New Jersey Broadband Mapping Project:

Methodology Report on Data Integration and Validation Procedures for April 2014 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 multiple files, one 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 2011 data 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 the application of the data confidence methodology to provider data from the Fall 2012 submission.
- 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. It has been updated to describe our wireless speed test app and report initial analysis of some results we have obtained with it.
- Appendix G: Study of Discrepancy on Comcast Service in Cumberland and Atlantic Counties

2 Data Outreach

2.1 Provider Data Outreach

Applied Communication Sciences and NJ-OIT have conducted outreach both to providers who have participated in the past and to newly identified providers. With existing providers, we highlight the benefits of continued participation and look to leverage their previously submitted data to make the process as easy as possible. With potential new providers, we begin by investigating their service offerings and coverage areas on their Web sites, providing us with background information for our interactions. In our email and telephone exchanges, we highlight the advantages of being present on the national and state broadband maps and provide multiple options for data submission.

The vast majority of providers who had participated in the past were willing to participate again. The large national providers clearly have processes in place to collect and submit data and these continue to function smoothly. Some small providers expressed concerns about the burdens of the data collection process. 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; another provided a copy of their most recent FCC Form 477. The option of confirming that previously submitted data still accurately represents the technology, speed and coverage of their service offerings has given these providers another, less onerous means of participation. We elected to remove data for Appia Communications from our submission, after not having received any response to our requests for new data or confirmation of the accuracy of the previously submitted data for over two years.

- We contacted 42 organizations that were potential or known service providers, via email, postings to their Web site and/or telephone calls, broken down as follows:
  - 32 facilities-based providers who had contributed data in the Fall 2013 round;
  - Ten service providers with new FRNs to deliver broadband service in NJ and/or who already provide in neighboring states (more on these below).
- We are submitting data for 33 providers. (Note that AT&T and Cablevision each provided data for two FRN's, so there are 35 distinct FRNs in our submission.) This list includes all but two of the providers for whom we submitted data in the Fall 2013 round.
  - 21 providers submitted new/revised data for this round. For the remaining twelve providers we are reusing previously submitted data.
  - Two providers failed to respond to repeated contact attempts via email and phone, but had submitted data during previous rounds.
    - We elected to omit legacy data for Appia Communications (formerly known as NetLogic/Voxitas).
    - We included information for Jersey Shore Wireless/Duxpond Communications based on our observation that maps and advertisements published on their website suggest that their service areas, technologies and speeds have not changed since the Fall 2012 submission.
  - Clearwire reported that with the merger with Sprint complete, they would not submit separate data; their capabilities would be incorporated in the Sprint submission.
- Among these 33 providers:
  - Seven reported offering wireless data services in NJ.
    - AT&T
    - 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, four reported offering satellite data services in NJ.
        - Hughes Network Systems
        - Skycasters, LLC
        - StarBand Communications
        - ViaSat, Inc.
    - Seven reported offering cable data services in regions of NJ.
        - Comcast
        - CSC (Cablevision/Lightpath)
        - Fiber Technologies Networks
        - Service Electric of Hunterdon
        - Service Electric of Sparta
        - Time Warner
        - Zayo Bandwidth
    - One of the 33 providers might be considered candidates for "setting-aside" in future submissions:
        - Network Billing Systems only provides middle-mile service.
    - As with the Fall 2013 submission, one known New Jersey provider indicated they no longer wished to submit data.
        - New Edge/OneCommunications/EarthLink responded with email saying they did not believe the data they had was complete or accurate enough for submission.
- We identified ten organizations with FRNs associated with New Jersey and investigated to determine if they are actually providing service in the state. We investigated these companies via their Web sites. We attempted to contact these organizations multiple times via email, telephone and/or through postings on their Web sites. In addition, we reached out through our regional sharing group consisting of local states (PA, VA, MD, WV, DE, etc.) to identify appropriate contacts within these organizations.
    - We had direct interactions with three: Access One, Meriplex and Light Tower submitted data that are included in this submission.
    - Five others (DishNet, Intelletrace, LightEdge, Signal Point and Truphone) did not respond to multiple requests.
    - We determined that PNG Telecommunications only offers speeds up to 56 Kbps.
    - We determined that HNS is a subsidiary of Hughes, who is already participating.
- We have previously disqualified the following organizations for the 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).
    - *Four companies not providing service in New Jersey:* Broadstar, 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.
    - *None of the following have 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, 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 NJOIT used a variety of means to collect Community Anchor institution data. We updated our reference data for healthcare, libraries, schools, and universities. 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 four sources:

- a list of New Jersey libraries that connect to the JerseyConnect broadband service from the New Jersey State Library, along with the connection speed associated with each location;

- broadband data from a survey conducted in late 2013 under the auspices of the State Library Association;
- broadband data from the Libraries of Middlesex Automation Consortium and;
- 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 K-12 schools, we used the following data sources:

- Lists of schools from the NCES (National Center for Education Statistics)
- Directories of charter schools from the State of New Jersey
- NJ DOE survey data from 2012, collected via a survey vehicle that included items directly relevant to this broadband program
- NJ DOE survey data from 2014, collected via an NJ-Trax survey vehicle
- Submissions from our website

For each CAI category, the following table provides the total number of geo-located records we submitted and the number of complete records with broadband access information, consisting, at a minimum, of downstream speed.

Table 1: Summary of CAI Submission

CAI Category	Complete Records	Total Records
School K-12	2657	3921
Libraries	227	468
Medical/Healthcare	4	10146
Public Safety	69	374
University	40	168
Other – State and Local Government	1692	1696
Other – Non Government	8	8

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 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.

NJOIT executives have worked through state-level contacts in public safety, education and libraries, etc., to collect data. This has resulted in updated information on school broadband access from the NJ Department of Education and broadband information for libraries from a NJOIT survey.

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

- Some institutions provide information on multiple connections to the internet, each with its own technology of transmission and maximum speeds. We were able to confirm that in certain cases, these were intentional, redundant connections. (Some institutions implemented these redundant connections after Hurricane Sandy for robustness.) We requested guidance on handling this from NTIA and were instructed to submit only one connection (that with the highest speed) per location.

- 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.
- Some institutions use shared services, shared infrastructure, and/or shared facilities. For example, schools may get broadband services through a district-level service; a school campus may include within one complex, a middle school, a high school, and a school-within-a-school for students with disabilities, each of which has their own NCED CAI ID.
- 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 a new provider data report, leveraging report from previous submission where possible.
6. Connect to the PostgreSQL database and instantiate a schema for the provider.
7. Perform an evaluation of the submitted data, assessing the completeness of the submission and the reasonableness of the included values. Where possible, manually review data in light of NTIA validations to identify potential errors or warnings early in the process. 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. Processing of data from wireline providers who submit census block data is also straightforward. Some cable providers provide coverage as a list the municipalities which they serve. A number of smaller providers submit lists of addresses corresponding to locations where they currently 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. We use Web-available geocoding services from Google and Yahoo to convert addresses into latitude/longitude. We use the services sequentially, using Google first and then submitting any addresses with low accuracy results to Yahoo. These point locations are then mapped to census blocks or road segments using ESRI tools. 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, which may or may not reflect the maximum advertised speed. Our decision was to report the maximum customer speeds encountered in any census block as the maximum advertised fields and to report typical speed 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 a defined set of specific addresses. They deliver services to those specific addresses, and could presumably 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 necessarily deliver service to any neighboring location within 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 using the municipality 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.
- We implemented a modification of this process for the Comcast, who has repeatedly submitted street-segment data that we could not accurately match to TigerLine data. In this submission, we used the maximum/minimum street number information they supplied to identify addresses at the end-points and mid-point of each street segment. We geo-coded these three addresses per

segment and then identified any TigerLine segments within 200 feet of those points. Those TigerLines were then included in the submission.

- 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 providers who submitted using census blocks used 2010 Census Blocks (CBs).
- Starting with the Fall 2013 submission, the NTIA requested submission of End User Category data for both wireline and wireless service providers. Many NJ providers do not distinguish (or find it difficult to distinguish) residential from business users, so preferred to assign “Other” to their data. A few others provided a single code, e.g., “Residential”, for all of their service areas. Still others did not submit any end user categorization. For these, we used a methodology that employed statewide land use data supplied by NJOIT to interpolate the likely end user categorization for service areas. We felt that this approach did a better job of classifying the census blocks than making an assignment based on the general expectation of a provider’s customer base. Details on this process are provided in Appendix I.

5 Validation and Verification Operations

In addition to the validation and verification procedures we normally apply to each submission, as described below and previously reported, we attempt to provide additional feedback to service providers to enhance the quality of the submitted data. 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 2014 submission, we provided feedback to some service providers based on our donut hole analysis of the Fall 2013 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 2014 submission. We also provided feedback to select providers based on input analysis from constituents in South Jersey regarding specific challenges in their region.

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 associated provider 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.
- 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. These cases led to the "doughnut hole" analysis we have used to validate provider data.
- T-Mobile submits wireless coverage data that provided one of the more interesting validation issues. T-Mobile provided separate information about several different varieties of wireless technologies, each of which supports broadband data services[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 the various technologies. We then submitted one shape for each technology.

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. Additional business rules were applied in validations beyond those in the NTIA script, as described below.

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

[1] T-Mobile submitted information on UMTS, HSPA21 (i.e., HSPA) and HSPA42 (i.e., HSPA+). 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.

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
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
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
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
Wireless	Check (dbaname, provname, frn) against our FRN reference table Shape should not be empty

5.2 Verification through Gap Analysis of Neighboring Census Blocks

We have continued to assess coverage in the latest data using gap or what we call “gap” or “doughnut 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 Fall 2013 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 investigation indicated that a number of these instances occurred in 'gaps' or 'holes' in submitted provider coverage data. One way to define a hole is that it is a single census block that is not in the stated provider coverage area when all surrounding census blocks are in the stated coverage area. Our investigations of these simple holes showed that some are associated with zero-population census blocks – e.g., a census block that comprises a strip of land neighboring a major roadway. Other holes, however, appear to be anomalies in service provider data.

The next figure shows an example of a hole in the Cablevision Lightpath data from East Hanover, NJ.

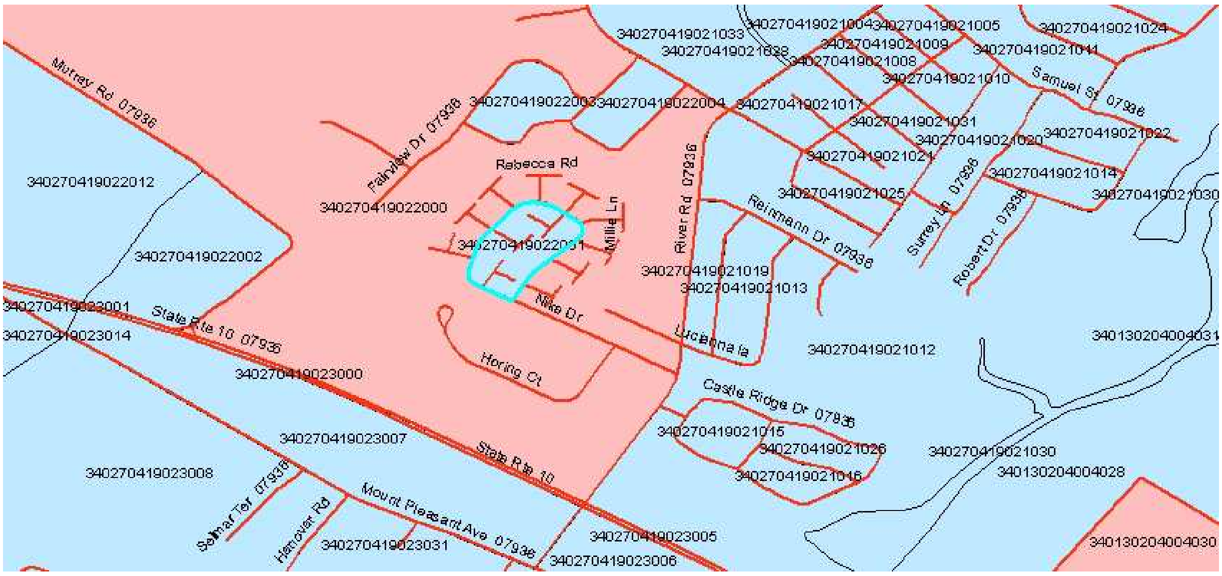


Figure 1: Detailed view of "Doughnut Holes" in coverage

Our analysis of the 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. We are seeing some improvement in the results with this analysis. For example, we had identified almost 250 holes for Cablevision (including Lightpath) in previous rounds, but that was down to 129 in the Fall 2013 submission. In some cases, the process has identified changes in the other direction: Verizon had completely eliminated such holes in the Fall 2012 submission, but had over 1300 in the Fall 2013 submission.

We continue to work with providers on this issue. For the providers where we identified such holes in the data they submitted for the Fall 2013 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 data for the Spring 2014 round.

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) inform providers of 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	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,

	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.	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	No explanation offered

	tier 2. Possibly understating your upstream speed?	
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 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).

In this round, we updated our confidence assessment process in two ways:

- We added checks for outliers, looking for unusual combinations of speed and technology
- This was motivated by an NTIA inquiry regarding a combination of Fiber technology with a low speed connection reported in the Fall 2013 submission for a few CAIs.
- We added checks against provider’s technology that providers reported as part of their Subscriber Weighted Nominal Speed.
- This was motivated by interactions with providers over apparent discrepancies between their census block coverage and their SWNS. The providers indicated that in certain cases, SWNS,

which is based on existing customers, includes technologies and speeds that may not be part of current offerings and/or could not be delivered in the 7-10 day window.

5.5 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 Speedtest and other technologies. 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. With standardized speed tests, that are both geo-located 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). We have deployed this speed test service in 2013 for limited testing.

We have also created and provisionally deployed a wireless speed test app that runs on Android devices. Details are described in Appendix F. The app has so far been used for limited, friendly-user testing.

5.6 Resident Feedback and Provider Data Discrepancy Analysis

Two objectives of the SBI are to empower citizens by providing more information about broadband services available and identifying non-served or under-served areas. 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 case study that nicely illustrates how residents' feedback can foster greater customer-provider interactions. In May of 2013, residents challenged Comcast's 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 those residents, noting that 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 21 the appropriate changes to their data. They agreed to the latter remedy. Moreover, in our data requests for the Fall 2013 submission and submissions thereafter, we have 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.

The data submitted by Comcast for the Spring 2014 submission again included census blocks in these un-served regions. Comcast confirmed via email that they do not offer service in those communities and the census blocks were removed prior to submission. Updated analysis of reported coverage in these areas is included in Appendix G.

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 submit data from a 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. In a previous round, we had 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. They publish these maps on their Web site to inform potential customers of their coverage areas and we verified for the Spring 2014 that they were still using the same maps and advertising the same speeds.

6.2 Process Verification

We previously 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 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 – UPDATE

The following table describes the warnings we received from the validation script and provides our explanations for submitting these values.

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 7,156 census blocks and 1,791 street segments for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). *Resolution:* When we questioned these, the provider could not confirm those values, but asserted that all areas were covered with speeds exceeding 10 Mbps.
Comcast	(Responding NTIA guideline regarding Extreme 505 from XFINITY) *Issue:* Comcast has 74,936 census blocks and 1,214 street segments for the combination of a downstream speed code of 10 (100Mbps-1Gbps) and 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 shows that they do advertise a downstream speed of 105 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.
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 984 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 wireless shape records for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless) for LTE and HSPA42 services. *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.

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 10 - 25 mbps down and 3 - 6 mbps up. The typical speeds are provided as ranges: 6 - 10 Mbps down and 3 - 6 Mbps up. In earlier submissions, the maximum advertised downstream speed was 6 and the maximum advertised upstream speed was 5. Based on the email from Anne Neville data 2/21/2012, we modified the down speed to code 7 in eariler submissions. The current submission is consistent with the Anne Neville's view.
Warwick 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 and found two service offerings but no specific speeds cited. We sent a request for clarification to the provider. The provider acknowledged the validation requirements and confirmed the submitted speed values.
Xchange Telecom	*Issue:* We received warnings on 606 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 – UPDATE

The validation script produced 11,869 warnings on our CAI data for null 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.

This full list provides us with a target for our outreach efforts to these institutions. The set of "complete records", which include 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.

7 Appendix A: Provider Data Reports

Connecting New Jersey – Broadband Provider Data Report

Provider: AccessOne

Received: January, 2014

Submission date: April 2014

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	Access One, Inc.
	"Doing business as" name	Access One, Inc.
	FRN	0018602458
FOr wireline		
Filetypes	Excel Spreadsheet	
File size	49 KB, 808 locations specified	
Speeds	Type	Address Level Data
	Typical-upstream	N/A
	Typical-downstream	N/A
	Advertised-upstream	Multi-Gigabit
	Advertised-downstream	Multi-Gigabit
	Subscriber-weighted-nominal speed	N/A
Technology	Fiber and Other Copper	

Type	
End-user specification	Serving business customers
Comments: Access One is a RESELLER. Data they provided shows the address, speed and provider of the underlying service. Email submission indicates locations are either fiber or copper, but does not specify. We attempted to determine technology from data submitted. See email exchange below that describes process.	
Interconnection DATA	
ID	None
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

Received 808 records in Excel file by email:

Size	Name
49 KB	New Jersey Lit Buildings.xlsx

Section 4: Validations and Results

Section 5: Data Transformation and Loading

Submitted data included following fields:

- Address
- City

- State
- Zip (minus leading zero)
- Company
- Speed

Speeds were listed as “1.5mbs – MultiGig” or “5mbs – MultiGig”. Given that we are interested in maximum advertised speed, these are all over one gigabit per second.

The submitted information did not include the technology type. The provider indicated that sites were served by fiber and in some cases copper. Additional questions to the provider did not produce any further information, so the following process was used to determine the technology based on the four providers of the service:

1. Of the 294 locations listed as being served by Zayo, 220 were correlated to a list of sites that Zayo posted on their Web site as spots where they offer fiber service. Based on the high degree of correlation, all Zayo sites were assumed to be “Optical Carrier/Fiber to the End User” or transtech 50. (Zayo list available at http://zayofibersolutions.com/on-net-building-list.)
2. Exploration of Lightower Web site indicates that they only offer fiber services. Based on this, all the Lightower sites were assumed to be “Optical Carrier/Fiber to the End User” or transtech 50.
3. Investigation of data that XO submits to the mapping program showed that every location they serve has either xDSL or some other copper service. Given multi-gigabit per second speeds and the business nature of the service, DSL was ruled out. So, sites served by XO were assumed to be “Other Copper Wireline” or transtech 30.
4. The contact from AccessOne sampled the Verizon buildings and came up with optical in every case, so Verizon sites are optical, or transtech 50.

NTIA Table BB_Service_CensusBlock

The following table explains the transformations that were applied while loading the submitted data. There were 808 input records.

Table Column	Data Source / Transformation
PROVNAME	Set to “Access One, Inc.”
DBANAME	Same as provname
PROVIDER_TYPE	Set to 2
FRN	Set to “0018602458”
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	As supplied in column countyfips

TRACT	As supplied in column tract
BLOCKID	As supplied in column blockid
FULLFIPSID	As supplied in column geoid10
TRANSTECH	Computed as noted above
MAXADDOWN	Computed as noted above
MAXADUP	Computed as noted above
TYPICDOWN	Set to null, not supplied
TYPICUP	Set to null, not supplied
ENDUSERCAT	As described below
SHAPE	As supplied by reference data

Internal processing notes:

1. Dropped 393 duplicate records based on FULLFIPSID.
2. ProviderInput table data joined with njbbmap.refdata_2010.tl_2010_34_tabblock10_wgs.
3. Dropped one record due to joint_count not equal to 1.
4. All census blocks were confirmed to be less than 2 square miles.
5. 411 records were loaded into BB_Service_CensusBlock table.
6. 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 6: Clarification Questions and Responses

From: Stephen Driscoll
Sent: Thursday, January 23, 2014 12:02 PM
To: Wullert, John R II
Subject: RE: Access One Contact Information

John,

Sorry this has taken a bit, I have attached a spreadsheet with the underlying carrier and the available speeds at those addresses. As far as the technology goes they are all going to be either fiber and depending on the address an speed needed copper. We have hub and NNI agreements with all of these carriers so we can work on delivering the best most cost effective solution for the customer. Please let me know if this was long the lines of what you were looking for or if you need additional information.

From: Wullert, John R II
Sent: Thursday, January 23, 2014 1:27 PM
To: 'Stephen Driscoll'
Subject: RE: Access One Contact Information

Steve,

This is great. I have a few questions:

Is the speed information actually a range , where 5mbs-MultiGig means that you can support data rates between 5Mbps and 2+Gbps?

Is there some way that I can determine the technology at each site from the information you provided (e.g., are the sites with 1.5mbs-MultGig using copper or are all sites with Zayo using fiber?) (Our model requires that we have technology per locations.)

Would you classify yourself as a reseller? (It appears so from the provider column.)

Thanks,

John

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Thursday, January 30, 2014 3:23 PM
To: 'Stephen Driscoll'
Subject: RE: Access One Contact Information

Steve,

I have analyzed the data you submitted, and have been able to draw some conclusions that I wanted to run by you. You include services from four providers, and I think in three cases I can use that information to determine the technology:

I was able to correlate the vast majority of the locations you listed to a list of sites that Zayo posted on their Web site as spots where they offer fiber service. So, I think it is safe to assume that all the Zayo sites are fiber.

My exploration of Lightower indicates that they only offer fiber services, so I think I can assume that all the Lightower sites are also fiber.

XO submits data to us and every location they serve has either xDSL or some other copper service. I don't believe you are using DSL, so it all XO sites are "other copper" in the service categories that have been defined for use in this program.

I have not been able to draw any conclusions about the sites served by Verizon.

So, I have three questions. 1) Are the conclusions I described above reasonable? 2) Are you really delivering multi-gigabyte rates over copper at the XO sites? And 3) Can you provide me with some means to determine what technology Verizon is supplying at the various sites where they support your service?

Any information you can provide will help us accurately represent your capabilities on the National Broadband Map.

Thanks,

John Wullert

From: New Jersey Broadband Data Collection Program
[mailto:connectingnj@groups.appcomsci.com]
Sent: Wednesday, February 19, 2014 7:39 AM
To: Stephen Driscoll
Subject: RE: Access One Contact Information

Stephen,

I was wondering if you had been able to determine the status of your Verizon-served sites. If you concur, I think we can mark all the Zayo and Lightower sites as optical and the XO sites as other copper, so Verizon is the only question.

Thanks,

John

From: Stephen Driscoll [mailto:sdriscoll@accessoneinc.com]
Sent: Wednesday, February 19, 2014 10:04 AM
To: connectingnj@groups.appcomsci.com
Subject: RE: Access One Contact Information

John,

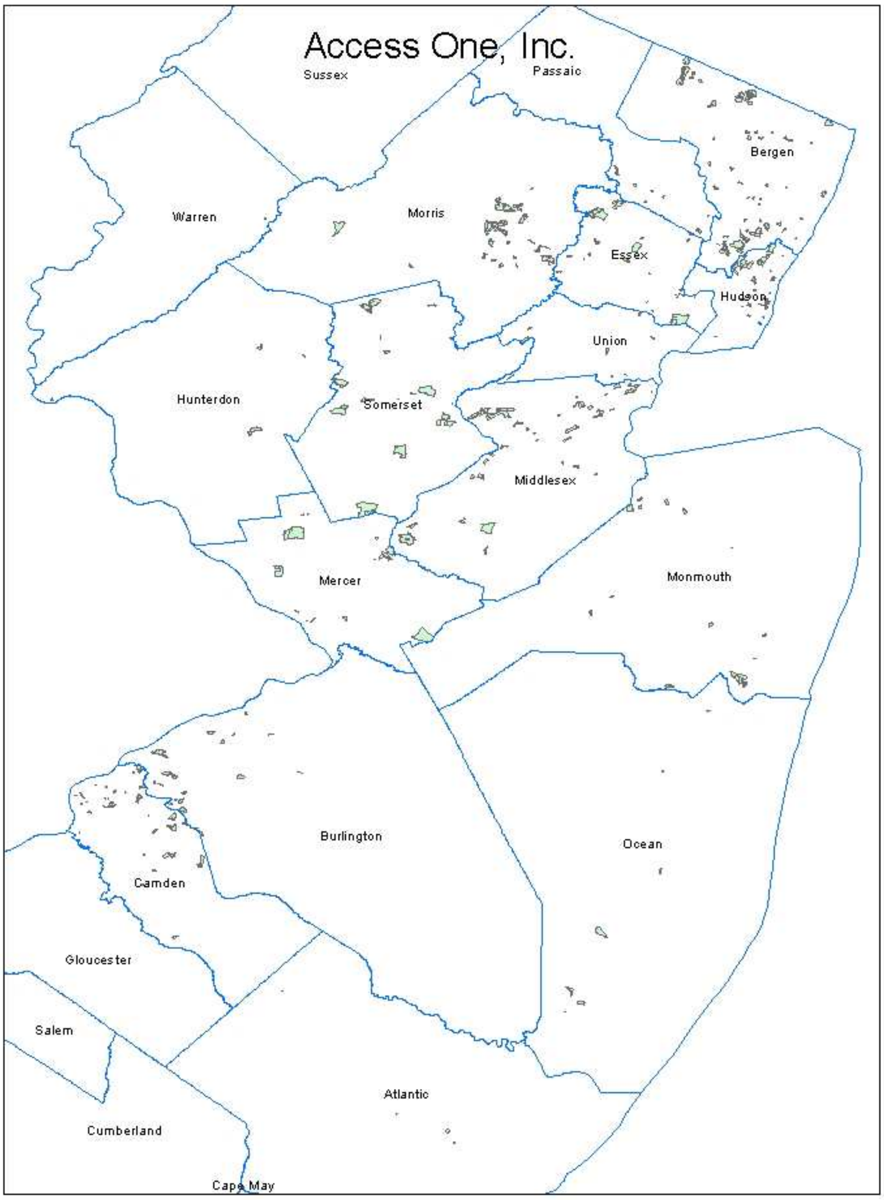
Sorry for the delay each building I have done so far is coming up with Verizon optical services so I think it is safe to say that is the only delivery we have with Verizon out there.

Stephen Driscoll

Senior Account Executive

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: AT&T Mobility LLC

Received: January 2014

Submission date: April 2014

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 Corp, Inc." with FRN 0004496774 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	Not provided

	typical		
	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			

Section 3: Submission File Details

Received files by SECURE UPLOAD:

Name	Size
ATT Router Locations December 2013 New Jersey.xlsx	9 KB
ATT_3G_Jan2014_NJ.DBF	1 KB
ATT_3G_Jan2014_NJ.PRJ	1 KB
ATT_3G_Jan2014_NJ.shp	2,263 KB
ATT_3G_Jan2014_NJ.SHX	1 KB
ATT_4GHSPAP_Jan2014_NJ.DBF	1 KB
ATT_4GHSPAP_Jan2014_NJ.PRJ	1 KB
ATT_4GHSPAP_Jan2014_NJ.shp	2,267 KB
ATT_4GHSPAP_Jan2014_NJ.SHX	1 KB
ATT_4GLTE_Jan2014_NJ.DBF	1 KB
ATT_4GLTE_Jan2014_NJ.PRJ	1 KB
ATT_4GLTE_Jan2014_NJ.shp	2,230 KB
ATT_4GLTE_Jan2014_NJ.SHX	1 KB
Mobility Response Template December 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:

1. 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.

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_Wireless

April 2013:

There are 3 shape files submitted. Different from the last submission where there is only one record per each shape file, UMTS, ATT_3G_Jan2014_NJ has 10 records, ATT_4GHSPAP_Jan2014_NJ has 9 records and ATT_4GLTE_Jan2014_NJ has 9 records.

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 Template December 2013.xlsx
FRN	Set to 0004979233
TRANSTECH	As supplied in file Mobility Response Template December 2013.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 December 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 “_dis”.
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

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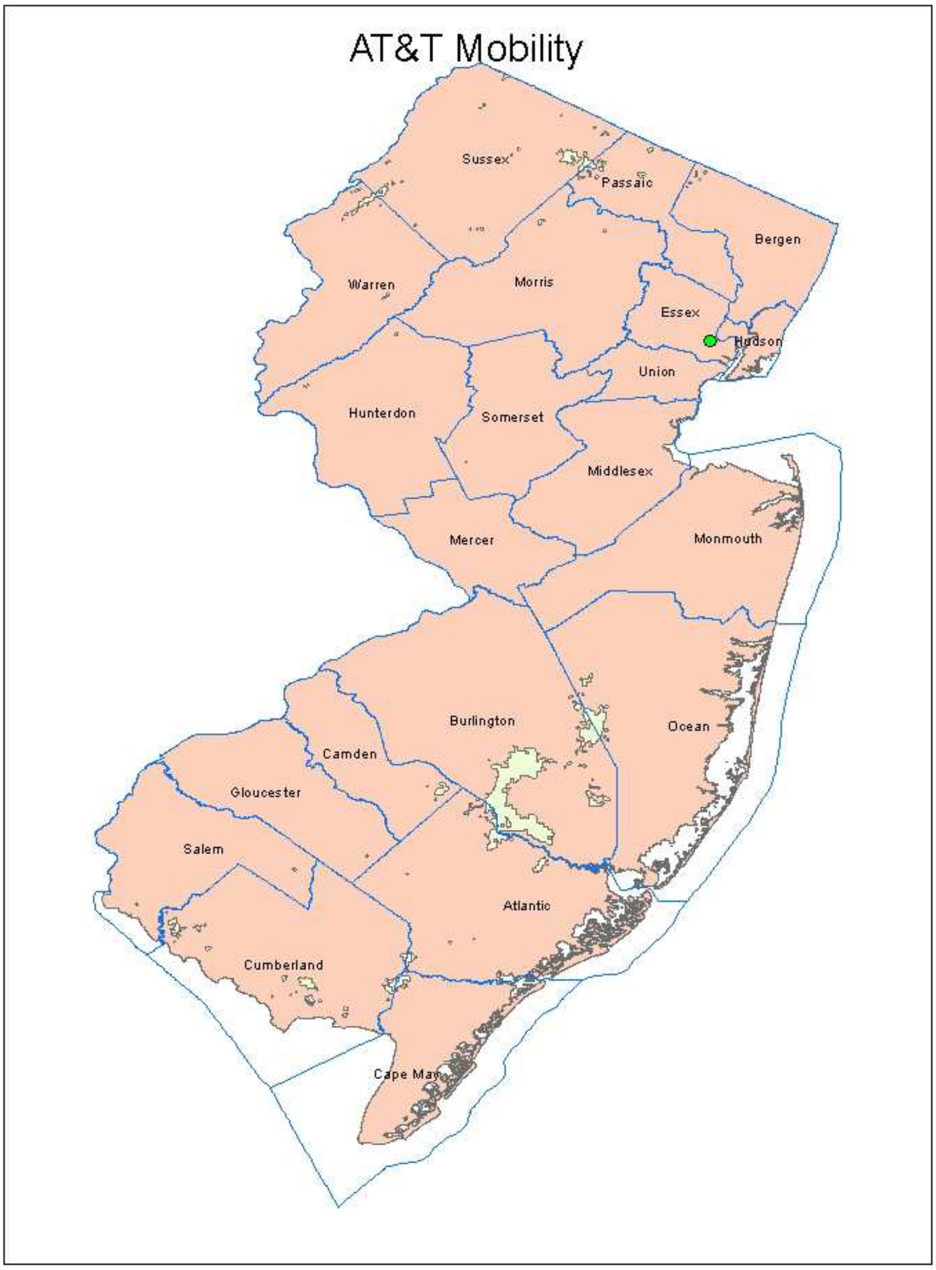
Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Cablevision

Received: February 2014

Submission date: April 2014

This report presents details on processing of the 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	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), 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.

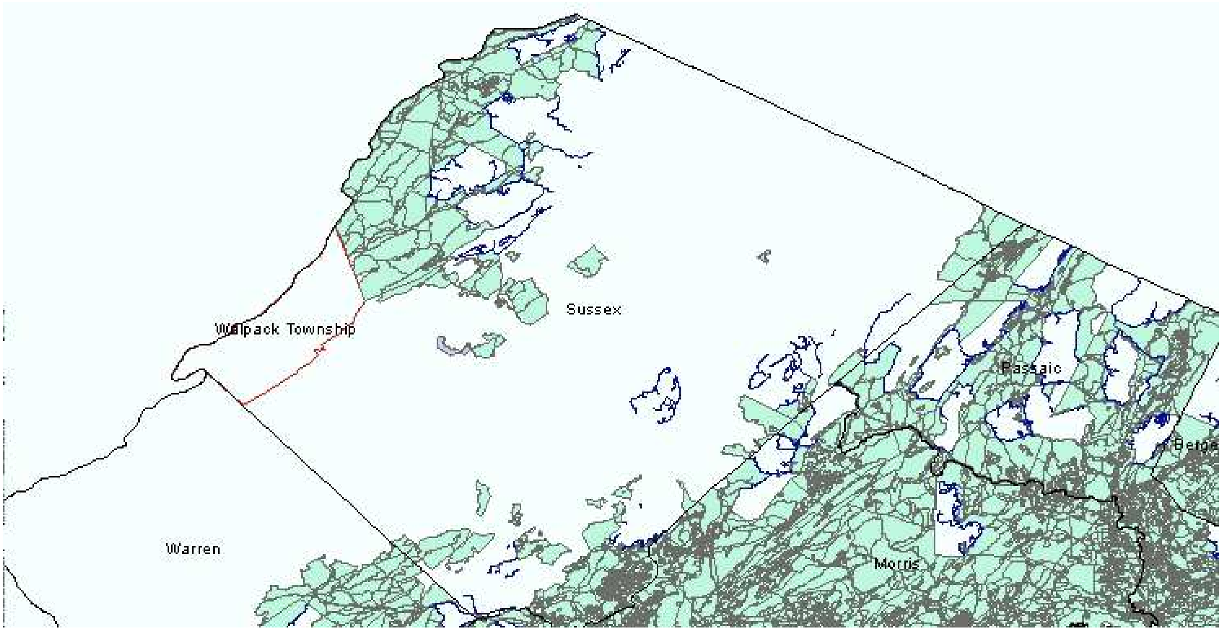
Name Size

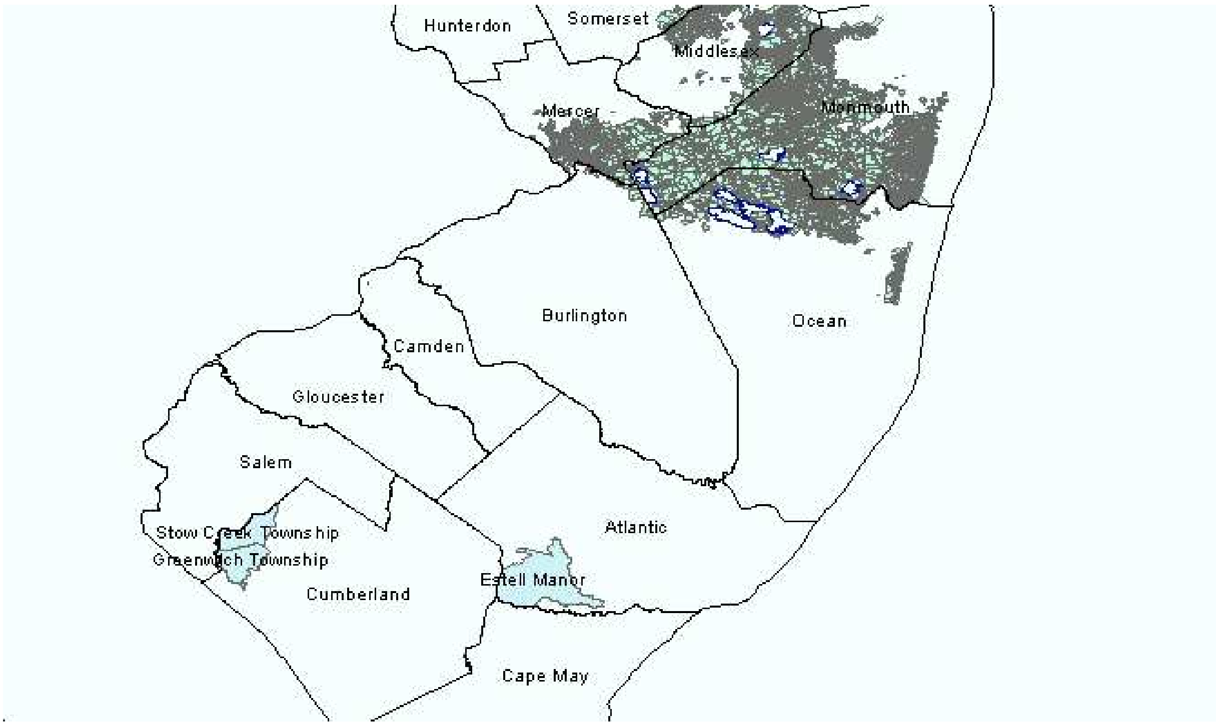
CABLEVISION_NJ_12_2013.zip	21,487 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.dbf	1,075 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.prj	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp	444 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp...	0 KB
CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shx	10 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.dbf	16,014 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.prj	1 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.sbn	536 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.sbx	19 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	31,229 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp.NJBB...	0 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp.xml	26 KB
CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shx	458 KB

Subsequent submission of LightPath data on 3/6/2014. Received one (1) file by SECURE UPLOAD. The zip archive contains 3 shapefiles: small census blocks (LightPath), large census blocks(LightPath), and roadsegments (LightPath). The large census blocks will not be used.

Name	Size
LIGHTPATH_AREA_AVAILABILITY_NJ.zip	1,127 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.dbf	197 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.prj	1 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp	73 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp.xml	1 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shx	2 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.dbf	3 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.prj	1 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp	59 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp.NJ...	0 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp.xml	3 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shx	1 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.dbf	356 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.prj	1 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	1,622 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp.xml	3 KB
LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shx	14 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)


Walpack Township
Sussex
Passaic
Warren
Morris


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

Section 4: Data Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

Apr 2014:

Since data was not provided for the April 2014 submission, the April 2012 data was copied.

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:

1. Reused the table created for the October 2010 submission, but mapped Lat/Long to 2010 census block.
2. 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 and LightPath. The following table explains the transformations that were applied to load the target table. The Cablevision has 58,561 records and LightPath has 1,732 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	Set to 5 as described by below item 6

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.)
2. 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 names are "cv_nj_ar_av_cb_lt_2mi_wgs" and "lp_nj_ar_av_cb_lt_2mi_wgs"
3. 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 names are " cv_nj_ar_av_cb_lt_2mi _wgs_tol" and "lp_nj_ar_av_cb_lt_2mi _wgs_tol".
4. Third, load the data into the newly created feature classes to ensure perfect compatibility with the required coordinate reference system and tolerance.
5. 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 all lines.
6. All of the cenblock values correspond to valid Year 2010 Census Block IDs.
7. All census blocks were confirmed to be less than 2 square miles.
8. There were no duplicates in terms of census block and transtech.
9. Cablevision submitted Census block and Road segment data with endusercat = 5.
10. 60,293 records were loaded into BB_Service_CensusBlock table.

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 1,227 records and LightPath has 227 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 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. 1450 records were loaded.
4. Cablevision submitted Census block and Road segment data with endusercat = 5.

Section 5: Clarification Questions and Responses

From: Davis Black [mailto:davis@frontiergeotek.com]
Sent: Thursday, March 06, 2014 3:46 PM
To: Wullert, John R II; 'Ted Baecher'
Cc: Roxanne Smestad
Subject: CSC Holdings, Inc Lightpath Submission Complete

Hi John,

As a quick update, the submission for CSC Holdings, Inc. for DBA Lightpath has now been posted to the FTP site. The dataset has changed significantly due to the fact that we received an up-to-date and more complete list of customer location points than we have had available in past years.

Since our last Lightpath submission I track the following changes:

BBS ROUND	# OF BLOCKS >2MI	# OF BLOCKS <2MI	TIGER STREET SEGMENTS
July-2012	4	1242	111
Dec-2013	9	1732	227

Lastly, holes in the dataset were purposely not filled in as the Lightpath dataset is prepared only off of customer location point data and not engineering maps of fiber routes. As Lightpath is a dedicated high speed fiber optic provider it may not always be possible to provide new service line extensions in the NTIA requirement of 10 days so it is preferable to not over report blocks close to the service area. You will notice the Cablevision data is different in this respect as we have substantial coax, fiber and equipment information so it is easier to properly fill in any gaps or holes in a manner that's accurate and within the NTIA 10 day build out requirement.

If you have any questions please feel free to contact me.

Thanks for all of your assistance with the CSC Holdings, Inc. submissions for this round.

Davis

Davis Black

GIS Analyst

From: New Jersey Broadband Data Collection Program
[mailto:connectingnj@groups.appcomsci.com]
Sent: Wednesday, February 19, 2014 5:03 PM
To: 'tbaecher@cablevision.com'; 'steve@frontiergeotek.com'
Subject: New Jersey Broadband Data - Clarification

Gentlemen,

We have begun processing the data you submitted to the New Jersey Broadband Data program. We noted that in previous submissions, you had included data for both Cablevision and Lightpath services. In this submission, the Lightpath data is omitted. Is that an indication that the Lightpath data has not changed from your previous submission, and that we can reuse the prior data?

Thanks for your help.

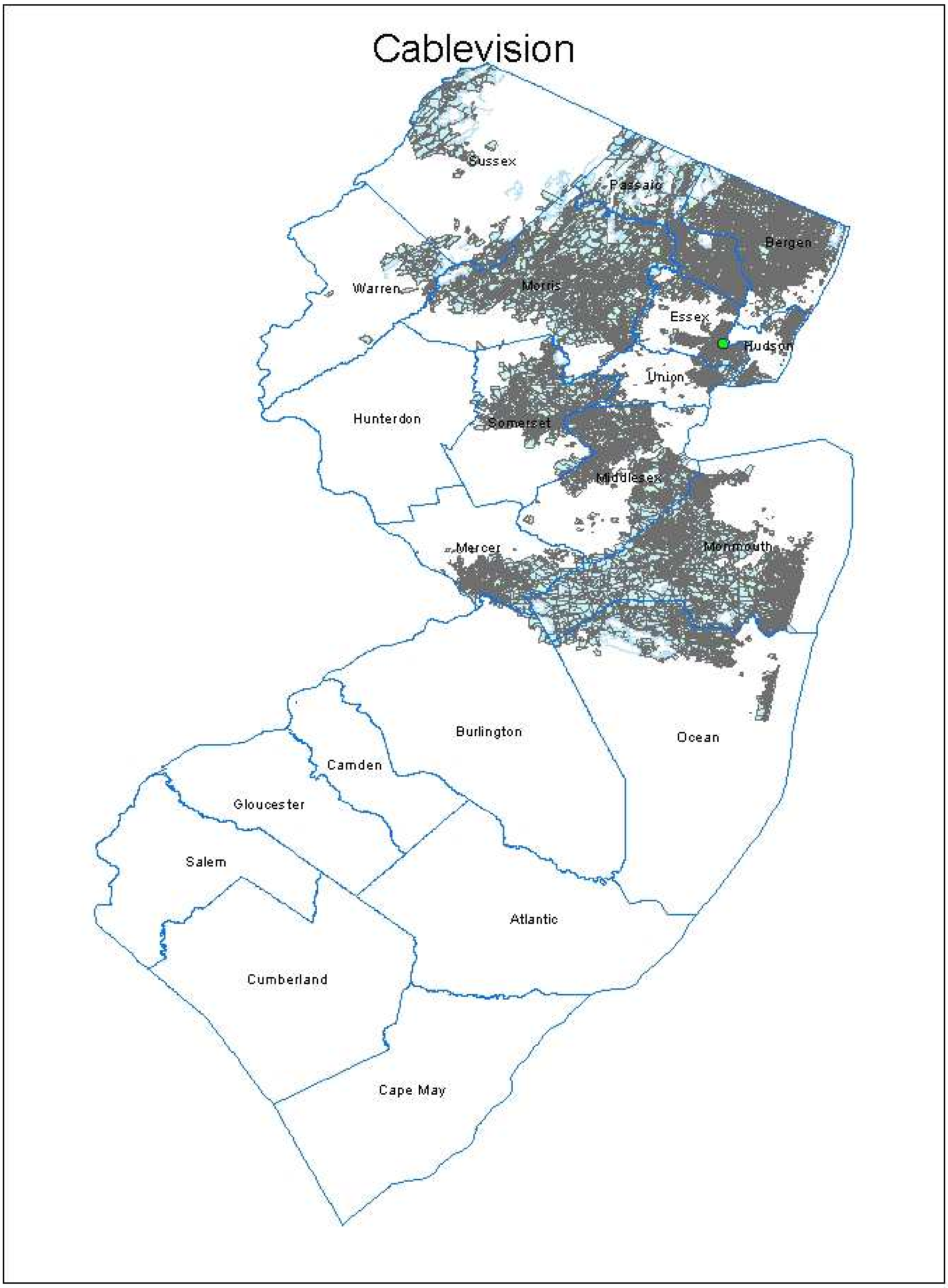
John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

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: February 2014

Submission date: April 2014

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

Section 1: NDA Status

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

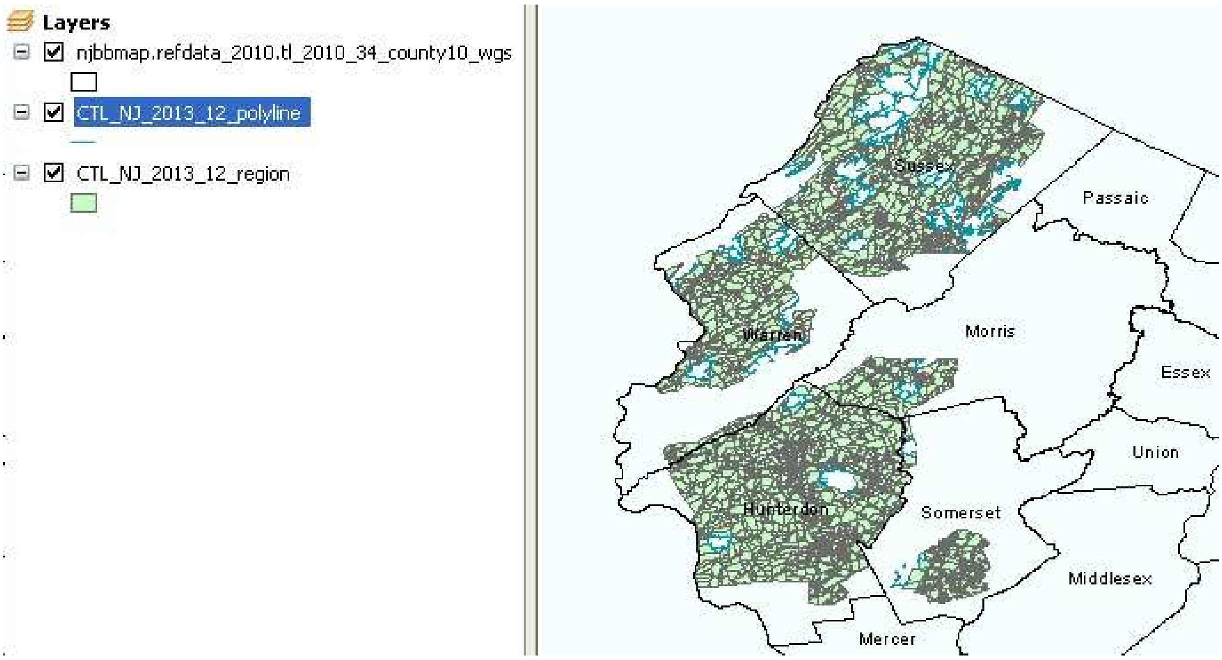
Section 2: Submission Overview

Availability Data			
ID	Provider name		CenturyLink, Inc. (per email)
	“Doing business as” name		Century Link
	FRN		0018626853
FOr wireline			
Filetypes	Shapefiles “CTL_NJ_2013_12_polyline” and “CTL_NJ_2013_12_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_12 - 2014_02_06.zip	8,869 KB
CTL_NJ_2013_12_polyline.dbf	1,019 KB
CTL_NJ_2013_12_polyline.prj	1 KB
CTL_NJ_2013_12_polyline.shp	609 KB
CTL_NJ_2013_12_polyline.shx	24 KB
CTL_NJ_2013_12_region.dbf	2,487 KB
CTL_NJ_2013_12_region.prj	1 KB
CTL_NJ_2013_12_region.shp	11,450 KB
CTL_NJ_2013_12_region.shx	59 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 October 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:

1. 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_12_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

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. Shapefile (feature class) CTL_NJ_2013_12 _region provides coverage data for census blocks with an area less than or equal to 2 square miles. It contains 7,443 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.
5. The feature class "region" has 287 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.
6. 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.
7. We loaded 7156 records into the bb table.

NTIA Table BB_Service_RoadSegment

Loaded from supplied shapefile feature “CTL_NJ_2013_12_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_12 _polyline shows street segments for census blocks larger than 2 square miles. In contained 3049 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 1258 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 1791 rows.

Validation rules produced a warning on 7156 census blocks and 1791 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:

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?

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?

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

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:

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.

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.

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

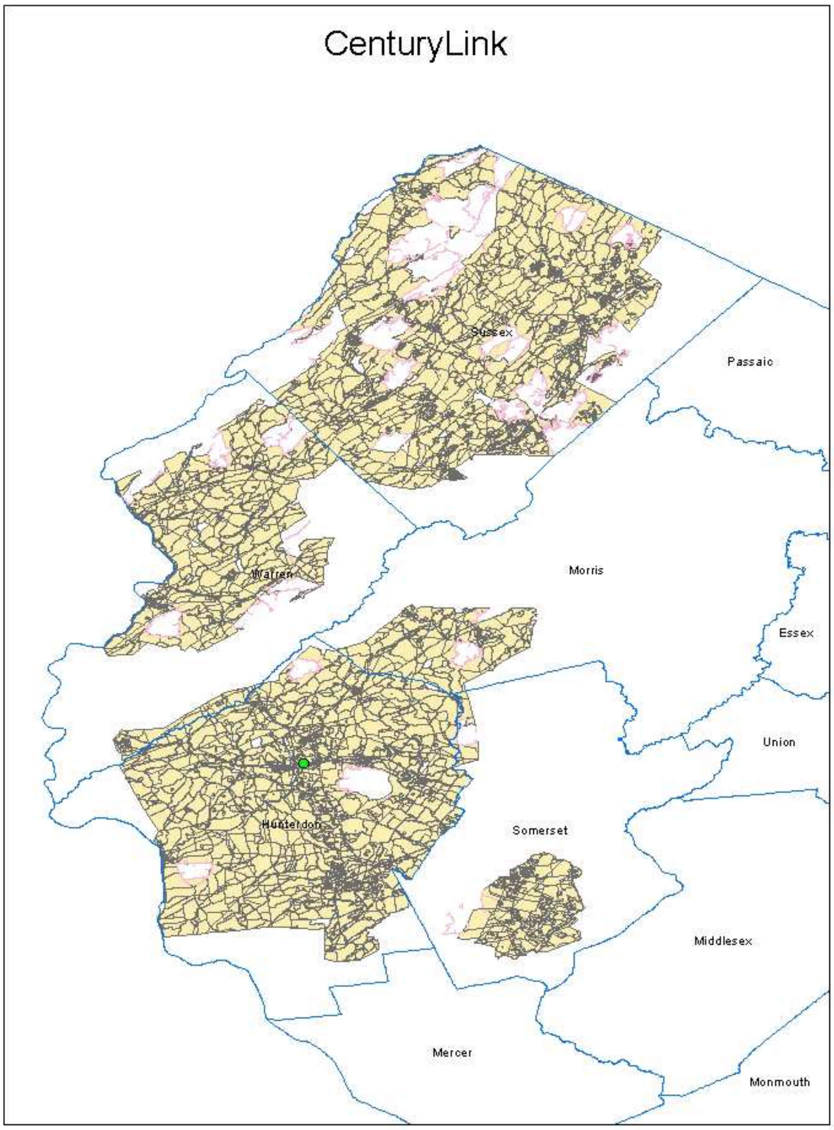
From: Flurer, Gerry F [mailto:Gerald.F.Flurer@CenturyLink.com]
Sent: Friday, March 09, 2012 11:58 AM
To: NJ Broadband Data Collection
Subject: RE: NJBB Data Clarification - CenturyLink

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: Cogent Communications

Received: January 2014

Submission date: April 2014

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 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><td colspan="3">MAPPING Data</td></tr>
<tr><td>ID</td><td>Provider name
"Doing business as" name
FRN</td><td>Cogent Communications, Inc.
Not provided
0019898303</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td>Txt, xls, pdf, etc.</td><td>Email and pointers to Web site and SEC filings</td></tr>
<tr><td>File size</td><td>Number of records, data elements</td><td>List of 26 addresses where they offer service. Two addresses were duplicates, so this represents 24 locations.</td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td></tr>
<tr><td>Adver down</td><td>Address</td></tr>
<tr><td>Adver up</td><td>Address</td></tr>
<tr><td>Typical down</td><td>Not provided</td></tr>
<tr><td>Typica up</td><td>Not provided</td></tr>
</table></td><td>Provided building addresses. Based on FCC filings, their advertised up/down speed codes are 10 for Corporate Office Buildings (COB) and 11 for Carrier Neutral Data Center (CNDC).

Provider has indicated that</td></tr>
</table>

	Subscriber-weighted	Not provided	typical speeds would only represent customer product choices, not technical capabilities.
Technology Type	DOCSIS, xDSL, fiber, etc.		Fiber
End-user specification	Business, consumer, gov't etc		Business
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 will not 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 should instead be treated as broadband access sites..		
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 Site Type field and information obtained in previous rounds were used to determine the advertised speeds.

Section 4: Validations and Results

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

Records with identical addresses (geocoded to same latitude and longitude) were removed.

The only other validation to be done is whether each address can be successfully geocoded.

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 as 10 for COB and 11 for CNDC
MAXADUP	Populated as 10 for COB and 11 for CNDC
TYPICDOWN	Set to null
TYPICUP	Set to null
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on geocoded address

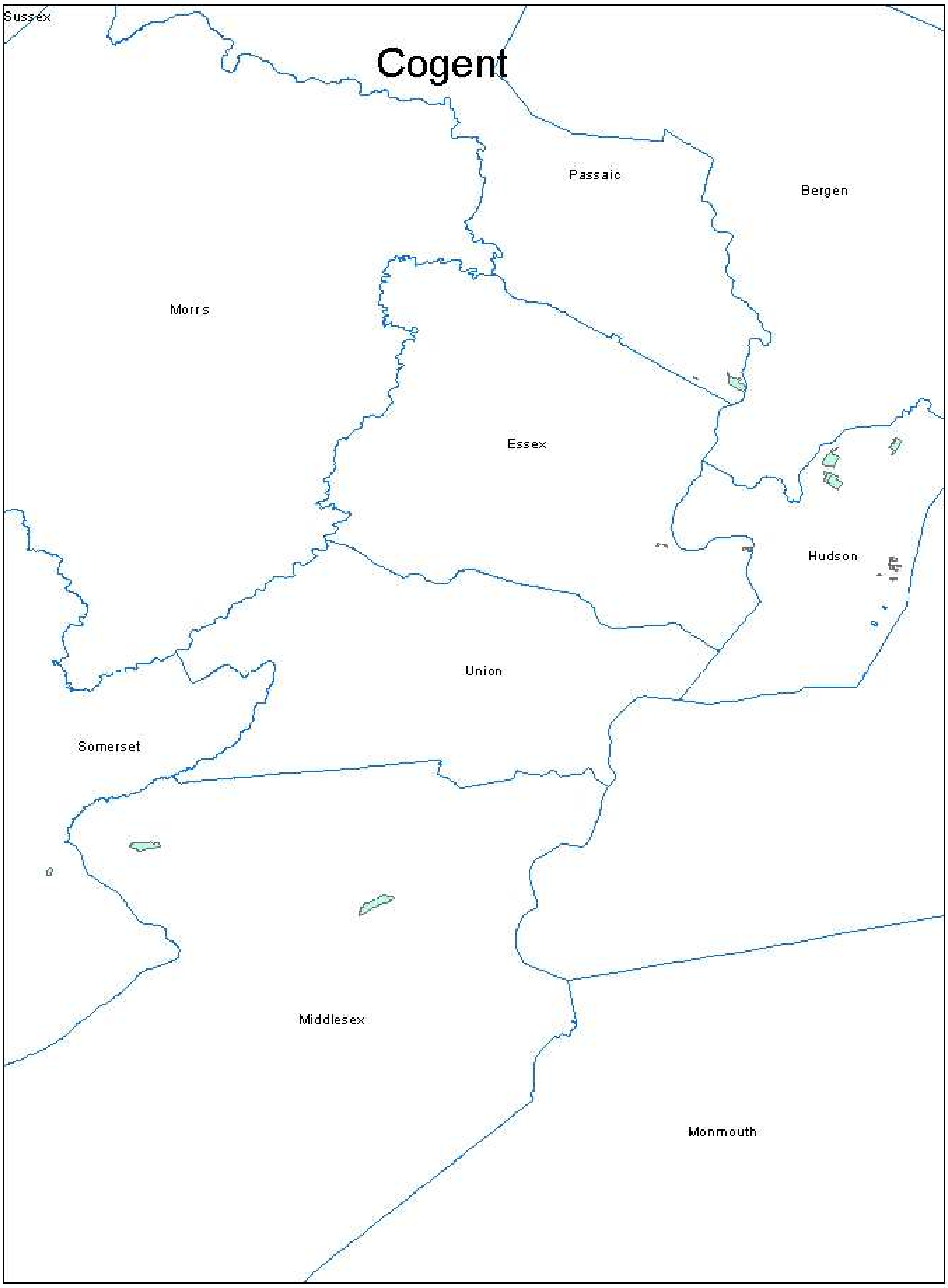
Internal processing notes:

1. Geocoded the addresses using the Google geocoder to obtain a Latitude, Longitude pair for each address.
2. Created an excel sheet and imported it to a geodatabase table.
3. 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.
4. 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.
5. Discarded 5 rows with duplicate census blocks.
6. 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

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Comcast

Received: February 2014

Submission date: April 2014

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	COMCAST CABLE COMMUNICATIONS LLC
	"Doing business as" name	COMCAST
	FRN	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-		no

	up			
	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
102KB	34-streets-NJ.xlsx
3827KB	34-blocks-NJ.xlsx
10KB	New Jersey Maximum Advertised Speeds December 31 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 75003 data 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 December 31 2013.xlsx”. Comcast listed the same upload speed (9) for six MSAs and 10 for 37980 (Philadelphia-Camden-Wilmington),

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.
6. There were no duplicate FULLFIPSID and all 74936 records were loaded into bb_service_censusblock table.

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 991 data records. No shape is provided, and no reference ID such as Tiger Line ID is provided either.

Processing notes:

1. Generate 3 full addresses for each record as follows: If left is 0 then use right side use min=right start, max=right end, and mid=avg of min/max. If right is 0 then use left side use min=left start, max=left end, and mid=avg of min/max. else use min of left/right start, max of left/right end, and avg of min/max.
2. Generate full address = min+" "+Street_Name+", "+City+", NJ"+ZIP. Repeat for mid and max. Turns out there are rows with all 0's for left/right start/end. This generated full addresses with 0 as street number.
3. Eliminate duplicate addresses.
4. Remove the leading "0" from any full address to rid street number=0. Noticed a couple of full addresses that either start will "null" or "NULL" as street address. Remove these 2 substrings.
5. Geocode using Yahoo geocoder because Google geocoder limit exceeds. The number of generated addresses is 2973 but only 2283 are unique.
6. Create point shapes from the geocoded addresses.
7. Create a boundary of 200 feet for each point.
8. Spatial join TL_2010_34_large_street_10_wgs with the boundaries. 2815 records are generated.
9. Remove 1601 duplicate TLIDs.
10. Speeds: Data for maximum advertised down and up speeds are taken from file “New Jersey Maximum Advertised Speeds December 31 2013.xlsx”. Comcast listed the upload speed (9) and download speed (10) for 6 out of the seven MSAs they serve so these values are used.
11. Load 1214 records into BB_Service_RoadSegment table.
12. Update the endusercat column from the end_user column of the refdata_2010.tl_2010_34_large_street_10_wgs.

We received warnings on 74,936 census blocks and 1,214 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

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

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

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

From: New Jersey Broadband Data Collection Program
[mailto:connectingnj@groups.appcomsci.com]
Sent: Friday, February 28, 2014 11:52 AM
To: Ruger, Michael
Subject: New Jersey Broadband Data: Comcast Data for Review

Michael,

You had asked for an opportunity to review the data. We do not have any infrastructure to facilitate on-line browsing of the data, but we did generate the attached images for you. There are three images attached. The first is a statewide view of the final Comcast coverage. The second two zoom into the areas around Stowe Creek, Greenwich Township and Estell Manor. As you recall, those are areas that we have determined in the past that Comcast does not offer service. Your submitted data still shows some facilities in those regions, which we remove prior to submission to NTIA.

Note that we used a new approach this time for integrating your road segment data into the final map. We have had trouble in prior rounds aligning the road segments you submit with the TigerLine data that is required for NTIA. In this case, we used your road segments, geo-coded the end-points and midpoints of each segment and then looked for TigerLine road segments within 200 feet of those locations. This appears to produce a more accurate representation of your coverage than our prior procedure.

Please let me know if you have any questions or comments.

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: Ruger, Michael [mailto:Michael_Ruger@comcast.com]
Sent: Monday, March 03, 2014 4:57 PM

To: connectingnj@groups.appcomsci.com
Subject: RE: New Jersey Broadband Data: Comcast Data for Review

John—

Comcast does not serve Greenwich Twp., Stow Creek Twp. or Estell Manor. Otherwise, the map is acceptable.

Thanks--

Michael

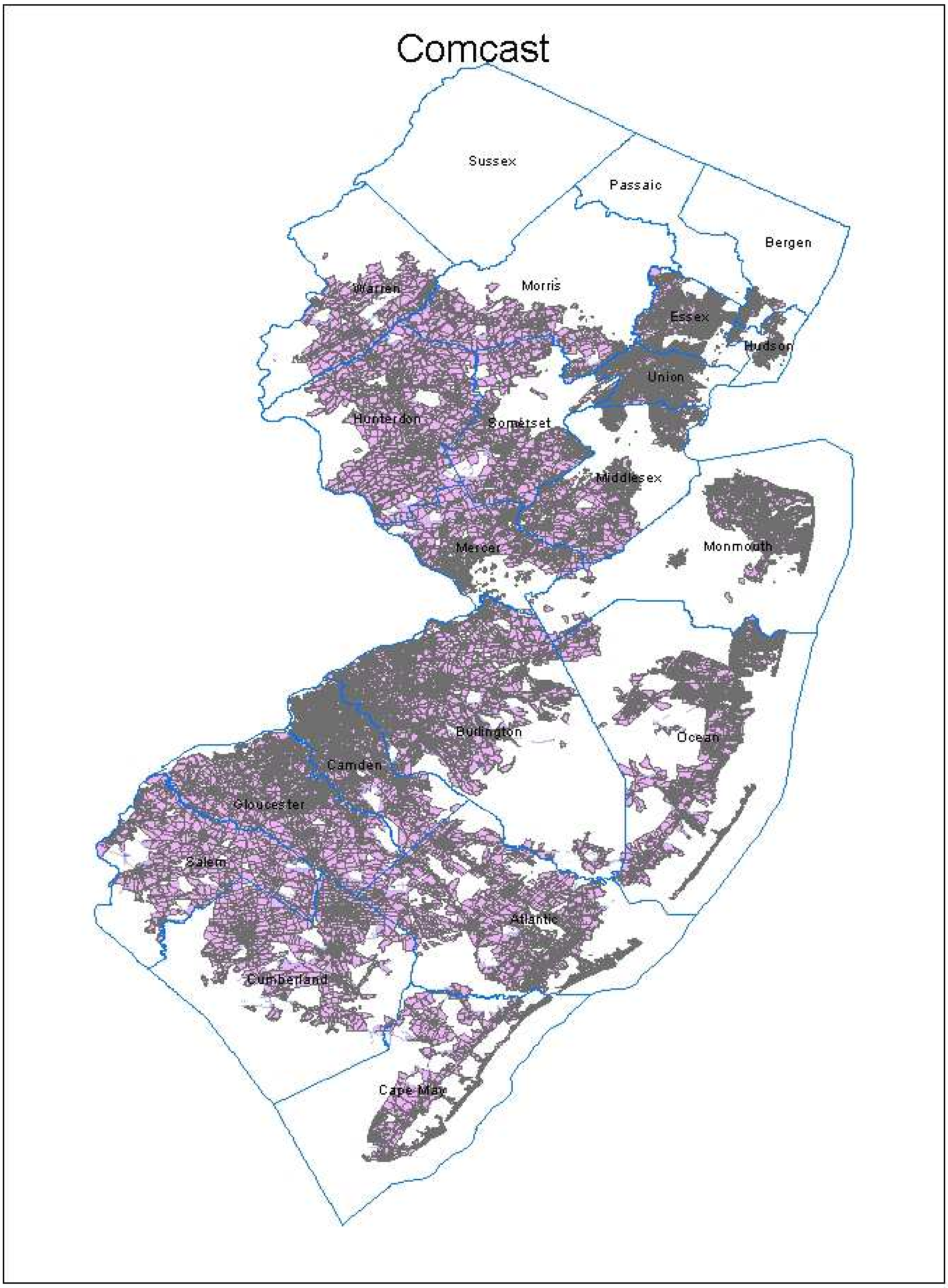
Michael Ruger

Executive Director, Government Affairs

Comcast Cable Communications, LLC

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey – Broadband Provider Data Report

Provider: Leap Cricket

Received: August 2013

Submission date: April 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy leapcricket_oct2013.BB_Service_Wireless to leapcricket _apr2014.BB_Service_Wireless.

For October 2013:

Section 1: NDA Status

NDA with NJ OIT in place

Section 2: Submission Overview

Availability Data		
ID	PROVIDER NAME	Leap Wireless International, Inc.
	DBA NAME	Cricket Communications, Inc.
	FRN	0002963528
	Holding company name:	Leap Wireless International, Inc."
	Holding company number:	130730

for wireless		
Filetypes	shapefile corresponding to NJ terrestrial mobile wireless coverage (type 80)	
Speeds	<table><tr><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td></tr><tr><td>Upstream max adv</td><td>yes (for entire shapefile) given in tier</td></tr><tr><td>Downstream max adv</td><td>yes (for entire shape) given in tier</td></tr><tr><td>Upstream typical</td><td>no.</td></tr><tr><td>Downstream typical</td><td>no.</td></tr><tr><td>Subscriber-weighted</td><td>no.</td></tr></table>	
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:

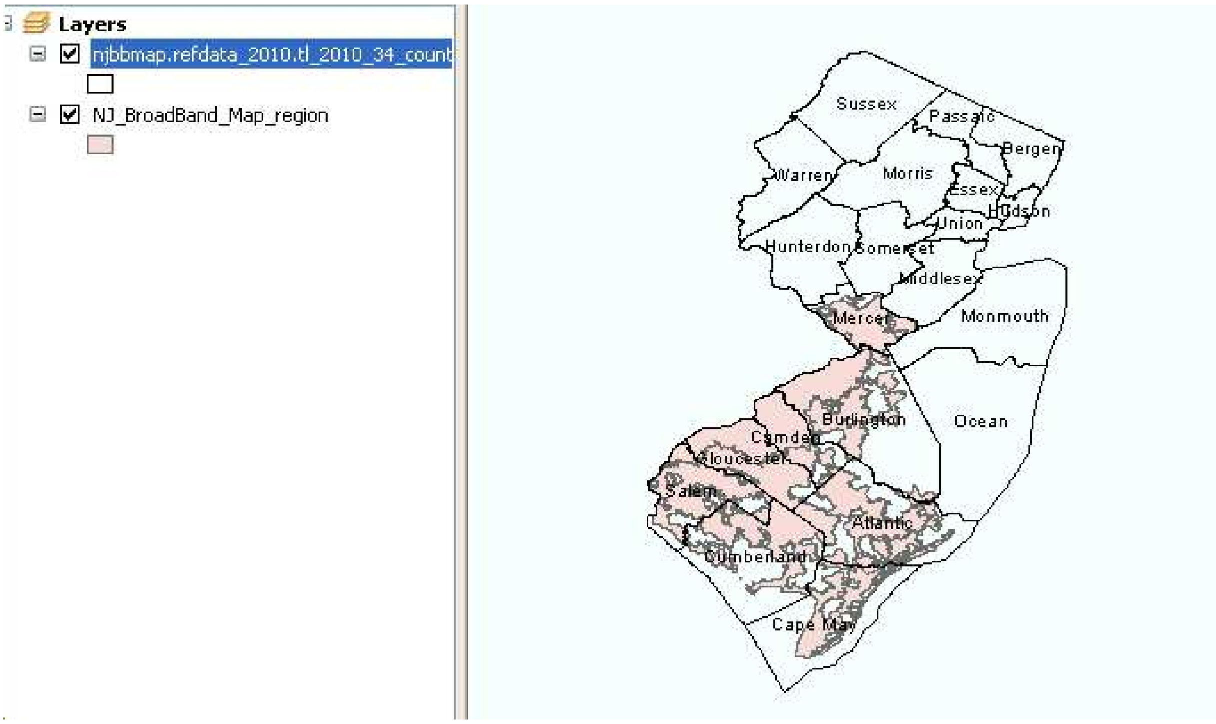


Figure 1. Loading results

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:

1. 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.
2. 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”.
3. 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"
4. 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:

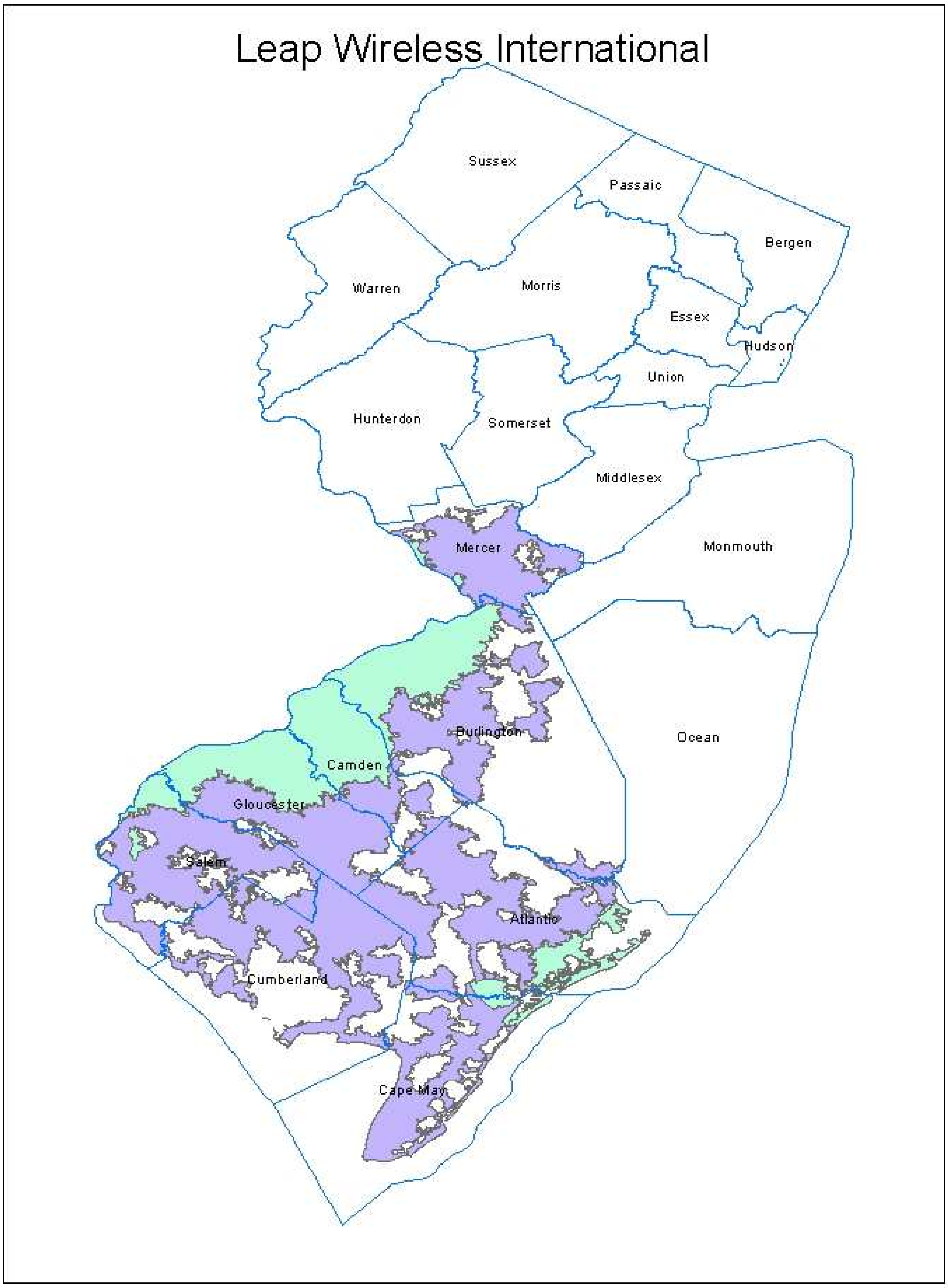
prov_name	dba_name	pcs	aws	down_speed	up_speed
Leap Wireless International, Inc.	Cricket Communications, Inc.	Y	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	Y	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	3	2
Leap Wireless International, Inc.	Cricket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

5. 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”.
6. 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.
7. 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.
8. Set the endusercat column to 1.

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: Jersey Shore Wireless

Received: March 2012

Submission date: April 2014

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

For April 2014:

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.

We verified that they are still showing the same maps on their Web site that we used to generate our coverage maps. They still advertise 10 Mbps as the maximum speed. So, we decided to reuse prior data.

Processing Steps:

Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy jsw_oct2013.BB_Service_Wireless to jsw_apr2014. BB_Service_Wireless.

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:

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.

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:

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

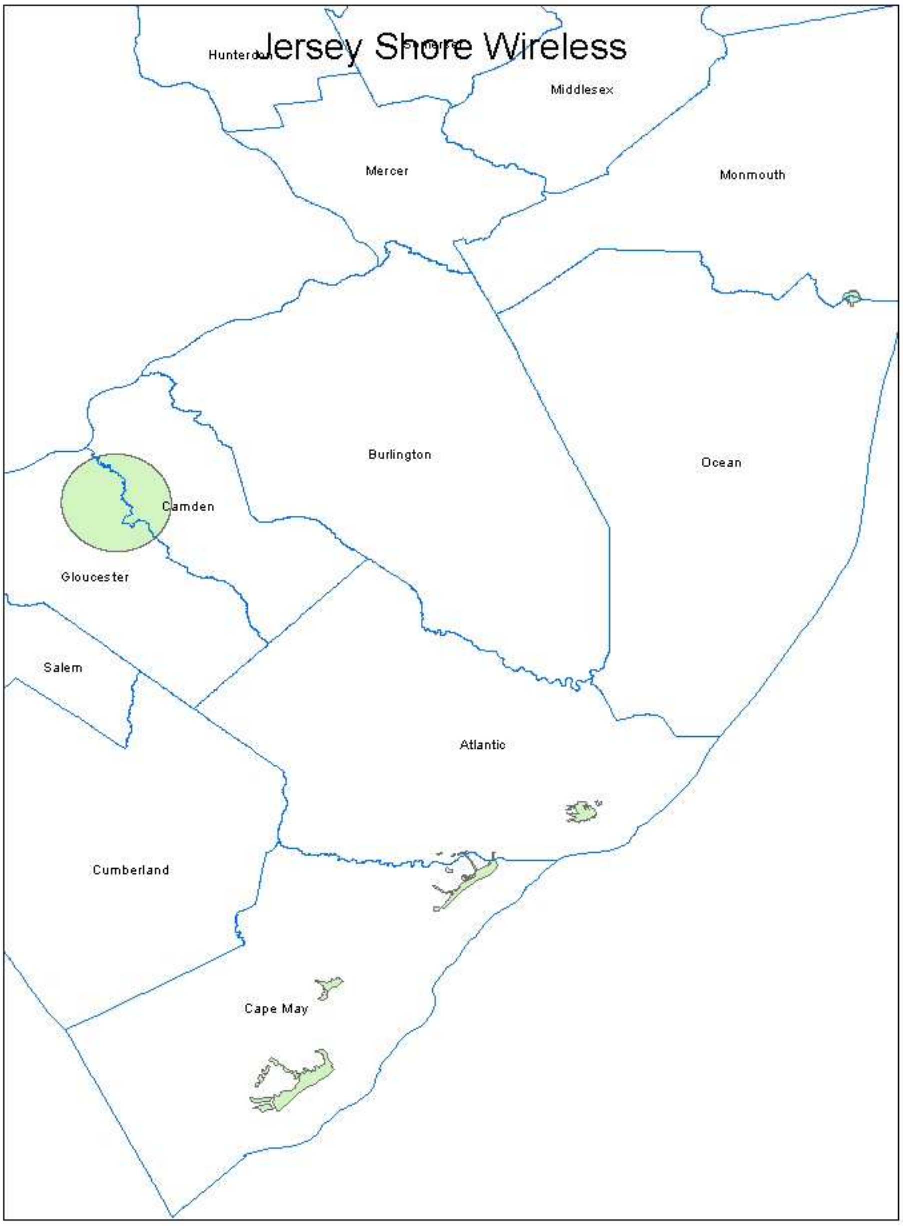
Internal notes on processing:

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



Connecting New Jersey – Broadband Provider Data Report

Provider: Fiber Technologies Networks, L.L.C.

Received: July 2013

Submission date: April 2014

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

For April 2014:

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:

Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy fiber_oct2013.BB_Service_CensusBlock to fiber_apr2014.BB_Service_CensusBlock.

For October 2013:

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

<table>
<tr><td>File size</td><td>Number of records, data elements</td><td>21 records in the file</td></tr>
<tr><td>Speeds</td><td><table><tr><th>Type</th><th>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</th></tr><tr><td>Adver down</td><td>Census block</td></tr><tr><td>Adver up</td><td>Census block</td></tr><tr><td>Typical down</td><td>Census block</td></tr><tr><td>Typica up</td><td>Census block</td></tr><tr><td>Subscriber-weighted</td><td>Not provided</td></tr></table></td><td>Provided census blocks level data.</td></tr>
<tr><td>Technology Type</td><td>DOCSIS, xDSL, fiber, etc.</td><td>Fiber to the End User</td></tr>
<tr><td>End-user specification</td><td>Business, consumer, gov’t etc</td><td>4 - Medium or Large Enterprise</td></tr>
<tr><td colspan="3">Comments:</td></tr>
<tr><td colspan="3">Interconnection DATA</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td></td></tr>
<tr><td>File size</td><td>Number of records, data elements</td><td></td></tr>
<tr><td>Ownership</td><td>Leased/owned</td><td></td></tr>
<tr><td>Transport Type</td><td>Fiber, wireless, copper</td><td></td></tr>
<tr><td>Data Rates/Capacity</td><td></td><td></td></tr>
<tr><td>Location</td><td>Street address, lat/lon, elevation</td><td></td></tr>
<tr><td colspan="3">Comments:</td></tr>
<tr><td colspan="3">Data COMPLETENESS</td></tr>
<tr><td>Data Validation/ Verification</td><td colspan="2"></td></tr>
</table>

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 based on their apparent customer profile.

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.

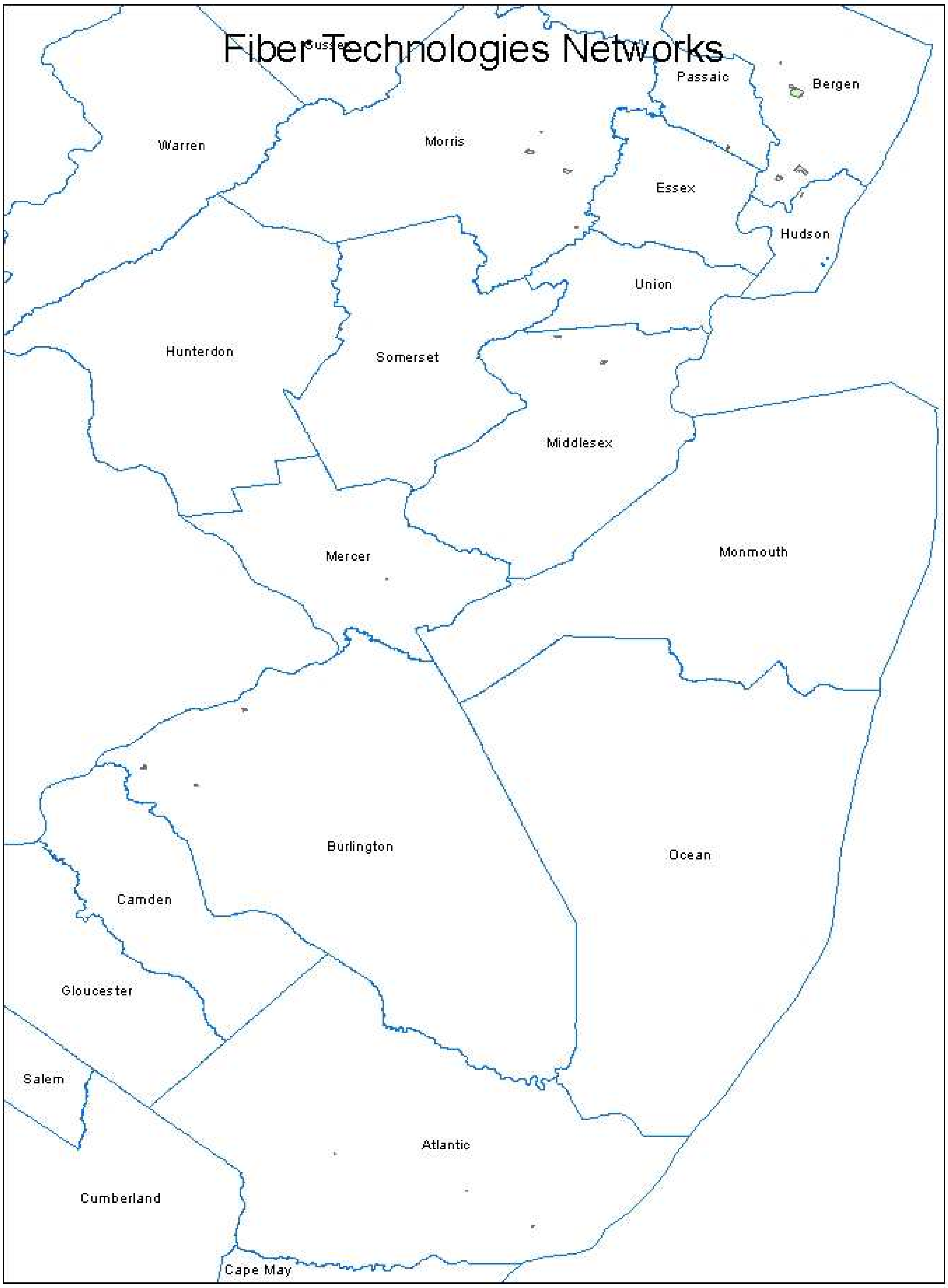
Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider Name
DBANAME	As supplied in column DBA
PROVIDER_TYPE	Set to 1
FRN	As supplied in column FRN
STATEFIPS	Set to “34” (NJ)
COUNTYFIPS	Populated from Census Block Full ID (first 3 digits)
TRACT	Populated from Census Block Full 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

Section 6: Clarification Questions and Responses

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey – Broadband Provider Data Report

Provider: GOES Telecom

Received: February 2013

Submission date: April 2014

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy goes_oct2013.BB_Service_Wireless to goes_apr2014. BB_Service_Wireless.
- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy goes_oct2013.BB_Service_CensusBlock to goes _ap2014. BB_Service_CensusBlock.

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 goes_apr2013.BB_Service_Wireless to goes_oct2013. BB_Service_Wireless.
2. Set the endusercat column in the goes_oct2013.BB_Service_Wireless table to 5.
3. 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.
4. 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.
5. 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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td rowspan="5">ID</td><td>Provider name</td><td>GOES Telecom</td></tr>
<tr><td>“Doing business as” name</td><td>Not provided</td></tr>
<tr><td>FRN</td><td>0011437746</td></tr>
<tr><td>Holding company name</td><td>GOES</td></tr>
<tr><td>Holding company number</td><td>130548</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2">1 Excel</td></tr>
<tr><td>File size</td><td colspan="2">worksheet 22 data rows</td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></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></td><td>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.</td></tr>
</table>

		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:

1. Geocoded the addresses using the Google geocoder to obtain latitude, longitude value pairs. Of 22 original records, all were successfully geocoded.
2. Created point shapes using ESRI from lat, long value pairs.

3. 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”).
4. Verified that all 22 records joined successfully with NJ census blocks
5. Dropped 15 records that did not have broadband speeds
6. Dropped 1 records because of duplicate census blocks (caused by multiple customer addresses in the same census block).
7. All remaining records were verified to be in small (< 2 square miles) census blocks.
8. 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:

1. Processed, as described above (points 1 – 7).
2. Spectrum: Set to 6, Unlicensed
3. 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:

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?

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?

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
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?

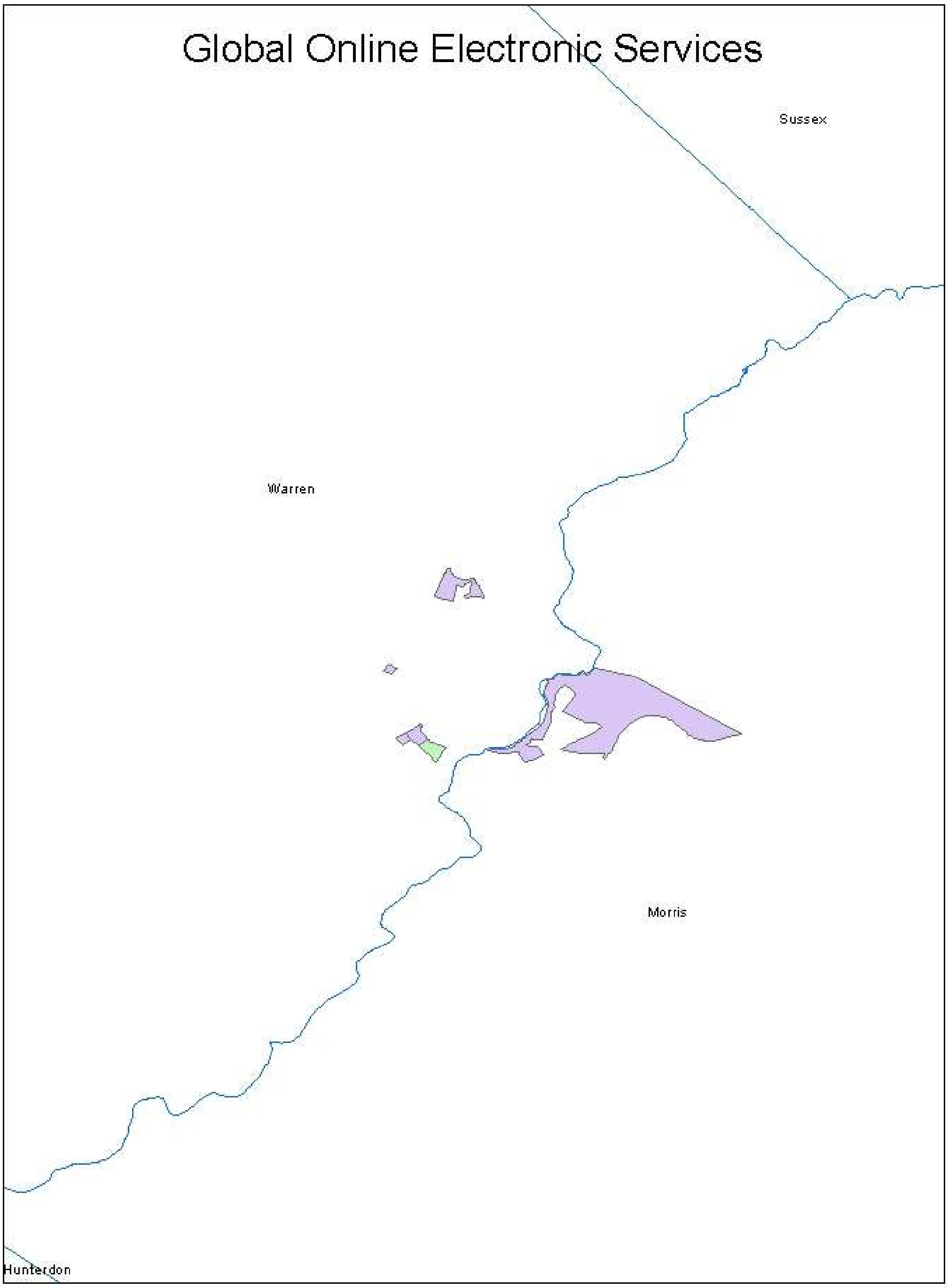
No, the correct speeds are 10mbps and we now only have a single fixed wireless link instead of two.

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: HughesNet Communications Inc.

Received: August 2013

Submission date: April 2014

For April 2014:

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.

We checked their Web site, and the fastest service they offer in NJ is 15 Mbps down and 2 Mbps up. These values are different than the values in the last provider data report, but correspond to the same code (7 down, 4 up). So, we re-used their most recent data.

Processing Steps:

Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy hughes_oct2013.BB_Service_Wireless to hughes _apr2014.BB_Service_Wireless.

For 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	Hughes Network Systems, LLC
	“Doing business as” name	HughesNet
	FRN	0017434911
FOr wireline		

<table>
<tr><td>Filetypes</td><td colspan="2">CSV file with list of Year 2000 census blocks, plus email information on speed</td></tr>
<tr><td>File size</td><td colspan="2"></td></tr>
<tr><td>Speeds</td><td>
<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>Provided</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>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>
</td><td>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.</td></tr>
<tr><td>Technology Type</td><td colspan="2">Code 60 (Satellite)</td></tr>
<tr><td>End-user specification</td><td colspan="2"></td></tr>
<tr><td colspan="3">Comments:</td></tr>
<tr><td colspan="3">Interconnection DATA: None</td></tr>
<tr><td>ID</td><td colspan="2"></td></tr>
<tr><td>File size</td><td colspan="2"></td></tr>
<tr><td>Ownership</td><td colspan="2"></td></tr>
<tr><td>Transport Type</td><td colspan="2"></td></tr>
<tr><td>Data Rates/Capacity</td><td colspan="2"></td></tr>
<tr><td>Location</td><td colspan="2"></td></tr>
<tr><td colspan="3">Comments: Not provided</td></tr>
</table>

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:

1. 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.
2. 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.
3. 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.
4. We verified that all of the resulting census block IDs were unique.
5. 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. .
6. 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).
7. We merged the census blocks into a single shape with the suffix "_dissol" using the ArcGIS "Dissolve" tool.

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

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: REDACTED

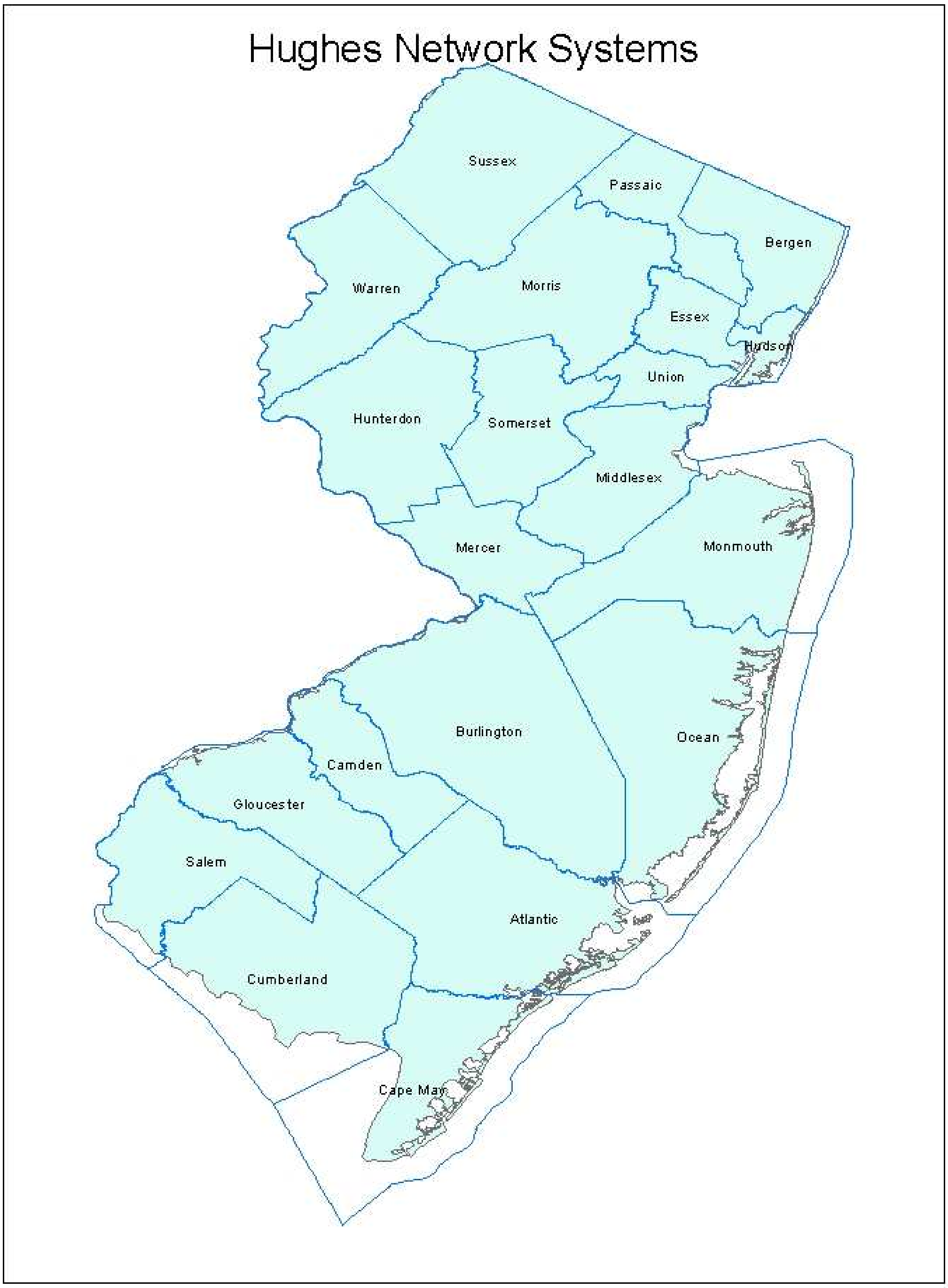
password: REDACTED

Thanks

Alok

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey – Broadband Provider Data Report

Provider: Light Tower Fiber LLC

Received: March 2014

Submission date: April 2014

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

The data used to represent coverage came from a list of buildings on the provider Web site. Refer to Section 6 for details.

Section 3: Submission File Details

N.A.

Section 4: Validations and Results

Section 5: Data Transformation and Loading

Data only has full address of each building. The following fields were set according to Section 6 notes.

- ProvName=”Light Tower Fiber LLC”
- FRN=”0017625567”
- EndUserCat=2 (Business)
- TransTech=50 (Fiber)
- MaxAdvDown=11 (>=1 Gbps)

- MaxAdvUp=11 (>=1 Gbps)
- TypicDown=null
- TypicUp=null

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

The following table explains the transformations that were applied while loading the submitted data. The list of building addresses from the PDF was manually copied/pasted into Excel. Extraneous header records were removed leaving 5855 input records with just one header record. Note there are extraneous records with "Page n" data that are not addresses but just artifacts of the copy/paste operation. These will be filtered out as part of Arroyo flow.

Table Column	Data Source / Transformation
PROVNAME	Set to "Light Tower Fiber LLC"
DBANAME	Same as provname
PROVIDER_TYPE	Set to 2
FRN	Set to "0017625567"
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 (next 5 digits)
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	Set to 50
MAXADDOWN	Set to 11
MAXADUP	Set to 11
TYPICDOWN	Set to null
TYPICUP	Set to null

ENDUSERCAT	Set to 2
SHAPE	As supplied by reference data

Internal processing notes:

1. GeoCoded using full address as supplied from building list. Only 236 addresses are in NJ and only 128 have unique census block id.
2. 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.
3. ProviderInput table data joined with njbbmap.refdata_2010.tl_2010_34_tabblock10_wgs.
4. 1 record was dropped due to joint_count not equal 1.
5. All census blocks were confirmed to be less than 2 square miles.
6. 127 records were loaded into BB_Service_CensusBlock table.

Section 6: Clarification Questions and Responses

Folks,

I found the Lightower service location data on their Web site, so we can proceed without waiting for the provider. Here's the text of an email I sent to them, describing the approach:

I have come up with an alternate approach to representing your coverage in New Jersey. In looking over your Web site, I noticed that you publish a list of buildings that you serve with optical fiber. I found another document that lists the technical details of your Ethernet services, which includes speeds. I assume that the speeds for your Internet access are similar.

So, I propose we use the addresses of those buildings to represent the locations where you could deliver new optical, broadband service in 7-10 days. It appears that you offer a minimum of 1 Gbps at each of those locations, so I would use as the speed. (The NTIA asks for speeds in tiers, and the top tier is >= 1Gbps, so we don't need to worry about locations where you offer faster services.)

In looking at data submitted by Lightower in other states, including New York and Rhode Island, I see that the DBA name used in each case was "Lightower" and the FRN was "0017625567".

So, if you have no objections, I will use this information to capture the broadband services you offer in New Jersey.

The attached PDF has the list of locations, which we can geo-code. Technology is Fiber, maximum advertised speed is 11 up and down. No SWNS information. They are a provider, not a reseller. I would say all their customers are businesses.

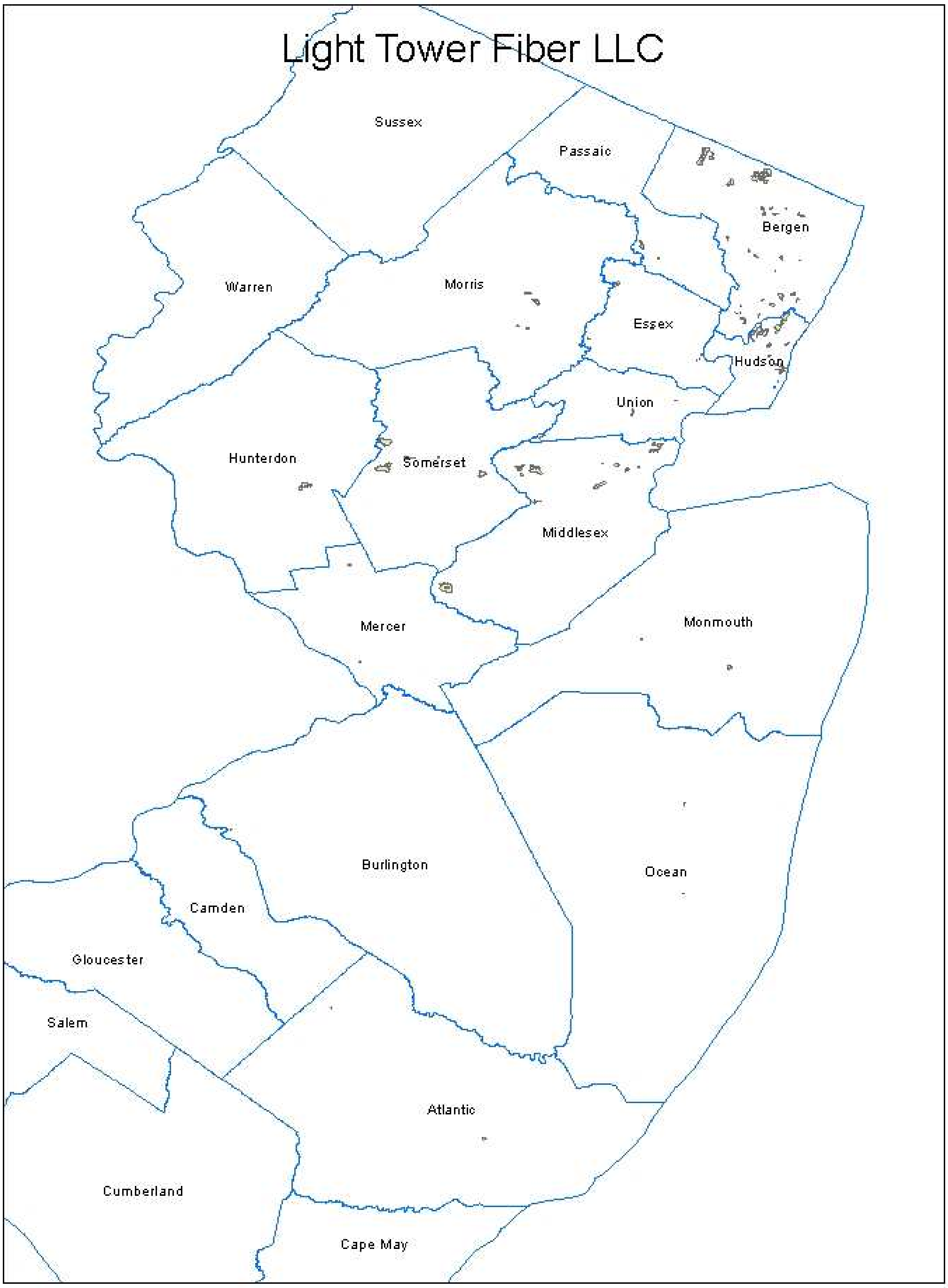
I also notice that Rhode Island indicated that they extracted middle mile from the provider's service map. Not sure how they did that, so that might bear investigation for next time.

Let me know if you have any questions.

John

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Level3 Networks, Inc.

Received: January 2014

Submission date: April 2014

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

Section 1: NDA Status

No NDA executed.

Section 2: Submission Overview

Availability Data				
ID	Provider name		Level 3 Communications, LLC	
	“Doing business as” name		Level 3 Communications, LLC	
	FRN		0003723822	
FOr wireline				
Filetypes	Text file spreadsheets			
File size	2556 data rows			
Speeds	Type		Address level data	All set to same value: 11 (>= 1gpbs)
	Typical-upstream		Yes	
	Typical-downstream		Yes	
	Advertised-upstream		Yes	
	Advertised-downstream		Yes	
	Subscriber-weighted-nominal speed		Not provided	
Technology Type	50 (optical carrier/fiber)			
End-user	End User Category all set to “0”			

specification	
Comments: Typical and Advertised UP and DOWN are ALL THE SAME VALUE: 11 (>= 1gpbs)	
Interconnection DATA	
ID	
File size	text file with 101 data 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 via email:

Size kbName

300 AddressAvailability_New Jersey-Merged_1-27-2014.txt

13 MiddleMile_New Jersey_1-27-2014.txt

Section 4: Validations and Results

The “address” file has 2556 rows containing data. All speed codes set the same, code 11 (1+ Gbps), suggesting these are all commercial customers.

The “middlemile” file has 101 data rows, including some that are exact duplicates.

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:

1. Imported the data to a geodatabase table
2. 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.
3. 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.
4. Discarded 23 records with identical lat, long values and addresses.
5. Loaded 78 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:

1. 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. Thus, multiple geocoding passes were necessary. Initial pass resulted in 847 records successfully geocoded. 457 records dropped due to duplicate addresses. The remaining 1375 records had no zip code and badly abbreviated town names. These were re-geocoded after correcting the town names using an internal engine based on speech technology. 64 were dropped due to duplicate addresses. 1306 were geocoded successfully. 5 remaining could not be geocoded. In summary, total dropped 403 and geocoded 2153.
2. Imported the spreadsheet to an ESRI geodatabase table
3. 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
4. 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.

5. Discarded typical speeds since they were in all cases identical to maximum advertised speeds, not measured values.
6. 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.
7. Discarded 763 duplicate census block records, which result from multiple addresses in the same census block. Discarded 13 records located in the large census block. Discarded 9 since they are not mapped to NJ.
8. Loaded 1368 records.

Section 6: Clarification Questions and Responses

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Wednesday, February 05, 2014 1:44 PM
To: 'Seab, Scott'
Subject: NJ Broadband Data: Address Parsing ISsue

Scott,

We have begun processing the data you submitted and have run into a problem. Approximately half of the addresses you submitted (over 1300) have data that is so limited and/or of so poor quality that we are not able to accurately place them on the maps. In many cases, this is due to excessive abbreviation of the city name coupled with the lack of a zip code. Some of the abbreviations are understandable to a human, such as CHER HIL for Cherry Hill, but others are difficult for us to even guess, such as PRSPY and CRLST. Either way, we cannot devote the resources to parsing and attempting to correct 1300 such entries.

So, I was wondering if you had other sources of the data that might provide better address information so that we can accurately represent your capabilities on the national broadband map.

Your help is appreciated and we thank you for participating in the program.

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: Seab, Scott [mailto:Scott.Seab@Level3.com]
Sent: Friday, February 07, 2014 12:37 PM

To: connectingnj@groups.appcomsci.com
Subject: RE: NJ Broadband Data: Address Parsing Issue

Hi John; sorry for the belated reply. We just upgraded to MS Office 2013, and I swear emails are appearing in places where they weren't seen before!

In the delivery report email, Level 3 stated that the most common items that fall out – in particular the issue with address availability files missing zip codes – and unfortunately Level 3 likewise lacks the human resources to manually perform address/zip code look-ups.

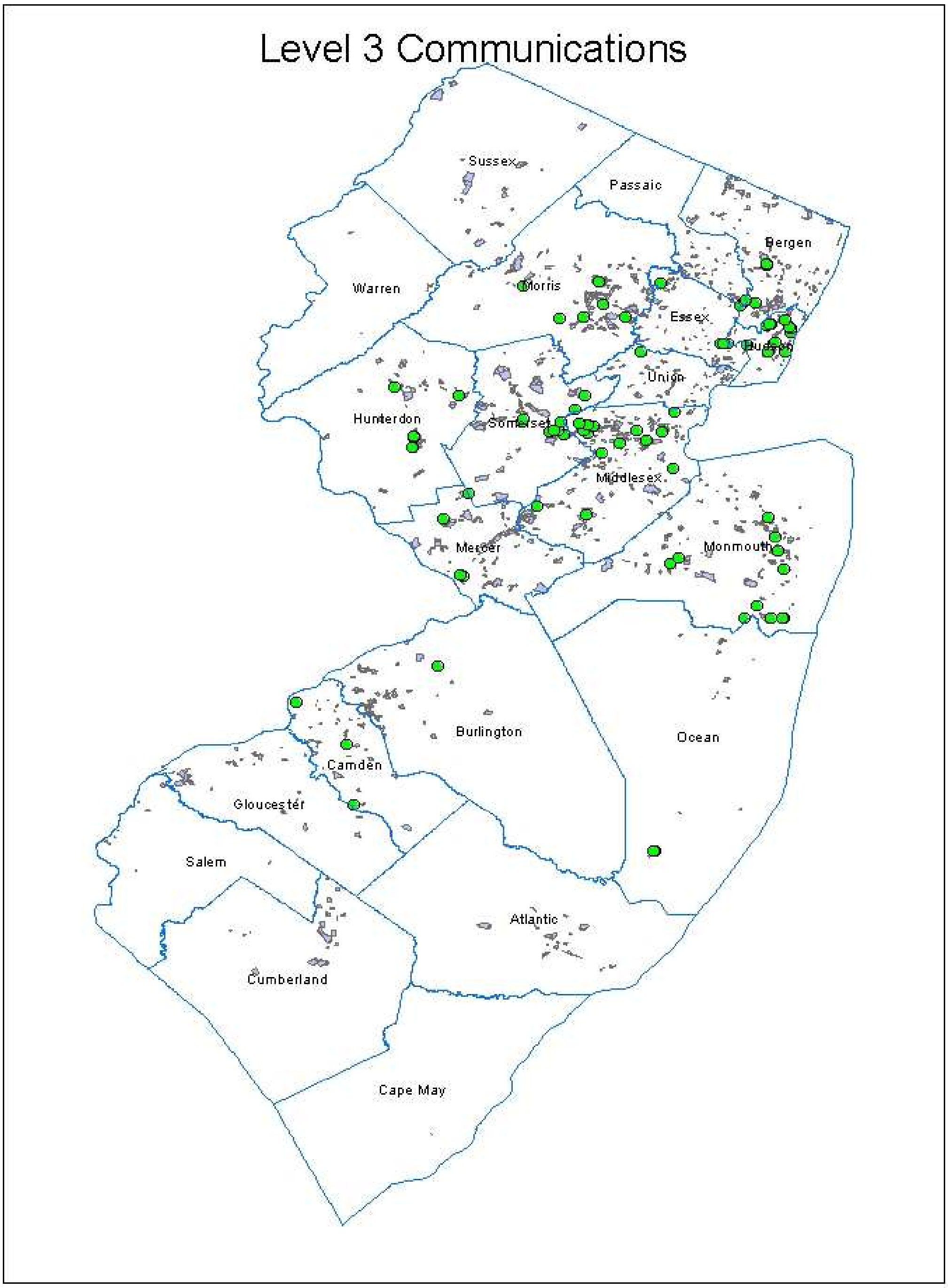
One can choose to include the records or not in the database at your discretion. Level 3's production rules resulted in the inclusion of the widest range of records in the delivery; the rules will be tailored to produce a narrower range of results in the next delivery.

At your request in an effort to provide the underlying data files that were earlier merged into one file for delivery, please see the attached raw data files. That is the best we can do for this round.

-Scott

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: February 2014

Submission date: April 2014

This report presents details on processing 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		MegaPath Corporation	
	"Doing business as" name		MegaPath Corporation	
	FRN		0003753787	
FOr wireline				
Filetypes				
File size				
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	Speeds are provided at address (line segment) and census block granularity.
	Typical-upstream		Address & block	
	Typical-downstream		Address & block	
	Advertised-upstream		Address & block	
	Advertised-downstream		Address & block	
	Subscriber-weighted-up		county level	
	Subscriber-weighted-		county level	

	down			
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 February 2014:

Name	Size
MegaPathCorporation_NJ_CONFIDENTIAL.zip	627KB

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

Name	Size
NJBB_0003753787_AddressSegmentAvailability_MegaPathCorporation_CONFIDENTIAL.txt	53KB
NJBB_0003753787_CensusBlockAvailability_MegaPathCorporation_CONFIDENTIAL.txt	12,174KB
NJBB_0003753787_CMAAdvertisedAvailability_MegaPathCorporation_CONFIDENTIAL.txt	2KB
NJBB_0003753787_MiddleMileConnection_MegaPathCorporation_CONFIDENTIAL.txt	1KB
NJBB_0003753787_SubscriberWeightedNominalSpeed_MegaPathCorporation_CONFIDENTIAL.txt	2KB

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

Apr 2014:

Since the middle mile data are the same as the April 2013 Submission, they were copied.

Oct 2013:

The middle mile data are almost identical except it is 1 less. Since the data are identical, they were 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:

1. 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
2. There are 4 rows, which is different from the last submission. Viewing the data in ArcMap indicates that all points are in New Jersey.
3. Created an Excel sheet and imported to a geodatabase table.
4. (The column data format of the FRN should be Text, not General. Save the excel in the 97-2003 format)
5. 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.
6. 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.
7. 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:

1. 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
2. The supplied text file has 204,344 rows.
3. Typical speeds were used as provided.
4. We used Census Bureau reference data for Year 2010 to locate and submit geographic features (i.e., shapes) for each census block.
5. The endusercat column is set to 2 as requested by the provider.
6. Discarded 1 large census blocks (greater than 2 square miles).
7. Total rows (shapes) loaded is 204,343.

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 638 input rows. One 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 637.

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. There were 25 input records.
3. 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
4. Converted Transtech to “short” and ARPU and SWNOMSPEED to Double
5. Checked to ensure that there were no duplicates, based on FIPS and Transtech
6. 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

From: New Jersey Broadband Data Collection Program
[mailto:connectingnj@groups.appcomsci.com]
Sent: Tuesday, February 11, 2014 8:56 AM
To: 'George.lucero
Subject: NJ Broadband Data - Clarification Question

George,

We have reviewed the data you submitted describing Megapath's broadband Internet access services and have discovered a discrepancy. Attached is our summary of the coverage data you submitted. When we compare this summary to the data you provided describing your subscriber-weighted nominal speeds, we find several differences:

You coverage data includes technology code 30 (Other Copper Wireline) in many counties, yet that value does not appear in your subscriber weighted nominal speeds.

In several counties, your coverage data includes census blocks where you supply Symmetric xDSL (technology code 20) but you did not report Symmetric xSDL in the subscriber weighted nominal speeds. (e.g., Counties 11 – Mercer, 15 – Ocean and 21 – Warren) (Note that this is not universally true – in some counties you do report SWNS for Symmetric xSDL.)

Any explanations you could provide for these differences would help us ensure that the submitted data is as accurate as possible.

Thanks,

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: George Lucero
Sent: Tuesday, February 11, 2014 11:35 AM
To: connectingnj@groups.appcomsci.com
Subject: RE: NJ Broadband Data - Clarification Question

John:

The Subscriber Weight Normalized Speed report, per NTIA definition, considers current residential subscribers only. This is the explanation behind both observations.

MegaPath does not utilize other wireline technology for any of its residential offerings; in fact, MegaPath currently only utilizes asymmetric xDSL technology; and

MegaPath retired its symmetric residential offerings many years back, and have grandfathered subscribers for this technology only in limited areas.

Should you have any questions or need additional information, please reply or call.

Thank you,

George

George A. Lucero

Litigation & Regulatory Affairs

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Tuesday, February 11, 2014 5:09 PM
To: 'George Lucero'
Subject: RE: NJ Broadband Data - Clarification Question

George,

Thank you for the quick response. I would like to clarify two things:

I understand that you no longer offer symmetric DSL to new customers, but may have some existing customers using the technology. I would therefore expect that it would not show up in your Census Block data. However, it does show up there.

I think I understand that the same is true for Other Copper – you may have offered it in the past, and have some customers still using it, but it is not a service you offer today. Again, I would expect that this would not appear in your Census Block data, but it does.

Based on your explanation that you only offer asymmetric xDSL at this time, I believe that we should drop all records showing any other technology from your Census Block and Road Segment data. Is that correct?

John

From: George Lucero
Sent: Tuesday, February 11, 2014 5:24 PM
To: connectingnj@groups.appcomsci.com
Subject: RE: NJ Broadband Data - Clarification Question

John:

MegaPath actively offers business class symmetric xDSL and other wireline service. However, the Subscriber Weighted Normalized Speed report is restricted to residential class service.

Perhaps this table will clarify:

Class of Service vs. Tech	Asym xDSL	Sym xDSL	Other Wireline
Business	Current	Current	Current
Residential	Current	Grandfathered	N/A

The coverage report contains the 4 boxes labeled "Current", whereas the SWNS report involves just the Orange boxes.

Please let me know if you need additional information or have further questions.

Thank you,

George

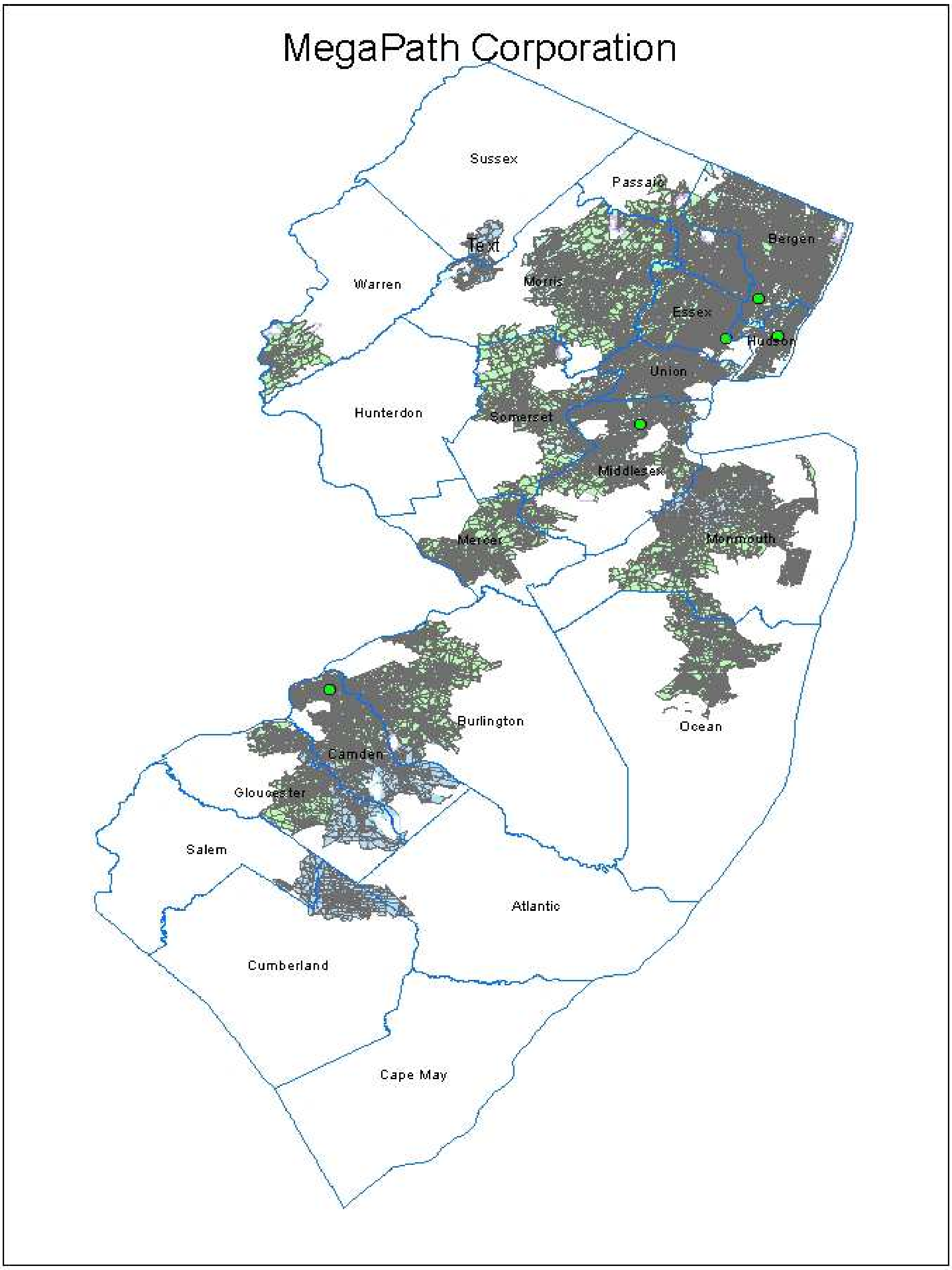
George A. Lucero

Litigation & Regulatory Affairs

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: Meriplex

Received: February 2014

Submission date: April 2014

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	Meriplex Communications, Ltd. Meriplex Communications, Ltd. 0015287972
FOr wireline		
Filetypes	Excel Spreadsheet	
File size	27 KB, 4 locations specified	
Speeds	<table><tr><th>Type</th><th></th><th>Address Level Data</th></tr><tr><td>Typical-upstream</td><td></td><td>N/A</td></tr><tr><td>Typical-downstream</td><td></td><td>N/A</td></tr><tr><td>Advertised-upstream</td><td></td><td>Multi-Gigabit</td></tr><tr><td>Advertised-downstream</td><td></td><td>Multi-Gigabit</td></tr><tr><td>Subscriber-weighted-nominal speed</td><td></td><td>N/A</td></tr></table>	
Technology Type	Fiber and Other Copper	
End-user	Serving business customers	

specification	
Comments: Meriplex Communications, Ltd is a RESELLER. Data they provided via email shows the address, speed and provider of the underlying service.	
Interconnection DATA	
ID	None
File size	
Ownership	
Transport Type	
Data Rates/Capacity	
Location	
Comments:	

Section 3: Submission File Details

Received 4 records in Excel file by email:

Size	Name
27 KB	NJBB_0015287972_AddressLevelAvailability.xls

Section 4: Validations and Results

Section 5: Data Transformation and Loading

Submitted data included following fields:

- ProvName, FRN, BldgNbr, StreetName, StreetType, City, StateAbbr, Zip5, EndUserCat, TransTech, MaxAdvDown, MaxAdvUp, TypicDown, TypicUp

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

The following table explains the transformations that were applied while loading the submitted data. There were 4 input records.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column ProvName
DBANAME	Same as provname
PROVIDER_TYPE	Set to 2
FRN	Set to “0015287972”
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 (next 5 digits)
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	As supplied in column TypicDown
TYPICUP	As supplied in column TypicUp
ENDUSERCAT	Set to 2
SHAPE	As supplied by reference data

Internal processing notes:

1. GeoCoded using concatenation of BldgNbr, StreetName, StreetType, City, StateAbbr, and Zip5.
2. 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.
3. ProviderInput table data joined with njbbmap.refdata_2010.tl_2010_34_tabblock10_wgs.
4. All census blocks were confirmed to be less than 2 square miles.
5. EndUserCat is 4 for all records. Since this is not valid changed to 2.
6. 4 records were loaded into BB_Service_CensusBlock table.

Section 6: Clarification Questions and Responses

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Wednesday, February 26, 2014 1:43 PM
To: Matt Edmiston
Subject: RE: NJ Broadband Confirmation

Matt,

We have reviewed the data you submitted and have two questions.

1. The FRN and company name we have for you in NJ from the FCC is 0019621796/Meriplex Telecom LLC while what you submitted is 0015287972/Meriplex Communications, Ltd. Which is the correct set to use?

2. The NTIA requires us to classify companies as either "providers" or "resellers". For the addresses you serve in New Jersey, do you provide the facilities or lease them from another provider?

Thanks for your participation.

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: Matt Edmiston [mailto:medmiston@meriplex.com]
Sent: Thursday, February 27, 2014 11:15 PM
To: connectingnj@groups.appcomsci.com
Subject: RE: NJ Broadband Confirmation

Communications provides the data transport.

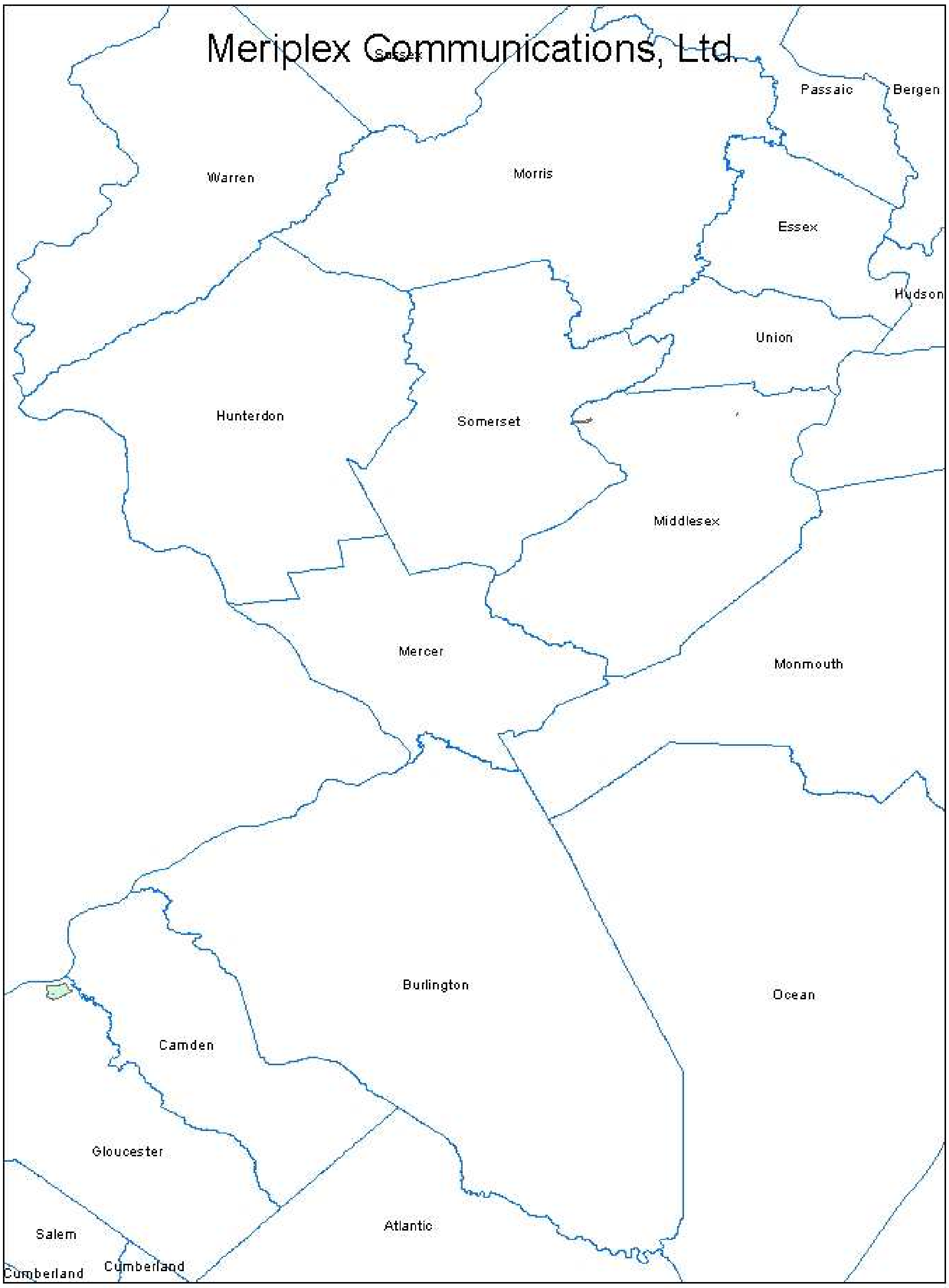
Telecom provides the voice service.

Communications purchases the circuit from Level 3 on a wholesale basis.

We can be listed as a reseller.

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Monmouth Telephone and Telegraph

Received: January 2014

Submission date: April 2014

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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Monmouth Telephone & Telegraph
same
0004325205</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2">Csv (AddresLevelAvailability for December 31, 2013.csv)</td></tr>
<tr><td>File size</td><td colspan="2">83 Kbytes, 835 records</td></tr>
<tr><td>Speeds</td><td colspan="2"><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></tr>
<tr><td>Typical-upstream</td><td></td><td>Address</td></tr>
<tr><td>Typical-downstream</td><td></td><td>Address</td></tr>
<tr><td>Advertised-upstream</td><td></td><td>Address</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>Address</td></tr>
<tr><td>Subscriber-weighted-up</td><td></td><td>None provided</td></tr>
</table></td></tr>
</table>

	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
17Kb	December 2013.zip

The zip archive contains the following files:

Size Name

83Kb	AddresLevelAvailability for December 31, 2013.csv
2Kb	CMA Advertised Availability December 31, 2013.csv
2Kb	SubscriberWeightedNominalSpeed December 31, 2013.csv
21Kb	Read Me.doc

File details:

AddresLevelAvailability for December 31, 2013.csv:

The file contains 836 records. File does have a header row. Thus there are 835 data records. The columns and the corresponding headers are:

A - ProvName

C - FRN

D-K - Address

M - EndUserCat

N - Technology

O - MaxAdvSpdD

P - MaxAdvspdU

Q - TypSpeedD

R - TypspeedU

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 December 31, 2013.csv

The file contains 19 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 December 31, 2013.csv

The file contains 19 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

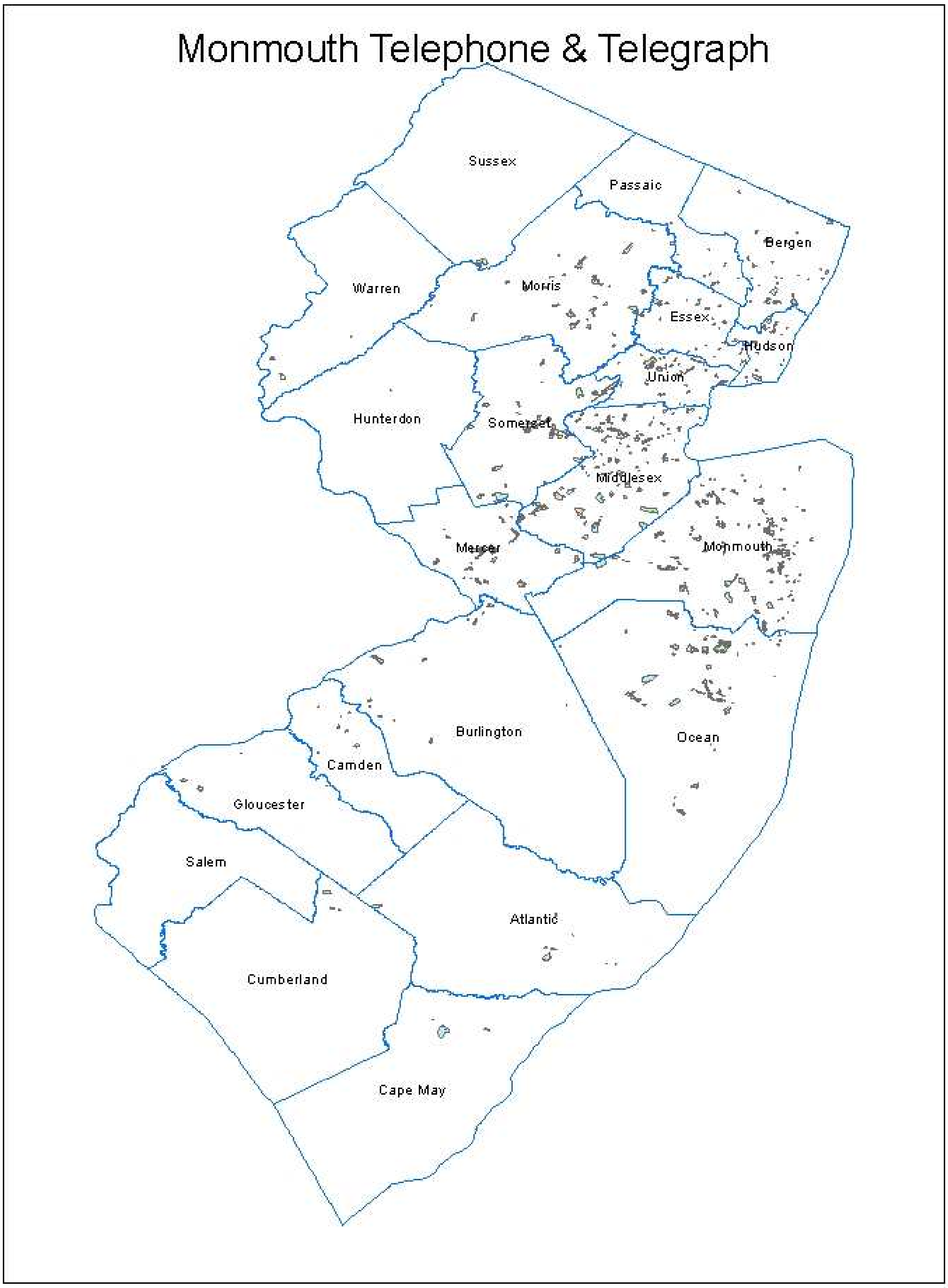
Internal processing notes:

1. All records in AddresLevelAvailability for December 31, 2013.csv were successfully geo-coded using the Google geocoder to obtain a Latitude, Longitude pair for each. However, 15 records were mapped to states other than NJ. 11 of the 15 were successfully manually recoded. The remaining 4 had other states not of NJ. Created an Excel sheet and imported it to a geodatabase table.
2. 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.
3. 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.
4. Discarded 8 records that failed to properly spatially join on the 2010 NJ Census Block shapes.
5. Discarded 43 rows because the max adv down speed code was 1 or 2, which is not broadband according to the requirements of the NOFA
6. Discarded 110 rows with duplicate census blocks while preserving the greatest speed. These result from multiple customers in the same census block.
7. Discarded 6 large census blocks (greater than 2 square miles).
8. Final record count loaded is 668
9. 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: Netcarrier

Received: March 2014

Submission date: April 2014

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

For April 2014:

This is a stub report, since data from the previous April 2013 submission was reused unchanged. The complete report from the previous submission begins on the next page. Note the April 2013 submission was FCC 477 data. As such, the Technology Code was multiplied by 10.

Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy netcarrier_oct2013.BB_Service_CensusBlock to netcarrier_apr2014. BB_Service_CensusBlock.
2. Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy netcarrier_oct2013.BB_ConnectionPoint_MiddleMile to netcarrier_apr2014. BB_ConnectionPoint_MiddleMile

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 netcarrier_apr2013.BB_Service_CensusBlock to netcarrier_oct2013. BB_Service_CensusBlock.
2. 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.
3. 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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Netcarrier
Netcarrier Telecom, Inc.
0005043195</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2">Excel</td></tr>
<tr><td>File size</td><td colspan="2">119 KB (595 rows)</td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td></td><td>Spatial Resolution: address</td></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></td><td>Provides a .xls file with 895 rows of information (end user addresses).</td></tr>
<tr><td>Technology Type</td><td colspan="2">Types: 10, 30, 50</td></tr>
<tr><td>End-user specification</td><td colspan="2">Address level.</td></tr>
</table>

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.

The following description 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:

1. Used the provider name, DBA name, and FRN as supplied.
2. Following steps were performed for Fall 2011 submission and the results reused:
3. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
4. Imported the resulting data to a geodatabase table.
5. 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.
6. 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.
7. Loaded 11 records.
8. These records were copied over into a new BB_ConnectionPoint_MiddleMile table

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:

Following steps were performed for the April 2013 submission:

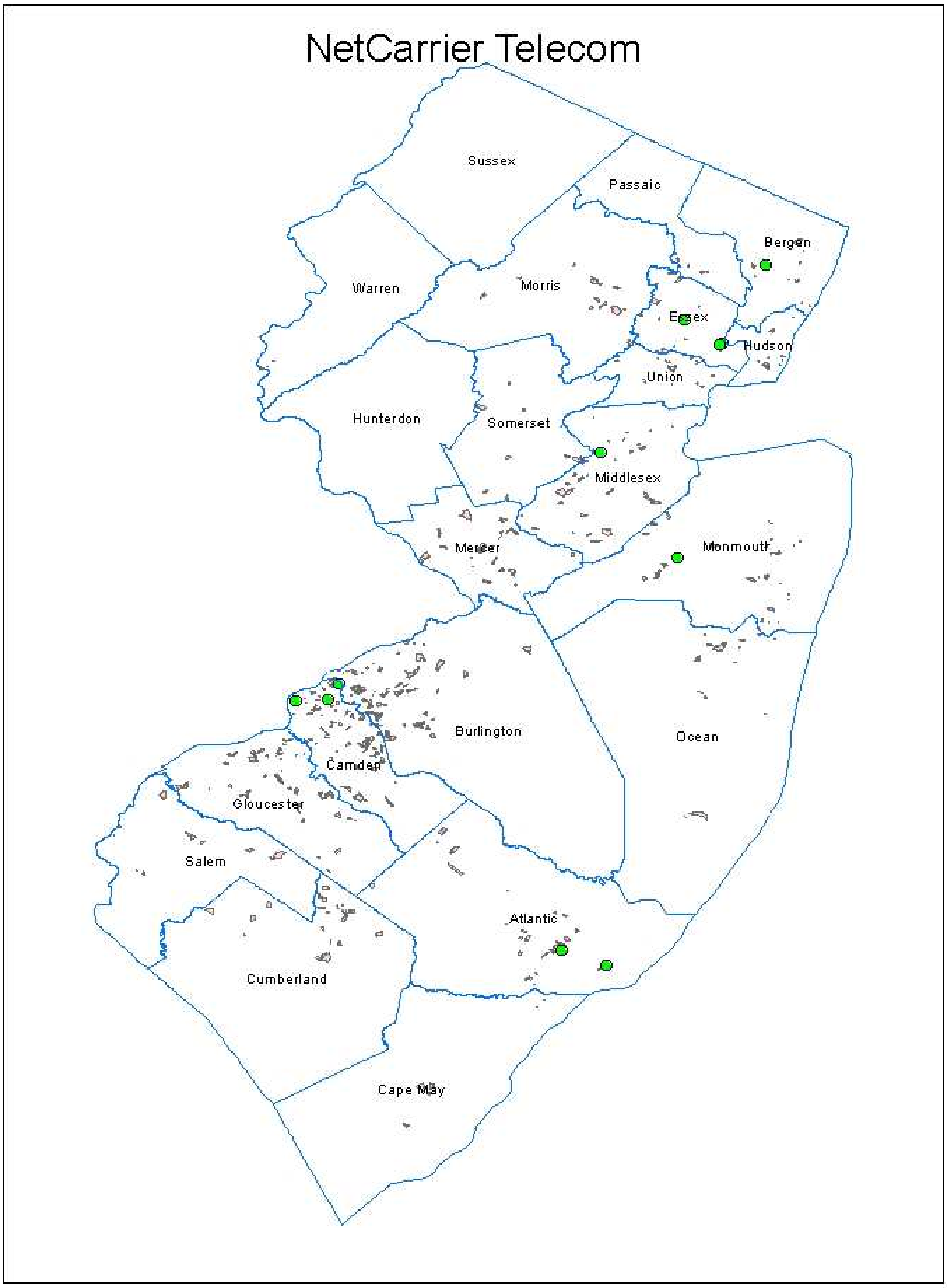
1. Geocoded the addresses using an Arroyo flow and the Yahoo geocoder, leaving the result with address and lat, long data in an Excel spreadsheet. All addresses (793) were successfully geocoded.
2. Imported the spreadsheet to a simple ESRI geodatabase table
3. Added point shapes corresponding to each Latitude,Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option

4. 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.
5. Discarded 286 duplicate census block records, which result from multiple addresses in the same census block.
6. Discarded 1 large census block record.
7. Loaded 506 records.
8. 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: Network Billing Systems

Received: February 2012

Submission date: April 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy nbs_oct2013.BB_ConnectionPoint_MiddleMile to nbs_apr2014. BB_ConnectionPoint_MiddleMile

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:

- 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:

- 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

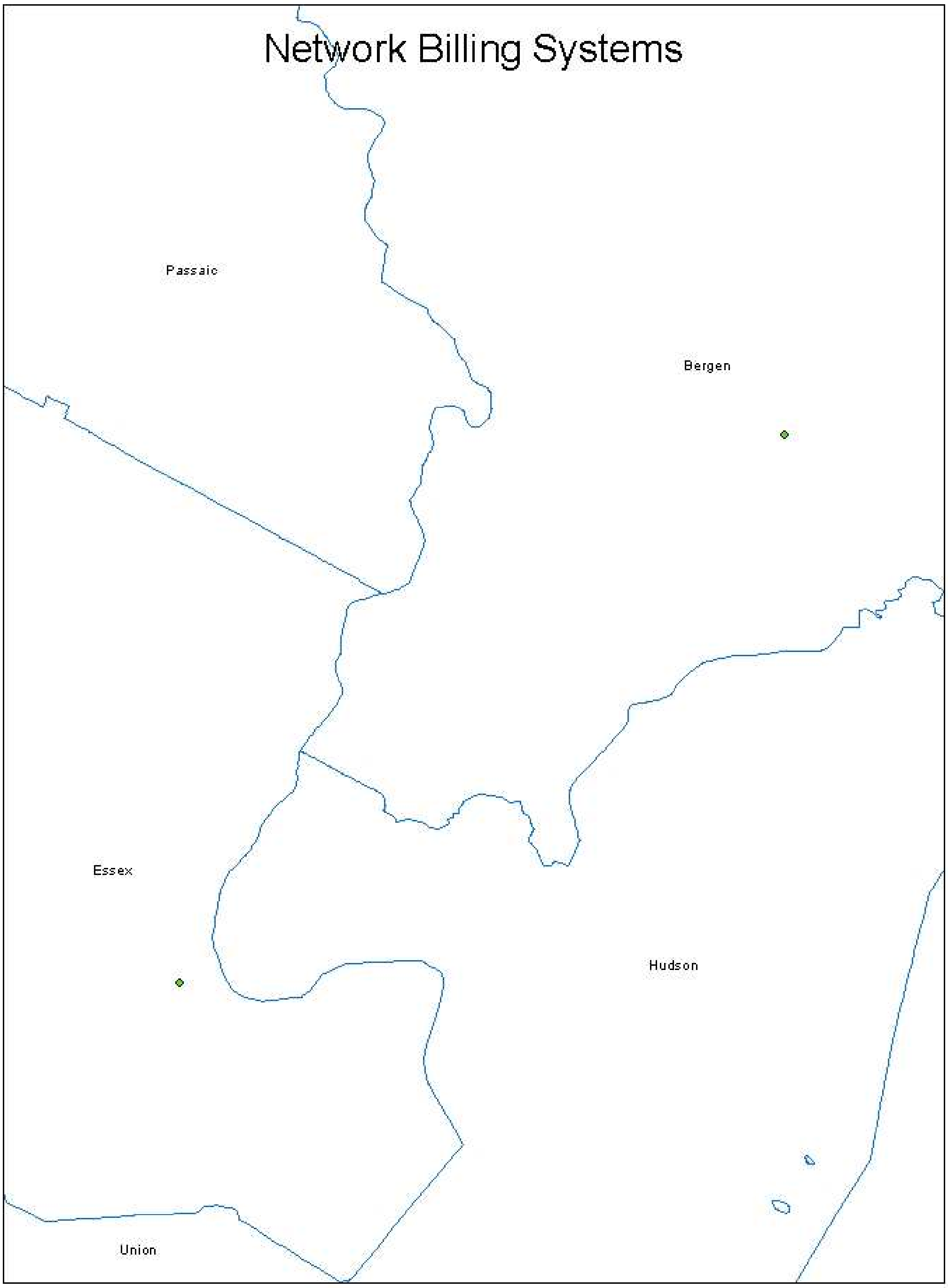
Internal notes on processing:

1. Used the provider name, DBA name, and FRN from FCC Form 477 reference data.
2. The following steps were performed for the October 2011 submission and the results re-used here:
3. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
4. Imported the resulting data to a geodatabase table.
5. 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.
6. 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.
7. Based on provider email response, set ownership value to leased.
8. Loaded 2 records.

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 Sparta

Received: March 2012

Submission date: April 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelecsparta_oct2013.BB_Service_CensusBlock to svcelecsparta _apr2014.BB_Service_CensusBlock.
- Same is applied to BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.

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:

- 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.
- Same is applied to svcelecsparta_oct2013.BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile.
- Update the endusercat column in the BB_Service_RoadSegment table. Loaded from tl_2010_34_large_streets_10_wgs reference table.
- 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:

- 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.
- 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

<table>
<tr><td colspan="4">Availability Data</td></tr>
<tr><td>ID</td><td colspan="2">Provider name
“Doing business as” name
FRN</td><td>Service Electric Cable TV of NJ Inc.
Service Electric Broadband Cable
0005007125</td></tr>
<tr><td colspan="4">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="3">Text</td></tr>
<tr><td>File size</td><td colspan="3">9728 bytes</td></tr>
<tr><td>Speeds</td><td colspan="2"><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></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>Municipality</td></tr>
</table></td><td>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.</td></tr>
</table>

	Advertised-downstream		Municipality	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.
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
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:

1. Following steps were performed during prior submission
2. Created an excel sheet and imported to a geodatabase table.
3. 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.
4. 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.
5. 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).

6. 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:

1. 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”.
2. Joined against reference data to discover census blocks, for a total of 4,135 blocks.

3. 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.

3. 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, February 24, 2014 7:06 PM
To: connectingnj@groups.appcomsci.com; cherie@secable.com; james.galliford@secable.com
Subject: Re: NJ Broadband Data

Yes, use the same data.

Thanks.

On 2/24/14, 5:16 PM, New Jersey Broadband Data Collection Program wrote:

Cherie and James,

I have sent you a couple of notes requesting updated information on the coverage and speed of your broadband Internet access in NJ. We are still hoping that we can include your service in the latest submission. Could you provide updated information? Alternatively, if your speed and coverage area have not changed, we could use the data you have submitted in the last round again.

Please let me know the best way to represent your offerings.

Thanks,

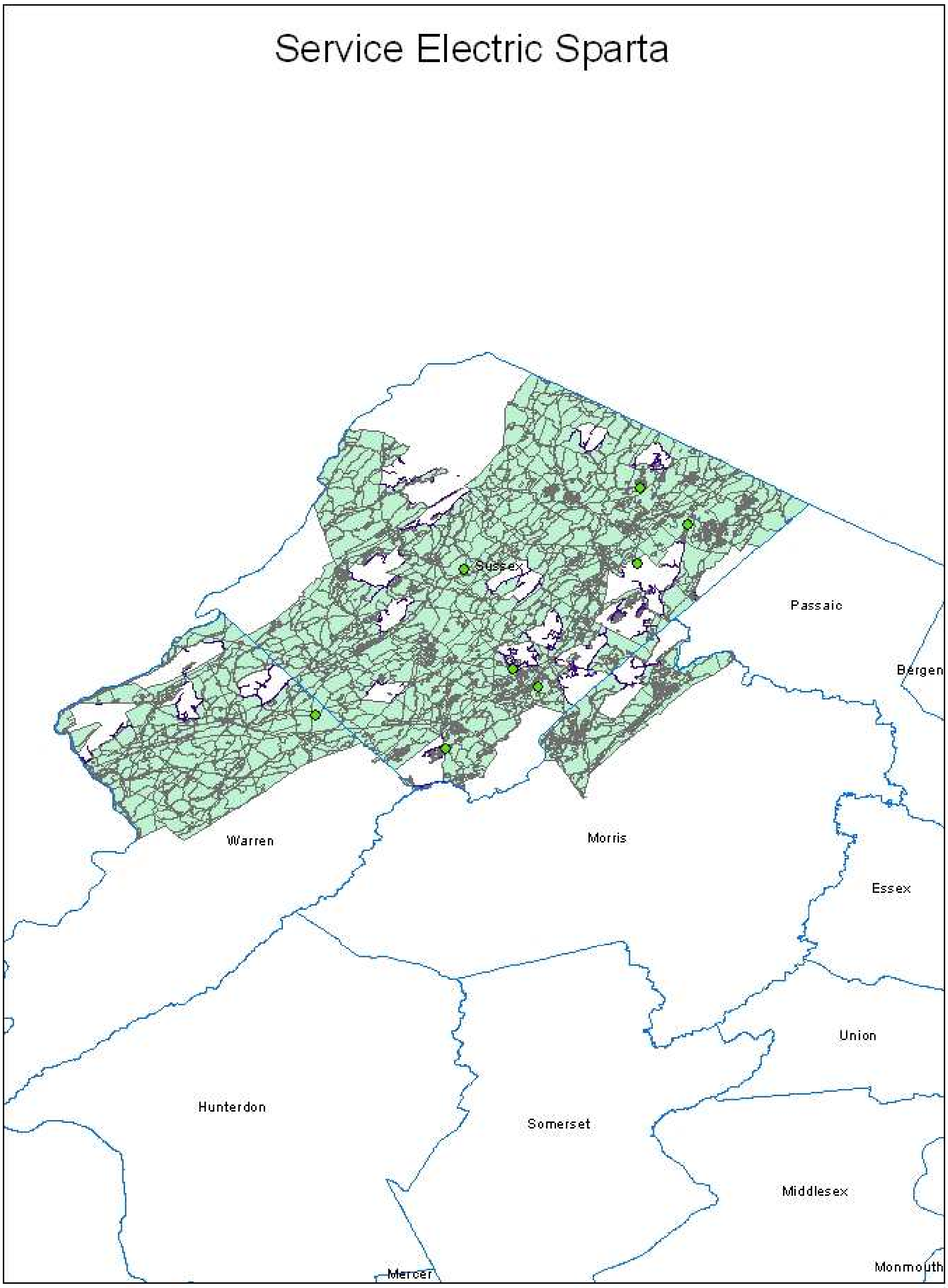
John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

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: April 2014

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

For April 2014:

According to the customer's statement that the speed is 50MBPS, we need to change maxaddown from 10 to 9.

Other than this, the data is the same as the previous submission.

Processing steps:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy svcelechunterdon_oct2014.BB_Service_CensusBlock to svcelechunterdon_apr2014. BB_Service_CensusBlock.
- Same is applied to BB_Service_RoadSegment and BB_ConnectionPoint_MiddleMile
- Set the maxaddown to 9 in BB_Service_CensusBlock and BB_Service_RoadSegment.

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:

- Set endusercat column to the BB_Service_CensusBlock table.Set to "5" as per communication with the provider.
- Set endusercat column to the BB_Service_RoadSegment table.Set to "5" as per communication with the provider.
- Set download speed to "10" and transtech ti "40" as per communication with the provider.
- 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.
- 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:

- 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.
- 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	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

<table>
<tr><td rowspan="5"></td><td>Typical-downstream</td><td></td><td>Not provided</td><td rowspan="5">yet available commercially for residential customers.

In previous submissions, provider had given a list of municipalities that they covered completely.</td></tr>
<tr><td>Advertised-upstream</td><td></td><td>Municipality</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>Municipality</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>
<tr><td>Technology Type</td><td colspan="4">Docsis 2.0 (use code 41)</td></tr>
<tr><td>End-user specification</td><td colspan="4">Not provided</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td colspan="5">Interconnection DATA</td></tr>
<tr><td>ID</td><td colspan="4"></td></tr>
<tr><td>File size</td><td colspan="4"></td></tr>
<tr><td>Ownership</td><td colspan="4">Leased</td></tr>
<tr><td>Transport Type</td><td colspan="4">Fiber</td></tr>
<tr><td>Data Rates/Capacity</td><td colspan="4">1 Gbps</td></tr>
<tr><td>Location</td><td colspan="4">List of addresses</td></tr>
<tr><td colspan="5">Comments: In telephone conversation, Provider described locations of interconnection huts and provided information on technology and speeds.</td></tr>
</table>

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:

Following steps were performed for October 2011 submission

1. 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”.
2. Joined against municipalities against reference data to identify corresponding list of census blocks.

Ran all NTIA validations.

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

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

From: Tim Himmelwright
Sent: Monday, February 24, 2014 2:50 PM
To: connectingnj@groups.appcomsci.com
Subject: Re: NJ Broadband Data

John,
Yes, our systems in New Jersey all operate on DOCSIS 3.0 at 50 Mb/s for our residential service. Work has begun on a new technology upgrade that will rpovide for even faster speeds when completed.

Best Regards,

Tim Himmelwright
Communiations & Public Affairs
Service Electric Cable TV & Communications/
Service Electric Cable TV of Hunterdon, NJ

On 2/24/2014 2:03 PM, New Jersey Broadband Data Collection Program wrote:

Tim,

Thanks for calling me back today. As I understood from our conversation, your coverage and speeds have not changed from the last submission, with DOCSIS 3.0 at 50 Mb/s as your residential service. If you could confirm that in a reply, I would appreciate it.

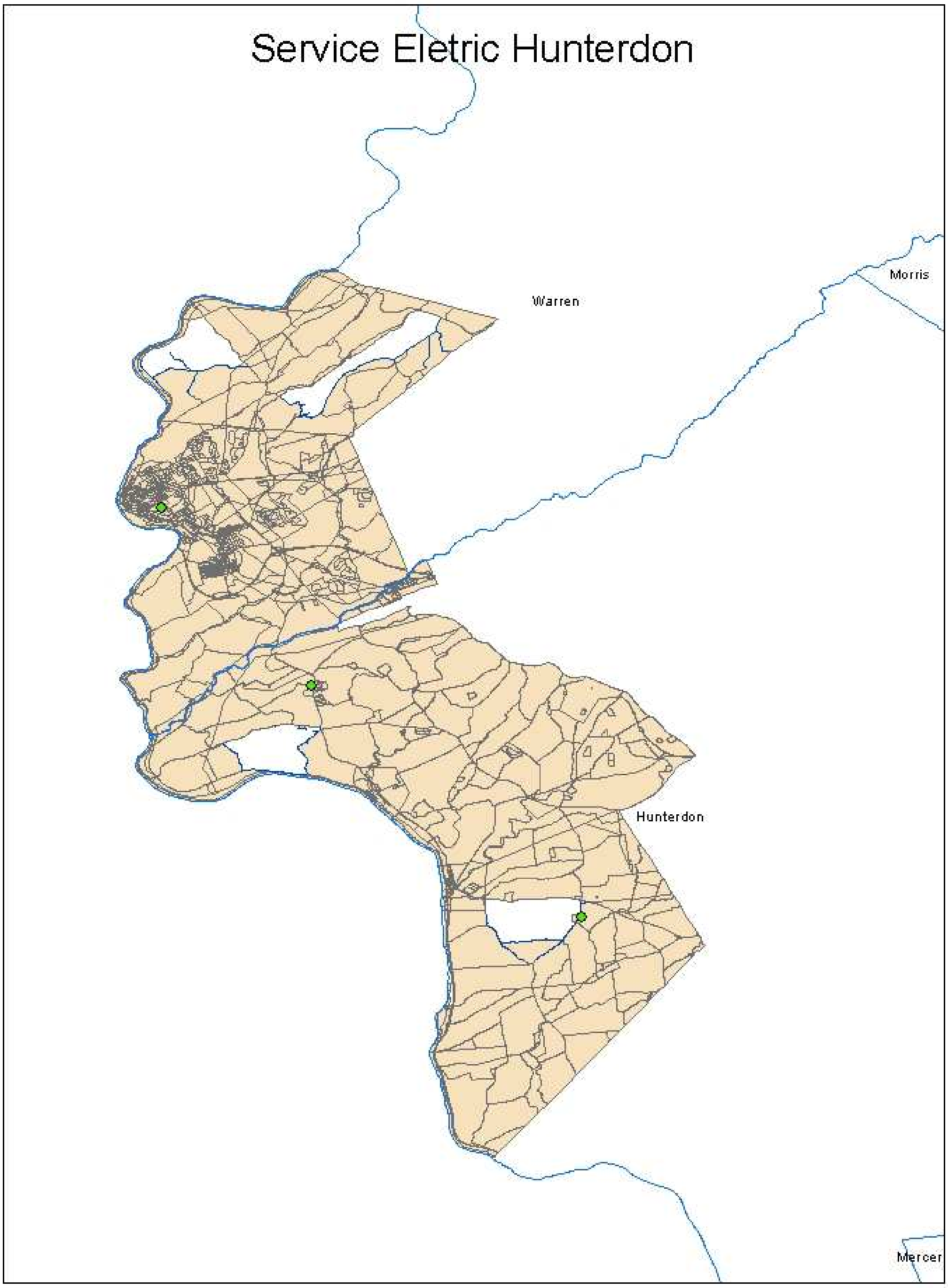
Thanks for your participation,

John Wullert

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: Skycasters, LLC

Received: September 2012

Submission date: April 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy skycasters_oct2013.BB_Service_Wireless to skycasters_apr2014.BB_Service_Wireless.

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:

- 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.
- 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:

- 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".

- 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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Skycasters, LLC
Skycasters, LLC
0018756155</td></tr>
<tr><td colspan="3">for wireless</td></tr>
<tr><td>Filetypes</td><td>Excel file with data gleaned from the Skycasters WEB site</td><td></td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td></tr>
<tr><td>Upstream max adv</td><td>1.5M</td></tr>
<tr><td>Downstream max adv</td><td>6.09M</td></tr>
<tr><td>Upstream typical</td><td></td></tr>
<tr><td>Downstream typical</td><td></td></tr>
<tr><td>Subscriber-weighted</td><td></td></tr>
</table></td><td>Skycasters WEB site lists multiple speed plans, the highest speed combination offered is 6.09M / 1.5M</td></tr>
<tr><td>Technology Type</td><td>Code 60 (Satellite)</td><td></td></tr>
<tr><td colspan="3">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.</td></tr>
<tr><td colspan="3">Interconnection DATA</td></tr>
<tr><td>ID</td><td colspan="2"></td></tr>
</table>

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:

1. The excel sheet is imported to a geodatabase table.
2. 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.
3. 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.
4. 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".
5. 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

Melony Liebel

<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

Connecting New Jersey – Broadband Provider Data Report

Provider: Sprint

Received: January 2014

Submission date: April 2014

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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Sprint Corporation
Sprint
0022117618</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td>Txt, xls, pdf, etc.</td><td></td></tr>
<tr><td>File size</td><td>Number of records, data elements</td><td></td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td></tr>
<tr><td>Upstream</td><td></td></tr>
<tr><td>Downstream</td><td></td></tr>
<tr><td>Typical</td><td></td></tr>
<tr><td>Advertised</td><td></td></tr>
<tr><td>Subscriber-weighted</td><td></td></tr>
</table></td><td></td></tr>
<tr><td>Technology Type</td><td>DOCSIS, xDSL, fiber, etc.</td><td></td></tr>
</table>

<table>
<tr><td>End-user specification</td><td>Business, consumer, gov’t etc</td><td></td></tr>
<tr><td colspan="3">Comments:</td></tr>
<tr><td colspan="3">for wireless</td></tr>
<tr><td>Filetypes</td><td>shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.</td><td>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 4 rows correspond to spectrums 3 and 5.</td></tr>
<tr><td>Speeds</td><td><table>
<tr><th>Type</th><th>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</th></tr>
<tr><td>Upstream max adv</td><td>Single shape, single speed</td></tr>
<tr><td>Downstream max adv</td><td>Single shape, single speed</td></tr>
<tr><td>Upstream typical</td><td>Single shape, single speed</td></tr>
<tr><td>Downstream typical</td><td>Single shape, single speed</td></tr>
<tr><td>Subscriber-weighted</td><td>County; but all values are identical</td></tr>
</table></td><td>Max advertised up 2, down 3; typical upstream 2, down 3 and

Max advertised up 4, down 6; typical upstream 4, down 6 for spectrum 3

Max advertised up 3, down 5; typical upstream 3, down 5 and

Max advertised up 4, down 6; typical upstream 4, down 6 for spectrum 5</td></tr>
<tr><td>Technology Type</td><td>Spectrum (Mhz, FCC code)</td><td>3 and 5 (PCS 1850-1915 MHz, 1930-1995)</td></tr>
<tr><td colspan="3">Comments:</td></tr>
<tr><td colspan="3">Interconnection DATA</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Sprint Corporation
Sprint
0022117618</td></tr>
<tr><td>File size</td><td>Number of records, data elements</td><td>4</td></tr>
<tr><td>Ownership</td><td>Leased/owned</td><td>Leased = 1, owned = 0</td></tr>
</table>

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 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
2423KB	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	7,965 KB
Sprint_AreaAvailability_NJ_region.shx	1 KB

Sprint submitted the end_user_category value, 5 for the 4 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.

Apr 2014, 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:

1. 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.)
2. Created an excel sheet. Import the data from the input file. Save the excel. Read the FRN as Text. Make sure the types of latitude and longitude are double.
3. 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.
4. 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.
5. 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.

April 2014, October 2013:

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
>
> Browse to ArcToolbox > Conversion Tools > To Geodatabase.
>
> Open the Feature Class to Geodatabase (multiple) tool.
>
> Add all the feature classes into the Input Feature Class parameter.
>
> Select an Output Geodatabase.
>
> Click the Environments button at the bottom of the tool dialog box.
>
> Expand the General Settings.
>
> For the parameter, Output has Z Values, change the value to Disabled.
>
> For the parameter, Output has M Values, change the value to Disabled.
>
> Click OK in the Environments dialog box.
>
> 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 Spectrum Code: 1, 2, 3 Speed Code: 4 (≥1.5 mbps < 3 mbps speed), 5 (≥3 < 6 mbps speed), 7 (≥10 < 25 mbps speed)	Sprint Spectrum Code: 3, 5 Speed Code: 3 (≥768 kbps < 1.5 mbps speed), 5 (≥3 < 6 mbps speed)	Verizon Spectrum Code: 1, 2, 3, 4, 5 Speed Code: 3 (≥768 kbps < 1.5 mbps speed), 7 (≥10 < 25 mbps speed)	T-Mobile 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

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]

To: 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.

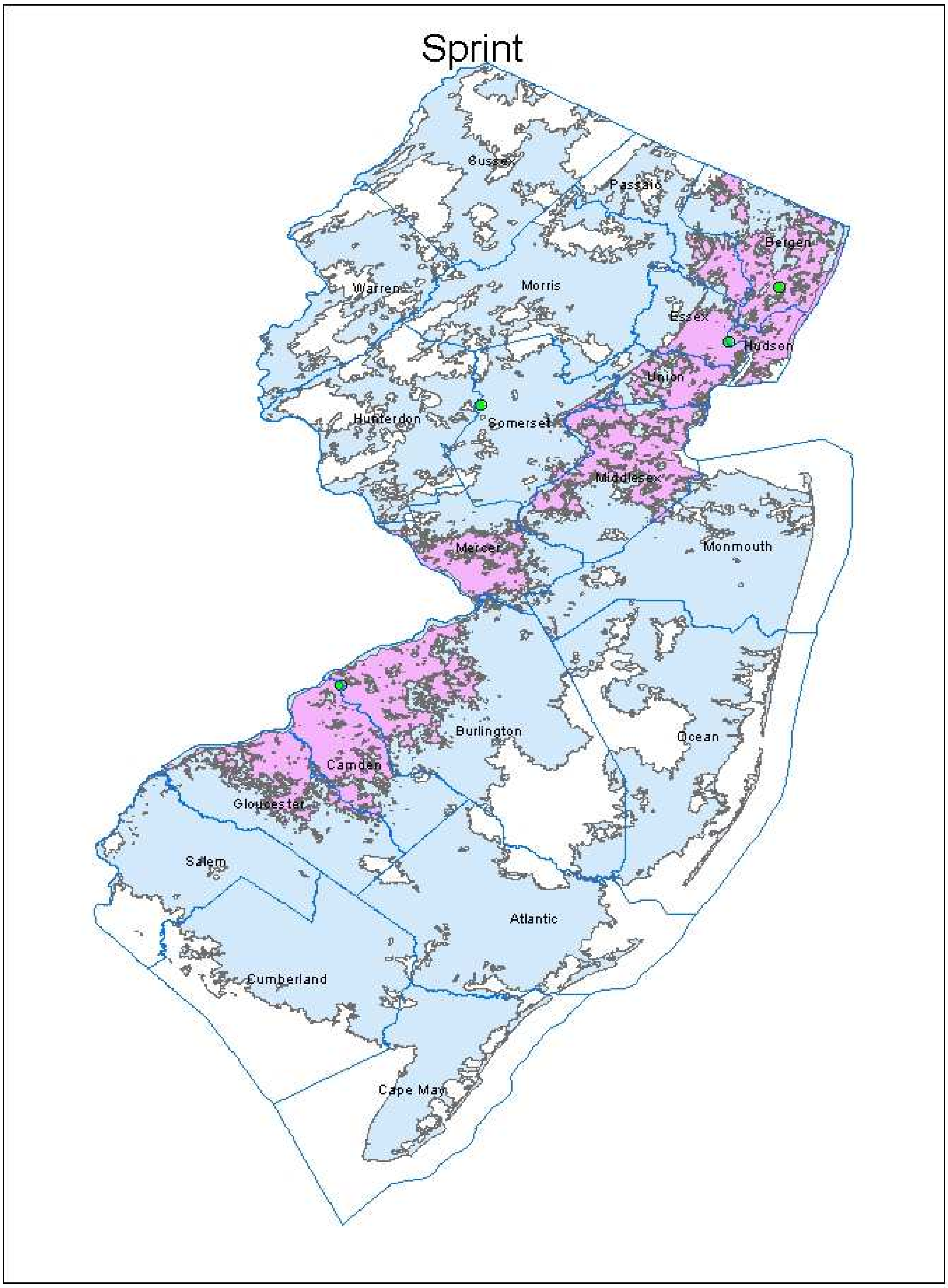
Thank You,

Cyrus Scott

Director, Legal Information Systems and Spectrum Licensing Support Sprint Nextel

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 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy starband _oct2013.BB_Service_Wireless to starband _apr2014.BB_Service_Wireless.

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:

- 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.
- 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:

- 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".
- 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:

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 (address, street seg, census block, RSA/MSA, zipcode,etc)	Max advertised up is Code 2 (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.

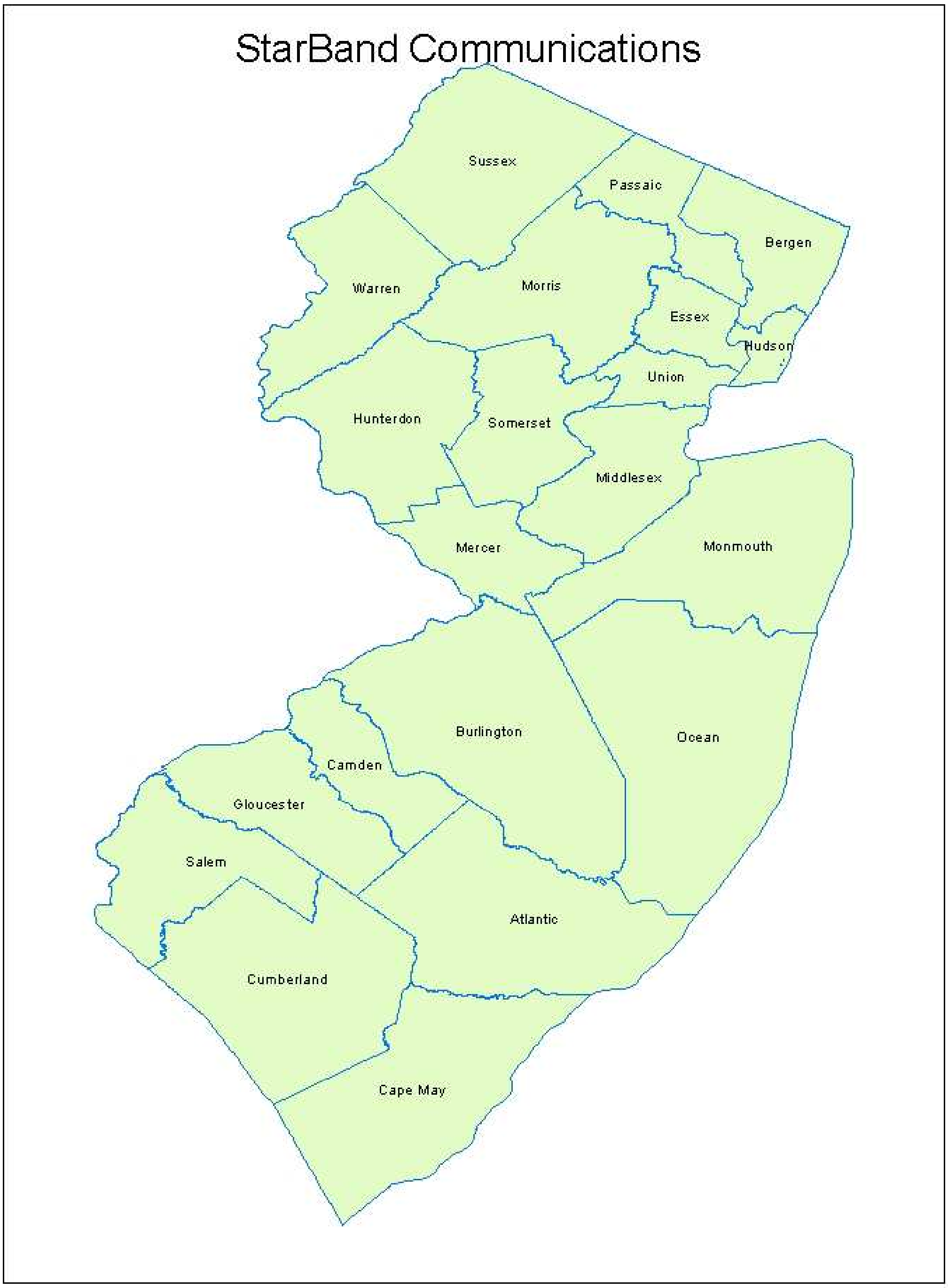
Internal notes on processing:

1. Spectrum: No statement was provided. The NTIA data model has a single column for spectrum. Satellite corresponds to NTIA “SPECTRUM USED” code value 7.
2. 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

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey – Broadband Provider Data Report

Provider: Time Warner

Received: February 2014

Submission date: April 2014

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	Time Warner Cable, LLC
	DBA NAME	Time Warner Cable
	FRN	0013430244
	Holding company name	Time Warner Cable Inc.
	Holding company number	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	not provided

	typical		
	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.	

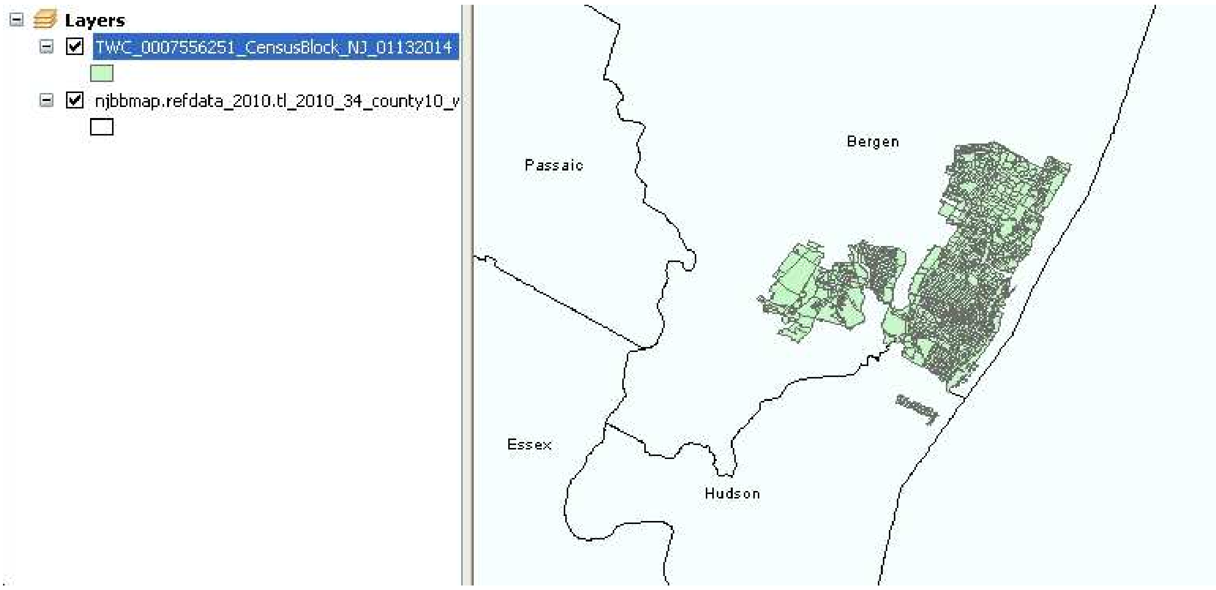
Section 3: Submission File Details

Received 1 archive file by EMAIL:

Name	Size
TWC_0007556251_NJ_12312013.zip	505 KB
NJ 9th BB Cltr.pdf	91 KB
TWC_0007556251_CensusBlock_NJ_01132014.dbf	644 KB
TWC_0007556251_CensusBlock_NJ_01132014.prj	1 KB
TWC_0007556251_CensusBlock_NJ_01132014.sbn	19 KB
TWC_0007556251_CensusBlock_NJ_01132014.sbx	1 KB
TWC_0007556251_CensusBlock_NJ_01132014.shp	529 KB
TWC_0007556251_CensusBlock_NJ_01132014.shp.xml	2 KB
TWC_0007556251_CensusBlock_NJ_01132014.shx	16 KB
NJ 9th BB Del Conf 01-29-14.pdf	87 KB

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 9th BB Cltr.pdf states that the middle mile data has not been changed. Therefore we copied the October 2013 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:

1. Created an excel sheet and imported to a geodatabase table.
2. 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.
3. 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.
4. 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 as below note 5
SHAPE	As supplied

Internal notes on processing

1. The shapefile TWC_007556251_CensusBlock_NJ_01132014 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.
6. All 1973 records were loaded.

NTIA Table BB_Service_Overview

April 2014

The overview data was not submitted.

October 2013

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.

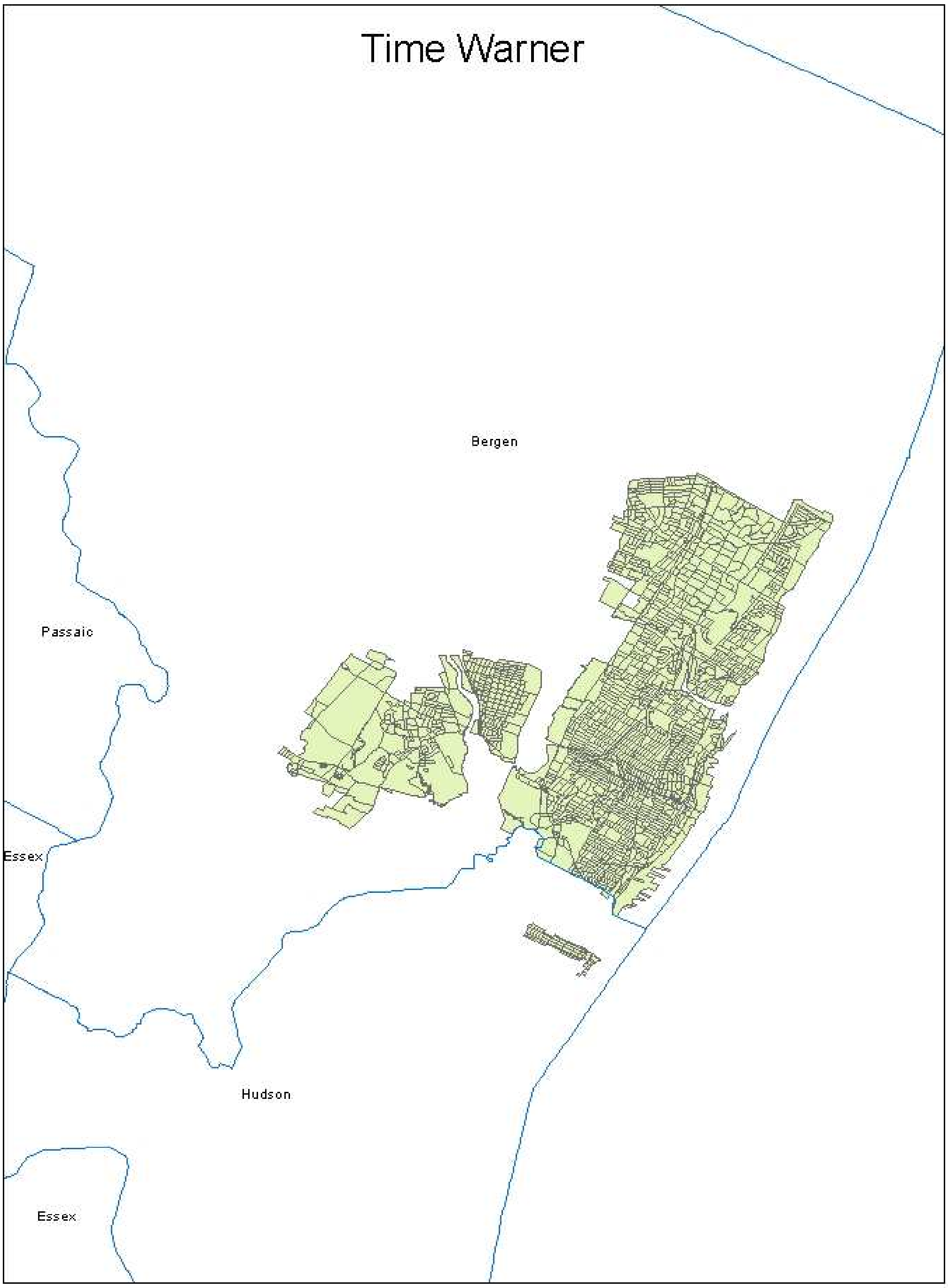
Since we are not sure if the BB_Service_Overview table has proper protection, we did not to submit the data.

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

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: T-Mobile

Received: February 2014

Submission date: April 2014

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)	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).”
	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)	
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	

Section 3: Submission File Details

The original submission includes the following files:

Name Size

area_availability_NJ.txt	4 KB
area_availability_NJ.zip	7,242 KB
avg_speed_NJ.xlsx	12 KB
confidential_NJ.txt	1 KB
Cover Letter_NJ.pdf	22 KB
NJ_HSPA21_region.dbf	1 KB
NJ_HSPA21_region.prj	1 KB
NJ_HSPA21_region.shp	4,973 KB
NJ_HSPA21_region.shx	1 KB
NJ_HSPA42_region.dbf	1 KB
NJ_HSPA42_region.prj	1 KB
NJ_HSPA42_region.shp	1,236 KB
NJ_HSPA42_region.shx	1 KB
NJ_LTE_region.dbf	1 KB
NJ_LTE_region.prj	1 KB
NJ_LTE_region.shp	6,083 KB
NJ_LTE_region.shx	1 KB
NJ_U1900_region.dbf	1 KB
NJ_U1900_region.prj	1 KB
NJ_U1900_region.shp	6,919 KB
NJ_U1900_region.shx	1 KB
NJ_UMTS_region.dbf	1 KB
NJ_UMTS_region.prj	1 KB
NJ_UMTS_region.shp	4,914 KB
NJ_UMTS_region.shx	1 KB
T-Mobile_BB Data_NJ.zip	7,268 KB

They submitted middle-mile_NJ.xlsx later.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

April 2014:

There are 11 rows in the milddle-mile_NJ.xlsx. However after duplicates are removed, the data is identical as the previous submission. Therefore the data is copied.

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:

1. 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.)

2. 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.
3. 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.
4. Dropped 4 records that were as duplicate census blocks
5. 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:

1. Received 5 shape files; (Note that we do not check duplicate since the shapes will be merged to a single shape for each technology) Different from the April 2013 submission 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: 1 candidates
    b. NJ_HSPA42: 1 candidates
    c. NJ_UMTS: 1 candidates
    d. NJ_LTE: 1 candidates
    e. NJ_U1900: 1 candidates
2. 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.

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

5. 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”.
6. The supplied shapes use tolerance values different from the NTIA transmittal model. The transformed feature classes with suitable tolerances are named with 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. Set the endusercat column to 5.

Validation rules produced a warning with the HSPA42 and LTE having a Maximum Advertised Download Speed code of 7(10-25 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_Overview

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

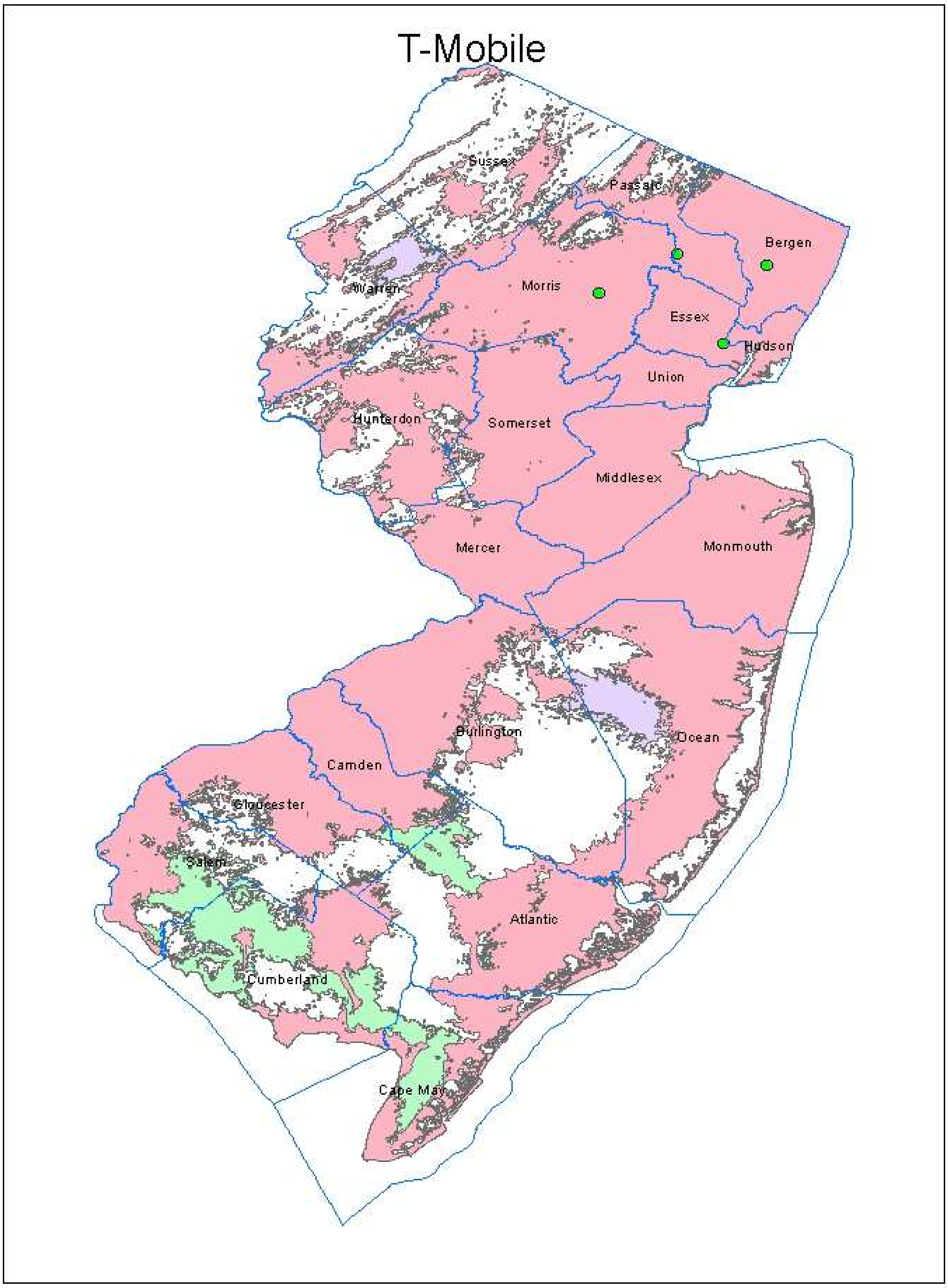
Section 6: Notes and Open Issue

April 2013:

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: January 2014

Submission date: March 2014

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><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN
Holding company name
Holding company number</td><td>tw telecom of new jersey l.p. Not provided
0004351409
tw telecom inc.
160153</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2">Text</td></tr>
<tr><td>File size</td><td colspan="2">4499 bytes, 47 records</td></tr>
<tr><td>Speeds</td><td colspan="2"><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></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>Address; values 2..11</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>Address; values 2..11</td></tr>
</table></td></tr>
</table>

	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
5 KB	NJBB_0004351417_AddressLevelAvailability.txt

The file has 47 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.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

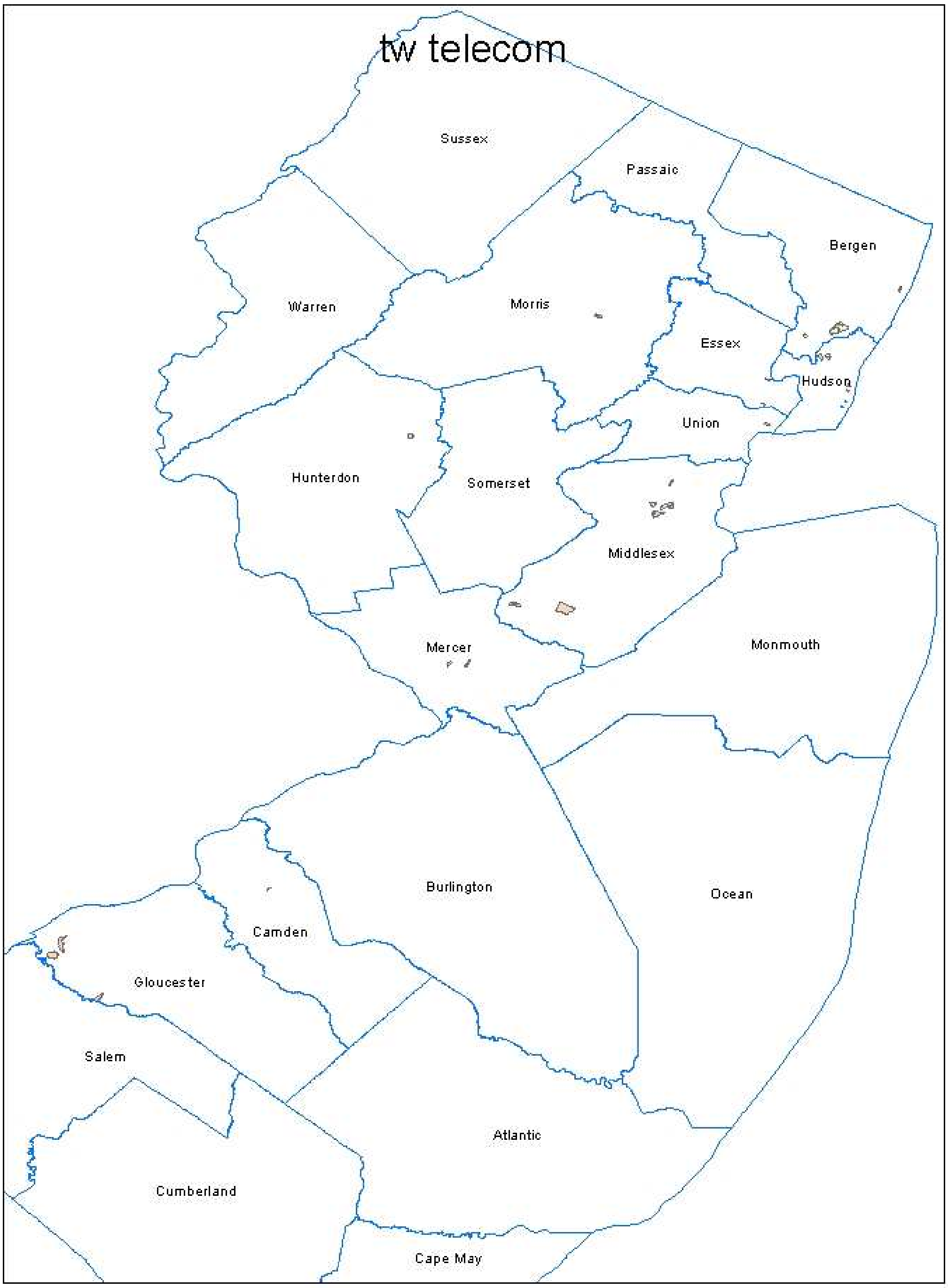
Internal processing notes:

1. Geocoded the addresses using the Google geocoder to obtain a Latitude, Longitude pair for each.
2. Created an excel sheet and imported it to a geodatabase table.
3. 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.
4. 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.
5. Discarded 2 rows with duplicate census blocks, generated from the multiple entries at the same addresses
6. Verified that all census blocks were in New Jersey and that no census block was greater than 2 square miles
7. Loaded 30 records into the transfer model table.
8. 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: Verizon

Received: February 2014

Submission date: April 2014

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	Verizon Online LLC
	"Doing business as" name	Verizon
	FRN	0012254363
	Holding company name	Verizon Communications Inc.
	Holding company number	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 (2-7-14).pdf	25 KB
NJ - POP List (Dec 2013).pdf	7 KB
NJ - Pricing (Dec 2013).txt	3 KB
NJ - Wireline Service By Census Block with Speeds (Dec 2013).txt	6,566 KB
NJ - Wireline Service By Street Segment with Speeds (Dec 2013).txt	142 KB
VZ-NJ-BB (Dec 2013).zip	1,116 KB

Section 4: Data Validation Transformation and Loading

NTIA Table BB_ConnectionPoint_MiddleMile

April 2014:

There is no change on the data. Thus it is copied from the Oct 2013 submission.

Oct 2013:

There is no change on the data. Thus it is copied from the April 2013 submission.

April 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:

1. 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.
2. Created an excel sheet and imported to a geodatabase table.
3. 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.
4. 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 (Dec 2013).txt". There were 162,709 total records (1st record is header). 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 (Dec 2013).txt txt” (1961 total records, 1st record is header) 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 119 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.
4. Final record count loaded is 1829.

NTIA Table BB_Service_Overview

Loaded from supplied text file "NJ - Pricing (Dec 2013).txt". There were 48 total records (1st record is header).

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
6. Final record count loaded is 47.

Section 5: Clarification Questions and Responses

From: New Jersey Broadband Data Collection Program
[mailto:connectingnj@groups.appcomsci.com]
Sent: Tuesday, February 11, 2014 3:49 PM
To: 'laura.a.shine@verizon.com'; 'keefe.b.clemons@verizon.com'
Cc: 'NJ Broadband Data Collection'
Subject: NJ Broadband Clarification

Laura and Keefe,

We have reviewed the data you submitted to the NJ Broadband Data Collection program and have come across a discrepancy. Attached is our summary of the coverage data you submitted. When we compare this summary to the data you provided describing your subscriber-weighted nominal speeds, we find several differences.

You report Subscriber Weighted Nominal Speeds for Technology Code 20 (Symmetric xDSL) in several counties in New Jersey. In the census block coverage data you supplied, however, there is no indication of any Symmetric xDSL.

In some counties (e.g., county codes 37, 41), you report Subscriber Weighted Nominal Speeds for both Technology Code 10 (ADSL) and Code 50 (Optical), but we only find ADSL in the census block data.

Any explanations you could provide for these differences would help us ensure that the submitted data are as accurate as possible.

Thanks,

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: Clemons, Keefe B
Sent: Friday, February 14, 2014 5:04 PM
To: 'connectingnj@groups.appcomsci.com'
Cc: Shine, Laura A
Subject: RE: NJ Broadband Clarification
Importance: High

John:

The differences are attributable to the fact that the census block coverage data we submitted reflects those census blocks in which Verizon's broadband services are "available" within the meaning established by the NTIA in the broadband mapping program (i.e., census blocks where broadband service is available from the provider and typically provisioned within 7-10 business days).

In contrast, the subscriber-weighted nominal speed data is based on Verizon's Form 477 data which identifies all census tracts in which Verizon has provisioned broadband services to any customer, including those for whom it would typically take longer than 7-10 days for service to be provisioned (such as certain broadband services provisioned to business customers).

In summary, the census block data accurately reflects our broadband availability in accordance with the NTIA's definition. To the extent certain data is reflected in the Form 477 data, but not the census block coverage data, it is because we have provisioned the service in the past, but are not currently offering it, we do not typically provision the service within 7-10 business days, or both.

Hope this helps.

Thanks,

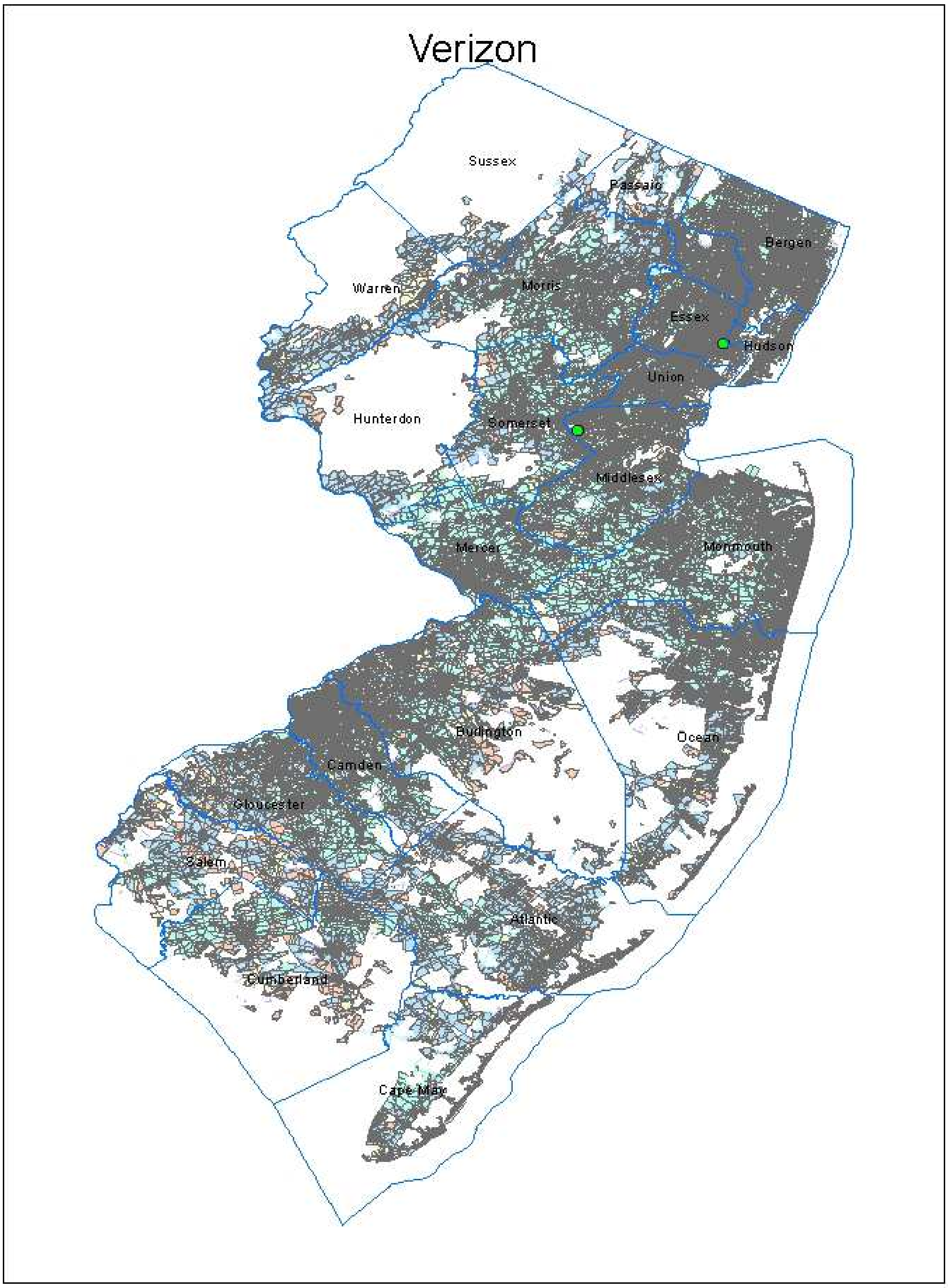
Keefe B. Clemons

General Counsel – Northeast Region

Verizon

Section 6: Notes and Open Issues

Section 7: Overview Map of Submitted Data



Connecting New Jersey - Broadband Provider Data Report

Provider: Verizon Wireless

Received: January 2014

Submission date: April 2014

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. Three sets of data provided – one for EVDO, one for AWS, and one for LTE (this was not explicitly stated - infered from the file names).	Supplied 3 shapfiles (zip archive) with 21 rows. Shapefiles use projection GCS_WGS_1984..
Speeds	see below	

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	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).
	Downstream typical	600 kpbs-1.4 mbps	
	Subscriber-weighted	Not provided	
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	Ranges provided instead of single values.
	Upstream max adv	5 mbps	
	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”, “NJ_aws”, and NJ_lte suggesting that the availability is for EVDO, AWS, 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 - Jan 2014 Update.doc" with spectrum and speed information.

Received 3 zip files:

NJ_evdo.zip (1,477 KB)

NJ_aws.zip (799 KB)

NJ_lte.zip (1,591 KB)

3 shapefiles contain the following contents. The NJ_EVDO shapefile has 21 polygons, the NJ_aws shapefile has 21 polygons, and the NJ_lte shapefile has 21 polygons.

Name	Size

NJ_aws.dbf	1 KB
NJ_aws.prj	1 KB
NJ_aws.sbn	1 KB
NJ_aws.sbx	1 KB
NJ_aws.shp	1,074 KB
NJ_aws.shp.xml	19 KB
NJ_aws.shx	1 KB
NJ_aws.zip	799 KB
NJ_evdo.dbf	1 KB
NJ_evdo.prj	1 KB
NJ_evdo.sbn	1 KB
NJ_evdo.sbx	1 KB
NJ_evdo.shp	2,011 KB
NJ_evdo.shp.xml	19 KB
NJ_evdo.shx	1 KB
NJ_evdo.zip	1,477 KB
NJ_lte.dbf	1 KB
NJ_lte.prj	1 KB
NJ_lte.sbn	1 KB
NJ_lte.sbx	1 KB
NJ_lte.shp	2,412 KB
NJ_lte.shp.xml	219 KB
NJ_lte.shx	1 KB
NJ_lte.zip	1,591 KB
Verizon Wireless Broadband Statistics - Jan 2014 Update.doc	33 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 NJ_AWS: Set to “4”

	NJ_LTE: Set to "2"
MAXADDOWN	NJ_EVDO: Set to “3”, see below. NJ_AWS: Set to “7” NJ_LTE: Set to "7" per email clarification
MAXADUP	NJ_EVDO: Set to “2”, see below. NJ_AWS: Set to “5” NJ_LTE: Set to "5" per email clarification
TYPICDOWN	NJ_EVDO: Set to “3”, see below. NJ_AWS: Set to “6” NJ_LTE: Set to "6" per email clarification
TYPICUP	NJ_EVDO: Set to “2”, see below. NJ_AWS: Set to “5” NJ_LTE: Set to "5" per email clarification
STATEABBR	Set to “NJ”
SHAPE	As supplied.

Internal notes on processing:

1. 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.
2. Shapefile NJ_aws: The shape covers portions of New Jersey; 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.
3. 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.
4. 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”.
5. Coalesced the 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" for NJ_EVDO, NJ_AWS, and NJ_LTE.

6. 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"

Spectrum:

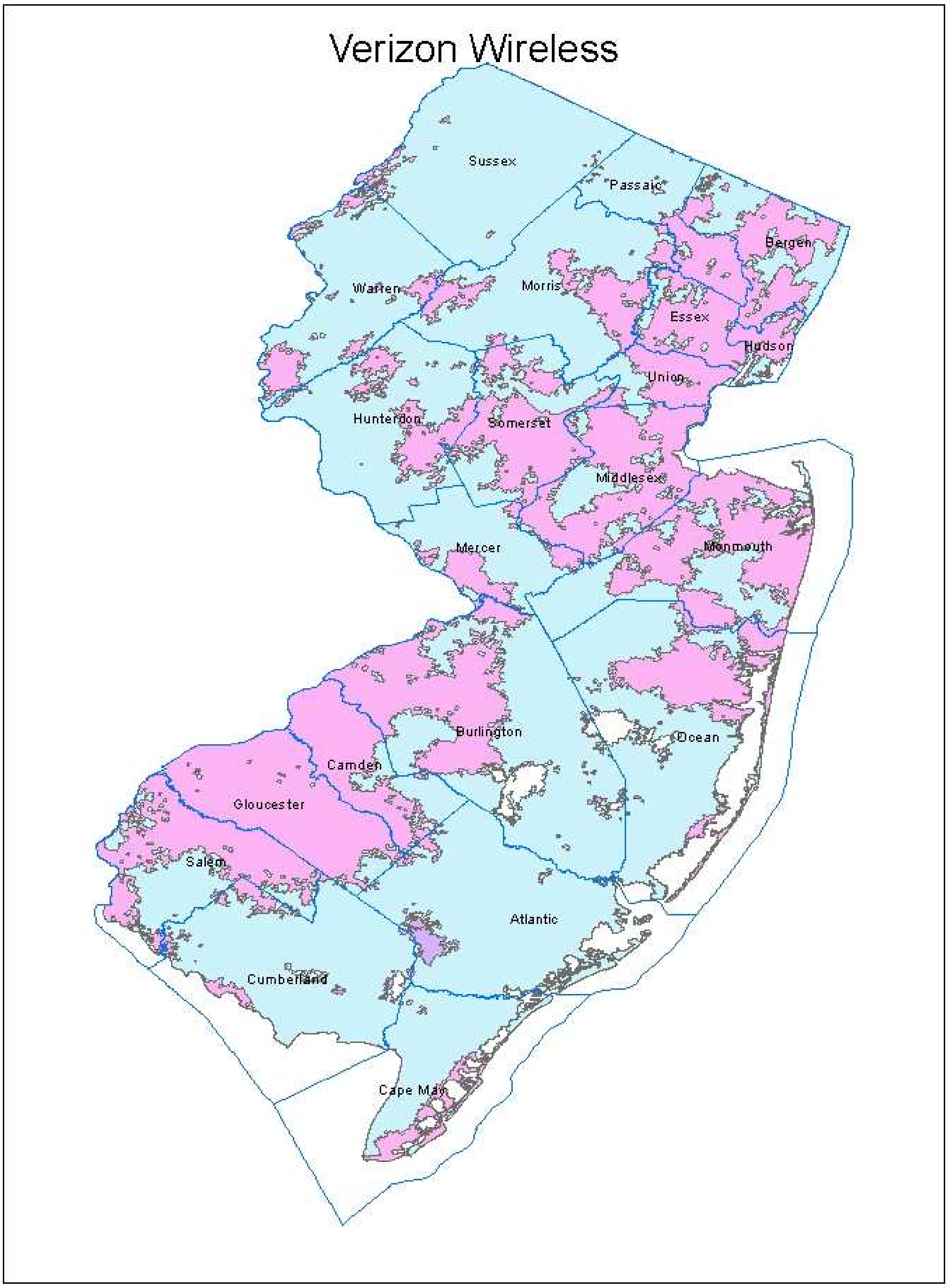
1. NJ_EVDO: Verizon Wireless provided a statement in their cover letter about their licensed spectrum. Searching on the web indicates that EV-DO uses frequencies 850MHz and 1900Mhz. The NTIA data model has a single column for spectrum. No mapping is provided for frequency 850MHz. Frequency 1900MHz corresponds to NTIA "SPECTRUM USED" code value 3.
2. NJ_AWS: Verizon Wireless provided a statement in their cover letter about their licensed spectrum, 1710-1755 MHz and 2110-2155 MHz.
3. NJ_LTE: Verizon wireless web site advertises "nationwide contiguous 700 Mhz 4G spectrum. The NTIA coding table provides value 2 for 700Mhz spectrum.
4. Speeds:
5. 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).
6. AWS_NJ: The supplied Word document suggests the speeds are the same as LTE.
7. 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).
8. The only data imputed was the state abbreviation.
9. Set the endusercat column to 5.

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 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: ViaSat, Inc.

Received: February 2014

Submission date: April 2014

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><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>ViaSat, Inc.
ViaSat, Inc.
0004963088</td></tr>
<tr><td colspan="3">FOr wirelESS</td></tr>
<tr><td>Filetypes</td><td colspan="2">text file, shape file</td></tr>
<tr><td>File size</td><td colspan="2"></td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></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>
</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”.

They provide maximum advertised up/down speeds for Excede 12,

Download: 12 Mbps</td></tr>
</table>

	Subscriber-weighted-up	Not provided	Upload: 3 Mbps These correspond to the speed tiers 7 and 5, respectively.
	Subscriber-weighted-down	Not provided	
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
ViaSat_AreaAvailability_NJ_region.dbf	1 KB
ViaSat_AreaAvailability_NJ_region.prj	1 KB
ViaSat_AreaAvailability_NJ_region.shp	169 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:

1. 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)
2. The shape file contains 1 polygon shape.
3. 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".
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 class has the suffix "_clip"
5. Set the endusercat column to 5.

The following 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 a service named 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

From: O'Connell-Pike, Peggy
Sent: Thursday, February 06, 2014 6:03 PM
To: connectingnj@groups.appcomsci.com
Subject: RE: Round 9 - NJ - ViaSat Data

Hi John –Correct. NJ is now 100% covered by Exede 12, so only one speed tier.

Thank you.

Peggy

Peggy O'Connell-Pike Corporate Paralegal

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Thursday, February 06, 2014 3:51 PM
To: 'O'Connell-Pike, Peggy'
Subject: RE: Round 9 - NJ - ViaSat Data

Peggy,

After reviewing your data, we had a question. In the last submission, as WildBlue, you submitted 2 separate speed tiers, Excede 5 and Excede 12. With this submission there is only the single, faster tier. Just to confirm, have you stopped offering the Excede 5 service in New Jersey?

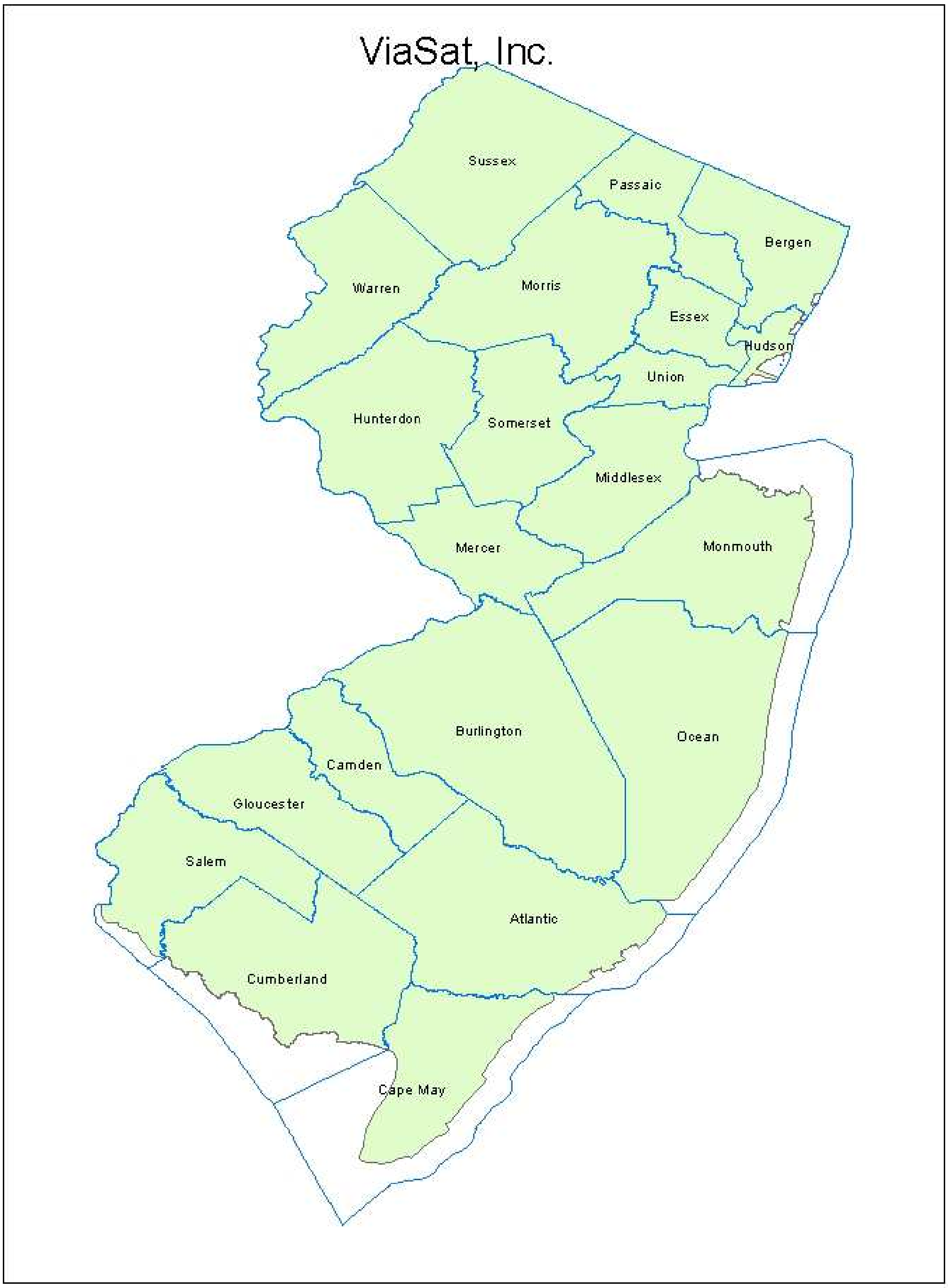
John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

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: April 2014

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy hometown_oct2013.BB_Service_CensusBlock to hometown _apr2014. BB_Service_CensusBlock.

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:

- 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.
- 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><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Hometown Online Inc.
Warwick Online
0006-6512-44</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2">Text</td></tr>
<tr><td>File size</td><td colspan="2">1,062,217 bytes; 7,054 rows</td></tr>
<tr><td>Speeds</td><td><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></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 site resulted in clarification: Max advertised ADSL speeds are:
Downstream: 15 Mbps
Upstream: 800 Mbps.</td></tr>
<tr><td>Technology Type</td><td colspan="2">DSL – Previous interactions with provider revealed that Census tract 3714 has SDSL, all others are ADSL</td></tr>
<tr><td>End-user specification</td><td colspan="2">Not provided</td></tr>
<tr><td colspan="3">Comments: Address data with some indications of qualification for different data services.</td></tr>
<tr><td colspan="3">Interconnection DATA</td></tr>
<tr><td>ID</td><td colspan="2"></td></tr>
<tr><td>File size</td><td colspan="2"></td></tr>
<tr><td>Ownership</td><td colspan="2"></td></tr>
<tr><td>Transport Type</td><td colspan="2"></td></tr>
<tr><td>Data Rates/Capacity</td><td colspan="2"></td></tr>
</table>

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:

1. The following steps were performed when the data was submitted and the results were re-used for this round
2. 7050 addresses were successfully geocoded using Arroyo with the Yahoo geocoder. One record failed to spatially join on 2010 NJ Census Block shapes.
3. Created an excel sheet and imported to a geodatabase table.
4. 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.
5. 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.
6. Discarded 6585 rows with duplicate census blocks, leaving 464 unique census blocks.
7. Discarded 3 census blocks larger than 2 square miles.
8. Loaded 461 blocks.

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

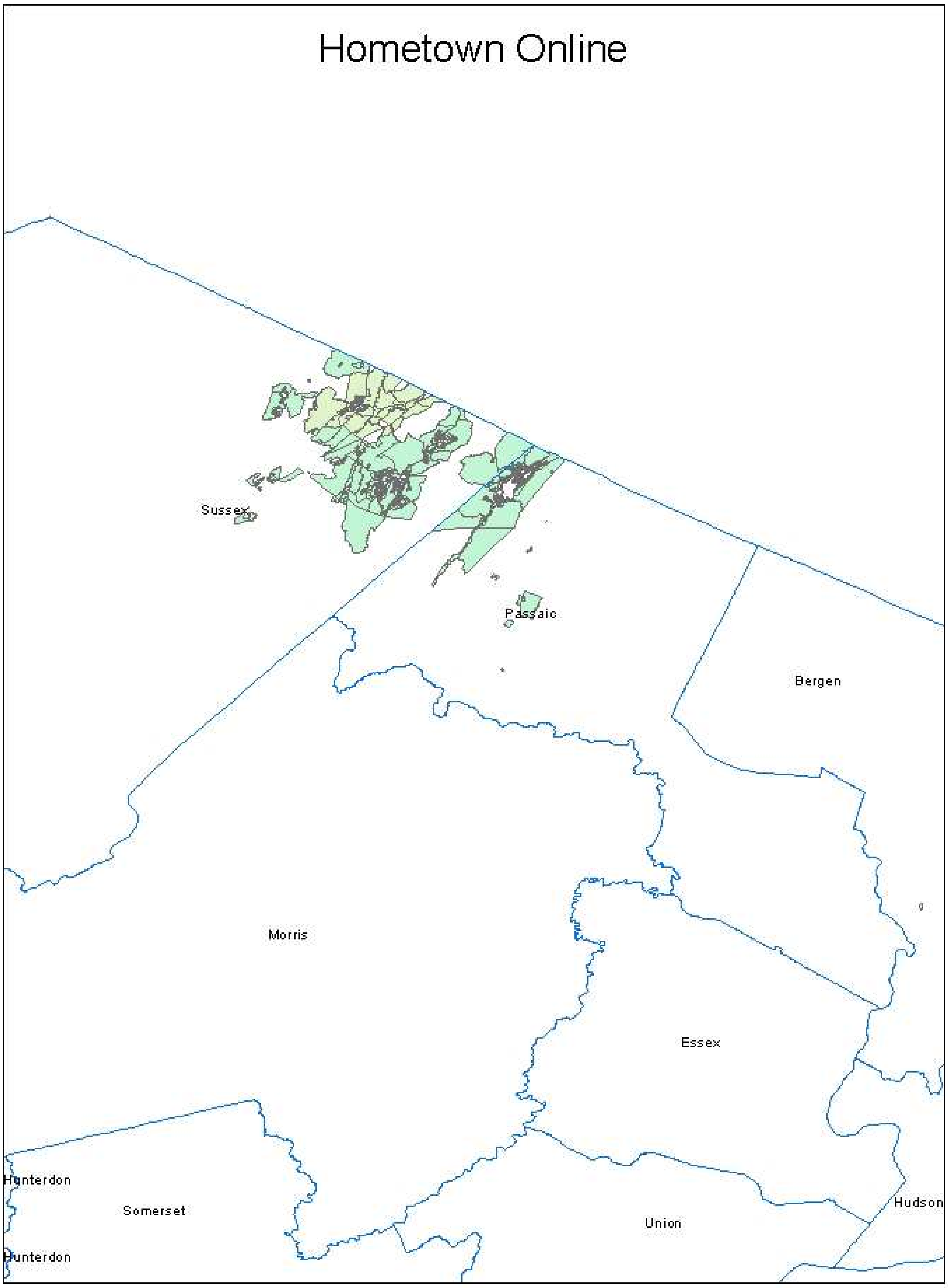
Section 6: Notes and Open Issues

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: Xchange Telecom

Received: Febuary 2014

Submission date: April 2014

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:

- 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.
- 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:

- 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

<table>
<tr><td colspan="3">Availability Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Xchange Telecom Corp
Xchange Telecom
0006831713</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td colspan="2"></td></tr>
<tr><td>File size</td><td colspan="2"></td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td></td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)</td></tr>
<tr><td>Typical-upstream</td><td></td><td></td></tr>
<tr><td>Typical-downstream</td><td></td><td></td></tr>
<tr><td>Advertised-upstream</td><td></td><td>2 Mbps (code 4)</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>10 Mbps (code 7)</td></tr>
<tr><td>Subscriber-weighted-nominal speed</td><td></td><td></td></tr>
</table></td><td>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.</td></tr>
<tr><td>Technology Type</td><td colspan="2">ADSL (code 10)</td></tr>
<tr><td>End-user specification</td><td colspan="2">In response to inquiry, provider reported residential and small business.</td></tr>
<tr><td colspan="3">Comments:</td></tr>
</table>

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

Section 3: Submission File Details

Received 1 file XchangeFCC 477 Census Tracts – NJ – December 2013.xlsx via email. File contains 83 data records. This file contains data based on census tract rather than census block.

Section 4: Data Validation, Transformation and Loading

NTIA Table BB_Service_CensusBlock

Joined the provided input tract data with reference data, xchange_apr2014.BB_Service_CensusBlock. 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	From input column County_Code
TRACT	From input column Census2010Tract
BLOCKID	From reference data blockce10

ENDUSERCAT	From reference data end_user
FULLFIPSID	Populated from Census Block FIPS Code
TRANSTECH	From input column multiplied by 10
MAXADDOWN	From input column Download_Rate but at least 3
MAXADUP	From input column Upload_Rate but at least 2
TYPICDOWN	Set to null, not provided
TYPICUP	Set to null, not provided
SHAPE	From reference data shape

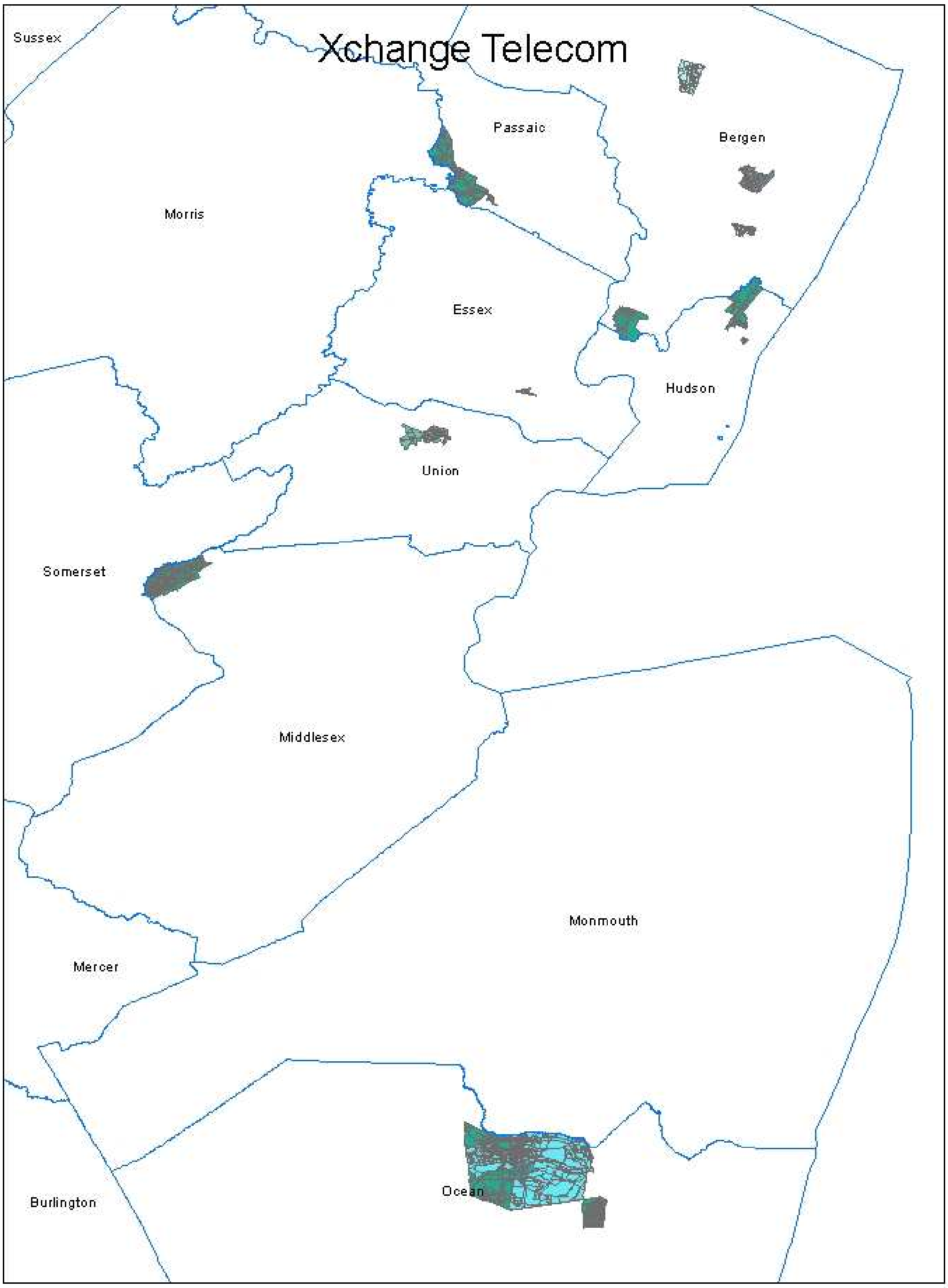
Internal processing notes:

1. Multiplied TRANSTECH by 10 because input is FCC 477 data.
2. Dropped 26 input records that are not broadband (MAXADDOWN<3 or MAXADUP<2).
3. Joined against reference data to discover census blocks, for a total of 4808 blocks. The join used statefips+countyfips+tract.
4. Verified that all the census blocks discovered are smaller than 2 square miles.
5. 1294 records had unique COUNTYFIPS, TRACT, TRANSTECH and BLOCKID. 3514 records had duplicate COUNTYFIPS, TRACT, TRANSTECH and BLOCKID but different MAXADDOWN/MAXADUP speeds. Kept 921 of these unique COUNTYFIPS, TRACT, TRANSTECH and BLOCKID records, and set the MAXADDOWN/MAXADUP for each to the maximum MAXADDOWN/MAXADUP speeds amongst the set of duplicates.
6. A total of 2215 blocks were loaded into BB_Service_CensusBlock table.

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: XO Communications

Received: July 2011

Submission date: April 2014

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

For April 2014:

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:

- Used ESRI: Data Management Tools->General->Append with NO_TEST schema type to copy xocomms_oct2013.BB_Service_CensusBlock to xocomms _apr2014. BB_Service_CensusBlock.

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:

- 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.
- 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:

- 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.

October 2011:

Key Changes

NTIA Table BB_Service_CensusBlock

- Column " blocksubgroup" was dropped.
- Column "endusercat" was added; set to null because data was not supplied.

Notes

- Discarded 28 records with missing or slow maximum download speed codes.
- Total rows loaded: 879

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

- Column "reseller" was dropped.
- Set the new column "provider_type" to value 1 ("Broadband provider as described in the NOFA")
- Set the max advertised speed code values (down and up) to 9, which is the maximum value among all records provided to us.
- Dropped non-measured typical up/down speed code values.

Base Report – October 2010

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.

Section 1: NDA Status

Executed.

Section 2: Submission Overview

Availability Data		
ID	Provider name	XO Communications, LLC
	"Doing business as" name	Provided, but looks weird
	FRN	0006275945
FOr wireline		
Filetypes		

<table>
<tr><td>File size</td><td></td></tr>
<tr><td>Speeds</td><td>
<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>census block</td></tr>
<tr><td>Typical-downstream</td><td></td><td>census block</td></tr>
<tr><td>Advertised-upstream</td><td></td><td>census block</td></tr>
<tr><td>Advertised-downstream</td><td></td><td>census block</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></tr>
<tr><td>Technology Type</td><td>Entered codes 1, 2, and 3, which are not valid NOFA TechTrans codes.</td></tr>
<tr><td>End-user specification</td><td>Business (444 entries), Residence (5 entries)</td></tr>
<tr><td colspan="2">Comments:</td></tr>
<tr><td colspan="2">Interconnection DATA</td></tr>
<tr><td>ID</td><td></td></tr>
<tr><td>File size</td><td></td></tr>
<tr><td>Ownership</td><td></td></tr>
<tr><td>Transport Type</td><td></td></tr>
<tr><td>Data Rates/Capacity</td><td></td></tr>
<tr><td>Location</td><td></td></tr>
<tr><td colspan="2">Comments: Not provided</td></tr>
</table>

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:

- Dropped the last two rows that have addresses instead of provider name, DBA name, etc.
- Changed DBA Name entries to "XOCSI"
- 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

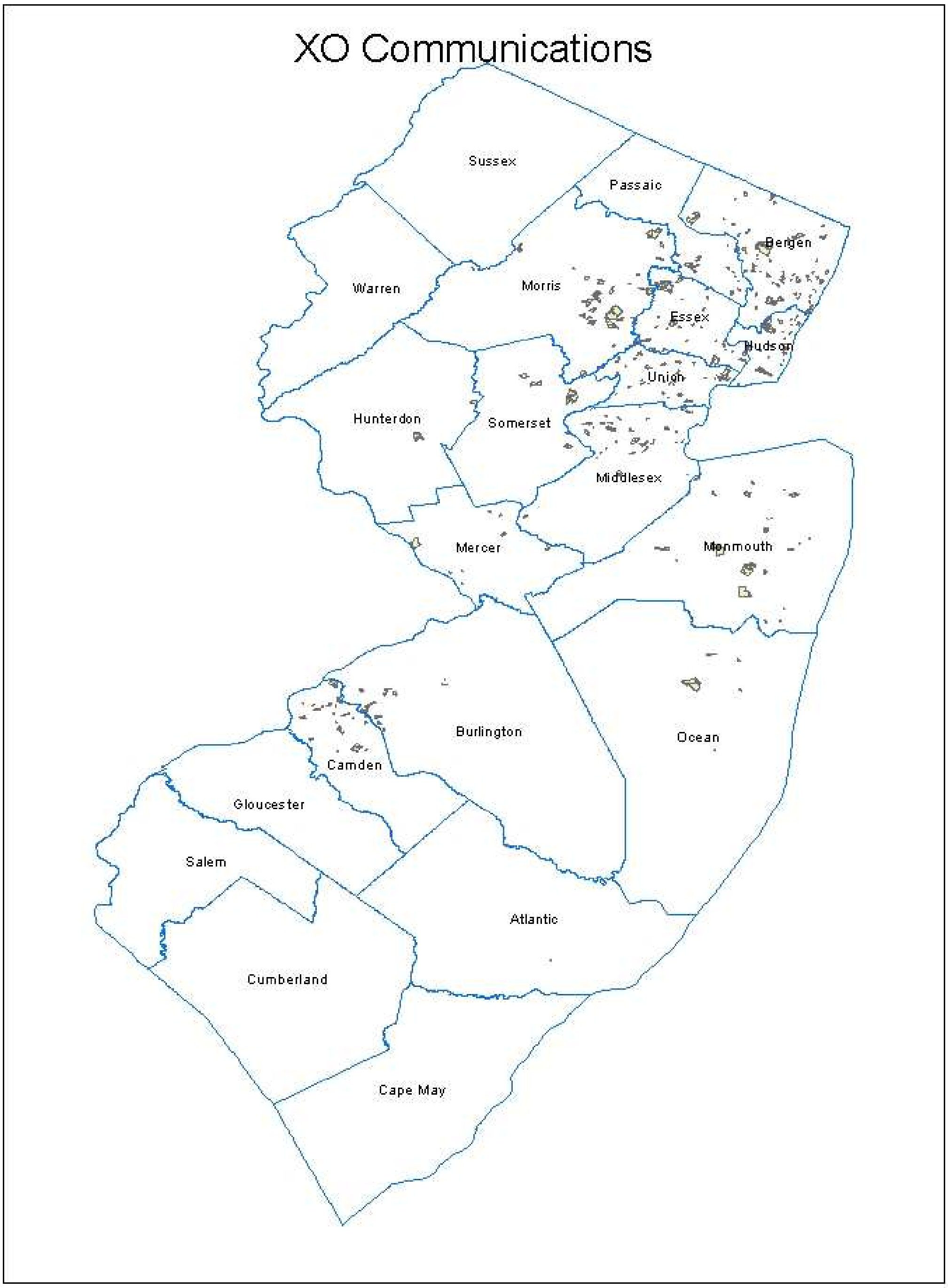
Internal processing notes:

No duplicate census blocks were found.

Section 6: Clarification Questions and Responses

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



Connecting New Jersey – Broadband Provider Data Report

Provider: Zayo Group, LLC

Received: February 2014

Submission date: April 2014

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

<table>
<tr><td colspan="3">MAPPING Data</td></tr>
<tr><td>ID</td><td>Provider name
“Doing business as” name
FRN</td><td>Zayo Group, LLC
Zayo Group, LLC
0016555849</td></tr>
<tr><td colspan="3">FOr wireline</td></tr>
<tr><td>Filetypes</td><td>Txt, xls, pdf, etc.</td><td>One .csv file</td></tr>
<tr><td>File size</td><td>Number of records, data elements</td><td>134 data records</td></tr>
<tr><td>Speeds</td><td><table>
<tr><td>Type</td><td>Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)</td></tr>
<tr><td>Adver down</td><td>Census block</td></tr>
<tr><td>Adver up</td><td>Census block</td></tr>
<tr><td>Typical down</td><td>Census block</td></tr>
<tr><td>Typica up</td><td>Census block</td></tr>
<tr><td>Subscriber-weighted</td><td>Not provided</td></tr>
</table></td><td>Provided census blocks level data.</td></tr>
<tr><td>Technology Type</td><td>DOCSIS, xDSL, fiber, etc.</td><td>Fiber to the End User</td></tr>
<tr><td>End-user specification</td><td>Business, consumer, gov’t etc</td><td>4 - Medium or Large Enterprise</td></tr>
</table>

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 one.csv files – the main one NJ Broadband Group 12-31-2013 Due Feb 7, 2014.csv (14KB) containing 135 records with record 1 header.   Initial submission had erroneous tract number. Actual processing used a second file NJ Broadband Group 12-31-2013 Due Feb 7, 2014_Take2.csv (14KB) with same number of records.

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	As supplied in column Census State
COUNTYFIPS	CensusCountyFips)
TRACT	Populated from CensusTract
BLOCKID	Populated from CensusBlock
FULLFIPSID	Constructed from CensusStateFips (STATEFIPS+COUNTYFIPS+TRACT+BLOCKID)
TRANSTECH	As supplied in column TechnologyTypeHDDJradded
MAXADDOWN	As supplied in column DownloadSpeedHDDJradded
MAXADUP	As supplied in column UploadSpeedHDDJradded
TYPICDOWN	As supplied in duplicated column DownloadSpeedHDDJradded
TYPICUP	As supplied in duplicated column UploadSpeedHDDJradded
ENDUSERCAT	Set to 2
SHAPE	As found in Census Bureau year 2010 reference data

Internal processing notes:

1. Discarded 90 duplicate FULLFIPSID block records. Only 44 have unique FULLFIPSID.
2. Discarded 3 records with null area. Loaded 41 with area <=2.0 square miles.

3. TYPICDOWN/UP use duplicated columns MAXADDOWN/MAXADUP. This is based on previous submission where these columns were supplied explicitly as Typical Download/Upload but were identical to MAXADDOWN/MAXADUP.

Section 6: Clarification Questions and Responses

From: New Jersey Broadband Data Collection Program [mailto:connectingnj@groups.appcomsci.com]
Sent: Tuesday, February 18, 2014 7:16 AM
To: 'Dean Dalzell'
Cc: 'Tim Gentry'
Subject: NJ Broadband Data Collection - Data Correction Request

Dean,

We have attempted to process the data you submitted, but have run into a problem. As shown in the attached spreadsheet, the majority of the records you submitted have invalid census block IDs. Based on our evaluation of the data, it appears that your tract numbers are incorrect. In some cases, we were able to identify census block IDs that almost match, and analysis of those seems to indicate that there might be a problem with the manner in which you added zeros to the tract IDs.

If you could correct the data and resubmit, we would greatly appreciate it.

Please call or email if you have any questions.

John Wullert

Manager – NJ BB Data Collection

Applied Communication Sciences

From: Dean Dalzell
Sent: Tuesday, February 18, 2014 11:08 AM
To: connectingnj@groups.appcomsci.com
Subject: Re: NJ Broadband Data Collection - Data Correction Request

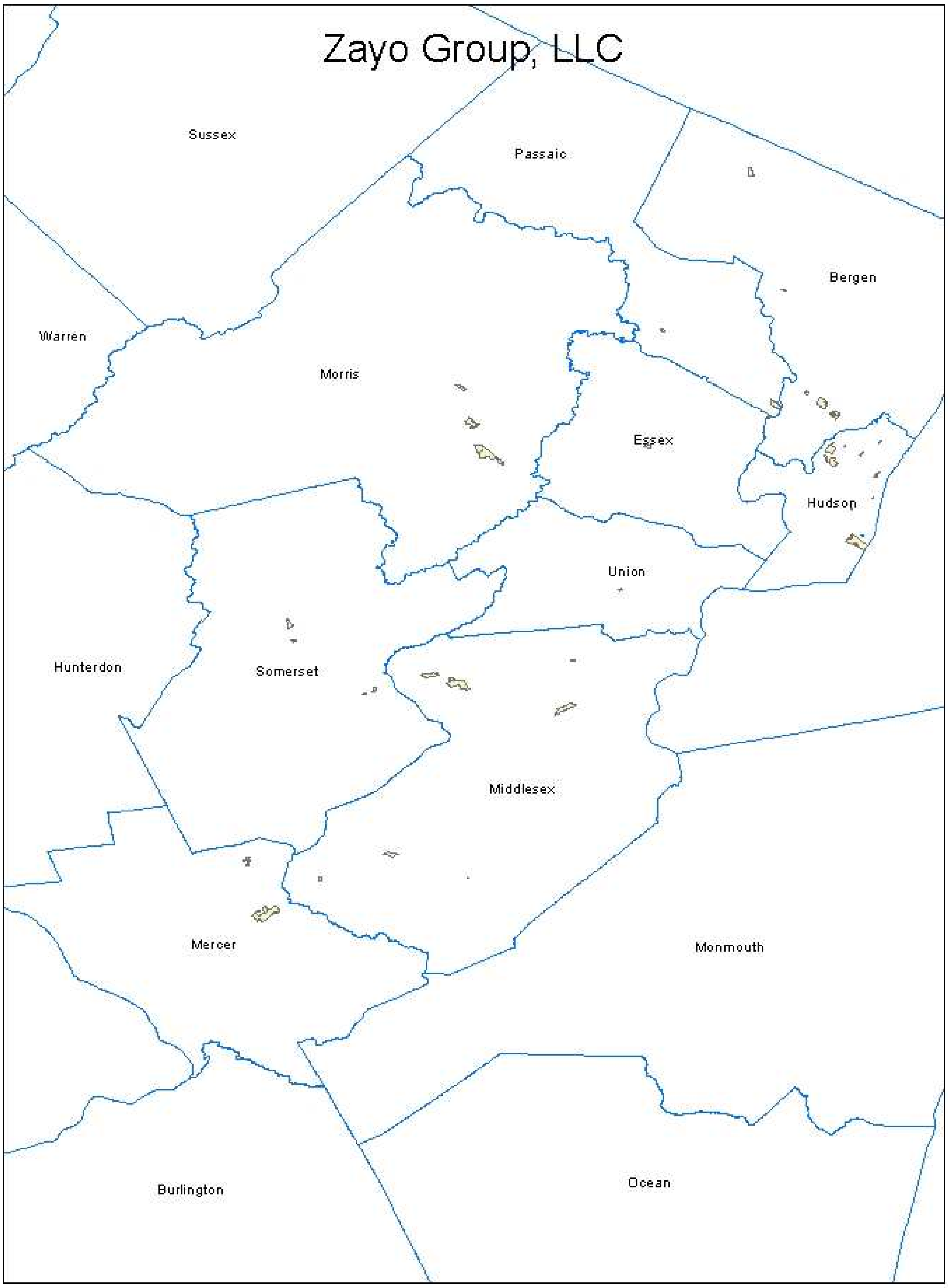
John,

See if this updated file works

Dean

Section 7: Notes and Open Issues

Section 8: Overview Map of Submitted Data



8 Appendix B: Community Anchor Institution Processing

Community Anchor Institution Processing

8.1 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 and revised DOE survey information from January 2014. During the Spring 2014 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. For PSAPs, we obtained a list of locations from the New Jersey 911 Commission.

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. In the case of Public Safety institutions, we updated our reference list from the State of New Jersey website.

For each CAI category, the following table provides 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 2. CAI Submission Summary

CAI Category	Complete Records	Total Records
School K-12	2657	3921
Libraries	227	468
Medical/Healthcare	4	10146
Public Safety	69	374
University	40	168
Other – State and Local Government	1692	1696
Other – Non Government	8	8

8.2 Local Government and Non-Government Organizations

The procedure and data in this section are unchanged from the October 2013 submission.

1. There were no new submissions to the web site since the October 2013 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 across multiple submission time frames. 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.

8.3 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 1696 records in this category.

8.4 Healthcare

The procedure in this section is unchanged from the previous submission. Updated information was used in some cases.

1. Acute Care and Long Term Care Geocoding:
    a. Obtained listings of Acute Care facilities and 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 1375 Acute Care and 769 Long Term Care facilities.
2. Obtained a list of pharmacies from the Surescripts Web site. 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 2266 pharmacies.
3. Obtained listing of clinical laboratories from the CDC website (http://wwwn.cdc.gov/clia/oscar.aspx). The list provides name, address and location of laboratory.
    a. Of this list, we eliminated the labs that were located in hospitals, long-term-carefacilities 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 5864 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 across multiple submission time frames. No new data were submitted 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 10234 healthcare records with four that included broadband information.

8.5 Higher Education

1. Obtained the following data from the named sources in January-February 2014:
    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

    Cleaned up data manually where necessary.
    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 institutions were properly geocoded.

2. Obtained an updated list of members of NJEdge.[2] Table included information on 60 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 a subset of NJEdge institutions into IPEDS data
5. The unmatched NJEdge records were geocoded using the addresses listed in the NJEdge data.
6. While we have not obtained detailed broadband information on certain higher education institutions in the state, 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 those institutions.
7. Final Result: 169 stored institutions in HigherEd_Geocoded_RateMatched_wBB_022014.xlsx.

8.6 Libraries

1. Obtained the following data from the named sources
    a. File Public Libraries Survey Fiscal Year 2011 from http://www.imls.gov/research/pls_data_files.aspx. Used file puout11b.txt
        i. Manually extracted 464 records for the state of New Jersey

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[2] Note that NJEdge outsourced their data management operations and we were required to pay a fee for this data to the management company. In general, the NJEDge membership and broadband service attributes have had minimal changes over the past several years. However, in the preceding half year, several members upgraded their service in the wake of SuperStorm Sandy to provide redundant connections via dual-homing. In light of these changes, we felt it was important to purchase the up-to-date data from NJEDge.

ii. Used the following data items:
   1. FSCSKEY
   2. FSCS_SEQ
   3. LIBNAME
   4. ADDRESS
   5. CITY
   6. ZIP
   7. LATITUDE
   8. LONGITUDE

b. List of 84 connections from the New Jersey State Library that provides broadband connectivity via a service called JerseyConnect. The data consisted of:
   i. Library name
   ii. Address
   iii. Type of connection
   iv. Bandwidth of connection

c. List of 32 libraries and their broadband connections from the Libraries of Middlesex Automation Consortium (*Libraries of Middlesex telcommution network 2013.docx*). (Confirmed with the organization that there was no change since the last submission.) 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 fiber) and the speeds.

d. Results of an NJ-OIT library survey from October 2013 with 57 entries. Data fields of interest included:
   i. Name
   ii. Address, city, state, zip
   iii. Internet Access?
   iv. Technology (tied to NTIA technology codes)
   v. Upload/Download Speed (by NTIA speed tiers)
   vi. Public Wi-Fi?
   vii. Provider

   Analysis revealed many duplicates in the list. Some appeared to replicate submissions while other appeared to represent redundant connections at the same location. We kept only a single connection per location, choosing the one with the highest speed.

e. 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. 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 downstream speed data given as the number of buildings in the entities included within the application that are served by different downstream speed 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.
3. We next merged the libraries from the OIT 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.
4. In the next step we merged the remaining libraries from the IMLS data with the USAC data as follows:
   a. Filtered library and consortium data from the Scrape_Results 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 downstream speed 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 downstream speed 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 downstream speed of each entity and location. We took the approach of assigning each entity in an application with the lowest reported downstream speed. 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 downstream speed is equal or greater to the reported tier.
   f. Since the Form 471 does not include the upstream speed we used the following approach to estimate the upstream speed, erring on the low side in all cases. For each downstream speed value we looked at the possible upstream speed values from NJ provider data, and used the lowest occurring value to set the upstream speed value. This is considered as a lower bound on the upstream speed tier. The table below shows the downstream speed tiers encountered and the corresponding lower bound on the upstream speed tier.

Downstream Speed Tier	Upstream Speed 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.

5. Final results: 468 libraries stored in Libraries_SurveyPlusBBPlusUSAC.xlsx

8.7 K-12 Schools

For the Spring 2014 round, we merged the processing of the Private and Public K-12 schools due to the fact that the NJ DOE survey data included both together in one file. This process relied on the processing of the Private School data performed for the Fall 2013 submission, so that process is described first in Section 8.7.1. The new combined process is then described in Section 8.7.2.

8.7.1 Private K-12 Schools – Prior Process

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. 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.
   b. 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.

8.7.2 Combined Public/Private K-12 Schools Process

The process included the following steps

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. Latest list of public/charter schools from NCES. Table included 2596 schools. (http://nces.ed.gov/ccd/schoolsearch/)
      i. Name
      ii. Address: Street, City, State, ZIP
      iii. NCES School ID
   c. List of schools with broadband data provided by NJ DOE from 2012 survey (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 concatenation of county, district and school.
      iii. WiFi availability
      iv. ISP Provider Name
      v. Technology
      vi. Downstream Speed
      vii. Upstream Speed
   d. Data extracted in February 2014 from NJTRAx, a database established by the NJ DOE to track the technology readiness of schools in New Jersey, particularly for online testing. Extract included 2795 entries including both public and private schools. Extract included a large number of fields; those relevant to this effort were:
      i. School Name
      ii. School ID
      iii. School Type (Public/Private)
      iv. Internet Speed
      v. Street Address

vi. Use of district broadband
vii. City, State, Zip

2. Compared NJ DOE data (items 2c and 2d) to identify overlaps and differences.
   a. Where school and Internet data were the same, kept the data.
   b. For schools where new data was suspicious (e.g., speed and other fields with 0 or null values), used older data if it was available.
   c. For schools that were present in older data but not in new data, performed manual verification to determine whether school was still operating
      i. If yes, used older data
      ii. If no, eliminated record.
3. Merged results of step 2 with NCES reference data (items 1a and 1b)
   a. Used Combined code/School Id as a matching key.
4. Merged results of step 3 with private school data from last round, as described in Section 8.7.1.
   a. Kept NJTRAx data on Internet access if available, otherwise used data from prior round.
5. Geocoded the results
   a. First used NCES address. If geocoding produced unacceptable results, used NJ DOE address.
   b. Used Yahoo geocoder API with following validations:
      i. Ensured no errors were present, that at least on entry was returned and that quality metric was over 87.
      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.
6. Identified ~150 schools that failed geocoding.
   a. Manually verified that these schools were still operating
   b. Manually geocoded the schools and corrected the address.
7. Output file is Schools_NCES_DOE_Web_all.xlsx

8.8 Public Safety Organizations

The procedure in this section is unchanged from the previous submission; in some cases more recent data were obtained.

1. Obtained the following data from the named sources:
   a. List of local and state public safety organizations obtained from NJ State 911 Commission (http://nj.gov/911/clecs/psap_info.html). Table included information on 357 institutions with the following fields:
      i. Agency Name
      ii. Address: Street, City, State, ZIP, County
   b. List of PSAPs by municipality (http://www.nj.gov/911/resource/List%20of%20PSAPs%20For%20Each%20Municipality2.pdf).
      i. Many of the entries in the list were duplicates in cases where municipalities share their communication centers. These were removed.
   c. 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 87.
3. Merged 911 Commission data with PSAP data collected via our hosted Web site (120 entries) to integrate address and ID data 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.
4. Output in file PSAP_911_Submitted.xls

8.9 Additional CAI Processing

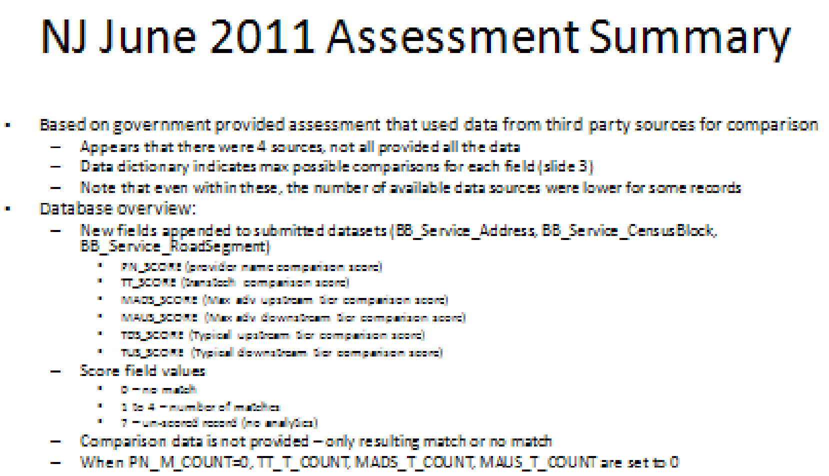
All of the CAI data were put through additional processing and validation that achieved the following:

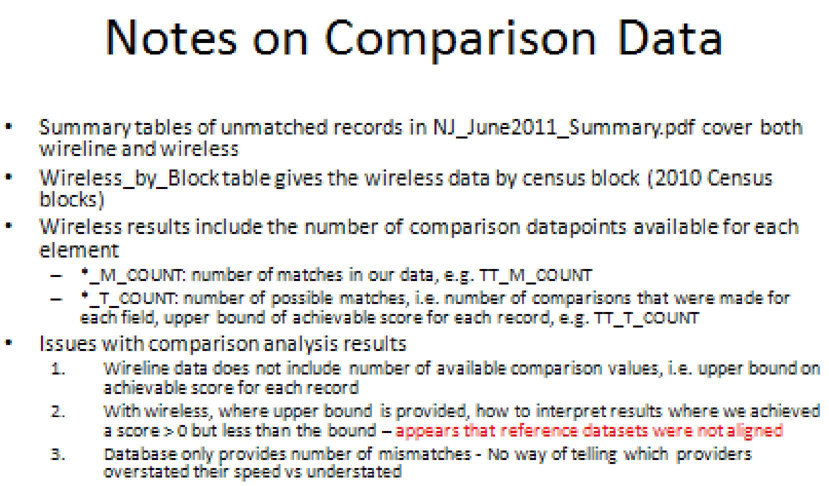
a. Extracted the building number from the street address
b. Checked and verified that all records had a 5 digit zip code
c. Verified that the city name was not null
d. Removed PO Boxes and C/O portions from address and eliminated records that had only PO Boxes for their street addresses
e. Verified that 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”.

9 Appendix C: Third-Party Comparisons

9.1 Analysis of Discrepancies between June 2011 Submission and Third-Party Data

The following is a set of slides that was assembled to describe the analysis that was conducted to address discrepancies identified between NJBB reported data and third-party information obtained by a contractor to NTIA.





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

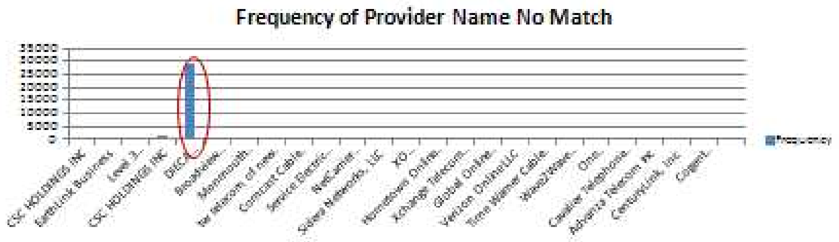
Total records - 525296

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

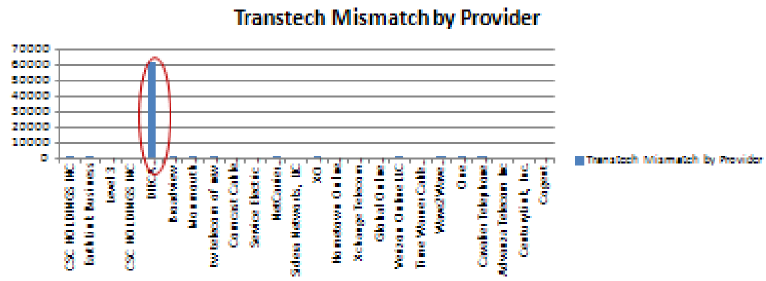
Provider Name No Match

PN_SCORE=0
BB_Service_CensusBlock

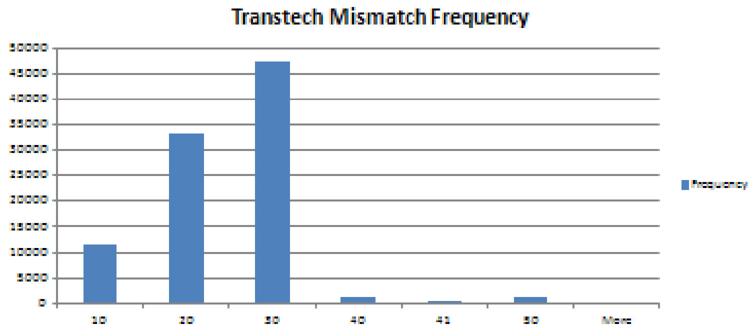


Transtech No Match

- 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

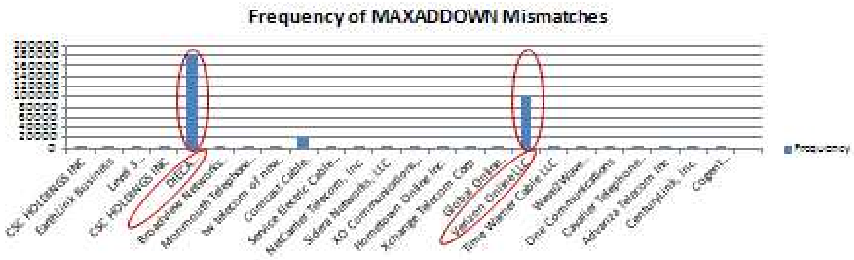


Transtech Code	Meaning
10	ADSL
20	SDSL
30	Other Copper
40	Cable Model DOCSIS 3.0
41	Cable Model - Other
50	Optical Fibre

TT_SCORE=0
BB_Service_CensusBlock

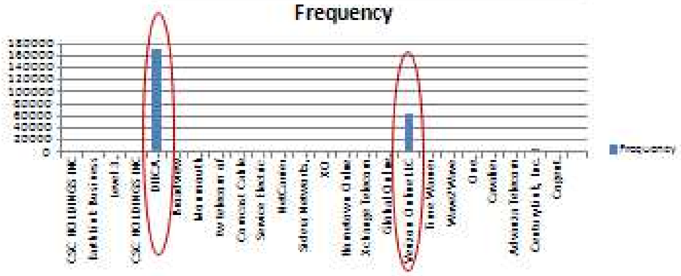
Max Adv Down Mismatch

MADS_SCORE=0
BB_Service_CensusBlock



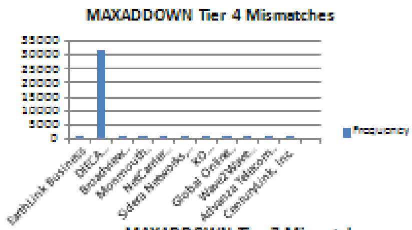
Max Adv Up Mismatch

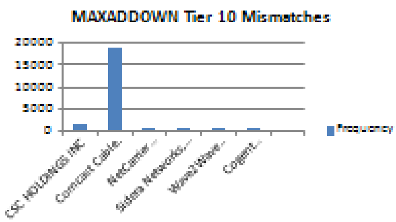
MAUS_SCORE=0
BB_Service_CensusBlock

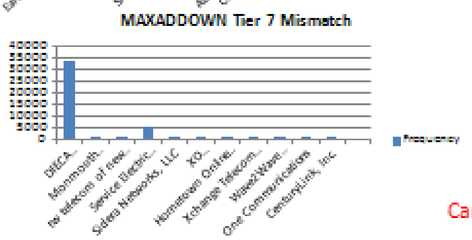


MAXADDOWN Non-Green Tiers

- 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)







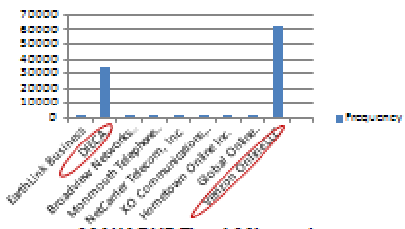
DIECA, Service Electric, Comcast Cable - providers with most mismatches in problem tiers

Cannot separate colors (incl green) within Tier

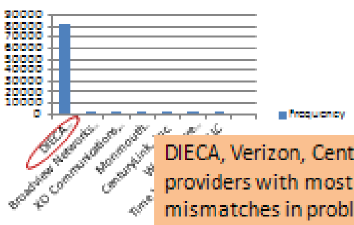
MAXADUP Non-Green Tiers

- 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)

MAXADUP Tier 3 Mismatch

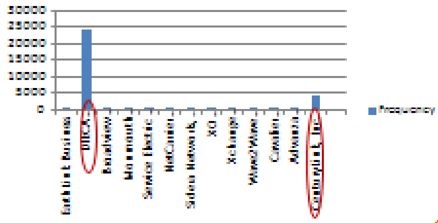


MAXADUP Tier 5 Mismatch

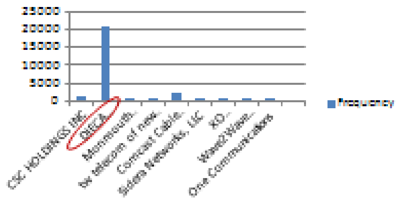


DIECA, Verizon, Centurylink - providers with most mismatches in problem tiers

MAXADUP Tier 4 Mismatch



MAXADUP Tier 7 Mismatch



Cannot separate colors (incl green) within Tier

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
T Mobile	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?

9.2 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

	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%	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 3	0	0.0%	0	0.0%		0.0%	75,312	8.1%	33,832	3.7%	103,739	11.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 4	0	0.0%	0	0.0%	3,317	0.4%		0.0%	11,403	1.2%	50,296	5.4%	94,692	10.2%	25	0.0%	0	0.0%	13	0.0%	0	0.0%
Tier 5	0	0.0%	0	0.0%	5,550	0.6%	29,080	3.1%		0.0%	94,874	10.2%	55,282	6.0%	11	0.0%	0	0.0%	2	0.0%	0	0.0%
Tier 6	0	0.0%	0	0.0%	387	0.0%	6,625	0.7%	7,825	0.8%		0.0%	106,931	11.5%	2	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 7	0	0.0%	0	0.0%	2,063	0.2%	13,731	1.5%	7,994	0.9%	96,092	10.5%		0.0%	231	0.0%	0	0.0%	5	0.0%	0	0.0%
Tier 8	0	0.0%	0	0.0%	552	0.1%	819	0.1%	234	0.0%	0	0.0%	250	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%	282	0.0%	0	0.0%		0.0%	65,300	7.1%	0	0.0%
Tier 10	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	44	0.0%	57,273	6.2%	0	0.0%		0.0%	0	0.0%
Tier 11	0	0.0%	0	0.0%	0	0.0%	0	0.0%	28	0.0%	0	0.0%	208	0.0%	347	0.0%	0	0.0%	0	0.0%		0.0%

- 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%	68	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%	200	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	138
CSC HOLDINGS INC	965
DIECA Communications, Inc.	39857
Monmouth Telephone & Telegraph	109
tw telecom of new jersey	2
Comcast Cable Communications, LLC	35
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
Advanta 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

9.3 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.

10 Appendix D: Approach to Data Confidence Scales

10.1 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.

10.2 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.

10.3 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.

10.4 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 3^{rd} Party Data Comparisons: Analyze in detail the mis-matches identified in the FCC 3^{rd} party data comparison for specific service providers. Details are in the methodology report.

11 Appendix E: Provider Data Confidence Processing

11.1 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 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.

11.2 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.

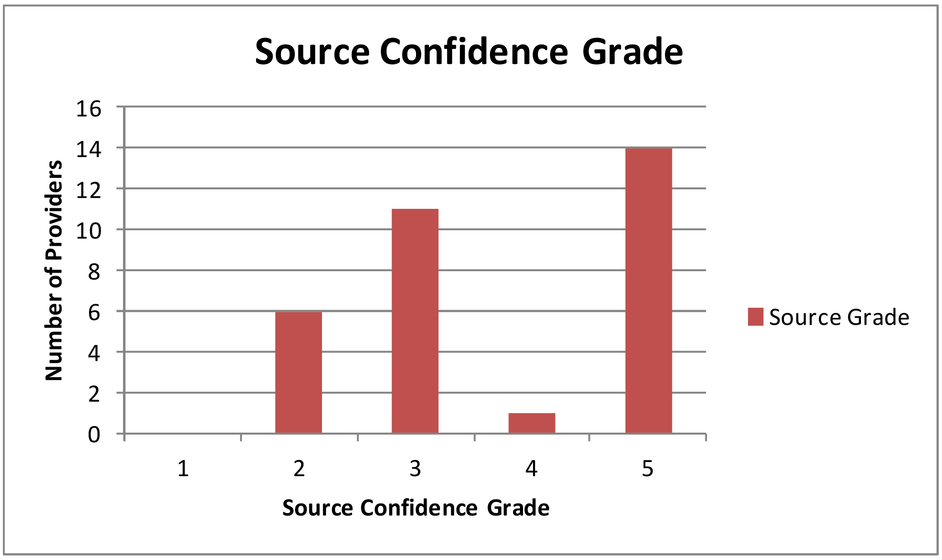


Figure 1: Data Confidence Based on Source

11.3 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.

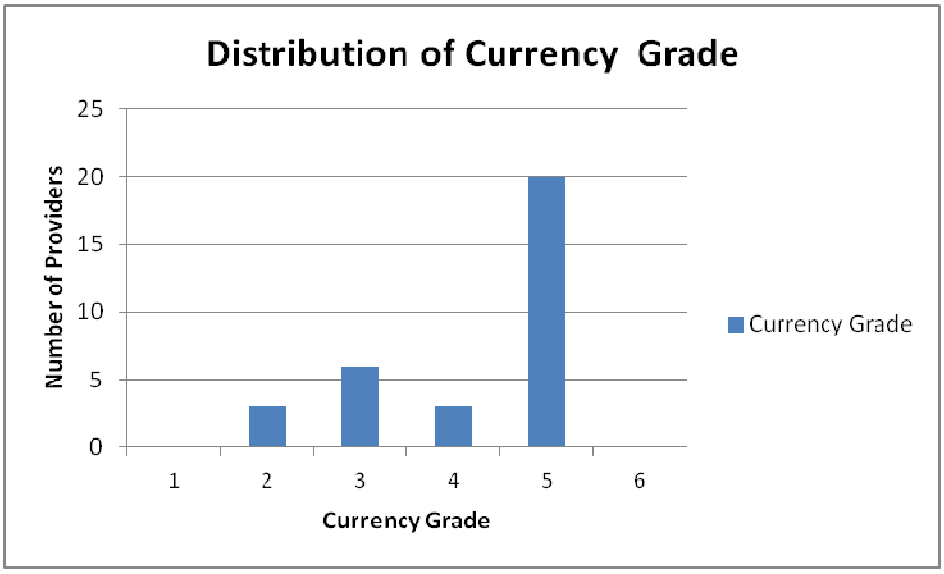


Figure 2 Distribution of Currency Grade

11.4 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.

11.4.1 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)

$\mathbf{W_2 = 3}$ (Technology Code mismatches have a weight of 3 because once there is a mismatch in Tech Code, the two speeds cannot be matched)

$\mathbf{W_3 = W_4 = 1}$ (The weight for mismatch in MADS and MAUS scores is 1 because no other metric depends on them)

Mismatch % S_x = 100 *Average ($\frac{M1x*W1}{Cx}, \frac{M2x*W2}{Cx}, \frac{M3x*W3}{Cx}, \frac{M4x*W4}{Cx}$)

This metric $\mathbf{S_x}$ 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.

11.4.2 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.

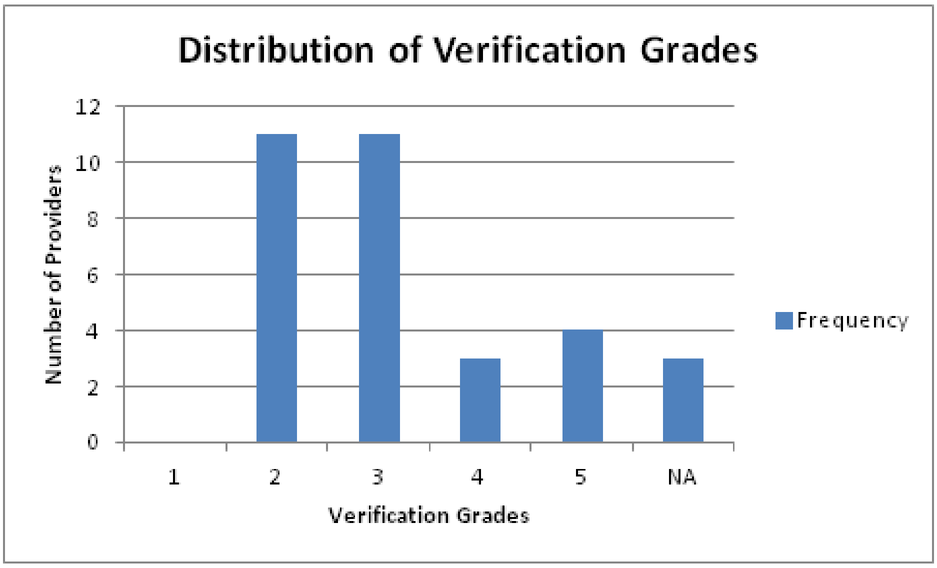


Figure 3: Distribution of Verifications Grades

The complete list of providers and the grades they were assigned on the three different measures of confidence are provided in the spreadsheet that is available on request.

11.5 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.

12 Appendix F: Wireline and Wireless Speed Testing

12.1 Wireline Speed T Speedtest Website Tool Evaluation and Initial Design

12.1.1 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 the figure below.

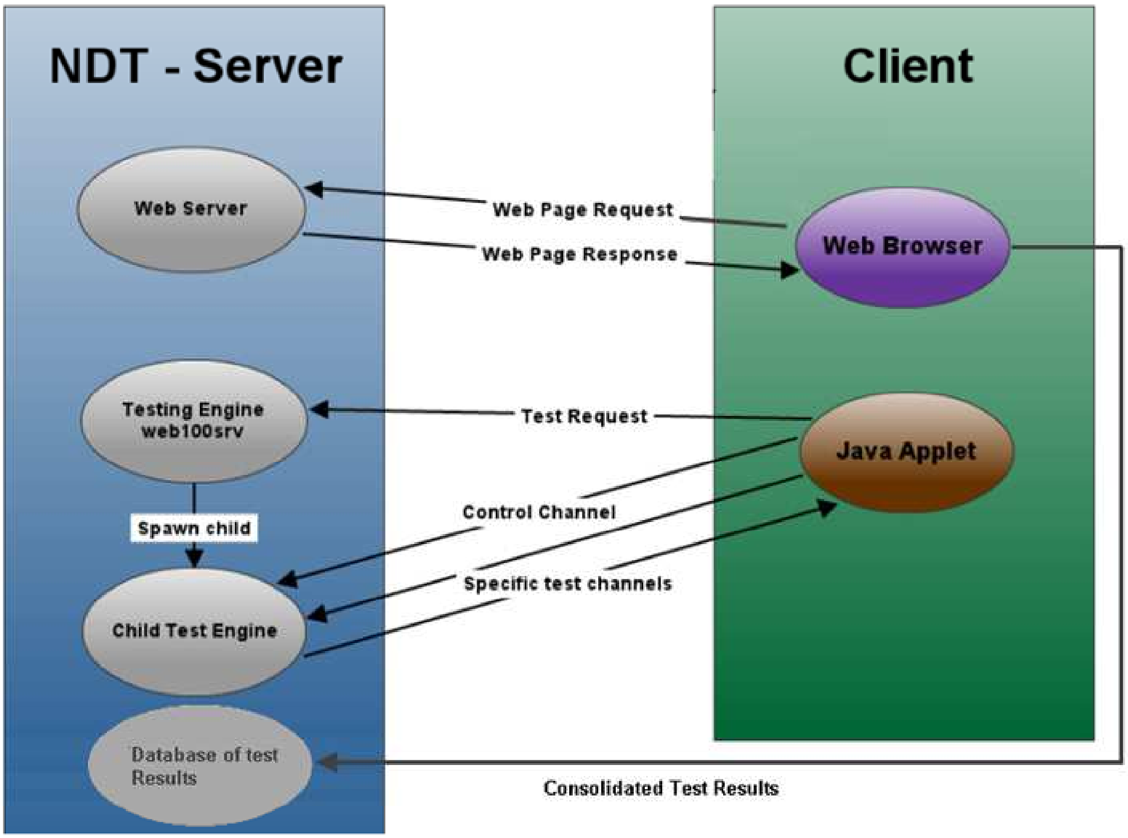


Figure 1. Initial design of NJ broadband mapping speedtest website using NDT technology.

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 implemented this speed test website and address test-taker privacy and security issues during 1Q2013. The test is available through the NJ OIT broadband website

12.2 Wireless Speed Test: Android App

The New Jersey Wireless Speed Test Android App is based on Measurement Lab's Network Diagnostic Tool. M-Lab is a partnership of research, industry and public interest organizations that provides network measurement tools. More information on the M-Lab testing infrastructure is available at http://www.measurementlab.net/tools/ndt-mobile. The New Jersey Wireless Speed Test Android App is enhanced to use our own server to capture test detail beyond just upload and download speeds. These include cellular provider info, network type, geo-spatial location of test and even the velocity of the device during test. In addition, the ACS Wireless Speed test was designed to recognize and record locations where a phone has insufficient coverage to conduct the test and to report these locations later when coverage is available.

ACS constructed the wireless speed test app in the fall of 2013. A primary motivation for the NJ app was to provide capabilities to evaluate the concerns of over-reported wireless coverage raised by some communities in the southern part of the state. Initial construction was nearing completion when the FCC's speed test app was announced. At that point in time, an analysis was performed to determine whether or not it was worthwhile to continue development of the New Jersey app. The following is a partial list of the factors that were considered:

- Platform – Both tests run on Android devices. An iPhone version of the FCC app is planned.
- Default operation – The default mode for the FCC app is to run automated in the background and to be configured not to exceed 100MG of data usage per month. The default mode for the NJ app is manual, allowing the user to control data usage and to easily trigger tests in specific locations.
- Measurement sever – The FCC's app selects the nearest test server based on the lowest round-trip latency measured in a initial latency check performed at the beginning of a test cycle. This is an appropriate approach for a nation-wide app. The NJ app uses a fixed server located at ACS. This is an appropriate approach for a NJ specific test.
- Performance measurements – The NJ app measures download speed and upload speed. The FCC app measures those speeds and also measures latency and packet loss, via a combined test. Testing of latency and packet loss is available in the NDT software on which the NJ app is based. We chose not to implement this as it was not deemed critical for our objective of identifying areas in the state with spotty coverage.
- Results – In very limited testing, the NJ app produced more consistent results among tests taken back-to-back than the FCC app, particularly with respect to download speed. Specifically, running the NJ app quickly back-to-back produced more stable reported download speeds than the FCC app.
- App behavior in the case of Wi-Fi connectivity, Airplane mode enabled, and in situations of lack of coverage.

This final item was the primary reason for continuing with our efforts. While we fully believe that the FCC app will be the correct long-term solution, it was clear that it did not currently have the ability to detect and record locations with intermittent or no coverage. Further, the delay that we have experienced in obtaining wired speed test data from the FCC made it questionable as to whether we would have data in time to have any impact prior to the end of the program.

12.3 Analysis of Initial Wired and Wireless Speed Test Results

ACS provides both Wired and Wireless speed tests via a link from the New Jersey Broadband site http://connectingnj.state.nj.us/.

The speed tests results were extracted as of 3/11/2014 to text files from ACS's speed test database.

Size	**Name**
172 KB	wiredTestMar112014.txt
833KB	wirelessSpeedTestMar112014.txt

While we have not conducted a major publicity push regarding the sped test, there has been a reasonable amount of internal testing and targeted public testing. The test locations, as shown in Figure 2, are distributed widely around the state.

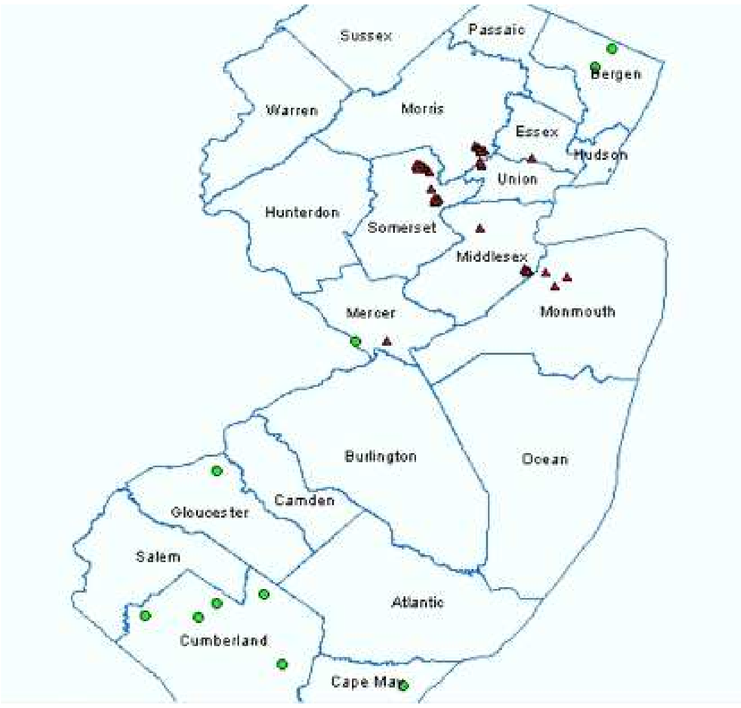


Figure 2: Geographical Distribution of Wireless (Red Triangles) and Wired (Green Circles) Speed Test Results

12.3.1 Wired Speed Test Results and Analysis

The wired file had both wireless and wired data, as the initial version of the wireless speed test used the same interface. Processing consisted of removing these wireless data records. The resulting wired file has only 15 records. Users of the speed test were asked to self report their location, provider, and broadband technology. Submitted data included following fields:

Address
City
State
Zip
Provider_Name
Connection_Type
Test_Location
UploadSpeed
DownloadSpeed

The wired data was geo-coded using the provided address info and spatially joined to show on overview map (see section 8). The wired speed test results are shown by the green circles in **Error! Reference source not found.**.

Note that there is a concentration of speed wired speed tests in Cumberland County, an area where some residents had complained of over-reporting of coverage by providers. These data points were investigated with these complaints in mind. This investigation was hampered by both the limited number of tests (six in total) and the quality of the user submitted data. For example, two tests conducted at the same address reported Verizon Wireless as the provider and Optical Fiber as the technology. Verizon Online offers only ADSL service at that location. The results of the speed test were significantly below what one would expect with a fiber connection, and thus more in line with ADSL, but the up-stream and downstream rates were nearly equal. A concerted effort to generate more tests, and to obtain more accurate technology listings will be required to obtain useful information from this testing.

12.3.2 Wireless Speed Test Results and Analysis

In a two month period, from mid January to mid March 2014, 247 wireless test records were uploaded. Each wireless test record comprises 3 consecutive tests. Submitted data included a wealth of test and diagnostic data. The following fields were pulled out for ease of analysis of speed and coverage:

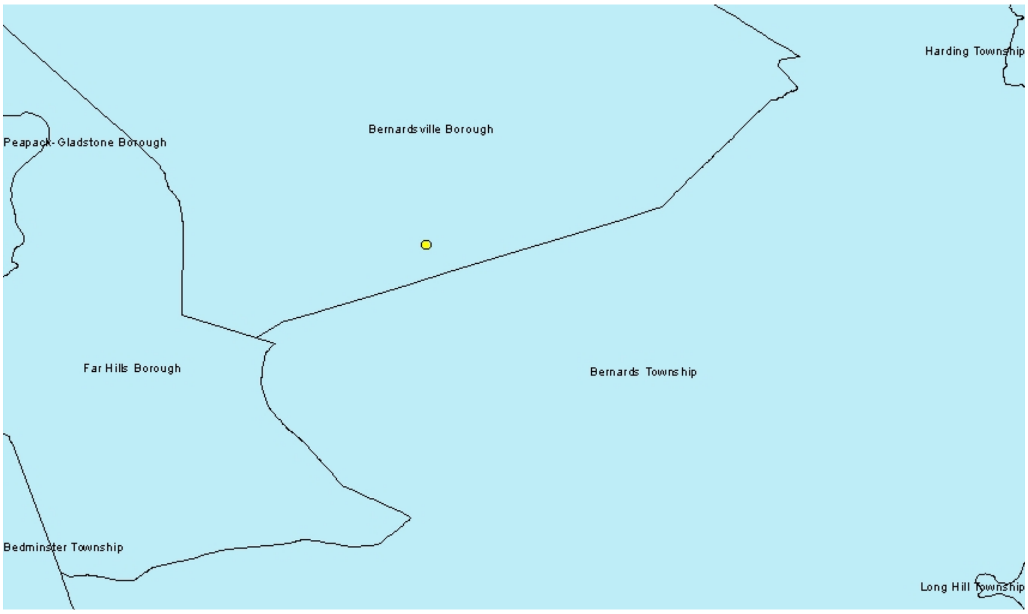
Provider
number_tests
number_completed_tests
failed
avg_download_speed
avg_upload_speed
location_info_longitude
location_info_latitude
std_upload_speed

The wireless data did not need geo-coding. Latitude and longitude were collected by the ACS Android Speed Test app. An Arroyo flow was created to analyze the data. Counts of various types of test results are shown in Table 3.

Table 3: Wireless Test Results Broken into Categories

Description	Tests
Total Conducted Tests	247
Provider Distribution	
Verizon Wireless Tests	222
ATT Wireless Tests	25
Broadband/NonBroadband/No Coverage	
BroadBand (avg_upload_speed>=200kbps && avg_download_speed >=768kbps)	225
NonBroadBand with Coverage (avg_upload_speed<200kbps || avg_download_speed <768kbps)	17
No Coverage (avg_download_speed == 0 || avg_upload_speed == 0)	5
Movement	
BroadBand Tests Moving	81
BroadBand Tests Stationary	144

The results in Table 3 show that the vast majority of tests met the requirements for broadband speed. There were 5 tests that recorded no coverage and 17 others with speeds less than broadband coverage. This is a very limited data set, which makes it impossible to draw any strong conclusions. Initial analysis of this limited data shows that all these points were in areas that the providers reported as covered. Examples are shown in Figure 3**Error! Reference source not found.**. Note that the bulk of the tests on the Verizon Wireless network were made using their 3G, EVDO network service. This older service has advertised download speeds that just exceed the minimum to be considered broadband. Given this, having a number of tests that do not achieve broadband speeds is not surprising.



(a)

(b)

Figure 3: Maps of wireless speed test results with no coverage (red) and below broadband speeds (yellow). Colored background shows areas providers reported as covered. (A) AT&T Mobility 4GLTE Service. (B) Verizon Wireless EVDO Service

There were certain locations within the state where a significant number of tests were conducted. This provided some initial ability to assess the typical speeds that are available from select providers. Figure 4 shows results for a set of measurements using the Verizon Wireless 3G EVDO network in a set of census blocks. The number of tests in each census block ranged from 5 to 74. One can see that mean upstream and downstream speeds met the requirements for broadband in four out of the five census blocks, and the minimum speeds were above or close to broadband speeds in those blocks as well. The figure also makes clear that the measured speeds in a single location can vary rather widely, with maximum and minimum download speeds differing by more than a factor of two in four of the five census block and exceeding a factor of three in two of the blocks. While there were many fewer tests, this same degree of variation was found in the Verizon Wireless and AT&T 4G LTE networks. With more data, a temporal study of these patterns might reveal interesting patterns.

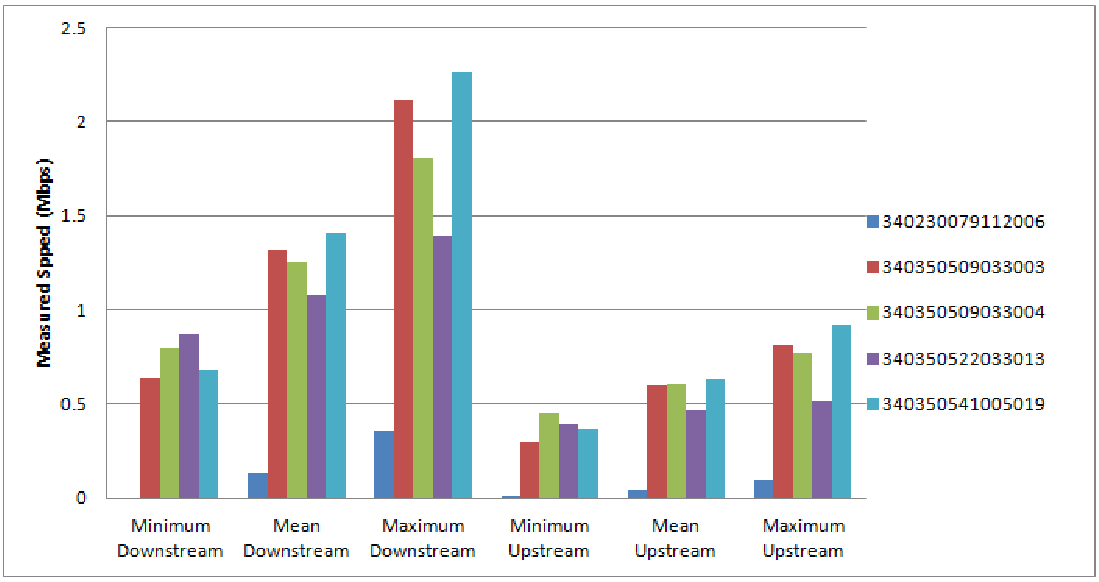


Figure 4: Speed Distribution across Multiple Test Measurements within a Single Census Block for the Verizon Wireless 3G EVDO network.

Like the wired case, a concerted outreach effort to encourage people around the state to use the test tool will be required to obtain sufficient data to draw any significant conclusions.

13 Appendix G: Study of Discrepancies in Cumberland and Atlantic Counties and Differential Comparison of Select Providers

13.1 Discrepancy on Comcast Service in Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) and Estell Manor City (Atlantic County)

Author: Diane Duffy **May 29, 2013**

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.**

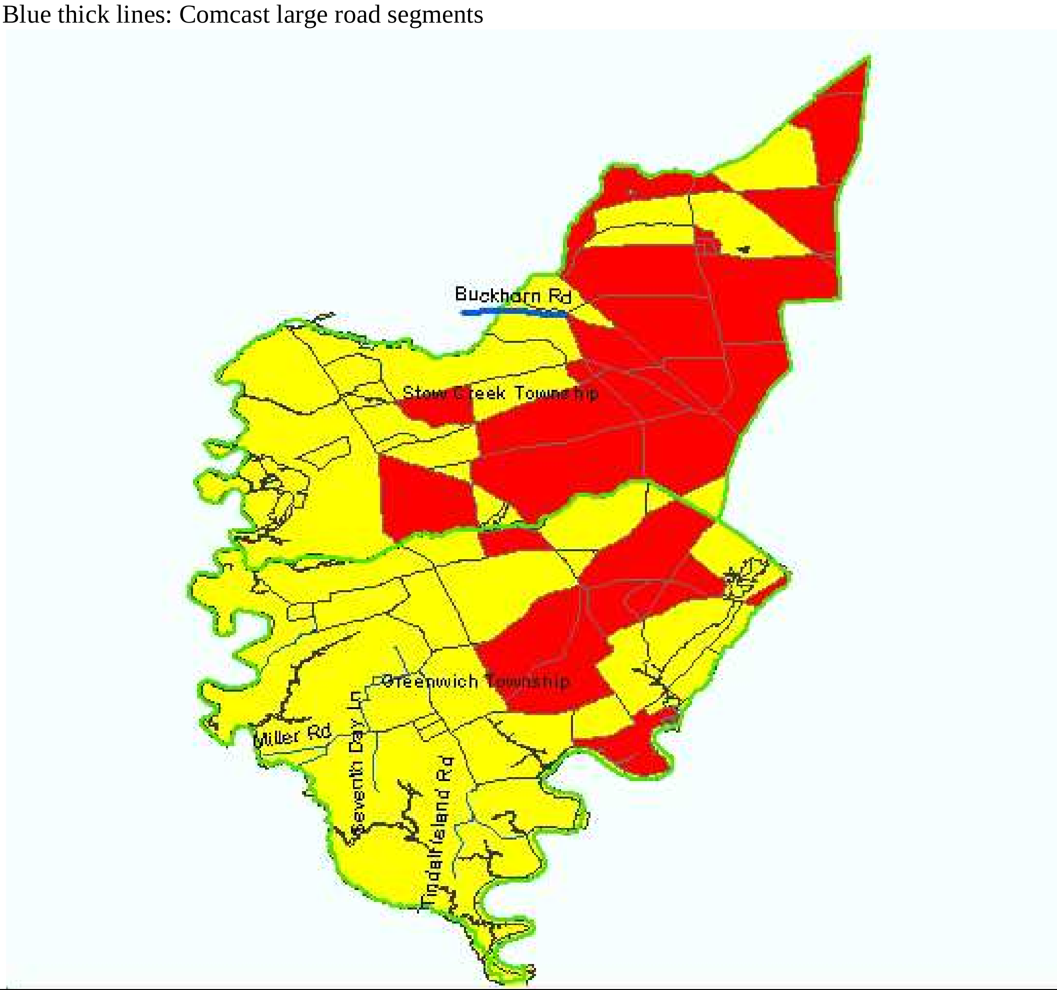
1. Summary of New Jersey Data Submitted to NTIA on October 1, 2012 (valid as of June 30, 2012)

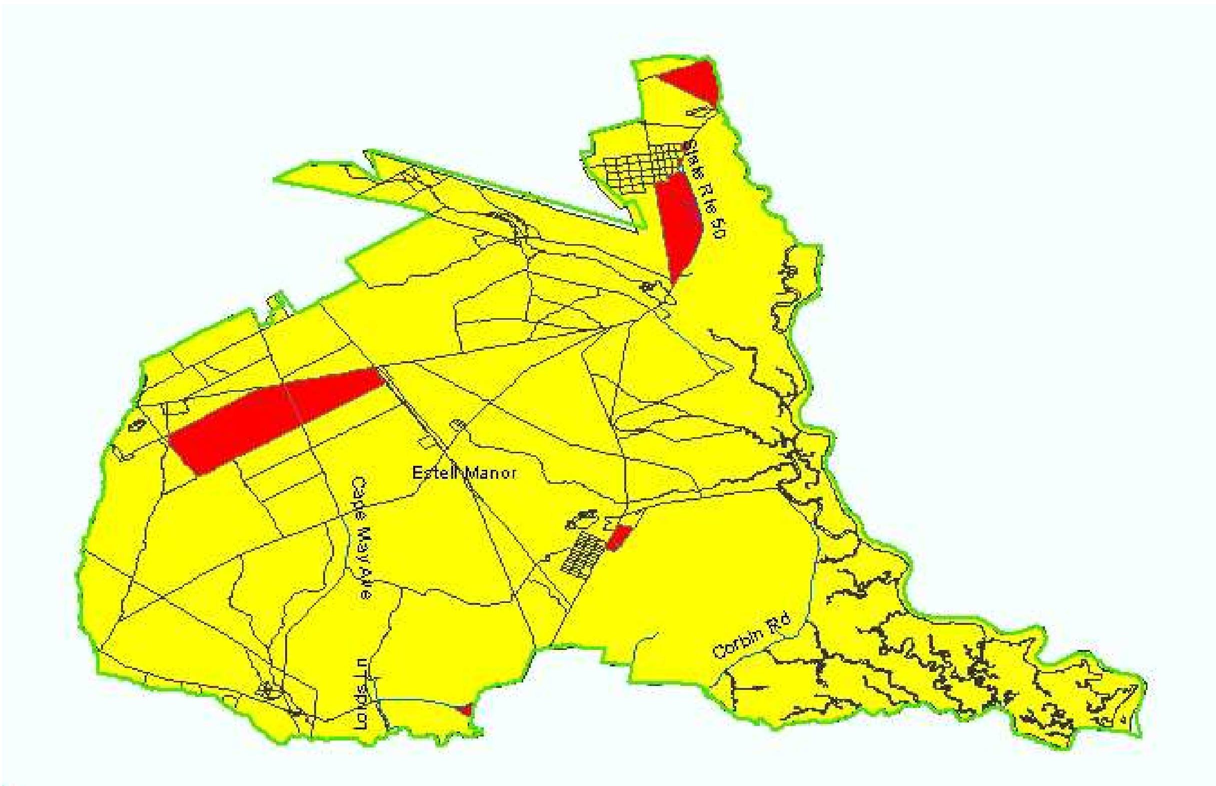
# of census blocks that intersect with the 3 towns Note: These census blocks may lie wholly or partly in Greenwich. Census block geometry is not consistent with town boundaries so a process of conversion to centroids followed by geo-spatial join has been performed to focus on census blocks that intersect 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	**<u>72</u>** CBs all with the following data: Transtech = 40 (Cable Modem – DOCSIS 3.0 Down) Maxaddown = 10 (>= 100 Mbps and < 1 Gbps) **<u>Maxadup = 9 (>= 50 Mbps and < 100 Mbps)</u>**
# 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

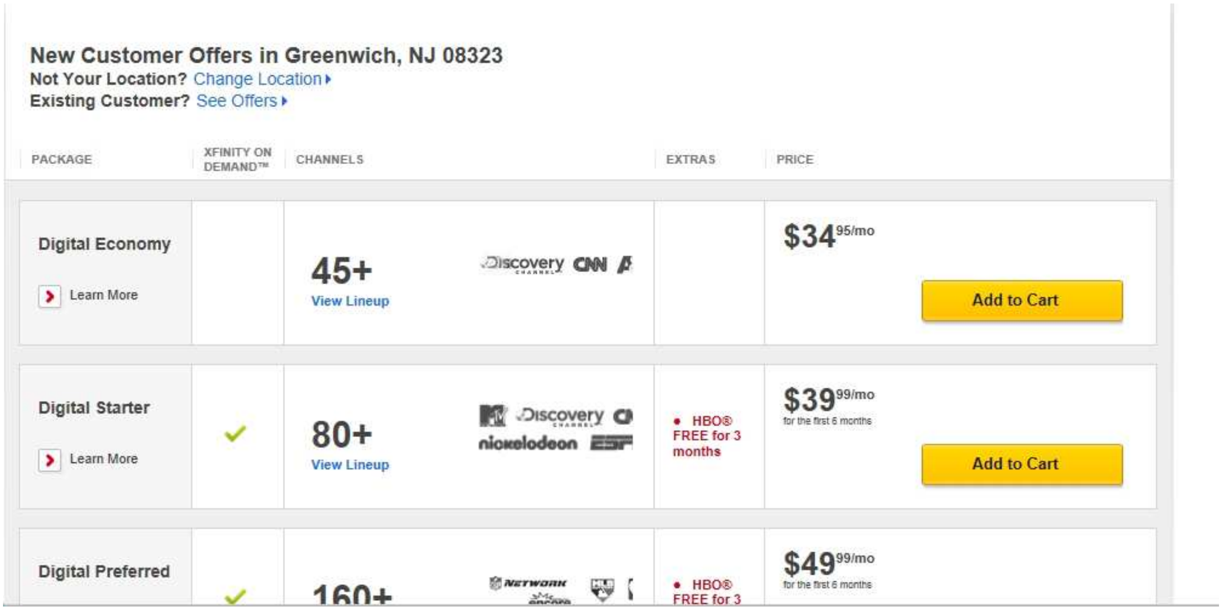
General:

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



13.2 Comparison of 2013 October and 2014 April Reported Coverage in Cumberland and Atlantic Counties

In the summer of 2013, some residents of Greenwich Township (Cumberland County), Stow Creek Township (Cumberland County) and Estell Manor City (Atlantic County) in New Jersey raised complaints that the broadband coverage reported in the state and national broadband maps overstated the coverage in their communities. An effort was undertaken to analyze the wireline and wireless coverage reported in those areas by several providers. In one case, a discrepancy in the data was identified and corrected. In light of this situation, we have continued to monitor the reported coverage in these areas and to take corrective action where appropriate. The following reports our updated analysis for the Spring 2014 submission.

13.2.1 Comcast

As shown in Table 4 and Figure 2, Comcast continues to submit data that indicates they have coverage in parts of Greenwich Township, Stow Creek Township and Estell Manor. In the last two submissions, they have reported coverage in 67 of the 438 census blocks that are within the borders of those three towns. The Comcast Web site indicates that service is available when addresses in these some of these disputed census blocks are entered, although it does accurately report that no service is available when for addresses in other census blocks. When asked about these areas, Comcast readily admits that they do not offer service in those towns.

Table 4: Comcast Reported Coverage across the State and in Greenwich Township, Stow Creek Township and Estell Manor

Submission	Census Blocks	Count
2013 October Submission	Total Count	74813
	Count in the Three Towns	67
2014 April Submission	Total Count	74936 (123 more)
	Count in the Three Towns	67

To correct this situation, we have removed the census blocks in those three towns from the Comcast data prior to submission, as shown in Figure 3.

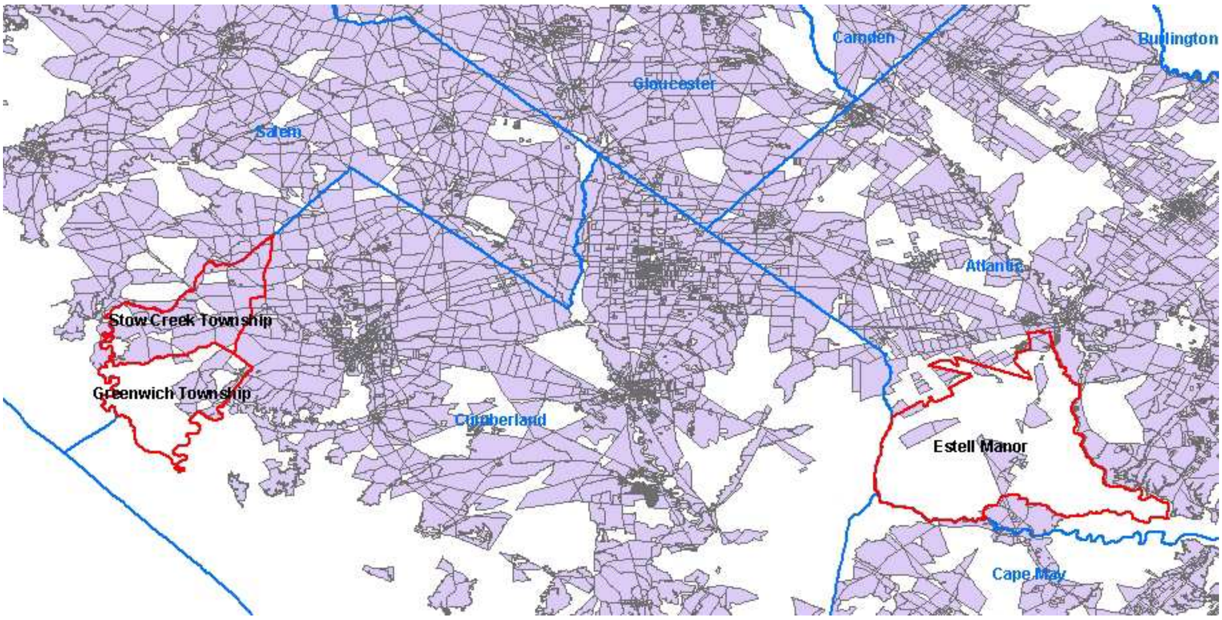


Figure 2: 2014 April Coverage Submitted By Comcast

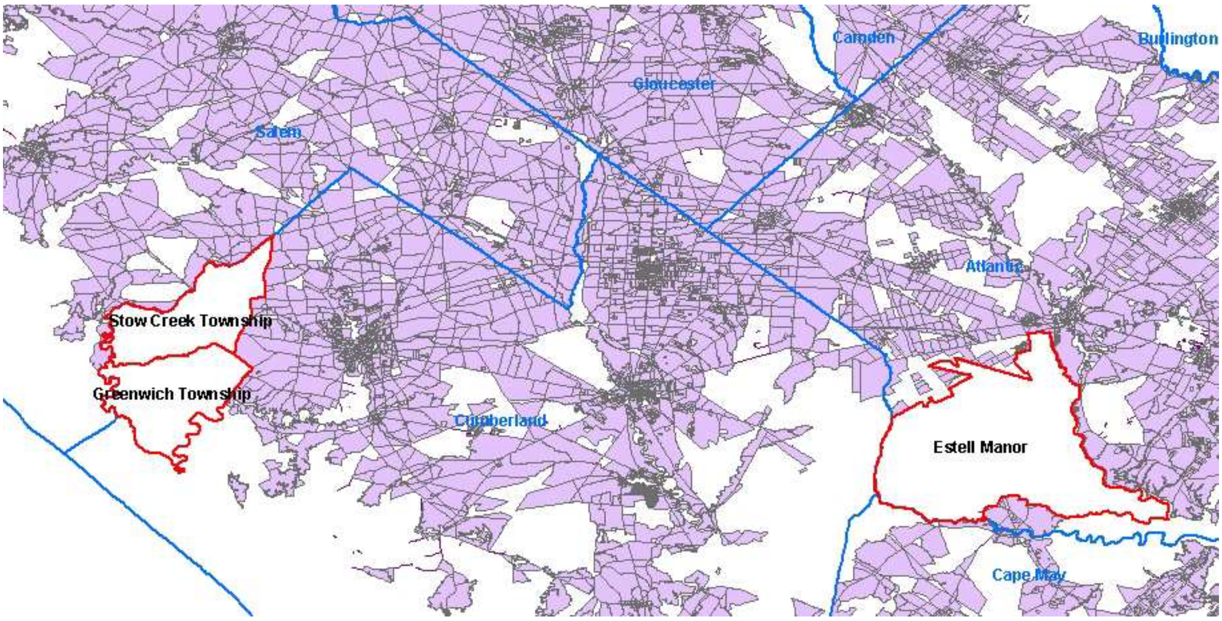


Figure 3: 2014 April Comcast Coverage after 67 Census Blocks in the Three Towns are Removed

13.2.2 Verizon

As shown in Table 5, Verizon increases their number of covered census blocks across the state by less than one percent, but increased their census block coverage in these three towns by 67%. As can be seen by comparing Figure 4 and Figure 5, the majority of this increase is in Stow Creek and eastern Greenwich.

Table 5: Verizon Reported Coverage across the State and in Greenwich Township, Stow Creek Township and Estell Manor

Submission	Census Blocks	Count
2013 October Submission	Total Count	161489
	Count in the Three Towns	116
2014 April Submission	Total Count	162708 (1219 more)
	Count in the Three Towns	194

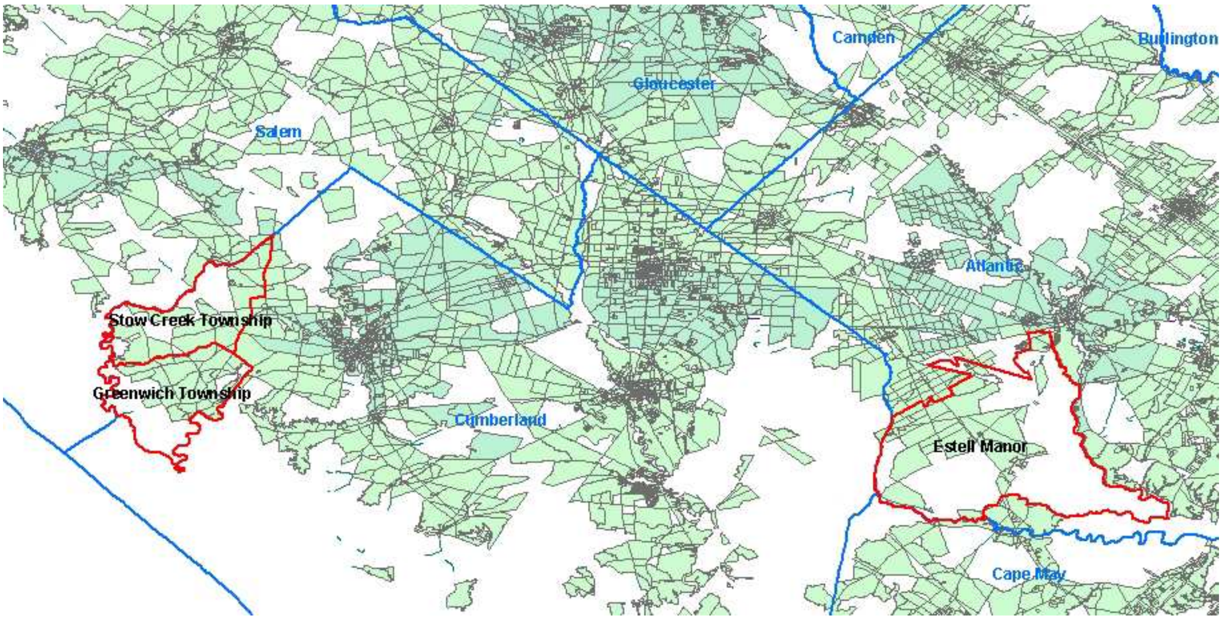


Figure 4: 2013 October – Verizon Coverage

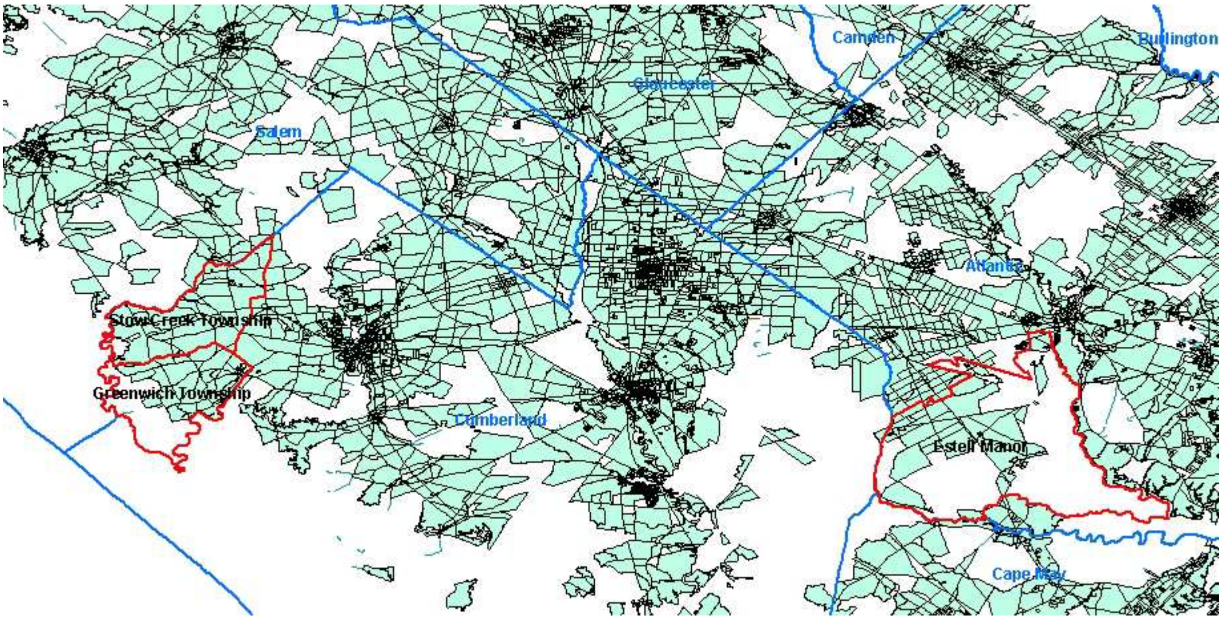


Figure 5: 2014 April – Verizon Coverage

13.2.3 Verizon Wireless

Figure 6 and Figure 7 show the coverage provided by Verizon Wireless in the area of the three towns from October 2013 and April 2014 submissions, respectively. The figures overlay the three wireless services that Verizon reports, LTE, EVDO and AWS. The gray lines indicate the boundaries between these services, and white areas indicate gaps. The figures make clear that across the three services, Verizon Wireless completely covered the three towns in both October 2013 and April 2014. There was some motion in the borders between the services, as a result of the expansion of Verizon's LTE service area.

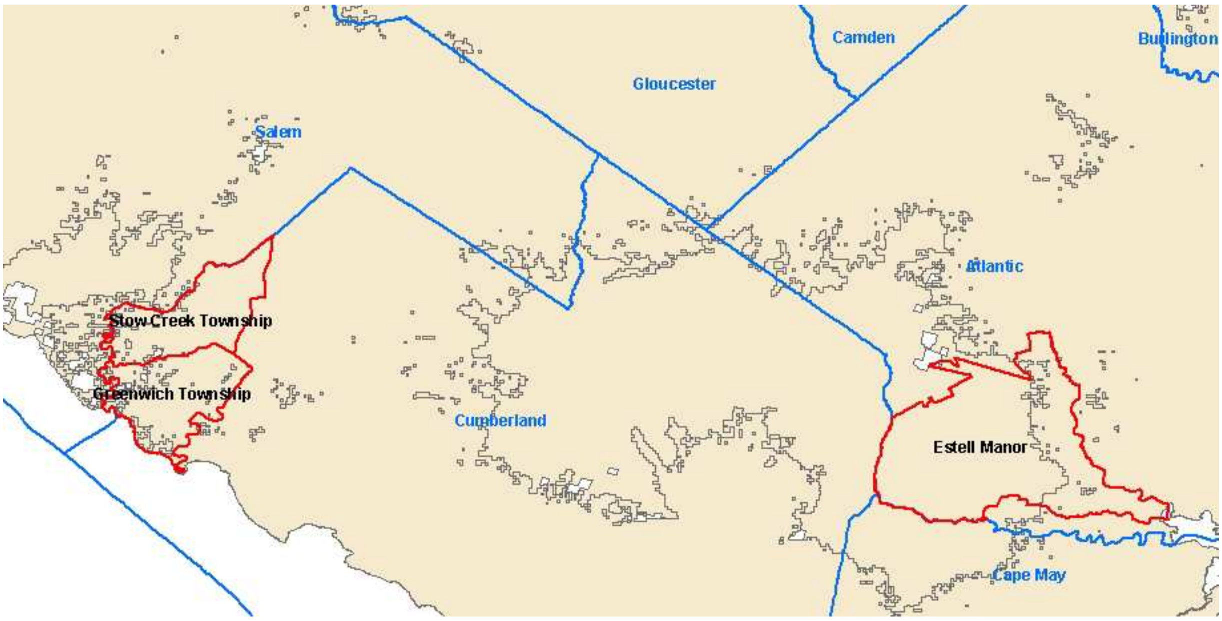


Figure 6: 2013 October – Verizon Wireless Coverage Map

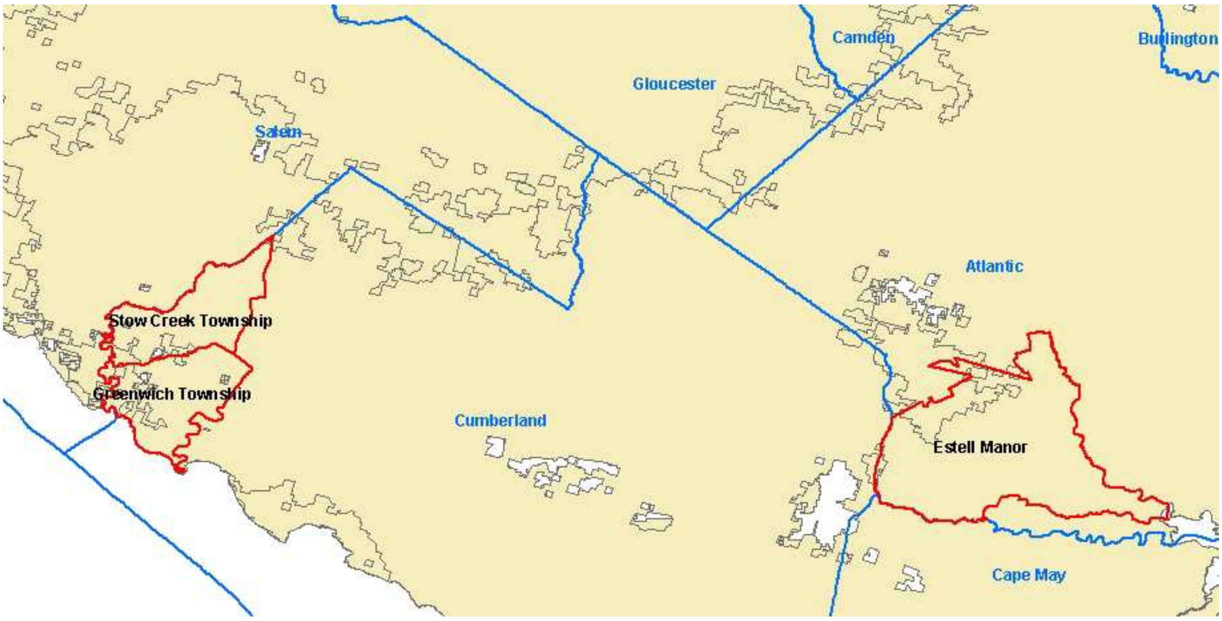


Figure 7: 2014 April – Verizon Wireless Coverage Map

13.2.4 AT&T Mobility

Figure 8 and Figure 9 show the coverage provided by AT&T Mobility in the area of the three towns from October 2013 and April 2014 submissions, respectively. The figures overlay the three wireless services that Verizon reports, UMTS, HSPA and LTE. The gray lines indicate the boundaries between these services, and white areas indicate gaps. The map from the April 2014 submission clearly indicates that AT&T Mobility has filled in some substantial coverage gaps in Stow Creek and Greenwich and reduced the size of a major gap in Estell Manor. This is a result of expansion of the AT&T Wireless LTE and HSPA coverage areas.

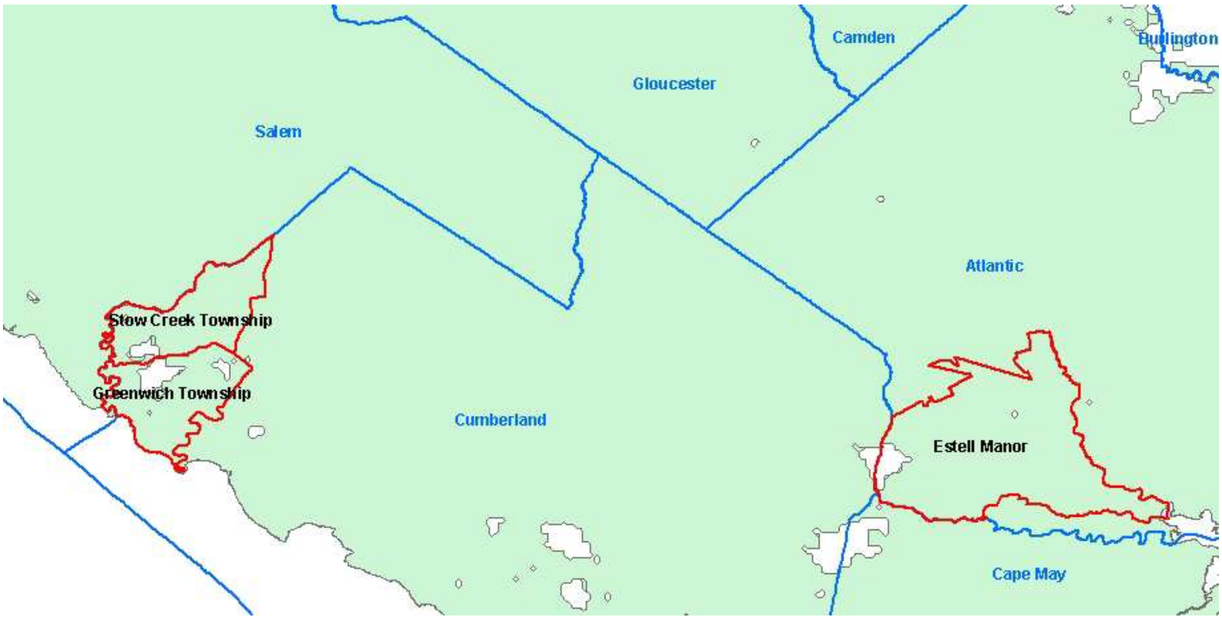


Figure 8: 2013 October – AT&T Mobility Coverage Map

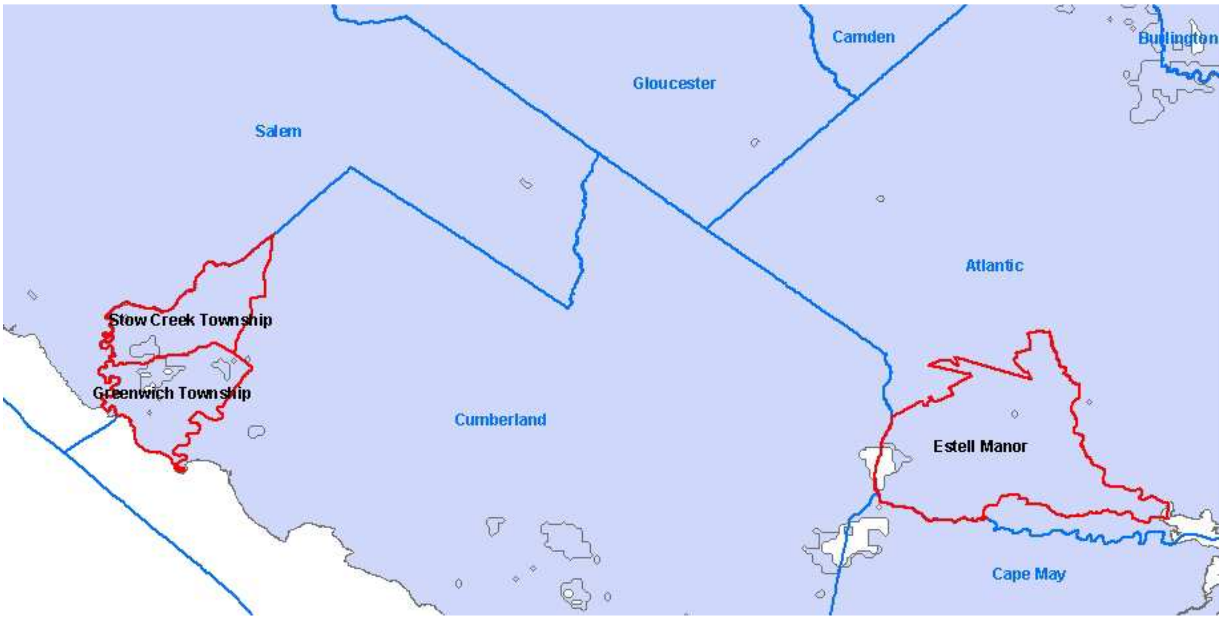


Figure 9: 2014 April – AT&T Mobility Coverage Map

13.2.5 Sprint

Figure 10 and Figure 11 show the coverage provided by Sprint in the area of the three towns from October 2013 and April 2014 submissions, respectively. Comparison of these maps shows that there was little or no change in Sprint's coverage in this area.

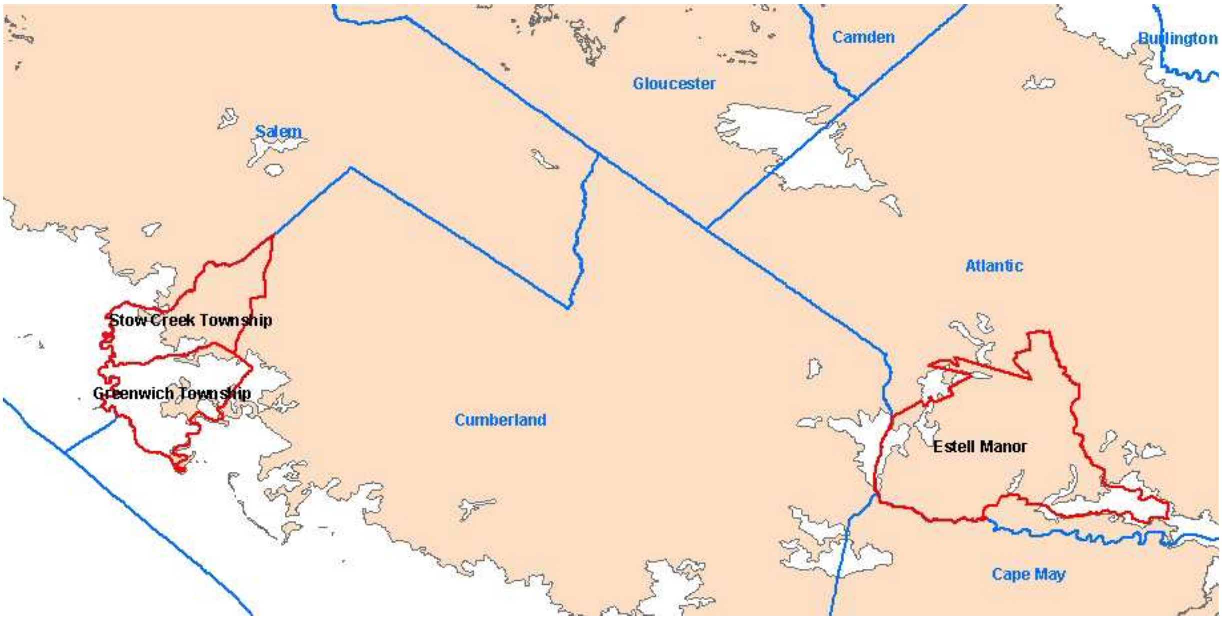


Figure 10: 2013 October – Sprint Coverage Map

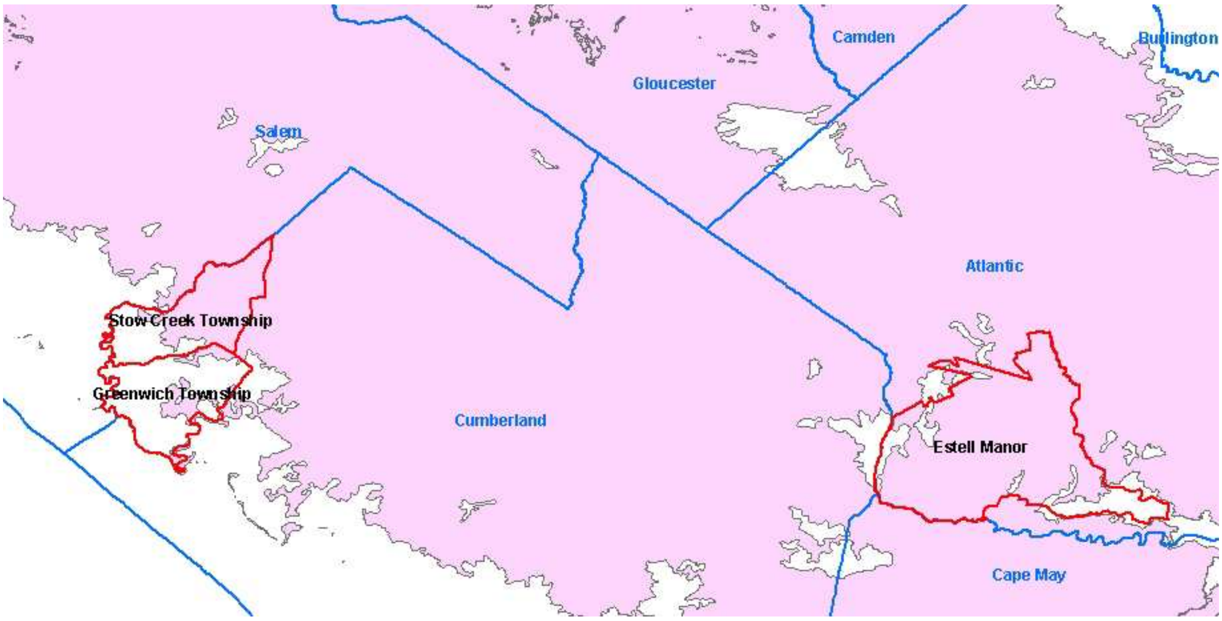


Figure 11: 2014 April – Sprint Coverage Map

13.2.6 T-Mobile

Figure 12 and Figure 13 show the coverage provided by T-Mobile in the area of the three towns from October 2013 and April 2014 submissions, respectively. Comparison of these figures makes it clear that T-Mobile dramatically increased their coverage across the entire region. While T-Mobile increased LTE coverage in other areas in the state, the increase in the coverage in the region shown in the figures is predominantly due to expansion of their U1900 service, with 6-10 Mbps download speeds.

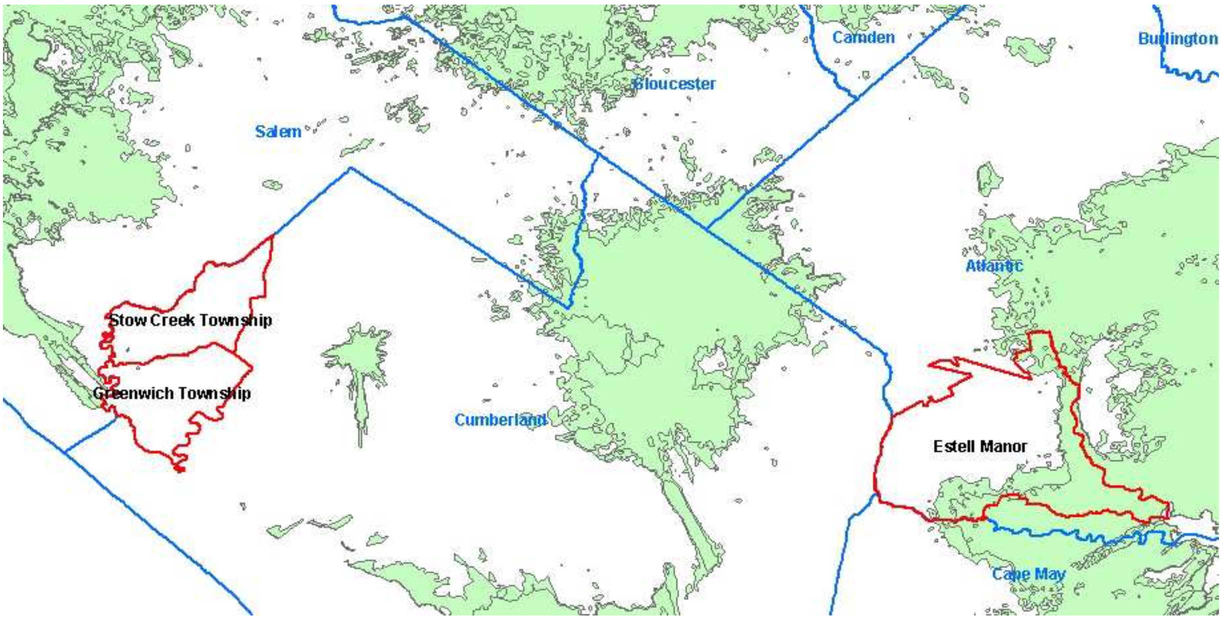


Figure 12: 2013 October – T-Mobile Coverage Map

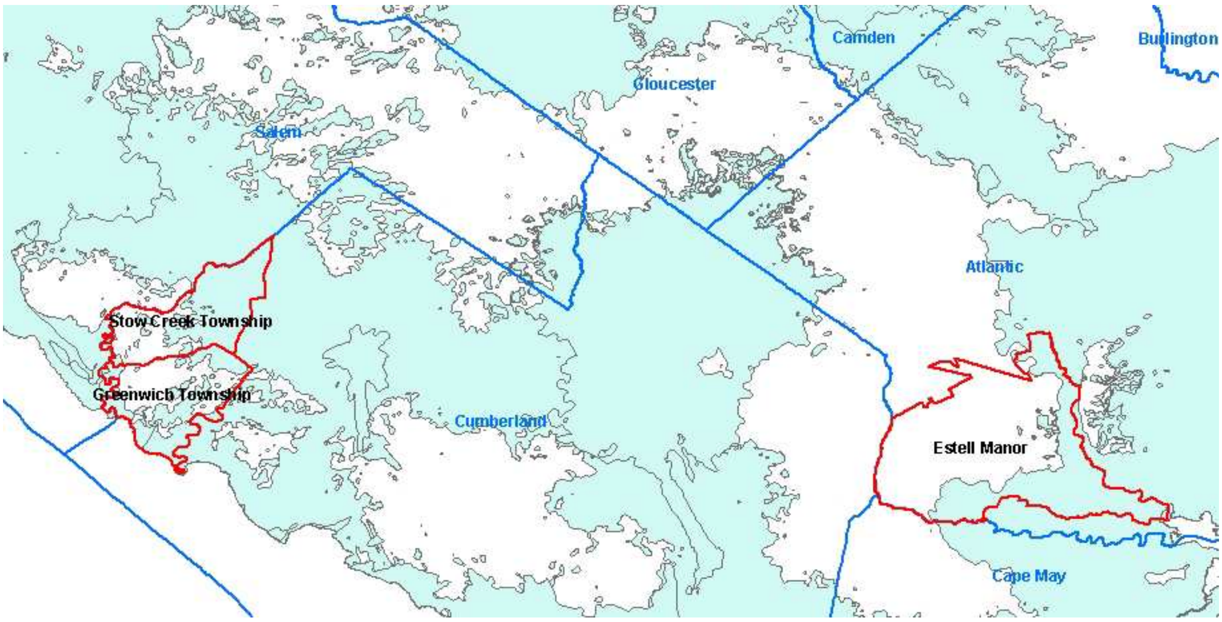


Figure 13: 2014 April – T-Mobile Coverage Map

14 Appendix H: CAI Data Confidence Level Estimation

14.1 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 October 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.

14.2 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.

14.3 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.

14.4 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.

14.5 Procedure for Confidence Level Estimation for CAIs

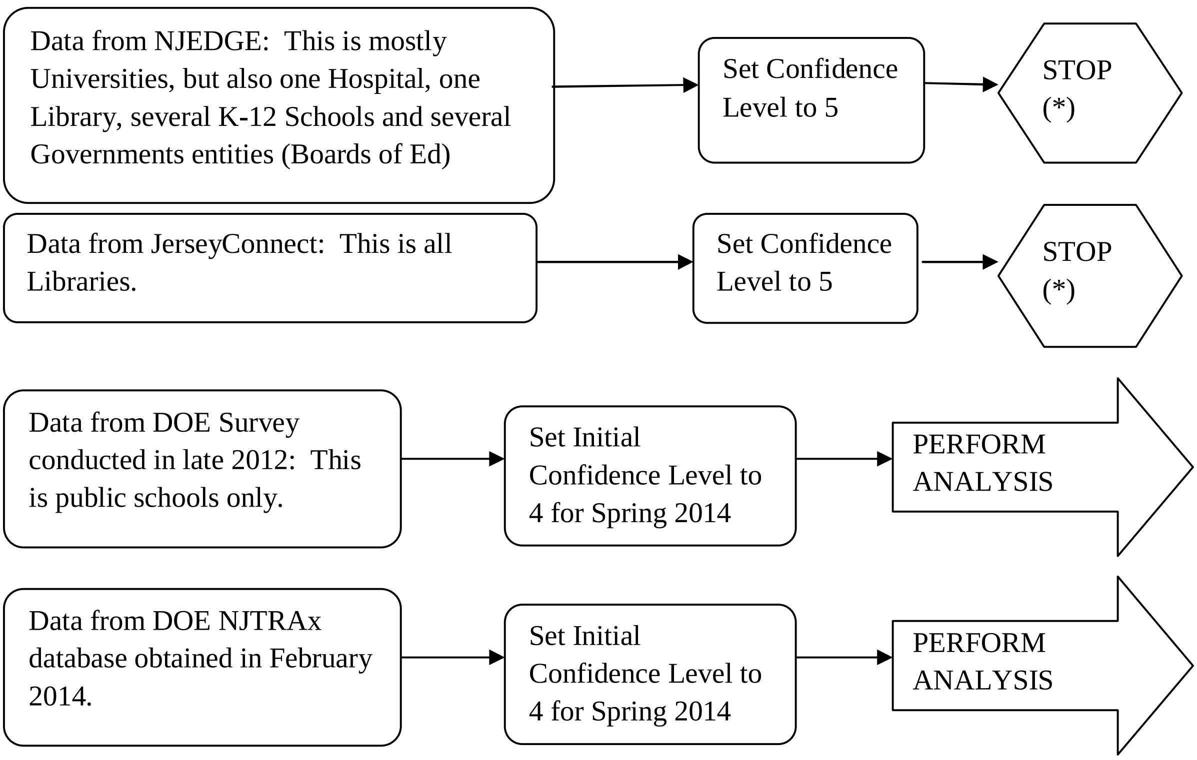
The steps described in this section are performed in sequence.

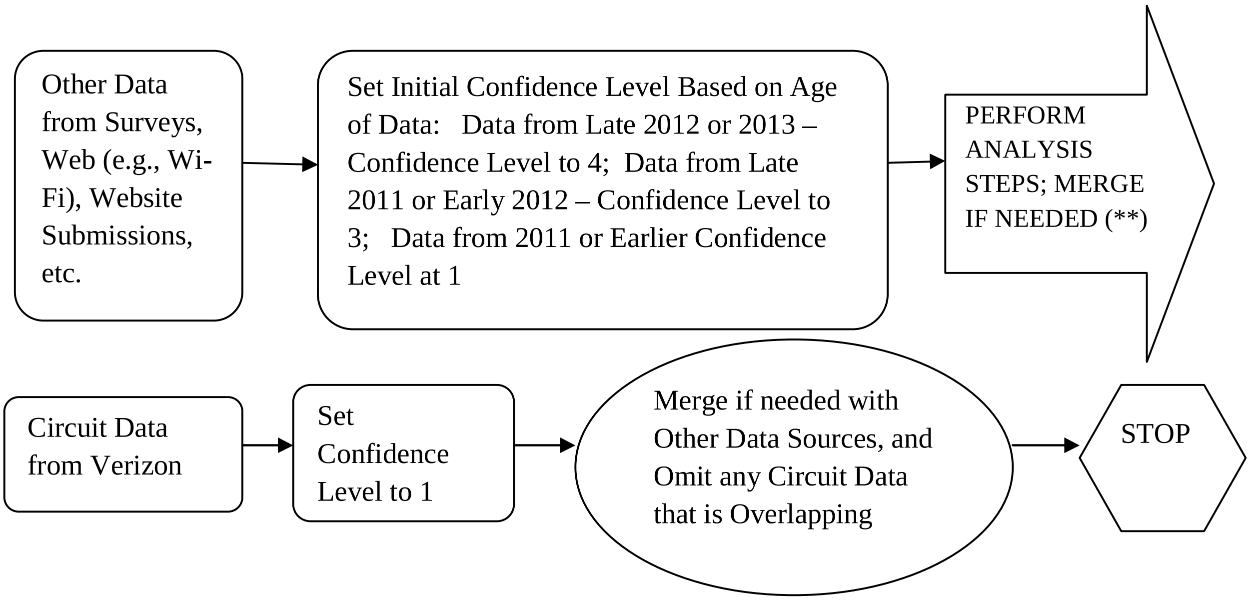
14.5.1 Initial Confidence Level Based on Broadband Data Source and Currency

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.

14.5.2 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”

14.5.3 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.

14.6 Confidence Levels for Fall 2013 Data

The following tables list the results of applying this confidence procedure to the data that was submitted in the Fall of 2013.

Table 6: Table of statistics from calculation of confidence levels

Description	Counts	Notes
Total number of records	15683	
# of bbservice = U	11108	Records without broadband information; Data confidence is set to NULL.
# of bbservice = Y	4572	Focus of the data confidence estimation.
# of bbservice = N	3	Data confidence is set to 3 (middle value).
# of data from JERSEYCONNECT	72	
# of data from NJEDGE	43	
# of data from USAC	106	
# of data from LMxAC	31	
# of circuit data from Verizon	1692	
# of invalid_tech_speed = 1	417	Records with an inherent inconsistency in the reported broadband technology and speeds.

Description	Counts	Notes
# of provider name of null value	11293	
# of provider name not matched	829	
# of provider name matched	3561	
# of records where there is a match on the provider for census blocks or road segment	3242	
# of records where there is a match on the provider and technology for census blocks or road segment	831	

Table 7: Final Counts of Estimated Data Confidence for CAI Records

Confidence_scale	Counts	Notes
1	1828	Lowest confidence level; most of these records describe state government facilities where broadband information came from Verizon circuit data that has not been updated since 2011.
2	181	
3	775	
4	1590	
5	201	Highest confidence level; data from NJEDge, JerseyConnect, LMxAC, and survey data that is current and validated.
null	11108	No confidence estimated; most of these are records with no broadband information.

15 Appendix I: End User Category Determination

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 rules specified in the table below.

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.

Table 8: Mapping of Land Cover to NTIA End User Codes.

LU07	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		

LU07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
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		

LU07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
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		
5200	NATURAL LAKES	WATER	2514		
5300	ARTIFICIAL LAKES	WATER	21114		
5410	TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS	WATER	2143		
5411	OPEN TIDAL BAYS	WATER	16		
5420	DREDGED LAGOON	WATER	374		
5430	ATLANTIC OCEAN	WATER	2		
6111	SALINE MARSH (LOW MARSH)	WETLANDS	3154		
6112	SALINE MARSH (HIGH MARSH)	WETLANDS	1223		
6120	FRESHWATER TIDAL MARSHES	WETLANDS	1185		
6130	VEGETATED DUNE COMMUNITIES	WETLANDS	334		
6141	PHRAGMITES DOMINATE COASTAL WETLANDS	WETLANDS	3668		
6210	DECIDUOUS WOODED WETLANDS	WETLANDS	45030		
6220	CONIFEROUS WOODED WETLANDS	WETLANDS	9934		
6221	ATLANTIC WHITE CEDAR WETLANDS	WETLANDS	3442		
6231	DECIDUOUS SCRUB/SHRUB WETLANDS	WETLANDS	12606		
6232	CONIFEROUS SCRUB/SHRUB WETLANDS	WETLANDS	1597		
6233	MIXED SCRUB/SHRUB WETLANDS (DECIDUOUS DOM.)	WETLANDS	3609		
6234	MIXED SCRUB/SHRUB WETLANDS (CONIFEROUS DOM.)	WETLANDS	2128		
6240	HERBACEOUS WETLANDS	WETLANDS	8245		
6241	PHRAGMITES DOMINATE INTERIOR WETLANDS	WETLANDS	2970		
6251	MIXED WOODED WETLANDS (DECIDUOUS DOM.)	WETLANDS	8050		
6252	MIXED WOODED WETLANDS (CONIFEROUS DOM.)	WETLANDS	8445		
6290	UNVEGETATED FLATS	WETLANDS	99		
6500	SEVERE BURNED WETLAND VEGETATION	WETLANDS	14		
7100	BEACHES	BARREN LAND	415		
7200	BARE EXPOSED ROCK, ROCK SLIDES, ETC	BARREN LAND	153		
7300	EXTRACTIVE MINING	BARREN LAND	773	2	

LU07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
7400	ALTERED LANDS	BARREN LAND	736		
7430	DISTURBED WETLANDS (MODIFIED)	WETLANDS	4076		
7500	TRANSITIONAL AREAS	BARREN LAND	2787		
7600	UNDIFFERENTIATED BARREN LANDS	BARREN LAND	159		
	Total		554259		

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 9: Summary of Data Processing Steps for End User Category Estimation of Census Block Geometry.

<table>
<tr><th>Step</th><th>Description</th><th>Output</th><th>Comments</th></tr>
<tr><td>1</td><td>Download 20 zipped shape files and merge them into a single table, called LULC</td><td>856,381 records</td><td>http://www.nj.gov/dep/gis/lulc07cshp.html</td></tr>
<tr><td>2</td><td>Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records</td><td>554,259 records</td><td></td></tr>
<tr><td>3</td><td>Map the values of LU07 to the end_user_category column using the mapping information</td><td><table><tr><td>End_user_cat</td><td>Count</td></tr><tr><td>1</td><td>88,068</td></tr><tr><td>2</td><td>95,168</td></tr><tr><td>5</td><td>27,630</td></tr><tr><td>unknown</td><td>343,393</td></tr></table></td><td></td></tr>
<tr><td>4</td><td>Dissolve the LULC table based on the end_user_category column</td><td>156,043 records</td><td></td></tr>
<tr><td></td><td># of records in the Census Block (CB) table</td><td>169,588 records</td><td></td></tr>
<tr><td>5</td><td>Union the CB table and LULC table</td><td>542,599 records</td><td></td></tr>
<tr><td>6</td><td>Create a frequency table from the union table:
Frequency fields: CB_ID and end_user_category
Summary field: area</td><td>345,913 records</td><td></td></tr>
<tr><td>7</td><td>Choose the end_user_category of the largest area in each CB</td><td>169,588 records<table><tr><td>End_user_cat</td><td>Count</td></tr><tr><td>1</td><td>80,699</td></tr><tr><td>2</td><td>21,381</td></tr><tr><td>5</td><td>1,384</td></tr></table></td><td>6 census blocks are not covered by LULC at all. Set the end_user_cateory to unknown.</td></tr>
</table>

<table>
<tr><td></td><td></td><td><table><tr><td>Unknown</td><td>66,154</td></tr></table></td><td></td></tr>
</table>

Table 10: Summary of Data Processing Steps for End User Category Estimation of Street Segment Geometry.

<table>
<tr><th>Step</th><th>Description</th><th>Output</th><th>Comments</th></tr>
<tr><td>1</td><td>Download 20 zipped shape files and merge them into a single table, called LULC</td><td>856,381 records</td><td>http://www.nj.gov/dep/gis/lulc07cshp.html</td></tr>
<tr><td>2</td><td>Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records</td><td>554,259 records</td><td>Same as the case for census block</td></tr>
<tr><td>3</td><td>Map the values of LU07 to the end_user_category column using the mapping information</td><td><table><tr><td>End_user_cat</td><td>Count</td></tr><tr><td>1</td><td>88,068</td></tr><tr><td>2</td><td>95,168</td></tr><tr><td>5</td><td>27,630</td></tr><tr><td>unknown</td><td>343,393</td></tr></table></td><td>Same as the case for census block</td></tr>
<tr><td>4</td><td>Dissolve the LULC table based on the end_user_category column</td><td>156,043 records</td><td>Same as the case for census block</td></tr>
<tr><td></td><td># of records in road segment (RS) table in large census blocks</td><td>6,007 records</td><td></td></tr>
<tr><td>5</td><td>Identity the RS table and LULC table</td><td>11,634 records</td><td></td></tr>
<tr><td>6</td><td>Create a frequency table from the identity table:
Frequency fields: TLID and end_user_category
Summary field: length</td><td>9,830 records</td><td></td></tr>
<tr><td>7</td><td>Choose the end_user_category of the largest area in each RS</td><td>6,007 records<table><tr><td>End_user_cat</td><td>Count</td></tr><tr><td>1</td><td>1,330</td></tr><tr><td>2</td><td>716</td></tr><tr><td>5</td><td>150</td></tr><tr><td>Unknown</td><td>3,811</td></tr></table></td><td>3 streets are not covered by LULC at all. Set the end_user_cateory to unknown.</td></tr>
</table>

16 Appendix J: USAC E-Rate Data Processing[3]

August, 2013 **Contact: D E Duffy**

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 (?).

[3] NJ USAC data kindly provided by Tabitha Hunter of Florida

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.