

# New Jersey Broadband Mapping Project:

## Methodology Report on Data Integration and Validation Procedures for October 2014 Submission

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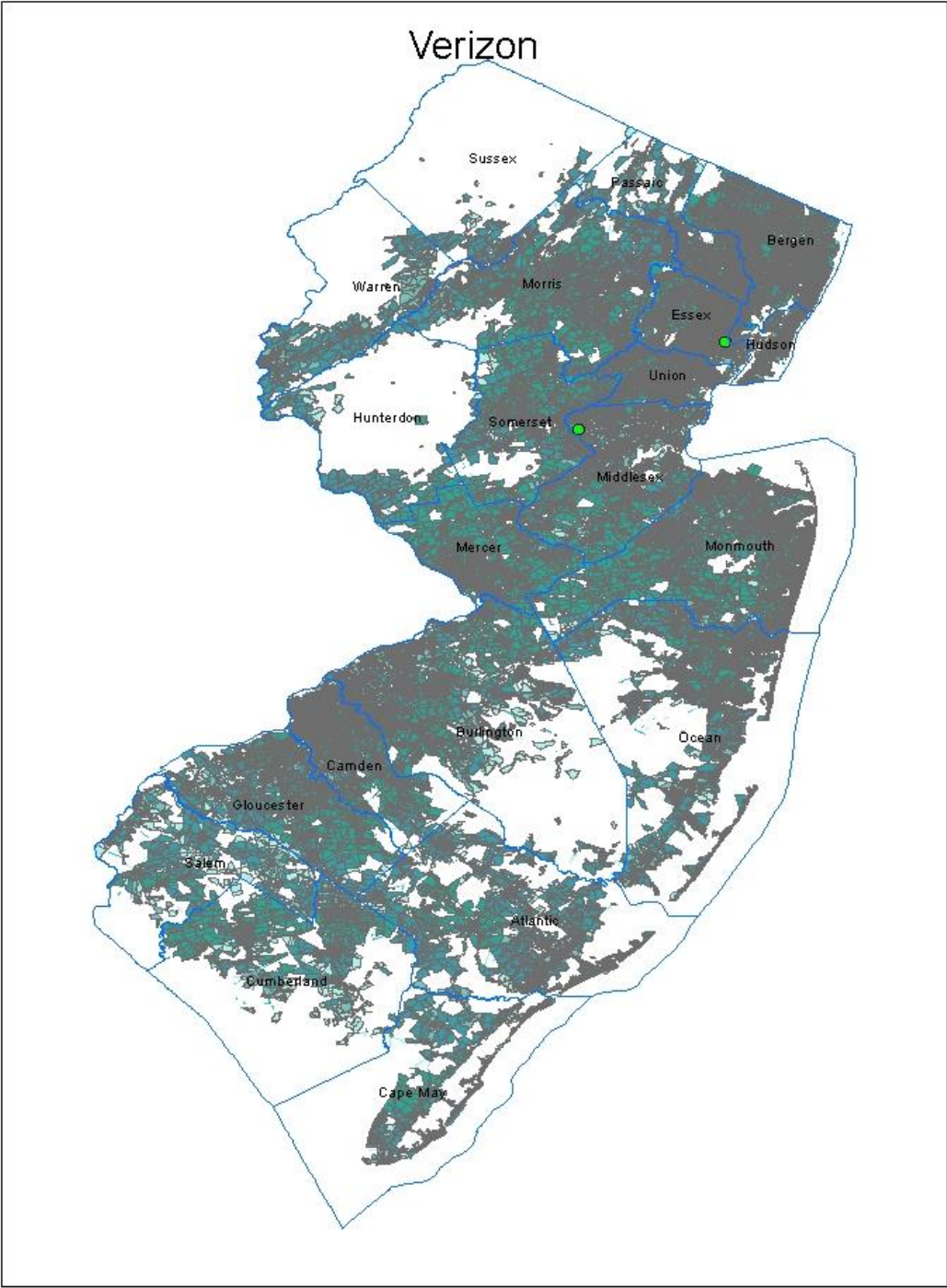
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<sup>1</sup> Note: Revised October 8, 2014 to reflect updated information supplied by Verizon.

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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, Community Anchor Institutions (CAIs), and other sources and organizations in the State of New Jersey. Individual Provider Data Reports included in Appendix A of this report, 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, found in Appendix B, provides details on the CAI data processing, including the implementation of validation rules on CAI data. This report also describes some of the complexities and challenges we have encountered in the execution of 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 from service providers and community anchor institutions.
- 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*, including the definition and implementation of business rules for validation.
- Section 6 describes our *Handling of Special Cases*, including verification procedures, validation warnings and handling of fixed wireless providers.
- Appendix A: *NJ Provider Data Reports* concatenates multiple files, one for each provider whose data were included in the submission, 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* provides a summary of the CAI processing for this submission.
- Appendix C: *Third Party Comparisons* 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* describes our work to develop a data confidence scale for estimating our underlying confidence in the data elements of the submission, based primarily on data source, currency and verification.
- Appendix E: *Provider Data Confidence Assessment* describes the application of the data confidence methodology to provider data from the Fall 2014 submission.
- Appendix F: *Speed Test Website White Paper* summarizes our evaluation of the available broadband speed test tools, the design of our wireline Web-based speed test Web site and our wireless speed test app. It also reports on the measurements we have obtained with these tools.
- Appendix G: *Study of Discrepancy on Comcast Service in Cumberland and Atlantic Counties* reports on our investigation of differences between the provider-reported coverage and local user experience with broadband access.

## 2 Data Outreach

### 2.1 Provider Data Outreach

Applied Communication Sciences (ACS) and NJ-OIT have conducted outreach to providers who have participated in the past and to newly identified providers. With existing providers, we highlight the benefits of continued participation and the ways in which they could 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 majority of providers who had participated in the past were willing to actively participate again. The large national providers 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. For example:

- Some smaller wireline providers submit a list of addresses where they offer service, along with a single description of their service offering. ACS translates that information into census block coverage with the associated speed and technology meta-data.
- Some small cable operators submit the names of the municipalities they cover completely, along with a description of their service offering.
- One provider submitted their most recent FCC Form 477 data.

The option of confirming that previously submitted data still accurately represents the technology, speed and coverage of their service offerings has given providers another, less onerous means of participation.

- We contacted 43 organizations that were potential or known service providers, via email, postings to their Web site and/or telephone calls, broken down as follows:
  - 33 facilities-based providers who had contributed data in the Spring 2014 round
  - One provider who had participated in early collection rounds, but had been dropped for non-participation in the Spring 2014 submission
  - Four providers who had been previously identified via their FRNs but who had not yet participated.
  - Five service providers with new FRNs indicating they deliver broadband service in NJ
- 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 is the same set of providers whose data we submitted in the Spring 2014 round.
  - 19 providers submitted new/revised data for this round.
  - For the remaining 14 providers we are reusing previously submitted data.
    - Five providers responded to inform us that their speed and coverage had not changed since their last submission.



- Nine providers failed to respond to repeated contact attempts via email and phone, but had submitted data during previous rounds.
      - We verified that these providers were still active and elected to include their data in this final submission.
    - Data for Leap/Cricket was submitted by AT&T due to a recently completed merger, but this coverage area was not integrated into the AT&T 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 (Note: Recently merged with AT&T)
      - Sprint
      - T-Mobile
      - Verizon Wireless
    - Four offer satellite data services in NJ.
      - Hughes Network Systems
      - Skycasters, LLC
      - StarBand Communications
      - ViaSat, Inc.
    - Eight reported offering cable/fiber data services in regions of NJ.
      - Comcast
      - CSC (Cablevision/Lightpath)
      - Fiber Technologies Networks
      - Service Electric of Hunterdon
      - Service Electric of Sparta
      - Time Warner
      - Verizon
      - Zayo Bandwidth
    - As with the Fall 2013 submission, one New Jersey provider indicated they no longer wished to submit data.
      - New Edge/OneCommunications/EarthLink had previously responded with email saying they did not believe the data they had was complete or accurate enough for submission.
  - We identified six organizations with FRNs associated with New Jersey. We investigated these companies via their Web sites to determine if they offered suitable services in the state and to obtain contact information. We attempted to contact these organizations multiple times via email, telephone and/or through postings on their Web sites.
    - We received no response to our requests from the five that we attempted to contact (Business Automation Technologies dba Data Network Solutions, Dodson Group, Inc., Line Systems, Inc., Network Innovations, Inc., and Princeton Hosted Solutions)
    - We determined that LTS Group Holdings is a consulting company, not a broadband provider.
  - We have previously disqualified the following organizations for the reasons stated:

- Appia Communications, Inc./Voxitas/NetLogic was removed in Spring 2014 for non-participation.
- *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, Airband 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/Cincinnati 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 day 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 definitively 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;
- information from Universal Service Administration Company (USAC) entities that applied for broadband service (Appendix J provides more details on the processing of the USAC E-rate data.); and
- Responses to survey and outreach activities conducted by NJ-OIT.

We used previously acquired 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 2014, collected via an NJ-Trax survey vehicle
- Submissions from our website

In order to collect broadband data from public libraries, the project team used a variety of outreach channels, including existing contacts from small business initiatives, promotion through social media and websites, and direct e-mail messages to library coalitions, associations, and library systems.

In order to collect broadband data from the medical/healthcare industry, the project team conducted outreach to large medical and healthcare institutions and organizations in the State of New Jersey. Additionally, the project team used social media, the ConnectingNJ website, and direct e-mail to encourage CAI stakeholders to participate in the project by supplying broadband data.

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

**Table 1: Summary of CAI Submission**

CAI Category	Spring 2014		Fall 2014	
	Complete*	Total	Complete*	Total
<b>K-12 Schools</b>	2657	3921	2594	3892
<b>Libraries</b>	227	468	330	455
<b>Medical/Healthcare</b>	4	10146	36	9668
<b>Public Safety</b>	69	374	69	374
<b>University</b>	40	168	40	174
<b>Government</b>	1692	1696	1692	1696
<b>NGO</b>	8	8	8	8
<b>Total</b>	<b>4697</b>	<b>16781</b>	<b>4966</b>	<b>16267</b>

There are a few significant changes in the counts of CAIs:

- Both the total number and number of complete records of K-12 Schools went down. This is a result of more thorough validation, including improved duplicate removal and enhanced identification of schools that have closed.
- The number of complete Library records went up. This is a result of an effective outreach campaign conducted by NJ-OIT.
- The total number of records in the Medical/Healthcare category went down, while the number of complete records increased. The total number went down as a result of improved duplicate matching as well as a decision to remove pharmacies and labs that are co-located with other institutions, such as within a hospital. The increase in the complete records is the result of targeted outreach by NJ-OIT.

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 can compel members to provide data (as opposed to comparatively weaker coordinating bodies). 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. Recent actions toward state-wide, online achievement

testing has caused the New Jersey Department of Education to conduct surveys of districts on their broadband capabilities to assess school readiness.

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 had previously 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 multiple individual schools, such as a middle school, a high school, and a school-within-a-school for students with disabilities, within one complex, each with their own NCED CAI ID.
- The CAI transfer model requires a street number and for some CAIs this is not readily available as some institutions use a cross street for directions and/or a PO Box for paper mail. 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 are 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 an individual directory on a dedicated and secure server.
3. Test that the files can be opened, read, etc. This may require using ESRI ArcCatalog to check a shape file 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 the 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. There are four high-level data load processes, based on the form of the received data, that are customized for each individual provider.

- Major wireless providers submit geospatial shape files. These shapes are coupled with information on provider, speed, spectrum and technology to create geo-database records.
- Major wireline providers submit census block and road segment data. Each geospatial feature is extended with information on provider, speed and technology and loaded as a geo-database record.
- Some cable providers specify their coverage area by naming the municipalities they cover. The census blocks that correspond to the municipality are identified via a spatial join. Geospatial database records are created from the small census blocks and each road segment in the large census blocks. These records are augmented with information on technology, speed and provider.
- Several smaller providers specify their coverage by reporting the addresses of locations where they offer service. These addresses are geocoded using geocoding services from Google and Yahoo to convert addresses into latitude/longitude. Two services are used to provide diversity and enhance the number of addresses that are successfully geocoded. These point locations are then mapped to census blocks or road segments using ESRI tools. Geospatial database records are created from the census blocks and road segments and augmented with information on technology, speed and provider.

The service provider reports 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 obfuscate the address data by transforming it to census blocks or street segments. This may overstate coverage, particularly for providers who report coverage based on individual service addresses.
- 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. We elected to report the maximum customer speeds encountered in any census block as the maximum advertised fields and to report typical speed as null.
- The concepts of maximum advertised speed and 7-10 day availability are well suited for providers who offer services to extended areas, such as large telephone and cable television companies, but their application to other providers is less clear. For example, providers who offer service to a defined set of specific addresses 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 window. 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 containing census blocks or street segments.

- We have had problems with the information supplied by Comcast on their coverage in large census block. They submit street-segment data that we cannot accurately match to TigerLine data. We addressed this with a geospatial mapping procedure. For each line segment in the Comcast data, we generate addresses for the endpoints and the mid points using the minimum/maximum addresses. We then geo-code these three addresses and 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. 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.
- 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 we 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 those that did not specify an end-user category, we used statewide land use data supplied by NJOIT to estimate the likely end user categorization for service areas. Details on this process are provided in Appendix I.



## 5 Validation and Verification Operations

The aim of the validation and verification operations is to identify and correct any issues with the validity, consistency and accuracy of the collected data.

### 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 place names can be difficult, with multiple towns with similar or identical names and variations in spellings and/or abbreviations. We validate against data from the following sources: State of New Jersey geographic information ([https://njgin.state.nj.us/NJ\\_NJGINExplorer/DataDownloads.jsp](https://njgin.state.nj.us/NJ_NJGINExplorer/DataDownloads.jsp)), the Federal Government place name information ([http://geonames.usgs.gov/domestic/download\\_data.htm](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. For the participants in this study, 95% of the responses aligned with service provider information, in that the provider did offer service at the identified address. 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, as described in Section 5.3.
- T-Mobile provides separate information about several different varieties of wireless technologies, each of which supports broadband data services<sup>2</sup>. 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

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<sup>2</sup> 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 HSUPA 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.

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:

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

We also performed the following validations, marking any mismatches for further investigation and/or follow up with the provider.

Layer	Validation Rules
<b>Middle Mile</b>	<p>Check (dbaname, provname, frn) against our FRN reference table</p> <p>Valid census block id within the state of New Jersey</p> <p>Verify that latitude is between 38.7 and 41.4</p> <p>Verify that longitude is between -75.6 and -73.8</p> <p>Shape should not be empty</p>
<b>CAI</b>	<p>Valid zip code</p> <p>Verify that latitude is between 38.7 and 41.4</p> <p>Verify that longitude is between -75.6 and -73.8</p> <p>Downstream speed is greater than or equal to upstream speed</p> <p>CAI ID is not null for schools and libraries</p> <p>Upstream and downstream speeds must match for symmetric technologies</p> <p>Upstream and downstream speeds must be within suitable bands for each technology.</p> <p>Shape should not be empty</p>
<b>Census Block</b>	<p>Check (dbaname, provname, frn) against our FRN reference table</p> <p>Valid census block id within the state of New Jersey</p>

Layer	Validation Rules
	<p>The area of a census block should be less than &lt; 2 square Mile</p> <p>Shape should not be empty</p>
<b>Street Segment</b>	<p>Check (dbaname, provname, frn) against our FRN reference table</p> <p>Street segment is present in a census block &gt;= 2 square miles</p> <p>Shape should not be empty</p>
<b>Wireless</b>	<p>Check (dbaname, provname, frn) against our FRN reference table</p> <p>Shape should not be empty</p>

For providers who advertise their service offerings on their Web sites, generally those who target residential customers, we compared the maximum speeds listed on their sites to the maximum advertised speeds. In most cases, we found direct agreement. Where possible, we verified the few minor discrepancies we found with the providers.

## 5.2 NTIA Validation Script

We run the NTIA validation script against both the provider data and the CAI data. In the final submission, there are no errors. We received warnings for the CAIs and for 10 providers. These warnings fall into the following categories:

- For the CAIs, for purposes of completeness we include records for institutions even when we do not have any broadband information. So, we receive a large number of warnings for records with a null value for the transmission technology.
- Four wireless providers report a download speed tier of 7 (10-25 Mbps) for their 4G services (LTE and HSPA42). In each case, we confirmed with the provider that their networks support speeds in that range.
- Four wireline providers report download speed tiers of 7 for their ADSL service. In each case, we confirmed with the provider that their networks support speeds in that range.
- Records from one cable provider generated warnings because the advertised speed they report for DOCSIS 3.0 was below the expected range. We verified with the provider and via their Web site that the reported speed is what they advertise.
- A record from one fixed wireless provider generated an error for a speed tier of 7. The provider uses the technology as a point-to-point, wireline replacement, rather than as a means to cover a geographic area. This allows them to obtain higher speeds than might be expected with the technology. The provider confirmed the speed.

## 5.3 Verification through Gap Analysis of Neighboring Census Blocks

With this round, we discontinued the use of our “gap” or “doughnut hole” analysis, first described in 2012 submissions. We found that providers never responded directly to this information, and we were seeing a decrease in need for it over time. We retain the description of the analysis from prior submissions for historical purposes.

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.

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.

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#### 5.4 Analysis of FCC Third Party Data Comparisons

After the Fall 2012 submission, the NJ BB Mapping Team received feedback from NTIA/Michael Baker in the form of comparisons they made between the data we had submitted in June-11 and Dec-11 and third-party service 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 three-fold: (1) to try and understand the scope of possible reasons underlying the discrepancies; (2) inform providers of problematic fields, such as provider name or speed tier, which seemed to generate a lot of mismatches; and (3) do some further inquiry to better validate the providers' data. 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
<b>Comcast</b>	Most mismatches on max advertised downstream speed (principally tier 10) and maximum advertised upstream speed (principally tier 7) for Cable Modem DOCSIS 3.0.	<p>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."</p> <p>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.</p> <p>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.</p> <p>Comcast provides D3 throughout New Jersey, so there should be no disconnect between the Census block data and maximum advertised speeds.</p>

Provider	Probable Source of Discrepancy	Provider Explanation
<b>DIECA/ COVAD/ Megapath</b>	<p>Many provider name mismatches. Might this be attributed to recent M&amp;A activities?</p> <p>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).</p> <p>Most mismatches on max advertised downstream speed involve tiers 5 &amp; 7.</p> <p>Most mismatches on max advertised upstream speed involve tiers 3, 5 &amp; 7.</p>	<p>More than half of our lines in each state are supplied via ISP resellers, where we provide the underlying internet connectivity in a wholesale capacity for service that is otherwise branded, billed and supported as the ISP's own service. For over 90 of our resellers, we perform a layer 2 network handoff, such that the reseller's IP address space is what would be visible via the internet as well. This makes it impossible for a third party data collector to know these are being served by our last mile infrastructure without detailed cooperation from each ISP. Of course, if supplied a few example instances of these purported mismatches, we could readily provide an exact analysis.</p> <p>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 an exact analysis.</p> <p>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.</p>



Provider	Probable Source of Discrepancy	Provider Explanation
<b>Sprint</b>	<p>Most mismatches on max advertised downstream speed tier 3. Possibility that tier 3 understates downstream speed?</p> <p>Most mismatches on max advertised upstream speed for tier 2. Possibly understating upstream speed?</p>	No explanation offered
<b>T-Mobile</b>	<p>Most mismatches on max advertised downstream speed tiers 4 &amp; 6. Possibly understated downstream speed in lowest tiers?</p> <p>Most mismatches in max advertised upstream speed for tier 2. Possibly understating your upstream speed?</p>	No explanation offered
<b>Verizon Online</b>	<p>Most mismatches on max advertised downstream speed involve tiers 4, 5 &amp; 6 for ADSL.</p> <p>Most mismatches on max advertised upstream speed involve tiers 2 (ADSL) &amp; 7 (Optical Fiber).</p> <p>Mismatches have to do with the way provider identifies ADSL speed tiers?</p>	No explanation offered

Provider	Probable Source of Discrepancy	Provider Explanation
<b>Verizon Wireless/Cellco</b>	<p>Most mismatches on max advertised downstream speed tiers 3 &amp; 7. Possibility 3 understates downstream speed and 7 overstates it?</p> <p>- Most mismatches in max advertised upstream speed is for tier 2. Possibly understating upstream speed?</p>	No explanation offered

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.

### 5.5 Data Confidence Scale

Since the Fall of 2012, we have been defining, implementing and refining a data confidence scale for quantifying the quality of data submitted by service providers and community anchor institutions. 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 the Spring 2014 round, we updated our CAI 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.

For the Fall 2014 submission, we enhanced our provider confidence process to better reflect the source data and processes and to generate an overall confidence score. Details are described in Appendix E.

### **5.6 *NJ Broadband Speed Testing***

The FCC and a number of NTIA grantees are already collecting speed test data with MLabs Network Diagnostic Tool (NDT), OOKLA Speed test, 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 deployed this speed test service in late 2013 and have used it for targeted 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.

### **5.7 *Resident Feedback and Provider Data Discrepancy Analysis***

Two objectives of the national and state broadband maps are to empower citizens with information about broadband services available to them and to identify non-served or under-served areas. For this to happen, feedback from residents in these areas is critical to the success of the 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 from Greenwich Township, Cumberland County, NJ challenged Comcast's reported coverage. 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 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.
- The data submitted by Comcast for the Fall 2014 submission again included census blocks in these un-served regions. Based on previous confirmations from Comcast that they do not cover these areas, the records corresponding to those census blocks were deleted.

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. Due to the nature of the service they provide, we feel this is the most accurate manner to reflect their capabilities.

We also submit data from a fixed wireless provider, Jersey Shore Wireless/Duxpond. 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 method used to produce the maps, the shapes tend to align with major roadways. Jersey Shore Wireless did not have the resources available for propagation modeling. 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. Jersey Shore Wireless publishes these maps on their Web site to inform potential customers of their coverage areas and we verified for the Fall 2014 submission that they were still using the same maps and advertising the same speeds.

### **6.2 Process Verification**

We periodically institute a thorough review of our process steps. These reviews involve investigation of each process step by an individual other than the person who had created the process or executed it in the past. As a result of this process, we have implemented several process improvements over time. Examples of these 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 technology 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.
- 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.
- Corrected or removed individual CAI records based on results of sample-based validation of 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
<b>AT&amp;T Mobility LLC</b>	<p><i>Issue:</i> 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.</p> <p><i>Resolution:</i> 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.</p>
<b>CenturyLink</b>	<p><i>Issue:</i> We received warnings on 5,832 census blocks and 674 street segments for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL).</p> <p><i>Resolution:</i> When we questioned these, the provider could not confirm the specific census blocks, but asserted that all areas were covered with speeds exceeding 10 Mbps.</p>
<b>Global Online Electronic Services, Inc.</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> 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.</p>
<b>Megapath</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> The provider confirmed that they support 15 Mbps with their ADSL2+ service in limited regions of the state.</p>
<b>Service Electric Broadband Cable (Sparta)</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> 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.</p>

Provider	Warning
<b>Sprint</b>	<p><i>Issue:</i> Sprint increased the downstream speed code to 7 (10-25 Mbps) from 6 (6-10 Mbps) with a transtech code of 80 (Mobile Wireless) for the LTE service.</p> <p><i>Resolution:</i> The provider confirmed that they support the speed with the LTE coverage.</p>
<b>T-Mobile</b>	<p><i>Issue:</i> 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.</p> <p><i>Resolution:</i> Earlier investigation of the T-Mobile Web site showed that they were 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.</p>
<b>Verizon Wireless</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> 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 dated 2/21/2012, we modified the down speed to code 7 in earlier submissions. The current submission is consistent with these instructions.</p>
<b>Warwick Online</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> 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.</p>
<b>Xchange Telecom</b>	<p><i>Issue:</i> 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).</p> <p><i>Resolution:</i> 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.</p>

### 6.3.2 CAI Warnings

The validation script produced 11,835 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 has provided 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 Table 1 and in the CAI data processing section in Appendix B.

## **7 Appendix A: Provider Data Reports**

### **7.1 AccessOne**

Received: January, 2014

Submission date: October 2014

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

#### **For October 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:**

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy accessone\_apr2014.BB\_Service\_CensusBlock to accessone\_oct2014.BB\_Service\_CensusBlock.

#### **For April 2014:**

#### **Sections:**

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

#### **Section 1: NDA Status**

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 Type	Fiber and Other Copper			
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				



<b>Data Rates/Capacity</b>	
<b>Location</b>	
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:

- 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>.)
- Exploration of Lighttower Web site indicates that they only offer fiber services. Based on this, all the Lighttower sites were assumed to be “Optical Carrier/Fiber to the End User” or transtech 50.

- 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.
- 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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:

1. Is the speed information actually a range , where 5mbs-MultiGig means that you can support data rates between 5Mbps and 2+Gbps?
2. 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.)
3. Would you classify yourself as a reseller? (It appears so from the provider column.)

Thanks,

John

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**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:

1. 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.
2. My exploration of Lighttower indicates that they only offer fiber services, so I think I can assume that all the Lighttower sites are also fiber.
3. 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

Manager – NJ BB Data Collection

Applied Communication Sciences

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**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 Lighttower sites as optical and the XO sites as other copper, so Verizon is the only question.

Thanks,

John

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

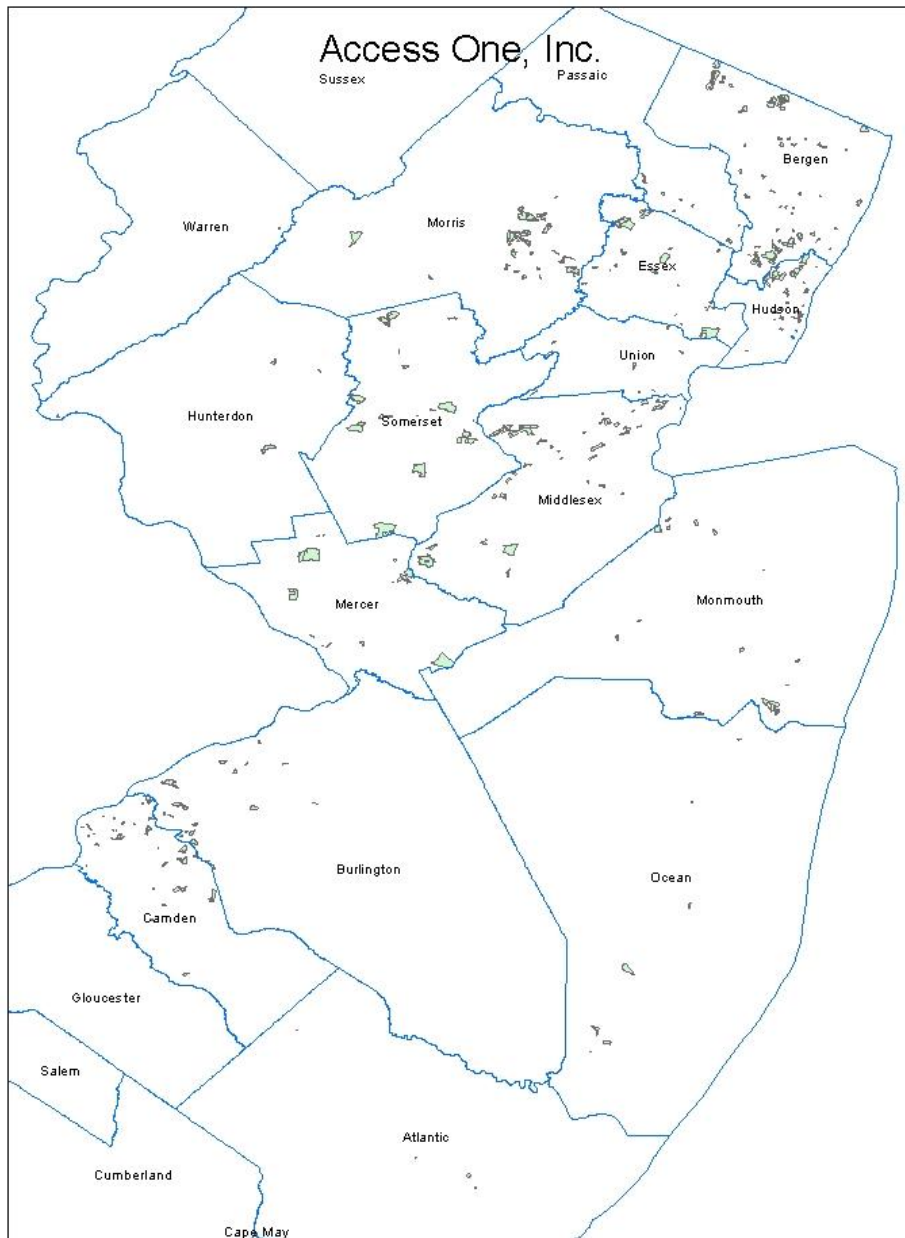
John,

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



## 7.2 AT&T Mobility LLC

Received: July 2014

Submission date: October 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	AT&T Mobility LLC	
	“Doing business as” name	AT&T Mobility LLC	
	FRN	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 typical	Not provided	
	Downstream typical	Not provided	

	Subscriber-weighted	Not provided	
Technology Type	Spectrum (Mhz, FCC code)		Cellular (code 1) and PCS (code 3)
Comments:			
INTERCONNECTION DATA			
ID			
File size	Single row		
Ownership	Code 0		
Transport Type	Code 1		
Data Rates/Capacity	Code 6		
Location	Newark, NJ		
Comments: Single location provided			

### Section 3: Submission File Details

Received this file by SECURE UPLOAD:

Name	Size
ATT_LTE_Jul14_NJ.zip	4209 KB

The zip archive contained the following files:

Name	Size
------	------



 ATT Router Locations June 2014 New Jersey	9 KB
 ATT_HSPA+_Jul14_NJ.DBF	1 KB
 ATT_HSPA+_Jul14_NJ.PRJ	1 KB
 ATT_HSPA+_Jul14_NJ.shp	2,220 KB
 ATT_HSPA+_Jul14_NJ.SHX	1 KB
 ATT_LTE_Jul14_NJ.DBF	1 KB
 ATT_LTE_Jul14_NJ.PRJ	1 KB
 ATT_LTE_Jul14_NJ.shp	2,227 KB
 ATT_LTE_Jul14_NJ.SHX	1 KB
 ATT_UMTS_Jul14_NJ.DBF	1 KB
 ATT_UMTS_Jul14_NJ.PRJ	1 KB
 ATT_UMTS_Jul14_NJ.shp	2,220 KB
 ATT_UMTS_Jul14_NJ.SHX	1 KB
 Mobility Response Template June 2014 New Jersey	9 KB

## Section 4: Data Validation, Transformation and Loading

### NTIA Table BB\_ConnectionPoint\_MiddleMile

#### Oct 2014:

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.

#### Oct 2013:

Loaded from supplied Excel Spreadsheet “ATT Router Locations June 2014.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**

##### **October 2014:**

There are 3 shape files submitted. Different from last year, all three have 7 records.

##### **April 2014:**

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](http://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.
10. Three records were loaded into BB\_Service\_Wireless table.

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**

## **Section 6: Notes and Open Issues**

## Section 7: Overview Map of Submitted Data



### 7.3 Cablevision

Received: August 2014

Submission date: October 2014

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

Sections:

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

#### Section 1: NDA Status

Executed with NJ OIT.










#### Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name			CSC HOLDINGS INC
	“Doing business as” name			CABLEVISION / LIGHTPATH
	FRN			0003735909, 0003510195
	Holding company name			CSC Holdings, Inc.
	Holding company number			130370
FOR WIRELINE				
Filetypes	Shapefile with Census Block Year 2010 data			
File size	Multiple tables and shapes, for cable modem and optical (Lightpath) technologies.			
Speeds	Type		Spatial Resolution	
			(address, street seg, census block,	

			RSA/MSA, zipcode,etc)	
	Typical-upstream		Not provided	
	Typical-downstream		Not provided	
	Advertised-upstream		Census block and street segment	
	Advertised-downstream		Census block and street segment	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
Technology Type	40 (Cable Modem DOCSIS3.0), 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 3 shape files: small census blocks (Cablevision), large census blocks (Cablevision), and road segments (Cablevision). The large census blocks will not be used. The data and shapes appear to use Year 2010 Census Bureau geometry. The shape files use the XY Coordinate System GCS\_North\_American\_1983.

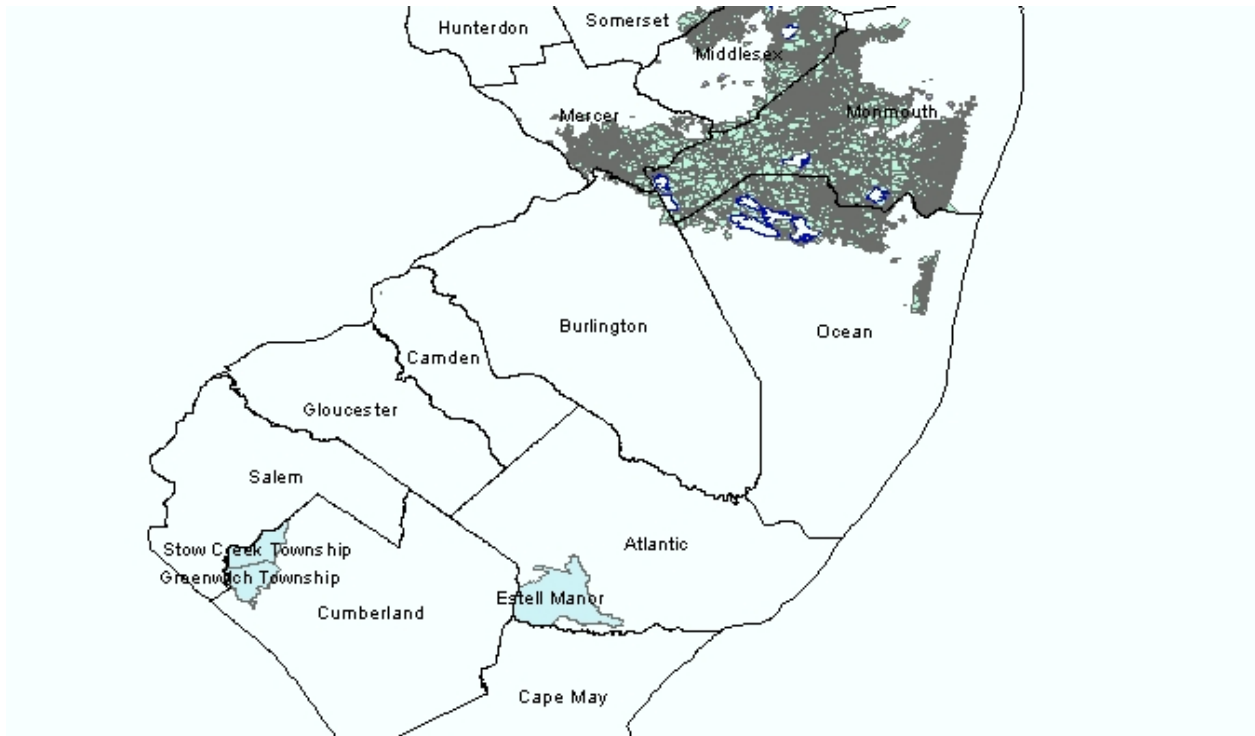
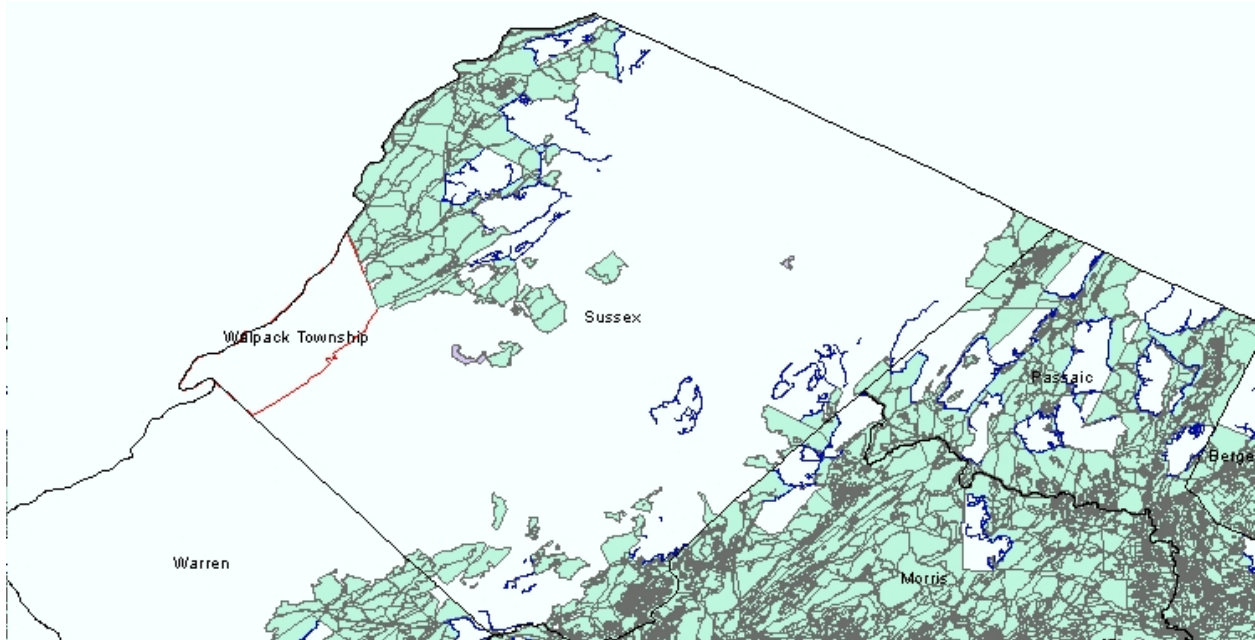
Name	Size
 CABLEVISION_NJ_AREA_AVAILABILITY	20,285 KB
 CABLEVISION_NJ_AREA_AVAILABILITY.zip.encr	20,078 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.dbf	1,048 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.prj	1 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp	432 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shp	1 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shx	10 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.dbf	18 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.prj	1 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp	385 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp	3 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shp...	0 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shx	1 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.dbf	20,355 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.prj	1 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	31,381 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	3 KB
 CABLEVISION_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shx	463 KB

Received one (1) file by SECURE UPLOAD. The zip archive contains 3 shape files: small census blocks (Lightpath), large census blocks (Lightpath), and road segments (Lightpath). The large census blocks will not be used.

Name	Size
 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	1 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_2010_TIGER_STREETS.shx	2 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_082014	1,203 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_082014.zip.encr	1,198 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	3 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_GREATER_THAN_2MI.shx	1 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.dbf	589 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.prj	1 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	1,738 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shp	2 KB
 LIGHTPATH_NJ_AREA_AVAILABILITY_LESS_THAN_2MI.shx	15 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)



## Section 4: Data Transformation and Loading

### NTIA Table BB\_ConnectionPoint\_MiddleMile

#### Oct 2014:

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

#### 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. Cablevision has 59,211 records and Lightpath has 1,876 records.

<b>Table Column</b>	<b>Data Source / Transformation</b>
PROVNAME	As supplied in column pronaame
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 <ul style="list-style-type: none"> <li>- For Cablevision: column trechtrans2</li> <li>- For Lightpath: column techtrans</li> </ul>
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.)
  - a. First, copy the data from the shape files 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"
  - b. Second, create new feature classes with the same schema as the provided shapefile feature classes and the required coordinate reference system (GCS\_WGS\_1984) and tolerance (0.000000002 degrees). The names are "cv\_nj\_ar\_av\_cb\_lt\_2mi\_wgs\_tol" and "lp\_nj\_ar\_av\_cb\_lt\_2mi\_wgs\_tol".
  - c. Third, load the data into the newly created feature classes to ensure perfect compatibility with the required coordinate reference system and tolerance.
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. All of the cenblock values correspond to valid Year 2010 Census Block IDs.
4. All census blocks were confirmed to be less than 2 square miles.
5. There were no duplicates in terms of census block and transtech.
6. Cablevision submitted Census block and Road segment data with endusercat = 5.
7. 61,087 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. Cablevision has 1,197 records and Lightpath has 227 records.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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

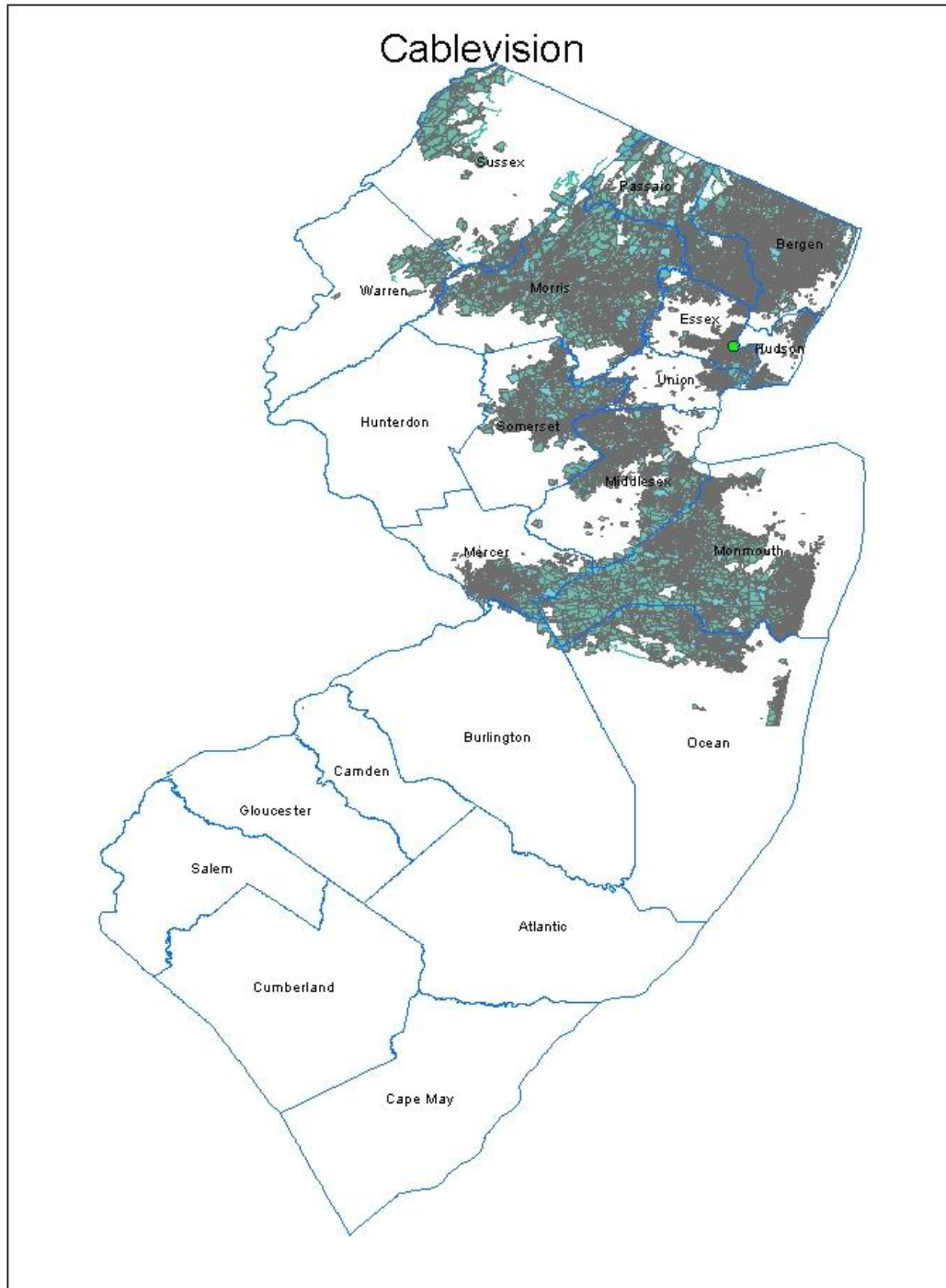
Internal processing notes:

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. 1420 records were loaded.
4. Cablevision submitted Census block and Road segment data with endusercat = 5.

## **Section 5: Clarification Questions and Responses**

## **Section 6: Notes and Open Issues**

## Section 7: Overview Map of Submitted Data



## 7.4 CenturyTel DBA Century Link

Received: August 2014

Submission date: October 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 “NJ_CTL_DSL_CensusBlocks” and “NJ_CTL_DSL_Streets”			
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.				

### Section 3: Submission File Details

Name	Size
 CTL_NJ_2014_06 - 2014_08_21	7,066 KB
 CTL_NJ_2014_06 - 2014_08_21.zip.encr	7,060 KB
 NJ_CTL_DSL_CensusBlocks.dbf	844 KB
 NJ_CTL_DSL_CensusBlocks.prj	1 KB
 NJ_CTL_DSL_CensusBlocks.sbn	58 KB
 NJ_CTL_DSL_CensusBlocks.sbx	4 KB
 NJ_CTL_DSL_CensusBlocks.shp	9,569 KB
 NJ_CTL_DSL_CensusBlocks.shp	32 KB
 NJ_CTL_DSL_CensusBlocks.shx	46 KB
 NJ_CTL_DSL_Streets.dbf	134 KB
 NJ_CTL_DSL_Streets.prj	1 KB
 NJ_CTL_DSL_Streets.sbn	8 KB
 NJ_CTL_DSL_Streets.sbx	1 KB
 NJ_CTL_DSL_Streets.shp	210 KB
 NJ_CTL_DSL_Streets.shp	21 KB
 NJ_CTL_DSL_Streets.shx	7 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 2014 April submission.

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

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

Internal notes on processing:

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 “NJ\_CTL\_DSL\_CensusBlocks”. 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)

Table Column	Data Source / Transformation
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

1. 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”.
2. 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”.
3. Shapefile (feature class) “NJ\_CTL\_DSL\_CensusBlocks” provides coverage data for census blocks with an area less than or equal to 2 square miles. It contains 5,832 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.
4. 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.
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. We loaded 5832 records into the bb table.

### NTIA Table BB\_Service\_RoadSegment

Loaded from supplied shapefile feature “NJ\_CTL\_DSL\_Streets”. 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 0 (no value supplied)
ADDMAX	Set to 01 (no value supplied)
PREDIR	Set to null (no value supplied)
STREETNAME	As supplied
STREETTYPE	Set to null (no value supplied)
SUFFDIR	Set to null (no value supplied)

Table Column	Data Source / Transformation
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
ENDUSERCAT	See below.
SHAPE	As supplied

Internal notes on processing:

1. Shapefile (feature class) “NJ\_CTL\_DSL\_Streets” shows street segments for census blocks larger than 2 square miles. In contained 807 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 census block and street name 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 133 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. Update the endusercat column from the end\_user column of the refdata\_tl\_2010\_34\_large\_streets\_10\_wgs table matching census block id and street address to geoid and fullname. We loaded 674 rows.

Validation rules produced a warning on 5832 census blocks and 674 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

Subject: New Jersey Broadband Data - Questions regarding submitted data

Date: Tue, 02 Sep 2014 13:49:46 -0400  
From: New Jersey Broadband Data Collection <connectingnj@groups.appcomsci.com>  
To: Gerald.F.Flurer

Gerry,

We have begun processing that data you submitted and have run into a few issues:

1. The road segment data you provided in NJ\_CTL\_DSL\_Streets, has no street name and the values of the toleft and fromright columns are zero. In prior submissions, this data was populated. We cannot process the data without this information.
2. We noticed a significant reduction in the number of census blocks and road segments that you reported in this round. The number of census blocks went from over 7000 to under 6000 and the number of road segments went from over 3000 to under 1000. We wanted to verify that you have significantly reduced your coverage area over the last six months.

We would appreciate your prompt response.

---

On 9/2/2014 2:47 PM, Barlow, Jacob wrote:

John,

We have modified our process to provide more precise and accurate data. The decrease in census blocks and road segments is primarily due to improved data processing. For the road segment data we use the Tiger 2013 streets. I have added the street name from the tiger data and attached new shape files for the streets, however the street name isn't populated for all streets in the tiger data. Unfortunately the source data we are using does not allow for us to populate the TOLEFT and FROMRIGHT fields.

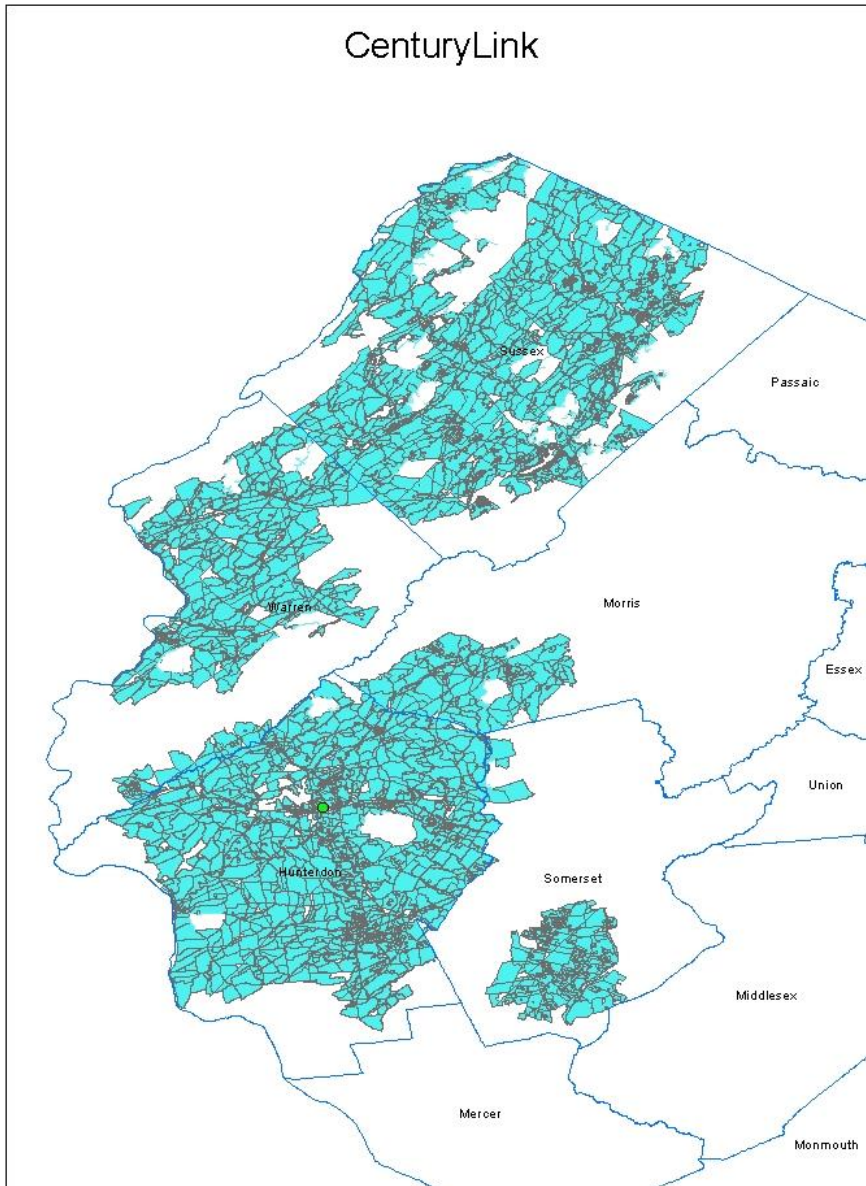
**Jacob Barlow**

Regulatory Operations Manager

## **Section 6: Notes and Open Issues**

## **Section 7: Overview Map of Submitted Data**

# CenturyLink



## 7.5 Cogent Communications

Received: July 2014

Submission date: October 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. FCC filings and/or information supplied by the provider via email

### Section 2: Submission Overview

MAPPING DATA		
ID	Provider name	Cogent Communications, Inc. Not provided 0019898303
	“Doing business as” name	
	FRN	
FOR WIRELINE		
Filetypes	xlsx	
File size	31 data rows	
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
	Adver down	11
	Adver up	11
	Typical down	10/11
	Typical up	10/11
	Subscriber-weighted	Not provided
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.

Provider submitted data for this quarter which differs from prior quarters where data was extracted from provider's web site.

#### INTERCONNECTION DATA

<b>ID</b>	Provider name "Doing business as" name FRN	
<b>File size</b>	Number of records, data elements	
<b>Ownership</b>	Leased/owned	
<b>Transport Type</b>	Fiber, wireless, copper	
<b>Data Rates/Capacity</b>		
<b>Location</b>	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

<b>Data Validation/ Verification</b>	
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### Section 3: Submission File Details

Received 2 files via email:

Size kb	Name
32	NJ_08_05_2014.xlsx
82	CogentEmail.pdf

#### Section 4: Validations and Results

NJ\_08\_05\_2014.xlsx contains 32 total records with a header record. Thus there are 31 data records. In addition, the data records are already geocoded and interestingly contain different lat/long for the same address but different floors. A few of these were verified manually via maps.google.com and are deemed accurate and all retained for processing.

#### 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

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	Carrier Type
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	Transmission Technology
MAXADDOWN	Maximum Advertised Download Speed
MAXADUP	Maximum Advertised Upload Speed
TYPICDOWN	Typical Download Speed
TYPICUP	Typical Upload Speed
SHAPE	Copied from Census Bureau TigerLine 2010, as matched by spatial join on geocoded address

Internal processing notes:

1. The.xlsx file had to be converted to Excel 93-2007 format prior to processing.
2. Created an excel sheet and imported it to a geodatabase table.

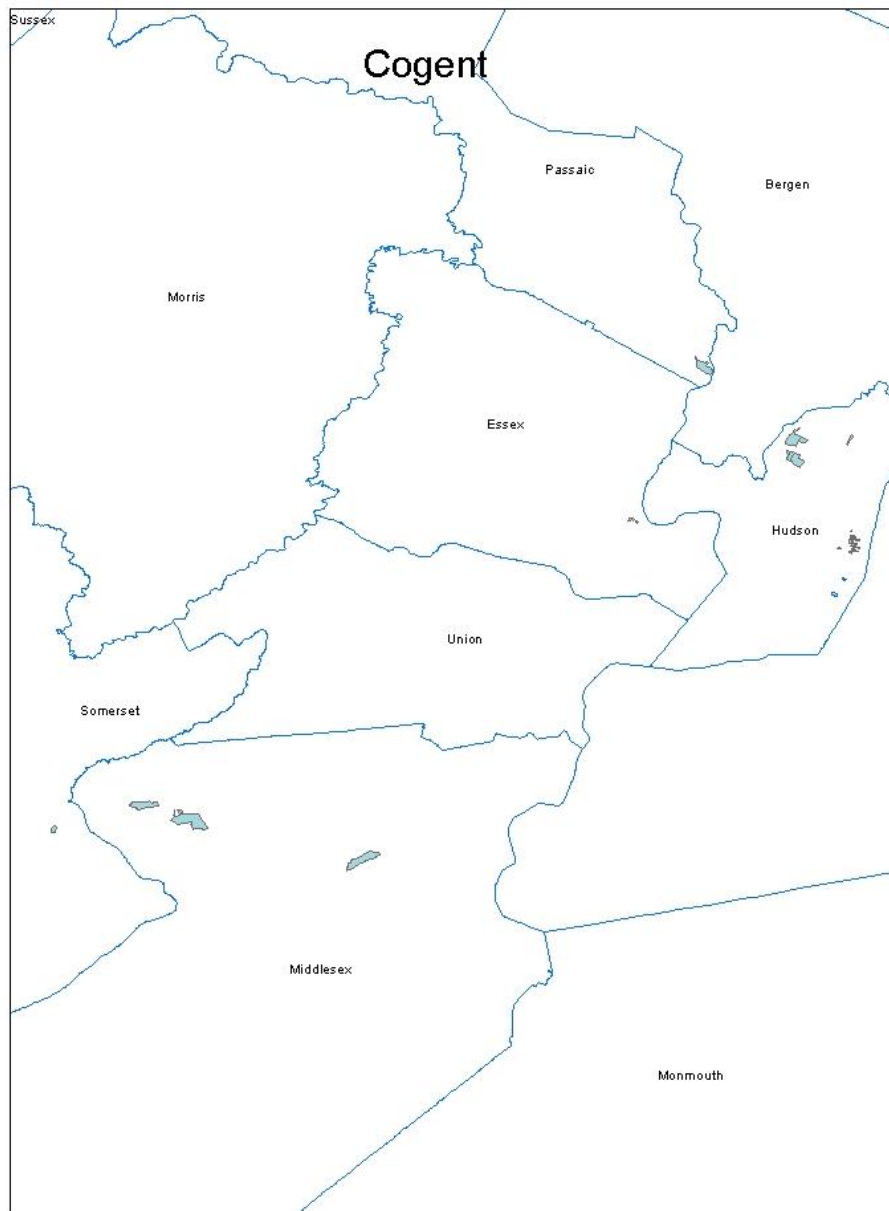


3. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
4. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data.
5. Update the endusercat column by copying the values of the end\_user column in refdata\_2010.tl\_2010\_34\_tabblock10\_wgs.
6. 8 records were dropped due to duplicated geoid and 23 rows were loaded.

## Section 6: Clarification Questions and Responses

## Section 7: Notes and Open Issues

## Section 8: Overview Map of Submitted Data



## 7.6 Comcast

Received: August 2014

Submission date: October 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-up		no	
	Subscriber-weighted-down		no.	
<b>Technology Type</b>	40 (Cable Modem DOCSIS3.0)			
<b>End-user specification</b>	Comcast provides availability at the Census Block and Street Segment level.			
<b>INTERCONNECTION DATA: PROVIDED AFTER REQUEST</b>				
<b>ID</b>				
<b>File size</b>				
<b>Ownership</b>				
<b>Transport Type</b>				
<b>Data Rates/Capacity</b>				
<b>Location</b>				
Comments:				

### Section 3: Submission File Details

Received three (3) files by SECURE UPLOAD.

Size	Name
115KB	34-streets-NJ.xlsx
3800KB	34-blocks-NJ.xlsx
10KB	New Jersey Maximum Advertised Speeds June 30 2014.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 72931 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 40 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 72882 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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 below (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 zip 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:

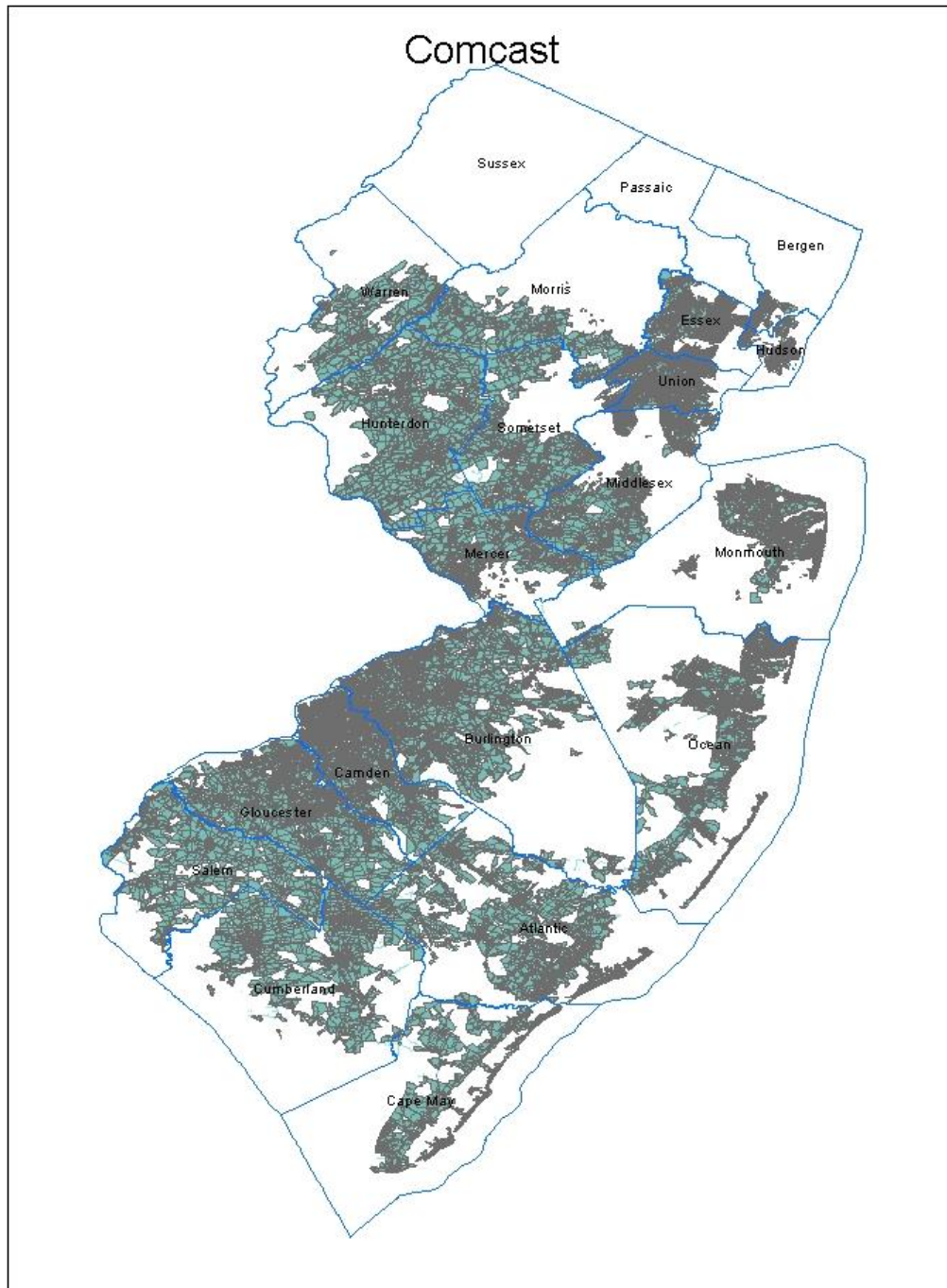
1. Generate 3 full addresses for each record as follows: If left is 0 then use right side use min=right start, max=right end, and mid=avg of min/max. If right is 0 then use left side use min=left start, max=left end, and mid=avg of min/max. else use min of left/right start, max of left/right end, and 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. Remove the prefix "null" or "NULL" of full addresses.
5. Geocode using hybrid Yahoo and Google geocoder. The number of generated addresses is 3398 but only 2504 are unique. 2146 and 216 were successfully geocoded with Yahoo and Google respectively. 144 were Yahoo geocoded with approximate results.
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 1667 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 1254 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 72,882 census blocks and 1,254 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**

## **Section 6: Notes and Open Issues**

## Section 7: Overview Map of Submitted Data



## **7.7 *Fiber Technologies Networks, L.L.C.***

Received: July 2013

Submission date: October 2014

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

### **For October 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:**

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy fiber\_apr2014.BB\_Service\_CensusBlock to fiber\_oct2014.BB\_Service\_CensusBlock.

### **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:**

1. 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		
<b>ID</b>	Provider name	Fiber Technologies Networks, L.L.C.
	“Doing business as” name	Fibertech
	FRN	0006797849
FOR WIRELINE		
<b>Filetypes</b>	Txt, xls, pdf, etc.	One .xls file
<b>File size</b>	Number of records, data elements	21 records in the file
<b>Speeds</b>	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
	Adver down	Census block
	Adver up	Census block
	Typical down	Census block
	Typical up	Census block
	Subscriber-weighted	Not provided
Provided census blocks level data.		
<b>Technology Type</b>	DOCSIS, xDSL, fiber, etc.	Fiber to the End User
<b>End-user specification</b>	Business, consumer, gov’t etc	4 - Medium or Large Enterprise
Comments:		
INTERCONNECTION DATA		
<b>ID</b>	Provider name	
	“Doing business as” name	
	FRN	
<b>File size</b>	Number of records, data elements	

<b>Ownership</b>	Leased/owned	
<b>Transport Type</b>	Fiber, wireless, copper	
<b>Data Rates/Capacity</b>		
<b>Location</b>	Street address, lat/lon, elevation	
Comments:		
<b>DATA COMPLETENESS</b>		
<b>Data Validation/ Verification</b>		

### Section 3: Submission File Details

Data received in form of an .xlsx file NJBB\_0006797849\_CensusBlockAvailability.xlsx (14,639 bytes) containing 21 records.

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

### Section 4: Validations and Results

The following validation checks were performed:

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

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

### Section 5: Data Transformation and Loading

#### NTIA Table BB\_Service\_CensusBlock

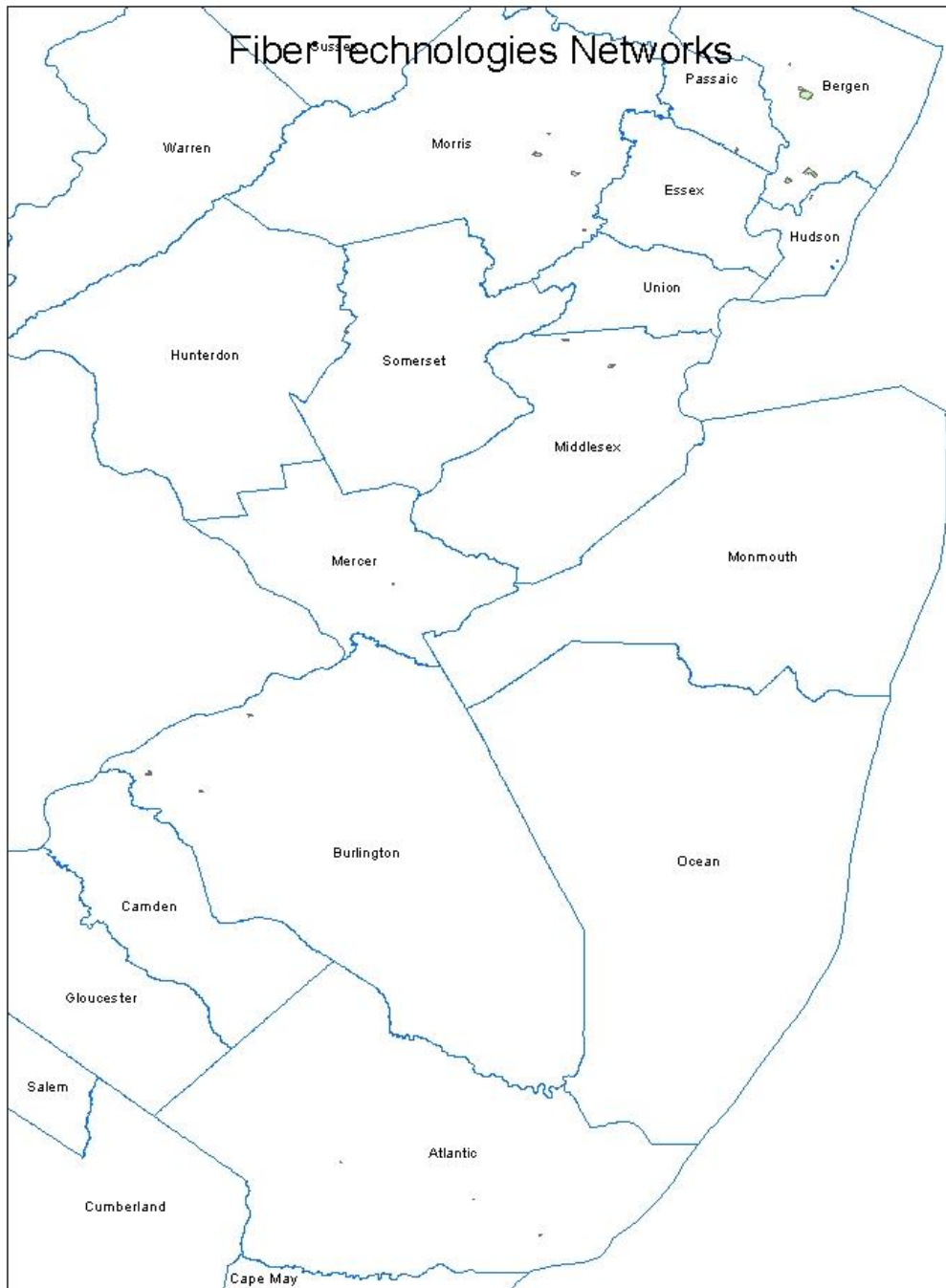
The following table explains the transformations that were applied while loading the submitted data.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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**



## **7.8 GOES Telecom**

Received: February 2013

Submission date: October 2014

### **For October 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:**

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy goes\_apr2014.BB\_Service\_Wireless to goes\_oct2014. BB\_Service\_Wireless.
2. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy goes\_apr2014.BB\_Service\_CensusBlock to goes \_oct2014. BB\_Service\_CensusBlock.

### **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:**

1. 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.
2. 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

AVAILABILITY DATA				
ID	Provider name		GOES Telecom	
	“Doing business as” name		Not provided	
	FRN		0011437746	
	Holding company name		GOES	
	Holding company number		130548	
FOR WIRELINE				
Filetypes	1 Excel			
File size	worksheet 22 data rows			
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	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
	Typical-upstream		Not provided	

	Typical-downstream		Not provided	Web site, and provider confirmed that those speeds were available at each location they served. We will use the data from Web site as advertised speeds.  Note that for two addresses, submitted speeds “10mpbh”. They confirmed this should be 10Mbps.  Note also that some speeds are listed as having faster upload speeds than download speeds. All of these values are less than broadband speeds, so are not relevant.  No typical or subscriber weighted speeds were provided.
	Advertised-upstream		Not provided	
	Advertised-downstream		Not provided	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
<b>Technology Type</b>	10 (ADSL) and 70 (Terrestrial fixed wireless)			
<b>End-user specification</b>	None			
Comments: Provided a list of 22 customers and the speeds they are subscribed to. Most are 128K up, 512K down.				
<b>INTERCONNECTION DATA</b>				
<b>ID</b>	None provided			
<b>File size</b>				
<b>Ownership</b>				
<b>Transport Type</b>				
<b>Data Rates/Capacity</b>				
<b>Location</b>				



Comments:

### Section 3: Submission File Details

Received 1 file by email:

Size	Name
------	------

33,792	20130131 Telcordia.xls
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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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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:

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

Thanks for your participation,

John Wullert

Manager - NJ BB Data Collection

Applied Communication Sciences

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**From:** georgeb@tricaps.com [mailto:georgeb@tricaps.com]  
**Sent:** Monday, March 05, 2012 11:08 AM

**To:** NJ Broadband Data Collection  
**Subject:** Re: Goes Telecom Telicordia data

Hi John,

I got the answers. See blow.

Thanks,

George

George,

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

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

Yes

2. You report two fixed wireless sites as "10mpbh". Is that really mega-bits-per-hour? That comes to about 2.8 Mbps. Is that correct?

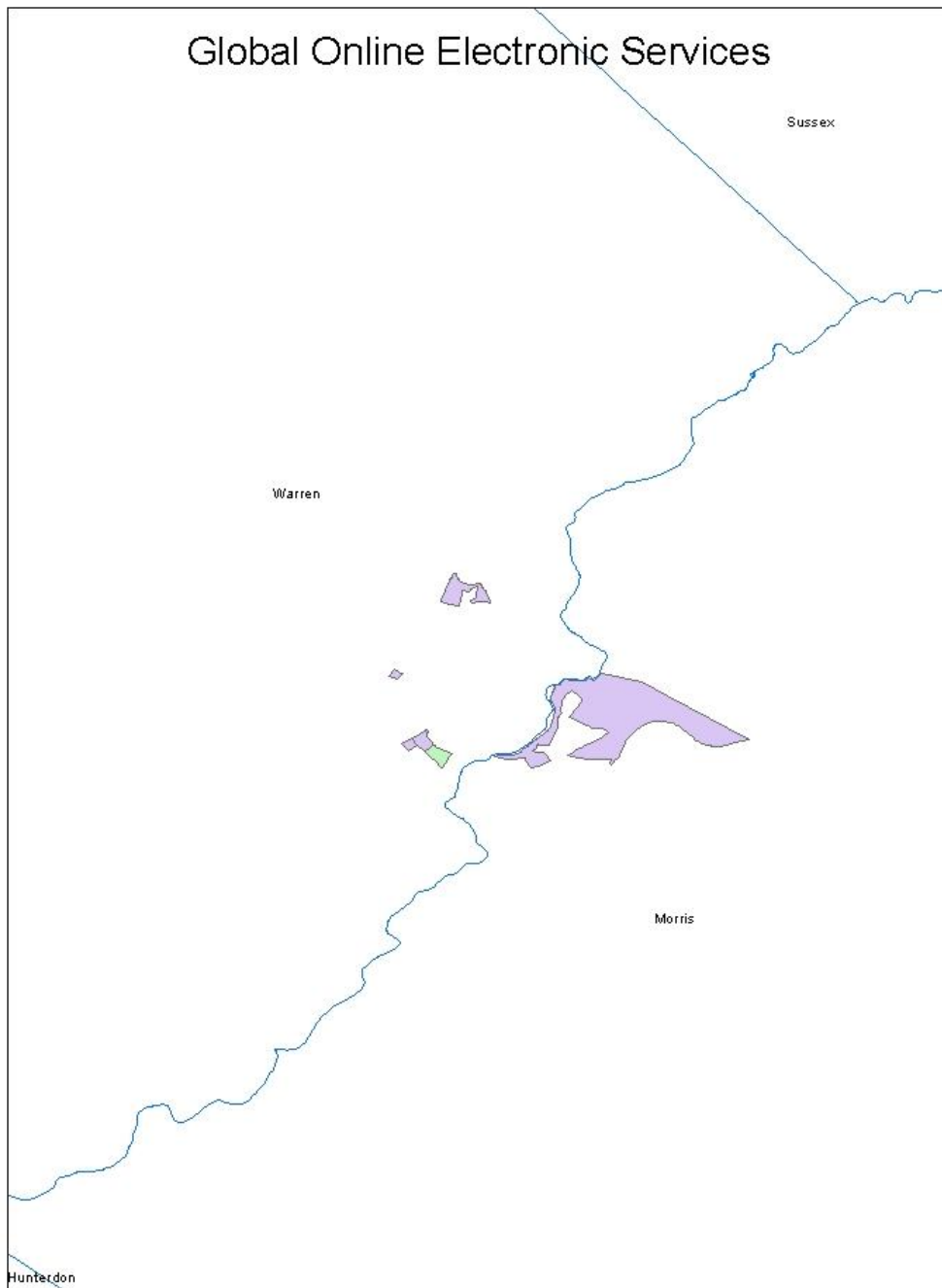
No, the correct speeds are 10mbps and we now only have a single fixed wireless link instead of two.

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

Yes

Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data



## **7.9 Hometown Online**

Received: February 2013

Submission date: October 2014

### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy hometown\_apr2014.BB\_Service\_CensusBlock to hometown\_oct2014.BB\_Service\_CensusBlock.

### **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:

1. 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:

1. 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.
2. 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

AVAILABILITY DATA				
ID	Provider name			Hometown Online Inc.
	“Doing business as” name			Warwick Online
	FRN			0006-6512-44
FOR WIRELINE				
Filetypes	Text			
File size	1,062,217 bytes; 7,054 rows			
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	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.
	Typical-upstream		Not provided	
	Typical-downstream		Not provided	
	Advertised-upstream		Not provided	
	Advertised-downstream		Not provided	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
	Technology Type	DSL – Previous interactions with provider revealed that Census tract 3714 has SDSL, all others are ADSL		
End-user specification	Not provided			
Comments: Address data with some indications of qualification for different data services.				

INTERCONNECTION DATA	
<b>ID</b>	
<b>File size</b>	
<b>Ownership</b>	
<b>Transport Type</b>	
<b>Data Rates/Capacity</b>	
<b>Location</b>	
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 15Mbps 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
  - a. 7050 addresses were successfully geocoded using Arroyo with the Yahoo geocoder. One record failed to spatially join on 2010 NJ Census Block shapes.
  - b. Created an excel sheet and imported to a geodatabase table.
  - c. Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
  - d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the point shapes and the census block shapes from reference data.
2. Discarded 6585 rows with duplicate census blocks, leaving 464 unique census blocks.
3. Discarded 3 census blocks larger than 2 square miles.
4. Loaded 461 blocks.
5. 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.

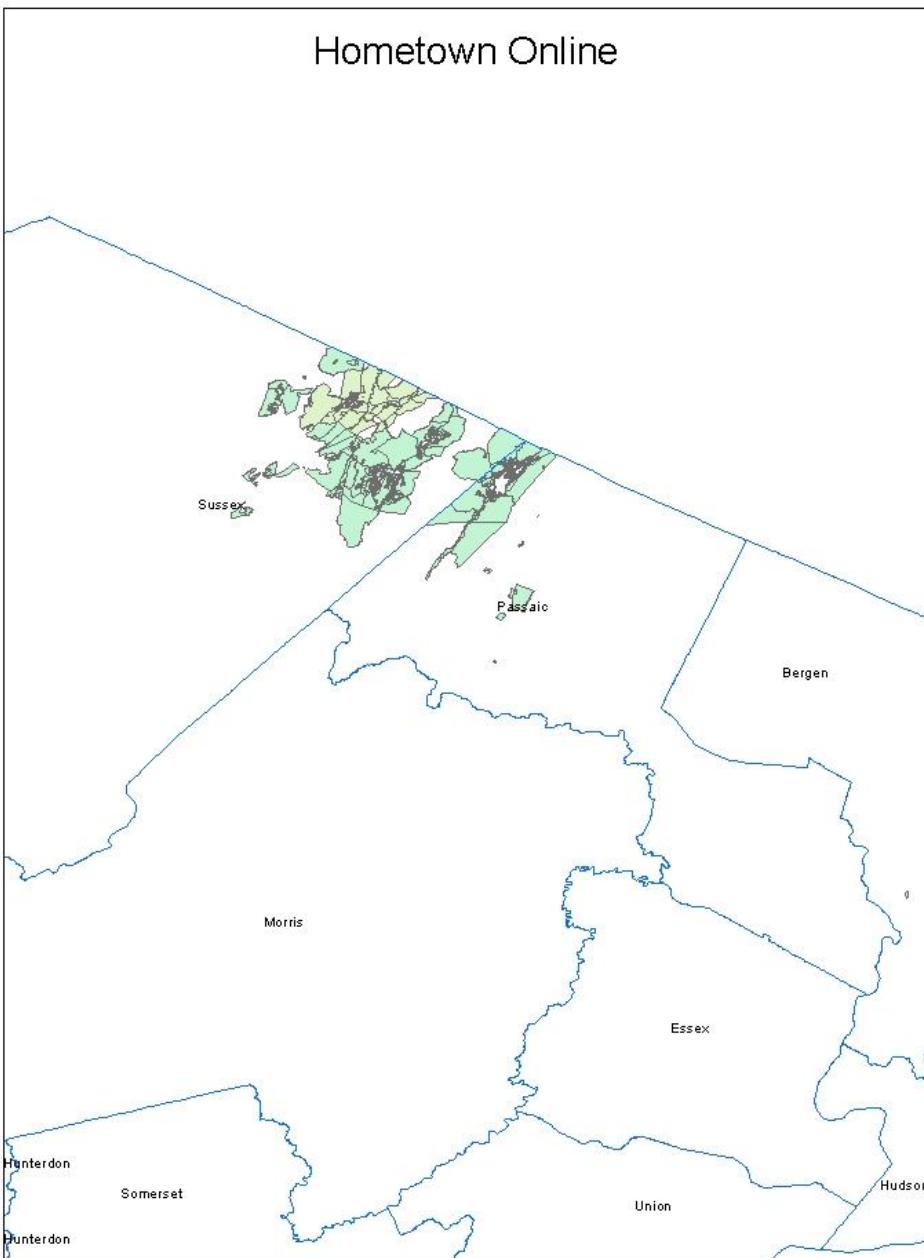
## Section 5: Clarification Questions and Responses

## 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



## **7.10 HughesNet Communications Inc.**

Received: August 2013

Submission date: October 2014

### **For October 2014:**

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins with Section 1 below. 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 hughesnet\_apr2014.BB\_Service\_Wireless to hughesnet\_oct2014.BB\_Service\_Wireless.

### **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-use their most recent data.

#### **Processing Steps:**

1. 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				
Filetypes	CSV file with list of Year 2000 census blocks, plus email information on speed			
File size				
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	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.
	Typical-upstream		Not provided	
	Typical-downstream		Not provided	
	Advertised-upstream		Provided	
	Advertised-downstream		Provided	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
	Technology Type	Code 60 (Satellite)		
End-user specification				
Comments:				
INTERCONNECTION DATA: NONE				
Comments: Not provided				

### Section 3: Submission File Details

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

#### Section 4: Data Validation, Transformation and Loading

##### **NTIA Table BB\_Service\_Wireless**

The following table explains the transformations that were applied.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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.
  8. 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: REDACTED

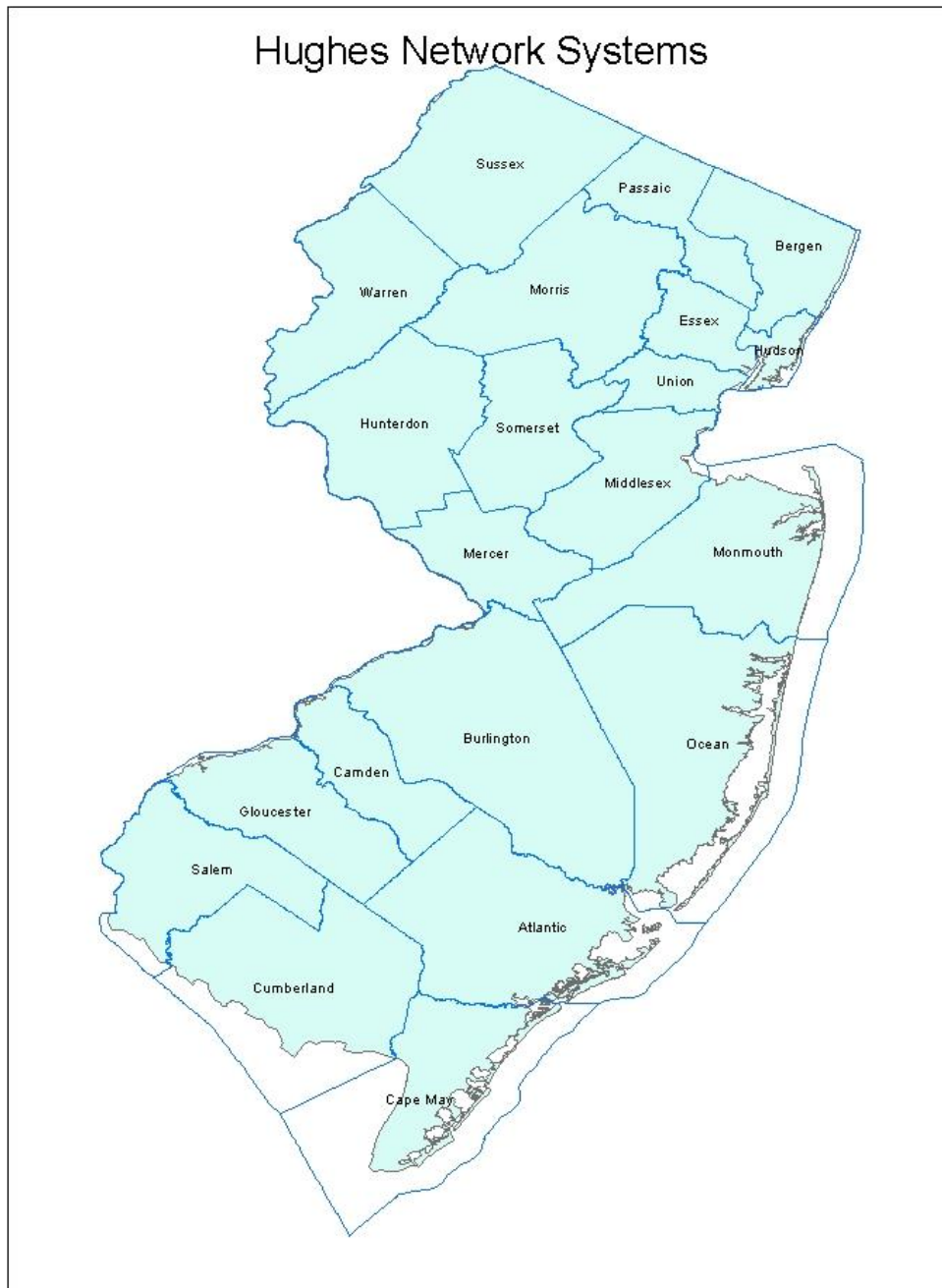
Thanks

Alok

Senior Director – Revenue Management, Hughes Network Systems, LLC.,

## Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data



### **7.11 Jersey Shore Wireless**

Received: March 2012

Submission date: October 2014

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

#### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy jsw\_apr2014.BB\_Service\_Wireless to jsw\_oct2014. BB\_Service\_Wireless.

#### **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:

1. 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:

1. 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.
2. Set the endusercat column in the jsw\_oct2013.BB\_Service\_Wireless table to 5.

#### **For April 2013:**



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

**Processing Steps:**

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy jsw\_oct2012.BB\_Service\_Wireless to jsw\_apr2013. BB\_Service\_Wireless.

**For October 2012:**

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

**Section 1: NDA Status**

None

**Section 2: Submission Overview**

AVAILABILITY DATA			
ID	Provider name		Jersey Shore Wireless
	“Doing business as” name		Duxpond Communications
	FRN		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		
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

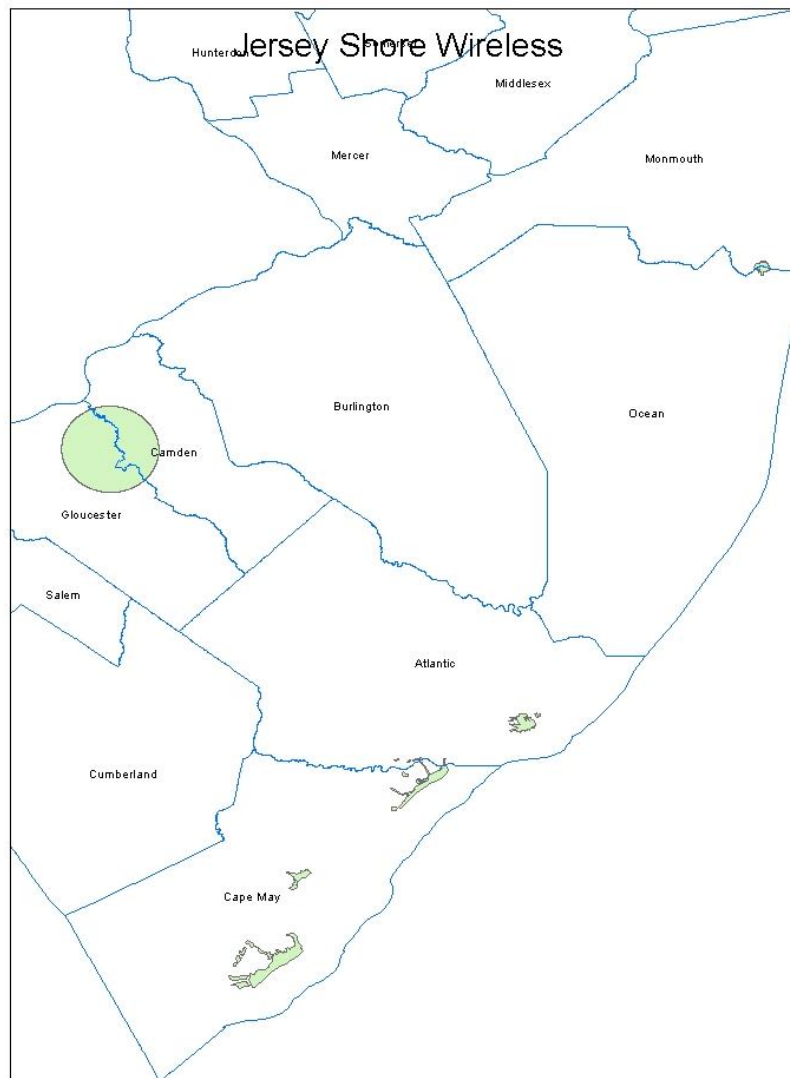
Internal notes on processing:

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

## Section 5: Clarification Questions and Responses

## Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data



## 7.12 Leap Cricket

Received: August 2014

Submission date: October 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 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	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	
	Upstream max adv	yes (for entire shapefile) given in tier	
	Downstream max adv	yes (for entire shape) given in tier	
	Upstream typical	no.	
	Downstream typical	no.	
	Subscriber-weighted	no.	

Technology Type	Spectrum : yes	3 (PCS) and 4(AWS)
Comments:		
INTERCONNECTION DATA		
ID		
File size		
Ownership		
Transport Type		
Data Rates/Capacity		
Location		
Comments: no IC data provided.		

Quick loading results:

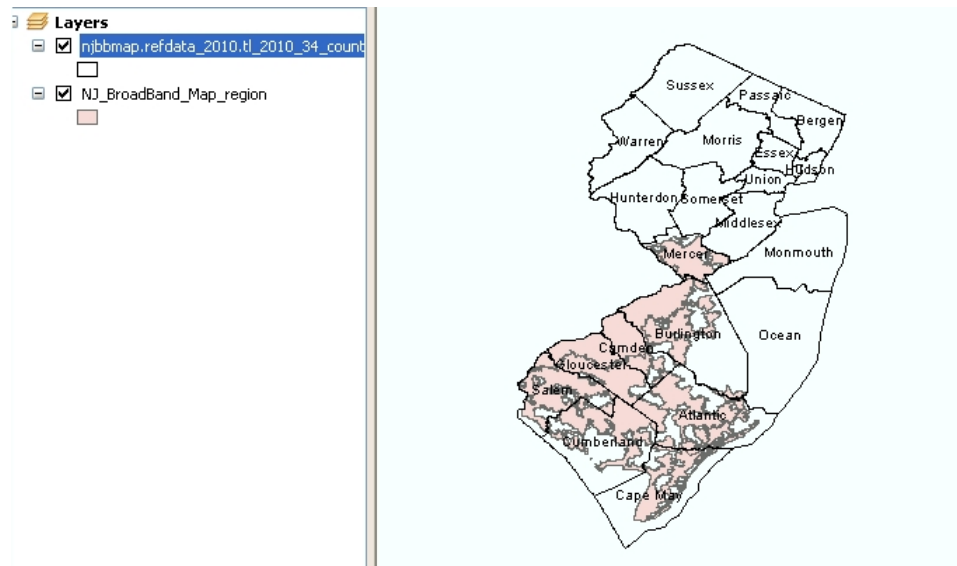


Figure 1. Loading results

### Section 3: Submission File Details








Received one zip file by (EMAIL):

**Name**

**Size**

NJ\_BroadBand\_MAP Cricket Wireless.zip 1,861 KB

The zip archive contained the following files.

Name	Size
 Cricket Wireless - Wireless Record Format	14 KB
 NJ_BroadBand_Map.DBF	2 KB
 NJ_BroadBand_Map.PRJ	1 KB
 NJ_BroadBand_Map.shp	2,869 KB
 NJ_BroadBand_Map.SHX	1 KB
 NJ_BroadBand_Map.TAB	2 KB
 schema	1 KB

#### Section 4: Data Validation, Transformation and Loading

##### NTIA Table BB\_Service\_Wireless

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 "3"/"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	N	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	6	4
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	Y	N	3	2
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	6	4
Leap Wireless International, Inc.	Cricket Communications, Inc.	N	Y	3	2

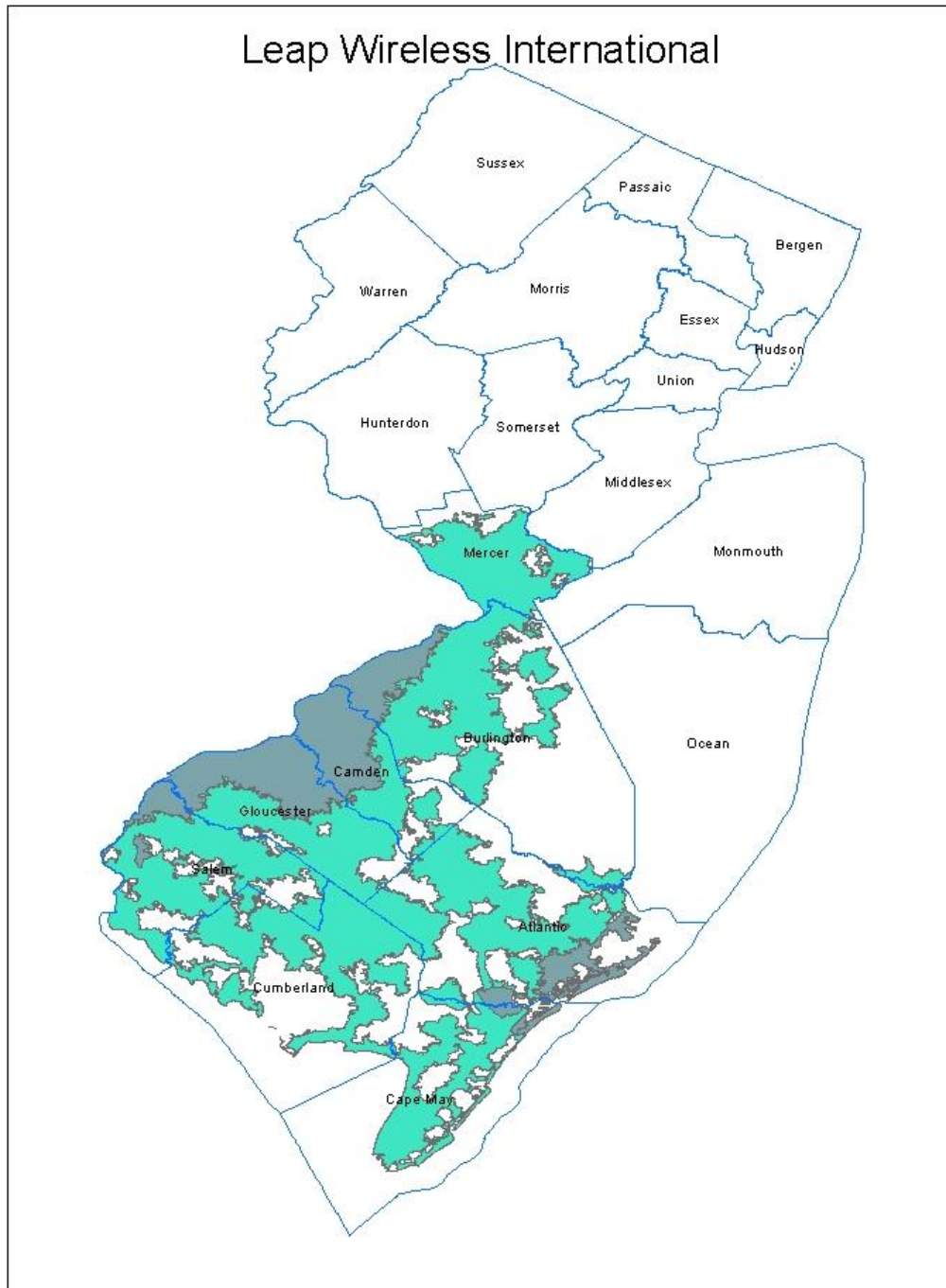
As shown in the step 6, since the column, pcs, is not used and only the column, aws, is used, the values of pcs are changed to “Y”.

5. Coalesced the single-part polygons into one multi-part polygon using the ArcGIS ESRI: Data Management Tools->Generalization->Dissolve (with choosing everything 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 3 records.
6. Spectrum: Leap provided only 2 possibilities. If spectrum\_pcs is N and spectrum\_aws is Y then spectrum is 4. If spectrum\_pcs is Y and spectrum\_aws is N then spectrum is 3.
7. Set the endusercat column to 1.
8. Three records were loaded.

## Section 5: Clarification Questions and Responses

## Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data





### 7.13 Level3 Networks, Inc.

Received: July 2014

Submission date: October 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	1227 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)			

<b>End-user specification</b>	End User Category all set to “0”
Comments: Typical and Advertised UP and DOWN are ALL THE SAME VALUE: 11 ( >= 1gpbs)	
<b>INTERCONNECTION DATA</b>	
<b>ID</b>	
<b>File size</b>	text file with 102 data rows. (See comment)
<b>Ownership</b>	Not provided
<b>Transport Type</b>	provided
<b>Data Rates/Capacity</b>	provided
<b>Location</b>	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:

<b>Size kb</b>	<b>Name</b>
155	AddressAvailability_New Jersey_6-19-2014.txt
13	MiddleMile_New Jersey_1-27-2014.txt

### Section 4: Validations and Results

The “address” file has 1227 rows containing data. All speed codes set the same, code 11 (1+ Gbps), suggesting these are all commercial customers.

The “middlemile” file has 102 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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 79 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 combined Yahoo and Google geocoders leaving the result with address and lat, long data in an Excel spreadsheet. A number of addresses were corrected. For example, Fort Monmouth with zip 077029 was changed to use zip 07703. 868 records successfully geocoded. 358 records dropped due to duplicate addresses.
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 242 duplicate census block records, which result from multiple addresses in the same census block. Discarded 1 records located in the large census block.
8. Loaded 618 records.

## Section 6: Clarification Questions and Responses

On 8/7/2014 8:47 AM, New Jersey Broadband Data Collection wrote:  
Scott,

We have begun analyzing the data you submitted. We noticed that during this round you submitted 1226 addresses while in the last round the number was more than double that, at 2557 addresses. This seems like a tremendous change in a six-month period. Can you please verify that the most recently submitted address list is correct?

Thanks,

John Wullert  
Manager - NJ Broadband Data Collection  
Applied Communication Sciences

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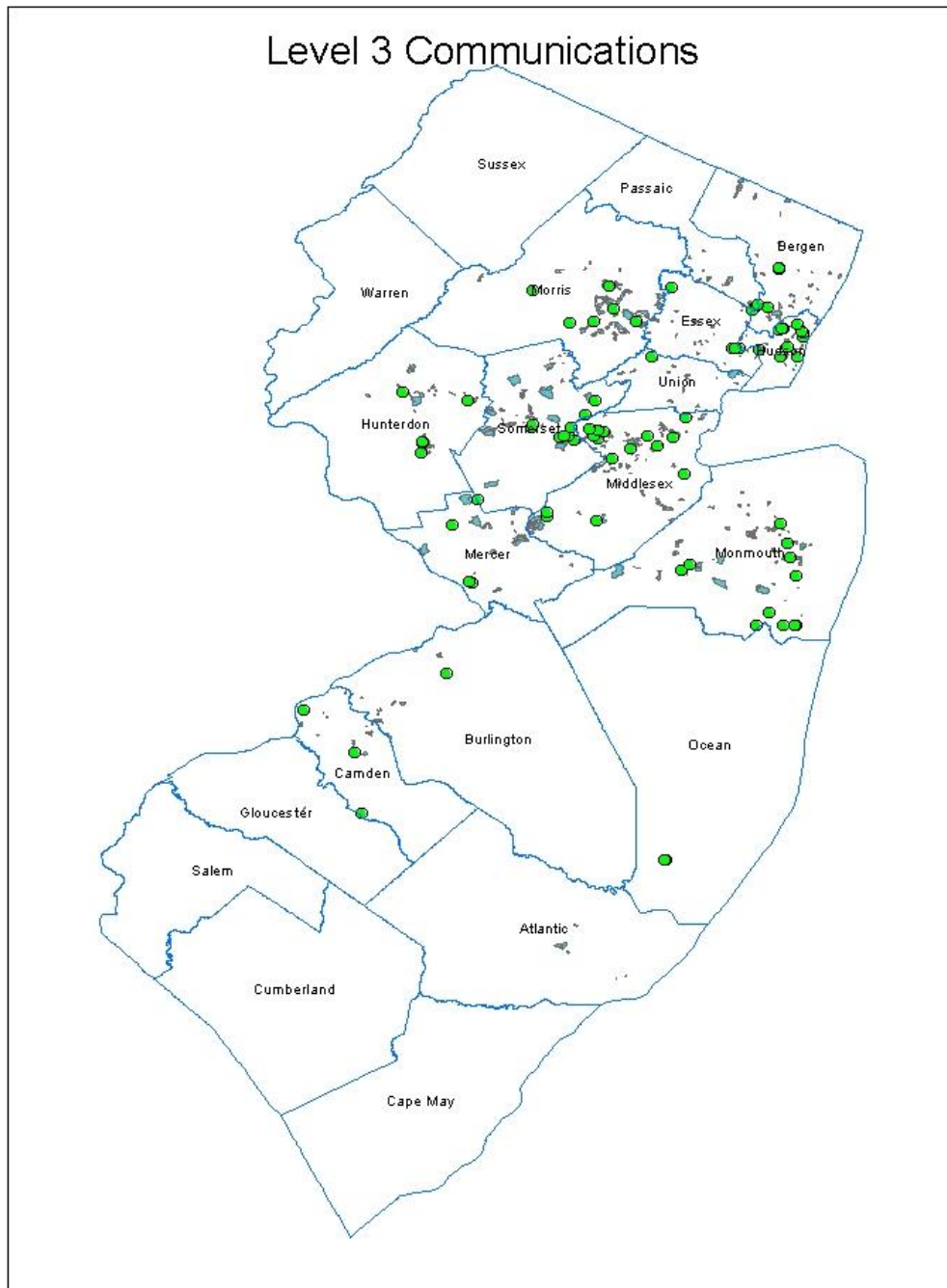
**Subject:** RE: Level 3 New Jersey Broadband Coverage Data  
**Date:** Thu, 7 Aug 2014 14:00:51 +0000  
**From:** Seab, Scott <Scott.Seab@ >  
**To:** New Jersey Broadband Data Collection <connectingnj@groups.appcomsci.com>

Hi John; being a carrier’s carrier primarily, and a large enterprise carrier second, we can see wide fluctuations in our data because one customer may have tens or a hundred or more locations – and we add and drop wholesale customers periodically. So yes, that is the result of the data pull. You’re welcome-

**Scott Seab**  
**Corporate Counsel**  
**Level 3 Communications, Inc.**

## Section 7: Notes and Open Issues

## Section 8: Overview Map of Submitted Data



### **7.14 *Light Tower Fiber LLC***

Received: July 2014

Submission date: October 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**

Provider submitted set of shape files representing streets where they offer coverage. In the previous round they supplemented this with a list of addresses of fiber-lit buildings. 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 ( $\geq 1$  Gbps)

MaxAdvUp=11 ( $\geq 1$  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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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. There are 315 records with full addresses as supplied from building list. Of the 315 addresses provided in NJ all but 8 already have latitude/longitude. These 8 are geocoded with Yahoo GeoCoder and results in 248 unique lat/long records, only 151 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. All census blocks were confirmed to be less than 2 square miles.
5. 151 records were loaded into BB\_Service\_CensusBlock table.
6. Update the endusrcat column to 2.

## **Section 6: Clarification Questions and Responses**

Subject: Re: New Jersey Broadband Data Collection - Fall 2014  
Date: Wed, 06 Aug 2014 09:33:33 -0400  
From: New Jersey Broadband Data Collection  
To: Spitzer, Evan

Evan,

I have issues for you: one a resend of an email I sent last week as well as a clarification:

1. During the last submission, in addition to the infrastructure maps, Lighttower provided us with a list of On-Net building addresses, which allowed us to determine the locations where you could offer service. Is it possible to obtain an updated version of that list? Or is the prior list still valid? I believe that Mike Dratch provided the data last time.
2. There are two FCC Registration Numbers that I believe are associated with Light Tower listed as offering coverage in New Jersey. Both have the Affiliate Name of "LTS Group Holdings LLC"; one is for "Light Tower Fiber Long Island LLC" and the other is for "Sidera Networks, LLC". Are these both associated with Light Tower? If so, are their network assets included in the data you provided?

Thanks,  
John Wullert

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On 8/6/2014 9:54 AM, Spitzer, Evan wrote:

Morning John,

Chris Williams is working on the on-net building list, in regards to the "Light Tower Fiber Long Island LLC" and "Sidera Networks, LLC" these are both associated with Light Tower and the

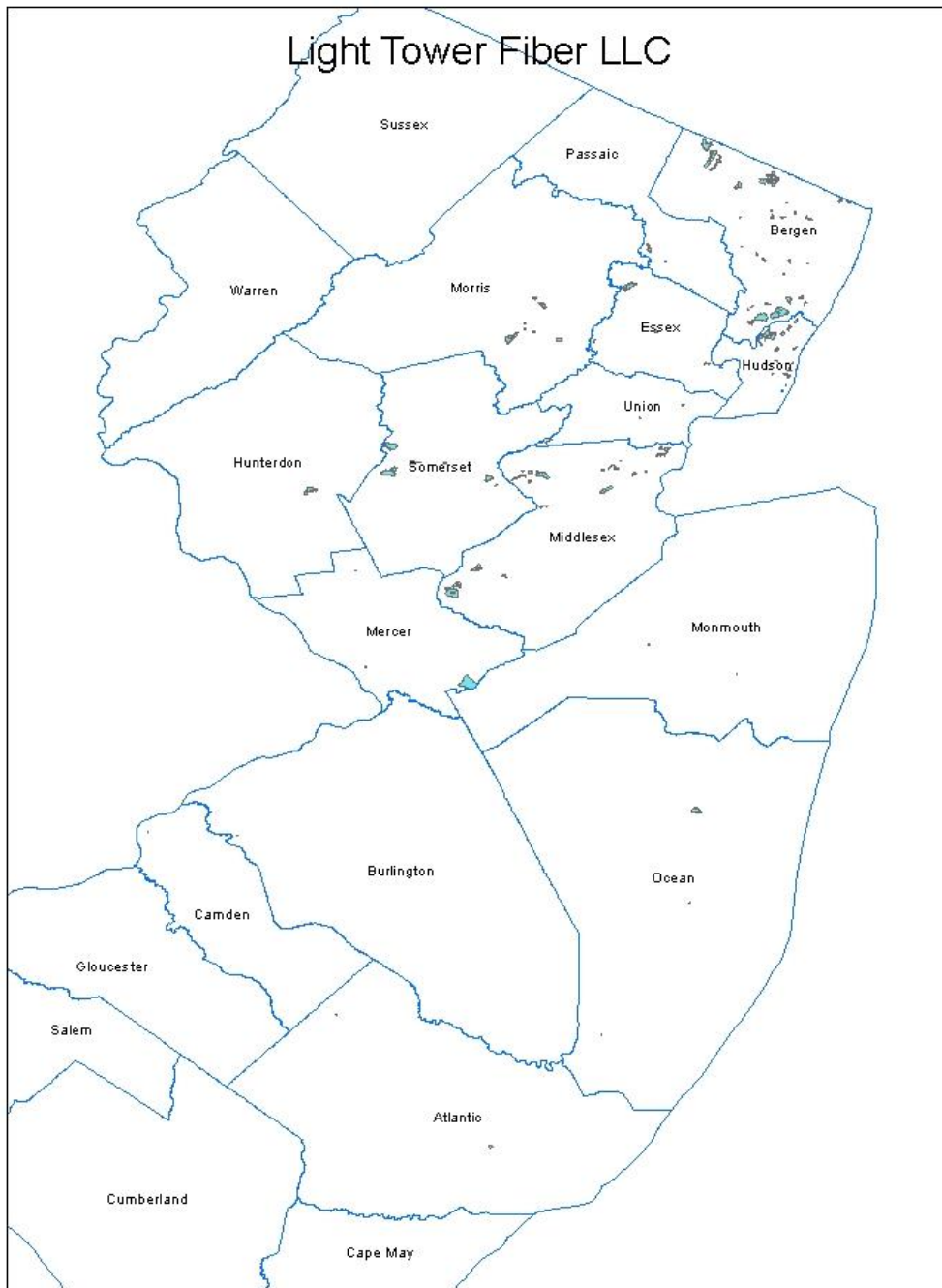
network assets are included in the data we have submitted.

Thanks,

Evan

**Section 7: Notes and Open Issues**

**Section 8: Overview Map of Submitted Data**



**7.15 MegaPath Corporation (formerly Dieca DBA Covad)**

Received: July 2014

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

### Section 3: Submission File Details

Received a zip file by SECURE UPLOAD in July 2014:

<b>Name</b>	<b>Size</b>
MegaPathCorporation_NJ_CONFIDENTIAL.zip	627KB

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

<b>Name</b>	<b>Size</b>
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 5: Data Transformation and Loading

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

### NTIA Table BB\_ConnectionPoint\_MiddleMile

#### Oct 2014:

The middle mile data are almost identical except it is 1 less. Since the data are identical, they are copied from the April 2014 submission and the 1 record is deleted.

#### Apr 2014:

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

#### Oct 2013:

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

#### Apr 2013:

Loaded from supplied file “..MiddleMileConnection..”. The following table explains the transformations that were applied.

Table Column	Data Source / Transformation
PROVNAME	As supplied in column Provider Name
DBANAME	As supplied in column DBA Name
FRN	As supplied in column FRN
OWNERSHIP	As supplied in column Ownership
BHCAPACITY	As supplied in column Serving Facility Capacity
BHTYPE	As supplied in column Service Facility Type
LATITUDE	As supplied in column Latitude
LONGITUDE	As supplied in column Longitude
ELEVFEET	As supplied in column Elevation
STATEABBR	Set to “NJ”

FULLFIPSID	ID of containing census block from Year 2010 Census Bureau reference data
SHAPE	Point shape created using ESRI

Internal notes on processing:

1. The data included the following fields:
  - a. Provider Name
  - a. DBA Name
  - b. FRN
  - c. Ownership
  - d. Serving Facility Capacity
  - e. Service Facility Type
  - f. Latitude
  - g. Longitude
  - h. Street Address (blank)
  - i. 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.  
(The column data format of the FRN should be Text, not General. Save the excel in the 97-2003 format)
4. 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.
5. 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.
6. 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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:

- The following data fields were submitted
  - Provider Name
  - DBA Name
  - FRN
  - Census Block ID
  - Technology of Transmission
  - Maximum Advertised Downstream Speed
  - Maximum Advertised Upstream Speed
  - Typical Downstream Speed
  - Typical Upstream Speed
- 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.
- 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 24 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
7. Total loaded into overview table is 24.

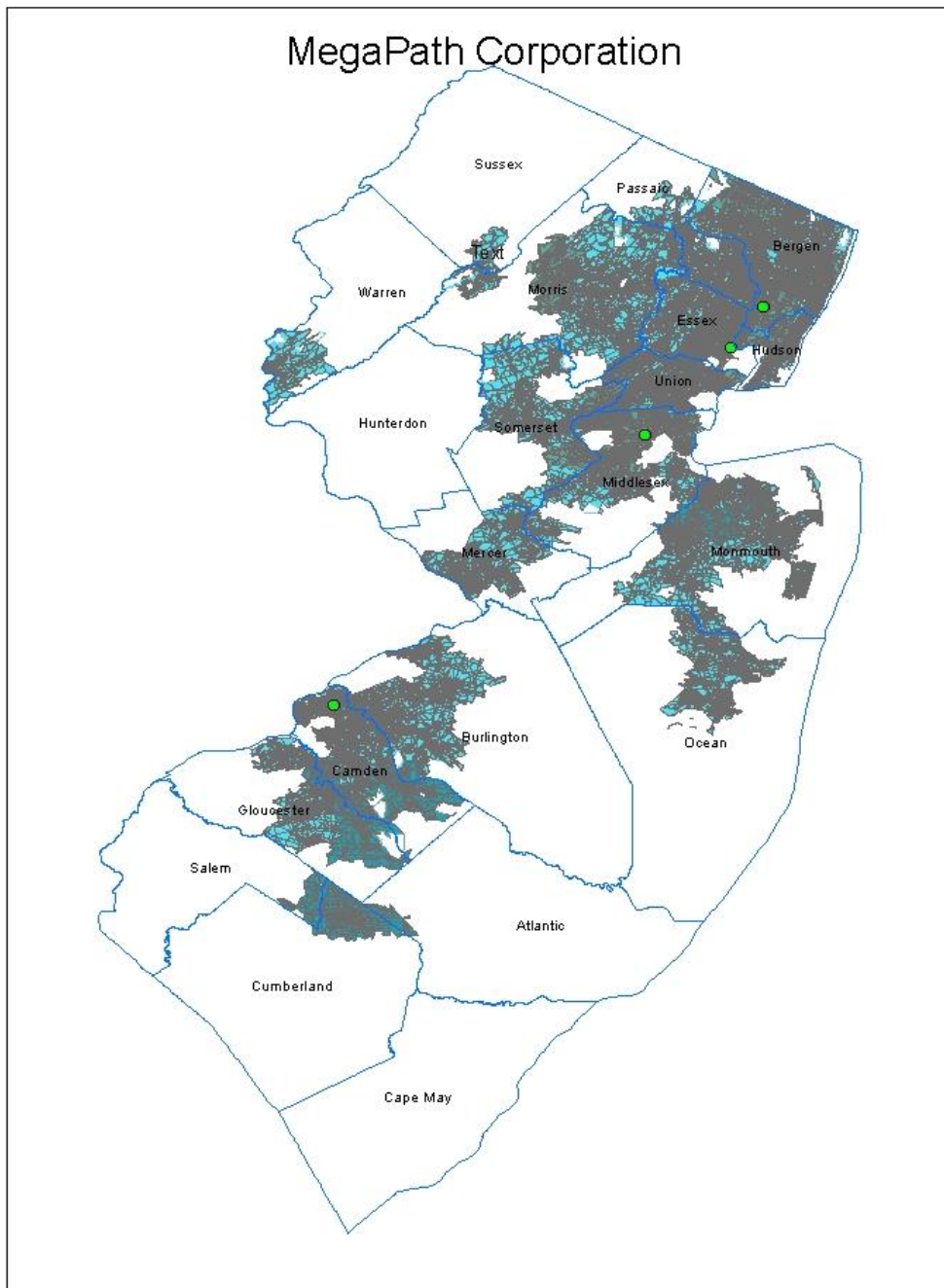
We received warnings on 9,681 census blocks for the combination of a downstream speed code of 7 (10-25 Mbps) with a transtech code of 10 (ADSL). The provider confirmed that they support 15 Mbps with their ADSL2+ service in limited regions of the state.

## Section 6: Clarification Questions and Responses

## Section 7: Notes and Open Issues

The provider submitted the file “..CMAAadvertisedAvailability..”, 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



## 7.16 Meriplex

Received: February 2014

Submission date: October 2014

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

### For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy meriplex\_apr2014.BB\_Service\_CensusBlock to meriplex\_oct2014.BB\_Service\_CensusBlock.

### For April 2014:

#### Section 1: NDA Status

None

#### Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name			Meriplex Communications, Ltd.
	“Doing business as” name			Meriplex Communications, Ltd.
	FRN			0015287972
FOR WIRELINE				
Filetypes	Excel Spreadsheet			
File size	27 KB, 4 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 Type	Fiber and Other Copper			
End-user specification	Serving business customers			
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:

<b>Size</b>	<b>Name</b>
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

**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

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**From:** Matt Edmiston

**Sent:** Thursday, February 27, 2014 11:15 PM

**To:** connectingnj

**Subject:** RE: NJ Broadband Confirmation

Communications provides the data transport.

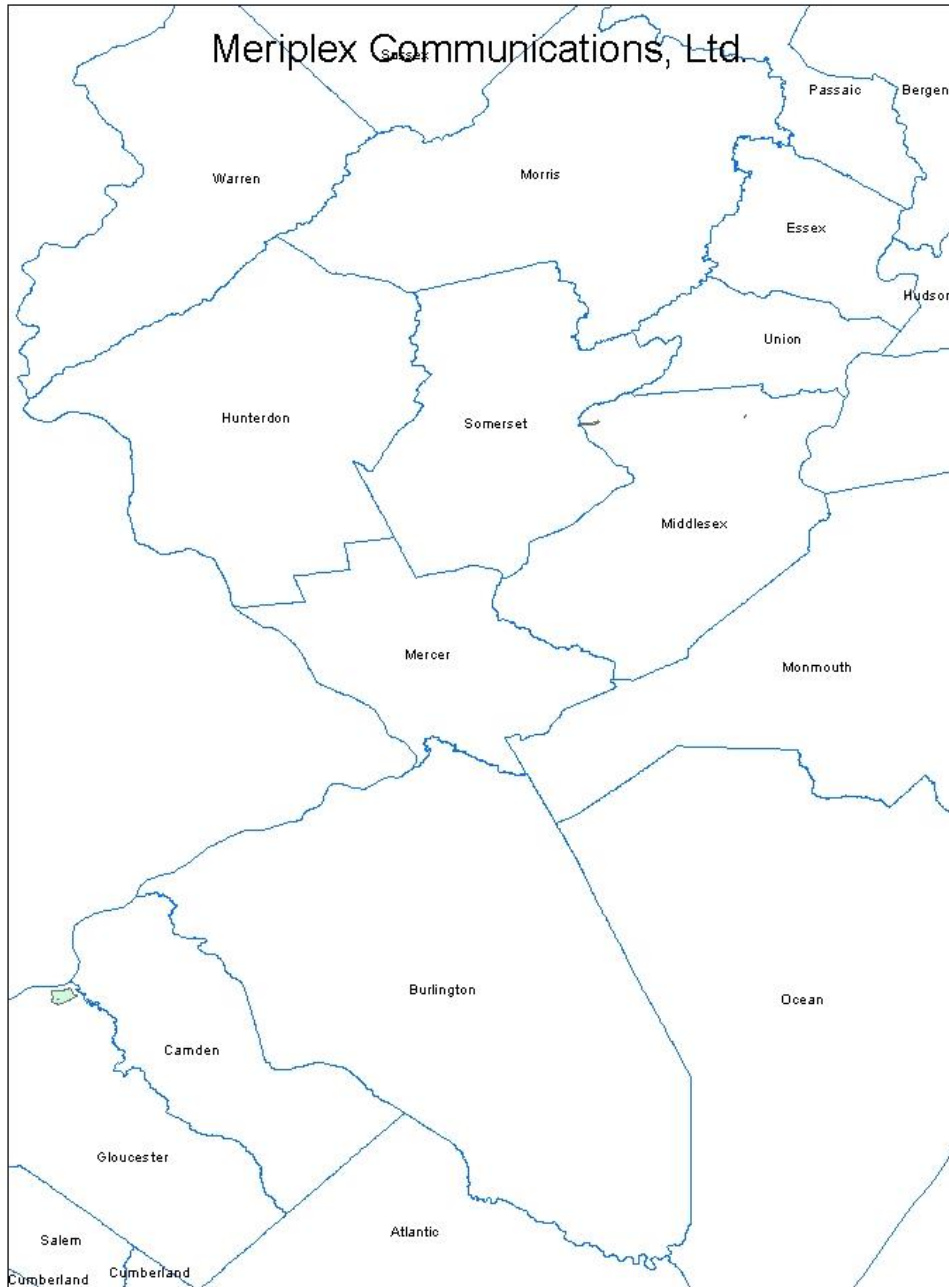
Telecom provides the voice service.

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





## 7.17 Monmouth Telephone and Telegraph

Received: July 2014

Submission date: October 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

AVAILABILITY DATA			
ID	Provider name “Doing business as” name FRN		Monmouth Telephone & Telegraph same 0004325205
FOR WIRELINE			
Filetypes	Csv (AddressLevelAvailability period ending June 30, 2014.csv)		
File size	84 Kbytes, 845 records		
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)
	Typical-upstream		Address
	Typical-downstream		Address
	Advertised-upstream		Address
	Advertised-downstream		Address

	Subscriber-weighted-up		None provided	
	Subscriber-weighted-down		Not provided	
<b>Technology Type</b>	Code 30 – other copper line Code 50 - Optical Carrier/Fiber to the End User			
<b>End-user specification</b>	Code 4 – Medium or Large Enterprise			
Comments:				
<b>INTERCONNECTION DATA</b>				
<b>ID</b>				
<b>File size</b>				
<b>Ownership</b>				
<b>Transport Type</b>				
<b>Data Rates/Capacity</b>				
<b>Location</b>				
<p>Comments: No middle mile was provided at this time. Monmouth gave the following explanation:</p> <p>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”.</p>				

### Section 3: Submission File Details

The data are very similar to the last submission.

Received 1 zip file:

<b>Size</b>	<b>Name</b>
18Kb	NJ Broadband June 30, 2014.zip

The zip archive contains the following files:

<b>Size</b>	<b>Name</b>
84Kb	AddressLevelAvailability period ending June 30, 2014.csv
2Kb	CMAAdvertised Availability for period ending June 30, 2014.csv
2Kb	SubscriberWeightedNominalSpeed for period ending June 30, 2014.csv
21Kb	Read Me.doc

File details:

AddressLevelAvailability period ending June 30, 2014.csv:

The file contains 845 records. File does NOT have a header row. Thus there are 845 total data records. The columns and the corresponding headers based on previous submission are:

A	- ProvName
C	- FRN
D-K	- Address
M	- EndUserCat
N	- Technology
O	- MaxAdvSpdD
P	- MaxAdvspdU
Q	- TypSpeedD
R	- TyspdU

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.

CMAAdvertised Availability for period ending June 30, 2014.csv

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

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

SubscriberWeightedNominalSpeed for period ending June 30, 2014.csv

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

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

Read Me.doc

The file contains explanations of the submission.

#### **Section 4: Data Validation, Transformation and Loading**

**NTIA Table BB\_Service\_CensusBlock**

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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:

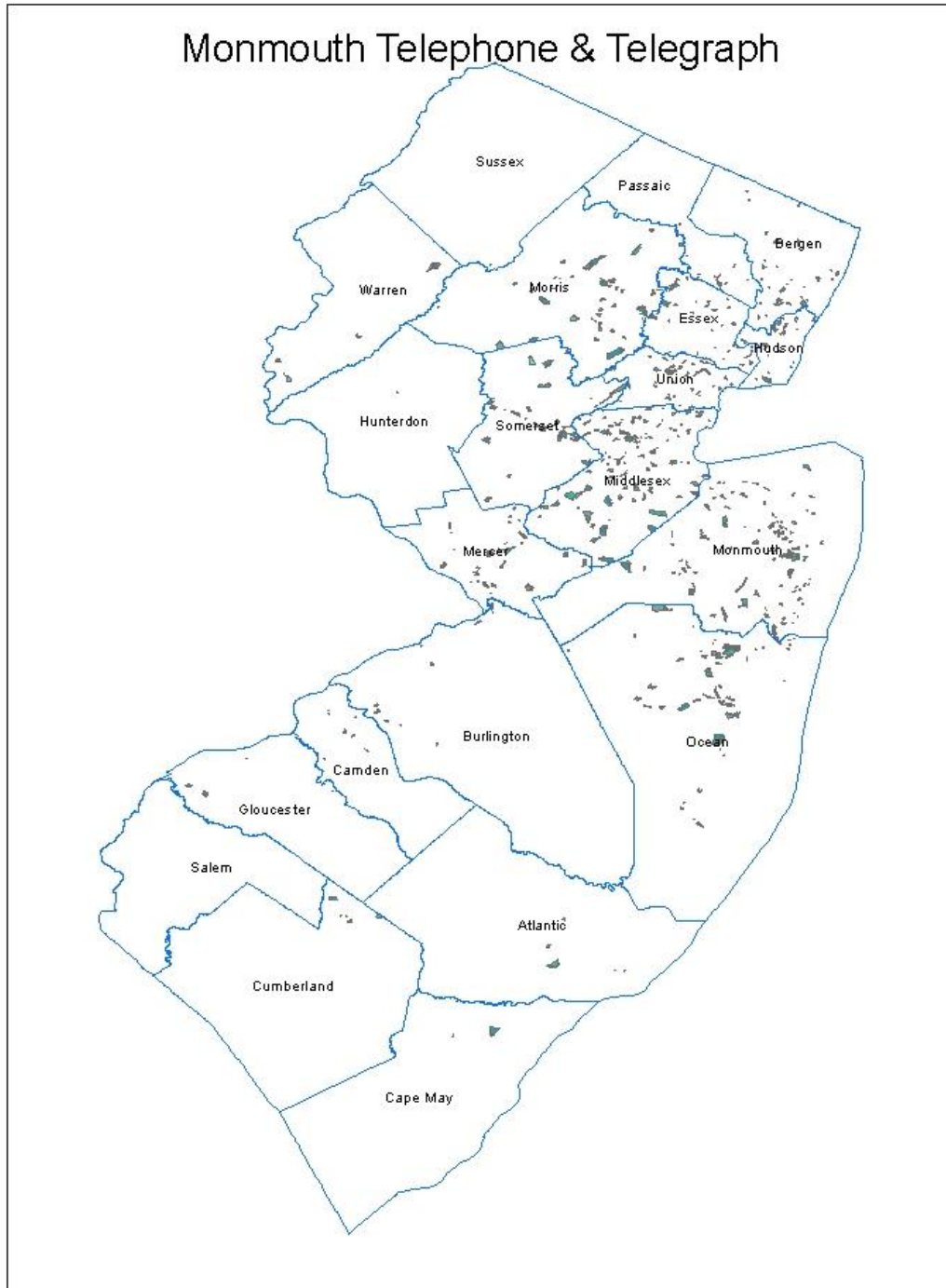
1. All records in AddressLevelAvailability for period ending June 30, 2014.csv were successfully geo-coded using a combination of the Yahoo and Google geocoder to obtain a Latitude, Longitude pair for each. This is a new approach and uses Yahoo geocoder first. Then only the questionable results are geocoded using Google geocoder. Any questionable results from this second step are dropped in favor of the prior Yahoo results. This hybrid approach provided better results than before. 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 43 rows because the max adv down speed code was 1 or 2, which is not broadband according to the requirements of the NOFA
5. Discarded 119 rows with duplicate census blocks while preserving the greatest speed. These result from multiple customers in the same census block.
6. Discarded 6 large census blocks (greater than 2 square miles).
7. Final record count loaded is 676
8. Update the endusercat column from the end\_user column of the refdata\_2010.tl\_2010\_34\_tabbblock10\_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



## **7.18 Network Billing Systems**

Received: February 2012

Submission date: October 2014

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

### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy nbs\_apr2014.BB\_ConnectionPoint\_MiddleMile to nbs\_oct2014.  
BB\_ConnectionPoint\_MiddleMile
2. Change the DBA name to "Fusion Telecommunications International, Inc."

### **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:

1. 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy nbs\_apr2013.BB\_ConnectionPoint\_MiddleMile to nbs\_oct2013.  
BB\_ConnectionPoint\_MiddleMile



**For April 2013:**

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

**Processing Steps:**

1. 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	Network Billing Systems LLC
	“Doing business as” name	
	FRN	0004965141
FOR WIRELINE		

<b>Filetypes</b>			
<b>File size</b>			
<b>Speeds</b>	Type		Spatial Resolution: address
	Typical-upstream		
	Typical-downstream		
	Advertised-upstream		
	Advertised-downstream		
	Subscriber-weighted-up		
	Subscriber-weighted-down		
<b>Technology Type</b>	Types:		
<b>End-user specification</b>			
Comments:			
<b>INTERCONNECTION DATA</b>			
<b>ID</b>			
<b>File size</b>			
<b>Ownership</b>	Confirmed via email - Leased		
<b>Transport Type</b>	Fiber		
<b>Data Rates/Capacity</b>	T1 to OC 48 (2.488 Gbps)		
<b>Location</b>	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

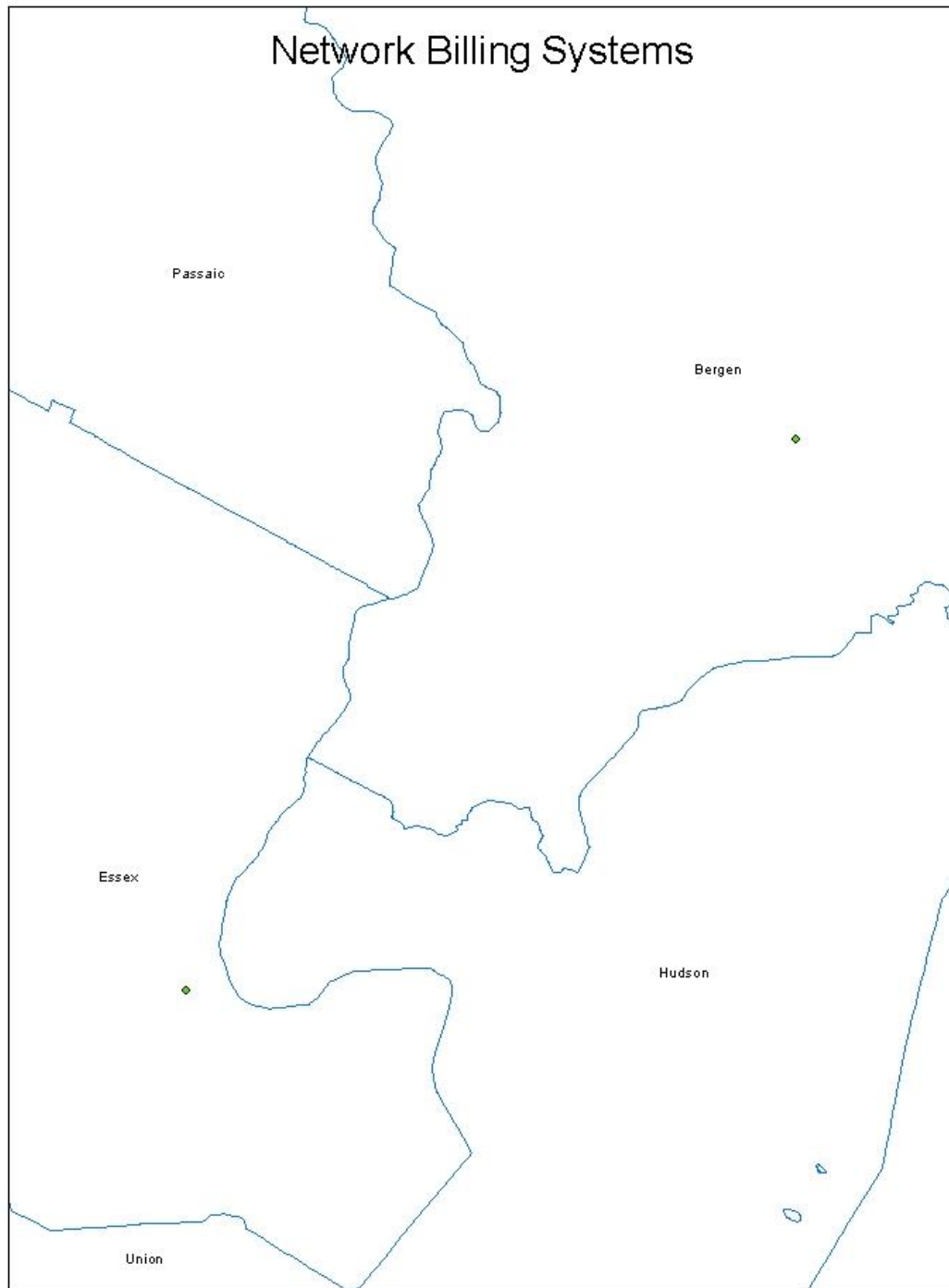
Internal notes on processing:

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:
  - a. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
  - b. Imported the resulting data to a geodatabase table.
  - c. Added a point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
  - d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. All records successfully spatially joined on 2010 NJ Census Block shapes.
3. Based on provider email response, set ownership value to leased.
4. Loaded 2 records.

## Section 5: Clarification Questions and Responses

## Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data



## **7.19 Netcarrier**

Received: March 2013

Submission date: October 2014

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

### **For October 2014:**

This is a stub report, since data from the previous April 2014 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\_apr2014.BB\_Service\_CensusBlock to netcarrier\_oct2014.  
BB\_Service\_CensusBlock.
2. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy netcarrier\_apr2014.BB\_ConnectionPoint\_MiddleMile to netcarrier\_oct2014.  
BB\_ConnectionPoint\_MiddleMile

### **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

AVAILABILITY DATA				
ID	Provider name		Netcarrier	
	“Doing business as” name		Netcarrier Telecom, Inc.	
	FRN		0005043195	
FOR WIRELINE				
Filetypes	Excel			
File size	119 KB (595 rows)			
Speeds	Type		Spatial Resolution: address	Provides an .xls file with 895 rows of information (end user addresses).
	Typical-upstream		Address-level	

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

### Section 3: Submission File Details

Received 1 file by secure upload:

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

#### Section 4: Data Transformation and Loading

The following describes the processing applied to load the tables

##### NTIA Table BB\_ConnectionPoint\_MiddleMile

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

This pertains to data processed in previous rounds.

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

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

Internal notes on processing:

1. Used the provider name, DBA name, and FRN as supplied.



2. Following steps were performed for Fall 2011 submission and the results reused:
  - a. Geocoded the address to obtain a Latitude, Longitude value pair. All middle-point addresses were successfully geocoded using Arroyo with Yahoo geocoder.
  - b. Imported the resulting data to a geodatabase table.
  - c. Added a point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
  - d. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data. All records successfully spatially joined on 2010 NJ Census Block shapes.
  - e. Loaded 11 records.
3. These records were copied over into a new BB\_ConnectionPoint\_MiddleMile table
4. Results passed all NTIA validations.

### **NTIA Table BB\_Service\_CensusBlock**

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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

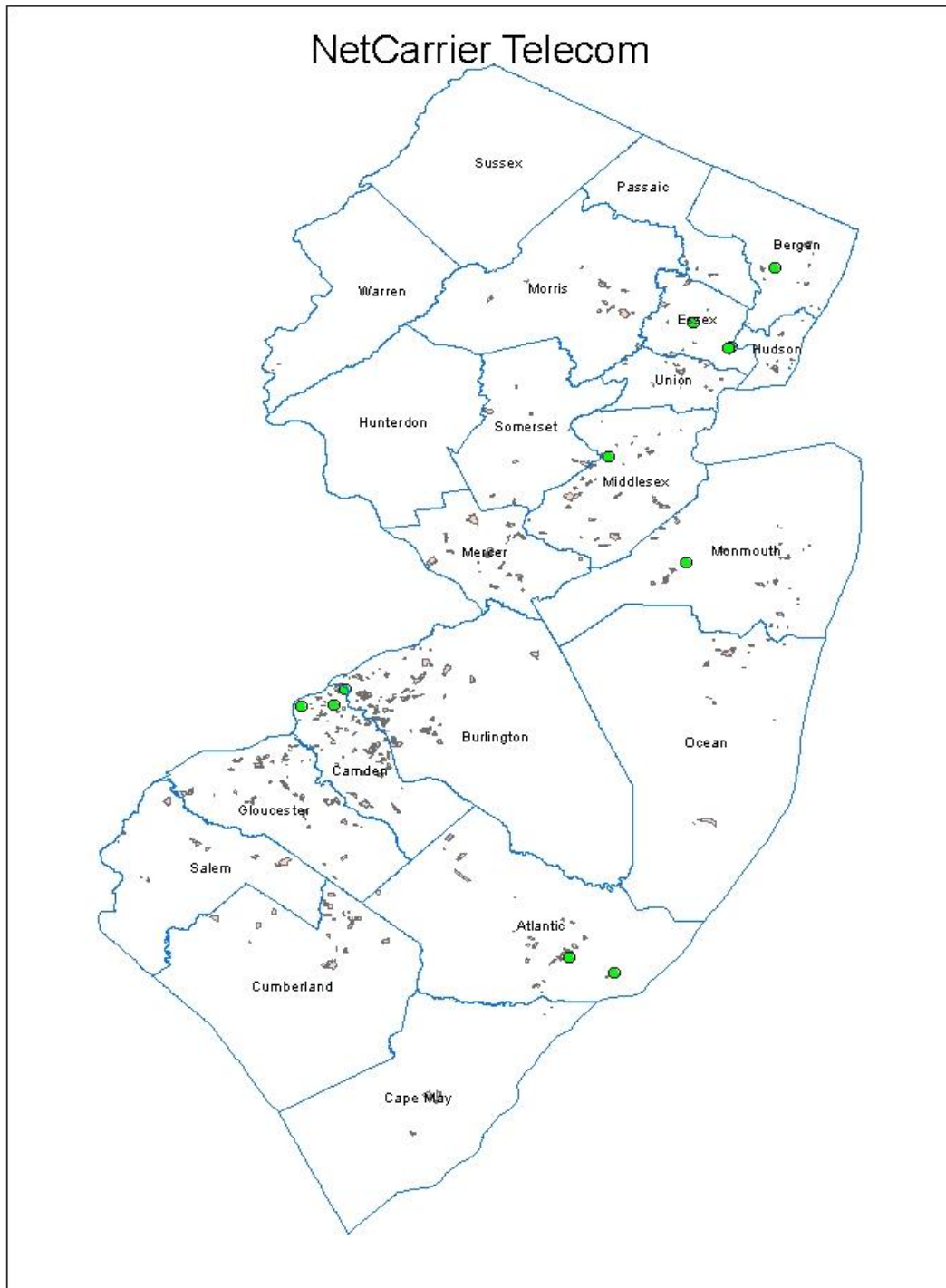
Internal processing notes:

1. Following steps were performed for the April 2013 submission:
  - a) Geocoded the addresses using an Arroyo flow and the Yahoo geocoder, leaving the result with address and lat, long data in an Excel spreadsheet. All addresses (793) were successfully geocoded.
  - b) Imported the spreadsheet to a simple ESRI geodatabase table
  - c) Added point shapes corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option
  - d) Added a column containing the ID of the containing year 2010 census block using ArcCatalog's spatial join feature. The newly created point shapes are joined against census block shapes from reference data. All but three records successfully spatially joined on 2010 NJ Census Block shapes.
  - e) Discarded 286 duplicate census block records, which result from multiple addresses in the same census block.
  - f) Discarded 1 large census block record.
  - g) Loaded 506 records.
2. 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



## **7.20 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:

1. 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.
2. Same is applied to BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile
3. 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:

1. Set endusercat column to the BB\_Service\_CensusBlock table. Set to "5" as per communication with the provider.
2. Set endusercat column to the BB\_Service\_RoadSegment table. Set to "5" as per communication with the provider.
3. Set download speed to "10" and transtech to "40" as per communication with the provider.
4. 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.
5. Same is applied to svcelechunterdon\_oct2013.BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.

### **For April 2013:**

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

**Processing Steps:**

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy svcelechunterdon\_oct2012.BB\_Service\_CensusBlock to svcelechunterdon\_apr2013.BB\_Service\_CensusBlock.
2. Same is applied to svcelechunterdon\_apr2013.BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.

**For October 2012:**

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

**Section 1: NDA Status**

None.

**Section 2: Submission Overview**

AVAILABILITY DATA				
ID	Provider name		Service Electric Cable TV of	
	“Doing business as” name		Hunterdon, Inc.	
	FRN		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)	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,
	Typical-upstream		Not provided	

	Typical-downstream		Not provided	it is not yet available commercially for residential customers.  In previous submissions, provider had given a list of municipalities that they covered completely.
	Advertised-upstream		Municipality	
	Advertised-downstream		Municipality	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
Technology Type	DOCSIS 2.0 (use code 41)			
End-user specification	Not provided			
Comments: Provider also indicated they deliver fiber service to business customers, but were not in a position to deliver location data for this round. We will pursue this further for the next round.				
INTERCONNECTION DATA				
ID				
File size				
Ownership	Leased			
Transport Type	Fiber			
Data Rates/Capacity	1 Gbps			
Location	List of addresses			
Comments: In telephone conversation, Provider described locations of interconnection huts and provided information on technology and speeds.				

### Section 3: Submission File Details

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

## Section 4: Data Validation, Transformation and Loading

### NTIA Table BB\_ConnectionPoint\_MiddleMile

The following table explains the transformations that were applied.

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

Internal notes on processing:

1. Provider gave a set of addresses. These addresses were geo-coded using Google geo-coder into an Excel spreadsheet.
2. Imported the Excel sheet to a geo-database table.
3. Added point for the Latitude, Longitude pair by creating a feature class from the table using ArcCatalog’s “Create Feature Class from XY Table” option.
4. Mapped to separate shape file to correct tolerance.
5. Added a column containing the ID of the containing year 2010 census block via a spatial join of the points and the census block shapes from reference data.

### NTIA Table BB\_Service\_CensusBlock

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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:

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

<b>Municipality</b>	<b>County</b>
Alexandria Township	Hunterdon
Alpha Borough	Warren
Bloomsbury Borough	Hunterdon
Frenchtown Borough	Hunterdon
Greenwich Township	Warren
Harmony Township	Warren
Holland Township	Hunterdon



Kingwood Township	Hunterdon
Lopatcong Township	Warren
Milford Borough	Hunterdon
Phillipsburg	Warren
Pohatcong Township	Warren

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

2. Ran all NTIA validations.

### **NTIA Table BB\_Service\_RoadSegment**

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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**

On 9/4/2014 3:05 PM, New Jersey Broadband Data Collection wrote:

Tim,

It was good to talk to you the other day - thanks for getting back to me. As I said on the call, I would compare the rates you described with those we had used in prior submissions and then get back to you for confirmation. As we discussed, your coverage area in New Jersey has not changed since January. You told me that your residential infrastructure supports 50 Mbps downstream and 5 Mbps upstream (on-demand based on user request). As shown in the table below, this is the same speed category we had used in prior rounds in the downstream direction, but an increase in the upstream direction.

	Spring 2014 Submission	New Rates for Fall 2014 Submission
Downstream	50 Mbps <= Speed < 100 Mbps	50 Mbps <= Speed < 100 Mbps
Upstream	768 kbps <= Speed < 1.5 Mbps	3 Mbps <= Speed < 6 Mbps

Please confirm that these rates are correct.

Thanks for your participation,

John Wullert

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On 9/8/2014 10:58 AM, Tim Himmelwright wrote:

John,

Yes,

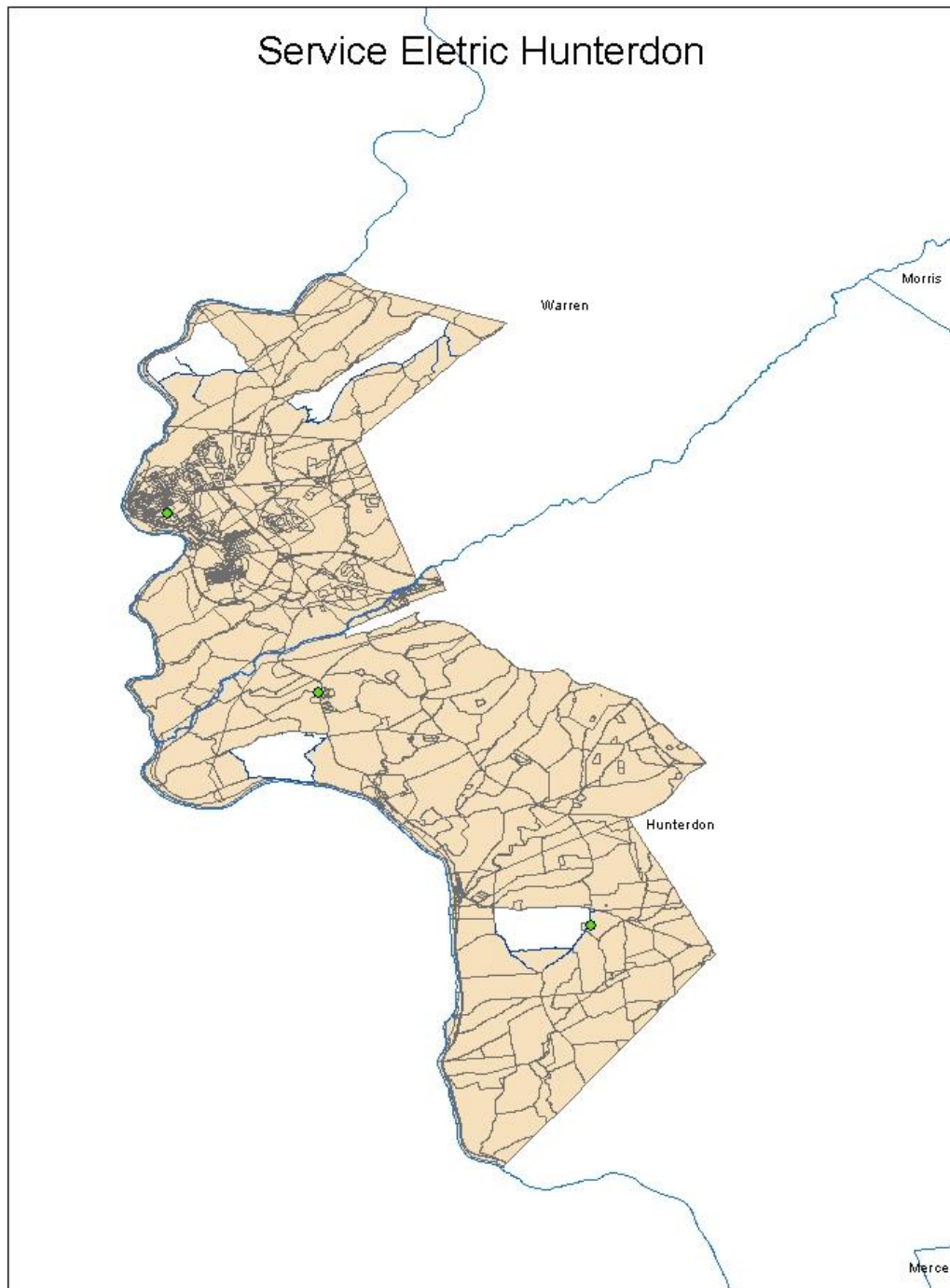
As we spoke about on the telephone, these are the downstream and upstream speeds that we currently offer.

Tim Himmelwright

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## Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data



## **7.21 Skycasters, LLC**

Received: September 2012

Submission date: October 2014

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

### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy skycasters\_apr2014.BB\_Service\_Wireless to skycasters\_oct2014.BB\_Service\_Wireless.

### **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:

1. 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:

1. 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.

2. 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:

1. 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".
2. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy skycasters\_oct2012.BB\_Service\_Wireless\_Clip to skycasters\_apr2013.BB\_Service\_Wireless.

### For October 2012:

#### Section 1: NDA Status

NONE

#### Section 2: Submission Overview

AVAILABILITY DATA			
ID	Provider name		Skycasters, LLC
	“Doing business as” name		Skycasters, LLC
	FRN		0018756155
FOR WIRELESS			
Filetypes	Excel file with data gleaned from the Skycasters WEB site		
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	Skycasters WEB site lists multiple speed plans, the highest speed combination offered is 6.09M / 1.5M

	Upstream max adv	1.5M	
	Downstream max adv	6.09M	
	Upstream typical		
	Downstream typical		
	Subscriber-weighted		
Technology Type	Code 60 (Satellite)		
Comments: Skycasters WEB site indicates that Ku-Band (12-18 GHz) satellites are being used. None of the spectrum ranges available in the NTIA document covers Ku-Band.			
INTERCONNECTION DATA			
ID			
File size			
Ownership			
Transport Type			
Data Rates/Capacity			
Location			
Comments:			

### Section 3: Submission File Details

The Excel file was created from data gleaned from the Skycasters WEB site:

<http://www.skycasters.com/satellite-internet-coverage/skycasters-coverage-NewJersey.html>

There are 729 records. The file has latitude and longitude for county, city, zip code, and area code. It looks like the latitude and longitude is a centroid of area codes. Since we do not have shape files for area codes, we will use the latitude and longitude as a centroid of zip codes.

## Section 4: Data Validation, Transformation and Loading

### NTIA Table BB\_Service\_Wireless

The following table explains the transformations that were applied.

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

Internal notes on processing:

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

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> from SBDD Grantee Workspace

<<https://sbdd-granteeworkspace.pbworks.com/>> activity-thumb  
<<https://sbdd.pbworks.com/n/users/profile?uid=2478ac959c4cb82332e1cbe48d38c6ce49fd00b8>>  
Melony Liebel  
<<https://sbdd.pbworks.com/n/users/profile?uid=2478ac959c4cb82332e1cbe48d38c6ce49fd00b8>>commented  
on HomePage  
<<https://sbdd-granteeworkspace.pbworks.com/w/page/25793681/HomePage>>  
Akins, we recently received a note from NTIA regarding satellite data which questioned our use of spectrum code "10" for this technology 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 reason for 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



## 7.22 Sprint

Received: August 2014

Submission date: October 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	Sprint Corporation
	“Doing business as” name	Sprint
	FRN	0022117618
FOR WIRELINE		
Filetypes	Txt, xls, pdf, etc.	
File size	Number of records, data elements	
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
	Upstream	
	Downstream	
	Typical	
	Advertised	
	Subscriber-weighted	
Technology Type	DOCSIS, xDSL, fiber, etc.	

<b>End-user specification</b>	Business, consumer, gov't etc		
Comments:			
<b>FOR WIRELESS</b>			
<b>Filetypes</b>	shapefile collection: shp/dbf/prj/shx, mdb, gdb, imagefile etc.		<b>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.</b>
<b>Speeds</b>	<b>Type</b>	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	Max advertised up 2, down 3; typical upstream 2, down 3 and
	Upstream max adv	Single shape, single speed	Max advertised up 4, down 6; typical upstream 4, down 6 for spectrum 3
	Downstream max adv	Single shape, single speed	
	Upstream typical	Single shape, single speed	Max advertised up 3, down 5; typical upstream 3, down 5 and
	Downstream typical	Single shape, single speed	Max advertised up 4, down 6; typical upstream 4, down 6 for spectrum 5
	Subscriber-weighted	County; but all values are identical	
<b>Technology Type</b>	Spectrum (Mhz, FCC code)		<b>3 and 5 (PCS 1850-1915 MHz, 1930-1995)</b>
Comments:			
<b>INTERCONNECTION DATA</b>			
<b>ID</b>	Provider name	Sprint Corporation	
	"Doing business as" name	Sprint	

	FRN	0022117618
<b>File size</b>	Number of records, data elements	4
<b>Ownership</b>	Leased/owned	Leased = 1, owned = 0
<b>Transport Type</b>	Fiber, wireless, copper	Fiber
<b>Data Rates/Capacity</b>		2.4 GBPS < < 10GBPS
<b>Location</b>	Street address, lat/lon, elevation	Lat/Long
Comments:		
<b>DATA COMPLETENESS</b>		
<b>Data Validation/ Verification</b>	<ul style="list-style-type: none"> <li>- Sprint provided a map showing coverage areas covering the majority of the state of New Jersey</li> <li>- Sprint provided a single set of attribute data, to be applied to the entire coverage area on 2 polygons <ul style="list-style-type: none"> <li>o They included typical and maximum advertised upload and download speeds</li> </ul> </li> <li>- Sprint provided spectrum data</li> </ul>	

### Section 3: Submission File Details

Received these files by upload to the secure web site:

Size	Name
1KB	Confidential_Middlemile_NJ.zip
3130KB	Sprint_AreaAvailability_NJ.zip

The zip archives contained these files:

Name	Size
------	------

 Confidential_MiddleMile_NJ	1 KB
 readme	1 KB
 Sprint_AreaAvailability_NJ_region.dbf	2 KB
 Sprint_AreaAvailability_NJ_region.prj	1 KB
 Sprint_AreaAvailability_NJ_region.shp	10,254 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 2014:

Since the middlemile 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 file. 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

### October 2014

Loaded four rows from the supplied shape file "Sprint\_AreaAvailability\_NJ\_region. The following table explains the transformations that were applied.

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

### October 2014, April 2014, October 2013:

1. 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

1. Browse to ArcToolbox > Conversion Tools > To Geodatabase.
2. Open the Feature Class to Geodatabase (multiple) tool.
3. Add all the feature classes into the Input Feature Class parameter.
4. Select an Output Geodatabase.
5. Click the Environments button at the bottom of the tool dialog box.
6. Expand the General Settings.

7. For the parameter, [Output](#) has Z Values, change the value to Disabled.
8. For the parameter, [Output](#) has M Values, change the value to Disabled.
9. Click OK in the Environments dialog [box](#).
10. Click OK to execute the geoprocessing [tool](#)

## October 2014:

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

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From: New Jersey Broadband Data Collection

Sent: Friday, August 22, 2014 3:28 PM

To: Scott, Cyrus J [LEG]

Subject: New Jersey Broadband Data Clarification



Scott,

We noticed that in your most recent submission you increased the downstream speed from tier 6 (6-10 Mbps) to tier 7 (10-25 Mbps). The NTIA validation rules raise a warning on this combination. We are aware of the efforts that Sprint is undertaking to upgrade network performance, but we wanted to check in to make sure that this was an intentional change.

Thanks for your help,

John Wullert

Manager - New Jersey Broadband Data Collection Program

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On 8/22/2014 3:34 PM, Scott, Cyrus J [LEG] wrote:

Hi John – Yes, that is correct. Our Enhance LTE download speeds are in tier 7. We were not prepared to change the upload speeds for this service from tier 4. There should be quite a bit of our LTE with download speeds in tier 6 as well.

Thanks,

Jack

Cyrus Scott

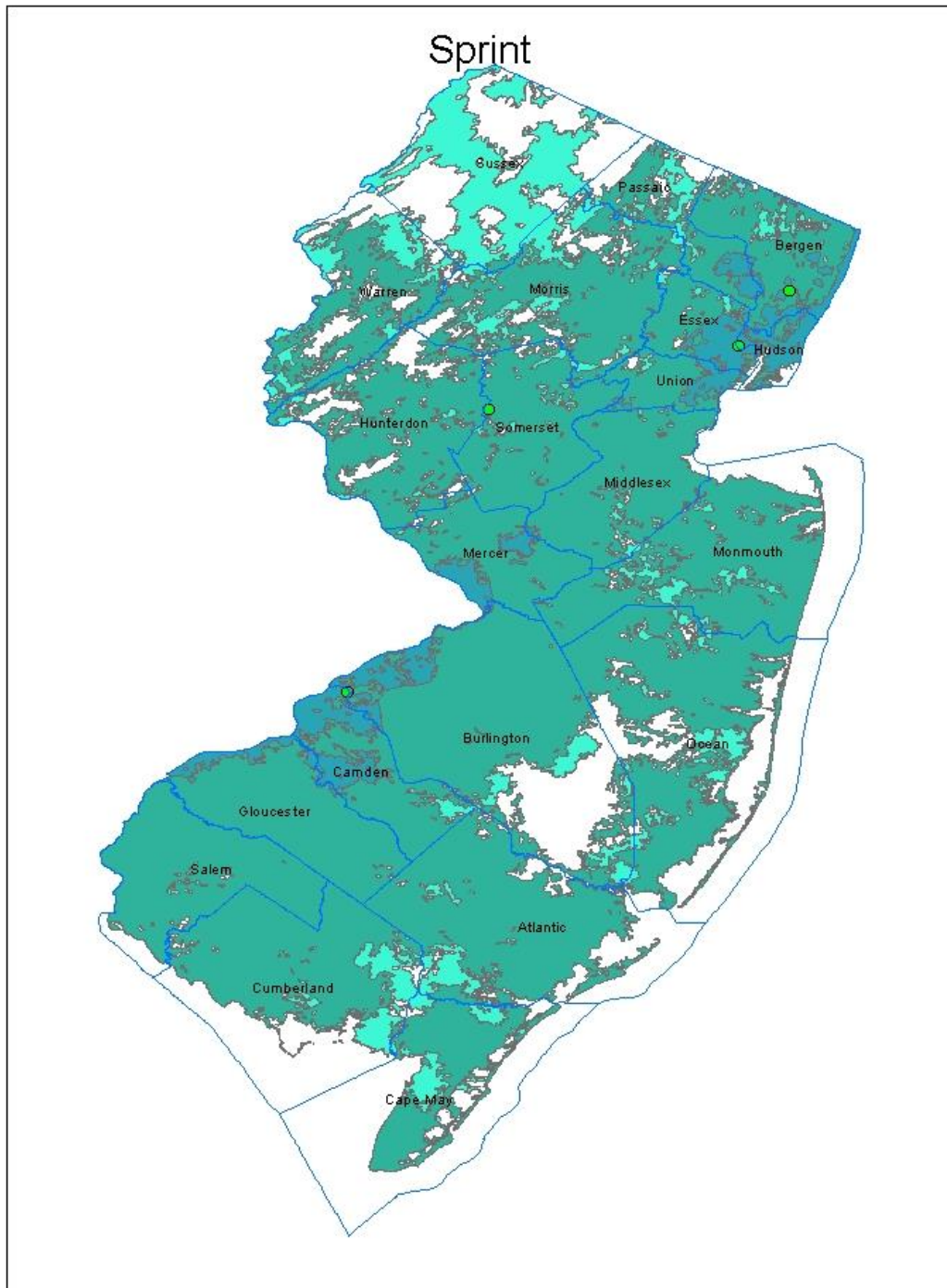
Director, Legal Information Systems and Spectrum Licensing Support

Sprint Corporation

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## **Section 7: Notes and Open Issues**

## Section 8: Overview Map of Submitted Data



### **7.23 StarBand Communications Inc.**

Received: March 2011

Submission date: October 2014

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

#### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy starband \_apr2014.BB\_Service\_Wireless to starband \_oct2014.BB\_Service\_Wireless.

#### **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:

1. 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:

1. 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.
2. 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:**

1. 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".
2. 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			StarBand Communications Inc.
	“Doing business as” name			Not provided
	FRN			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:	
<b>INTERCONNECTION DATA</b>	
<b>ID</b>	
<b>File size</b>	
<b>Ownership</b>	
<b>Transport Type</b>	
<b>Data Rates/Capacity</b>	
<b>Location</b>	
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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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.

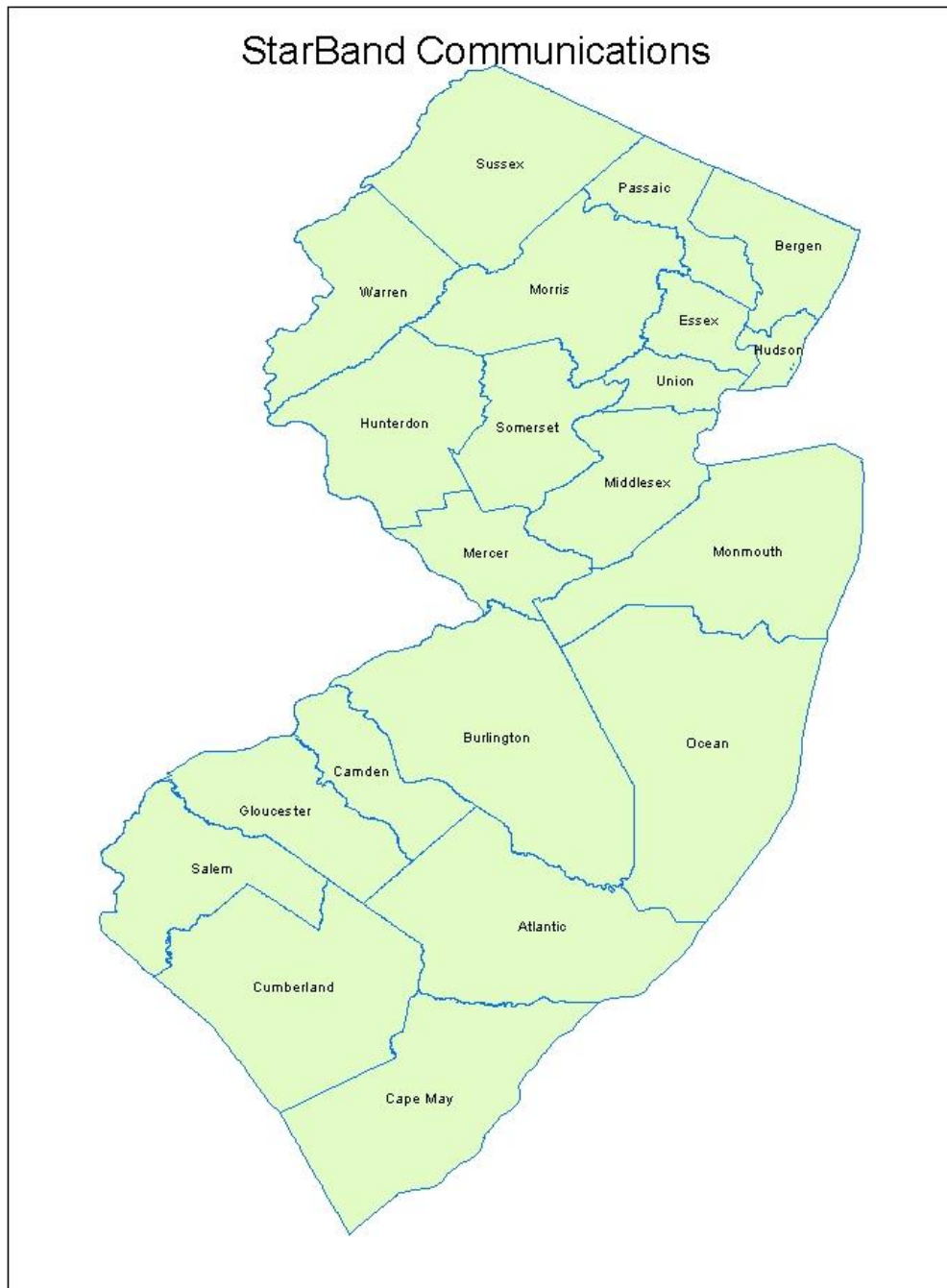
Internal notes on processing:

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





## **7.24 Service Electric Cable TV of Sparta**

Received: March 2012

Submission date: October 2014

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

### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy svcelecsparta\_apr2014.BB\_Service\_CensusBlock to svcelecsparta\_oct2014.BB\_Service\_CensusBlock.
2. Same is applied to BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.

### **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:

1. 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.
2. Same is applied to BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.

### **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:

1. 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.
2. Same is applied to svcelecsparta\_oct2013.BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.
3. Update the endusercat column in the BB\_Service\_RoadSegment table. Loaded from tl\_2010\_34\_large\_streets\_10\_wgs reference table.

4. Update the endusercat column from the end\_user column of the refdata\_2010.tl\_2010\_34\_tabblock10\_wgs table for the same census block id.

### For April 2013:

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

#### Processing Steps:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy svcelecspartha\_oct2012.BB\_Service\_CensusBlock to svcelecspartha\_apr2013.BB\_Service\_CensusBlock.
2. Same is applied to svcelecspartha\_apr2013.BB\_Service\_RoadSegment and BB\_ConnectionPoint\_MiddleMile.

### For October 2012:

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

### Section 1: NDA Status

No NDA executed.

### Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name			Service Electric Cable TV of NJ
	“Doing business as” name			
	FRN			
0005007125				
FOR WIRELINE				
Filetypes	Text			
File size	9728 bytes			
Speeds	Type		Spatial Resolution	Provided list of
			(address, street seg,	

		census block, RSA/MSA, zipcode,etc)	Provider indicated that they do not cover all streets in the rural area they serve. Rather than overstate coverage, we elected to omit streets in large census blocks that are more likely to represent rural areas.  Provider indicated in email exchange that they offer DOCSIS 3.1 over their entire footprint. He provided list of speeds, which we confirmed with him.
	Typical-upstream	Not provided	
	Typical-downstream	Not provided	
	Advertised-upstream	Municipality	
	Advertised-downstream	Municipality	
	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
  - a. Created an excel sheet and imported to a geodatabase table.
  - b. Added points corresponding to each Latitude, Longitude pair by creating a feature class from the table using ArcCatalog's "Create Feature Class from XY Table" option.
  - c. Added a column containing the ID of the containing year 2000 census block via a spatial join of the points and the census block shapes from reference data.
2. Provider indicated that two sites are served by dual 10 Gbps links (code 6) and the rest are served by dual 2 Gbps links (code 4).

### **NTIA Table BB\_Service\_CensusBlock**

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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.

## NTIA Table BB\_Service\_RoadSegment

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

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

Internal processing notes:

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

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

## Section 5: Clarification Questions and Responses

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**From:** James Galliford  
**Sent:** Monday, February 24, 2014 7:06 PM  
**To:** [cherie](#); [james.galliford](#)  
**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.

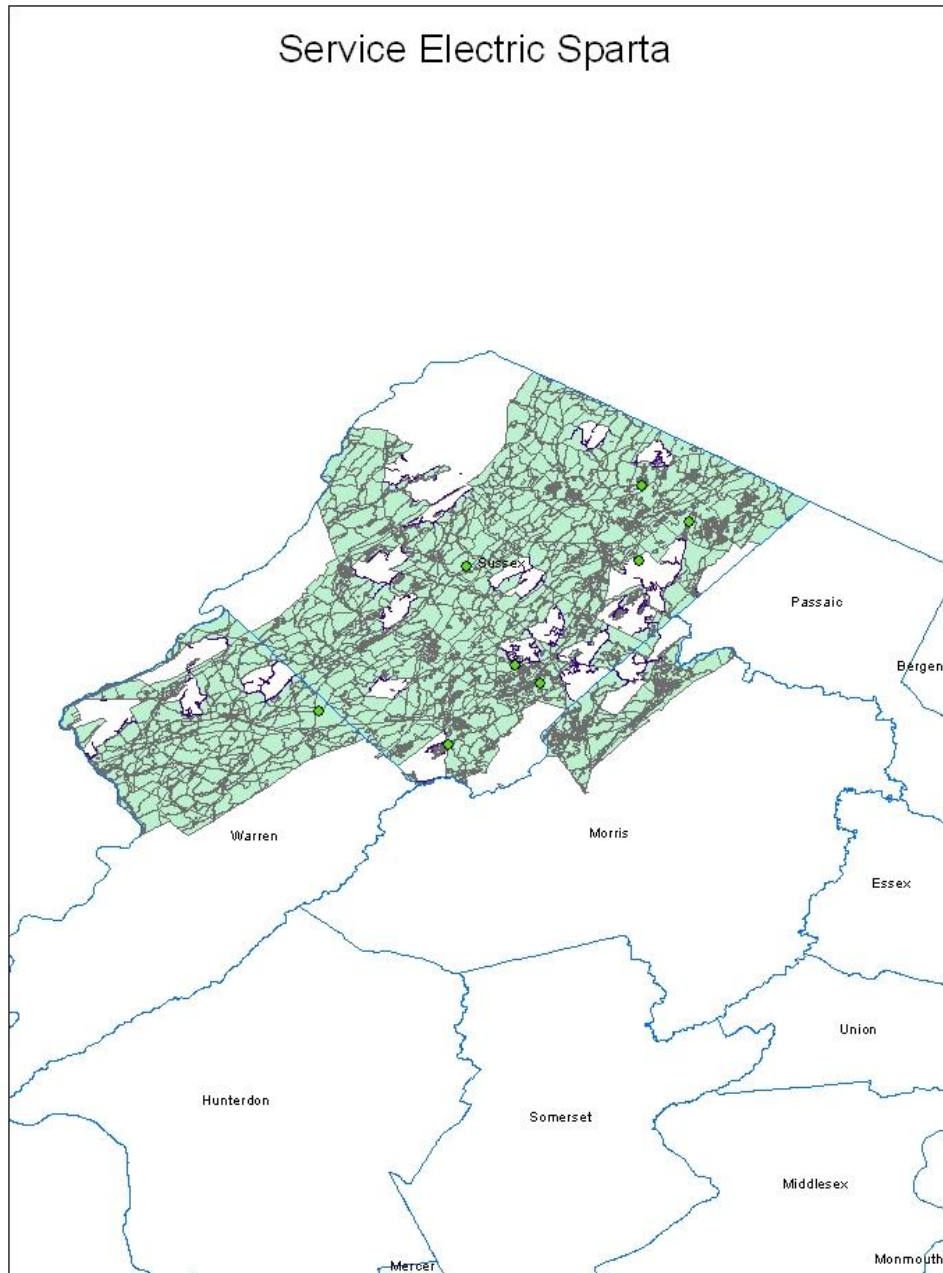
Thanks,

John Wullert  
Manager – NJ BB Data Collection  
Applied Communication Sciences

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Section 6: Notes and Open Issues

## Section 7: Overview Map of Submitted Data





## 7.25 Time Warner

Received: August 2014

Submission date: October 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 typical	not provided	

	Subscriber-weighted	not provided	
Technology Type	40		
Comments:			
INTERCONNECTION DATA: INSTRUCTED TO USE PREVIOUS DATA			
ID			
File size			
Ownership			
Transport Type			
Data Rates/Capacity			
Location			
Comments: <b>not provided</b> with initial submission. Sent request for updated information.			

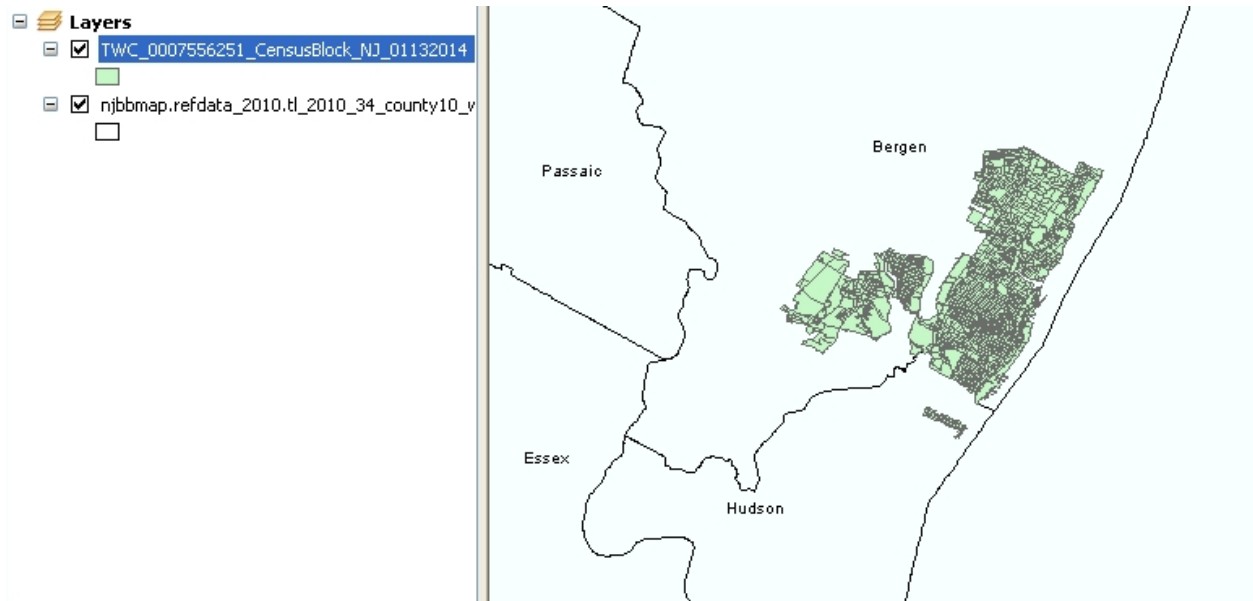
### Section 3: Submission File Details

Received 1 archive file by EMAIL:

Name	Size
 NJ 10th BB Cltr	57 KB
 TWC_0007556251_CensusBlock_NJ_081114.cpg	1 KB
 TWC_0007556251_CensusBlock_NJ_081114.dbf	644 KB
 TWC_0007556251_CensusBlock_NJ_081114.prj	1 KB
 TWC_0007556251_CensusBlock_NJ_081114.sbn	19 KB
 TWC_0007556251_CensusBlock_NJ_081114.sbx	1 KB
 TWC_0007556251_CensusBlock_NJ_081114.shp	529 KB
 TWC_0007556251_CensusBlock_NJ_081114.shp	2 KB
 TWC_0007556251_CensusBlock_NJ_081114.shx	16 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 10th BB Cltr.pdf states that the middle mile data has not been changed. Therefore we copied the April 2014 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 7<sup>th</sup> 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\_081114 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**

### **October 2014**

The overview data was not submitted.

### **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.

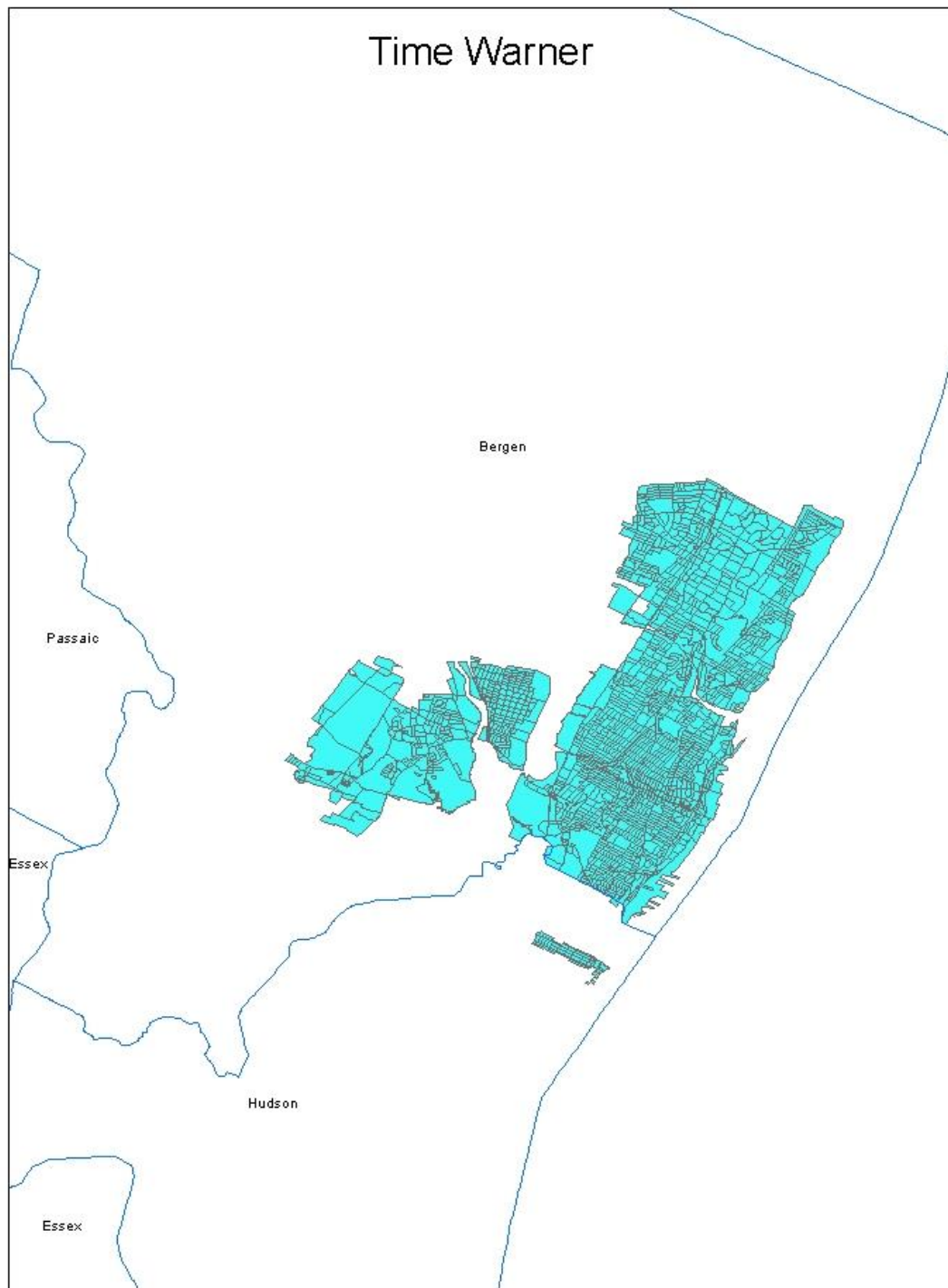
Since we are not sure if the BB\_Service\_Overview table has proper protection, we did not to submit the data.

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

## **Section 5: Clarification Questions and Responses**

## **Section 6: Notes and Open Issues**

## Section 7: Overview Map of Submitted Data



## 7.26 T-Mobile

Received: August 2014

Submission date: October 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	T-Mobile USA, Inc.
	DBA NAME	T-Mobile
	FRN	0006945950
	Holding company name	T-Mobile USA
	Holding company number	130403
FOR WIRELESS		
Filetypes	T-mobile supplies .xls, .txt. and shape files (availability). They supply 5 sets of shape files: 2 for HSPA+ coverage, UMTS, U1900, and LTE coverage.	
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
	Upstream max adv	yes
	Downstream max adv	yes
	Upstream typical	yes
	Downstream typical	yes

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).”

	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	4 KB
area_availability_NJ	7,651 KB
avg_speed_NJ	12 KB
confidential_NJ	1 KB
Cover Letter_NJ	23 KB
NJ_HSPA21_region.dbf	1 KB
NJ_HSPA21_region.prj	1 KB
NJ_HSPA21_region.shp	5,065 KB
NJ_HSPA21_region.shx	1 KB
NJ_HSPA42_region.dbf	1 KB
NJ_HSPA42_region.prj	1 KB
NJ_HSPA42_region.shp	1,234 KB
NJ_HSPA42_region.shx	1 KB
NJ_LTE_region.dbf	1 KB
NJ_LTE_region.prj	1 KB
NJ_LTE_region.shp	7,120 KB
NJ_LTE_region.shx	1 KB
NJ_U1900_region.dbf	1 KB
NJ_U1900_region.prj	1 KB
NJ_U1900_region.shp	6,613 KB
NJ_U1900_region.shx	1 KB
NJ_UMTS_region.dbf	1 KB
NJ_UMTS_region.prj	1 KB
NJ_UMTS_region.shp	5,485 KB
NJ_UMTS_region.shx	1 KB
T-Mobile_BB Data_NJ	7,678 KB

They submitted middle-mile\_NJ.xlsx later.

## Section 4: Data Validation, Transformation and Loading

### NTIA Table BB\_ConnectionPoint\_MiddleMile

#### October 2014:

There are 6 rows in the middle-mile\_NJ.xlsx. However after duplicates are removed, the data is identical as the previous submission. Therefore the data is copied.

#### April 2014:

There are 11 rows in the middle-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 shape files 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 row). 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: <ul style="list-style-type: none"> <li>• HSPA 21 is 6;</li> <li>• HSPA 42 is 7;</li> <li>• UMTS is 4;</li> <li>• LTE is 7 (as per NTIA directions - despite input from the provider claiming it to be 8)</li> <li>• U1900 is 6</li> </ul> as specified in file area_availability_NJ.txt
MAXADUP	Set as follows: <ul style="list-style-type: none"> <li>• HSPA 21 is 4;</li> <li>• HSPA 42 is 4;</li> <li>• UMTS is 2;</li> <li>• LTE is 6</li> <li>• U1900 is 4</li> </ul> as specified in file area_availability_NJ.txt
TYPICDOWN	Set to as follows: <ul style="list-style-type: none"> <li>• HSPA 21 is 5;</li> <li>• HSPA 42 is 6;</li> <li>• UMTS is 2;</li> <li>• LTE is 7;</li> <li>• U1900 is 5</li> </ul> as specified in file area_availability_NJ.txt
TYPICUP	Set to as follows:

	<ul style="list-style-type: none"> <li>• HSPA 21 is 3;</li> <li>• HSPA 42 is 3;</li> <li>• UMTS is 1;</li> <li>• LTE is 5</li> <li>• U1900 is 3</li> </ul> as specified in file area_availability_NJ.txt
STATEABBR	As supplied in column “state” with “NJ”
SHAPE	As supplied.

#### Internal notes on processing:

- Received 5 shape files; (Note that we do not check duplicate since the shapes will be merged to a single shape for each technology.) This submission has one record per shape file.
  - NJ\_HSPA21
    - 1 candidate
  - NJ\_HSPA42
    - 1 candidate
  - NJ\_UMTS
    - 1 candidate
  - NJ\_LTE
    - 1 candidate
  - NJ\_U1900
    - 1 candidate
- 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.
- 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'.
- 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.

5. Click the Environments button at the bottom of the tool dialog box.
6. Expand the General Settings.
7. For the parameter, Output has Z Values, change the value to Disabled.
8. For the parameter, Output has M Values, change the value to Disabled.
9. Click OK in the Environments dialog box.
10. Click OK to execute the geoprocessing tool

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 Issues**

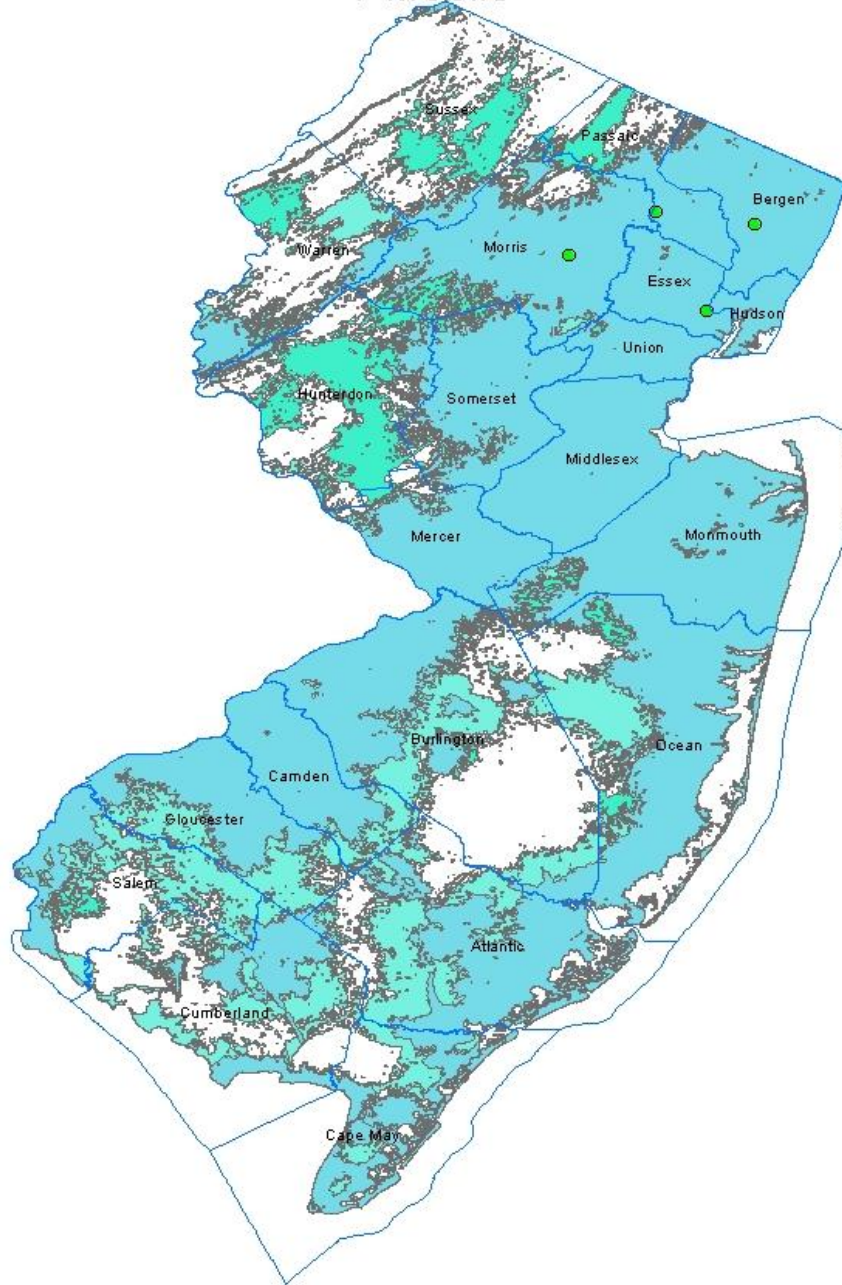
### **April 2013:**

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**

## T-Mobile



## 7.27 tw telecom of new jersey l.p.

Received: August 2014

Submission date: October 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		tw telecom of new jersey l.p.	
	“Doing business as” name		Not provided	
	FRN		0004351409	
	Holding company name		tw telecom inc.	
	Holding company number		160153	
FOR WIRELINE				
Filetypes	Text			
File size	6 KB, 62 records			
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	
	Typical-upstream		Not provided	
	Typical-downstream		Not provided	
	Advertised-upstream		Address; values 2..11	
	Advertised-downstream		Address; values 2..11	
	Subscriber-weighted-up		Not provided	



	Subscriber-weighted-down		Not provided	
Technology Type	30 (Other copper) and 50 (fiber)			
End-user specification	4 (medium – large enterprise) in all cases			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments: None provided				

### Section 3: Submission File Details

Received 1 file by secure upload:

<b>Size</b>	<b>Name</b>
6 KB	NJBB_0004351417_AddressLevelAvailability.txt_2

The file has 62 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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

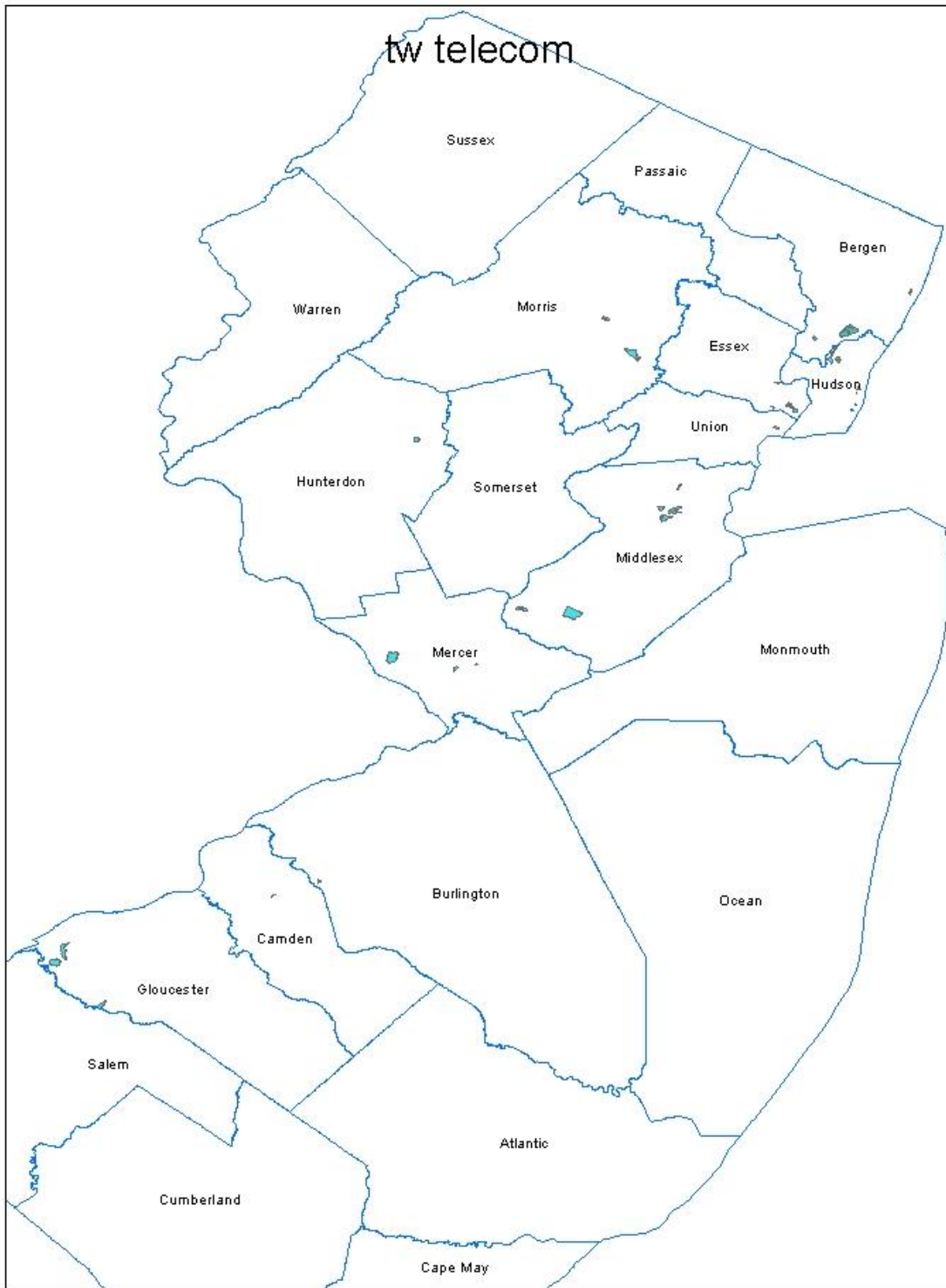
Internal processing notes:

1. Geocoded the addresses using the Google geocoder to obtain a Latitude, Longitude pair for each. One record was manually geocoded to get a more accurate result.
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 26 rows with duplicate geoid, 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 36 records into the bb\_service\_censusblock 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



## 7.28 Verizon

Received: August 2014

Submission date: October 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				
File types	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.

Received the updated version via email on October 7<sup>th</sup>, 2014. The update contains maxaddown = 10 instead of 9 for select census blocks and road segments.

<b>Name</b>	<b>Size</b>
NJ – Broadband Data Cover Letter (8-22-14).pdf	25 KB
NJ – POP List (June 2014).pdf	7 KB
NJ – Pricing (June 2014).txt	3 KB
NJ – Wireline Service By Census Block with Speeds (June 2014)REVISED.txt	6585 KB

NJ – Wireline Service By Street Segment with Speeds (June 2014)REVISED.txt 143 KB  
VZ-NJ-BB (June 2014)REVISED.zip 1107 KB

#### **Section 4: Data Validation Transformation and Loading**

##### **NTIA Table BB\_ConnectionPoint\_MiddleMile**

###### **Oct 2014:**

The provider submitted 2 (one less) same middle mile data. Thus it is copied from the April 2013 submission and the one record is deleted.

###### **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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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**

There was a revised submission on October 7, 2014.

Loaded from supplied text file "**NJ – Wireline Service By Census Block with Speeds (June 2014)REVISED.txt**". There were 161,634 total records (1<sup>st</sup> record is header). The following table explains the transformations that were applied to load the target table.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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**

There was a revised submission on October 7, 2014.

Loaded from supplied text file “**NJ – Wireline Service By Street Segment with Speeds (June 2014)REVISED.txt**” (1961 total records, 1<sup>st</sup> 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.

<b>Table Column</b>	<b>Data Source / Transformation</b>
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 115 records from the Verizon submitted data that were duplicates, based on county and tlid.
3. We removed 10 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 1835.

#### **NTIA Table BB\_Service\_Overview**

Loaded from supplied text file "NJ – Pricing (June 2014).txt". There were 46 total records (1<sup>st</sup> record is header).

<b>Table Column</b>	<b>Data Source / Transformation</b>
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 46.

## Section 5: Clarification Questions and Responses

From: New Jersey Broadband Data Collection  
Sent: Tuesday, October 07, 2014 1:36 PM  
To: Shine, Laura A; Clemons, Keefe B  
Subject: Updated NJ Broadband Data

Laura and Keefe,

We received a message from NTIA indicating that Verizon had delivered updated broadband information to several states, including NJ. This was to address an issue with speed tier 9 versus 10. We have not received any updated information from you. If you did in fact intend to submit updated information, could you please send it to us by replying to this email address. If you do not have updated information for NJ, please confirm that. If you have any questions, please call.

Thanks,

John Wullert  
Manager - New Jersey Broadband Data Collection

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Subject: RE: Updated NJ Broadband Data  
Date: Tue, 7 Oct 2014 14:19:12 -0400  
From: Shine, Laura A  
To: New Jersey Broadband Data Collection  
CC: Clemons, Keefe B

John,

Attached please find the email and file we sent to William Drew on October 2. If you have any difficulty, please let me know.

Laura

---

From: New Jersey Broadband Data Collection  
Sent: Tuesday, October 07, 2014 4:44 PM  
To: Shine, Laura A; Clemons, Keefe B  
Subject: Re: Updated NJ Broadband Data

Laura,

Just a quick question: We did some spot checking of the data you just submitted against the speeds advertised on your Web site and identified two issues:

1. In each case we tested where you reported Maximum Download speed tier of 10 (>100 Mbps), your Web site reports 75 Mbps/75 Mbps (downstream/upstream) for the corresponding Zip code. Is the Web reported speed lower because it represents an average over the zip code?
2. In those same cases, you report a download speed tier of 7 (10-25 Mbps), which is well below the 75 Mbps advertised on your Web site.

Can you please help us understand these differences?

Thanks,  
John

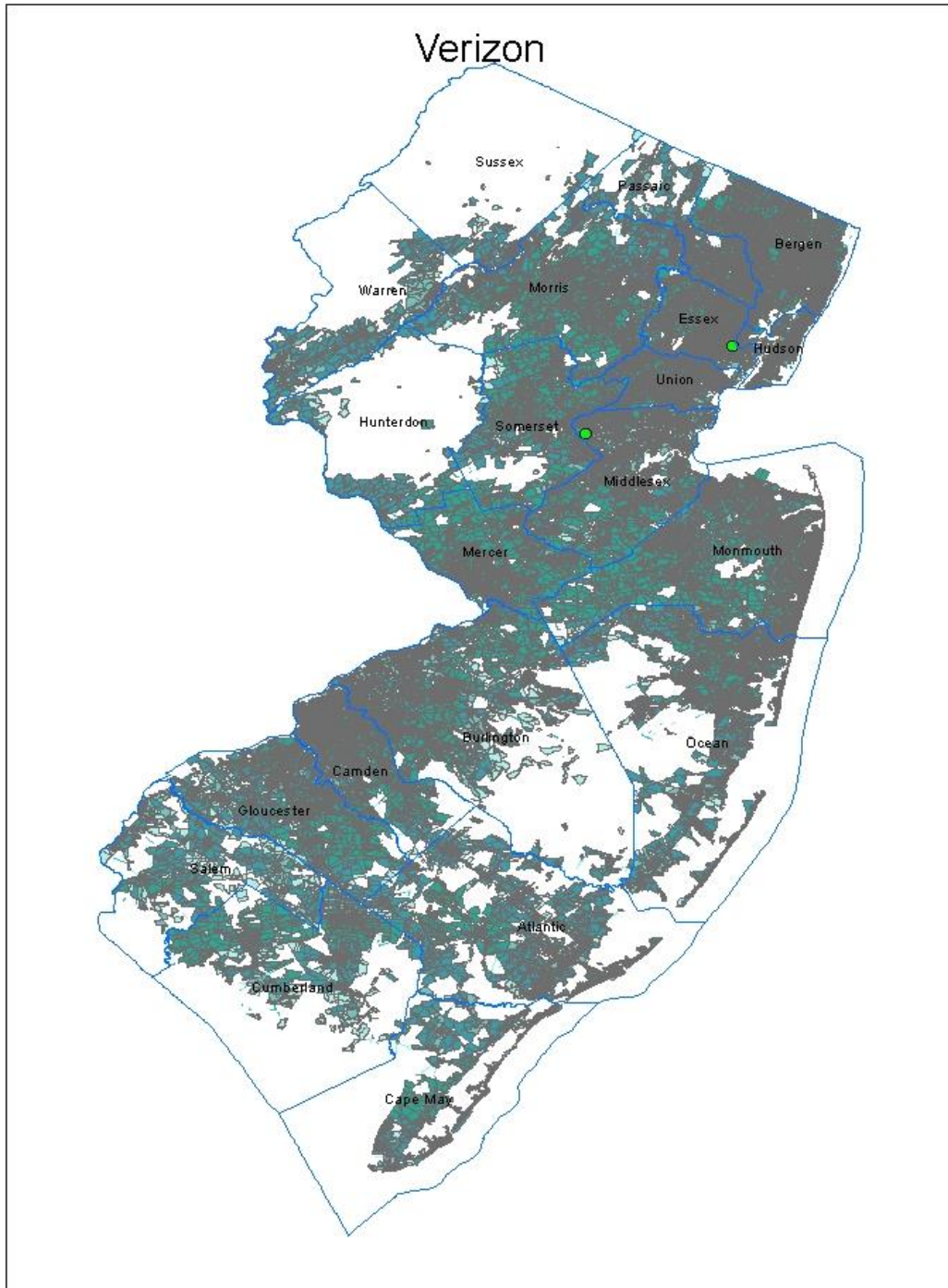
---

Keefe Clemons responded to this email with a telephone call to John Wullert on 9 October 2014. He provided the following explanations for the two issues:

1. With regard to the download speed, he reported that Verizon offers the speed tier 10 service only in very select locations. A Zip-code-level query will result in the minimum service that can be offered to any location within that Zip code. They have conducted address-level queries and verified that the higher download speeds are reported.
2. With regard to the upload speed, he reported that the transition to symmetric service is a recent occurrence and thus is not included in these data which are effective as of June 30, 2014. The higher upload speeds will be reflected in future submissions.

## **Section 6: Notes and Open Issues**

## Section 7: Overview Map of Submitted Data



## 7.29 ViaSat, Inc.

Received: August 2014

Submission date: Oct 2014

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

### For October 2014:

This is a stub report, since data from the previous submission was reused unchanged. The complete report from the previous submission begins with Section 1 below. 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 wildblue\_apr2014.BB\_Service\_Wireless to wildblue\_oct2014.BB\_Service\_Wireless.

### Section 1: NDA Status





NONE

### Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name			ViaSat, Inc.
	“Doing business as” name			ViaSat, Inc.
	FRN			0004963088
FOR WIRELESS				
Filetypes	text file, shape file			
File size				
Speeds			Spatial Resolution	Submitted shape file describing the entire state of NJ with attributes for technology and maximum
	Type		(address, street seg, census block,	

			RSA/MSA, zipcode,etc)	advertised up/down speed codes. Spectrum is listed as “Satellite”.  They provide maximum advertised up/down speeds for Excede 12, Download: 12 Mbps Upload: 3 Mbps These correspond to the speed tiers 7 and 5, respectively.
	Typical-upstream		Not provided (‘0’)	
	Typical-downstream		Not provided (‘0’)	
	Advertised-upstream		yes. Entire state.	
	Advertised-downstream		yes. Entire state	
	Subscriber-weighted-up		Not provided	
	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	<del>Set to 0007843766</del> 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.
6. 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 Excede 12 and Excede 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

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**From:** Wullert, John R II  
**Sent:** Friday, February 07, 2014 9:05 AM  
**To:** Yu, Min J  
**Cc:** Chung, Chit F  
**Subject:** RE: ViaSat data

Mike,

ViaSat confirmed that they now cover NJ completely with Excede 12 and no longer offer the lower speed tier. That is consistent with what I see on their Web site.

John

---

**From:** New Jersey Broadband Data Collection Program  
**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

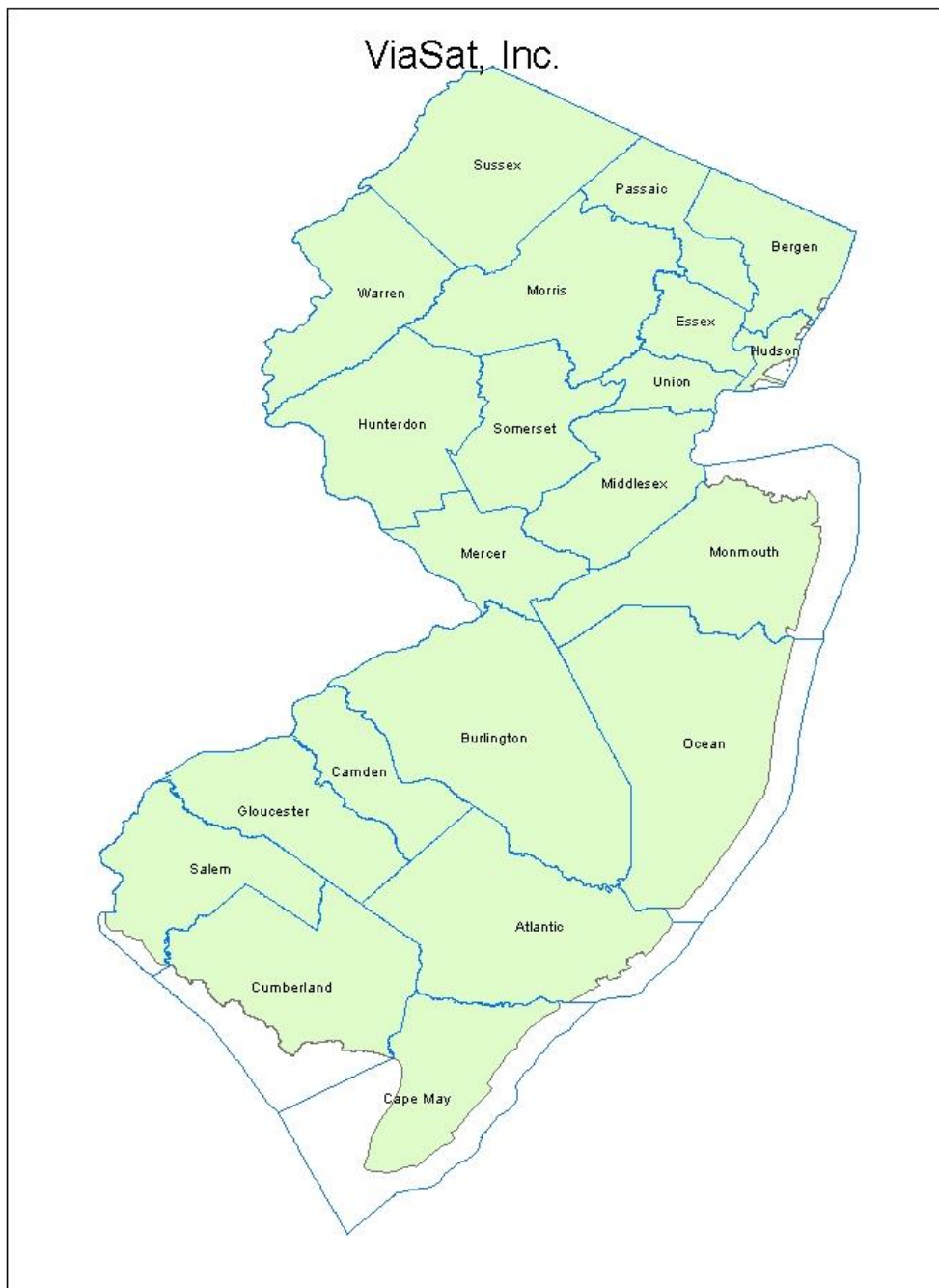


Manager – NJ BB Data Collection

Applied Communication Sciences

**Section 6: Notes and Open Issues**

**Section 7: Overview Map of Submitted Data**



### **7.30 Verizon Wireless**

Received: July 2014

Submission date: October 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		Cellco Partnership
	“Doing business as” name		Verizon Wireless
	FRN		0003290673
	Holding company name		Verizon Communications Inc.
	Holding company number		131425
FOR WIRELESS			
Filetypes	Shape file 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 - inferred from the file names).		Supplied 3 shape files (zip archive) with 21 rows. Shape files use projection GCS_WGS_1984.
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	
	Upstream max adv	500 kbps - 800 kbps	
	Downstream max adv	600 kbps - 1.4 mbps	
	Upstream typical	500 kbps -800 kbps	
	Downstream typical	600 kpbs-1.4 mbps	Ranges provided instead of single values. Lower end of the Down Typical range is OUTSIDE of the Broadband speed

	Subscriber-weighted	Not provided	definition (will use upper end values for the time being).
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)	
	Upstream max adv	5 mbps	Ranges provided instead of single values.
	Downstream max adv	12 mbps	
	Upstream typical	2 mbps -5 mbps	
	Downstream typical	8.5 mbps	
	Subscriber-weighted	Not provided	
Technology Type	Spectrum (Mhz, FCC code)		<p>Code 80 [ Cellular (824-849Mhz, 869-894Mhz); PCS 1850-1990Mhz; AWS (1710-1755Mhz, 2110-2155Mhz); 700 (757-758Mhz, 776-779Mhz, 787-788Mhz, 805-806Mhz) ]</p> <p>One of the provided Spectrum ranges (1<sup>st</sup> set) is 869-894 Mhz, which is not within ranges defined for that spectrum</p> <p>The shape files 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.</p>
	Comments:		

#### INTERCONNECTION DATA: NONE

Comments:

### Section 3: Submission File Details


























A link to download the data was supplied by email.

Received overview file “Verizon Wireless Broadband Update – Email Content.pdf” with spectrum and speed information.

Received 3 zip files:

- NJ\_evdo.zip (1,467 KB)
- NJ\_aws.zip (1,764 KB)
- NJ\_lte.zip (1,669 KB)

3 shape files contain the following contents. The NJ\_EVDO shape file has 21 polygons, the NJ\_aws shape file has 21 polygons, and the NJ\_lte shape file has 21 polygons.

Name	Size
 NJ_aws.dbf	1 KB
 NJ_aws.prj	1 KB
 NJ_aws.shp	1 KB
 NJ_aws.shx	1 KB
 NJ_aws.shp	3,837 KB
 NJ_aws.shp.xml	246 KB
 NJ_aws.shx	1 KB
 NJ_aws.zip	1,764 KB
 NJ_evdo.dbf	1 KB
 NJ_evdo.prj	1 KB
 NJ_evdo.shp	1 KB
 NJ_evdo.shx	1 KB
 NJ_evdo.shp	2,007 KB
 NJ_evdo.shp.xml	19 KB
 NJ_evdo.shx	1 KB
 NJ_evdo.zip	1,467 KB
 NJ_lte.dbf	1 KB
 NJ_lte.prj	1 KB
 NJ_lte.shp	1 KB
 NJ_lte.shx	1 KB
 NJ_lte.shp	2,451 KB
 NJ_lte.shp.xml	212 KB
 NJ_lte.shx	1 KB
 NJ_lte.zip	1,669 KB
 Verizon Wireless Broadband Update - Email Content.pdf	48 KB

### Section 4: Data Validation, Transformation and Loading

## NTIA Table BB\_Service\_Wireless

Loaded from the supplied shape files. 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"
7. Spectrum:
  - a. NJ\_EVDO: Verizon Wireless provided a statement in their cover letter about their licensed spectrum. Searching on the web indicates that EV-DO uses frequencies 850 MHz and 1900 MHz. The NTIA data model has a single column for spectrum. No mapping is provided for frequency 850MHz. Frequency 1900MHz corresponds to NTIA “SPECTRUM USED” code value 3.
  - b. NJ\_AWS: Verizon Wireless provided a statement in their cover letter about their licensed spectrum, 1710-1755 MHz and 2110-2155 MHz.
  - c. NJ\_LTE: Verizon wireless web site advertises "nationwide contiguous 700 Mhz 4G spectrum. The NTIA coding table provides value 2 for 700 MHz spectrum.
8. Speeds:
  - a. NJ\_EVDO: The maximum advertised speeds provided in the cover letter are 600 kbps - 1.4 mbps down and 500 - 800 kbps up. The typical speeds are provided as ranges: 600k to 1.4 mbps down and 500 kbps-800 kbps up. For max adv speeds we encoded the submitted down speed as value 3 (range 768k-1.5Mbps) and encoded the submitted up speed as value 2 (range 200-768kbps).
  - b. AWS\_NJ: The supplied Word document suggests the speeds are the same as LTE.
  - c. 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).
9. The only data imputed was the state abbreviation.
10. Set the endusercat column to 5.

## Section 5: Clarification Questions and Responses

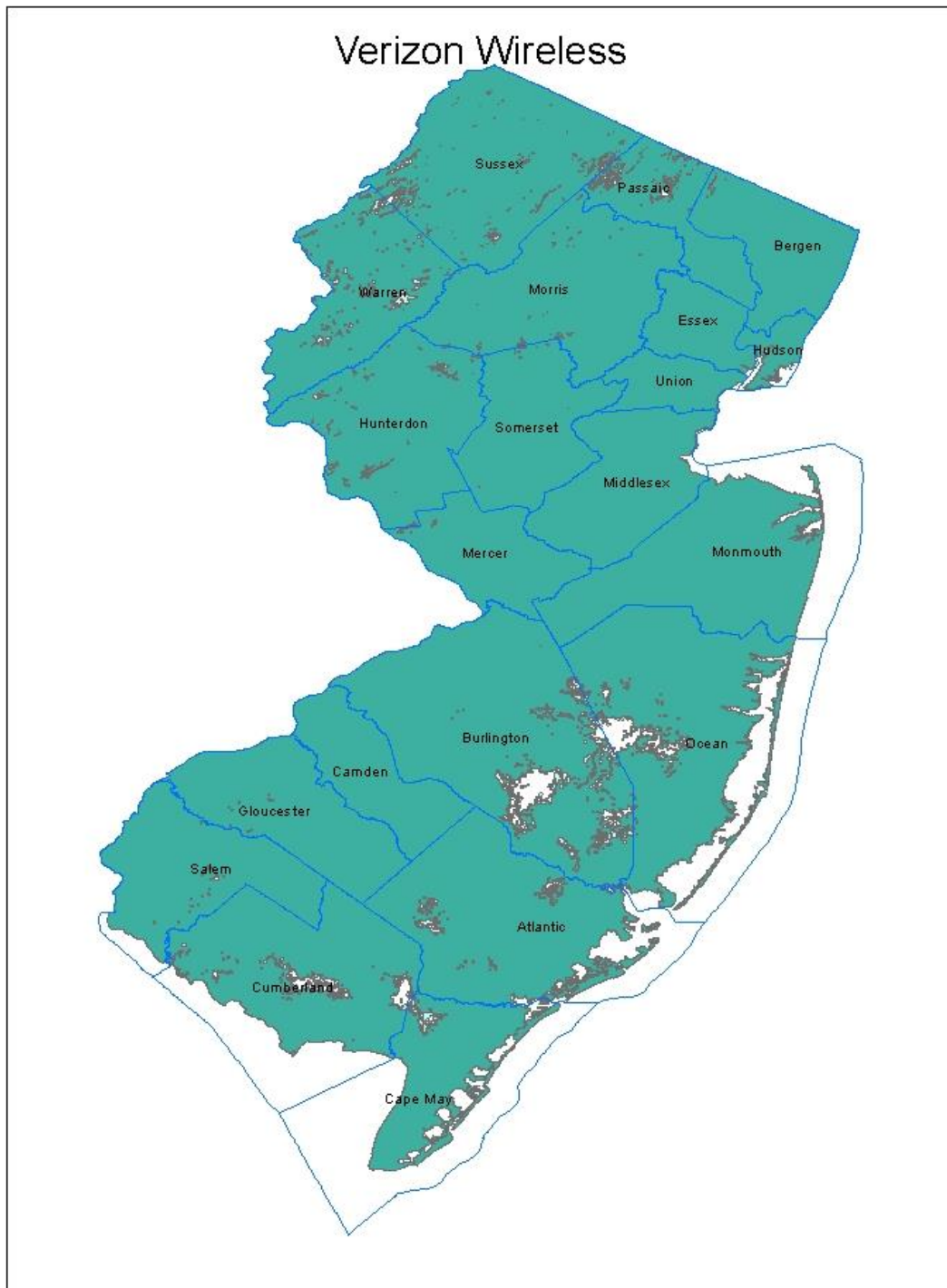
We received a warning on the wireless shape record for the combination of downstream speed code of 7 (10-25 Mbps) with a transtech code of 80 (Mobile Wireless). The maximum advertised speeds provided in the cover letter that came with the provider’s submission are 12

mbps down and 5 mbps up. The typical speeds are provided as ranges: 8.5 mbps down and 2-5 mbps up.

## **Section 6: Notes and Open Issues**



## Section 7: Overview Map of Submitted Data



### **7.31 Xchange Telecom**

Received: February 2014

Submission date: October 2014

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

#### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy xchange\_apr2014.BB\_Service\_CensusBlock to xchange\_oct2014.BB\_Service\_CensusBlock.

#### **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:

1. 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.
2. 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy xchange\_oct2012.BB\_Service\_CensusBlock to xchange\_apr2013.BB\_Service\_CensusBlock.

### For October 2012:

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

### Section 1: NDA Status

None

### Section 2: Submission Overview

AVAILABILITY DATA				
ID	Provider name			Xchange Telecom Corp
	“Doing business as” name			Xchange Telecom
	FRN			0006831713
FOR WIRELINE				
Filetypes				
File size				
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	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.
	Typical-upstream			
	Typical-downstream			
	Advertised-upstream		2 Mbps (code 4)	
	Advertised-downstream		10 Mbps (code 7)	

	Subscriber-weighted-nominal speed			
Technology Type	ADSL (code 10)			
End-user specification	In response to inquiry, provider reported residential and small business.			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				
Transport Type				
Data Rates/Capacity				
Location				
Comments:				

### Section 3: Submission File Details

Received 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

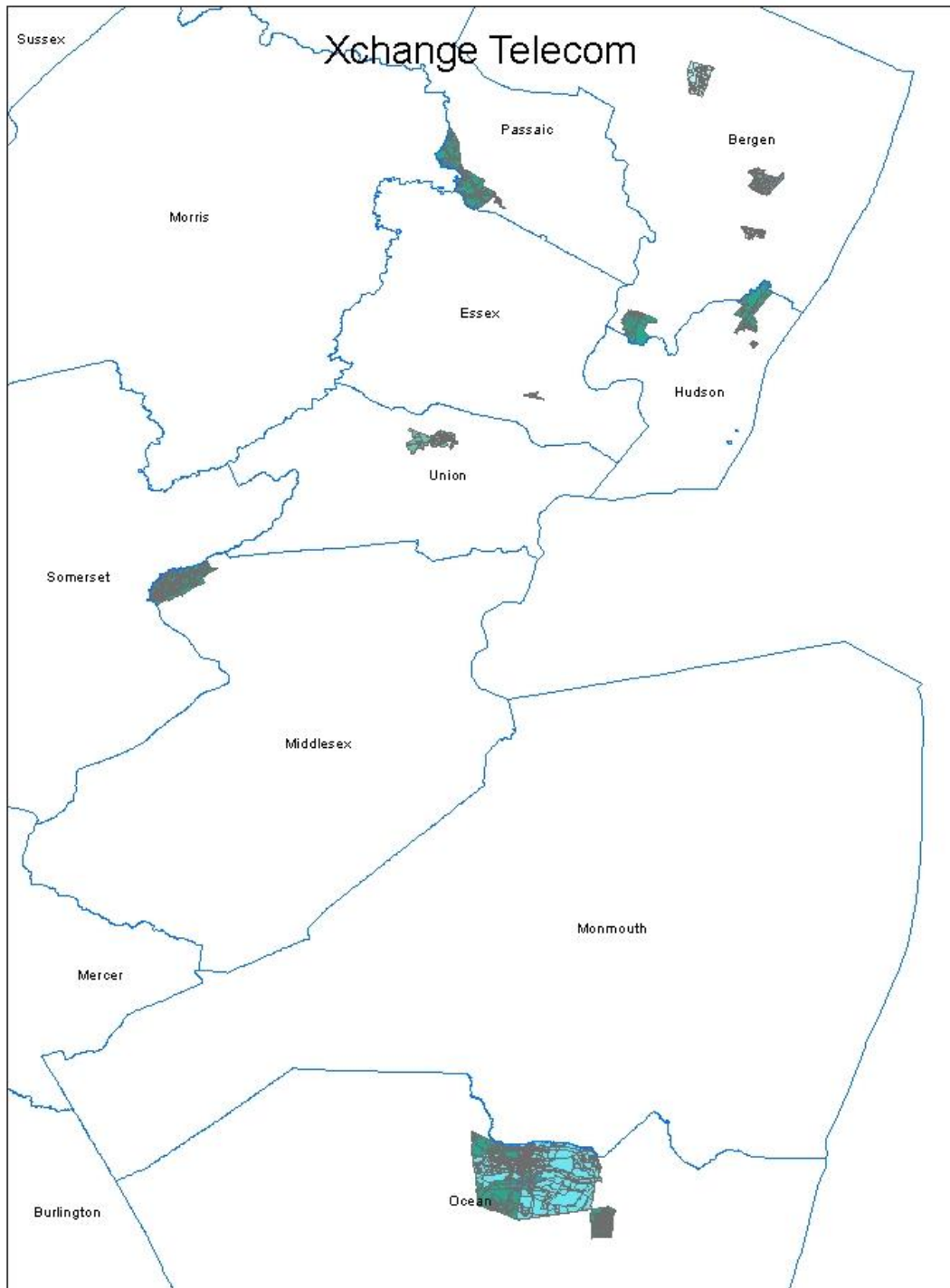
Internal processing notes:

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



### **7.32 XO Communications**

Received: July 2011

Submission date: October 2014

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

#### **For October 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:

1. Used ESRI: Data Management Tools->General->Append with NO\_TEST schema type to copy xocomms\_apr2014.BB\_Service\_CensusBlock to xocomms \_oct2014.BB\_Service\_CensusBlock.

#### **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:

1. 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:

1. 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.
2. 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:**

1. 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:****NTIA Table BB\_Service\_CensusBlock**

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



## Notes

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

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

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

## NTIA Table BB\_Service\_CensusBlock

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

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				
File size				
Speeds	Type		Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode,etc)	
	Typical-upstream		census block	
	Typical-downstream		census block	
	Advertised-upstream		census block	
	Advertised-downstream		census block	
	Subscriber-weighted-up		Not provided	
	Subscriber-weighted-down		Not provided	
	Technology Type	Entered codes 1, 2, and 3, which are not valid NOFA TechTrans codes.		
End-user specification	Business (444 entries), Residence (5 entries)			
Comments:				
INTERCONNECTION DATA				
ID				
File size				
Ownership				

<b>Transport Type</b>	
<b>Data Rates/Capacity</b>	
<b>Location</b>	
Comments: Not provided	

### Section 3: Submission File Details

Received 1 file by SECURE UPLOAD.

Size	Name
41358	NJBroadbandData63009.xlsx

### Section 4: Validations and Results

The spreadsheet provides census block IDs and associated max adv and typical speeds. The last two rows of the sheet are different from the 447 data rows proceeding them, and one of those last two is in New York. The DBA name looks unusual and the technology of transmission codes are not valid. After receiving clarification by email we created a corrected spreadsheet based on the original submission as follows:

1. Dropped the last two rows that have addresses instead of provider name, DBA name, etc.
2. Changed DBA Name entries to "XOCSI"
3. Changed technology of transmission codes: 1 to 10, 2 to 20, and 3 to 30.

### Section 5: Data Transformation and Loading

#### NTIA Table BB\_Service\_CensusBlock

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

<b>Table Column</b>	<b>Data Source / Transformation</b>
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 (1 <sup>st</sup> 3 digits)
TRACT	Populated from column census_block (next 6 digits)
BLOCKID	Populated from column census_block (last 4 digits)
BLOCKSUBGROUP	Set to null
FULLFIPSID	As supplied in column census_block
TRANSTECH	As supplied in column Tech Code
MAXADDOWN	As supplied in column MaxDownload
MAXADUP	As supplied in column MaxUpload
TYPICDOWN	As supplied in column TypDownload
TYPICUP	As supplied in column TypUpload
SHAPE	Copied from Census Bureau TigerLine 2010, As matched by Census block ID

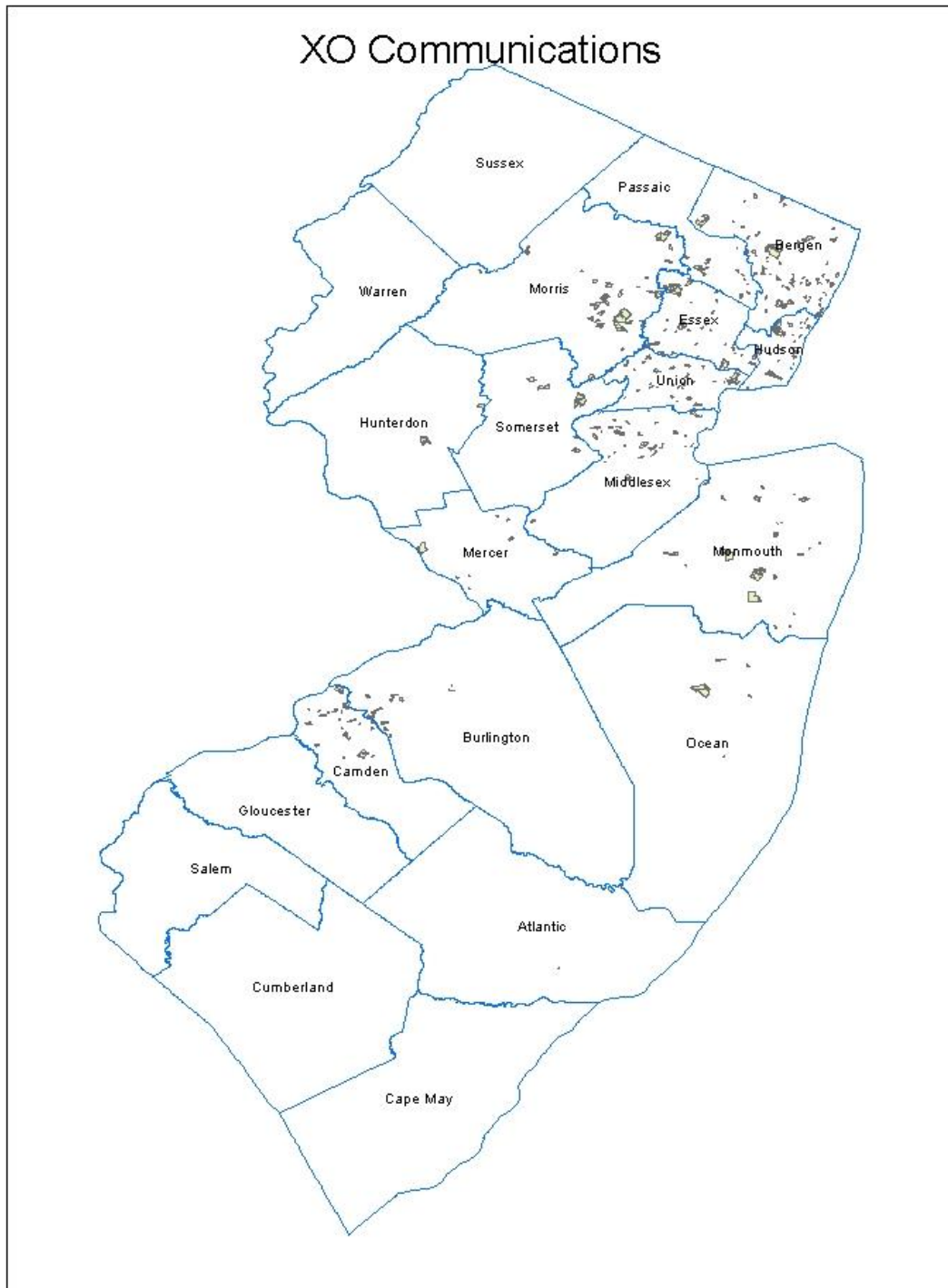
Internal processing notes:

1. No duplicate census blocks were found.

## **Section 6: Clarification Questions and Responses**

## **Section 7: Notes and Open Issues**

## Section 8: Overview Map of Submitted



### 7.33 Zayo Group, LLC

Received: September 2014

Submission date: October 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

MAPPING DATA		
ID	Provider name	Zayo Group, LLC
	“Doing business as” name	Zayo Group, LLC
	FRN	0016555849
FOR WIRELINE		
Filetypes	Txt, xls, pdf, etc.	One .csv file
File size	Number of records, data elements	52 data records
Speeds	Type	Spatial Resolution (address, street seg, census block, RSA/MSA, zipcode)
	Adver down	Census block
	Adver up	Census block
	Typical down	Census block
	Typical up	Census block
	Subscriber-weighted	Not provided
Technology Type	DOCSIS, xDSL, fiber, etc.	Fiber to the End User
End-user specification	Business, consumer, gov’t etc	4 - Medium or Large Enterprise

Comments:		
<b>INTERCONNECTION DATA</b>		
<b>ID</b>	Provider name “Doing business as” name FRN	
<b>File size</b>	Number of records, data elements	
<b>Ownership</b>	Leased/owned	
<b>Transport Type</b>	Fiber, wireless, copper	
<b>Data Rates/Capacity</b>		
<b>Location</b>	Street address, lat/lon, elevation	
Comments:		
<b>DATA COMPLETENESS</b>		
<b>Data Validation/ Verification</b>		

### Section 3: Submission File Details

Data received in form of one.csv files – the main one NJ-Broadband Request Sept 5, 2014.csv (14KB) containing 52 data records with record 1 header.

### 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
STATEFIPS	As supplied in column Census State
COUNTYFIPS	CensusCountyFips)
TRACT	Populated from CensusTract
BLOCKID	Populated from CensusBlock
FULLFIPSID	Census_FIPS
TRANSTECH	As supplied in column Tech_Trans
MAXADDOWN	As supplied in column DownloadSpeed
MAXADUP	As supplied in column UploadSpeed
TYPICDOWN	As supplied in duplicated column Set to null
TYPICUP	As supplied in duplicated column Set to null
ENDUSERCAT	Set to 2
SHAPE	As found in Census Bureau year 2010 reference data

Internal processing notes:

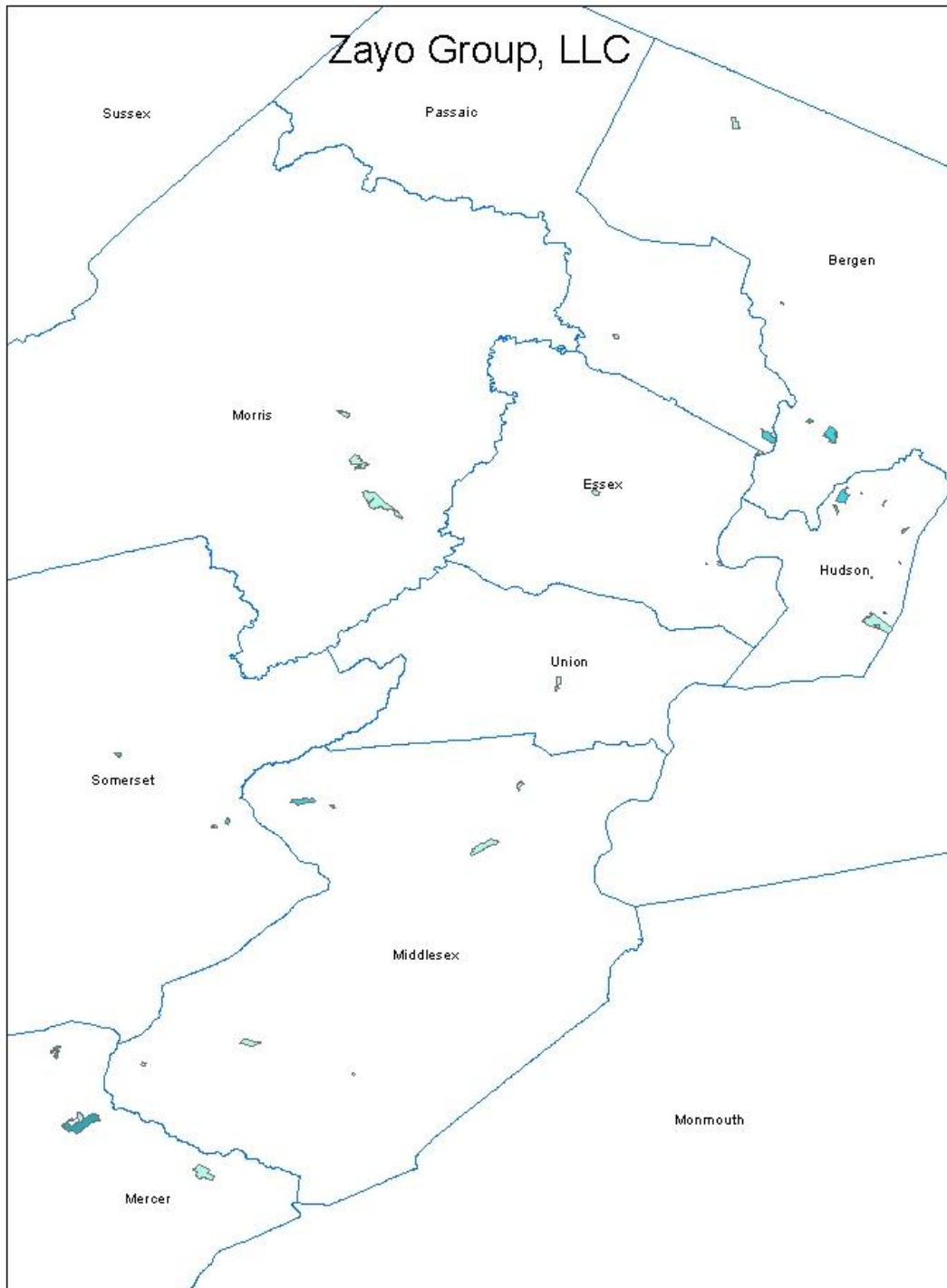
1. Discarded 15 duplicate FULLFIPSID block records. Only 37 have unique FULLFIPSID.
2. Discarded 0 records with null area. Loaded 37 with area  $\leq 2.0$  square miles.
3. TYPICDOWN and TYPICUP are all nulls.

## Section 6: Clarification Questions and Responses

## Section 7: Notes and Open Issues



## Section 8: Overview Map of Submitted Data



## 8 Appendix B: 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 provided reference data that consisted of 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. The broadband information was supplied by the institutions via our Web site, in response to surveys or 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 and consolidated broadband information from multiple sources: data from the NJ DOE surveys collected via NJ-Trax in 2014, data collected via a survey by the NJ DOE in October 2012, and data collected from our website in 2011. The reference data came from the National Council for Education Statistics (NCES). For libraries too we obtained and consolidated data from multiple sources: broadband data from the New Jersey State Library, broadband data from the Libraries of Middlesex Automation Consortium, data received in response to a survey conducted by NJOIT and data from the USAC eRate website. The reference data came from the Institute of Museum and Library Services (IMLS). For healthcare, the reference data came from the State of New Jersey Department of Health website, Centers for Disease Control website and Surescripts website. The broadband data was received as part of NJOIT's survey. For Public Safety Answering Points (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.

**Table 2. CAI Submission Summary**

CAI Category	Complete Records	Total Records
School K-12	2594	3892
Libraries	330	455

Medical/Healthcare	36	9668
Public Safety	69	374
University	41	174
Other – State and Local Government	1692	1696
Other – Non Government	8	8

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.

## **8.2 Local Government and Non-Government Organizations**

The procedure and data in this section are unchanged from the April 2014 submission.

1. There were no new submissions to the web site since the April 2014 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 one 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**

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 Geocoder 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 1384 Acute Care and 774 Long Term Care facilities.
2. Obtained a list of pharmacies from the Surescripts Web site. The pharmacies were geocoded using the Yahoo Geocoder 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.
  - a. Merged the latest list of pharmacies with the list submitted in April 2014. Checked the ones that did not overlap to ensure they are still open and also performed manual checking to eliminate duplicates that were caused by changes in the name of the pharmacies between the submissions, e.g. Shoprite of Aberdeen #613 and Shoprite Pharmacy #613.
  - b. This resulted in a list of 1994 geocoded 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. The remaining labs were geocoded using the Yahoo Geocoder API and the Google Geocoder API. This resulted in successfully geocoding 5588 labs using the flow CLIA\_Labs\_Geocode.arroyo.
  - b. Of this list, we eliminated the labs that were located in hospitals, long-term-care facilities and pharmacies because of the overlap with the other sub-categories and because the NTIA data model only identifies a single category for all healthcare institutions.
4. The four lists formed the reference geo-located list for healthcare institutions.
5. Obtained broadband data on 38 healthcare anchor institutions via the survey performed by NJOIT. All of these were in the acute care or long term care sub categories.
6. Merged reference data with the broadband data from the survey and that 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 from across multiple submission time frames. (Files lib\_20110323-edit.xml and lib\_20110907.xml)
  - a. Performed exact match between reference 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 Healthcare\_OIT\_merge.arroyo.  
Output is in file CAI\_Healthcare\_Submitted\_final.xls.
7. Produced about 9746 healthcare records with 43 that included broadband information.

## **8.5 Higher Education**

1. Obtained the following data from the named sources in August 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 171 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. Used the broadband data from the NJEdge<sup>3</sup> received in March 2014. 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: 175 stored institutions in HigherEd\_Merged\_Updated.xlsx.

## 8.6 Libraries

1. Obtained the following data from the named sources

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<sup>3</sup> 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 Super Storm 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 for the Spring 2014 submission. We did NOT purchase revised information for the Fall 2014 submission.

- a. File Public Libraries Survey Fiscal Year 2012 from [http://www.imls.gov/research/pls\\_data\\_files.aspx](http://www.imls.gov/research/pls_data_files.aspx). Used file puout12a.xls
  - i. Manually extracted 456 records for the state of New Jersey
  - ii. Used the following data items:
    1. FSCSKEY
    2. FSCS\_SEQ
    3. LIBNAME
    4. ADDRESS
    5. CITY
    6. ZIP
    7. LATITUDE
    8. LONGITUDE
- b. Broadband data on 119 libraries obtained as a result of the survey conducted by NJOIT in 2014. 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
- c. Received confirmation that the data from the New Jersey State Library (JerseyConnect) and Libraries of Middlesex Automation Consortium was unchanged and included:
  - i. List of 84 connections from the New Jersey State Library that provides broadband connectivity via a service called JerseyConnect. The data consisted of:
    1. Library name
    2. Address
    3. Type of connection
    4. Bandwidth of connection
  - ii. List of 32 libraries and their broadband connections from the Libraries of Middlesex Automation Consortium (*Libraries of Middlesex telcommutation network 2013.docx*). (Confirmed with the organization that there was no change since the last submission.) The data consisted of:
    1. Library name
    2. Internet Provider
    3. Down Speed
    4. Up Speed

The technology was inferred from the provider type (cable or fiber) and the speeds.



- d. Results from an earlier 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. We reused the broadband data scraped from the USAC website that was obtained for the April 2014 submission.

- i. 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:

- 1. Groups of eligible institutions (schools and libraries) in New Jersey per Form 471
- 2. CAI IDs for the institutions

3. 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. The processing steps were as follows (LibrariesApr2014\_new\_merge.arroyo):
    - a. Started with the library data submitted in April 2014 as many of the sources of data had no updates. Merged the April 2014 data with the new data obtained via the NJOIT survey using the name of the library as the key. We did not modify the libraries that listed their source of data as JerseyConnect or LMxAC, based on the assumption that data from JerseyConnect and LMxAC were of intrinsically better accuracy.
    - b. Next merged the data from the previous step, which consisted of the April 2014 submission merged with the new survey data, with the latest reference data from IMLS based on the CAI ID.
    - c. Checked the output of the merge against the list of closed libraries and eliminated them from the data.
    - d. Eliminated the small number of bookmobiles from the data.
  3. Final results: 455 libraries and 330 libraries with broadband data stored in LibrariesIMLS2012\_BB\_merge\_final.xlsx \_

## **8.7 K-12 Schools**

For the Fall 2014 round, we started off with the Spring 2014 school data in order to preserve the manual checking and geocoding that was performed in that round. We compared it with the new data and produced the final submission after validation.

### **8.7.1 Fall 2014 Schools Process**

The processing of K-12 schools, both public and private, is described in this section.

1. We obtained new data from the named sources:
  - a. Broadband connectivity data on over 2700 New Jersey public and some private schools received in September 2014 by the NJOIT from the NJ DOE via NJTRAx. 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
  - b. 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 1134 institutions with the following fields:

- i. Name
    - ii. Address: Street, City, State, ZIP
    - iii. PSS\_ID
  - c. Latest list of public/charter schools from NCES. Table included 2599 schools. (<http://nces.ed.gov/ccd/schoolsearch/>)
    - i. Name
    - ii. Address: Street, City, State, ZIP
    - iii. NCES School ID
2. We used the Spring 2014 submitted data (Schools\_NCES\_DOE\_Web\_all.xlsx), which consisted of 3935 public, private and charter schools. This included broadband data consolidated from the February 2014 NJTRAx data, 2012 NJ DOE survey data and data from our website from 2011.
  3. First merged the NJTRAx district level data with the NJTRAx school data. Where the district indicated that schools in the district used the district head end as ISP, we used the district's ISP and technology for the school. If not, the ISP and technology came from the individual school's data, if available. The download speed came from the school's Internet speed listed in Mbps. The output was a list of schools with school name, school ID (combined ID), address, district, county, technology, download speed.
  4. Merged the new September 2014 school data with the April 2014 submitted data using the combined code as the key and classified and processed the data as follows:
    - a. Missing in September: These were schools that were in the Spring submission that were included in the latest data from NJTRAx. Of the 1154 schools that fell into this category, the bulk were private or public schools whose data came from other sources, and also possibly schools that had closed down.
    - b. New in September: These were schools that appeared for the first time in the September data and there were 15 such schools.
    - c. Matched: These were schools that appeared both in our April 2014 submission and in the latest NJ DOE data. For these schools, we further compared the download speeds in the two sets of data and updated the speed and technology based on the recent data, except in certain cases where the new data was incomplete (e.g. no technology or unknown technology) or the new download speed went down to 0 or was an unusual number.
  5. Merged the output of the previous step first with the NCES data on public schools and then with the NCES data on private schools. This provided the NCES ID for the schools. For the schools that fell out of this merge we performed extensive manual checking, especially on the schools that were missing in the September data. We utilized web searches to determine if the schools were still open (existence of website, news articles indicating closure or reopening, and if they were still listed on their district websites). For charter schools we checked for existence by comparing against a list of charter schools in New Jersey obtained from the NJ DOE website (<http://www.nj.gov/education/chartsch/allcharters.htm>).

6. Geolocated the schools that remained from the earlier analysis steps. We finally ended with 3920 schools, where 2775 also included broadband information (CAI\_Schools\_Submitted\_final.xlsx).

## **8.8 Public Safety Organizations**

The procedure in this section is unchanged from the previous submission. .

1. Obtained the following data from the named sources:
  - a. List of local and state public safety organizations obtained from NJ State 911 Commission ([http://nj.gov/911/clecs/psap\\_info.html](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 one 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”.

This additional validation resulted in the elimination of some records resulting in the final counts listed in Table 1.

## 9 Appendix C: Third-Party Comparisons

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

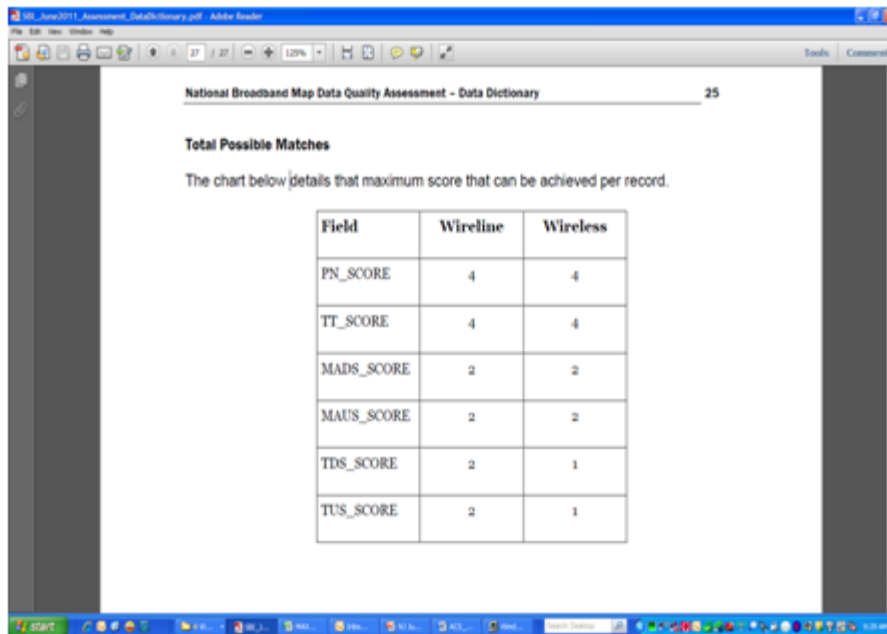
The following is a set of slides that was assembled to describe the analysis that was conducted to address discrepancies identified between NJBB reported data and third-party information obtained by a contractor to NTIA.

## NJ June 2011 Assessment Summary

- Based on government provided assessment that used data from third party sources for comparison
  - Appears that there were 4 sources, not all provided all the data
  - Data dictionary indicates max possible comparisons for each field (slide 3)
  - Note that even within these, the number of available data sources were lower for some records
- Database overview:
  - New fields appended to submitted datasets (BB\_Service\_Address, BB\_Service\_CensusBlock, BB\_Service\_RoadSegment)
    - PN\_SCORE (provider name comparison score)
    - TT\_SCORE (Tentech comparison score)
    - MADS\_SCORE (Max adv upstream 50r comparison score)
    - MAUS\_SCORE (Max adv downstream 50r comparison score)
    - TDS\_SCORE (Typical upstream 50r comparison score)
    - TUS\_SCORE (Typical downstream 50r comparison score)
  - Score field values
    - 0 = no match
    - 1 to 4 = number of matches
    - 7 = un-scored record (no analysis)
  - Comparison data is not provided – only resulting match or no match
  - When PN\_M\_COUNT=0, TT\_T\_COUNT, MADS\_T\_COUNT, MAUS\_T\_COUNT are set to 0

## Notes on Comparison Data

- Summary tables of unmatched records in NJ\_June2011\_Summary.pdf cover both wireline and wireless
- Wireless\_by\_Block table gives the wireless data by census block (2010 Census blocks)
- Wireless results include the number of comparison datapoints available for each element
  - \*\_M\_COUNT: number of matches in our data, e.g. TT\_M\_COUNT
  - \*\_T\_COUNT: number of possible matches, i.e. number of comparisons that were made for each field, upper bound of achievable score for each record, e.g. TT\_T\_COUNT
- Issues with comparison analysis results
  1. Wireline data does not include number of available comparison values, i.e. upper bound on achievable score for each record
  2. With wireless, where upper bound is provided, how to interpret results where we achieved a score > 0 but less than the bound – appears that reference datasets were not aligned
  3. Database only provides number of mismatches - No way of telling which providers overstated their speed vs understated



## 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 <sup>1</sup>	317278	525294	2
Max Adv Up	0 <sup>1</sup>	248281	525294	2
Typical Down				
Typical Up				

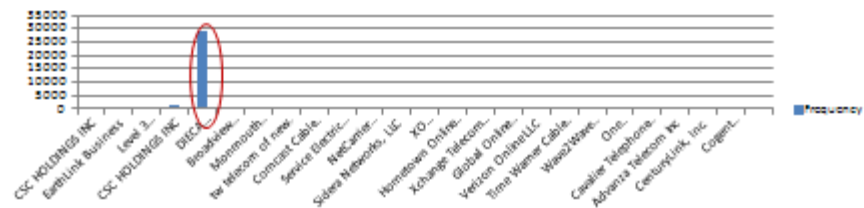
<sup>1</sup>Score of 4 is not possible for this element

## Provider Name No Match

PN\_SCORE=0  
BB\_Service\_CensusBlock



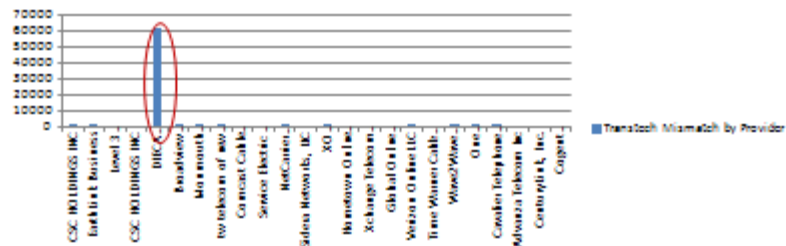
Frequency of Provider Name No Match



## Transtech No Match

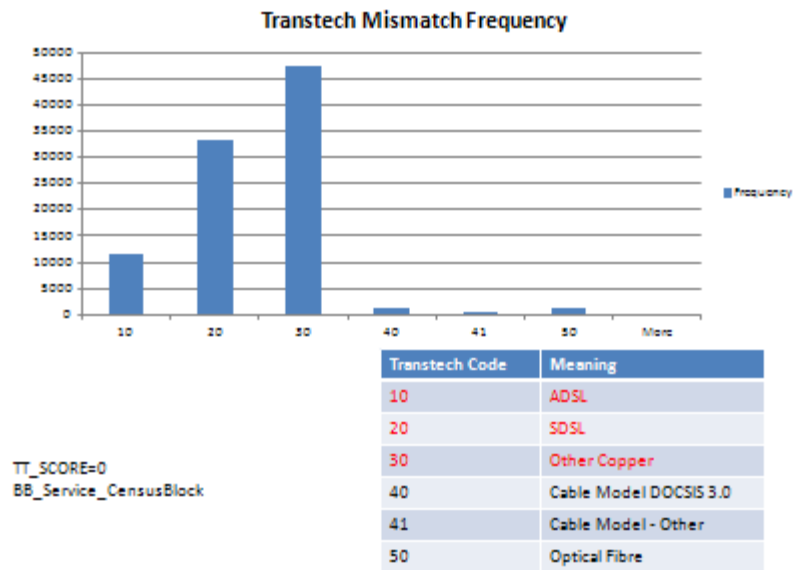
- Analyzed db BB\_Service\_CensusBlock
- Transtech mismatches are counted only for the cases where provider name matched
- TT\_SCORE=0 when PN\_SCORE>0
- Again DIECA has the most mismatches

Transtech Mismatch by Provider



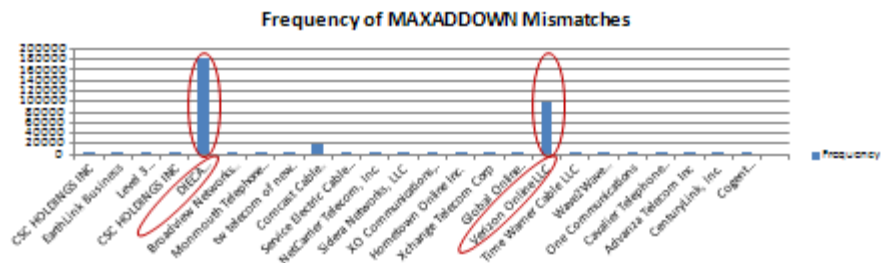


## Transtech Mismatch by TT Type



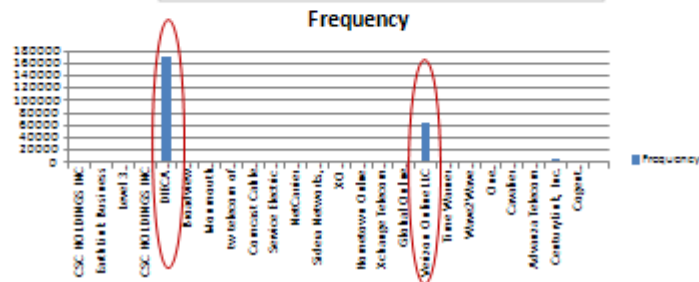
## Max Adv Down Mismatch

MADS\_SCORE=0  
BB\_Service\_CensusBlock



## Max Adv Up Mismatch

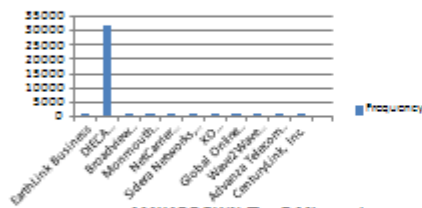
MAUS\_SCORE=0  
BB\_Service\_CensusBlock



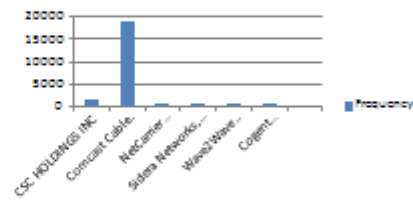
## MAXADDOWN Non-Green Tiers

- 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)

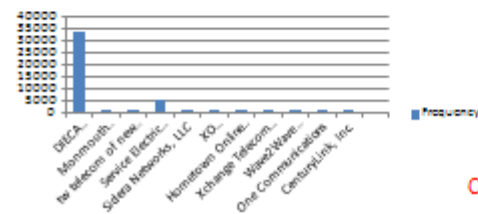
MAXADDOWN Tier 4 Mismatches



MAXADDOWN Tier 10 Mismatches



MAXADDOWN Tier 7 Mismatch

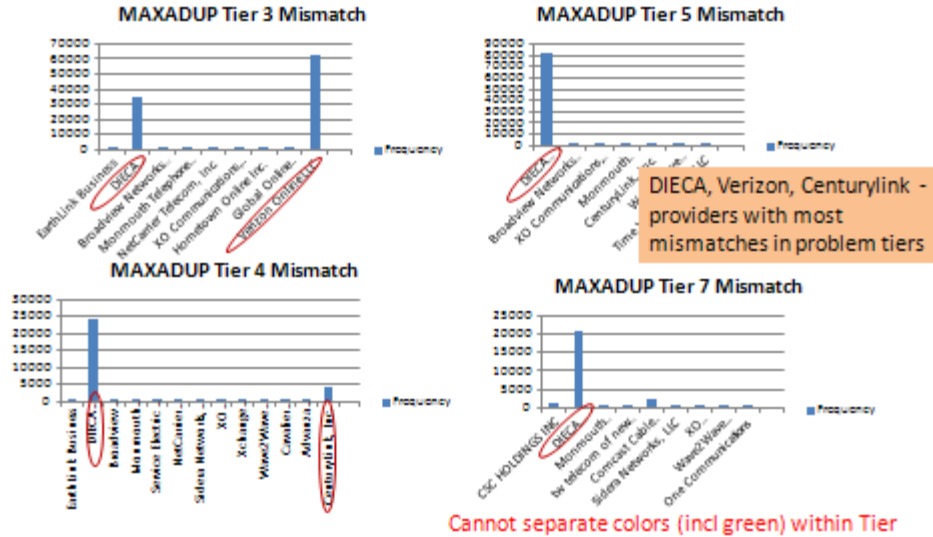


DIECA, Service Electric,  
Comcast Cable - providers  
with most mismatches in  
problem tiers

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)



## 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	4
	6	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	Fiber	Other Copper	SDSL	ADSL
78625	0	0	12012	29811	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.

- The file geodatabase contains data current as of December 31, 2011.
- 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.
  - The census block level scoring is contained in a new table named RoadSegment\_by\_Block.
  - 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.
  - The following fields have been dropped from BB\_Service\_RoadSegment
    - PN\_SCORE
    - TT\_SCORE
    - MADS\_SCORE
    - MAUS\_SCORE
    - TDS\_SCORE
    - TUS\_SCORE
- 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
  - PROVNAME (updated)
  - DBANAME (added)
  - FRN (added)
  - TRANSTECH (updated)
  - MAXADDOWN (added)
  - MAXADUP (added)
  - TYPICDOWN (added)
  - TYPICUP (added)

## Dec 2011 Unmatched MADS

=====Un-matched Maximum Advertised Downstream Records=====

	Competition Speed Tier																					
SBI Speed Tier	Tier 1		Tier 2		Tier 3		Tier 4		Tier 5		Tier 6		Tier 7		Tier 8		Tier 9		Tier 10		Tier 11	
	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%	75,303	8.1%	33,912	3.7%	103,595	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%	5,117	0.6%		0.0%	11,402	1.2%	50,296	5.4%	94,682	10.2%	26	0.0%	0	0.0%	13	0.0%	0	0.0%
Tier 5	0	0.0%	0	0.0%	5,308	0.6%	29,080	3.1%		0.0%	94,876	10.2%	55,282	6.0%	11	0.0%	0	0.0%	1	0.0%	0	0.0%
Tier 6	0	0.0%	0	0.0%	387	0.0%	4,642	0.7%	7,825	0.9%		0.0%	106,932	11.5%	2	0.0%	0	0.0%	0	0.0%	0	0.0%
Tier 7	0	0.0%	0	0.0%	2,845	0.2%	13,731	1.5%	7,994	0.9%	96,902	10.5%		0.0%	231	0.0%	0	0.0%	5	0.0%	0	0.0%
Tier 8	0	0.0%	0	0.0%	532	0.1%	859	0.1%	234	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%	65,388	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%	57,175	6.2%	0	0.0%		0.0%	0	0.0%
Tier 11	0	0.0%	0	0.0%	0	0.0%	0	0.0%	26	0.0%	0	0.0%	288	0.0%	342	0.0%	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 Unmatched MAUS

=====Un-matched Maximum Advertised Upstream Records=====

SBI Speed Tier	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	
	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	0.0%
Tier 2	0	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	0.0%	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	0.0%	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	0.0%	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	0.0%	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	0.0%	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	0.0%	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	0.0%	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	0.0%
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	0.0%

- 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																							
SBI TRANS TECH	10		20		30		40		41		50		60		70		71		80		90		
	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 Blockgdb: 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 <sup>1</sup>	317278	525294	2
Max Adv Up	0 <sup>1</sup>	248281	525294	2

Mismatches have changed slightly since the previous assessment

PN\_SCORE = 0

Provider Name	Frequency
CSC HOLDINGS INC	18
VeriLink Business	323
Level 3 Communications, LLC	138
CSC HOLDINGS INC	365
DISCA Communications, Inc.	39537
Monmouth Telephone & Telegraph	109
Nw Telecom of New Jersey	2
Comcast Cable Communications, LLC	33
Service Electric Cable TV of NJ Inc.	488
NetCenter Telecom, Inc.	88
XO Communications, LLC	400
Hamdawn Online Inc.	6
Xohango Telecom Corp.	338
Global Online Electronic Services, Inc.	4
Verizon Online LLC	291
Advance 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	Max Adv Up Tier	Frequency
CSC HOLDINGS INC	417		
CSC HOLDINGS INC	5	2	20015
DIECA Communications, Inc.	71894	3	19362
Monmouth Telephone & Telegraph	242	4	10941
Nw Telecom of New Jersey	16	5	29196
Comcast Cable Communications, LLC	2763	6	306
Service Electric Cable TV of NJ Inc.	166	7	78381
NetCarter Telecom, Inc.	11	8	1592
XO Communications, LLC	223	9	13
Homelawn Online Inc.	54	11	418
Xchange Telecom Corp	309		
Verizon Online LLC	77366		
Time Warner Cable LLC	7		
CenturyLink, Inc.	6919		

## 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 NetworkSystems, 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 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 3<sup>rd</sup> 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 it 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 mismatch. 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 mismatch 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 3<sup>rd</sup>-party data comparisons which the NTIA has provided to us. The nature of these 3<sup>rd</sup>-party comparisons is that, in the case of a mismatch, it is not possible to identify which of the mismatching data is correct and which is in error – in other words, a mismatch can essentially be equally likely caused by lack of accuracy in the 3<sup>rd</sup> party comparison data as in our data. Nonetheless, we find the 3<sup>rd</sup> 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, mismatching 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 Wi-Fi, 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. In our view, this logic does not 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, inference 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 3<sup>rd</sup> 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 mismatches with 3<sup>rd</sup> party comparison data.)
- Validation and verification reviews lead to decreased confidence; e.g., the doughnut hole analysis identifies significant number of mismatches in provider data.

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<sup>rd</sup> Party Data Comparisons: Analyze in detail the mismatches identified in the FCC 3<sup>rd</sup> 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 is described in Appendix D. 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 2014. The work described in this appendix focuses 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 shape file. 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 =

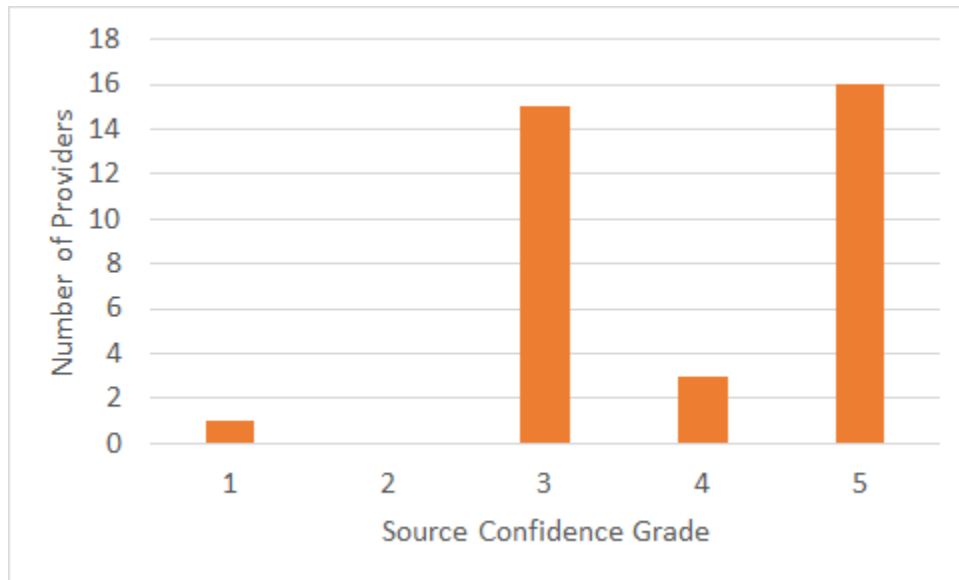
3 = conversion from street address to census block, conversion from large polygon to smaller polygon, county to census block.

4 = conversion from map coordinates to census block, other geospatial revisions required

5 = data submitted as GIS vectors or census block IDs

The distribution of data confidence grades based on source of data is shown in Figure 2. A single provider had a score of 1; all the others had scores of 3 or higher. Duxpond Communications/Jersey Shore Wireless directed us to coverage maps and speed offerings on its Web site.

Duxpond described that the data were obtained with limited drive testing, and thus underrepresent their coverage. While this does represent low accuracy, the fact that it under-rather than over-represented coverage, and, without any other viable way to determine their coverage, this provider was retained to ensure that their service was represented.



**Figure 2: Distribution of Source Confidence Grades**

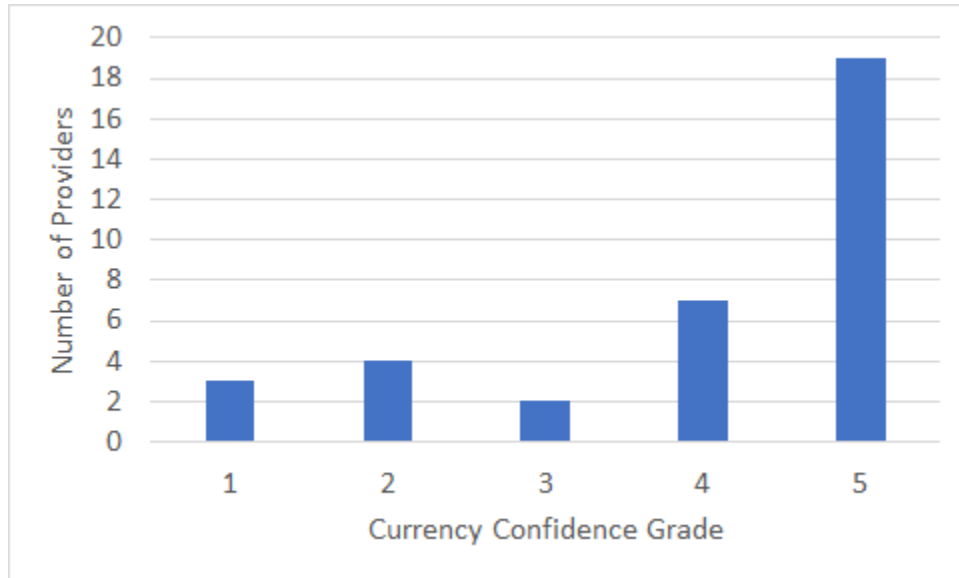
### **11.3 Data Confidence Based on Currency of Data**

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 2014 submission:

- 1 = data are a year or more old and cannot be verified from provider Web site
- 2 = data are a year or more old, but were verified as current from provider Web site
- 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 to confirm that data were still valid.
- 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 3 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.

The majority (19) of providers responded with updated data and several other confirmed that the data we had was up to date, leading to the generally high currency grades. We retained older data for the other providers which we believe is the best available.

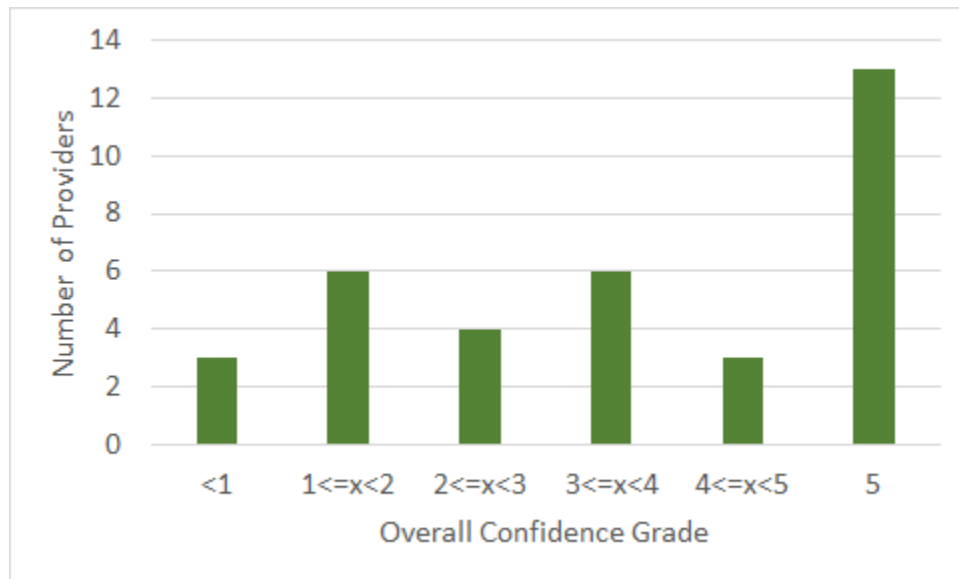


**Figure 3: Distribution of Currency Confidence Grades**

#### **11.4 Overall Confidence**

Our Overall Confidence score is based on both the Currency Confidence grade and the Source Confidence Grade. We multiplied the Currency Grade by the Source Grade and normalized the result to a scale of 5. We assigned a score from 1 (lowest confidence) to 5 (highest confidence) to each provider in the October 2014 submission. Figure 4 shows the distribution of these grades across the 33 providers.

The majority of providers included in the Fall 2014 submission (22) have high overall confidence ( $\geq 3$ ).



**Figure 4: Distribution of Overall Confidence Grades**

### 11.5 Data Confidence Based on Verification

The FCC/NTIA had previously performed a data quality assessment using data from third party sources. We had used that in the past as a basis for provider confidence scoring. The methodology is reported here, but the process has not been applied to the most recent data because we do not have the current third-party data.

The NTIA provided 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.

### 11.5.1 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  $C_x$  = total # of records for FRN =  $\langle x \rangle$

Provider Name mismatch count:

$M1_x$  = # of records where **PN\_SCORE = 0 AND FRN =  $\langle x \rangle$**  for wireline

$M1_x$  = # of records where **PN\_M\_COUNT = 0 AND FRN =  $\langle x \rangle$**  for wireless

Tech Code mismatch count:

$M2_x$  = # of records where **TT\_SCORE = 0 AND PN\_SCORE > 0 AND FRN =  $\langle x \rangle$**  for wireline

$M2_x$  = # of records where **TT\_M\_COUNT = 0 AND PN\_M\_COUNT > 0 AND FRN =  $\langle x \rangle$**  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:

$M3_x$  = # of records where **MADS\_SCORE = 0 AND TT\_SCORE > 0 AND FRN =  $\langle x \rangle$**  for wireline

$M3_x$  = # of records where **MADS\_M\_COUNT = 0 AND TT\_M\_COUNT > 0 AND FRN =  $\langle x \rangle$**  for wireless

Maximum Advertised Upstream Speed mismatch count:

$M4_x$  = # of records where **MAUS\_SCORE = 0 AND TT\_SCORE > 0 AND FRN =  $\langle x \rangle$**  for wireline

$M4_x$  = # of records where **MAUS\_M\_COUNT = 0 AND TT\_M\_COUNT > 0 AND FRN =  $\langle x \rangle$**  for wireless

- (TT\_SCORE > 0) ensures that there is a valid Speed entry to compare against

$W_i$  (i = 1..4) - weight given to each mismatch count by type

$W_1 = 4$  (Provider Name mismatches have a weight of 4 because once there is a mismatch in Provider Name, none of the other 3 types can be matched)

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

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

**Mismatch %  $S_x = 100 * \text{Average} \left( \frac{M1_x * W1}{C_x}, \frac{M2_x * W2}{C_x}, \frac{M3_x * W3}{C_x}, \frac{M4_x * W4}{C_x} \right)$**

This metric  $S_x$  is used to assign a Verification grade to each provider. The weights are used to reflect the dependencies among the mismatch types. For example, in the case where none of the records from a provider have a match on provider name, it is appropriate for the score to be 100%. On the other hand, if the provider has good matching on provider name and tech code, but has poor matching on speed, we expect the mismatch score to be low.

A Verification grade is assigned to the provider from a range of 1 (lowest) to 5 (highest) based on the following criteria:

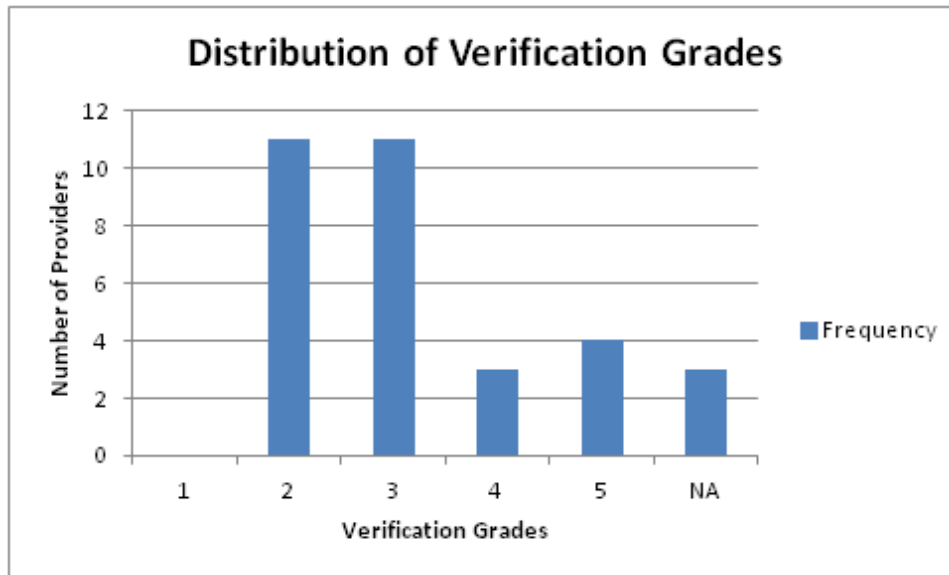
- 5:  $S_x < 1\%$
- 4:  $S_x < 10\%$
- 3:  $S_x < 40\%$
- 2:  $S_x > 40\%$ , source of discrepancies not resolved
- 1:  $S_x > 40\%$ , source of discrepancies resolved to provider data

The Verification grade reflects the confidence we have in the data submitted by the provider based on past performance as assessed using the third party comparison data.

#### **11.5.2 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 is available to NTIA upon request.

### 11.6 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 the first two parts of this methodology to the data from October 2014 submission and the last part to data from our October 2012 submission... In summary, the grades on the Source of the data indicate that most providers are submitting data in a format that gives us good confidence in the data accuracy. The grades on Currency are have slipped a bit over time, perhaps an indication of fatigue on the part of some, generally smaller, providers. Still, the majority of providers have high Currency grades. 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 Test 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.<sup>1</sup>, and as discussed in an earlier document<sup>2</sup>, 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 OOKLA 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 OOKLA 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 subsequently determined that it is a better match to our needs. We designed 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 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. We developed an NDT-based speed-test website architecture deployment plan, constructed a user scenario and a speed test website design to support it. These are presented in the figure below.

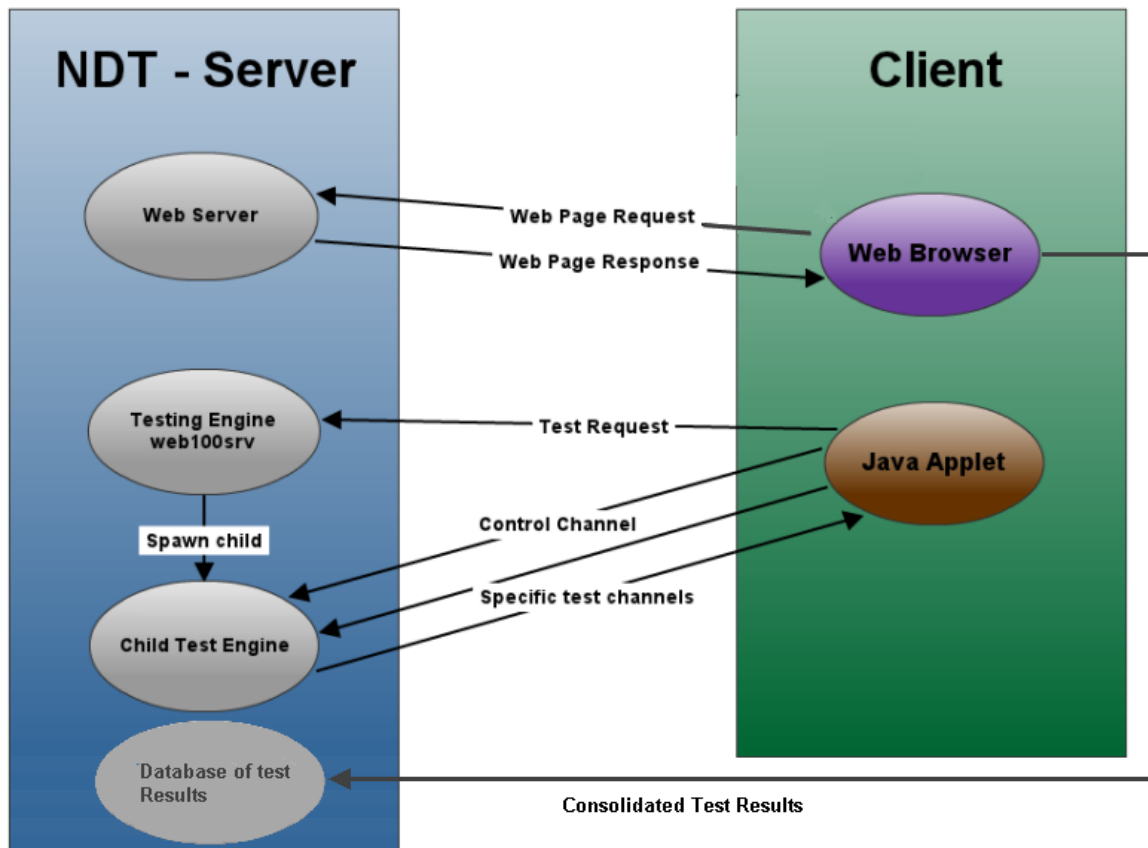


Figure 1. Initial design of NJ broadband mapping speed test website using NDT technology.

*Speed test scenario: Using a web browser, a test-taker accesses the speed test website from a NJ-OIT Broadband Mapping webpage, enters validation data in an online form, runs one or more NDT speed tests, and receives results which, along with the validation data, are also stored by the speed test 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 speed test, otherwise there is little use for speed test 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 addressed 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 details 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 execution. In addition, the New Jersey 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 initially 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 100 MB 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 an 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 headquarters in Basking Ridge, NJ. This is an appropriate approach for a NJ-specific test.

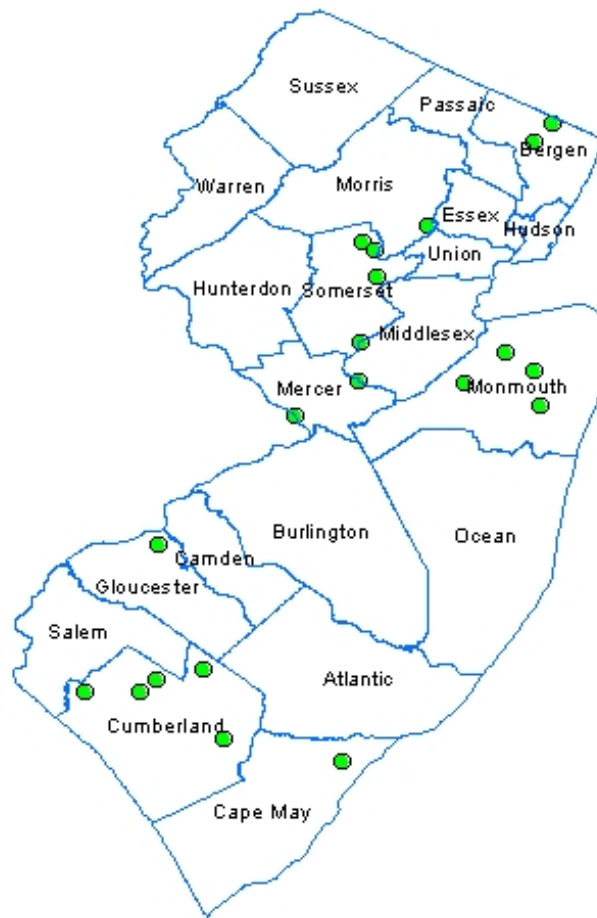
- Performance measurements – The NJ app measures download speed and upload speed. The FCC app measures those speeds and also measures latency and packet loss, via a combined test. Testing of latency and packet loss is available in the NDT software on which the NJ app is based. We chose not to implement 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 results that were more consistent across back-to-back tests 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 – Does that app deal in a reasonable fashion with conditions that can affect the measurements, such as Wi-Fi connectivity, airplane mode, and lack of coverage. The NJ app was designed to recognize and handle these apps at the time of test execution. There was no indication that the FCC app did so, but back-end logic could be designed to filter results to account for these situations.

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/>.

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



**Figure 5: Geographical Distribution of Wired Speed Test Results**

### 12.3.1 Wired Speed Test Results and Analysis

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. The wired speed-test results are shown by the green circles in Figure 5.

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.

An interesting fact we discovered in reviewing our speed-test data is that over 250 tests appeared to be auto-generated, with random strings for the address and city and state specified as New York, NY. These records were discarded.

One way in which we applied our speed test infrastructure was to conduct a series of tests at a single location using the service of a single provider over a limited period of time. We conducted 36 tests using a cable broadband service at a residential location in Somerset County, NJ over a four hour period. Each of the 36 tests was in fact a sequence of three test iterations, and the results reported for each case was the average value obtained across those three tests. The results of this testing, shown in Table 3 below, highlight several points.

- The average speeds, and even the maximum values, are significantly below the provider's advertised speeds.
- When providers offer multiple plans, the observed rates can be well below the maximum advertised rates.
  - The provider offers three different plans. The speeds listed in the table are those taken from the provider's Web site for the customer's chosen plan.
  - The values in the table are well below the maximum advertised rates, which the provider's Web site lists as 101 Mbps down and 35 Mbps up and the provider reports as speed tiers 10 (100 Mbps-1Gbps) and 7 (10 Mbps-25 Mbps).
- The minimum measured upstream and downstream speeds exceed the NTIA-defined threshold for broadband service, but the minimum measured downstream speed does not meet the current FCC definition of 4 Mbps and the average speed does not meet the more recently proposed FCC broadband minimum of 10 Mbps.<sup>4</sup>
- There is significant variability in the downstream speed, as might be expected with a shared technology like DOCSIS. There is significantly less variability in upstream speed.

These observations make clear that the advertised speeds do not tell the full story of broadband service performance.

**Table 3: Results of Repeated Testing of Single Cable Broadband Connection**

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<sup>4</sup> "FCC Chair: Current Definition Of Broadband Isn't Fast Enough", Consumerist, September 18 2014. <http://consumerist.com/2014/09/18/fcc-chair-current-definition-of-broadband-isnt-fast-enough/>. Last viewed September 2014.

	Upstream	Downstream
<b>Advertised Service Speed (Mbps)</b>	5	15
<b>Measured Average (Mbps)</b>	3.42	8.09
<b>Measured Minimum (Mbps)</b>	2.88	3.37
<b>Measured Maximum (Mbps)</b>	3.52	12.34
<b>StdDev (Mbps)</b>	0.11	3.27

### 12.3.2 Wireless Speed Test Results and Analysis

Due to a variety of administrative constraints, we did not conduct any significant wireless speed testing since the Spring submission. We repeat here the information on the tests we conducted earlier in the year.

In a two month period, from mid-January to mid-March 2014, 247 wireless test records were conducted and transmitted to the server. 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

```

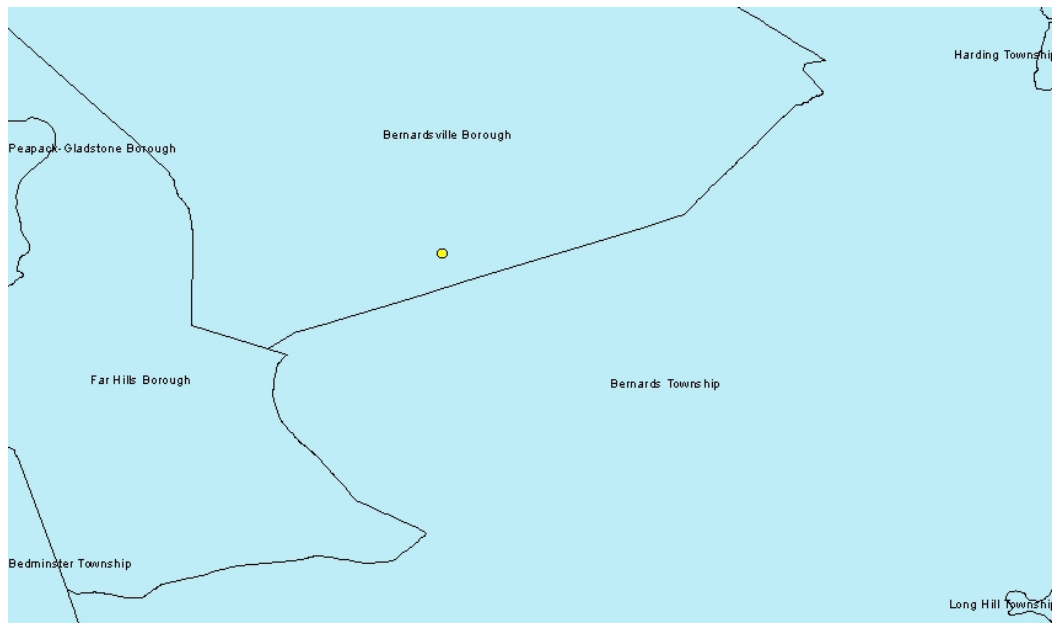
The wireless data did not need geo-coding. Latitude and longitude were collected by the ACS Android Speed Test app. We used ACS' Arroyo data analytics tool to analyze the data. Counts of various types of test results are shown in Table 4.

**Table 4: Wireless Test Results Broken into Categories**

Description	Tests
<b>Total Conducted Tests</b>	247
<b>Provider Distribution</b>	
<b>Verizon Wireless Tests</b>	222
<b>ATT Wireless Tests</b>	25
<b>Broadband/Non Broadband/No Coverage</b>	
<b>Broadband</b> (avg_upload_speed>=200kbps && avg_download_speed >=768kbps)	225

<b>Non-Broadband with Coverage</b> (avg_upload_speed<200kbps    avg_download_speed <768kbps)	17
<b>No Coverage</b> (avg_download_speed == 0    avg_upload_speed == 0)	5
<b>Movement<sup>5</sup></b>	
<b>Broadband Tests Moving</b>	81
<b>Broadband Tests Stationary</b>	144

The results in Table 4 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 6. 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)

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<sup>5</sup> Note that sum does not equal total number of tests because movement was undetermined in some cases.

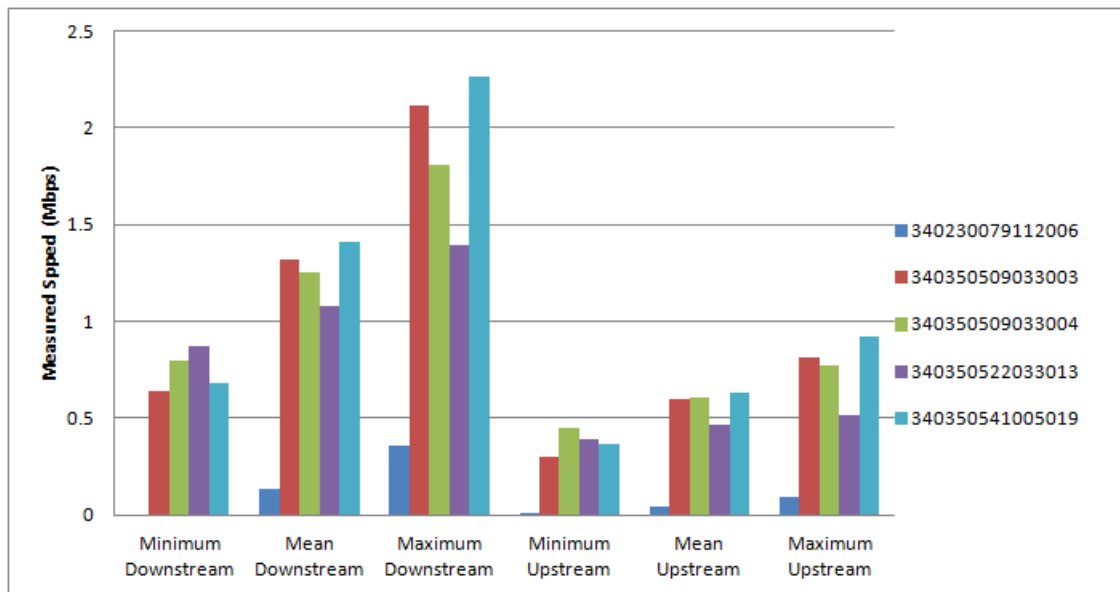




(b)

**Figure 6: 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 7 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 on the AT&T system, this same degree of variation on their 4G LTE network. With more data, a temporal study of these patterns might reveal interesting patterns.



**Figure 7: Speed Distribution across Multiple Test Measurements within a Single Census Block for the Verizon Wireless 3G EVDO network.**

## 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, Stow Creek Township (both 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)

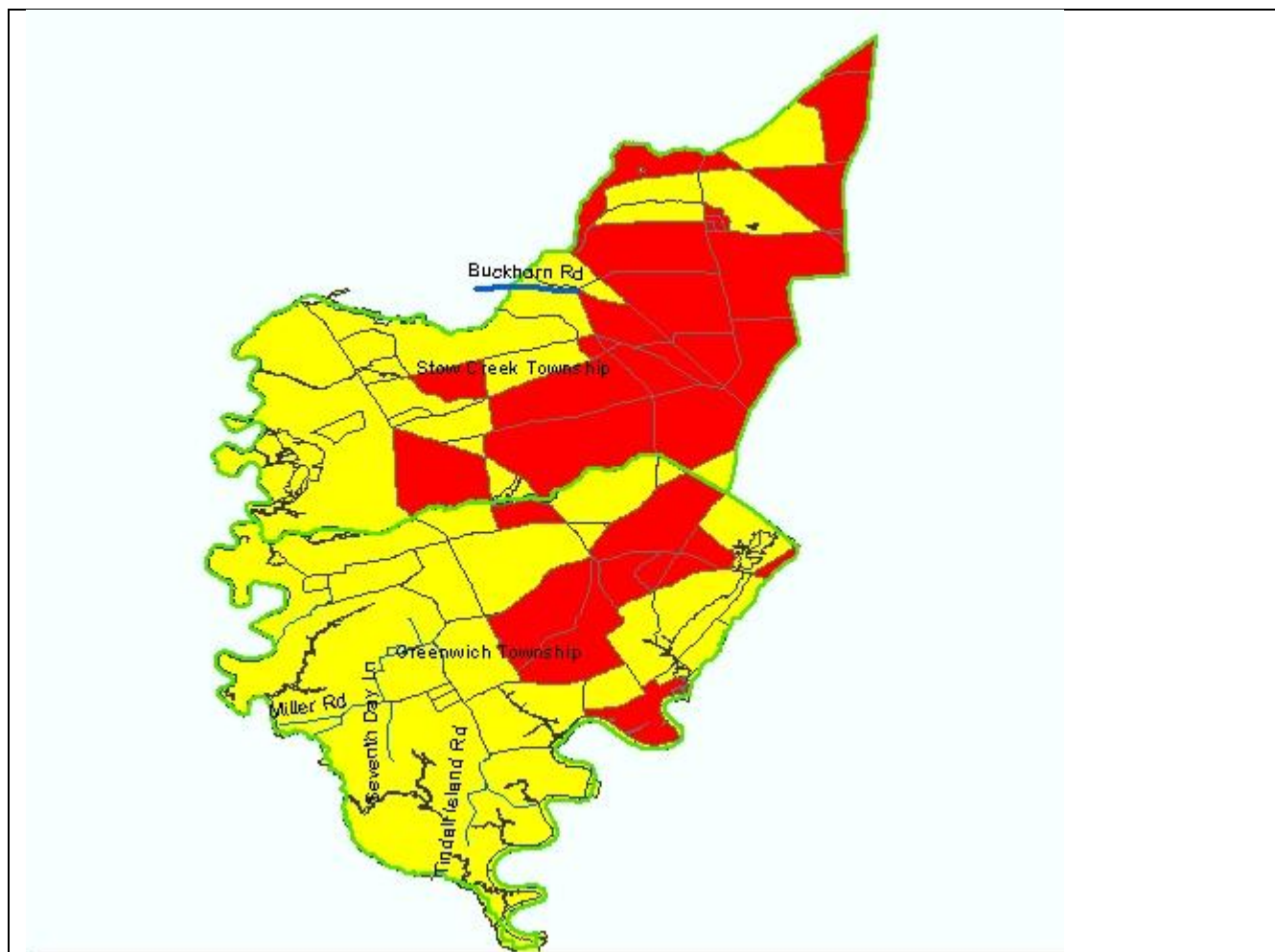
# of census blocks that intersect with the 3 towns  Note: These census blocks may lie wholly or partly in Greenwich. Census block geometry is not consistent with town boundaries so a process of conversion to centroids followed by geo-spatial join has been performed to focus on census blocks that intersect 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 ( $\geq$ 100 Mbps and < 1 Gbps)  Maxadup = 7 ( $\geq$ 10 Mbps and < 25 Mbps)
# of road segments in CBs greater than 2 square miles that intersect with 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

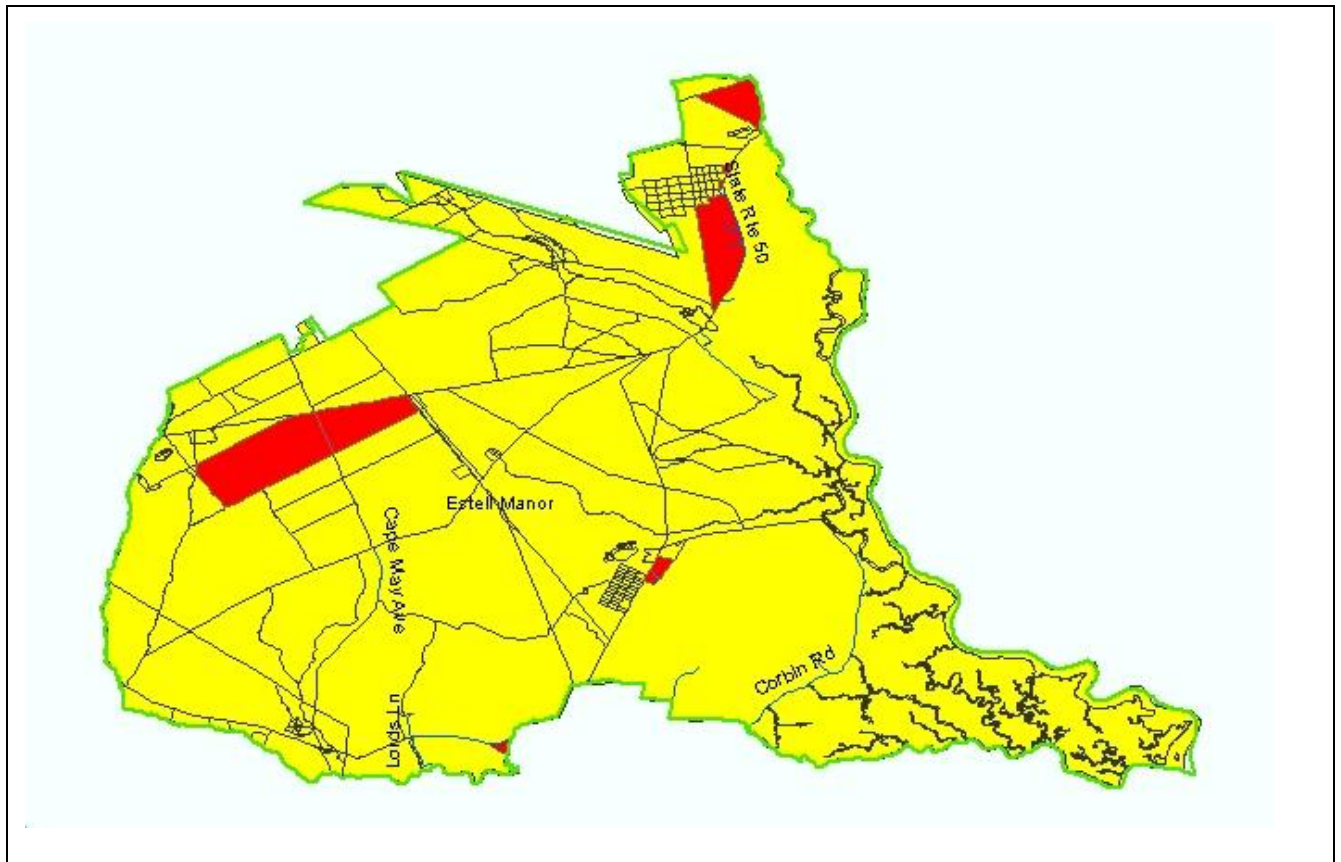
Note: These road segments may lie wholly or partly in the 3 towns, or they may be directly adjacent to the 3 towns.	2 square miles in area; and by road segment for CBs greater than 2 square miles in area.)
# of road segments in large CBs of Comcast broadband coverage that intersect with the 3 towns	<p>2 road segments (Buckhorn Rd in Stow Creek Township)</p> <p>Transtech = 40 (Cable Modem – DOCSIS 3.0 Down)</p> <p>Maxaddown = 10 (<math>\geq</math> 100 Mbps and <math>&lt;</math> 1 Gbps)</p> <p>Maxadup = 7 (<math>\geq</math> 10 Mbps and <math>&lt;</math> 25 Mbps)</p>

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	<b><u>72</u></b> CBs all with the following data: Transtech = 40 (Cable Modem – DOCSIS 3.0 Down) Maxaddown = 10 ( $\geq$ 100 Mbps and $<$ 1 Gbps) <b><u>Maxadup = 9 (<math>\geq</math> 50 Mbps and <math>&lt;</math> 100 Mbps)</u></b>
# 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

**New Customer Offers in Greenwich, NJ 08323**  
Not Your Location? [Change Location](#) ▶  
Existing Customer? [See Offers](#) ▶

PACKAGE	XFINITY ON DEMAND™	CHANNELS	EXTRAS	PRICE
Digital Economy <a href="#">Learn More</a>		45+ <a href="#">View Lineup</a>	Discovery CHANNEL CNN A	\$34 <sup>95</sup> /mo <a href="#">Add to Cart</a>
Digital Starter <a href="#">Learn More</a>	✓	80+ <a href="#">View Lineup</a>	Discovery CHANNEL nickelodeon ESPN • HBO® FREE for 3 months	\$39 <sup>99</sup> /mo for the first 6 months <a href="#">Add to Cart</a>
Digital Preferred <a href="#">Learn More</a>	✓	160+	NETWORK on Demand • HBO® FREE for 3 months	\$49 <sup>99</sup> /mo for the first 6 months <a href="#">Add to Cart</a>

#### 13.2 Comparison of Fall 2013 and Spring 2014 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 5 and Figure 8, 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 5: Comcast Reported Coverage across the State and in Greenwich Township, Stow Creek Township and Estell Manor**

Submission	Census Blocks	Count
<b>2013 October Submission</b>	Total Count	74813
	Count in the Three Towns	67
<b>2014 April Submission</b>	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 9.

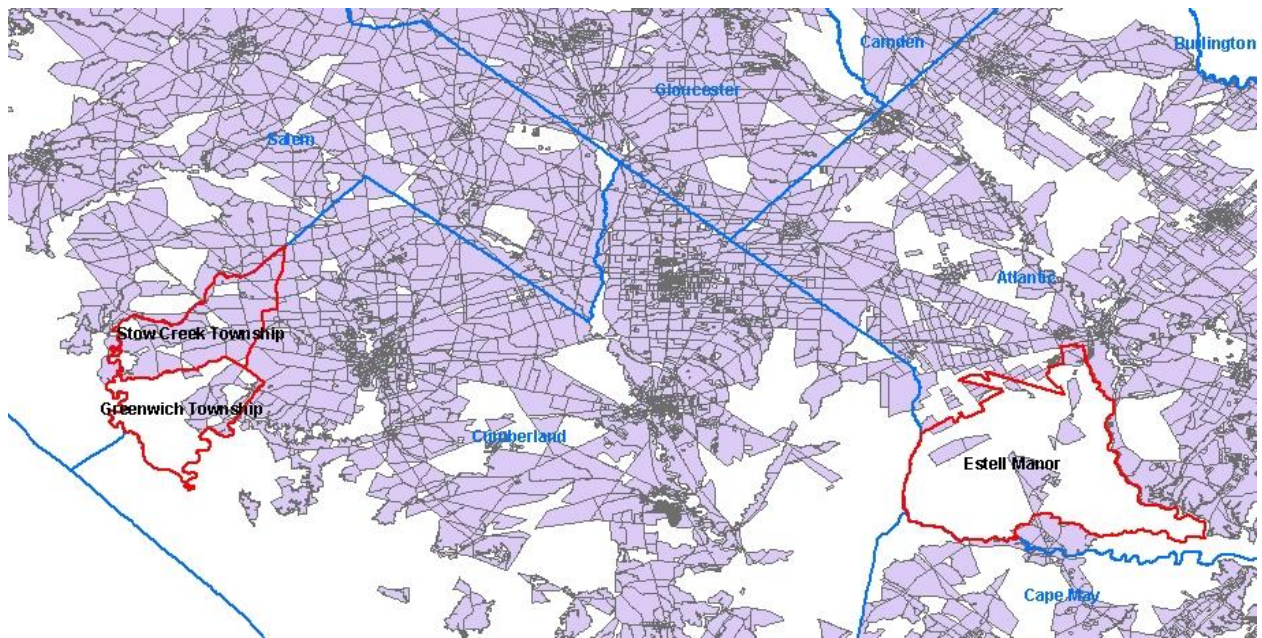


Figure 8: 2014 April Coverage Submitted By Comcast

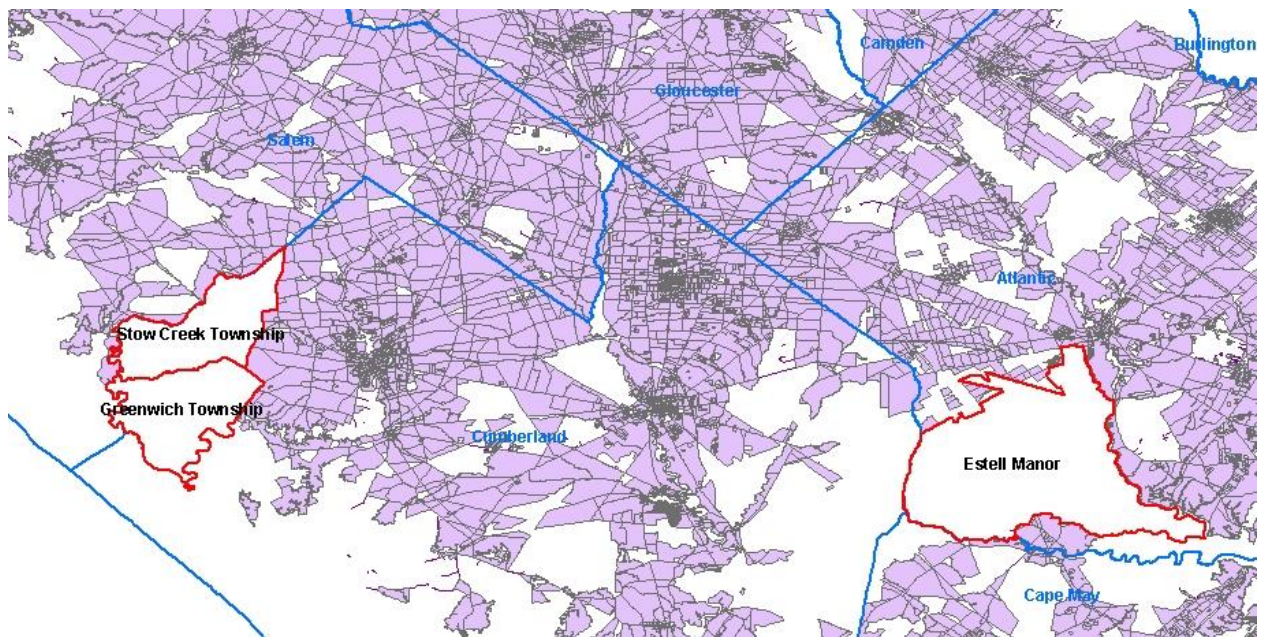


Figure 9: 2014 April Comcast Coverage after 67 Census Blocks in the Three Towns are Removed

### 13.2.2 Verizon

As shown in Table 6, 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 10 and Figure 11, the majority of this increase is in Stow Creek and eastern Greenwich.



**Table 6: Verizon Reported Coverage across the State and in Greenwich Township, Stow Creek Township and Estell Manor**

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



**Figure 10: 2013 October – Verizon Coverage**

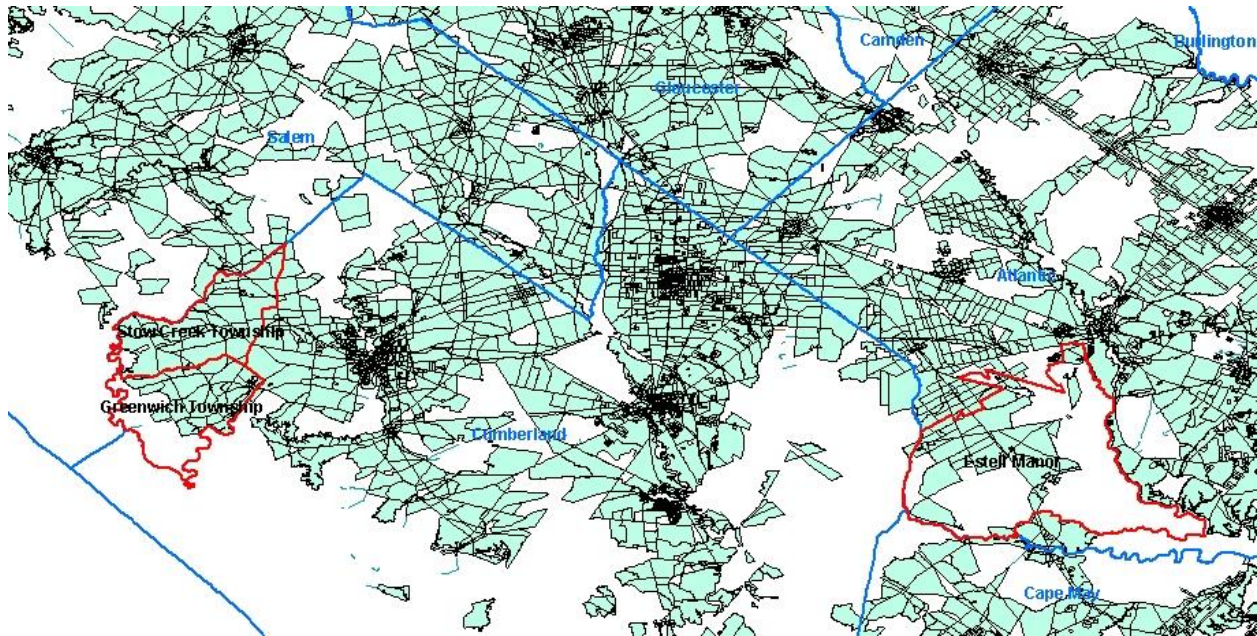
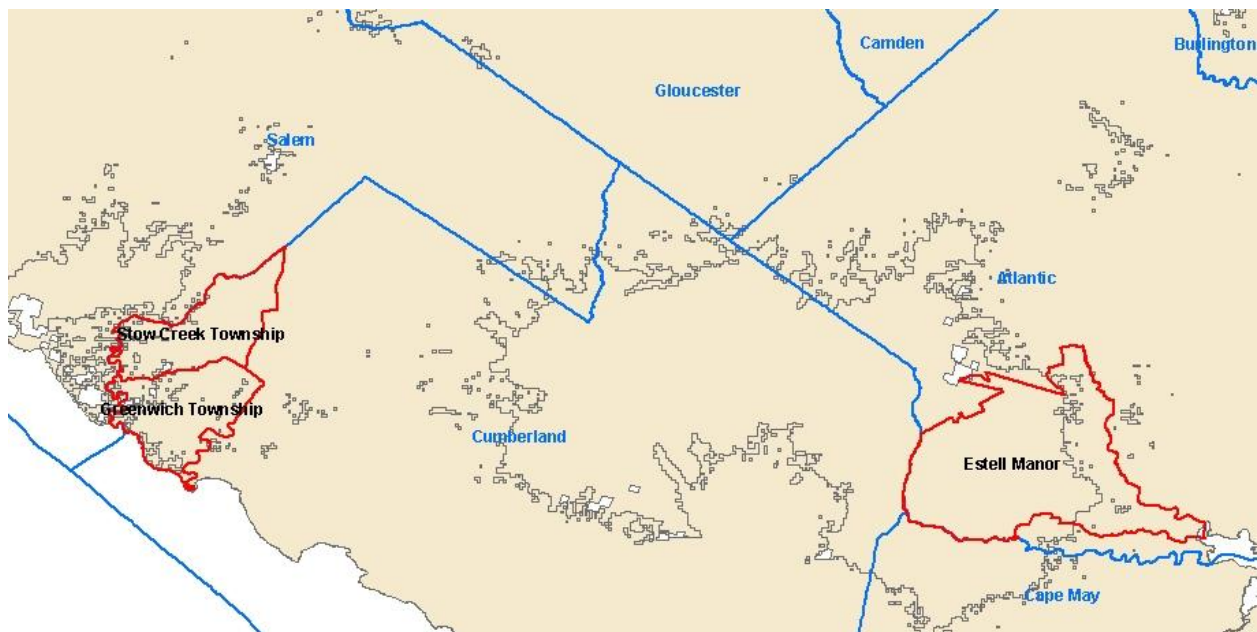


Figure 11: 2014 April – Verizon Coverage

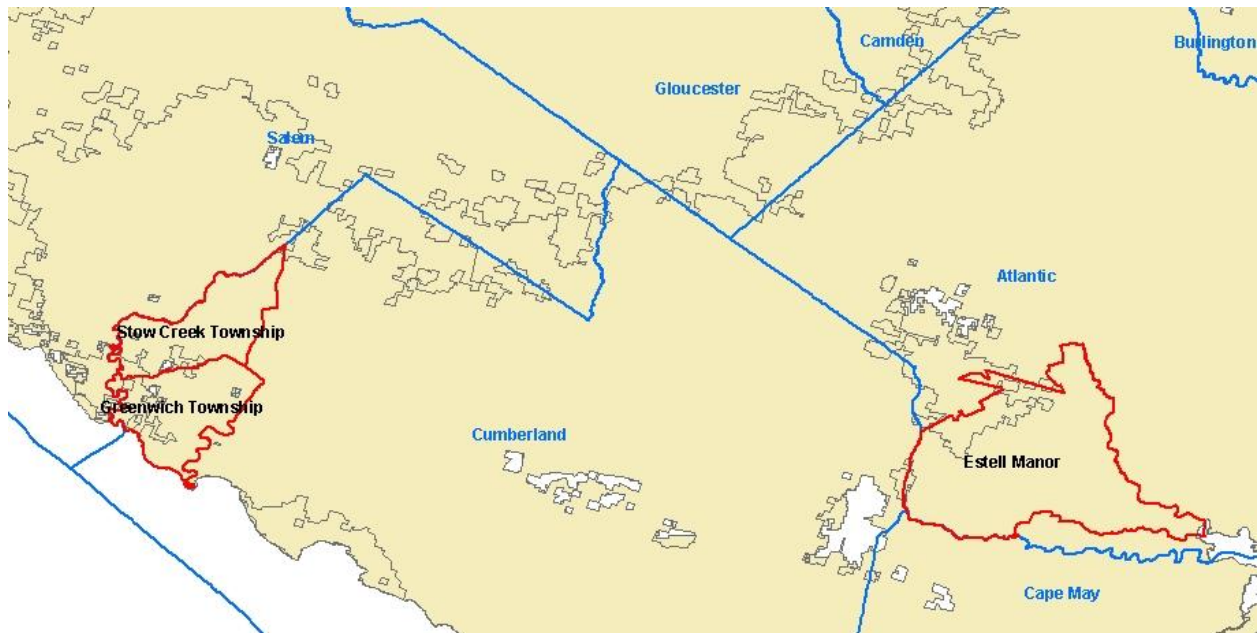
### 13.2.3 Verizon Wireless

Figure 12 and Figure 13 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 12: 2013 October – Verizon Wireless Coverage Map**



**Figure 13: 2014 April – Verizon Wireless Coverage Map**

#### **13.2.4 AT&T Mobility**

Figure 14 and Figure 15 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.

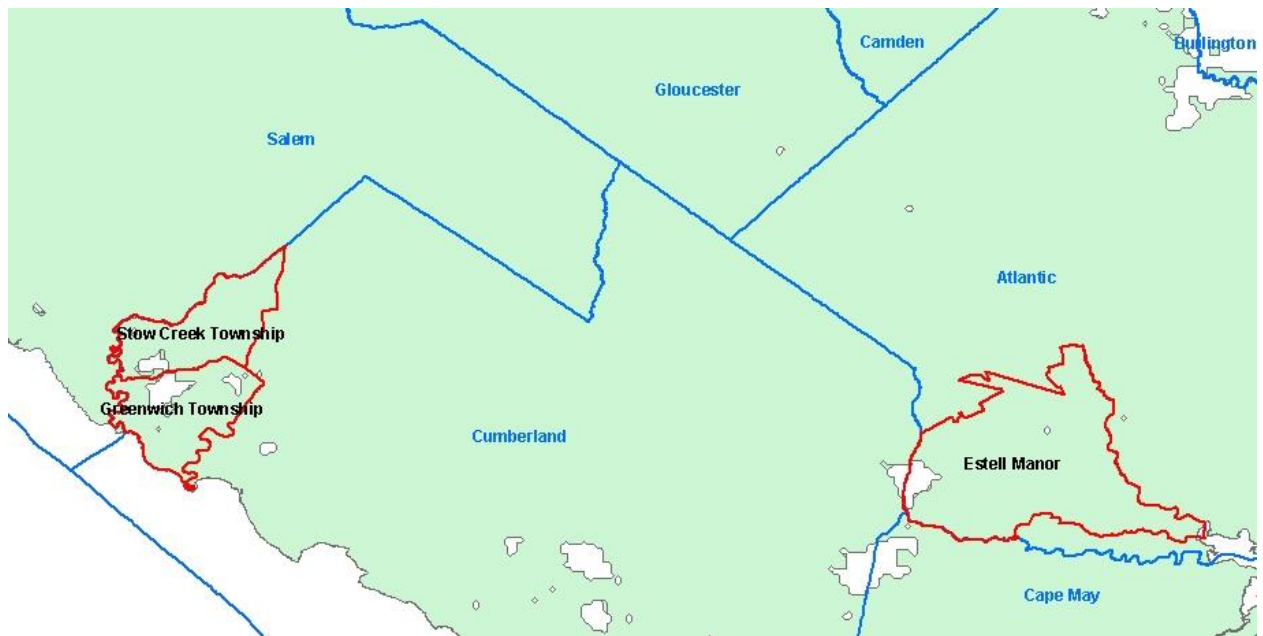


Figure 14: 2013 October – AT&T Mobility Coverage Map

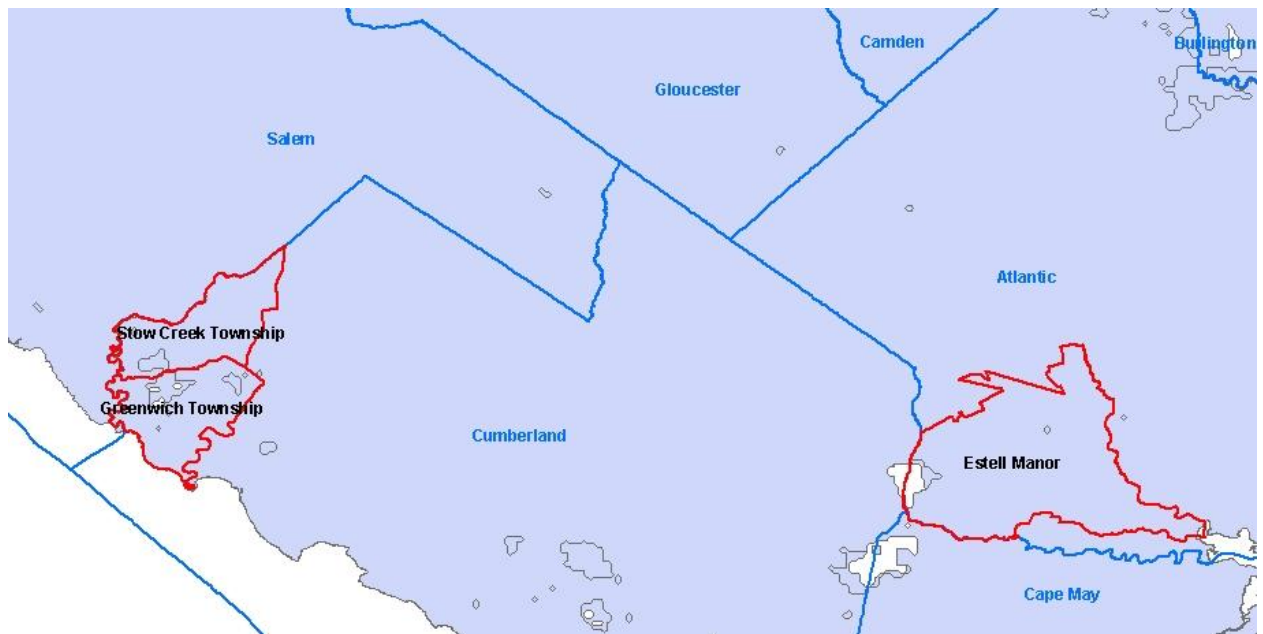


Figure 15: 2014 April – AT&T Mobility Coverage Map

### 13.2.5 Sprint

Figure 16 and Figure 17 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.

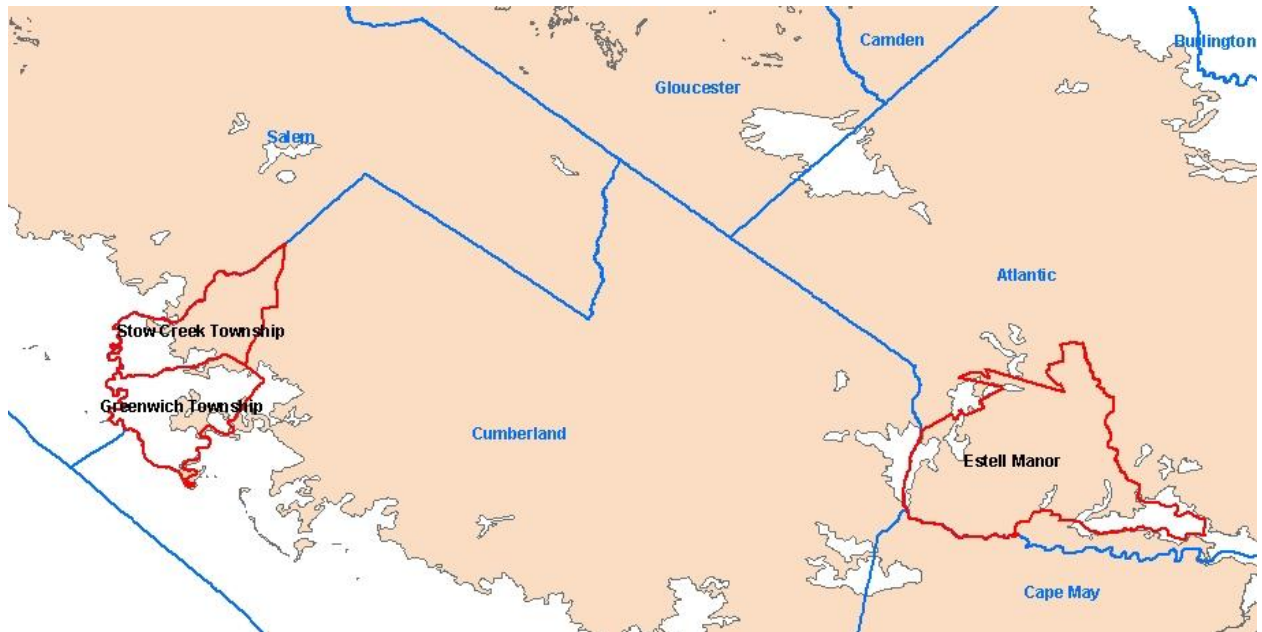


Figure 16: 2013 October – Sprint Coverage Map

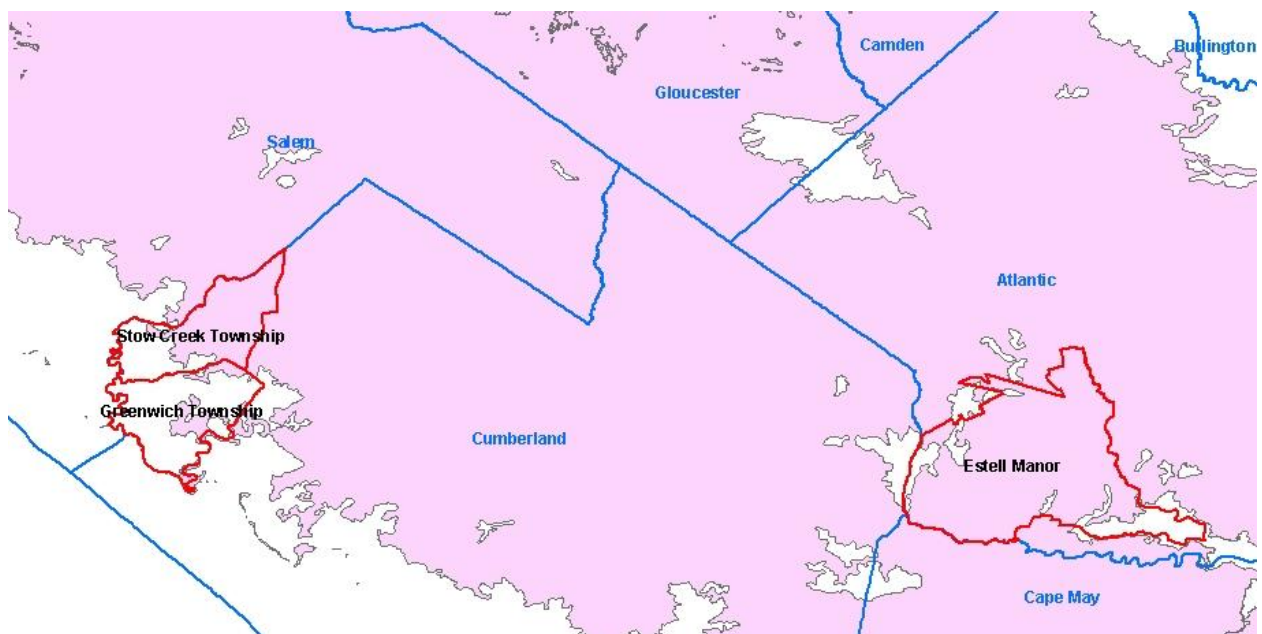


Figure 17: 2014 April – Sprint Coverage Map



### 13.2.6 T-Mobile

Figure 18 and Figure 19 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.

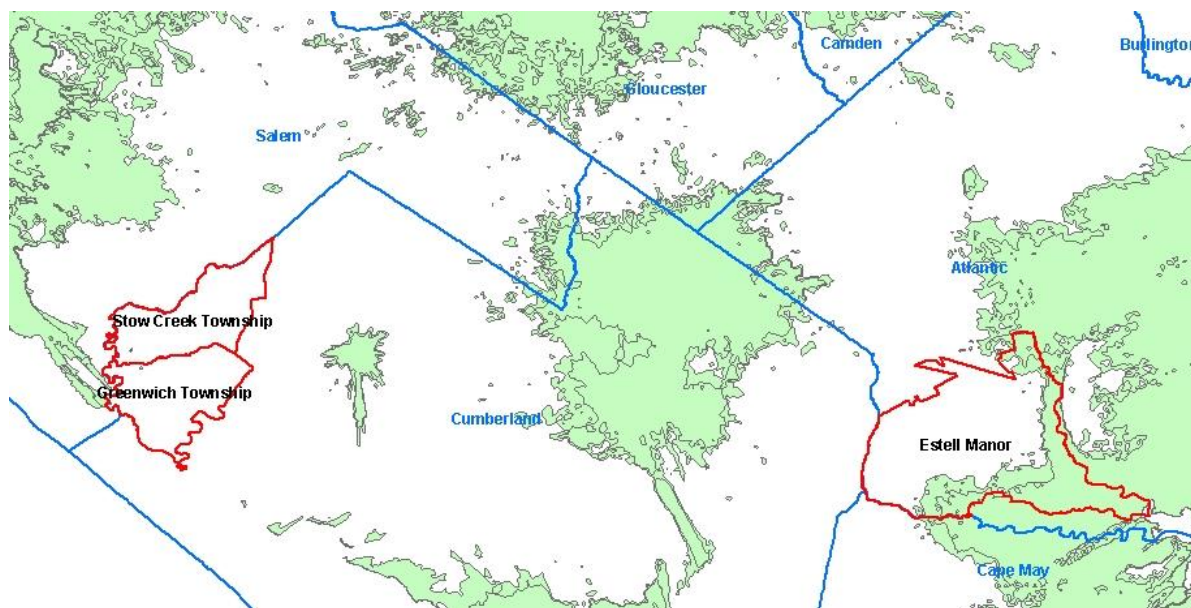


Figure 18: 2013 October – T-Mobile Coverage Map

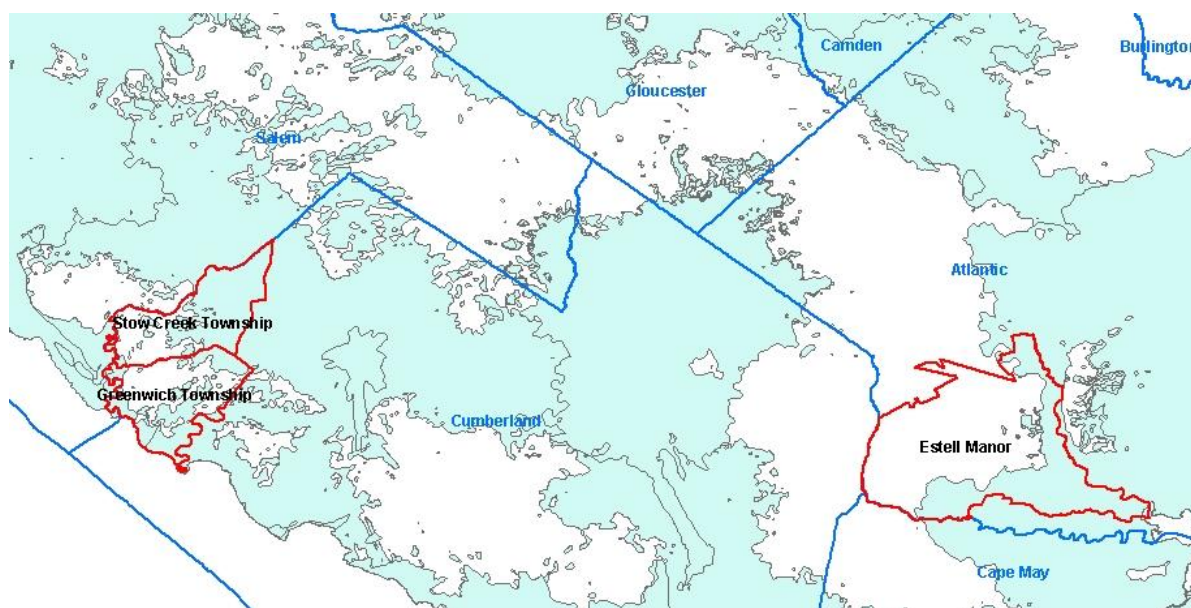


Figure 19: 2014 April – T-Mobile Coverage Map





## **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 2014 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 or 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 2014. The survey data varied with respect to this attribute as there was new data from the NJOIT survey and the DOE survey, which was newly collected, whereas some of the other survey data records are much older, such as some data from the 2012 DOE survey.

### **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.

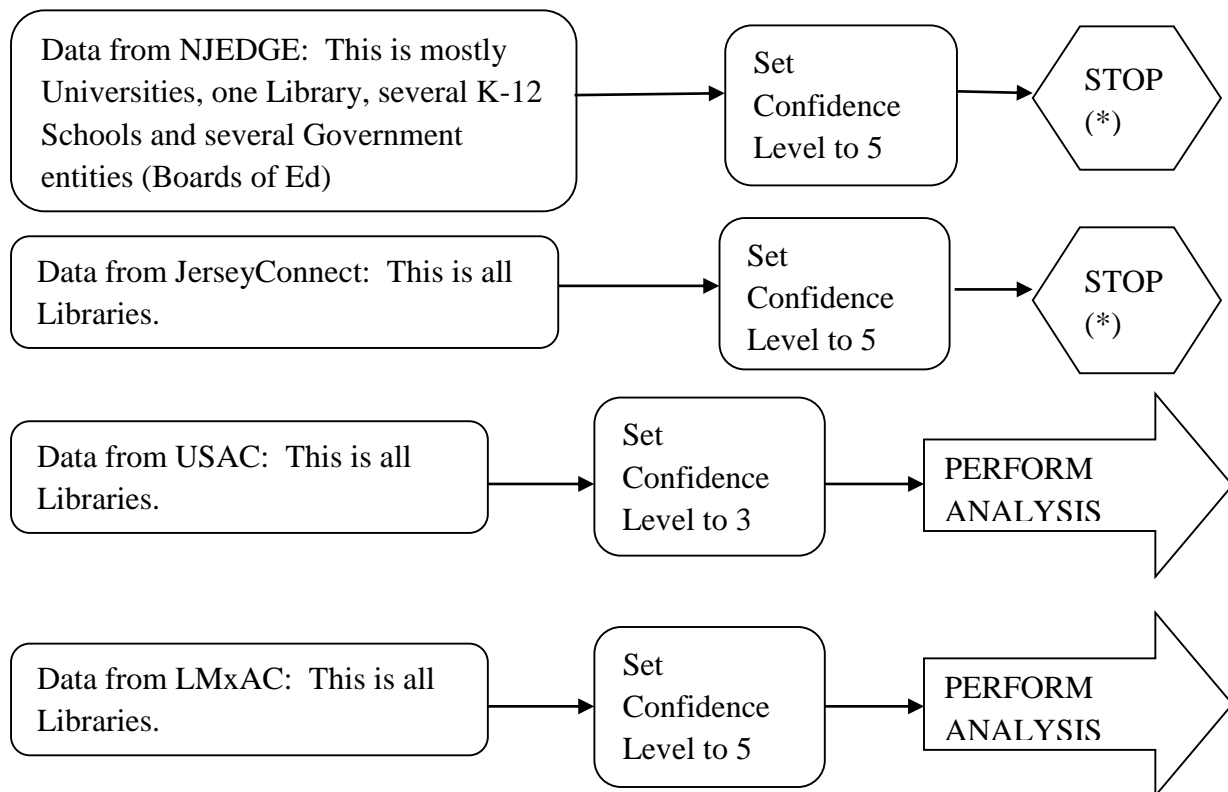
#### **14.5 Procedure for Confidence Level Estimation for CAIs**

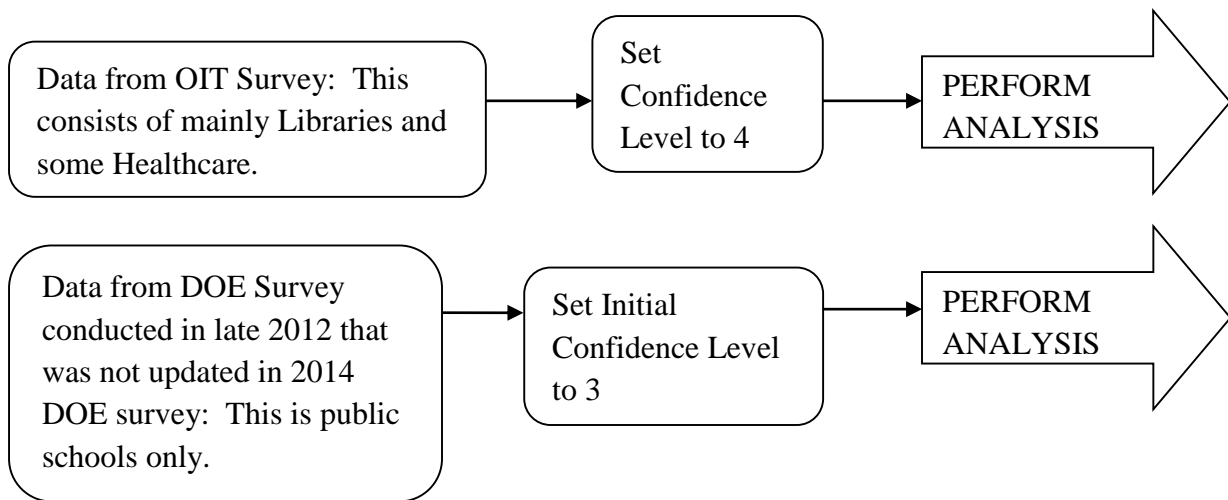
The steps described in this section are performed in sequence.

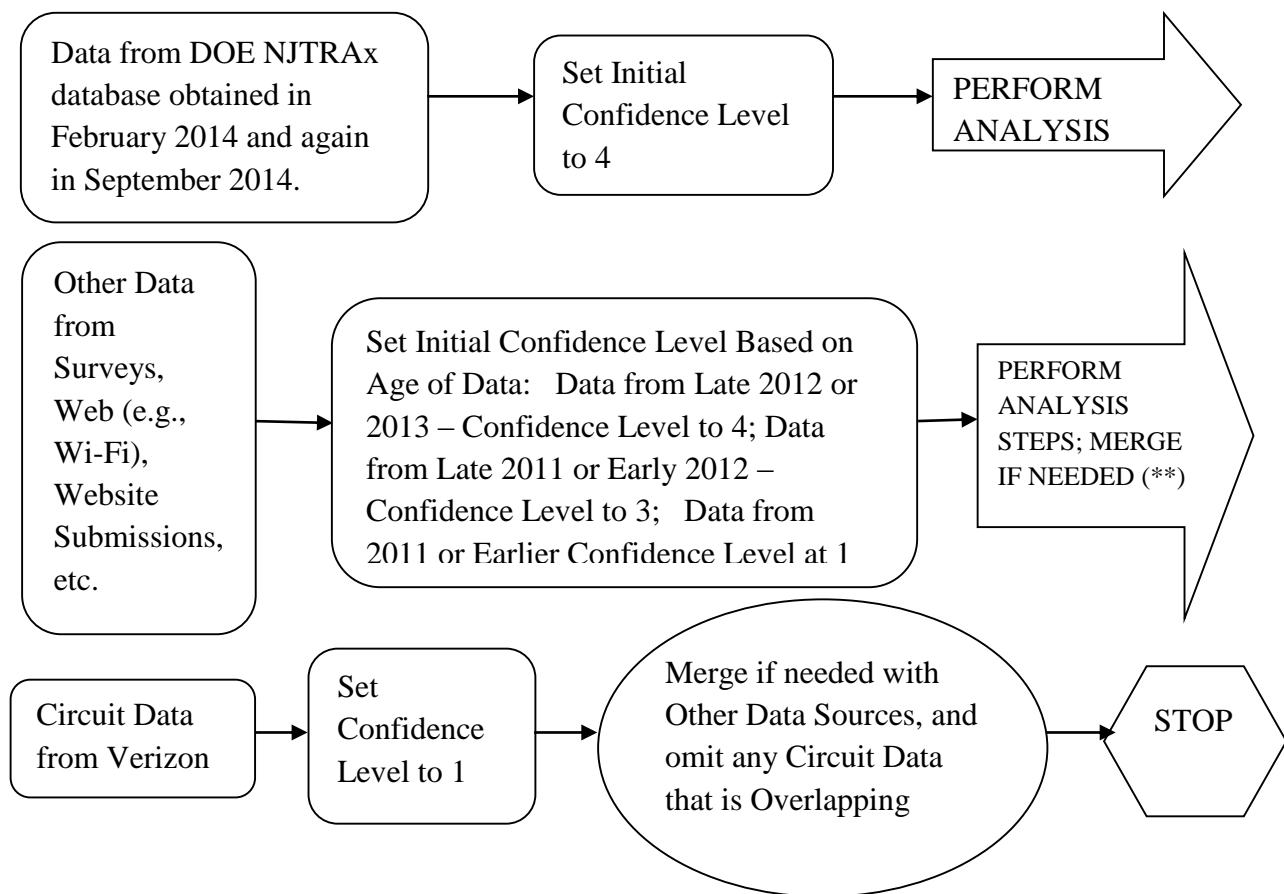
##### **14.5.1 Initial Confidence Level Based on Broadband Data Source and Currency**

CAI records with Broadband Indicator Unknown → Set Confidence Level to Null; No Further Processing

CAI records with Broadband Indicator 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	SubscribDown is missing	Set SubscribDown to “ZZ”
2	SubscribUp is missing	Set SubscribUp to “ZZ”
3	SubscribDown or SubscribUp is 0	Treat same as missing speed
4	Transtech = 20 (Symmetric DSL), SubscribDown ≠ SubscribUp	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	Set down speed to “ZZ”

	rules. Added check for minimum speed when technology is 50 (fiber).	
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  $\leq$  MADS and MAUS, respectively), then decrease the Confidence Level by 1. STOP.

### 14.6 Confidence Levels for Fall 2014 Data

The following tables list the results of applying this confidence procedure to the data that was submitted in the fall of 2014.

**Table 7: Table of statistics from calculation of confidence levels**

Description	Counts	Notes
<b>Total number of records</b>	16267	
<b>Count of bbserve = U</b>	11247	Records without broadband information; Data confidence is set to NULL.
<b>Count of bbserve = Y</b>	5017	Focus of the data confidence estimation.
<b>Count of bbserve = N</b>	3	Data confidence is set to 3 (middle value).
<b>Count of data from JERSEYCONNECT</b>	69	
<b>Count of data from NJEDGE</b>	153	
<b>Count of data from LMxAC</b>	32	
<b>Count of circuit data from Verizon</b>	1696	

Description	Counts	Notes
<b>Count of invalid_tech_speed = 1</b>	231	Records with an inherent inconsistency in the reported broadband technology and speeds.
<b>Count of provider name of null value</b>	11828	
<b>Count of provider name not matched</b>	580	
<b>Count of provider name matched</b>	3859	
<b>Count of records where there is a match on the provider for census blocks or road segment</b>	3338	
<b>Count of records where there is a match on the provider and technology for census blocks or road segment</b>	745	
<b>Count of records where there is a match on the provider, technology, and speed values (&lt;=MADS and &lt;=MAUS) for census blocks or road segment</b>	88	

**Table 8: Final Counts of Estimated Data Confidence for CAI Records**

Confidence Scale	Counts	Notes
<b>1</b>	1779	Lowest confidence level; most of these records are from Verizon circuit data.
<b>2</b>	121	
<b>3</b>	1121	
<b>4</b>	1687	
<b>5</b>	260	Highest confidence level; data from NJEDge, JerseyConnect, LMxAC, and survey data that is current and validated.
<b>null</b>	11299	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 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 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 9: 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		

LU07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
1420	RAILROADS	URBAN	598	2	Treat like airport
1440	AIRPORT FACILITIES	URBAN	145	2	
1461	WETLAND RIGHTS-OF-WAY	WETLANDS	2885		
1462	UPLAND RIGHTS-OF-WAY DEVELOPED	URBAN	626	5	Since it's developed
1463	UPLAND RIGHTS-OF-WAY UNDEVELOPED	URBAN	3439		
1499	STORMWATER BASIN	URBAN	7392		
1500	INDUSTRIAL AND COMMERCIAL COMPLEXES	URBAN	123	2	
1600	MIXED URBAN OR BUILT-UP LAND	URBAN	841	5	Built up but mixed
1700	OTHER URBAN OR BUILT-UP LAND	URBAN	23995	5	Built-up but other
1710	CEMETERY	URBAN	987	2	
1711	CEMETERY ON WETLAND	WETLANDS	58	2	
1741	PHRAGMITES DOMINATE URBAN AREA	URBAN	70	5	1741 isn't going to have any buildings in it
1750	MANAGED WETLAND IN MAINTAINED LAWN GREENSPACE	WETLANDS	2734		
1800	RECREATIONAL LAND	URBAN	7516	2	
1804	ATHLETIC FIELDS (SCHOOLS)	URBAN	2084	5	1804 isn't going to have any buildings in it
1810	STADIUM, THEATERS, CULTURAL CENTERS AND ZOOS	URBAN	100	2	

<b>LU07</b>	<b>LABEL07</b>	<b>TYPE07</b>	<b>Count</b>	<b>NTIA End User Code</b>	<b>Internal Notes</b>
<b>1850</b>	MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA	WETLANDS	1806	2	
<b>2100</b>	CROPLAND AND PASTURELAND	AGRICULTURE	18592	2	
<b>2140</b>	AGRICULTURAL WETLANDS (MODIFIED)	WETLANDS	14217	2	
<b>2150</b>	FORMER AGRICULTURAL WETLAND (BECOMING SHRUBBY, NOT BUILT-UP)	WETLANDS	1154		N/A since not built up
<b>2200</b>	ORCHARDS/VINEYARDS/NURSERIES/HORTICULTURAL AREAS	AGRICULTURE	4409	2	
<b>2300</b>	CONFINED FEEDING OPERATIONS	AGRICULTURE	172	2	
<b>2400</b>	OTHER AGRICULTURE	AGRICULTURE	10369	2	
<b>4110</b>	DECIDUOUS FOREST (10-50% CROWN CLOSURE)	FOREST	21764		
<b>4120</b>	DECIDUOUS FOREST (>50% CROWN CLOSURE)	FOREST	44064		
<b>4210</b>	CONIFEROUS FOREST (10-50% CROWN CLOSURE)	FOREST	6268		
<b>4220</b>	CONIFEROUS FOREST (>50% CROWN CLOSURE)	FOREST	15935		
<b>4230</b>	PLANTATION	FOREST	1072		
<b>4311</b>	MIXED FOREST (>50% CONIFEROUS WITH 10-50% CROWN CLOSURE)	FOREST	3304		
<b>4312</b>	MIXED FOREST (>50% CONIFEROUS WITH >50% CROWN CLOSURE)	FOREST	14256		
<b>4321</b>	MIXED FOREST (>50% DECIDUOUS WITH 10-50% CROWN CLOSURE)	FOREST	4106		
<b>4322</b>	MIXED FOREST (>50% DECIDUOUS WITH >50% CROWN CLOSURE)	FOREST	15194		
<b>4410</b>	OLD FIELD (< 25% BRUSH COVERED)	FOREST	11366		
<b>4411</b>	PHRAGMITES DOMINATE OLD FIELD	FOREST	741		
<b>4420</b>	DECIDUOUS BRUSH/SHRUBLAND	FOREST	11889		
<b>4430</b>	CONIFEROUS BRUSH/SHRUBLAND	FOREST	6040		

<b>LU07</b>	<b>LABEL07</b>	<b>TYPE07</b>	<b>Count</b>	<b>NTIA End User Code</b>	<b>Internal Notes</b>
<b>4440</b>	MIXED DECIDUOUS/CONIFEROUS BRUSH/SHRUBLAND	FOREST	12914		
<b>4500</b>	SEVERE BURNED UPLAND VEGETATION	FOREST	30		
<b>5100</b>	STREAMS AND CANALS	WATER	2753		
<b>5190</b>	EXPOSED FLATS	WATER	94		
<b>5200</b>	NATURAL LAKES	WATER	2514		
<b>5300</b>	ARTIFICIAL LAKES	WATER	21114		
<b>5410</b>	TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS	WATER	2143		
<b>5411</b>	OPEN TIDAL BAYS	WATER	16		
<b>5420</b>	DREDGED LAGOON	WATER	374		
<b>5430</b>	ATLANTIC OCEAN	WATER	2		
<b>6111</b>	SALINE MARSH (LOW MARSH)	WETLANDS	3154		
<b>6112</b>	SALINE MARSH (HIGH MARSH)	WETLANDS	1223		
<b>6120</b>	FRESHWATER TIDAL MARSHES	WETLANDS	1185		
<b>6130</b>	VEGETATED DUNE COMMUNITIES	WETLANDS	334		
<b>6141</b>	PHRAGMITES DOMINATE COASTAL WETLANDS	WETLANDS	3668		
<b>6210</b>	DECIDUOUS WOODED WETLANDS	WETLANDS	45030		
<b>6220</b>	CONIFEROUS WOODED WETLANDS	WETLANDS	9934		
<b>6221</b>	ATLANTIC WHITE CEDAR WETLANDS	WETLANDS	3442		
<b>6231</b>	DECIDUOUS SCRUB/SHRUB WETLANDS	WETLANDS	12606		
<b>6232</b>	CONIFEROUS SCRUB/SHRUB WETLANDS	WETLANDS	1597		
<b>6233</b>	MIXED SCRUB/SHRUB WETLANDS (DECIDUOUS DOM.)	WETLANDS	3609		
<b>6234</b>	MIXED SCRUB/SHRUB WETLANDS (CONIFEROUS DOM.)	WETLANDS	2128		
<b>6240</b>	HERBACEOUS WETLANDS	WETLANDS	8245		
<b>6241</b>	PHRAGMITES DOMINATE INTERIOR WETLANDS	WETLANDS	2970		
<b>6251</b>	MIXED WOODED WETLANDS (DECIDUOUS DOM.)	WETLANDS	8050		
<b>6252</b>	MIXED WOODED WETLANDS (CONIFEROUS DOM.)	WETLANDS	8445		
<b>6290</b>	UNVEGETATED FLATS	WETLANDS	99		

LU07	LABEL07	TYPE07	Count	NTIA End User Code	Internal Notes
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	
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 10: Summary of Data Processing Steps for End User Category Estimation of Census Block Geometry.**

Step	Description	Output		Comments
1	Download 20 zipped shape files and merge them into a single table, called LULC	856,381 records		<a href="http://www.nj.gov/dep/gis/lulc07cshp.html">http://www.nj.gov/dep/gis/lulc07cshp.html</a>
2	Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records	554,259 records		
3	Map the values of LU07 to the end_user_category column using the mapping information	End_user_r_cat	Count	
		1	88,068	
		2	95,168	

		<table><tr><td>5</td><td>27,630</td></tr><tr><td>unknown</td><td>343,393</td></tr></table>	5	27,630	unknown	343,393							
5	27,630												
unknown	343,393												
4	Dissolve the LULC table based on the end_user_category column	156,043 records											
	# of records in the Census Block (CB) table	169,588 records											
5	Union the CB table and LULC table	542,599 records											
6	Create a frequency table from the union table:  Frequency fields: CB_ID and end_user_category  Summary field: area	345,913 records											
7	Choose the end_user_category of the largest area in each CB	169,588 records  <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><tr><td>Unknown</td><td>66,154</td></tr></table>	End_user_cat	Count	1	80,699	2	21,381	5	1,384	Unknown	66,154	6 census blocks are not covered by LULC at all. Set the end_user_category to unknown.
End_user_cat	Count												
1	80,699												
2	21,381												
5	1,384												
Unknown	66,154												

**Table 11: Summary of Data Processing Steps for End User Category Estimation of Street Segment Geometry.**

Step	Description	Output	Comments
1	Download 20 zipped shape files and merge them into a single table, called LULC	856,381 records	<a href="http://www.nj.gov/dep/gis/lulc07cshp.html">http://www.nj.gov/dep/gis/lulc07cshp.html</a>
2	Dissolve the LULC table based on (LU07, Label07 and Type07) to reduce the # of records	554,259 records	Same as the case for census block

<b>3</b>	Map the values of LU07 to the end_user_category column using the mapping information	End_user_cat	Count	Same as the case for census block
		1	88,068	
		2	95,168	
		5	27,630	
		unknown	343,393	
<b>4</b>	Dissolve the LULC table based on the end_user_category column	156,043 records		Same as the case for census block
	# of records in road segment (RS) table in large census blocks	6,007 records		
<b>5</b>	Identity the RS table and LULC table	11,634 records		
<b>6</b>	Create a frequency table from the identity table:  Frequency fields: TLID and end_user_category  Summary field: length	9,830 records		
<b>7</b>	Choose the end_user_category of the largest area in each RS	6,007 records		3 streets are not covered by LULC at all. Set the end_user_category to unknown.
		End_user_cat	Count	
		1	1,330	
		2	716	
		5	150	
		Unknown	3,811	

## 16 Appendix J: USAC E-Rate Data Processing<sup>6</sup>

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
<b>Anchorname</b>	IMLS list cross-referenced with ERate entity	“Eligible Entity” from 471; there are multiple eligible entities per ERate application	‘Name of Eligible Entity ‘ column
<b>Address</b>	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.
<b>City</b>	From IMLS data	See above for Address.	
<b>Zip</b>	From IMLS data	See above for Address.	
<b>Lat/long</b>	From IMLS data	See above for Address.	
<b>CAI ID</b>	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.	
<b>bbservice</b>	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.
<b>transtech</b>	N/A		

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<sup>6</sup> NJ USAC data kindly provided by Tabitha Hunter of Florida



<b>Down speed</b>	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
<b>Up speed</b>	Infer based on downspeed and typical pairings	Upspeed not available.	Create table for inference; e.g., downspeed for 10-25 Mbps goes with upspeed of 3-5 Mbps (?).

#### QUESTIONS:

1. Would Tabitha advise that we use the Formatted tab or the Priority1 tab?  
Priority1 funding is the class used for services, including broadband. The Formatted tab includes both Priority1 and Priority2 funding requests. Priority2 is fundamentally equipment and it only gets funding if/after all the Priority1 funding requests are met. Hence the Priority1 tab is the one we should use.
2. Does Florida leave transmission technology blank? Yes.
3. Does Florida infer upspeed or leave it blank? If you infer, what rules do you use? FL leaves up-speed blank but agrees that our proposal to conservatively infer this information based on typical asymmetric service speeds is reasonable and appropriate.
4. We note all the different identifiers – Form 470 Application Number, FRN, SPIN, etc. – which we don't understand. Please confirm we can ignore these.  
Yes, we can ignore them. Here is a bit more information. Entity numbers are unique to each location and do not change. FL manually built a table that associated USAC entity numbers 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.