data via our secured Web server at http://connectingnj.state.nj.us/. If this presents a problem, please contact us via email and we can make other arrangements.

As mentioned in the previous request, the organization collecting and validating this data on behalf of NJ OIT is now Applied Communication Sciences, formerly Telcordia Advanced Technology Solutions. This is a result of the acquisition of Telcordia by Ericsson. The same people will be the collecting and validating the data, but the email address has changed.

We look forward to hearing from you. Please feel free to contact us with any questions, comments or suggestions.

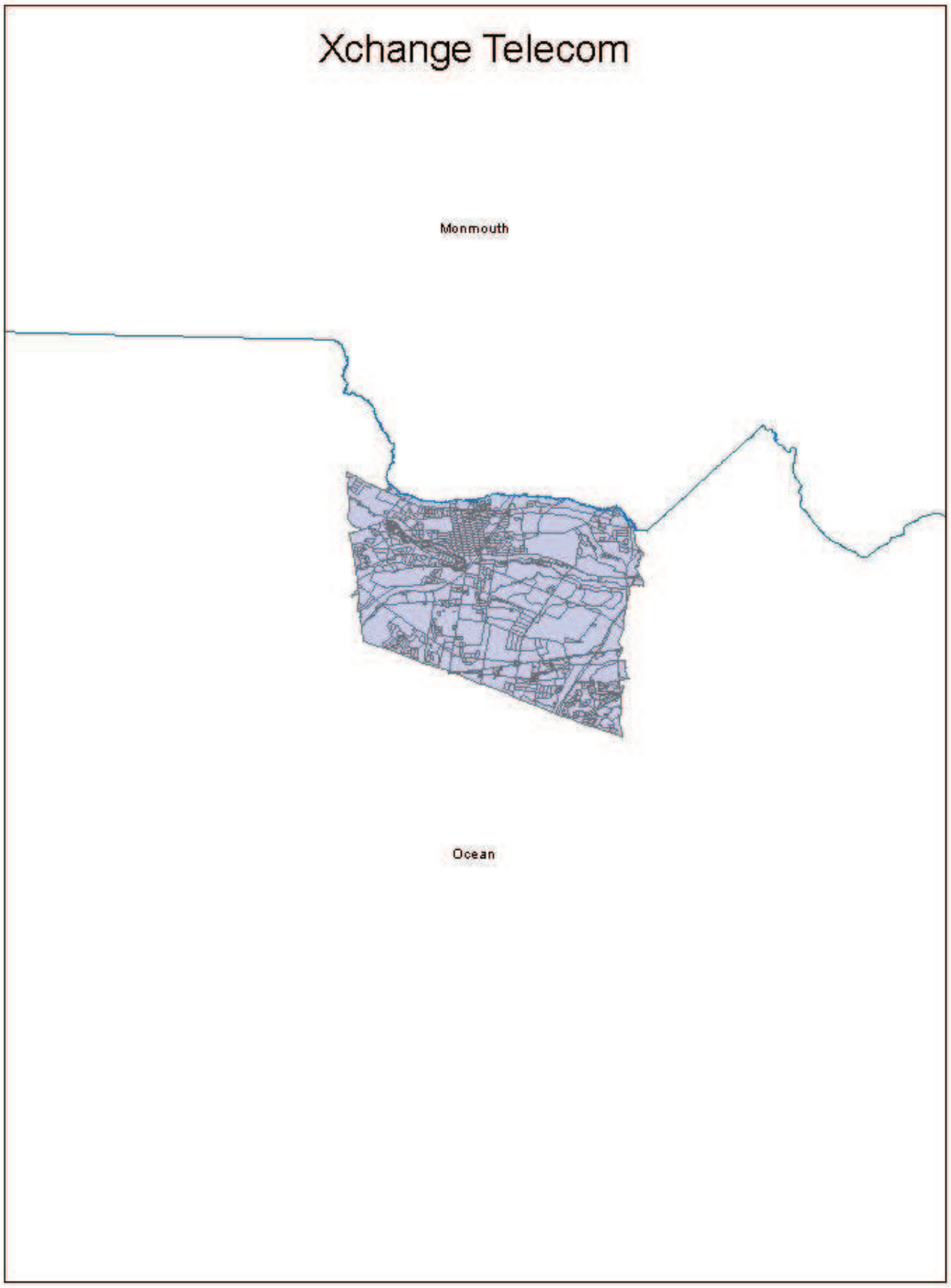
Sincerely,

Cliff Behrens
Manager - NJ BB Data Collection
Applied Communication Sciences
ConnectingNJ@groups.appcomsci.com
732.699.2380

Scott Kloss
Program Manager
NJ Office of Information Technology
scott.kloss@oit.state.nj.us
609.292.4171

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: XO Communications
Received: July 2011
Submission date: April 2013

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration (NTIA).

For October 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

37. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy xocomms_apr2013.BB_Service_CensusBlock to xocomms _oct2013. BB_Service_CensusBlock.
38. Update the endusercat column in the xocomms _oct2013.BB_Service_CensusBlock by copying the values of the end_user column in refdata_2010.tl_2010_34_tabblock10_wgs.

For April 2013:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

Processing Steps:

39. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy xocomms_oct2012.BB_Service_CensusBlock to xocomms _apr2013. BB_Service_CensusBlock.

For October 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

For April 2012:
This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins below. Notable differences from the processing done on the previous submission are listed next.

The provider reported that there were no changes to the reported data. Given that the data we have was submitted in August 2010, we verified with the provider that there were no changes to the coverage area and speeds that they offered.

NTIA Table BB_Service_CensusBlock

Since there is no change in the data and NTIA data model, the table is copied from the 2011 October table, using an ESRI tool, "ArcToolBox->Data Management Tools->General->Append" with NO_TEST in the Schema Type option.

Provider Interactions

```
Subject:    RE: URGENT: Response Requested: Get your Broadband Services on
the Spring 2013 National Broadband Map
Date: Thu, 7 Feb 2013 18:48:46 +0000
From: Adams, Sharon E <Sharon.E.Adams@xo.com>
To:   'Connecting NJ' <ConnectingNJ@appcomsci.com>


Hi Cliff,

I do not have any updates for this submission round.

Kind regards,
Sharon Adams
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From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Wednesday, February 01, 2012 12:02 PM
To: 'NJ Broadband Data Collection'
Subject: RE: NJ Broadband Data Collection - Spring 2012

Neither XO nor Nextlink have any new or revised data to report.

Thanks,
Sharon Adams

From: NJ Broadband Data Collection [mailto:ConnectingNJ@groups.appcomsci.com]
Sent: Friday, February 03, 2012 10:15 AM
To: Adams, Sharon E
Cc: 'NJ Broadband Data Collection'
Subject: RE: NJ Broadband Data Collection - Spring 2012

Sharon,
The last time that you submitted data to us was in August of 2010. Are you saying that the area covered by XO services, and the service speeds offered over that area, have not changed in the last year and a half? I just want to make sure that we can accurately reflect the capabilities you have available in

the state of New Jersey.

Thanks,

John Wullert
Manager - NJ BB Data Collection
Applied Communication Sciences
732-699-2687

From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Friday, February 03, 2012 1:42 PM
To: 'NJ Broadband Data Collection'
Subject: RE: NJ Broadband Data Collection - Spring 2012

Yes.

Thanks,
Sharon Adams

Connecting New Jersey - Broadband Provider Data Report

Provider: XO Communications
Submission date: October 2011

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration (NTIA).

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins below. Notable differences from the processing done on the previous submission are listed next.

The provider reported that there were no changes to the reported data. Given that the data we have was submitted in August 2010, we verified with the provider that there were no changes to the coverage area and speeds that they offered.

NTIA Table BB_Service_CensusBlock

1. Column " blocksubgroup" was dropped.
2. Column "endusercat" was added; set to null because data was not supplied.

Notes

1. Discarded 28 records with missing or slow maximum download speed codes.
2. Total rows loaded: 879

Connecting New Jersey - Broadband Provider Data Report

Provider: XO Communications
Submission date: April 2011

This report presents details on processing broadband data for delivery to the National Telecommunications and Information Administration (NTIA).

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins on the next page. Notable differences from the processing done on the previous submission are listed next.

NTIA Table BB_Service_CensusBlock

1. Column "reseller" was dropped.
2. Set the new column "provider_type" to value 1 ("Broadband provider as described in the NOFA")
3. Set the max advertised speed code values (down and up) to 9, which is the maximum value among all records provided to us.
4. Dropped non-measured typical up/down speed code values.

Provider Interactions

From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Tuesday, March 01, 2011 4:11 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJ BB Data Collection - Spring 2011

Hi John,

I don't have any new data to report.

Thanks,
Sharon Adams

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Tuesday, March 01, 2011 4:23 PM
To: Adams, Sharon E
Cc: ConnectingNJ@research.telcordia.com
Subject: RE: NJ BB Data Collection - Spring 2011

Sharon,
Are you saying that we can use the data you submitted last time (that it reflects your network capabilities as of 12/31/2011)?

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies

732-699-2687

From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Tuesday, March 01, 2011 4:41 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJ BB Data Collection - Spring 2011

Yes, the previous data can be used again.

Thanks,
Sharon Adams

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Friday, March 18, 2011 9:34 AM
To: 'Adams, Sharon E'
Cc: 'NJ Broadband Data Collection'
Subject: XO NJBB Data Clarification

Sharon,
We have performed our initial review of your data and have a clarification question:

> We see several locations where your download speeds are a tier 2, which the NTIA does not consider broadband. This appears that it might be the provisioned speed sold to the customer. Is there a higher, advertised speed that you could provision to these locations if the customer asked? One option would be for us to use the highest speed you deliver in a larger area as the maximum advertised speed. Would that accurately represent your ability to deliver service?

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Thursday, July 07, 2011 9:56 AM
To: ConnectingNJ@research.telcordia.com
Subject: NJ Broadband Data Collection

Good morning,

Neither XO Communications Services, Inc. nor Nextlink Wireless, Inc. have any updates to previously submitted data. Please advise what steps need to be taken in order to ensure these companies compliance.

Kind regards,
Sharon Adams

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Thursday, July 07, 2011 11:13 AM
To: 'Adams, Sharon E'
Cc: 'connectingNJ@research.telcordia.com'

Subject: RE: NJ Broadband Data Collection

Sharon,
Thanks for the quick response. Your email message is sufficient notification for us to proceed using the data you have already submitted.

Note that we will be applying additional validation and verification procedures during this round and will get back to you if any issues arise with the data you supplied.

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

Connecting New Jersey - Broadband Provider Data Report

Provider: XO Communications
Received: August, 2010
Submission date: October 2010

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

59. NDA Status
60. Submission Overview
61. Submission File Details
62. Data Validations and Results
63. Data Transformation and Loading
64. Clarification Questions and Provider Responses
65. Notes and Open Issues

Section 1: NDA Status

Executed.

Section 2: Submission Overview

AVAILABILITY DATA		
ID	Provider name “Doing business as” name FRN	XO Communications, LLC Provided, but looks weird 0006275945
FOR WIRELINE		
Filetypes		
File size		
Speeds		

Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
Typical-upstream		census block
Typical-downstream		census block
Advertised-upstream		census block
Advertised-downstream		census block
Subscriber-weighted-up		Not provided

	Subscriber-weighted-down		Not provided	
Technology Type	Entered codes 1, 2, and 3, which are not valid NOFA TechTrans codes.			
End-user specification	Business (444 entries), Residence (5 entries)			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: Not provided				

Section 3: Submission File Details

Received 1 file by SECURE UPLOAD.

Size	**Name**
41358	NJBroadbandData63009.xlsx

Section 4: Validations and Results

The spreadsheet provides census block IDs and associated max adv and typical speeds. The last two rows of the sheet are different from the 447 data rows proceeding them, and one of those last two is in New York. The DBA name looks unusual and the technology of transmission codes are not valid. After receiving clarification by email we created a corrected spreadsheet based on the original submission as follows:

1. Dropped the last two rows that have addresses instead of provider name, DBA name, etc.
2. Changed DBA Name entries to “XOCSI”
3. Changed technology of transmission codes: 1 to 10, 2 to 20, and 3 to 30.

Section 5: Data Transformation and Loading

NTIA Table BB_Service_CensusBlock

Loaded from the supplied spreadsheet. The following table explains the transformations that were applied to load the target table.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column "Provider Name"
DBANAME	As supplied in column "DBA Name"
RESELLER	Set to "N"
FRN	As supplied in column "FRN", after adding leading zeros
STATEFIPS	Set to "34" (NJ)
COUNTYFIPS	Populated from column census_block (1st 3 digits)
TRACT	Populated from column census_block (next 6 digits)
BLOCKID	Populated from column census_block (last 4 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	As supplied in column census_block
TRANSTECH	As supplied in column Tech Code
MAXADDOWN	As supplied in column MaxDownload
MAXADUP	As supplied in column MaxUpload
TYPICDOWN	As supplied in column TypDownload
TYPICUP	As supplied in column TypUpload
SHAPE	Copied from Census Bureau TigerLine 2010, As matched by Census block ID

Internal processing notes:

1. No duplicate census blocks were found.

Section 6: Clarification Questions and Responses

From: NJ Broadband Data Collection [mailto:ConnectingNJ@research.telcordia.com]
Sent: Tuesday, September 13, 2011 4:07 PM
To: 'Adams, Sharon E'
Cc: ConnectingNJ@research.telcordia.com
Subject: RE: NJ Broadband Data Collection

Sharon,

We realized that we have a potential issue with processing the data you submitted previously. The NTIA has transitioned from using the 2000 census block geometry to the 2010 census block geometry. While it is possible for us to translate your prior data, there is a high risk of overstating or understating your actual coverage area due to the many-to-many mappings between the two sets of census blocks.

Is it possible for you to provide your data using the 2010 geometry?

John Wullert
Manager – NJ BB Data Collection
Telcordia Technologies
732-699-2687

From: Adams, Sharon E [mailto:Sharon.E.Adams@xo.com]
Sent: Tuesday, September 13, 2011 4:10 PM
To: ConnectingNJ@research.telcordia.com
Subject: RE: NJ Broadband Data Collection

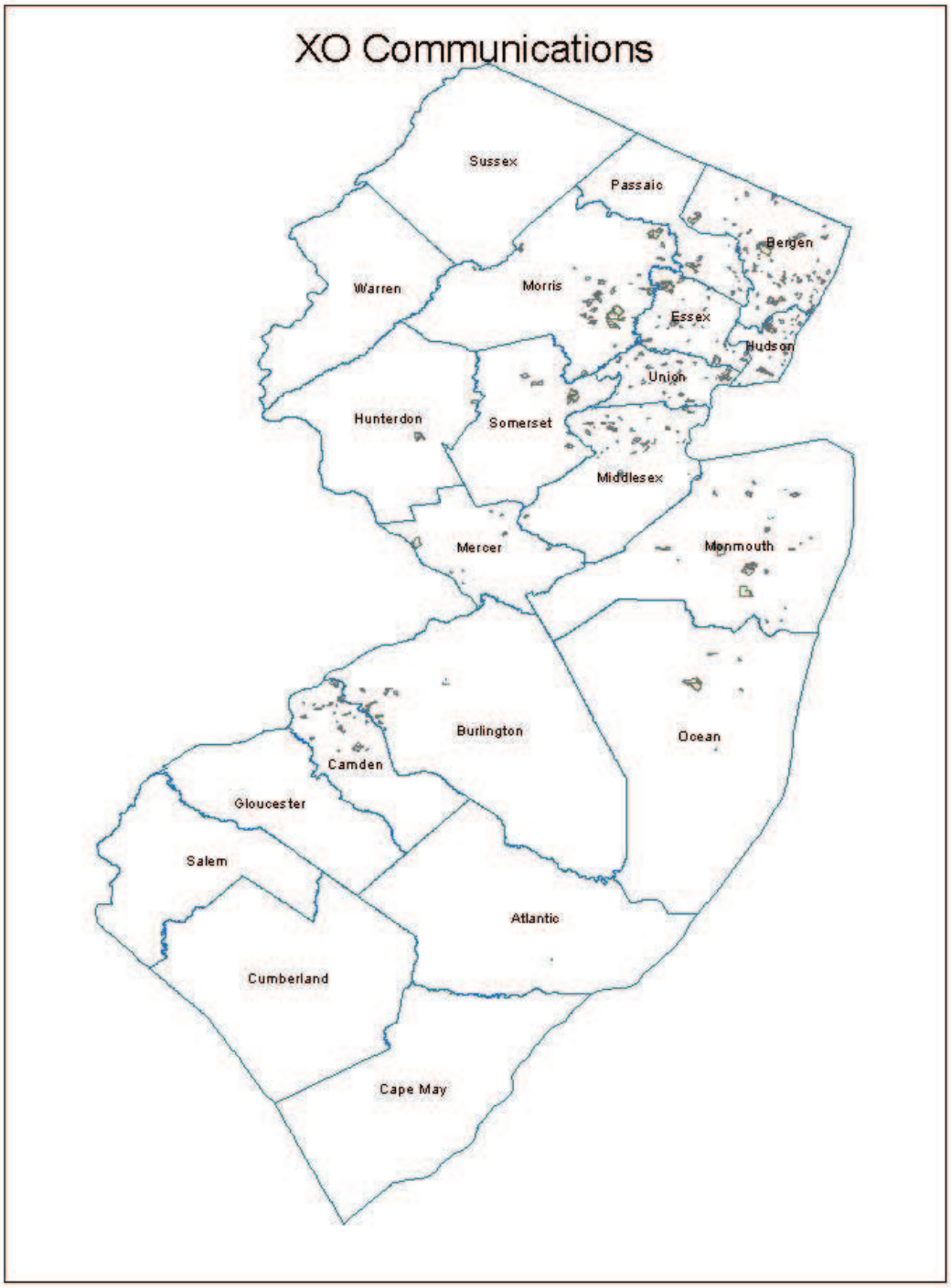
Hi John,

It's fine to restate our data with the new census block geometry. I do not have the new 2010 geometry to restate the data.

Thanks,
Sharon Adams

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Broadband Provider Data Report

Provider: Zayo Group, LLC
Received: August 2013
Submission date: October 2013

This report presents details on processing of the broadband data for delivery to the National Telecommunications and Information Administration.

Sections:

66. NDA Status
67. Submission Overview
68. Submission File Details
69. Data Validations and Results
70. Data Transformation and Loading
71. Clarification Questions and Provider Responses
72. Notes and Open Issues

Section 1: NDA Status

Section 2: Submission Overview

MAPPING DATA		
ID	Provider name “Doing business as” name FRN	Zayo Group, LLC Zayo Group, LLC 0016555849
FOR WIRELINE		
Filetypes	Txt, xls, pdf, etc.	Two .csv file
File size	Number of records, data elements	48 records in the file
Speeds	Type: Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode) Adver down: Census block Adver up: Census block Typical down: Census block Typica up: Census block Subscriber-weighted: Not provided	Provided census blocks level data.
Technology Type	DOCSIS, xDSL, fiber, etc.	Fiber to the End User
End-user	Business, consumer, gov’t etc	4 - Medium or Large Enterprise

specification		
Comments:		
INTERCONNECTION DATA		
ID	Provider name “Doing business as” name FRN	
File size	Number of records, data elements	
Ownership	Leased/owned	
Transport Type	Fiber, wireless, copper	
Data Rates/Capacity		
Location	Street address, lat/lon, elevation	
Comments:		
DATA COMPLETENESS		
Data Validation/ Verification		

Section 3: Submission File Details

Data received in form of two .csv files – the main one NJ Broadband Group Detail at 6-30-2013 Due 8-9-2013.csv (4,754 bytes) containing 48 records and the supplemental info file NJ Broadband Group Supplmental Detail at 6-30-2013 Due 8-9-2013.csv (6,494 bytes).

Section 4: Validations and Results

The following validation checks were performed:

- validity of the Census Block IDs provided for each submitted record
- duplicate Census Block IDs
- Census Block area within 2 sq miles limit

Zayo submitted the data with endusercat = 4. Since only 1,2, and 5 are supported, we decided to change this value to 2.

Section 5: Data Transformation and Loading

NTIA Table BB_Service_CensusBlock

The following table explains the transformations that were applied while loading the submitted data.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider Name
DBANAME	As supplied in column DBA Name
PROVIDER_TYPE	Set to 1
FRN	Column FRN prepended with 0s
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from FULLFIPSID (first 3 digits)
TRACT	Populated from FULLFIPSID (next 6 digits)
BLOCKID	Populated from FULLFIPSID (remaining 4 digits)
FULLFIPSID	Constructed from column ‘Census Block ID’ with column CensusBlock from the supplemental data file appended to it (correct value selected with join)
TRANSTECH	As supplied in column Tech Transmission
MAXADDOWN	As supplied in column Download Speed
MAXADUP	As supplied in column Upload Speed
TYPICDOWN	As supplied in column Typical Download
TYPICUP	As supplied in column Typical Upload
ENDUSERCAT	Set to 2
SHAPE	As found in Census Bureau year 2010 reference data

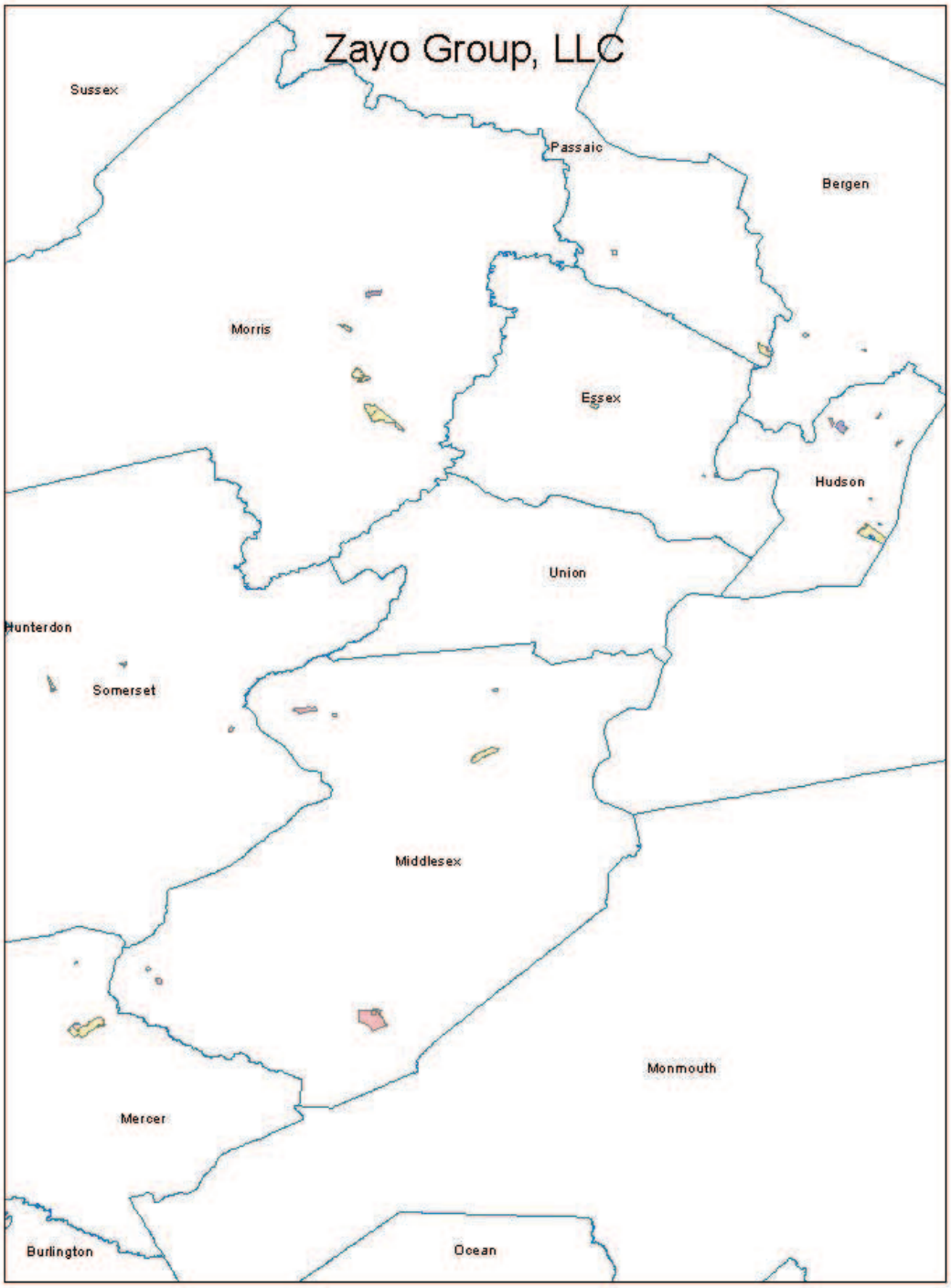
Internal processing notes:

39. Discarded 17 duplicate census block records.
40. Loaded 31.

Section 6: Clarification Questions and Responses

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Appendix B: Community Anchor Institution Processing

(Fall 2013)

Community Anchor Institution Processing

Summary

For each category of community anchor institution, we generally obtained data from two types of sources. One source was a reference source that provided a list of institutions with name, address and ID number where applicable. This reference source was expected to be nearly complete, representing as many of the institutions of the specified type in the state as possible. The other source or sources provided the broadband information. In some cases, the broadband information was supplied by the institutions via our Web site, and in other cases in aggregate form.

In the case of Higher Education, we obtained some broadband access information from NJEdge, an organization that serves as a broadband service provider to a number of universities and research organizations in the state. In the case of State Government, we obtained a list of broadband circuits provided to the state by Verizon; there was no reference list for comparison. For K-12 schools we obtained broadband information on public schools that was collected via a survey by the NJ DOE during the October 2012 submission. During the Fall 2013 submission we obtained updated broadband data for libraries from the New Jersey State Library and new broadband data from the Libraries of Middlesex Automation Consortium. In addition, we utilized New Jersey information from the USAC eRate website to gather broadband data on libraries.

We updated our reference data lists for public schools, libraries and higher education institutions. We had no reference list for local government and non-governmental organizations; we used only the circuit data plus data collected via our Web site for these classes of institution.

For each CAI category, the following table provides the number of records we obtained from the reference source, the number of broadband access records we obtained and, the total number of records we submitted to the NTIA and the number of complete records, with verified address information and broadband access information where available.

Finally, in this submission we again performed additional validation on the CAI data to identify and eliminate inconsistencies in the submitted data with respect to technology and speeds.

Table 1. CAI Submission Summary

CAI Category	Reference Records	Broadband Records	Total Records Submitted
School K-12 (Public)	2596 (NCES + DOE)	2428 (DOE) 796 (Web)	3745 *With downspeed and upspeed: 2180 or 58%*
School K-12 (Private)	1159 (NCES)		
Libraries	464 (IMLS)	81 (NJ State Library) 31 (LMxAC) 199 (USAC)	468 *With downspeed and upspeed: 210 or 45%*
Medical/Healthcare	9349	5	9264
Public Safety	343 (NJ 911 Comm.)	120	337
University	170 (NCES IPEDS)	48 (NJEdge)	169
Other – State and Local Government		2007 (state gov't) 54 (Web)	1692
Other – Non Government		8	8

Abbreviations and Acronyms:

911 Comm	New Jersey 9-1-1 Commission
IMLS	Institute of Museum and Library Services
IPEDS	Integrated Postsecondary Education Data System
LMxAC	Libraries of Middlesex Automation Consortium
NCES	National Center for Education Statistics
NJHA	New Jersey Hospital Association
NJ-DHHS	New Jersey Department of Health and Human Services

Local Government and Non-Government Organizations

The procedure and data in this section are unchanged from the October 2011 submission.

1. There were no new submissions to the web site since the October 2011 report. Accepted data submitted by 54 local government and 8 non-governmental organizations via specially designed Web site. We merged data submitted to Web site for April 2011 delivery with that submitted between April and September. The flow named SubmittedCAI_GovNGO_Process.arroyo was used to process the data. (Files lib_20110323-edit.xml and lib_20110907.xml) Data collected included:
    i. Community Anchor Institution Category
    ii. Community Anchor Institution Name (System, Branch)
    iii. Address: Street, City, State, Zip, County
    iv. Contact info: Name, Phone, Email, Web address
    v. Wi-Fi access
    vi. Broadband info: Provider, Technology, Upstream and Downstream speeds

vii. Comment

2. Generated Latitude and Longitude via geo-coding using Yahoo geocoder API.
    a. Ensured no errors were present, that at least one entry was returned and that quality metric was over 75. Also ensured that result was in New Jersey and that city and zip were not both blank.
    Output is in file Submitted_GovNGO_CAIs.xls.

The submitted data contained 8 records with broadband data in this category.

State Government

The procedure and data in this section are unchanged from the previous submission.

1. Obtained a listing of 2007 connections provided by the primary broadband service provider, Verizon, to the state. List of connections included the following data:
    a. Service address
        i. This field included an indication of the office or department being served and an extremely abbreviated version of the address
        ii. e.g.: "(SPNL)STATE OF NJ-TLS 19 LANDIS AV, UP DRFLD T"
    b. Speed (single value, 1.5 to 1000 Mbps)
    c. Technology (ATM, Ethernet, Frame Relay, PRI, Point-to-Point
2. Used an automated process to expand the town names in the Service Address field (flow for steps 2-6 is in file VerizonList_Geocode.arroyo; input file is Broadband Mapping Prod Sum 2500 Feb 11_Addressed_Ida_Murray4.xlsx)
    a. For example, replaced "PRSPY" with "Parsippany" and "FR LN" with "Fair Lawn"
    b. Improved the mapping of abbreviated city names to their expansions
        i. BRIG: Brigantine
        ii. BRDTN: Bordentown
        iii. DVR: Dover
        iv. HMTN: Hammonton
        v. LWR TWP: Lower Township
        vi. MAN: Manchester
        vii. MANT: Mantua
        viii. MIDL TWP: Middle Township
        ix. MIDLTN TWP: Middletown
        x. OAKLN: Oaklyn
        xi. PIT: Pitman
3. Extracted address information from Service Address field by removing the following:
    a. Digits following and including a pound sign (e.g., NJ STATE PAROLE DIST **#6** 210 S BROAD)
    b. P.O Box NNNN,
    c. Anything in parentheses (e.g., **(SPNL)**STATE OF NJ:OIT 90 STATE HWY NO 183)

    d. Any string consisting solely of letters, backslashes, colons, dashes, ampersands and spaces prior to the first number string in the address (e.g., **SONJ:DOE** 7 GLENWOOD AV, E O BLDG FLR 4;DES SUITE 401-402)
    e. Any string after the first comma (e.g., 7 GLENWOOD AV, **E O BLDG FLR 4;DES SUITE 401-402**
    f. Text prior to and including an ampersand (e.g., **NJ STATE DOT @** ROUTE 23)
    g. Replacing AV, with AVE,
    h. Any text between commas (e.g., 3810 NEW JERSEY AV, **WILD DES DEPT LABOR,**)
    i. Any number preceded by "PROJECT" or "PRJCT"
4. Merged city information and state information with extracted addresses.
5. Generated Latitude and Longitude via geo-coding using Yahoo geocoder API.
    a. Ensured no errors were present, that at least one entry was returned
    b. Ensured that state was New Jersey and that city and state values were populated.
6. For those that failed test with Yahoo geocoder API, attempted to match with Google geocoder API
    a. Ensured no errors were present, that at least on entry was returned
    b. Ensured that state was New Jersey and that city and state values were populated.
7. Resulted in successful geocoding of 1941 of the 2007 entries. Entries that could not be geocoded were ones with no street address and those whose street addresses were deliberately disguised.
    a. Results are in file Verizon_Geocoded_new.xls

Further validation and duplicate elimination resulted in 1692 records in this category.

Healthcare

The procedure and data in this section are unchanged from the previous submission.

1. Acute Care and Long Term Care Geocoding:
    a. Obtained a listing of 1370 Acute Care facilities and 775 Long Term Care facilities from NJ Department of Health website (http://nj.gov/health/healthfacilities/search/ac.shtml) List of hospitals included the following data:
        i. Facility Name
        ii. Address: Street, City, State, Zip
    b. The healthcare facilities were geocoded using the Yahoo Goecoder API (HHS_HospitalProcess.arroyo). The output was checked to ensure that the street address was not blank, the state was New Jersey and the city was not blank.
    c. Those that were not successfully geocoded were then passed to the Google Geocoder. This resulted in successful geocoding of 1360 Acute Care and 773 Long Term Care facilities.
2. Obtained a list of 2035 pharmacies whose source was the e-prescribe data from Surescripts. The pharmacies were geocoded using the Yahoo Goecoder API and the Google Geocoder in the flow

PharmacyProcess.arroyo. The output was checked to ensure that the street address was not blank, the state was New Jersey and the city was not blank. This resulted in successful geocoding of 2020 pharmacies.

3. Obtained listing of 6141 clinical laboratories from the CDC website (http://wwwn.cdc.gov/clia/oscar.aspx). The list (clia-labs.csv) provides name, address and location of laboratory.
    a. Of this list, we eliminated the labs that were located in hospitals, long term facilities and pharmacies because of the overlap with the other sub-categories and because the NTIA data model only identifies a single category for all healthcare institutions.
    b. The remaining labs were geocoded using the Yahoo Geocoder API and the Google Geocoder API. This resulted in successfully geocoding 5433 labs using the flow CLIA_Labs_Geocode.arroyo.
4. The four lists formed the reference geolocated list for healthcare institutions.
5. Merged reference data with data collected from 5 hospitals via our hosted Web site to merge address and ID information with speed and Wi-Fi availability information. We merged data submitted to Web site for April 2011 delivery with that submitted between April and September. No new data after September 2011. (Files lib_20110323-edit.xml and lib_20110907.xml)
    a. Performed exact match between and submitted data on institution name
        i. Facilitated matching by Converting names to upper case, removing certain common words (THE, HOSPITAL, MEDICAL, CENTER, SYSTEM, HEALTHCARE), removing double spaces and trimming leading and trailing spaces.

    This portion of the process occurs in SubmittedCAI_Healthcare_Process.arroyo. Output is in file Healthcare_Submitted_Matched.xls.
6. Produced about 9349 healthcare records at the end of the processing with 4 that included broadband information.

Higher Education

1. Obtained the following data from the named sources in July-September 2013
    a. List of higher education institutions from National Center for Education Statistics IPEDS Data Center (http://nces.ed.gov/collegenavigator/?s=NJ). Table included information on 170 institutions with the following fields:
        i. Institution Name
        ii. Address: Street, City, County, State, ZIP
        iii. IPEDS ID

    Final input data, including a few manual edits (see below) is in file CollegeNavigator_Search_2013-09-15_edit.xlsx

    b. Generated Latitude and Longitude via geo-coding using Google geocoder API (flow IPEDS_HigherEd_Geocode.arroyo).
        i. Ensured no errors were present, that at least one entry was returned

        ii. Ensured that state was New Jersey and that city and state values were populated.
    c. All 170 institutions were properly geocoded.
2. Obtained an updated list of members of NJEdge (Format-edited version is in file Mapping Bandwidth_Mb_06302013_edit.xlsx). Table included information on 57 institutions, most of which (48) were unique state, community or private institutions of higher learning. Information from NJEdge included:
        i. Institution Name
        ii. Address
        iii. Technology Type
        iv. Upstream and downstream speeds
3. Merged IPEDS and NJEdge data to match institution data with broadband access information (HigherEd_Merge.arroyo)
    a. Performed exact match on institution name
        i. Facilitated matching by Converting names to upper case and trimming excess spaces
    b. Of those NJEdge data entries that did not match, used approximate matching based on institution name
        i. Preprocess prior to approximate match involved
            1. Removing strings COLLEGE, UNIVERSITY, NEW JERSEY
            2. Removing any punctuation
        ii. Matched using Levenshtein Distance metric with threshold of 4.
    c. Reviewed unmatched NJEdge data manually and identified additional matches.
4. Successfully merged data from 37 NJEdge institutions into IPEDS data
5. The unmatched NJEdge records were geocoded using the addresses listed in the NJEdge data. 5 unmatched records were successfully geocoded and included in the final output.
6. While we have not obtained detailed broadband information on many of the higher education institutions, we do have knowledge about the availability of broadband services at those institutions. For example, Princeton University and all the Rutgers University campuses have broadband service. We conducted web-based investigations of numerous higher education institutions to ascertain the availability of broadband. We therefore, marked the availability of broadband services as "yes" on many such institutions.
   Final output is in file HigherEd_Geocoded_RateMatched_092013.xlsx

Libraries

1. Obtained the following data from the named sources
    a. Obtained the file Public Libraries Survey Fiscal Year 2011 from http://harvester.census.gov/imls/data/pls/index.asp. Used file puout11a.txt
        i. Manually extracted 464 records for the state of New Jersey
        ii. Used the following data items:
            1. FSCSKEY

2. FSCS_SEQ
3. LIBNAME
4. ADDRESS
5. CITY
6. ZIP
7. LATITUDE
8. LONGITUDE

b. Obtained a list of 81 connections from the New Jersey State Library that provides broadband service via a service called JerseyConnect. The data consisted of:
   i. Library name
   ii. Address
   iii. Type of connection
   iv. Bandwidth of connection

c. Obtained a list of 32 libraries and their broadband connections from the Libraries of Middlesex Automation Consortium (*Libraries of Middlesex telcommution network 2013.docx*). The data consisted of:
   i. Library name
   ii. Internet Provider
   iii. Down Speed
   iv. Up Speed

The technology was inferred from the provider type (cable or fibre) and the speeds.

d. Obtained broadband data for libraries in New Jersey from the E-Rate Form 471 data scraped from the USAC website, via Ms. Tabitha Hunter of Florida (Director of Broadband Programs, Florida Department of Management Services). a collection of Excel spreadsheets with information scraped from the E-rate applications. USAC administers a School and Library program; information about the program can be found at this link (http://www.usac.org/sl/). Per the website: "The Schools and Libraries (E-rate) Program provides discounts on eligible telecommunications, Internet access, and eligible equipment, products and services for eligible schools and libraries." There are a variety of forms involved in the E-rate program, one of which is the form 471 "Description of Services Ordered and Certification Form." Florida's broadband program group has built a scraper tool that extracts the elements from form 471 and they kindly ran this tool on the New Jersey applications. Form 471 may be filed for an individual institution, but is very commonly filed for a group of institutions. Form 471 is used to describe a wide variety of equipment, products and services, including services related to broadband capability. This grouping causes significant complexities in analyzing the information. Details about USAC E-rate Data Processing are given in Appendix J. The data that result from the scraping tool may involve dozens of individual data elements, including the following:
   i. Groups of eligible institutions (schools and libraries) in New Jersey per Form 471

ii. CAI IDs for the institutions
iii. Broadband downspeed data given as the number of buildings in the entities included within the application that are served by different downspeed tiers

2. Merged JerseyConnect libraries with the library survey data using the name of the library to merge address, geolocation and ID information with broadband speed and technology information. Some manual correction of names was required, e.g. Public vs. Pub, Township vs. Twp, etc. The merge yielded 68 matches for the JerseyConnect libraries. Of the unmatched JerseyConnect institutions, conducted web-based research and identified 4 as valid libraries and included them with a CAI ID of ZZZZ..
3. We next merged the libraries from the IMLS survey data that did not have a JerseyConnect broadband connection with the Middlesex Consortium (LMxAC) data. The library names were modified to remove Library, Lib, Public etc. in order to facilitate the matching by name. 31 libraries were matched in this way with the LMxAC data.
4. In the next step we merged the remaining libraries from the IMLS data with the USAC data as follows; See Appendix J for more details:
    a. Filtered library and consortium data from the Priority1 tab in the NJ_471 spreadsheet by removing school only data so that only applications with libraries remain
    b. Determined the entries that have at least one non-zero entry in the columns that count Libraries with downspeed access by speed tiers.
    c. Eliminated the entries that have only zero in these columns
    d. Sorted the entries by the entity number and eliminated duplicates
    e. Set the downspeed tier to the lowest speed tier with a non-zero entry. The format of the Form 471, with its building based fields, is such that it is not possible to uniquely identify the downspeed of each entity and location. We took the approach of assigning each entity in an application with the lowest reported downspeed. This approach is consistent with the analytic method that Florida is employing. This yields a set of unique libraries and conservative estimates of their download speeds. By "conservative" we mean that the actual downspeed is equal or greater to the reported tier.
    f. Since the Form 471 does not include the upspeed we used the following approach to estimate the upspeed, erring on the low side in all cases. For each downspeed value we looked at the possible upspeed values from NJ provider data, and used the lowest occurring value to set the upspeed value. This is considered as a lower bound on the upspeed tier. The table below shows the downspeed tiers encountered and the corresponding lower bound on the upspeed tier.

Downspeed Tier	Upspeed Tier
2	1
4	2
5	3
7	3

8	5
9	7
10	7

g. Merged the output of the above analysis with the IMLS libraries with no broadband information. For the libraries in the USAC data that had CAI IDs (NCES_ID column) we used the CAI ID as the key for matching. Some manual correction of CAI IDs in the USAC data was required based on the library name. The others were merged based on library name, taking care of variations such as Pub/Public, Lib/Library etc.
h. 106 libraries were matched in this step.

5. The new sources of broadband data helped increase the number of complete records to 210 out of 468 records. However, the number did not increase as much as anticipated for a variety of reasons. There was a high degree of overlap between the libraries listed served by JerseyConnect and the libraries listed in the USAC data. Further analysis of the results indicates that the most populous areas of the state such as the biggest cities and the most populous counties are underrepresented in the form 471 application data as well as the other broadband data sources we were able to obtain. The results of the analysis will provide useful priority directions for library outreach by NJ OIT in the next round.All of the above processing was performed using the Arroyo flow CAI_Library_Process_wUSAC_JC_MX.arroyo.

Private K-12 Schools

There were no updates to the broadband data related to private schools in this round.

1. Obtained the following data from the named sources:
    a. Latest list of private K-12 education institutions from National Center for Education Statistics Private School Universe Survey (http://nces.ed.gov/surveys/pss/privateschoolsearch/). Table included information on 1159 institutions with the following fields:
        i. Name
        ii. Address: Street, City, State, ZIP
        iii. PSS_ID
    b. Data submitted by schools via specially designed Web site. There was no new data submitted after September 2011. Data collected included same fields listed above for Local Governmental organizations. Total number of Public and Private schools submitting information was 796.
    c. Data from the USAC eRate program was not used in this submission.
2. Merged NCES private school with data collected from private schools via our hosted Web site to merge address and ID information with speed information (SubmittedPrivateSchool_Process.arroyo and PrivateSchool_Process.arroyo).
    a. Performed exact match between NCES and submitted data on institution name and zip code

        i. Facilitated matching by:
            1. Converting school names to upper case
            2. Removing string , NJ
            3. Converting string SAINT to ST
    b. For those submitted data entries that did not match NCES data, performed an approximate match based on institution name
        i. Preprocess prior to approximate match involved
            1. Replacing string SCHOO or SCHO with SCHOOL
            2. Replacing string HIGH SCHOOL with HS and string ELEMENTARY with ELEM
            3. Removing strings SCHOOL, THE, REGIONAL, HIGH, ACADEMY and ACA
            4. Trimming excess spaces
        ii. Matched using Levenshtein Distance metric with threshold of 3.
    c. Successfully merged data from submitted private school into NCES institutions
        i. Manual comparison resulted in matching of additional institutions
        ii. Remaining institutions were ambiguous or not present in the NCES data.
3. School records were geocoded using the Yahoo geocoder API.
4. Generated 1154 records to submit, of which 57 were merged with submitted broadband data.
    a. Output file is PrivateSchool_GeoMatched.xls

Public K-12 Schools

There were no new broadband data related to public schools in this round. But we updated the reference list for schools by obtaining the latest list of public schools in New Jersey from the NCES website.

We obtained the reference list from the NCES website (http://nces.ed.gov/ccd/schoolsearch/), broadband records for public and charter schools from NJ DOE and geolocation information for public and charter schools from the NJ Geographic Imagery Network (NJGIN) team. NJGIN and NJ DOE provided two sources of data that were merged to get the geolocation and NCES ID of the schools.

1. Obtained the following data from the named sources:
    a. List of schools with broadband data provided by NJ DOE (StateOIT_ARRA_Broadband.csv). This table contained records of 2428 schools with the following fields:
        i. School Name
        ii. Combined_Code that comprises of a concatentation of county, district and school.
        iii. WiFi availability
        iv. ISP Provider Name
        v. Technology
        vi. Downstream Speed
        vii. Upstream Speed

b. Geolocation data for 3784 schools that included public, private and charter schools. The data included the following fields:
    i. School Name
    ii. Address
    iii. Latitude
    iv. Longitude
    v. County Code (2 digits)
    vi. District Code (4 digits)
    vii. School Code (3 digits)
    viii. Type of school – Public, Private or Charter

    The last 3 codes were concatenated to get the Combined Code. However, neither this list nor the broadband data contained the NCES ID which is information required by the NTIA. Therefore, a third list provided by the NJ DOE was used to obtain the NCES ID.

c. List of public K-12 and charter schools in New Jersey (NJ SCH EXTRACT.XLSX) from NJ DOE. Table included information on 2641 institutions with the following fields:
    i. Name
    ii. FIPS State Code
    iii. Two codes ID 4 LEA ID (State) and ID 5 School ID (State), that when combined gave the combined ID used by the DOE in identifying schools.
    iv. Two codes ID 1 LEA ID (NCES) and ID 529 School ID (NCES) that when combined give the NCES ID of the school.

    Because information was not available for private schools, the NJ GIN geolocation information was only used for public and charter schools in this submission.

The data from the website and eRATE data were no longer needed in this submission for public schools as the NJ DOE provided all the necessary data providing greater coverage than the other sources.

2. Merged the two data sources listed in items b and c above to get the list of public schools with goelocation and NCES ID (NJ_Schools_Process.arroyo). The key for merging the two lists was the Combined Code used by the NJ DOE that consists of county, district and school codes.
    a. 2464 records were matched between the two lists
    b. Many of the records in the NJ GIN list could not be matched. Of these, the 67 that were public or charter schools were added to the list of schools.
    c. 178 schools were not in the NJ GIN list. Of these, we were able to geocode 155 schools using Yahoo geocoder API.
        i. Ensured no errors were present, that at least on entry was returned and that quality metric was over 75.
        ii. Ensured that state was New Jersey and that city and/or zip value was populated.
        iii. This process yielded a total of 2686 schools with geolocation.

3. The NJ DOE list of schools with broadband data was merged with the list of schools generated in step 2. The two lists were merged using the Combined Code as the key (Schools_NJDOE_Merge.arroyo).
4. This list was compared with the latest list of public schools from NCES as follows:
    a. Using the NCES ID as the key matched the April 2013 list of schools with the latest NCES list
    b. 33 schools that were in the April 2013 submission without broadband data cannot be matched with the latest NCES list. Web-based research indicated that these were schools that were no longer operational, schools that had closed down or schools that did not get the necessary authorization to operate. These were removed from the list.
    c. 16 new schools were in the latest NCES list, but not in the last submission. These were added to the list.
    d. We retained the 67 schools from the NJ DOE broadband survey that we could not match to the reference lists, either the earlier one from the NJ DOE or the NCES list. Many of these are adult education schools. These do not have an NCES ID.
    e. The result of this is 2671 total school records, with 2424 of them with broadband data.
5. Output file is PublicSchools_GeoMatched_092013.xls

Public Safety Organizations

The procedure and data in this section are unchanged from the previous submission.

1. Obtained the following data from the named sources:
    a. List of local and state public safety organizations obtained from NJ State 911 Commission. (Reused data from April 2011 - PSAP's & PSDP's_Geocoded.xls) Table included information on 343 institutions with the following fields:
        i. Name
        ii. Address: Street, City, State, ZIP, County
        iii. NCES_ID
    b. Data submitted by 120 public safety organizations via specially designed Web site. Data collected included same fields listed above for Local Governmental organizations
2. Generated on 911 Commission Data Latitude and Longitude via geo-coding using Yahoo geocoder API.
    a. Ensured no errors were present, that at least on entry was returned and that quality metric was over 75.
3. Merged 911 Commission data with PSAP data collected from via our hosted Web site (120 entries) to merge address and ID information with speed information.
    a. Performed exact match between 911 and submitted data on institution name
        i. Facilitated matching by:
            1. Converting names to upper case
            2. Removing the Strings DEPARTMENT, DEPT, TOWNSHIP, TWP
            3. Removing punctuation and double-spaces

4. Replacing string PD with POLICE and string BOROUGH with BORO

b. Performed manual merging to integrate additional submitted records that were not matched.
    i. Successfully merged 85 submitted PSAP entries with 911 Commission data. Output in file PSAP_911_Matched.xls

Additional CAI Processing

All of the CAI data were put through additional processing and validation that achieved the following:

a. Extracted the building number from the street address
b. Checked and verified that all records had a 5 digit zip code
c. Verified that the city name was not null
d. Eliminated records that had only PO Boxes for their street addresses
e. Verified that all the records were in New Jersey
f. Removed duplicate entries. CAIs with service from multiple providers were included once with the broadband data from either the most reliable data source (e.g. JerseyConnect over USAC) or the connection with the highest speed.
g. For records that had broadband service, if the downstream speed or upstream speed were missing or "0", they were changed to "ZZ", the default value for speed in the data model.
h. Checked if the downstream speed was greater than or equal to the upstream speed. In these cases, the upstream speed was made equal to the downstream speed in the submitted records.
i. Checked if the upstream and downstream speeds were equal where the technology was identified as Symmetric DSL. If the check failed, the technology was set to -9999, the default value for technology in the data model and the upstream and downstream speeds were set to "ZZ", the default value for speed in the data model.
j. Checked if the downstream speed was in the allowed range for the given technology as defined by the NTIA. If it did not, the speed was set to "ZZ".
k. Checked if the upstream speed was in the allowed range for the given technology as defined by the NTIA. If it did not, the speed was set to "ZZ".
l. If both the downstream and upstream speeds did not match the technology, then the technology was set to -9999 and the speeds were set to "ZZ".

The validation checks from *h* to *l* in the list resulted in changes to over 400 CAI records where one or more of technology or speed were changed.

This processing resulted in elimination of some records and yielded the final count of submitted records as shown in **Error! Reference source not found.**.

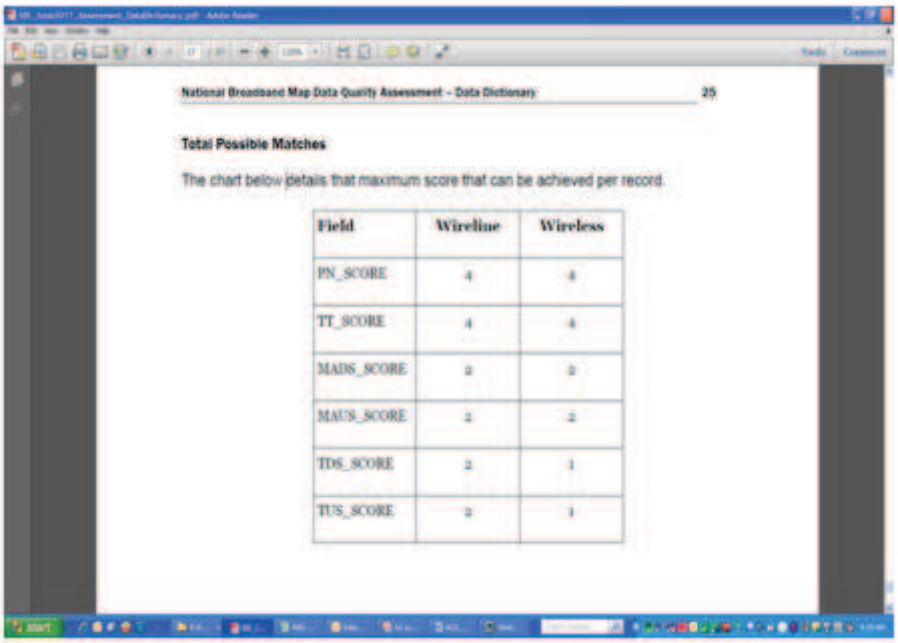
Appendix C: Third-Party Comparisons

NJ June 2011 Assessment Summary

- Based on government provided assessment that used data from third party sources for comparison
  - Appears that there were 4 sources, not all provided all the data
  - Data dictionary indicates max possible comparisons for each field (slide 3)
  - Note that even within these, the number of available data sources were lower for some records
- Database overview:
  - New fields appended to submitted datasets (BB_Service_Address, BB_Service_CensusBlock, BB_Service_RoadSegment)
    - PN_SCORE (provider name comparison score)
    - TT_SCORE (technology comparison score)
    - MADS_SCORE (Max adv upstream Sor comparison score)
    - MAUS_SCORE (Max adv downstream Sor comparison score)
    - TDS_SCORE (Typical upstream Sor comparison score)
    - TUS_SCORE (Typical downstream Sor comparison score)
  - Score field values
    - 0 – no match
    - 1 to 4 – number of matches
    - 7 – un-scored record (no analytics)
  - Comparison data is not provided – only resulting match or no match
  - When PN_M_COUNT=0, TT_T_COUNT, MADS_T_COUNT, MAUS_T_COUNT are set to 0

Notes on Comparison Data

- Summary tables of unmatched records in NJ_June2011_Summary.pdf cover both wireline and wireless
- Wireless_by_Block table gives the wireless data by census block (2010 Census blocks)
- Wireless results include the number of comparison datapoints available for each element
  - *_M_COUNT: number of matches in our data, e.g. TT_M_COUNT
  - *_T_COUNT: number of possible matches, i.e. number of comparisons that were made for each field, upper bound of achievable score for each record, e.g. TT_T_COUNT
- Issues with comparison analysis results
  1. Wireline data does not include number of available comparison values, i.e. upper bound on achievable score for each record
  2. With wireless, where upper bound is provided, how to interpret results where we achieved a score > 0 but less than the bound – appears that reference datasets were not aligned
  3. Database only provides number of mismatches - No way of telling which providers overstated their speed vs understated



National Broadband Map Data Quality Assessment – Data Dictionary 25

Total Possible Matches

The chart below details that maximum score that can be achieved per record.

Field	Wireline	Wireless
PN_SCORE	4	4
TT_SCORE	4	4
MADS_SCORE	2	2
MAUS_SCORE	2	2
TDS_SCORE	2	1
TUS_SCORE	2	1

BB_Service_CensusBlock Comparison Summary

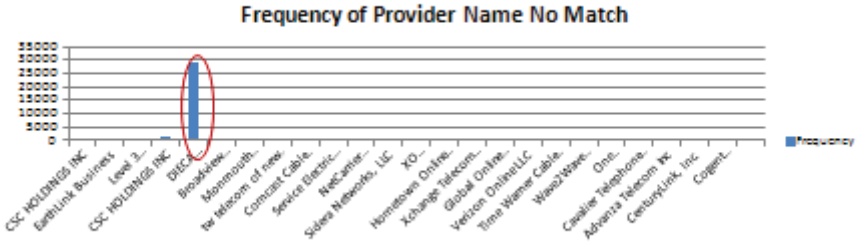
Total records - 525296

Field	Score=4	Score=0	Score < 4	Score =7
Provider Name	4142	32645	521152	2
Trans Tech	3797	94854	521497	2
Max Adv Down	0 [1]	317278	525294	2
Max Adv Up	0[1]	248281	525294	2
Typical Down				
Typical Up				

[1] Score of 4 is not possible for this element

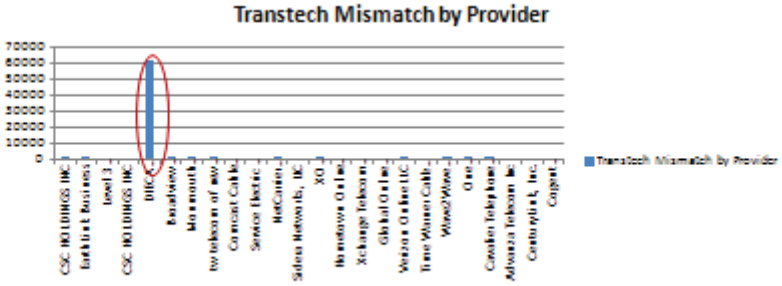
Provider Name No Match

PN_SCORE=0
BB_Service_CensusBlock

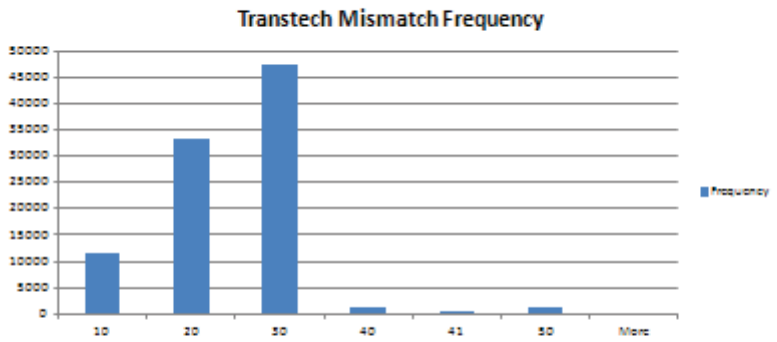


Transtech No Match

- Analyzed db BB_Service_CensusBlock
- Transtech mismatches are counted only for the cases where provider name matched
- TT_SCORE=0 when PN_SCORE>0
- Again DIECA has the most mismatches



Transtech Mismatch by TT Type

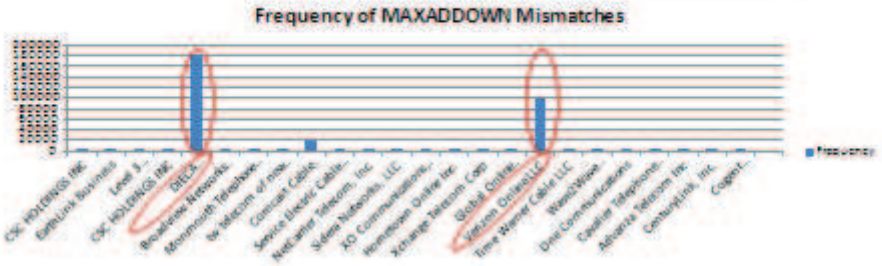


TT_SCORE=0
BB_Service_CensusBlock

Transtech Code	Meaning
10	ADSL
20	SDSL
30	Other Copper
40	Cable Model DOCSIS 3.0
41	Cable Model - Other
50	Optical Fibre

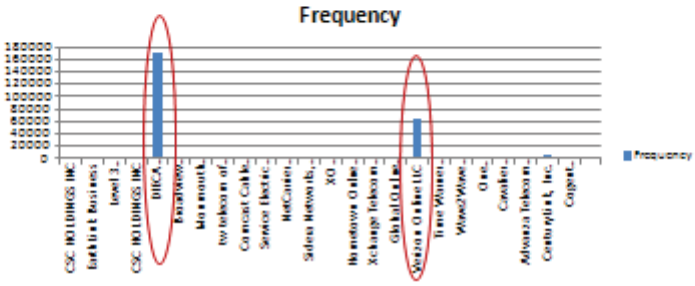
Max Adv Down Mismatch

MADS_SCORE=0
BB_Service_CensusBlock



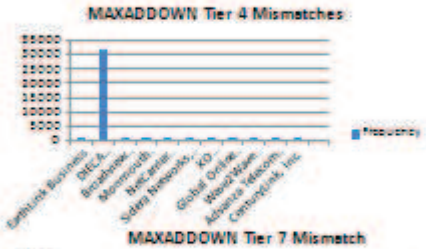
Max Adv Up Mismatch

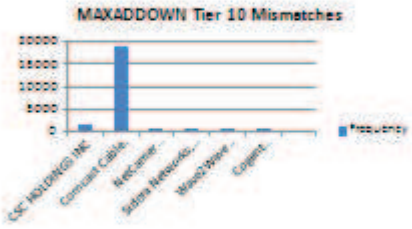
MAUS_SCORE=0
BB_Service_CensusBlock

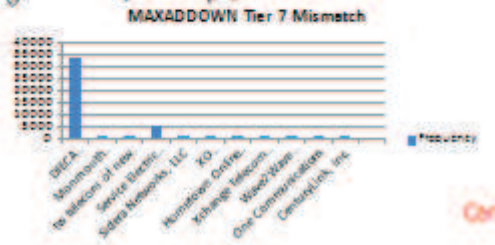


MAXADDOWN Non-Green Tiers

- Assessment summary report showed that Tiers 4, 7 and 10 had the most mismatches of concern (NJ reported tier > comparison data, yellow, orange or red)





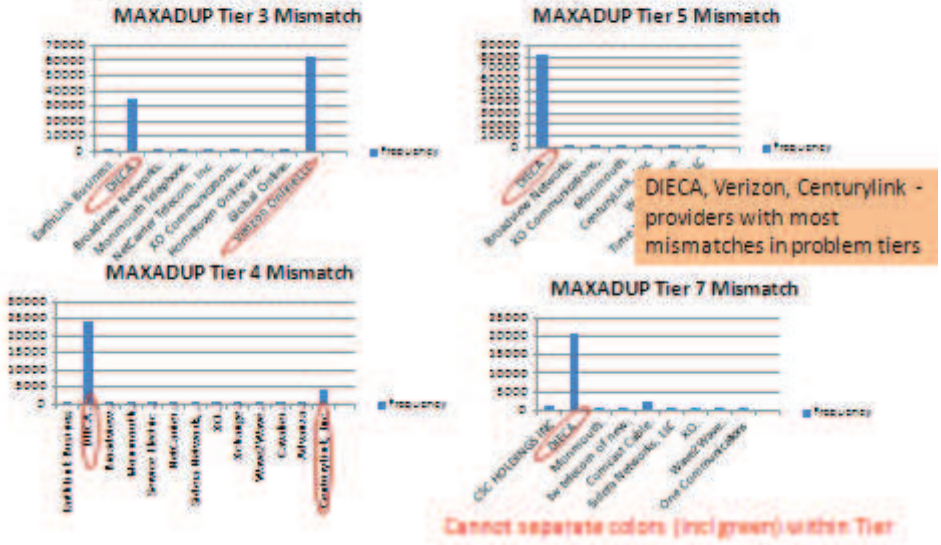


DIECA, Service Electric, Comcast Cable - providers with most mismatches in problem tiers

Cannot separate colors (red green) within Tier

MAXADUP Non-Green Tiers

- Assessment summary report showed that Tiers 3, 4, 5 and 7 had the most mismatches of concern (NJ reported tier > comparison data, yellow, orange or red)



Wireline Stats for Some Providers

BB_Service_CensusBlock analysis
TT_SCORE column values are after eliminating PN_SCORE=0
MADS_SCORE and MAUS_SCORE after eliminating TT_SCORE=0

Provider	Total Records	PN_SCORE=0	TT_SCORE=0	MADS_SCORE=0	MAUS_SCORE=0
Comcast	62834	0	34	19002	2241
CSC Holdings	60904	1332	759	0	0
DIECA	219164	29275	60992	93674	79684
Verizon Online	159874	18	336	100069	62493

Wireless Statistics

Element	Total Records	M_COUNT < T_COUNT	M_COUNT=0
PN	1596895	461022	446887
TT	1596895	78625	19
MADS	1596895	676290	669260
MAUS	1596895	338917	338917

Wireless Statistics by Provider

	Total Records	PN_M_COUNT=0	TT_M_COUNT=0	MADS_M_COUNT *	MAUS_M_COUNT *
Hughes	169588	126880	0	10215	754
AT&T	167813	0	0	167813	48
Leap Wireless	52217	19	0	493	493
Cellco (Verizon)	254289	0	19	171008	171008
Clearwire	65567	3	0	65564	0
Global Online Electronic Services	1	1	0	0	0
Sprint Nextel	173048	0	0	107521	107521
StarBand	169588	169191	0	124	0
TMobile	375091	1057	0	232137	144708
Wave2Wave	105	12	0	52	52
WildBlue	169588	149724	0	0	0

* After eliminating records with provider name mismatches

Hughes

- All PN_M_COUNT=0 records were associated with PN_T_COUNT=1
  - Only one data source was available for comparison in the affected census blocks

Wireless Statistics

	MADS Speed Tier	MAUS Speed Tier
Hughes	4	2
AT&T	4	3
Cellco (Verizon)	6 5	5 4
Clearwire	5	3
Sprint Nextel	3	2
T Mobile	7 6 4	4 4 2

Transtech Mismatch Count

Wireless & Satellite

Transtech=80 TT_M_COUNT < TT_T_COUNT	Transtech=70 TT_M_COUNT < TT_T_COUNT	Transtech=60 TT_M_COUNT < TT_T_COUNT	Transtech=50 TT_SCORE < PN_SCORE	Transtech=30 TT_SCORE < PN_SCORE	Transtech=20 TT_SCORE < PN_SCORE	Transtech=10 TT_SCORE < PN_SCORE
Terrestrial Mobile Wireless	Terrestrial Fixed Wireless - Unlicensed	Satellite	Fibre	Other Copper	SDSL	ADSL
78625	0	0	12012	29311	27881	12737
78625	0	0	14585	29550	27882	12749

- Numbers in second row in table are obtained from querying GDB (wireless and wireline) for each Transtech code
- Numbers in the bottom row are from NTIA's table "Un-matched Technology Of Transmission Records"
- Wireless numbers match what's in NTIA's table exactly
- Wireline numbers are off by varying degrees, most are close except Transtech=50
- Note: Transtech table counts all mismatches, for all the comparison datasets, not enough to have one match
  - Wireless database provides the target count and so is easy to get
  - For wireline ended up using PN_SCORE as indirect measure of target set for each record – possible cause of deviation

Verizon Wireless Transtech Comparison

- All transtech mismatches in wireless are only in Transtech=80 (Wireless mobile)
  - total 78625 records
- All are for Cellco Partnership (Verizon)
- Our data has it as Transtech =80, their comparison data has them spread across Transtech=10, 20, 30 and 50! (all wireline transtech codes)
- All of these are records where provider name had no mismatch
- Issue: If provider name matched to Cellco Partnership (uniquely wireless provider) how could the reference transtech codes be in the wireline space?

Analysis of Discrepancies between December 2011 Submission and Third-Party Data

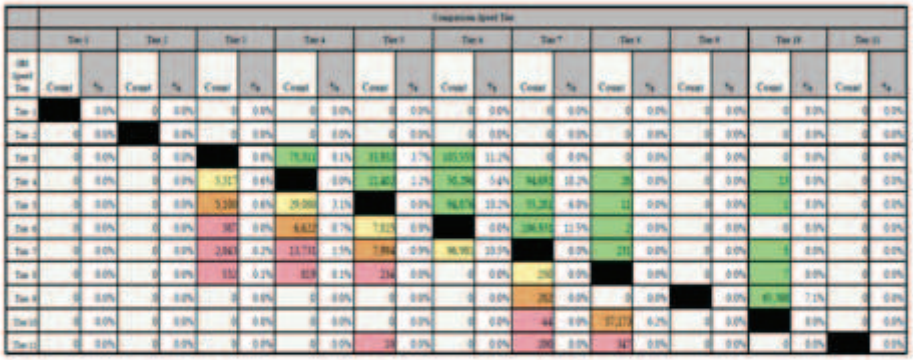
What's New?

To improve the usefulness of the Awardee file geodatabase, the following changes have been made to the format that was presented in the June 2011 SBI version of the Awardee file geodatabase.

1. The file geodatabase contains data current as of December 31, 2011.
2. Scores for BB_Service_RoadSegment are now shown at the Census Block level. This will provide the Awardee with a better understanding of the scoring for road segments that traverse multiple Census Blocks.
   a. The census block level scoring is contained in a new table named RoadSegment_by_Block.
   b. The RoadSegment_by_Block table can be queried similar to the Wireless_by_Block table as described in the *How to Query Road Segment and Wireless Records* section of this document.
   c. The following fields have been dropped from BB_Service_RoadSegment
      i. PN_SCORE
      ii. TT_SCORE
      iii. MADS_SCORE
      iv. MAUS_SCORE
      v. TDS_SCORE
      vi. TUS_SCORE
3. The following field names in the Wireless_by_block and RoadSegment_by_Block tables have been added or updated to better reflect the original SBI field names.
   a. PROVNAME (updated)
   b. DBANAME (added)
   c. FRN (added)
   d. TRANSTECH (updated)
   e. MAXADDOWN (added)
   f. MAXADUP (added)
   g. TYPICDOWN (added)
   h. TYPICUP (added)

Dec 2011 Umatched MADS

Un-matched Maximum Advertised Downstream Records



- 926133 mismatches (mismatch for each source is counted separately)
- Only ~25% of these are non-green (15% yellow, 8% orange and 2% red)
- Tiers 5, 7 and 10 have most non-green mismatches
- Biggest differences from June 2011 are in the green cells

Dec 2011 Umatched MAUS

======Un-matched Maximum Advertised Upstream Records======

	Comparison Speed Tier																					
	Tier 1		Tier 2		Tier 3		Tier 4		Tier 5		Tier 6		Tier 7		Tier 8		Tier 9		Tier 10		Tier 11	
SBI Speed Tier	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Tier 1		0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 2	0	0.0%		0.0%	136,890	24.3%	126,851	22.5%	103,378	18.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 3	0	0.0%	15,596	2.8%		0.0%	268	0.0%	60	0.0%	10	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 4	0	0.0%	797	0.1%	15,521	2.8%		0.0%	494	0.1%	34	0.0%	29	0.0%	28	0.0%	0	0.0%	13	0.0%	0	0.0%
Tier 5	0	0.0%	0	0.0%	5,106	0.9%	24,316	4.3%		0.0%	10	0.0%	5	0.0%	11	0.0%	0	0.0%	1	0.0%	0	0.0%
Tier 6	0	0.0%	0	0.0%	387	0.1%	101	0.0%	16	0.0%		0.0%	0	0.0%	2	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 7	0	0.0%	0	0.0%	2,043	0.4%	8,791	1.6%	12,998	2.3%	405	0.1%		0.0%	104,348	18.5%	0	0.0%	3,433	0.6%	0	0.0%
Tier 8	0	0.0%	0	0.0%	532	0.1%	819	0.1%	234	0.0%	0	0.0%	0	0.0%		0.0%	0	0.0%	7	0.0%	0	0.0%
Tier 9	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%		0.0%	13	0.0%	0	0.0%
Tier 10	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%		0.0%	0	0.0%
Tier 11	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10	0.0%	0	0.0%	206	0.0%	347	0.1%	0	0.0%	0	0.0%		0.0%

- 546112 mismatches total (mismatch for each source is counted separately)
- Only 15.6% are non-green (9.9% yellow, 3.4% orange and 2.4% red)
- Tiers 3, 4, 5 and 7 have the most non-green mismatches

Dec 2011 Transtech Mismatches

======Un-matched Technology of Transmission Records======

	Comparison TRANSTECH																					
	10		20		30		40		41		50		60		70		71		80		90	
SBI TRANS TECH	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
10	0	0.0%	1,353	0.9%	9,652	6.1%	58	0.0%	0	0.0%	4,777	3.0%	0	0.0%	0	0.0%	0	0.0%	5,709	3.6%	0	0.0%
20	22,287	14.1%	0	0.0%	7,589	4.8%	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
30	26,511	16.8%	4,950	3.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
40	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	407	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
41	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
50	10,249	6.5%	0	0.0%	2,924	1.9%	1,873	1.2%	520	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3,962	2.5%	0	0.0%
60	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
70	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
71	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
80	26,346	16.7%	0	0.0%	13,994	8.9%	0	0.0%	0	0.0%	14,866	9.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
90	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

- 158027 mismatches total (includes wireline and wireless)
- All mismatches are in transtech codes 20, 30, 50 and 80
- Queries on the GDB indicate that these results are obtained by the query 'TT_M_COUNT < TT_T_COUNT and PN_M_COUNT>0'
  - Wireless records have insignificant number of TT mismatches where TT_M_COUNT=0

Overview of Mismatches in Wireline Records

Dec 2011 Data - Total Records in Wireline Census Block gdb: 528401

Field	Score=4	Score=2	Score=0	Score < 4	Score < 2	Score =7
Provider Name	4120		43078	524279		2 (Netlogic)
Trans Tech	3507		68062	481814		2
Max Adv Down		64990	313906		463409	2
Max Adv Up		139643	271564		388756	2

June 2011 Data - Total records: 525296

Field	Score=4	Score=0	Score < 4	Score =7
Provider Name	4142	32645	521152	2
Trans Tech	3797	94854	521497	2
Max Adv Down	0 [1]	317278	525294	2
Max Adv Up	0[1]	248281	525294	2

Mismatches have changed slightly since the previous assessment

PN_SCORE = 0

Provider Name	Frequency
CSC HOLDINGS INC	18
EarthLink Business	525
Level 3 Communications, LLC	158
CSC HOLDINGS INC	965
DISCA Communications, Inc.	59557
Monmouth Telephone & Telegraph	109
tw telecom of new jersey	2
Comcast Cable Communications, LLC	55
Service Electric Cable TV of NJ Inc.	468
NetCarrier Telecom, Inc.	88
XO Communications, LLC	400
Hometown Online Inc.	6
Xchange Telecom Corp	358
Global Online Electronic Services, Inc.	4
Verizon Online LLC	291
Advanse Telecom Inc	12

TT_SCORE = 0 /PN_SCORE ≠ 0

Provider	Frequency
CSC HOLDINGS INC	224
Level 3 Communications, LLC	26
CSC HOLDINGS INC	92
DIECA Communications, Inc.	66403
Monmouth Telephone & Telegraph	9
tw telecom of new jersey	1
NetCarrier Telecom, Inc.	10
XO Communications, LLC	23
Hometown Online Inc.	4
Xchange Telecom Corp	44
Verizon Online LLC	1206
Advanza Telecom Inc	20

TT	Frequency
10	6181
20	29810
30	31280
40	92
50	699

Transtech Code	Meaning
10	ADSL
20	SDSL
30	Other Copper
40	Cable Modem DOCSIS 3.0
41	Cable Modem - Other
50	Optical Fibre

Not much of a difference from June 2011

MADS_SCORE=0/TT_SCORE ≠ 0

Provider	Frequency
CSC HOLDINGS INC	417
CSC HOLDINGS INC	5
DIECA Communications, Inc.	85590
Monmouth Telephone & Telegraph	242
tw telecom of new jersey	16
Comcast Cable Communications, LLC	19290
Service Electric Cable TV of NJ Inc.	166
NetCarrier Telecom, Inc.	30
XO Communications, LLC	225
Hometown Online Inc.	281
Xchange Telecom Corp	346
Verizon Online LLC	96113
Time Warner Cable LLC	7
CenturyLink, Inc.	38

Max Adv Down	Frequency
3	1236
4	19770
5	84731
6	29160
7	27664
8	1758
9	18734
10	19295
11	418

MAUS_SCORE=0/TT_SCORE ≠ 0

Provider	Frequency
CSC HOLDINGS INC	417
CSC HOLDINGS INC	5
DIECA Communications, Inc.	71894
Monmouth Telephone & Telegraph	242
tw telecom of new jersey	16
Comcast Cable Communications, LLC	2783
Service Electric Cable TV of NJ Inc.	166
NetCarrier Telecom, Inc.	11
XO Communications, LLC	225
Hometown Online Inc.	54
Xchange Telecom Corp	309
Verizon Online LLC	77366
Time Warner Cable LLC	7
CenturyLink, Inc.	6929

Max Adv Up Tier	Frequency
2	20015
3	19362
4	10941
5	29196
6	506
7	78381
8	1592
9	13
11	418

Wireline Stats by Provider

Dec 2011 Assessment

TT_SCORE values are after eliminating PN_SCORE=0
MADS_SCORE and MAUS_SCORE after eliminating TT_SCORE=0

Provider	Total Records	PN_SCORE=0	TT_SCORE=0	MADS_SCORE=0	MAUS_SCORE=0
Comcast	66069	35	0	19290	2783
CSC Holdings	62501	983	316	422	422
DIECA	219164	39857	66403	85590	71894
Verizon Online	160123	291	1206	96113	77366

June 2011 Assessment

Provider	Total Records	PN_SCORE=0	TT_SCORE=0	MADS_SCORE=0	MAUS_SCORE=0
Comcast	62834	0	34	19002	2241
CSC Holdings	60904	1332	759	0	0
DIECA	219164	29275	60992	93674	79684
Verizon Online	159874	18	336	100069	62493

Dieca Focused Analysis - 1

Provider Name (Mis)Matches

Total Records	PN_SCORE>2	PN_SCORE=2	PN_SCORE=1	PN_SCORE=0
219314	0	68	179389	39857

Transtech (Mis)Matches

Total Records	TT_SCORE>2	TT_SCORE=2	TT_SCORE=1	TT_SCORE=0
219314	0	45	113009	66403

Transtech Mismatch Distribution

Transtech	# records	TT_SCORE=0
10	66260	5366
20	54920	29786
30	98134	31251

Dieca has very few records that match more than one source

Dieca Focused Analysis - 2

MADS Tier	# Records	# Mismatch
3	10387	1085
4	36914	6258
5	101557	35949
6	24517	13760
7	43216	26958
8	2723	1580

MAUS Tier	# Records	# Mismatch
2	23477	6733
3	51513	15777
4	24746	3473
5	87900	28965
6	1315	499
7	27640	14867
8	2723	1580

Verizon Focused Analysis - 1

Provider Name (Mis)Matches

Total Records	PN_SCORE=4	PN_SCORE=3	PN_SCORE=2	PN_SCORE=1	PN_SCORE=0
160123	2964	104545	45293	7030	291

Transtech (Mis)Matches

Total Records	TT_SCORE=4	TT_SCORE=3	TT_SCORE=2	TT_SCORE=1	TT_SCORE=0
160123	2351	83343	58176	14756	1206

Transtech Mismatch Distribution

Transtech	# records	TT_SCORE=0
10	98818	767
50	61305	439

Verizon Focused Analysis - 2

MADS Tier	# Records	# Mismatch	Transtech Code
4	13469	13282	All are 10
5	63580	48723	All are 10
6	21769	15393	All are 10
9	61305	18714	All are 50

MAUS Tier	# Records	# Mismatch	Transtech Code
2	13469	13282	All are 10
3	85349	3453	All are 10
7	61305	60631	All are 50

High percentage of Verizon records have speed mismatches

Comcast Focused Analysis - 1

Provider Name (Mis)Matches

Total Records	PN_SCORE=4	PN_SCORE=3	PN_SCORE=2	PN_SCORE=1	PN_SCORE=0
66069	1057	38963	24106	1908	35

Transtech (Mis)Matches

Total Records	TT_SCORE=4	TT_SCORE=3	TT_SCORE=2	TT_SCORE=1	TT_SCORE=0
66069	1057	38963	24106	1908	0

Comcast Focused Analysis - 2

MADS Tier	# Records	# Mismatch	Transtech Code
10	66069	19290	All are 40

MAUS Tier	# Records	# Mismatch	Transtech Code
7	66069	2783	All are 40

Comcast has only one MADS tier of 10 and one MAUS tier of 7 in our data

Wireless Statistics

Dec 2011 Assessment

Element	Total Records	M_COUNT < T_COUNT	M_COUNT=0
PN	1618164	472647	472647
TT	1618164	55206	10
MADS	1618164	583402	583402 (702494)
MAUS	1618164	339424	339424 (458516)

June 2011 Assessment

Element	Total Records	M_COUNT < T_COUNT	M_COUNT=0
PN	1596895	461022	446887
TT	1596895	78625	19
MADS	1596895	676290	669260
MAUS	1596895	338917	338917

Wireless Provider Name Mismatches by Provider

Provider	Total Records	PN_M_COUNT=0
Leap Wireless International, Inc.	52359	630
Cellco Partnership	256988	8
StarBand Communications Inc.	169588	169237
T-Mobile USA, Inc.	384706	1204
WildBlue Communications, Inc.	169588	153749
Jersey Shore Wireless	5702	3352
Hughes Network Systems, LLC	168588	144465
Clearwire Corporation	66463	2

All 3 with poor PN matching are satellite providers, Transtech = 60

Wireless – MADS and MAUS Mismatches

Provider	Total Records	MADS_M_COUNT=0	MAUS_M_COUNT=0
Cellco Partnership	256988	191450	103378
Sprint Nextel Corporation	174583	108140	108140
StarBand Communications Inc.	169588	124	0
T-Mobile USA, Inc.	384706	210657	127574
Global Online Electronic Services, Inc.	1	1	1
Hughes Network Systems, LLC	168588	6569	331
Clearwire Corporation	66463	66461	0

*Cellco (Verizon), Sprint Nextel and T-Mobile have the most mismatches
* Cellco, T-Mobile, AT&T and others have a large number of records where MADS_T_COUNT =0 or MAUS_T_COUNT=0 (not included in the table)
* Numbers in the table are a result of the query
MADS_M_COUNT = 0 and MADS_M_COUNT<MADS_T_COUNT and TT_M_COUNT>0

Cellco Partnership (Verizon) Analysis

MADS Speed Tier	# Records	# Mismatches	Transtech Code
3	168903	103378	All are 80
7	88085	88072	All are 80

MAUS Speed Tier	# Records	# Mismatches	Transtech Code
2	168903	103378	All are 80
5	88085	0	All are 80

Sprint Nextel Analysis

MADS Speed Tier	# Records	# Mismatches	Transtech Code
3	108160	108140	All are 80
5	66423	0	All are 80

MAUS Speed Tier	# Records	# Mismatches	Transtech Code
2	108160	108140	All are 80
3	66423	0	All are 80

- Sprint has significant mismatches, but only in the lowest tier
- Sprint is not overstating speeds

T-Mobile Analysis

MADS Speed Tier	# Records	# Mismatches	Transtech Code
4	154225	126851	All are 80
6	132784	78587	All are 80
7	97697	5219	All are 80

MAUS Speed Tier	# Records	# Mismatches	Transtech Code
2	154225	126851	All are 80
4	230481	723	All are 80

Questions to Resolve Discrepancies with FCC

The six questions below (in italics) were reviewed on August 21, 2012 in a teleconference call involving ACS, NJ OIT, FCC and Michael Baker personnel. FCC responses are provided for each question.

1. *By far, the bulk of mismatches in the wireline data were from a single provider - Dieca Communications DBA Covad Communications - and in all the comparison fields. Deica/Covad has merged with Megapath and has subsequently explained to us that they provide facilities-based services which are then branded and sold by others. We would be interested in any information NTIA can provide on what FRN or names are being compared against Deica's data.*
   Provider names and FRNs are compared to Form 477 data to perform location matches. Mismatches often result from errors in the Form 477 data. Moreover, mismatches aren't often valid for MVN data.

2. *All transtech code mismatches in the wireless data were found to be associated with the provider called "Cellco Partnership" with DBA name of Verizon Wireless. NJ's submitted data has the transtech code of 80 that corresponds to "Wireless Mobile". From the Transtech mismatch table in the summary report, it appears that this data was being compared against records with transtech codes spanning across values in the wireline space. Can you confirm or correct our understanding, and, if this is a case of comparing wireless data against wired records, please advise as to how to correct?*

   With the Form 477 data, sometimes different services are grouped under the same FRN, e.g., data for DSL and "other copper" may be confounded. The problem is likely in the third-party data, so we can ignore these discrepancies.

3. *The bulk of provider name mismatches in wireless data came from satellite providers - Hughes, WildBlue and Starband. In addition, about 87% of the satellite provider records (445795 out of 508674) had provider name mismatches.Additional information on what they were compared against is needed to better understand the reason for this.*
   This problem likely has the same explanation as 1 above.

Finally, ACS would like to get clarification on the following aspects in order to help us in our analysis and interpretation:

4. *The wireless data include the number of sources that were available for comparison for each record and each compared element (T_COUNT).This helps in determining the true number of mismatches. However, the wireline data do not include such information and just include the score, without any indication of how many comparison sources were used. So, it is not clear if a score of 1 indicates a full match to a single available data source or only a match to a subset of sources.*
   NTIA will look into this issue for the Oct. 20012 submission.

5. *In the case of wireless, how should we interpret cases where M_COUNT 0 (indicating at least one match) but the M_COUNT < T_COUNT? This implies that the comparison sources were not in agreement.*

This probably isn't a problem with the data submission. This happens more often in the wireless domain. One of the third party data sources used for wireless comparisons is FCC speed tests, which often have fewer records and the census block coverage is uneven.

6. *The summary results indicate by color code (grades from green to red) the amount by which the submitted data overstated the speed tier in comparison with the third party sources. However, it is not clear how to correlate this to specific providers because the geodatabase only indicates that a mismatch exists but does not indicate the comparison values of the speed tiers. Can you provide provider-specific color-coded data?*
   This problem is recognized and is already in the "NTIA court," i.e., is under consideration.

Appendix D: Data Confidence Scale White Paper

Author: D E Duffy **November 16, 2012**

Approach to Data Confidence Scales

1. Background

Our objective in developing a data confidence scale is to begin to capture an estimation of the underlying confidence we have in the data elements of our submission. Among the major underlying factors that impact the data quality and, hence, the confidence, are the following three.

- Source
  Different data sources vary in their intrinsic accuracy, inherent biases, and their level of granularity and precision of detail. For example, NJEDge provides broadband services to New Jersey colleges, universities and research institutions. NJEDge is a non-profit technology consortium responsible for the NJEDge.Net infrastructure. NJEDge has highly accurate information on the broadband capability they are delivering to their member institutions via the NJEDge.Net. Their CAI data has intrinsically high accuracy and is not subject to inherent biases.
  As another example, commercial service providers vary widely in their support of this program and in their data quality. In general, there may be an inherent bias built into the program for commercial service providers to err on the side of overstating their coverage and speeds. For some providers, we will have some knowledge about how -- and how carefully -- they produce the data based upon our interactions with them and their staff. Most of the large providers have repeatable processes in which coverage data is re-generated every half year by contractor personnel. For these providers, the basic data on their serving areas and types of service is of high accuracy. For a couple of small providers, we have resorted to gleaning their coverage area from their web pages because they did not have the resources to provide data to us; this yields data of lower intrinsic accuracy.
  We have satellite providers who have submitted data that essentially states, "We serve the entire state with high speed service." Such satellite data is given to us at a crude level, with the largest possibly granularity (namely the entire state), and clearly subject to overstatement bias. Hence it is intrinsically of lower quality and we have less confidence in it.
  As yet another example, consider the DOE data which was collected by surveying schools. For such data, the quality would be expected to vary based on the knowledge of the individual completing the survey for a given school as well as the priority and attention given to survey completion which may differ in different schools, districts, etc. We conducted a quality review of the DOE data and our analysis supports this by identifying schools and groups of schools with missing or anomalous data elements. More specifically, a small subset of schools has been flagged for inconsistency issues such as up-speed greater than down-speed, or transmission technology incompatible with stated provider.

- Currency, that is, the property of being up-to-date
  One of the ongoing challenges in this project is getting data sources to carefully vet their data every 6 months. Some service providers use automatic methods in which their data is re-generated for each half-yearly cycle. Some providers merely send us an email stating that their data has not changed since their previous submission. Some other providers are inconsistently available -- they may provide data for one round and then be nonresponsive in the next round leaving us the choice to re-use the previous data or drop them from the submission. Absent evidence that such a provider has gone out of business or discontinued service, it is our general view that in most cases greater accuracy is achieved by reusing the previous submission with clear documentation in our methodology report. It is also worth noting that the underlying rates of change are very different for different providers -- some providers are aggressively rolling out new capability or growing rapidly, while others have a small, stable customer base and may serve just a handful of specific customer locations in the state. For CAI data, the challenges in data currency are often great as we may receive a one-time submission of information through our website, never receive any updates to the information, and have no effective means of soliciting updated data.

- Verification
  We use a wide variety of techniques for validation and verification of the data we collect. These techniques are discussed in detail in our methodology report and a listing of them is provided in Section 4 of this memo. The techniques vary from simply reviews for missing or incorrect data to more complex business rules and comparisons, including the 3rd party data comparison summaries we receive from the NTIA. Separately and together these can serve to strengthen or weaken our confidence in the accuracy of the underlying data. As one example, when we receive data with large numbers of missing or incorrectly-coded values, this is often a sign of broader quality and accuracy problems.
  As a second example, we can compare DOE data records to service provider records – if a school states that is receives service from a specific provider at a certain address, does the provider also report service availability at that location, and of the character and speed which the school reports? In those cases where such data fails to match, we would look further to determine the nature of the mis-match. For example, if there is no match, we would consider whether the school data has already been flagged as questionable due perhaps to one of the other validations we performed. If so, the mis-match would further weaken the confidence in the school data. On the other hand, if the school data record otherwise looks good, we might look at the location in the context of the service provider's footprint to see if there is any geo-spatial indication that the service provider may have omitted a region from their coverage area.
  We have previously conducted thorough reviews and analyses of the 3rd party data comparisons which the NTIA has provided to us. The nature of these 3rd party comparisons is that, in the case of mis-match, it is not possible to identify which of the mis-matching data is correct and which is in error – in other words, a mis-match can essentially be equally likely caused by lack of accuracy in the 3rd party comparison data as in our data. Nonetheless, we find the 3rd party comparisons useful for two main purposes. The first and clearest use is that matching data can serve to provide some

additional incremental confidence in our data. Second, mis-matching data may heighten data quality concerns where they are already present.

We will be developing an initial approach to data confidence which we plan to trial during the first quarter of 2013 as we prepare for the April 1, 2013 deliverable. After this initial trial, we will evaluate the strengths and weaknesses of the data confidence scales and take steps to further develop and refine the approach for use in the October 1, 2013 deliverable. The remainder of this brief memo describes at a high-level our conceptual approach to this initial data confidence scale estimation.

2. Confidence Scale

We propose to use a 9 point scale for estimating data confidence where a value of 5 corresponds to intermediate, 1 corresponds to low quality, and 9 corresponds to high quality. Initially, it is our expectation that we will report only these 5 values: 1 = Low, 3 = Medium-Low, 5 = Intermediate, 7 = Medium-High, and 9 = High. The reason for this is the following: Clearly in this initial trial we are just beginning to roughly categorize the level of confidence. Use of a fine-grained scale for reporting, however, could imply an ability on our part to make fine distinctions in data confidence which is not the case. As we further refine and develop our approach to gauging data confidence, we may or may not have reason to use a finer categorization of confidence and this scale provides the capability to do so. We will also be considering opportunities for automating some of the steps involved in estimating data confidence and, as such, we can envision performing intermediate calculations in which small increments are added or subtracted to the confidence estimate prior to reporting. The use of a numeric scale would naturally support such calculations, in which case the final confidence values would be appropriately rounded for use and reporting.

Data confidence can be estimated at a variety of levels of granularity with respect to the data. For example, for service provider data, we consider a record as the data corresponding to one type of service being provided by a service provider in one census block (CB) (or road segment). The data record will state the transmission technology associated with the service as well as the maximum advertised and typical up speeds and down speeds. Similarly a CAI record consists of the name, location and URL of one CAI along with information on whether the institution has broadband or public WiFi, and the type, up speed and down speed of their broadband connection. One approach would to derive one confidence level estimate for the entire record.

At a finer level of granularity, one could associate a data confidence estimate with each element in the record – that is, for a service provider record, separately estimate confidence for transmission technology, maximum advertised up speed, maximum advertised down speed, typical up speed and typical down speed. There is some logic to this fine-grained approach as the technology and maximum advertised speeds are inherently likely to have greater accuracy than the typical speeds. This logic, however, does not in our view outweigh some of the disadvantages of approaching confidence scales in such a fine-grained fashion, including the sheer volume of confidence estimates that would be required.

At the other extreme, we could provide one estimate of data confidence per service provider or data source. In this large-grained approach we would estimate one overall confidence level for Verizon's 3G service area, one for the NJEDge data, one for the DOE data, etc. Again there is some logic to this large-grained approach as a number of the factors associated with confidence are heavily determined by the source; for example, the process for creating the data, the degree of currency, inherence biases, etc. On the other hand, this approach strikes us as perhaps overly high-level, particularly when we consider CAI data and our validation and verification activities and their results. For these reasons we have decided to approach confidence scale estimation at the record level; that is, we will pursue the objective of estimating a useful data confidence level for service provider records and CAI records.

3. High-Level Confidence Scale Estimation Procedure

The intermediate setting for service provider confidence is a rating of 5.

Service provider ratings may be increased in the following situations:

- Data is kept current; e.g., providers who deliver new data each half year
- Record matches with NTIA 3rd party data comparison data
- Our validation and verification reviews lead to increased confidence; e.g., the record matches with a CAI data record, etc.

Service provider ratings may be decreased in the following situations:

- Data has aged and the nature of the service provider, footprint and technology type are such that changes would be anticipated
- Data has aged and provider was non-responsive to requests for updates
- Data source and data records lead to decreased confidence; e.g., the maximum advertised speeds are at the edge of possibility for the technology, the typical speeds are defined the same as maximum advertised when the technology would not generally deliver that, etc. (Note: These issues may also be flagged via multiple mis-matches with 3rd party comparison data.)
- Validation and verification reviews lead to decreased confidence; e.g., the doughnut hole analysis identifies a specific CB record.

The intermediate setting for CAI confidence is also a rating of 5.

CAI ratings may be increased in the following situations:

- Data source is of intrinsically high quality and kept up-to-date; e.g., NJEDge data.
- Validation and verification reviews lead to increased confidence; e.g., the data record passes all consistency checks and also matches with a service provider record.

CAI records may be decreased in the following situations:

- Data source is not of intrinsically high quality and the data is not up-to-date; e.g., data submitted via website in the past and not updated.

- Data quality review raises questions about data quality; e.g., DOE records with up speed higher than down speed; mismatch of transmission technology and service provider, etc.
- Validation and verification reviews lead to decreased confidence; e.g., the data record does not match the service provider data.

To incorporate our confidence scale, we will need to add an optional numeric field(s) to each record to record the estimated data confidence. This added field will not be included in our delivery to the NTIA, but it will be made available as an option to NJ OIT. NJ OIT can then consider how, if at all, they would like to convey or display the confidence information on the state map. We will similarly add a Data Confidence section to each of our service provider and CAI reports and we will use this section to document the way in which we estimate data confidence for the records associated with that service provider or CAI type.

Our next steps will include selecting a subset of service provider and CAI data from our previous submission (October 1, 2012) and retroactively estimating data confidence according to this approach. We will use this retroactive analysis to adjust the approach before trialing in the next round. As part of the retroactive analysis we will expand the October data model to incorporate the additional field(s) needed to support data confidence estimation and we will also develop procedures to remove this field(s). These procedures will be needed for the data confidence trial.

4. List of Validation and Verification Techniques

1. Verify Provider Name & FRN vs.FCC data by checking the (dbaname, provname, frn)-tuple against our FRN reference table.

2. Verify coverage area and other data elements are within NJ: This verification differs depends on the specific data element and includes checking latitude range, longitude range, valid census block id within NJ, and valid zip code in NJ.

3. Address verification via geo-coding: We use several geo-coding capabilities to verify specific data elements.

4. Validate data in all fields: We review all data elements for uniqueness and validity; i.e., census block ids, TIGERLine street segments, speed tier codes, etc.

5. Technology and speed consistency checks vs. known provider capabilities and/or Web site advertisements. We also review technical specifications from standards.

6. Provider, technology and speed consistency checks for CAI records.

7. Visual inspection of individual provider coverage maps.

8. Data consistency across tables via basic cross-table consistency checks.

9. NTIA validation rule set. We perform all rules in the NTIA check_submission rules; i.e., speed codes versus technology, overview versus detail consistency, etc.

10. Compare cable data to cable franchise municipality data: For cable providers we check coverage areas against municipalities in their franchise area.

11. Survey of 3100 NJ households: Householders who responded that they were broadband users were asked who their service provider was and this data was compared against service provider serving areas for verification.

12. Doughnut hole study, performing self-consistency check of submitted wireline data. Details are found in Methodology report.

13. DOE data: For schools who responded that they had broadband service provided by a certain provider at a specific address, this data was compared against service provider servicing areas for verification.

14. FCC 3rd Party Data Comparisons: Analyze in detail the mis-matches identified in the FCC 3rd party data comparison for specific service providers. Details are in the methodology report.

Appendix E: Data Confidence Assessment

Authors: C. Behrens, S. Erramilli, M. Yu **December 21, 2012**

Provider Data Confidence Assessment

Background

The objective in developing a data confidence scale is to provide an estimation of the underlying confidence we have in the data elements of our submission. The general approach for assessing data confidence was described in an earlier document[1]. Three factors were laid out in that document for determine data confidence – Source, Currency and Verification. The document included a discussion of each factor and recommendations for grading New Jersey's submitted data. This document describes further details of the methodology and the application of the methodology to the most recently submitted data from October 2012. The work described in this document was focused on provider data alone and does not include any assessment of CAI data.

Data Confidence Based on the Source of Data

Service providers have typically submitted their data in a variety of formats. Depending on the format, we have had to translate and transform the data to the format needed by the NTIA, which is an ESRI Shapefile. We have different confidence in the data based on the submitted format, where the less specific and fine-grained information we receive, the lower our confidence in the data. The highest confidence grade is given to providers that submit data as a GIS vector. We used a scale from 1 to 5 where 5 denotes the highest confidence grade. The following is the set of guidelines used in this exercise for assigning a data confidence grade based on **Source** of data:

1 = manual conversion from image to vector, e.g., JPG to SHAPE.
2 = conversion from large polygon to smaller polygon, county to census block.
3 = conversion from street address to census block.
4 = conversion from map coordinates to census block.
5 = data submitted as GIS vectors.

Grades for the data from the 32 providers included in the October 2012 submission are shown in the spreadsheet embedded at the end of this document. The distribution of data confidence grades based on source of data is shown in Figure 1. All of the providers scored better than 1 and were distributed from 2 through 5.

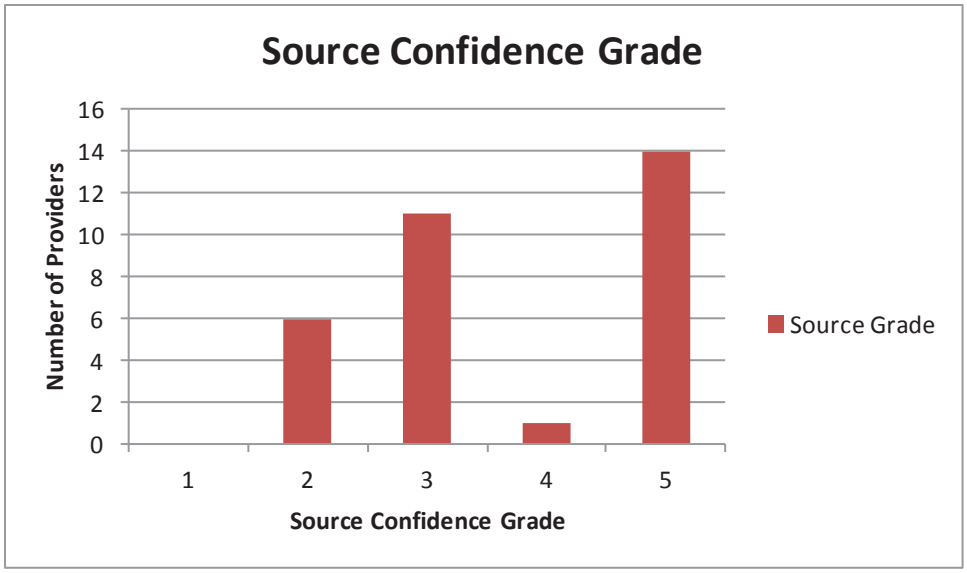


Figure 1 Data Confidence Based on Source

Data Confidence Based on Currency of Data

We also considered data currency, i.e., how up-to-date the data submitted by a provider were, as a measure of data confidence. The older the data, the less confidence we have in its accuracy. We used the following set of rules in assigning a **Currency** grade in the range of 1(lowest) to 5 (highest) to each provider in our October 2012 submission:

1 = data are over a year old, e.g., created in 2010 or early 2011.
2 = data were updated within the last year.
3 = data were updated for the previous submission, but no new response was received from the Service Provider.
4 = data were updated for the previous submission, and the Service Provider responded to our latest request (but without new data).
5 = data were newly updated in response to the latest request.

The list of providers and their grade for Currency is shown in the spreadsheet embedded at the end of this document. Figure 2 shows the distribution of grades across the 32 providers. As can be seen, a majority of the providers obtained high grades for the currency of their data.

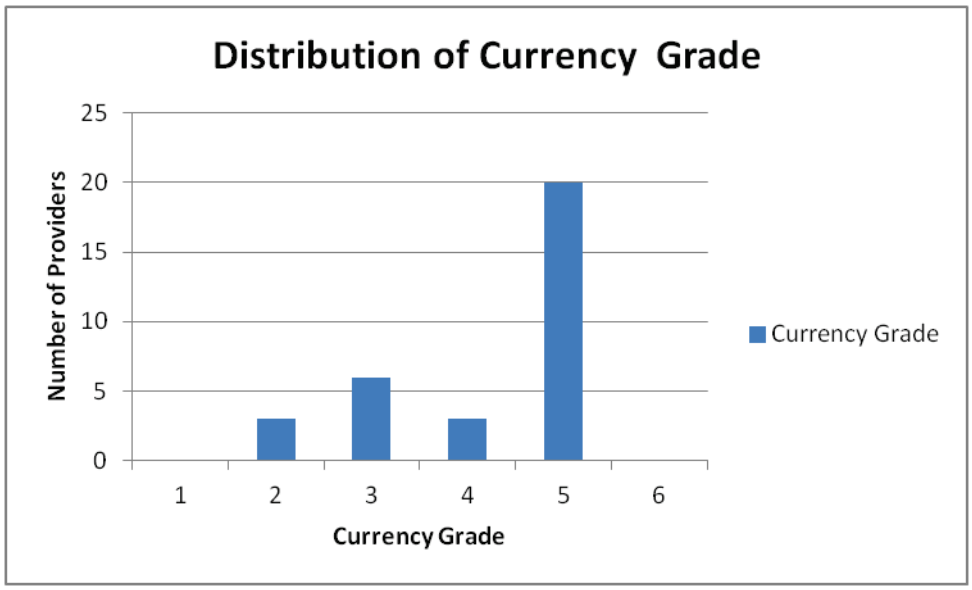


Figure 2 Distribution of Currency Grade

Data Confidence Based on Verification

A good source of data confidence is the data quality assessment that the FCC/NTIA perform using data from third party sources. The NTIA provides a report to each state with a data assessment of how each biannual submission stacks-up against the third party data sources. They report on the number of mismatches for the provider name, technology code, and maximum advertised upstream and downstream speeds.

We are proposing to use the FCC/NTIA's third party comparison to obtain a **Verification** grade for each provider's data. The mismatch count is used as a measure of the confidence we have in our data submissions. The following should be noted regarding the methodology:

1. This Verification grade is based on data from an older submission because the FCC/NTIA data assessment is only available many months after our submission. The assumption is that the data from providers does not vary dramatically from submission to submission. The data verification grade will be based on the last data quality assessment we received from the NTIA.
2. The FCC/NTIA assessment compares the state submission against more than one data source and provides statistics that are based on matching each of the data sources. In many instances, the mismatch count indicates that the state's data agreed partially, indicating that the third party data sources are not in agreement. We ignore such cases and only consider the mismatches where the state's submitted data element did not match even a single third party source.
3. When a submitted data element does not match the third party data there is uncertainty regarding the source of the discrepancy. The error may be in the submission or it may be in the reference data and this has been acknowledged by the FCC/NTIA. In that sense, a perfect match with all the data sources is a stronger assertion of quality than the presence of mismatches is an indicator of poor data quality. Our approach therefore makes allowances for mismatches that

are not proven to be caused by the provider. A low percentage of mismatches raises the grade of a provider, but a very high percentage of mismatches does not lower the provider's score too much.

4. All mismatches are not the same because there is a dependency among the data fields. For example, in the *CensusBlock* table, we look at the provider name mismatches. Where there is no match with the provider name in the given census block, i.e. none of the third party sources reported the provider in the census block, the other fields such as the technology code and speeds are also automatically mismatched. In other words, a match in technology code can occur only when the provider name matches for the given census block. Similarly, upstream and downstream speeds can only match if the technology code matches.

Methodology for Verification

The methodology we have used to assign a Verification grade to providers using the third party comparisons is described below. For each unique FRN in the *CensusBlock* table for wireline providers and *Wireless_by_Block* table for wireless providers we determine the following:

Total Records $\mathbf{C_x}$ = total # of records for FRN = <x>

Provider Name mismatch count:
$\mathbf{M1_x}$ = # of records where **PN_SCORE = 0 AND FRN = <x>** for wireline
$\mathbf{M1_x}$ = # of records where **PN_M_COUNT = 0 AND FRN = <x>** for wireless

Tech Code mismatch count:
$\mathbf{M2_x}$ = # of records where **TT_SCORE = 0 AND PN_SCORE > 0 AND FRN = <x>** for wireline
$\mathbf{M2_x}$ = # of records where **TT_M_COUNT = 0 AND PN_M_COUNT> 0 AND FRN = <x>** for wireless
- (PN_SCORE/PN_M_COUNT > 0) ensures that there is a valid Tech Code to compare against

Maximum Advertised Downstream Speed mismatch count:
$\mathbf{M3_x}$ = # of records where **MADS_SCORE = 0 AND TT_SCORE > 0 AND FRN = <x>** for wireline
$\mathbf{M3_x}$ = # of records where **MADS_M_COUNT = 0 AND TT_M_COUNT > 0 AND FRN = <x>** for wireless

Maximum Advertised Upstream Speed mismatch count:
$\mathbf{M4_x}$ = # of records where **MAUS_SCORE = 0 AND TT_SCORE > 0 AND FRN = <x>** for wireline
$\mathbf{M4_x}$ **= # of records where MAUS_M_COUNT = 0 AND TT_M_COUNT > 0 AND FRN = <x>** for wireless
- (TT_SCORE> 0) ensures that there is a valid Speed entry to compare against

$\mathbf{W_i}$ (i = 1..4) - weight given to each mismatch count by type

$\mathbf{W_1 = 4}$ (Provider Name mismatches have a weight of 4 because once there is a mismatch in Provider Name, none of the other 3 types can be matched)

W_2 = 3 (Technology Code mismatches have a weight of 3 because once there is a mismatch in Tech Code, the two speeds cannot be matched)

W_3 = W_4 = 1 (The weight for mismatch in MADS and MAUS scores is 1 because no other metric depends on them)

Mismatch % S_x = 100 *Average (——— ,———,———, ———)

This metric **S_x** is used to assign a Verification grade to each provider. The weights are used to reflect the dependencies among the mismatch types. For example, in the case where none of the records from a provider have a match on provider name, it is appropriate for the score to be 100%. On the other hand, if the provider has good matching on provider name and tech code, but has poor matching on speed, we expect the mismatch score to be low.

A Verification grade is assigned to the provider from a range of 1 (lowest) to 5 (highest) based on the following criteria:

5: $S_x < 1\%$

4: $S_x < 10\%$

3: $S_x < 40\%$

2: $S_x > 40\%$, source of discrepancies not resolved

1: $S_x > 40\%$, source of discrepancies resolved to provider data

The Verification grade reflects the confidence we have in the data submitted by the provider based on past performance as assessed using the third party comparison data.

Verification Based on Third Party Assessment of December 2011 Data

This section reports on the results obtained from applying the methodology described earlier to the *National Broadband Map Data Quality Assessment* performed by the FCC/NTIA on December 2011 data. As part of this assessment the NTIA provided each state with a database that included the results of their comparison of the submitted data against data from multiple third party sources. The database contains the *CensusBlock* table for wireline and *Wireless_by_Block* table for wireless which in turn include the data of interest for our evaluation. The *CensusBlock* table has 528401 records with 21 unique FRNs (providers) and the *Wireless_by_Block* table has 1618164 records with 11 unique FRNs.

We applied the methodology for each provider in both tables and assigned a Verification grade to each provider. New Jersey's October 2012 submission included 32 providers. Three providers in the October 2012 submission could not be verified because they were not assessed in the FCC/NTIA comparison. Their grade is denoted as "NA". There were several providers that had mismatch metric S_x of more than 40%, but in none of the cases were we able to pinpoint the source of the discrepancies to be the provider. Therefore, the lowest grade assigned is 2. The chart in Figure 3 shows how the grades were

distributed across the 33 providers that were included in the New Jersey October 2011 submission. The results of our analysis of the FCC/NTIA's third party comparisons were provided to the providers with significant mismatch percentages in an attempt to improve future results.

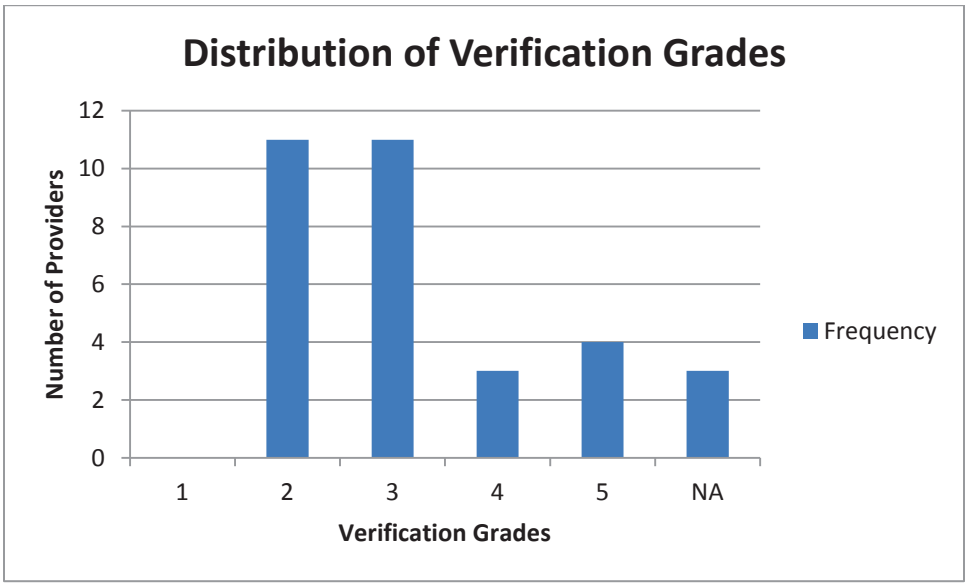


Figure 3 Distribution of Verifications Grades

The complete list of providers and the grades they were assigned on the three different measures of confidence are provided in the spreadsheet embedded below.

DataConfidenceRatings_2012_12_21.xlsx

Summary

We have laid out a methodology for assessing our confidence in New Jersey's data submitted towards the National Broadband Map initiative of the NTIA. It has three components based on the *source* of each provider's data, the *currency* of the data and *verification* through third parties. We have also applied this methodology to the data from our last submission from October 2012 and presented the results of the assessment. In summary, the grades on the Source of the data indicate that several providers are submitting data in a format that reduces our confidence in them. The grades on Currency are good overall, with most providers' data being current and up-to-date. The grades in Verification are low overall, but the source of the discrepancies is not clearly known. We need to work more closely with providers to see if these grades can be improved in future submissions. Our intent is to apply and evaluate the application of this methodology of assessing data confidence to future data submissions, including the April 2013 one, with the objective of further validating and improving it.

Appendix F: Speed Test Website White Paper

Authors: Cliff Behrens and Marek Fiuk **December 21, 2012**

Speedtest Website Tool Evaluation and Initial Design

Crowd-sourcing Speed-tests: Further Evaluation of OOKLA Speedtest.net

Based on a reading of Bauer et al.[1], and as discussed in an earlier document[2], we concluded that the OOKLA Speedtest.net tool would be our first choice to investigate for use for crowd-sourced speed testing. In particular, OOKLA is capable of delivering advantages over NDT, the other tool used by the FCC for its consumer broadband speed-tests. Specifically, the OOKA tool utilizes multiple TCP connects to collect data, important for avoiding receive window limitations, and it is also more likely to connect to a server that is relatively close to the testing client. Moreover, OOKLA Speedtest.net does not require Java on the test-taker's client. The OOKLA approach became even more attractive when we learned that they offer, at no charge, a scaled-down version of their tool, Speedtest.net mini.

Further investigation, however, involving a teleconference with an OOKLA account executive and closer examination of information posted on the OOKAL knowledge base and FAQs, revealed that Speedtest.net mini would not meet our needs. The reasons for this are as follows. While the Speedtest.net mini client is free, and an XML file is provided whereby one can grant the test-taker's Flash Player permission to talk to a Speedtest.net server, there is no automatic way to capture speed test results. OOKLA has a program so that one can apply to host a Speedtest.net location, and even direct users to it. In this case the purported advantage of testing against a server 'close' to the test-taker would be lost. Additionally, all results are still forwarded by the client to an OOKLA database. While test-takers usually select the server closest to them, the only way to guarantee that our own server is exercised by visitors to our speed-test webpage requires a custom setup by OOKLA to its DNS entries. Even with this customization, the speed test results are only sent to OOKLA. A login to OOKLA's reporting system is required so that the Speedtest.net hosting sponsor can view all results run against their server in real-time.

Based on the considerations above, we then conducted an investigation into the NDT tool and have subsequently determined that it is a better match to our needs. We are designing a speed-test web service using the NDT tool, as has the State of NY. Since this tool is open-source and includes both server and client code, we will have the flexibility to conduct speed-tests from our NJ BB Mapping website, capture the results, and associate these with the other ancillary data, collected from the same test-takers, needed to validate data we receive from NJ BB service providers. While NDT does not utilize multiple TCP connects, this disadvantage is strongly outweighed by its other attributes. Looking ahead, NDT will also enable us to collect speed test data from wireless users, currently those who use Android

devices to access the Internet and perhaps others in the future. We have begun developing an NDF-based speed-test website architecture deployment plan. The latter will address steps we need to take to ensure test-taker's privacy and network security. We have constructed a user scenario and an initial speedtest website design to support it. These are presented in Figure 1 below.

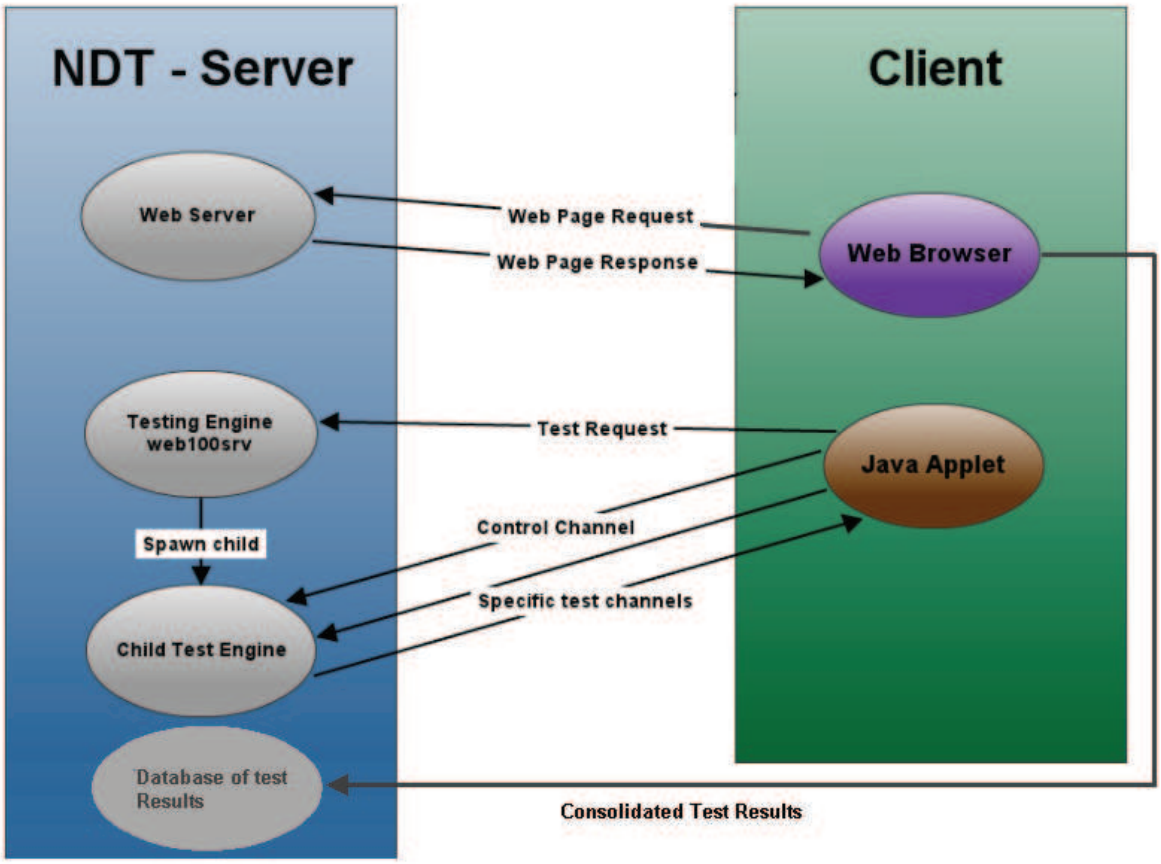


Figure 1. Initial design of NJ broadband mapping speedtest website using NDT technology.

Speedtest scenario: Using a web browser, a test-taker accesses the speedtest website from a NJ-OIT Broadband Mapping webpage, enters validation data in an online form, runs one or more NDT speedtests, and receives results which, along with the validation data, are also stored by the speedtest webserver.

1. The process starts with the user clicking on a hyperlink posted on an NJ-OIT webpage pointing to the ACS server hosting the NDT speed test service (engine).

2. The web server responds by returning the page, with an embedded java applet (class or jar file).

3. The user must manually request that a test be performed by clicking the "start" button.

4. Collection of ancillary data should precede speedtest, otherwise little use for speedtest results.
5. The applet opens a connection back to the server's testing engine (web100srv process).
6. A child process is created to handle the test and the parent goes back to listening for more test requests. The parent keeps a FIFO queue to process multiple requests.
7. A control channel is created between the server and the client to control the client's actions and synchronize the start of the various tests. The server and the client negotiate the test suite.
8. The NDT client and the NDT server perform the negotiated test suite. The client opens new data channels back to the server for testing purposes. Allowing the client to open connections makes it easy to get past client-side firewall boxes.
9. The server extracts the Web100 data and analyzes the connection for faults.
10. The results are recorded in the servers' log file and the results are returned to the client for display to the user.
11. The client consolidates the results with the ancillary data (obtained with an associated input form) and stores them in a database on the server.

We intend to begin implementation of this speedtest website and address test-taker privacy and security issues during 1Qtr2013.

Appendix G: Discrepancy on Comcast Service in Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) and Estell Manor City (Atlantic County)

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May 29, 2013

Discrepancy on Comcast Service in Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) and Estell Manor City (Atlantic County)

Statement of Problem: New Jersey has four Non-Franchised Areas: Estell Manor City in Atlantic County; Greenwich Township and Stowe Creek Township in Cumberland County; and Walpack Township in Sussex County (http://www.cablenj.org/AboutUs/CableProviders.asp). Comcast has submitted coverage availability in Estell Manor, Greenwich and Stowe Creek through the New Jersey Mapping Program. While Comcast's submitted coverage availability is consistent with Comcast's consumer-facing website at a test address in Greenwich Township, according to the New Jersey BPU, Comcast is not authorized to offer broadband services in these three towns. **Hence, parts of Comcast's submitted coverage that lie within these three towns are in error and need to be removed. Future submissions should not show coverage in these towns and Comcast's consumer-facing website should also be corrected.**

1. Summary of New Jersey Data Submitted to NTIA on October 1, 2012 (valid as of June 30, 2012)

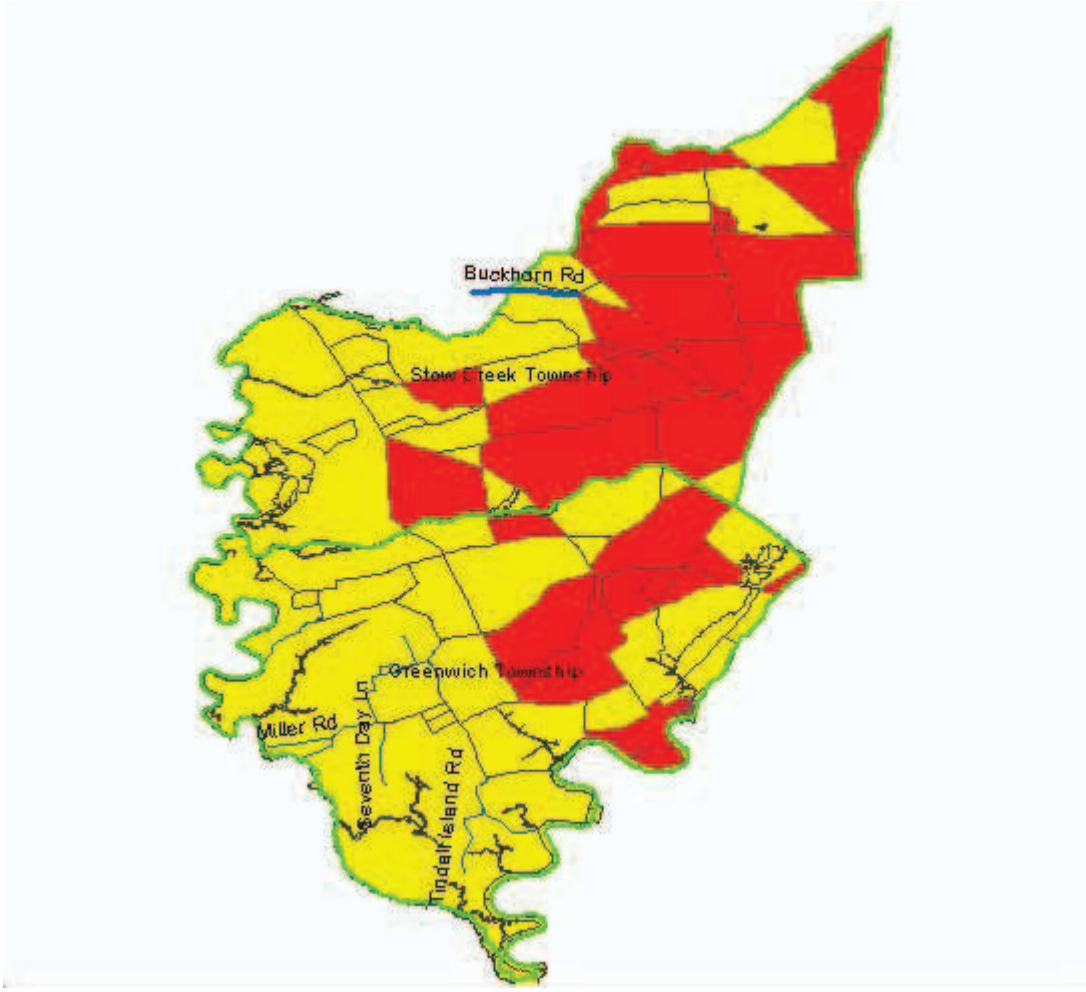
# of census blocks that intersect with the 3 towns Note: These census blocks may lie wholly or partly in Greenwich. Census block geometry is not consistent with town boundaries so a process of conversion to centroids followed by geo-spatial join has been performed to focus on census blocks that intersect with the towns and exclude census blocks that are neighboring or adjacent.	438 census blocks (CBs) Note: New Jersey has a total of 169,588 CBs in the 2010 census.
# of census blocks of Comcast broadband coverage that intersect with the 3 towns	44 CBs all with the following data: Transtech = 40 (Cable Modem – DOCSIS 3.0 Down) Maxaddown = 10 (>= 100 Mbps and < 1 Gbps) Maxadup = 7 (>= 10 Mbps and < 25 Mbps)

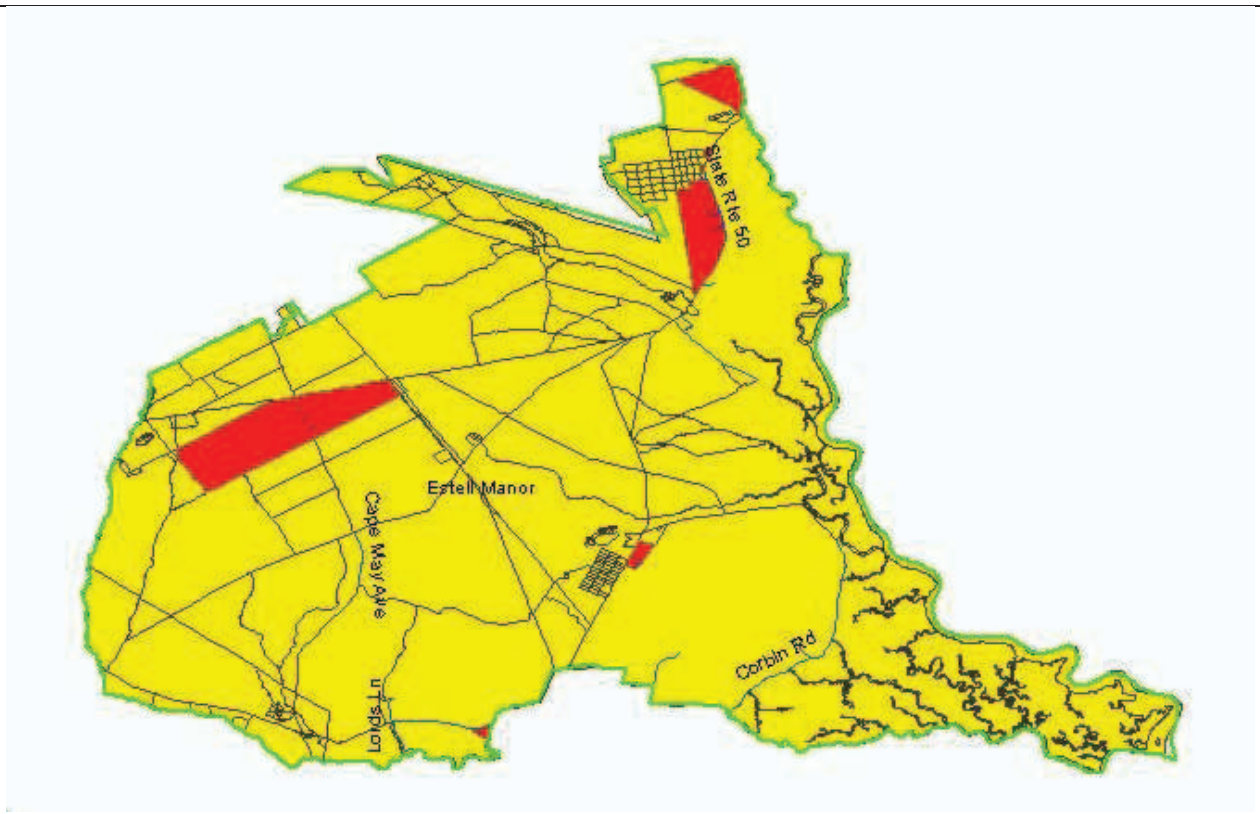
# of road segments in CBs greater than 2 square miles that intersect with the 3 towns Note: These road segments may lie wholly or partly in the 3 towns, or they may be directly adjacent to the 3 towns.	74 road segments in large CBs (The NTIA requires broadband coverage to be provided by CB, for CBs less than or equal to 2 square miles in area; and by road segment for CBs greater than 2 square miles in area.)
# of road segments in large CBs of Comcast broadband coverage that intersect with the 3 towns	2 road segments (Buckhorn Rd in Stow Creek Township) Transtech = 40 (Cable Modem – DOCSIS 3.0 Down) Maxaddown = 10 (>= 100 Mbps and < 1 Gbps) Maxadup = 7 (>= 10 Mbps and < 25 Mbps)

Note: The broadband availability data on the broadband.gov website is from the October 1, 2012 submission. The broadband availability data on the NJ GIN website is also from that same submission, although it is expected to be updated shortly to the recent submission (data submitted April 1, 2013 and valid as of December 31, 2012).

2. **Maps of the 3 towns, based upon October 1, 2012 submission showing Comcast's stated service availability. First map shows Stow Creek and Greenwich; second map shows Estell Manor.**

Red: Comcast Census blocks
Yellow: Non-Comcast Census blocks
Green thick lines: Township border lines
Blue thick lines: Comcast large road segments





3. Summary of Changes in Comcast's Data from the 2013 April Submission

Changes are in bold underline. Comcast shows a substantial expansion in CBs in towns that it cannot serve as well as upgrades to increase maximum advertised up-speed; that is, the most recent Comcast data from the 2013 April submission has more errors than the previous submission.

# of census blocks of Comcast broadband coverage that intersect with the 3 towns	**72** CBs all with the following data: Transtech = 40 (Cable Modem – DOCSIS 3.0 Down) Maxaddown = 10 (>= 100 Mbps and < 1 Gbps) **Maxadup = 9 (>= 50 Mbps and < 100 Mbps)**
# of road segments in large CBs of Comcast broadband coverage that intersect with the 3 towns	2 road segments (Buckhorn Rd in Stow Creek Township) Same as the 2012 Oct submission

4. Spot-Checking Validations at an Address in Greenwich Township via Provider Website

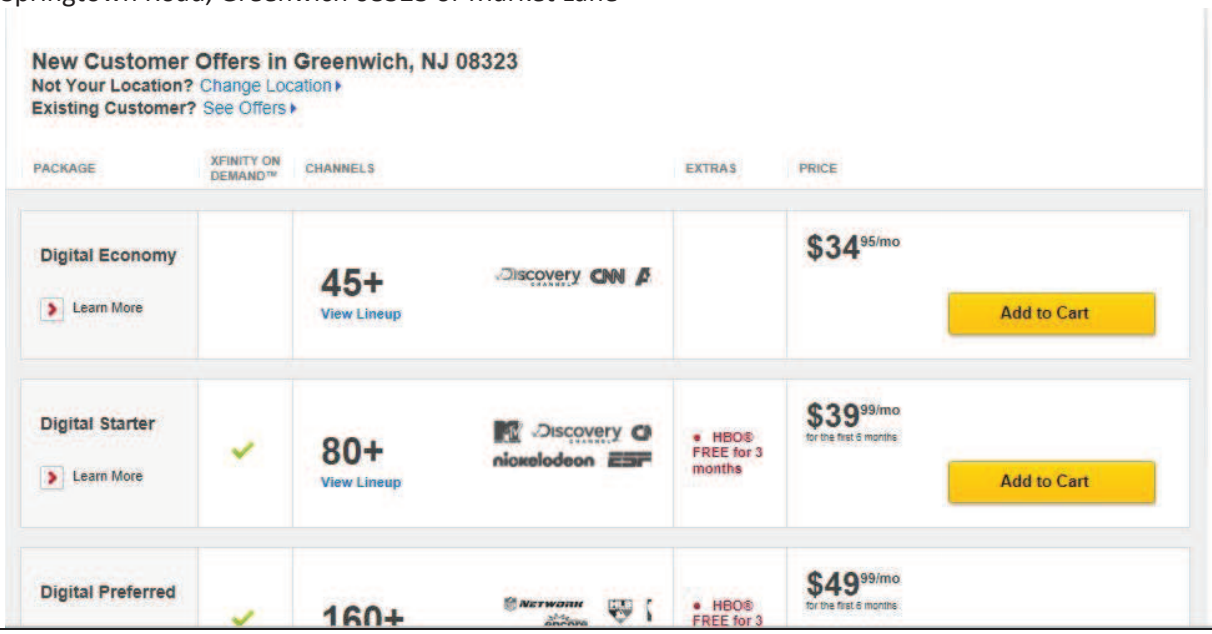
General:

The NTIA's definition of available broadband coverage is that it could be delivered by a service provider within 7 – 10 business days. The geographic granularity for availability is Census Blocks (if the CB is less than 2 square miles) or road segments (only for CBs greater than 2 square miles). Hence, the map is accurate provided that the service provider could provide the stated type and speeds of broadband within the time interval to at least one address in the CB or road segment. One way to validate the broadband availability data is to spot check service providers' consumer websites; that is, enter an address and see if the provider confirms the available service and speeds at that address. Note that the speeds offered are the maximum advertised downstream speed and the maximum advertised upstream speed.

Comcast:

Comcast's public-facing website appears to be keying off of the Greenwich municipality name and zip code, rather than the specific address per se. For the road segment indicated below, the website does show the availability of several service offerings.

Springtown Road, Greenwich 08323 or Market Lane



Appendix H: CAI Confidence Level Estimation

Author: Diane Duffy **June 18, 2013**

CAI Confidence Level Estimation

Background

The objective in developing a data confidence scale is to provide an estimation of the underlying confidence we have in the broadband data elements of our submission. The methodology and results of data confidence for New Jersey's provider data were described in an earlier document. Three main factors were laid out in that document for determining data confidence – Source, Currency and Verification. This document describes the methodology for the confidence level assessment for New Jersey's CAI data. A similar set of factors were used for the CAI assessment – source of the data, currency and verification. We applied the methodology to the April 2013 submitted CAI data which resulted in a confidence level between 1 and 5 assigned to each CAI record. NOTE: The focus of data confidence is those CAI records for which we have broadband information. For records with broadband Unknown, we set the data confidence to NULL.

Data Confidence Based on the Source of Broadband Data

We have received CAI broadband data from a variety of sources that have inherently different levels of integrity. Some of the data were received directly from the providers of the broadband service to the CAIs, e.g. NJEdge, JerseyConnect. Such data is intrinsically of high quality as the providers accurately track and manage the broadband service which they deliver. For these records, assuming that the broadband data is up-to-date, we assigned a high confidence number of 5 and did not subject the confidence level to further analysis. We received other broadband data as a result of surveys, such as the survey conducted by the NJ DOE and the data from NJ BBMAP website. The broadband data from the surveys is inherently less accurate and so these records were assigned lower initial confidence levels and then adjusted upwards and downwards based on the currency of the data and on validation against provider broadband data as described below.

Data Confidence Based on Currency of Broadband Data

We also considered how up-to-date the submitted broadband data were as a measure of data confidence. The older the data, the less confidence we have in its accuracy. For example, the Verizon circuit data for New Jersey government institutions, while of high quality when it was first submitted, was given a low confidence level of 1 because the broadband data has not been updated. By this criteria as well, the records from the NJEdge and JerseyConnect datasets scored high as they were updated during the last submission cycle in April 2013. The survey data varied with respect to this attribute as the DOE data was newly collected, whereas some of the other survey data records are much older.

Data Confidence Based on Broadband Data Validation

We performed two kinds of validation on the CAI broadband data: First, was a series of internal consistency checks on the reported technology and speeds. If there was a mismatch amongst the technology and speeds, we reduced the confidence level on that institution's data. Secondly, since we have data on the broadband providers listed by many CAIs, we validated the CAI broadband data against the provider data for the corresponding census block or road segment as follows:

1. Does the provider listed by the CAI offer service in the Census Block or Road Segment that the CAI is located in?
2. Does the technology listed by the CAI match the technology offered by the provider in the Census Block or Road Segment?
3. Do the speeds listed by the CAI fall within the range of provider's offerings in the Census Block or Road Segment?

The confidence level is incremented or decremented as described below based on these validations.

Procedure for Confidence Level Estimation for CAIs

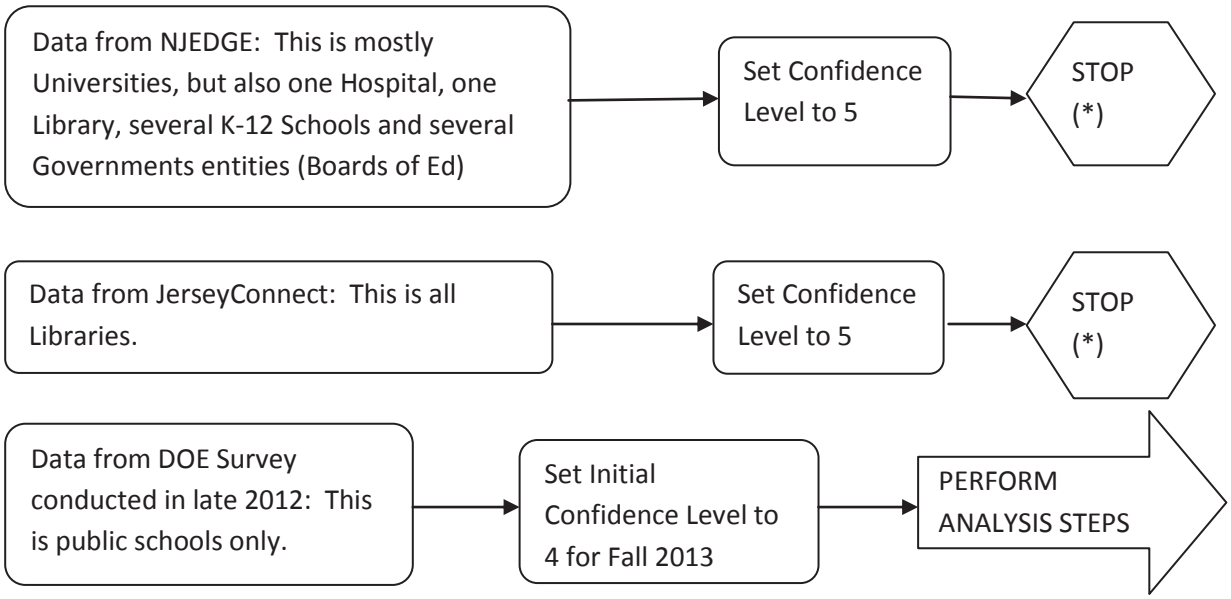
The steps described in this section are performed in sequence.

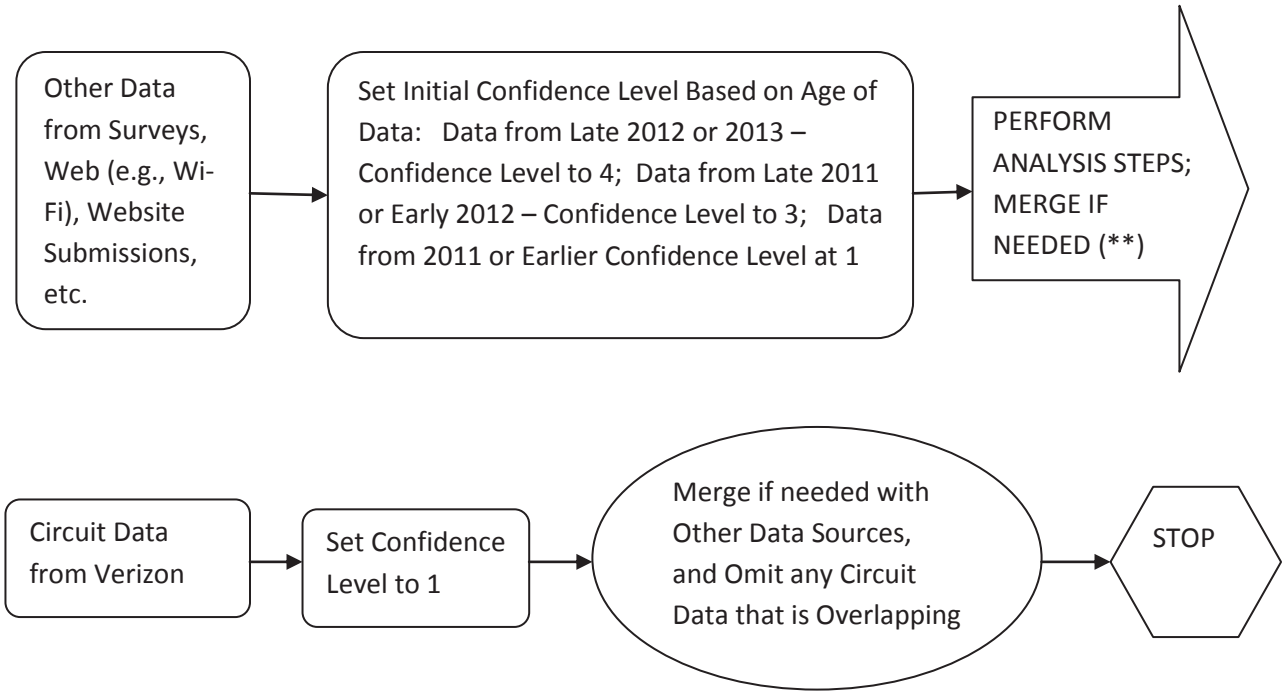
Initial Confidence Level Based on Broadband Data Source and Currency

CAI records with Broadband Indicator Unknown → Set Confidence Level to Null; No Further Processing

CAI records with Broadband Indicator N (No) → Set Confidence Level to Three; No Further Processing

CAI records with Broadband Indicator Y (Yes) – Process as below:





(*) If there are anomalous findings, we will need to decrease confidence for those specific records.
(**) If there is data from these sources which overlaps with data from NJEDge, JerseyConnect or the DOE survey, we will use the latter sources, with the exception of the Public Wi-Fi indicator field.

CAI Validation of Technology and Speeds

The rules in the table were checked to determine if there are intrinsic discrepancies between the technology and the upstream and downstream speeds. The records with invalid technology and/or speed are identified and their confidence level is subsequently reduced.

Case #	Case Description	Resolution
1	SubscrbDown is missing	Set SubscrbDown to “ZZ”
2	SubscrbUp is missing	Set SubscrbUp to “ZZ”
3	SubscrbDown or SubscrbUp is 0	Treat same as missing speed
4	Transtech = 20 (Symmetric DSL), SubcrbDown ≠ SubscrbUp	Set Transtech to -9999 and up and down speeds to “ZZ”
5	Down speed is in the range <2..11>, but doesn’t match Transtech value as defined in NTIA rules (from Mike)	Set down speed to “ZZ”
6	Up speed is in the range <2..11>, but doesn’t match Transtech value as defined in NTIA rules	Set up speed to “ZZ”
7	Up and down speeds are in the range <2..11>, but both don’t match Transtech value as defined in NTIA rules	Set transtech to -9999 and up and down speeds to “ZZ”

CAI Data Analysis Verified Against Provider Data

Records come in to this series of steps with initial Confidence Levels of 1, 2, 3 or 4. Follow the steps below for comparison with provider data.

1. If the Confidence Level is 1 and there is NO match on the provider for that Census Block or Road Segment (including no provider), then STOP.

2. If the Confidence Level is 2 or greater and there is NO match on the provider for that Census Block or Road Segment (including no provider), then decrease the Confidence Level by one. STOP.

3. If there is a Match on the provider for that Census Block or Road Segment, Confidence Level incremented by 1. Continue.

4. If Technology and/or Speed are invalid as determined by earlier validation, decrement confidence by 1. STOP.

5. If Technology and/or Speed are valid as determined by earlier validation, and Confidence Level less than 5, and Technology matches provider's offering for Census Block or Road Segment and Speeds are within range of provider offerings, then increase the Confidence Level by 1. STOP.

6. If Technology and/or Speed are valid, and Confidence Level greater than 1, but the technology and speed values are not within range of provider offering (that, is they are not <= MADS and MAUS, respectively), then decrease the Confidence Level by 1. STOP.

Results of Calculating Confidence Levels on CAI Data Submitted in April 2013

Table of statistics from calculation of confidence levels

Total number of records	15707	Notes
# of bbservice = U	11245	Records without broadband information; Data confidence is set to NULL.
# of bbservice = Y	4459	Focus of the data confidence estimation.
# of bbservice = N	3	Data confidence is set to 3 (middle value).
# of provider_name = 'JERSEYCONNECT'	67	
# of provider_name = 'NJEDGE'	41	
# of circuit data from Verizon	1692	
# of invalid_tech_speed = 1	488	Records with an inherent inconsistency in the reported broadband technology and speeds.

# of provider name matched	3577	
# of provider name not matched	825	
# of provider name of null value	11305	
# of records where there is a match on the provider for census blocks or road segment	3259	
# of records where there is a match on the provider and technology for census blocks or road segment	806	
# of records where there is a match on the provider, technology, and speed values (<=MADS and <=MAUS) for census blocks or road segment	256	

Final Counts of Estimated Data Confidence for CAI Records

confidence_scale	**counts**	**Notes**
1	1835	Lowest confidence level; most of these records are from Verizon circuit data.
2	100	
3	773	
4	1563	
5	191	Highest confidence level; data from NJEDge, JerseyConnect, and survey data that is current and validated.
null	11245	No confidence estimated; most of these are records are ones with no broadband information.

Appendix I – End User Category Estimation

We obtained Land Use / Land Cover data from the State of New Jersey. This data was mapped to NTIA End User categories according to the following spreadsheet.

Table 1. Mapping of Land Cover to NTIA End User Codes.

Note on NTIA End User Category Guidance:

End User Code 1: The category of end users to which broadband is made available by each broadband provider in the the census block or road segment is primarily residential.

End User Code 2: The category of end users to which broadband is made available by each broadband provider in the the census block or road segment is not primarily residential.

End User Code 5: The category of end users to which broadband is made available by each broadband provider in the census block or road segment does not distinguish between primarily residential and not primarily residential.

End User Code BLANK: Not Known.

LU 07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
1110	RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING	URBAN	6083	1	
1120	RESIDENTIAL, SINGLE UNIT, MEDIUM DENSITY	URBAN	9194	1	
1130	RESIDENTIAL, SINGLE UNIT, LOW DENSITY	URBAN	21927	1	
1140	RESIDENTIAL, RURAL, SINGLE UNIT	URBAN	50823	1	
1150	MIXED RESIDENTIAL	URBAN	41	1	
1200	COMMERCIAL/SERVICES	URBAN	21276	2	
1211	MILITARY INSTALLATIONS	URBAN	513	2	
1214	NO LONGER MILITARY	URBAN	14	5	Could be res or non-res
1300	INDUSTRIAL	URBAN	6309	2	
1400	TRANSPORTATION/COMMUNICATION/UTILITIES	URBAN	7205	2	
1410	MAJOR ROADWAY	URBAN	475		
1411	MIXED TRANSPORTATION CORRIDOR OVERLAP AREA	URBAN	255		
1419	BRIDGE OVER WATER	WATER	3047		
1420	RAILROADS	URBAN	598	2	Treat like airport
1440	AIRPORT FACILITIES	URBAN	145	2	
1461	WETLAND RIGHTS-OF-WAY	WETLANDS	2885		
1462	UPLAND RIGHTS-OF-WAY DEVELOPED	URBAN	626	5	Since it's developed
1463	UPLAND RIGHTS-OF-WAY UNDEVELOPED	URBAN	3439		
1499	STORMWATER BASIN	URBAN	7392		
1500	INDUSTRIAL AND COMMERCIAL COMPLEXES	URBAN	123	2	
1600	MIXED URBAN OR BUILT-UP LAND	URBAN	841	5	Built up but mixed

1700	OTHER URBAN OR BUILT-UP LAND	URBAN	23995	5	Built-up but other
1710	CEMETERY	URBAN	987	2	
1711	CEMETERY ON WETLAND	WETLANDS	58	2	
1741	PHRAGMITES DOMINATE URBAN AREA	URBAN	70	5	1741 isn't going to have any buildings in it
1750	MANAGED WETLAND IN MAINTAINED LAWN GREENSPACE	WETLANDS	2734		
1800	RECREATIONAL LAND	URBAN	7516	2	
1804	ATHLETIC FIELDS (SCHOOLS)	URBAN	2084	5	1804 isn't going to have any buildings in it
1810	STADIUM, THEATERS, CULTURAL CENTERS AND ZOOS	URBAN	100	2	
1850	MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA	WETLANDS	1806	2	
2100	CROPLAND AND PASTURELAND	AGRICULTURE	18592	2	
2140	AGRICULTURAL WETLANDS (MODIFIED)	WETLANDS	14217	2	
2150	FORMER AGRICULTURAL WETLAND (BECOMING SHRUBBY, NOT BUILT-UP)	WETLANDS	1154		N/A since not built up
2200	ORCHARDS/VINEYARDS/NURSERIES/HORTICULTURAL AREAS	AGRICULTURE	4409	2	
2300	CONFINED FEEDING OPERATIONS	AGRICULTURE	172	2	
2400	OTHER AGRICULTURE	AGRICULTURE	10369	2	
4110	DECIDUOUS FOREST (10-50% CROWN CLOSURE)	FOREST	21764		
4120	DECIDUOUS FOREST (>50% CROWN CLOSURE)	FOREST	44064		
4210	CONIFEROUS FOREST (10-50% CROWN CLOSURE)	FOREST	6268		
4220	CONIFEROUS FOREST (>50% CROWN CLOSURE)	FOREST	15935		
4230	PLANTATION	FOREST	1072		
4311	MIXED FOREST (>50% CONIFEROUS WITH 10-50% CROWN CLOSURE)	FOREST	3304		
4312	MIXED FOREST (>50% CONIFEROUS WITH >50% CROWN CLOSURE)	FOREST	14256		
4321	MIXED FOREST (>50% DECIDUOUS WITH 10-50% CROWN CLOSURE)	FOREST	4106		
4322	MIXED FOREST (>50% DECIDUOUS WITH >50% CROWN CLOSURE)	FOREST	15194		
4410	OLD FIELD (< 25% BRUSH COVERED)	FOREST	11366		
4411	PHRAGMITES DOMINATE OLD FIELD	FOREST	741		
4420	DECIDUOUS BRUSH/SHRUBLAND	FOREST	11889		
4430	CONIFEROUS BRUSH/SHRUBLAND	FOREST	6040		
4440	MIXED DECIDUOUS/CONIFEROUS BRUSH/SHRUBLAND	FOREST	12914		
4500	SEVERE BURNED UPLAND VEGETATION	FOREST	30		
5100	STREAMS AND CANALS	WATER	2753		
5190	EXPOSED FLATS	WATER	94		
52	NATURAL LAKES	WATER	2514		

00					
53 00	ARTIFICIAL LAKES	WATER	21114		
54 10	TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS	WATER	2143		
54 11	OPEN TIDAL BAYS	WATER	16		
54 20	DREDGED LAGOON	WATER	374		
54 30	ATLANTIC OCEAN	WATER	2		
61 11	SALINE MARSH (LOW MARSH)	WETLANDS	3154		
61 12	SALINE MARSH (HIGH MARSH)	WETLANDS	1223		
61 20	FRESHWATER TIDAL MARSHES	WETLANDS	1185		
61 30	VEGETATED DUNE COMMUNITIES	WETLANDS	334		
61 41	PHRAGMITES DOMINATE COASTAL WETLANDS	WETLANDS	3668		
62 10	DECIDUOUS WOODED WETLANDS	WETLANDS	45030		
62 20	CONIFEROUS WOODED WETLANDS	WETLANDS	9934		
62 21	ATLANTIC WHITE CEDAR WETLANDS	WETLANDS	3442		
62 31	DECIDUOUS SCRUB/SHRUB WETLANDS	WETLANDS	12606		
62 32	CONIFEROUS SCRUB/SHRUB WETLANDS	WETLANDS	1597		
62 33	MIXED SCRUB/SHRUB WETLANDS (DECIDUOUS DOM.)	WETLANDS	3609		
62 34	MIXED SCRUB/SHRUB WETLANDS (CONIFEROUS DOM.)	WETLANDS	2128		
62 40	HERBACEOUS WETLANDS	WETLANDS	8245		
62 41	PHRAGMITES DOMINATE INTERIOR WETLANDS	WETLANDS	2970		
62 51	MIXED WOODED WETLANDS (DECIDUOUS DOM.)	WETLANDS	8050		
62 52	MIXED WOODED WETLANDS (CONIFEROUS DOM.)	WETLANDS	8445		
62 90	UNVEGETATED FLATS	WETLANDS	99		
65 00	SEVERE BURNED WETLAND VEGETATION	WETLANDS	14		
71 00	BEACHES	BARREN LAND	415		
72 00	BARE EXPOSED ROCK, ROCK SLIDES, ETC	BARREN LAND	153		
73 00	EXTRACTIVE MINING	BARREN LAND	773	2	
74 00	ALTERED LANDS	BARREN LAND	736		
74 30	DISTURBED WETLANDS (MODIFIED)	WETLANDS	4076		
75 00	TRANSITIONAL AREAS	BARREN LAND	2787		
76 00	UNDIFFERENTIATED BARREN LANDS	BARREN LAND	159		
	Total		55425 9		

Based upon the mapping defined above, analysis was performed to estimate End User Category for Census Block and Road Segment geometries. The processing steps for each type of geometry are described below.

Table 2. Summary of Data Processing Steps for End User Category Estimation of Census Block Geometry.

Step	Description	Output	Comments
1	Download 20 zipped shape files and merge them into a single table, called LULC	856,381 records	http://www.nj.gov/dep/gis/lulc07cshp.html
2	Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records	554,259 records	
3	Map the values of LU07 to the end_user_category column using the mapping information	End_user_cat / Count 1 / 88,068 2 / 95,168 5 / 27,630 unknown / 343,393	
4	Dissolve the LULC table based on the end_user_category column	156,043 records	
	# of records in the Census Block (CB) table	169,588 records	
5	Union the CB table and LULC table	542,599 records	
6	Create a frequency table from the union table: Frequency fields: CB_ID and end_user_category Summary field: area	345,913 records	
7	Choose the end_user_category of the largest area in each CB	169,588 records End_user_cat / Count 1 / 80,699 2 / 21,381 5 / 1,384 Unknown / 66,154	6 census blocks are not covered by LULC at all. Set the end_user_cateory to unknown.

Table 3. Summary of Data Processing Steps for End User Category Estimation of Street Segment Geometry.

Step	Description	Output	Comments
1	Download 20 zipped shape files and merge them into a single table, called LULC	856,381 records	http://www.nj.gov/dep/gis/lulc07cshp.html
2	Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records	554,259 records	Same as the case for census block
3	Map the values of LU07 to the end_user_category column using the mapping information	End_user_cat / Count 1 / 88,068 2 / 95,168 5 / 27,630 unknown / 343,393	Same as the case for census block
4	Dissolve the LULC table based on the end_user_category column	156,043 records	Same as the case for census block
	# of records in road segment (RS) table in large census blocks	6,007 records	
5	Identity the RS table and LULC table	11,634 records	
6	Create a frequency table from the identity table: Frequency fields: TLID and end_user_category Summary field: length	9,830 records	
7	Choose the end_user_category of the largest area in each RS	6,007 records End_user_cat / Count 1 / 1,330 2 / 716 5 / 150 Unknown / 3,811	3 streets are not covered by LULC at all. Set the end_user_cateory to unknown.

Appendix J – USAC E-rate Data Processing

August, 2013 **Contact: D E Duffy**

NJBBM Libraries: NJ USAC data kindly provided by Tabitha Hunter of Florida

Spreadsheet NJ 471s. Initial processing steps:

1. **Sort Priority1 tab by Column BJ, Name of Eligible Entity.**
2. **Remove school only rows.**
3. **From remaining rows, determine if any have non-zero entries in Columns AZ – BG. These are the columns that count Libraries with downspeed access by speed tiers.**
4. **Remove rows that do not have any non-zero entries in Columns AZ – BG.**
5. **Remove duplicate rows based on Name of Eligible Entity.**
6. **Keep the lowest sped tier with a non-zero entry.**

Field Name	Source of Data	E-Rate Notes	Source File/tab
Anchorname	IMLS list cross-referenced with ERate entity	"Eligible Entity" from 471; there are multiple eligible entities per ERate application	'Name of Eligible Entity ' column
Address	From IMLS data	Cannot get anchor address from 471s. Single billing address per application; does not correspond to anchors.	Note: Some applications have just one building / address in which case it can be used to verify.
City	From IMLS data	See above for Address.	
Zip	From IMLS data	See above for Address.	
Lat/long	From IMLS data	See above for Address.	
CAI ID	From IMLS data	Check if NCES ID in 471 matches? If it does then that can be used as key to cross-reference lists. Else use Name of Eligible Entity to match with IMLS list and get CAI ID.	
bbservice	E-rate data scraped from forms. Analysis of Columns AZ through BG.	As long as there is a non-zero entry in one of columns BA thru BG, this is Yes.	See NOTE5 below.
transtech	N/A		
Down speed	E-rate data scraped from forms. Analysis of Columns BA through BG.	Take lowest speed tier with a non-zero entry in columns BA thru BG.	NJ 471/ Priority1. Use the lowest speed that has a non-zero value in the 'Libraries - Number of Buildings Served with Download Speed into the Building of => x kbps and

			< y mbps
Up speed	Infer based on downspeed and typical pairings	Upspeed not available.	Create table for inference; e.g., downspeed for 10-25 Mbps goes with upspeed of 3-5 Mbps (?).

QUESTIONS:

1. Would Tabitha advise that we use the Formatted tab or the Priority1 tab?
   Priority1 funding is the class used for services, including broadband. The Formatted tab includes both Priority1 and Priority2 funding requests. Priority2 is fundamentally equipment and it only gets funding if/after all the Priority1 funding requests are met. Hence the Priority1 tab is the one we should use.
2. Does Florida leave transmission technology blank? Yes.
3. Does Florida infer upspeed or leave it blank? If you infer, what rules do you use? FL leaves up-speed blank but agrees that our proposal to conservatively infer this information based on typical asymmetric service speeds is reasonable and appropriate.
4. We note all the different identifiers – Form 470 Application Number, FRN, SPIN, etc. – which we don't understand. Please confirm we can ignore these.
   Yes, we can ignore them. Here is a bit more information. Entity numbers are unique to each location and do not change. FL manually built a table that associated USAC entity numbesr to IMLS / NECS reference data but this was a significant amount of work. FRN = funding request number. SPIN = service provider ID number and these are relatively constant even with name changes on the part of providers.
5. What is the specific logic for associating broadband connection speeds with the categories of services (e.g., Column DV) – Internet Access, Telecommunication Service, Basic Maintenance and Internal Connection. If you have any available write-up or summary for how this item is determined, we'd be grateful for a copy.
   Broadband connection speeds are not associated with the category of service. Instead the relevant processing is as we defined it; namely, to use the lowest non-zero speed from columns AZ-BG.

NOTE: We have reviewed the NJ DRT Download 2012 application file. Almost all applications are funded. We propose to do the following processing based on the three entities with NOT FUNDED (in Column P of the NJ DRT Download 2012 application file):

A. No submission for Torah Anytime.com
B. Haddon Heights Public Library (Rows 88 and 89 of NJ DRT Download 2012 application) – Process as usual as Columns BD and BG have non-zero entries so this will get speed from BD.
C. Camden County Library System (Row 53 of NJ DRT Download 2012 application) – Process as usual as Column BE and BG has a non-zero entry.

NOTE: When an entity applies for Erate funding, it must have a contract number for the services for which it is requesting financial assistance. Hence the logic of assuming that entities that apply for funding have service is sound.

FL suggests that we encourage the NTIA to improve coordination with the FCC, as the FCC eRate program has data on broadband to CAIs which is currently not available to grantees.