Maryland Broadband Mapping Initiative
Broadband Availability Map Data
Submission Summary for Fall 2013

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Submission Summary

The staff of the Eastern Shore Regional GIS Cooperative (ESRGC) at Salisbury University in Salisbury, Maryland, in its role as primary technical lead for the Maryland Broadband Mapping Initiative, originally contacted 120 potential facilities-based broadband service providers (BSPs), receiving data from 41 providers representing 39 different companies (See Appendix A). In this eighth submission, 45 different companies responded to our data request. An overall summary of the Fall 2013 data submission can be described as:

48 potential facilities-based broadband service providers were contacted
0 BSPs from previous submissions were not contacted because they have merged with other BSPs
3 BSPs did not respond but had in previous submissions
0 BSPs responded but did not provide updated data
45 BSPs responded and either provided data or affirmed no change to data

Of those that provided broadband availability data,

19 provided addresses
2 provided census block information only
7 provided census blocks and road segments
20 provided wireless coverage areas

In addition, 8 of the 45 responsive BSPs provided middle mile infrastructure points

In our last submission, we reported that PAETEC Communications and Cavalier Telephone Mid-Atlantic were both purchased by Windstream. For this submission, Windstream has requested that their data continue to be delivered under the original business names (PAETEC and Cavalier).

Data Processing

For a specific discussion of the data processing steps for any particular BSP, please see the individual dataset report for each BSP below. In general, the data processing used to create the Fall 2013 data submission depended on the type of data provided by the BSP.

Census Blocks
To process the served census blocks, the steps are as follows. First, geocode the provider-submitted address table (if applicable) to the Maryland iMap Cascading Geocode Service. Second, spatially join the address points to the Year 2010 census blocks. Third, divide the address points into the different technologies of transmission (if applicable). Fourth, select those address points that are within the census blocks that are greater than 2 mi^2, exporting them as a separate feature class. Fifth, switch the selected set (thus creating all the address

points in blocks that are less than 2 mi^2), and select those blocks. Sixth, import the provider-submitted table of served census blocks and merge with the address-created blocks (if applicable). Finally, export the results.

Road Segments

To process the served road segments that are within census blocks that are greater than 2 mi^2, we import the table of road segment address ranges provided by the BSP, unless a Tiger Line ID (TLID) is provided. We then take the TO address values and the FROM address values on both the left and the right side of the segment and concatenate those address numbers with the street name, type, and direction, thus creating a maximum of 4 point addresses per road segment. Those point addresses are then address matched against the ArcGIS 10 US Streets geocoding service. We can then find the street segments in TIGER that are adjacent to the located points. Finally, we select those TIGER lines that intersect the census blocks that are greater than 2 mi^2. If a TLID is provided we join the delivered table to the appropriate year Tiger Lines by the TLID and the joined results are exported. The result can be loaded into the SBDD Transfer data model.

Service Addresses

The process for creating the service addresses is the same as the census blocks (above), except that the addresses that fall within the census blocks that are greater than 2 mi^2 are kept as the key feature class.

Middle Mile Infrastructure

Processing the middle mile infrastructure is relatively trivial, in that the providers submit geographic coordinates with the middle mile attributes. Most of the providers, however, do not submit new middle mile data every six months. Therefore, any middle mile infrastructure collected during previous submission periods have been include in the current submission.

Community Anchor Institutions

For the Fall 2013 data submission, the Center for GIS at Towson University (CGIS) improved the quality of Maryland's Community Anchor Institution (CAI) broadband dataset by focusing on the following action items.

- Further strengthened the relationship with the Maryland Department of Health and Mental Hygiene (DHMH) and received final approval to add several questions related to broadband to the annual physician license renewal application and survey. The first round of results is expected to arrive in early January 2014 for the first half of the alphabet.

- Updated all medical facilities received from the Office of Healthcare Quality.

- Explored the potential for a state entity to sustain the CAI dataset after Federal funding through NTIA ends. Drafted and submitted a preliminary recommendation to the entity identified as appropriate to maintain and enhance the dataset for statewide use.

- Improved attribution on existing institutions: populated URL field; added and populated a common name field.

- Developed an online verification tool that enables self-reporting. Launched the tool in September.

- Created storymaps for each Maryland County as a current snapshot of the Counties' CAIs. The objectives for depicting the CAIs on a map include streamlining the workflow process, informing officials and others about the status of high speed Internet services in their districts, and generating support in each jurisdiction for using, updating, and sustaining the dataset.

<u>Medical</u>

The data collection team worked with Dr. David Sharp, Director of the Center for Health Information Technology (a component of the Maryland Healthcare Commission within the Department of Health and Human Services [DHMH]), to build a sustainable approach to collecting and maintaining the medical Community Anchors and associated broadband data. Dr. Sharp's team conducts a mandatory annual census on all licensed ambulatory surgery facilities, long-term care, hospitals, and physicians in Maryland. Although the census does not currently collect broadband information, Dr. Sharp agreed to add the Maryland Broadband Mapping team's CAI data questions to the April 2013 census for ambulatory surgery facilities and the July 2013 long-term care, hospital, and physician census. The outcome is a more sustainable process for collecting and maintaining broadband information for medical facilities and physicians. Dr. David Sharp presented our request to the Maryland Healthcare Commission for approval. After several iterations, the following five questions were approved.

1. Do you have high speed internet?
   Yes/No
2. Who is your internet provider? (Dropdown listing the top 5 business providers)
   Atlantech, Broadview, Cogent, Comcast, Verizon, Other
3. How do your computers connect to the Internet?
   DSL, cable modem, fiber to the office, wireless, other, do not know
4. Do you know the speeds you are paying for?
   Yes/No
      If yes, use dropdowns for categories
5. Do you provide wi-fi access in your waiting area?
   Yes/No

General Attribution Enhancements

We enhanced the CAI dataset by adding attributes that we maintain outside of the NTIA data model requirements, as follows.

Subtype Field: Every CAI has been assigned to a subtype, such as state police, private school, hospital. For a more detailed table see *Appendix II, pages 3-4*.

URL: Work focused on populating state agency, school, and library websites.

Common Name*:* The facility name is maintained as provided by the data source, but the general public does not always recognize that name. A Common Name column was therefore added and populated. For example, when the source data facility name is "Courthouse," there is no indication of the county where the courthouse is located, or the specific jurisdiction of the court. The Common Name column enables us to input more specific information, such as "Baltimore County District Courthouse."

BTOP: We added and populated a column for CAIs that are participating in the BTOP grant.

Source: We populated the source of the data.

Last Update: Where possible, we populated the last date when each CAI was updated.

Online Verification Tool Preparation

We developed an online CAI Verification tool that enables CAIs to access and verify their existing information, and self-report missing or updated information. The tool provides a convenient method for CAIs to report individually, whereas CAIs reporting as part of a group will continue to use spreadsheets to submit data on all of their facilities. For example, the Department of Education would provide a spreadsheet for all public schools under its jurisdiction, but individual private schools would be able to use the online CAI Verification tool.

We expect the verification tool to greatly streamline our efforts to reach out to CAIs such as private schools and libraries, volunteer fire departments, and non-governmental community support organizations. In preparation, we compiled a list of individual contacts for private schools and libraries, and we wrote an introductory message intended to promote a positive return of responses and new data.

County Storymaps

In previous data submission efforts, we sent an Excel spreadsheet containing a list of the entire jurisdiction's CAIs to a representative of each local jurisdiction. The representative was responsible for verifying or updating the broadband data associated with each CAI. Once the data was updated, the representative would send back the updated Excel spreadsheet, which was then incorporated into the authoritative CAI database.

Recognizing that we can improve this workflow, we published thematic map services using ArcGIS Online to display the data spatially. The maps are customized for each jurisdiction and displayed in an interactive Esri story map application. Going forward, instead of sending each

local jurisdiction's representative an Excel spreadsheet, we will send them a unique URL for the jurisdiction's story map, which displays the high-speed Internet status (Known and Unknown) of the jurisdiction's CAI data. The maps displayed in the application will help the representative quickly identify the CAIs for which broadband access is unknown. The data can then be edited by accessing the verification tool directly from the application.

This new workflow represents a significant improvement in the maintenance of the CAI database in the following ways.

- Enables visualization of the current data through the use of basic thematic mapping.
- Increases automation of the CAI database update process.
- Provides more control to those responsible for updating the data.

Other objectives for depicting the CAIs on a map is to inform officials and others about the status of high speed Internet service in their districts, and also generate support in each jurisdiction for using, updating, and sustaining the dataset.

In summary, the Maryland broadband CAI database now contains 15,616 records, a decrease of 22 (0.14%) from the Spring 2013 submission. There was also corresponding decrease (18 or 0.48%) in the number of CAI locations with broadband service information.

		Spring 2013 Submission			Fall 2013 Submission		
	CAI Category	# CAIs with BBSERVICE	Total CAIs	% of CAIs with BBSERVICE	# CAIs with BBSERVICE	Total CAIs	% of CAIs with BBSERVICE
1	School (K-12)	1,433	1,931	74.2%	1,426	1,924	74.1%
2	Library	277	369	75.1%	277	369	75.1%
3	Medical / Healthcare	95	7,824	1.2%	75	7,842	1.0%
4	Public Safety	1,039	1,718	60.5%	1,059	1,708	62.0%
5	University / College/Other Post-Secondary	97	114	85.1%	98	111	88.3%
6	Other Community Support - Government	714	1,505	47.4%	702	1,489	47.1%
7	Other Community Support - Non-Government	66	2,177	3.0%	66	2,173	3.0%
	Total	**3,721**	**15,638**	**23.8%**	**3,703**	**15,616**	**23.7%**

Data Verification

The ESRGC, in partnership with the Center for GIS at Towson University and as a subcontract to the SBDD grantee in Maryland, the Maryland Broadband Cooperative, conducted a number of verification and validation tests on the provider-submitted broadband availability data. In the event that inconsistencies or errors were found, certain changes are made to the provider-submitted data. These changes are either retention but modification to provider-submitted data or the removal of the provider-submitted data, depending on the type and severity of the error. Given our extensive review and testing of broadband availability information in Maryland, we feel confident that the changes we make are improving the accuracy of the provider's submission. We continue to search for new ways to refine the submitted data and present an ever-increasing accurate portrayal of broadband availability in our state.

In the first phase of data validation, the provider-submitted data is processed for inclusion within the NTIA transfer model. During this processing, several data inconsistencies can be found. They include:

1) Submitted download and upload speeds do not match the values expected for a given technology of transmission
2) Service addresses are located hundreds of miles away from the provider's known service areas
3) Served blocks with technologies and speeds that do not meet the working definition of broadband
4) Addresses/road segments/blocks that have no technology of transmission

For each of these, the initial remedy is to contact the provider for clarification/modification. If that communication is not successful for whatever reason, the data team makes a decision to either modify the data to match expected values or removes the errant data.

In the second phase of data validation, a maximum of twelve data checks are conducted on each of the provider-submitted broadband availability data, listed below. Different versions of data verification tests were conducted on submissions from wireline broadband providers versus wireless providers, because of the differing submission geometry. Each check will be explained in detail below. The result of each of these tests is an error statistic, cataloged in a data verification report. No changes to the data are made based on these tests.

1) Maximum down/upload speeds reported by provider
2) Typical down/upload speeds reported by provider
3) Typical down/upload speed from speed tests
4) Speed tests match reported typical speeds or are within 1 speed tier
5) Speed tests present within blocks not reported as served by provider
6) Census blocks/coverage area reported to project, but no tract reported directly to FCC

7) Tracts reported directly to FCC, but no census blocks/coverage area reported to project
8) Census blocks/coverage areas versus unserved area locations reported
9) Total number of unserved area locations reported per provider
10) Web search verification
11) Wireless broadband presence and speed systematic field sampling
12) Comparison of areas reported as served in last submission, to areas served this submission

For this Spring 2013 submission, we have eliminated the following verification tests:

Census blocks that are outside provider's cable franchise boundary
Census blocks that are within another provider's cable franchise boundary
Census blocks that are outside DSL boundary

The MBBMI team no longer has confidence in these boundaries being accurate. The boundaries in question were created pre-2009 and a current, reliable source for this information has not been found.

Finally, the third and final phase of data validation is an in-depth discussion of a provider's data submission and the subsequent data tests with the provider via web conference. During this discussion, a detailed review of the submission takes place including an examination of their resulting availability maps. For Spring 2013, we returned 16 service area maps to the providers and 9 providers verified the maps represented their data submission correctly. Efforts to engage the providers in a more in-depth discussion of potential map errors were largely futile.

Maximum down/upload speeds reported by provider

Facilities-based BSPs are required to provide the maximum downstream and upstream speeds by the NTIA and the NoFA of August 2009. These speeds are dependent upon the technology of transmission the BSP uses to deliver broadband service. Speeds are reported in ordinal categories, or tiers, as defined by the NoFA. They are:

Downstream Speed Tier	Upstream Speed Tier	Corresponding Speed
--	1	Less than or equal to 200 kbps
--	2	Greater than 200 kbps and less than 768 kbps
3	3	Greater than or equal to 768 kbps and less than 1.5 mbps
4	4	Greater than or equal to 1.5 mbps and less than 3 mbps
5	5	Greater than or equal to 3 mbps and less than 6 mbps
6	6	Greater than or equal to 6 mbps and less than 10 mbps
7	7	Greater than or equal to 10 mbps and less than 25 mbps
8	8	Greater than or equal to 25 mbps and less than 50 mbps
9	9	Greater than or equal to 50 mbps and less than 100 mbps

10	10	Greater than or equal to 100 mbps and less than 1 gbps
11	11	Greater than or equal to 1 gbps

For this data check, the maximum downstream/upstream speeds reported from each provider are summarized in a table. These speeds are summarized for census blocks, wireless coverage areas, road segments, and service address points.

For the data submission, 51 providers (100%) have been submitted with maximum downstream/upstream speeds for census blocks. The lowest maximum downstream speed reported is greater than or equal to 768 kbps and less than 1.5 mbps, reported by 12 providers. The highest maximum downstream speed was greater than or equal to 1 gbps, reported by 6 providers. The most frequent maximum downstream speed was greater than or equal to 3 mbps and less than 6 mbps, reported by 16 providers.

Typical down/upload speeds reported by provider

BSPs are required to provide the typical downstream and upstream speeds by the NTIA and the NoFA of August 2009. Typical speeds are, per the NoFA, intended to be "the data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed can achieve consistently during expected periods of heavy network usage." These speeds are dependent upon the technology of transmission the BSP uses to deliver broadband service. Speeds are reported in ordinal categories, or tiers, as defined by the NoFA (see table above).

For this data check, the typical downstream/upstream speeds reported from each provider are summarized in a table. These speeds are summarized for census blocks, wireless coverage areas, road segments, and service address points

For the data submission, 27 providers (53%) reported typical downstream/upstream speeds. The lowest typical downstream speed was greater than or equal to 768 kbps and less than 1.5 mbps, reported by 8 providers. The highest typical downstream speed was greater than or equal to 1 gbps, reported by 3 providers. The most frequent typical downstream speed of the census blocks was greater than or equal to 3 mbps and less than 6 mbps, reported by 9 providers.

Typical down/upload speed from mobile speed test
Typical down/upload speed from computer-based speed test

Beginning in April 2010, the MBBMI team and the FCC (nearly simultaneously) began collecting speed test information from broadband consumers in the state of Maryland. This speed test information included the downstream and upstream speed in kbps, the signal latency, the street address of the tester, the type of connection location (home, work, etc), the connection

technology (cable/DSL, fiber optic, satellite/dial-up, or unknown – MBBMI test only), the IP address of the test machine, and the corresponding BSP. The MBBMI contracted with a company named Ookla to create their test; the FCC used both Ookla and an alternative method developed by a company named MLab. About the same time, the FCC also launched its mobile speedtest application for both iOS and Android operating systems. This app tests both WiFi connection speeds as well as cellular service speeds, reporting the type of connection, the latitude/longitude, and the IP address. For both types of tests in order to determine the BSP, we purchase a database from MaxMind, Inc. that links IP address ranges to BSP names.

From mid-April 2010 until January 31, 2013, 12,141 speed tests were collected by MBBMI and 31,492 PC-based speed tests were collected by the FCC (the FCC also collected mobile speed tests, see below). After removing any MLab-based FCC speed tests to insure consistent speed test results and removing any without a valid address, the FCC and the MBBMI speed tests were then combined and geocoded using their street address. With about 12% of the addresses not being able to be resolved, a total of 22,334 of PC-based speed tests were used in verification processing. For the same period, a total of 105,180 mobile-based speed tests were used. Since no new speed tests were forthcoming from the FCC and the number of valid MBBMI tests (those with addresses) was very small, we used the same speed test dataset as in Spring 2013.

The speed tests associated with each reporting BSP were extracted from the geocoded set. The downstream and upstream speeds were classified according to the NTIA's speed tiers (see table above) and the number of tests in each tier were counted. A table of those results in included in each data validation/verification report. For mobile broadband providers, a distinction was made between the results from mobile speed tests (generated by an iOS or Android app) and the results from computer-based speed tests (generated by a web-based speed test) as those results are likely to be different (due to significant hardware/software differences) even though the network being accessed is the same

For the state of Maryland as a whole, the PC-based speed test results are:

Speed Tier	Number of Downstream Tests	% of Downstream Tests	Number of Upstream Tests	% of Upstream Tests
1	554	2.5%	1,605	7.2%
2	1,684	7.5%	5,141	23.80
3	2,093	9.4%	1,437	6.4%
4	2,083	9.3%	3,084	13.8%
5	1,997	8.9%	6,668	29.9%
6	2,749	12.3%	1,723	7.7%
7	8,385	37.5%	2,343	10.5%
8	2,123	9.5%	298	1.3%
9	578	2.6%	29	0.1%
10	88	0.4%	6	0.0%

For the state of Maryland as a whole, the mobile speed test results are:

Speed Tier	Number of Downstream Tests	% of Downstream Tests	Number of Upstream Tests	% of Upstream Tests
1	8,688	8.3%	16,082	15.3%
2	14,881	14.1%	25,206	24.0%
3	14,728	14.0%	16,754	15.9%
4	16,811	16.0%	11,456	10.9%
5	13,925	13.2%	17,937	17.1%
6	10,366	9.9%	7,081	6.7%
7	22,942	21.8%	9,525	9.1%
8	2,806	2.7%	1,118	1.1%
9	30	0.0%	19	0.0%
10	3	0.0%	2	0.0%

Speed tests match reported typical speeds or are within 1 speed tier

For the 31 providers that submitted typical speeds for their data, a comparison was conducted between the mode (the most frequent value) of the typical download speed tier from the provider area and the FCC/Ookla speed tests. In instances where the most frequent download speed tier from the speed tests matched, or was within one tier of, the typical download speed tier from the provider, the response to this statement is affirmative (7 providers). When the response to this statement is negative (10 providers), there is question about the typical download speeds that have been submitted by the provider. The remaining 14 providers provided typical speeds but none of their customers have taken a speed test to verify.

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted)
Number and percentage of mobile speed tests verifying coverage area
Number and percentage of computer-based speed tests verifying coverage area

Using the location of speed tests submitted through the FCC or the MBBMI speed test tools, the team sought to compare the location of broadband availability submitted by BSPs and the location of actual broadband service reported by speed test takers.

For this verification test on wireline provider census block submissions, the number of census blocks served (as determined by the location of a speed test) but were not reported by provider were calculated. That number is then divided by the total number of blocks submitted by the provider, reported as an error percentage.

For the state of Maryland, the maximum number of census blocks shown to be served by speed test data but not reported by a BSP is 434 (for Comcast Cable Communications, LLC , 0.65% of their total reported blocks). The minimum percentage of served census blocks confirmed by speed test was 1 (5 providers). The maximum percentage was 242% - Cogent had 29 blocks with speed tests but only reported 12 total blocks.

For this verification test on wireless provider coverage area submissions, the following statistics are reported:

1) Confirmation of coverage area served
    - The number/percentage of computer-based speed tests that fall within the BSP's reported coverage area(s).
    - The number/percentage of mobile speed tests that fall within the BSP's reported coverage area(s).
2) Area served, not reported by provider
    - The number/percentage of computer-based speed tests that fall outside the BSP's reported coverage area(s).
    - The number/percentage of mobile speed tests that fall outside the BSP's reported coverage area(s).

For the wireless providers in the state of Maryland, 45% (9 of 20) had computer-based speed tests submitted by users. The maximum number of computer-based speed tests shown to fall within the reported coverage area of a BSP is 407 (for Verizon Wireless, 98.3% of their computer-based speed tests). Some BSPs that has 100% of their computer-based speed tests fall within their reported coverage area namely AT&T Wireless, Cricket Communications, Hughes Communications, Easton Utilities, and ViaSat Communications, Inc. The minimum percentage of computer-based speed tests shown to fall within the reported coverage area of a BSP was 22.4% (Sprint, 150 tests fell inside out of 649). On average, 90.3% of computer-based speed tests fell within the BSP's reported coverage area.

Regarding the number of mobile speed tests that fall within the reported coverage area of a BSP, 60% (12 of 20) of the wireless BSPs had tests and the maximum number came from Sprint customers, with 13,848 tests within their reported coverage area. Five wireless BSPs had 100% of their mobile speed tests fall within their reported coverage area: Brookwood, Cricket Communications, Hughes Communications, Shentel, and ViaSat Communications, Inc. Clearwire had the smallest percentage of tests falling within their reported coverage area – 82.3%. On average, 96.8% of mobile speed tests fell within the BSPs reported coverage areas.

Census blocks/coverage area reported to project, but no census tract reported to FCC
Census tracts reported to FCC, but no census blocks/coverage areas reported to project

Another source of data validation was the FCC's Form 477 data as of December 2011, the most recent dataset made available to SBI grantees. This dataset is collected semi-annually by the FCC from BSPs, both facility-based and not facility-based. The BSPs report the number of

residential and business subscribers to their broadband service per census tract. For comparison, the average census tract in Maryland contains 103 census blocks. While the Form 477 data is much coarser than the SBDD-reported data, it still aligns spatially.

Therefore, as another verification check, we test the number of census blocks that are reported by wireline BSPs that have no corresponding reported census tract in the BSP's Form 477 data. Similarly, we test the number of tracts from the wireline BSP's Form 477 data that do not have corresponded census blocks reported in this initiative.

For the state of Maryland, the maximum number of census blocks that were reported as served but had no corresponding Form 477 census tract was 13,123 from Megapath Corp. On average, 1,206 census blocks (from 21 providers) had no corresponding census tract. The maximum number of census tracts that had no corresponded reported census blocks was 127 from XO Communications, Inc. On average, 15 census tracts (from 21 providers) had no corresponding census blocks.

For wireless BSPs, we tested the number of census tracts that either intersect or do not intersect each reported coverage area. Because it is not possible to tell what portion of the Form 477 reported census tract may receive the wireless service, a simple intersect between served tracts and coverage areas is the only test available from these data sources. For those wireless BSPs reporting to the FCC on Form 477 (9 of 20), all had 100% of their served census tracts intersecting their reported coverage areas.

Census blocks/coverage areas versus unserved area locations reported

Total number of unserved area locations reported per provider

At the MBBMI website (www.mdbroadbandmap.org) and at the FCC website (www.broadband.gov), residents and business owners have the opportunity to report unserved areas. These are locations, specifically addresses, at which the potential broadband customer cannot access broadband service. Those unserved area reports are taken in by the MBBMI team, geocoded according to their address, and are examined for their spatial coincidence with BSP availability coverages. For each wireline provider, the number of census blocks reported as served that contain a unserved area report are calculated, as well as the total number of unserved area reports within a BSPs availability area. For each wireless BSP, the number/percentage of unserved area reports from both the FCC and the MBBMI that fall within and outside the reported coverage area are calculated. While we cannot be sure that older unserved areas are still unserved, we will use the full complement of unserved area reports with the justification that we would rather have an error of commission (unserved area is actually served) than an area of omission (not testing all of the unserved area locations for intersection.)

It is important to note that, at the present time, these unserved area reports are unverified. It is possible that broadband service may be available either at the address (but the person reporting the unserved area location was unaware of service availability), or not available at the address because of some unique configuration problem at that address specifically. It is also entirely possible that portions of a census block may be served but other portions may not.

For the state of Maryland, the maximum number of a wireline BSP's available census blocks that contain an FCC unserved area location report is 128 (Verizon Communications, Inc.). This represents 0.17% of Verizon's reported census blocks. The maximum rate of deadzone reports as a percentage of blocks reported is 4.5% (MegaPath). The minimum number is 0 (15 providers). The maximum number of unserved area location reports in a wireline BSP's available area is 200 (Verizon Communications, Inc.). For those unserved area locations reported by the MBBMI, the maximum number of census blocks that contain a report is 267 (Verizon Communications). This represents 0.35% of Verizon's reported census blocks. The maximum rate of deadzone reports as a percentage of blocks reported is 1.37% (Metrocast). The minimum number is 0 (10 providers). The maximum number of unserved area location reports in a wireline BSP's available area is 404 (Verizon Communications, Inc.).

For the state of Maryland, the maximum percentage of unserved area locations reported from the FCC within a wireless BSP's reported coverage area is 100% (each are either satellite providers). The maximum percentage of unserved area locations reported from the FCC within a non-satellite wireless BSP's reported coverage area is AT&T Wireless at 99.7% (302 of 303). The average percentage of unserved area locations (reported from the FCC) that fall within a wireless BSP's reported coverage area is 39.6% (120 of 303). For those unserved area locations reported by the MBBMI, the maximum percentage of unserved area locations within a wireless

BSP's reported coverage area is 100% (761/761), true for each of the satellite wireless providers (HughesNet, Skycasters, StarBand, and ViaSat). The maximum percentage of unserved area locations reported from the MBBMI within a non-satellite wireless BSP's reported coverage area is AT&T Wireless at 98.6%. The average percentage of unserved area locations (reported from the MBBMI) that fall within a wireless BSP's reported coverage area is 39.7% (304/761).

Web search verification

Some broadband service providers publish service availability query tools on their corporate websites. The MBBMI team took the opportunity to test the broadband availability areas submitted by the BSPs against the BSP's web-based service availability tools. A systematic sampling grid was created for the entire state of Maryland. A sample point was placed every 4000 meters, then the nearest property address (within at most 1000 m) was chosen. This yielded a grid of 1,472 sample points. In Baltimore City, an additional 24 sample points were added (approximately every 2000 meters) in order to have reasonable sampling density within the small area of the City. This brought the total sample points to 1,496.

For each BSP that had a web-based service availability query tool (11 providers), the sample point grid addresses were used to verify the availability of service (or lack thereof) compared to both the reported service area, the area just outside the stated service area, and a random selection of grid points across the state. The following combinations of reported service vs. queried service were tallied:

1) A census block/coverage area was reported as served and the sample was returned as served
2) A census block/coverage area was reported as served but the sample was returned as unserved
3) A census block was not reported as served (or the location was outside the wireless coverage area) and the sample was returned as not served
4) A census block was not reported as served (or the location was outside the wireless coverage area) but the sample was returned as served

The total number of sample points in categories 2 and 4 are reported as error (of commission and of omission, respectively).

For Comcast and Verizon, all 1,496 sample points were used as those two BSPs offer broadband service in all areas of the state.

For the eleven wireline BSPs in the state of Maryland that have an Internet-based availability tool, the maximum omission error rate was 24.6% reported by Comcast. The minimum omission error rate was 0% and was reported by Charter Communications and Starpower. The average omission error rate was 11.8%. The maximum commission error rate was 47.9% reported by Antietam Cable Television. The minimum commission error rate was 0% and was

reported by Armstrong Cable, Anne Arundel Broadband, and Comcast. The average commission error rate was 9.7%. The maximum total error rate was 50% reported by Antietam. The minimum total error rate was 5.5% reported by Charter. The average total error rate was 21.6%.

Wireless broadband presence and speed systematic field sampling

Wireless coverage area field testing was conducted during the Summer of 2013. Unfortunately, the results of that testing could not be processed in time for the Fall 2013 submission. The results of that systematic field sampling and the verification tests it enables will be discussed as part of the Spring 2014 submission.

Comparison of areas reported as served in last submission, to areas served this submission

It recently became clear as we were examining the broadband availability data that some of the blocks that were submitted as "served" by a provider in previous submissions were being submitted as "unserved" in later submissions. While it is certainly possible that a provider decides to stop serving the residents and businesses of a particular block, it is not probable and is more likely explained by an error either in reporting or geocoding. Therefore, we added a test that simply compares the unique block count from the previous submission to this submission. In addition to this simple test, we are making maps of change for each provider and will be reviewing those maps with the providers.

The range of change from the Spring 2013 submission to Fall 2013 was a loss of 514 blocks (Armstrong Cable) to no change (20 providers) to a gain of 2,584 blocks (Comcast). For those registering change (12 providers), the average was a gain of 265 blocks. This is much less change than in previous submissions – a positive sign.

Allied Telecom Group, LLC

DBA: Allied Telecom Group, LLC

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	7/29/2013
Currency of Data:	6/30/2013
FRN:	0014531073
Type of data submitted:	Address Table
Census Block Count:	137
Total Matched Address Points Count:	267
Unmatched Address Points:	1
Number of Technology of Transmission Types:	4
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 275
  - Number unmatched: 1
- Spatially join matched address points to 2010 census blocks
- Separate addresses by technology of transmission

Census Block Process:

- Join the spatial join result to the 2010 census blocks based on the GEOID10 field for each technology
  - Export results for each technology
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
4	2	1%
7	18	11%

Max Upload Category	Count	% of Blocks
4	2	1%
5	18	11%

10	90	53%
11	59	35%

10	90	53%
11	59	35%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
4	5	4%
7	29	21%
10	69	49%
11	38	27%

Typical Upload Category	Count	% of Blocks
4	5	4%
5	29	21%
10	69	49%
11	38	27%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
4	1	50%
9	1	50%

Speed Test Upload Tier	Count	% of Tests
6	1	50%
7	1	50%

Computer based speed tests match reported typical speeds or are within 1 speed tier: Yes

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/137 (< 1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
3	3	27%
4	1	9%
6	2	18%
7	5	45%

Speed Test Upload Tier	Count	% of Tests
1	1	9%
2	1	9%
3	2	18%
4	1	9%
5	1	9%
7	3	27%
8	1	9%
9	1	9%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 6/137 (4.4%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 70/137 (51.1%)
Number of tracts reported to FCC, but no census blocks reported to project: 15

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/137 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/137 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 2

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 27 census block increase

ALTIUS Communications, LLC

DBA: ALTIUS Broadband

Data Characteristics

Date of Original Submission:	1/23/2013
Date of Update Submission:	8/12/2013
Currency of Data:	6/30/2013
FRN:	0016873374
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
6	2	100%

Max Upload Category	Count	% of Area
3	2	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 - 2012 mobile based speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: N/A
Number of mobile speed tests reported outside coverage area: N/A

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov:
3/303 (<1%)
Number of dead zones reported within coverage area via mdbroadbandmap.org:
7/761 (<1%)

Web Search Verification: N/A

Wireless Verification: N/A

Anne Arundel Broadband

DBA Name: Anne Arundel Broadband

Data Characteristics

Date of Original Submission:	4/14/2010
Date of Update Submission:	8/9/2013
Currency of Data:	6/30/2013
FRN:	0003773843
Type of data submitted:	Address Table
Census Block Count:	2949
Total Matched Address Points Count:	107378
Unmatched Address Points:	100
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
    - Number matched: 107378
    - Number unmatched: 100
- Spatially join address points to 2010 census blocks
- Select by location the address points that are completely within a greater than two square mile census block
    - Export as address points to be loaded into the NTIA data model
        - Result: BB_Service_Address
    - Switch the selection and export as points to create census blocks

Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2010 census blocks based on the GEOID10 field
    - Export results Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Modification:

- Removed 2 addresses from data set – address out of provider area
    - Milford, MI
    - Cecil County, MD

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
7	2949	100%

Max Upload Category	Count	% of Blocks
4	2949	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	3	5%
4	2	3%
5	9	16%
6	17	29%
7	23	40%
8	1	2%
9	2	3%
10	1	2%

Speed Test Upload Tier	Count	% of Tests
1	3	5%
2	4	7%
3	6	10%
4	45	78%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 0/2949 (0%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
2	33	16%
3	23	11%
4	42	21%
5	51	25%
6	27	13%
7	25	12%

Speed Test Upload Tier	Count	% of Tests
1	77	38%
2	37	18%
3	9	4%
4	50	25%
5	28	14%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 19/2949 (< 1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 215/2949 (7%)
Number of tracts reported to FCC, but no census blocks reported to project: 4

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/2949 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/2949 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 1

Web Search Verification: 17/2949 (1%) of census blocks were confirmed using online search feature of given provider

Anne Arundel WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	85	6%
Result is yes and census block is in served area	17	20%
Result is yes but not in a census block reported as served	15	18%
Result is no and census block is in served area	0	0%
Result is no and census block not served area	53	62%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Antietam Cable Television, Inc.

DBA Name: Antietam Cable Television, Inc

Data Characteristics

Date of Original Submission:	7/29/2010
Date of Update Submission:	9/9/2013
Currency of Data:	6/30/2013
FRN:	0002154367
Type of data submitted:	Addresses
Census Block Count:	2821
Total Matched Address Points Count:	62681
Unmatched Address Points:	90
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 62167
  - Number unmatched: 645
- Unmatched address are geocoded to Maryland Property View address locator
  - Number matched: 555
  - Number unmatched: 90
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Select by location the address points that are completely within a greater than two square mile census block
  - Export as address points to be loaded into the NTIA data model
    - Result: BB_Service_Address
  - Switch the selection and export as points to create census blocks

Census Block Process:

- Join delivered tract table to 2010 census tracts, calculate provider fields, export results
  - Load results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	2831	100%

Max Upload Category	Count	% of Blocks
7	2831	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
6	10	0%
9	2821	100%

Typical Upload Category	Count	% of Blocks
3	2831	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	1	0%
3	5	2%
4	35	16%
5	133	59%
6	15	7%
7	16	7%
8	6	3%
9	2	1%
10	11	5%

Speed Test Upload Tier	Count	% of Tests
1	1	0%
2	36	16%
3	139	62%
4	42	19%
5	2	1%
6	4	2%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 3/2821 (< 1%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	4	2%
2	9	3%
3	17	6%
4	58	22%
5	128	48%
6	38	14%
7	10	4%

Speed Test Upload Tier	Count	% of Tests
1	10	4%
2	18	7%
3	197	75%
4	35	13%
5	4	2%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 16/2821 (< 1%)

Form 477Verification:
Number of census blocks reported to project, but no tract reported to FCC: 0/2821 (< 1%)
Number of tracts reported to FCC, but no census blocks reported to project: 0

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 3/2821 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 3

Number of census blocks with dead zones reported via mdbroadbandmap.org: 7/2821 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 9

Web Search Verification: 45/2821 (2%) of census blocks were confirmed using online search feature of given provider.

Antietam WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	144	10%
Result is yes and census block is in served area	45	31%
Result is yes but not in a census block reported as served	3	2%
Result is no and census block is in served area	69	48%
Result is no and census block not served area	75	52%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 8 census block increase.

Armstrong Holdings, Inc.

DBA Name: Armstrong Utilities, Inc.

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	8/26/2013
Currency of Data:	6/30/2013
FRN:	0003765617
Type of data submitted:	Coverage Area & Road Segments
Census Block Count:	2078
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Digitize delivered coverage area
- Select by location 2010 census blocks intersecting delivered coverage area
- Add provider fields
    - Result: BB_Service_CensusBlock

Road Segment Process:

- Create beginning and ending road segment addresses for all submitted road segments by concatenating the address number, street direction, street name, street type.
- Remove any duplicate addresses and those with no address number.
- Address-match those road segment addresses against the ArcGIS US Streets geocoding service to create beginning/ending road segment points
- Select those TIGER line segments that are within 10 m of a segment point location
- Spatial join the points to the TIGER lines so that the Technology of Transmission and Speed Tiers are attached to the appropriate line segment.
- Select just those line segments that intersect the census blocks that are greater than 2 square miles
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	2078	100%

Max Upload Category	Count	% of Blocks
5	2078	100%

Road Segments

Max Download Category	Count	% of Road Segments
9	198	100%

Max Upload Category	Count	% of Road Segments
5	198	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	12	13%
3	3	3%
4	3	3%
5	16	17%
6	47	50%
7	13	14%

Speed Test Upload Tier	Count	% of Tests
1	2	2%
2	9	10%
3	16	17%
4	63	67%
5	3	3%
6	1	1%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 48/2078 (2.3%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	33	11%
2	102	34%
3	39	13%
4	25	8%
5	39	13%
6	52	17%
7	13	4%

Speed Test Upload Tier	Count	% of Tests
1	47	16%
2	71	23%
3	42	14%
4	133	44%
5	10	3%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 14/2078 (< 1%)

Form 477Verification:

Number of census blocks reported to project, but no tract reported to FCC: 4/2592 (<%)
Number of tracts reported to FCC, but no census blocks reported to project: 3

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 9/2592 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 9

Number or census blocks with dead zones reported via mdbroadbandmap.org: 10/2592 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 14

Web Search Verification: 46/2592 (2%) of census blocks were confirmed using online search feature of given provider

Armstrong WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	166	11%
Result is yes and census block is in served area	46	28%
Result is yes but not in a census block reported as served	40	24.1%
Result is no and census block is in served area	0	0%
Result is no and census block not served area	80	48%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 514 census block decrease.

AT&T Mobility LLC

DBA Name: AT&T Mobility LLC

Data Characteristics

Date of Original Submission:	3/9/2010
Date of Update Submission:	7/22/2013
Currency of Data:	6/30/2013
FRN:	0004979233
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
4	4	80%
7	1	20%

Max Upload Category	Count	% of Area
3	4	80%
5	1	20%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 - 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	195	15%
2	270	21%
3	383	30%
4	337	27%
5	67	5%
6	5	0%
7	6	0%

Speed Test Upload Tier	Count	% of Tests
1	701	56%
2	334	26%
3	174	14%
4	39	3%
5	7	1%
6	1	0%
7	4	0%
8	3	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 1261/1263 (99.8%)
Number of mobile speed tests reported outside coverage area: 2/1263 (<1%)

Typical down/upload speed from 2010 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	4	40%
2	3	30%
3	2	20%
4	1	10%

Speed Test Upload Tier	Count	% of Tests
1	5	50%
2	2	20%
3	3	30%

#/% of computer based speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 10/10 (100%)
Number of mobile speed tests reported outside coverage area: 0/10 (0%)

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 1391/1391 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/1391 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 302/303 (99.7%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 750/761 (98.6%)

Web Search Verification: N/A

Wireless Verification: N/A

Atlantech Online, Inc.

DBA: Atlantech Online, Inc.

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	9/10/2013
Currency of Data:	6/30/2013
FRN:	0018854935
Type of data submitted:	Address Table
Census Block Count:	22
Total Matched Address Points Count:	39
Unmatched Address Points:	0
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Census Block Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 39
  - Number unmatched: 0
- Spatially join matched address points to 2010 census blocks
- Separate addresses by technology of transmission

Census Block Process:

- Join the spatial join result to the 2010 census blocks based on the GEOID10 field for each technology
  - Export results for each technology
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
11	2	9%
7	20	91%

Max Upload Category	Count	% of Blocks
11	2	9%
7	20	91%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	6	13%
4	1	2%
5	20	44%
6	10	22%
7	3	7%
8	2	4%
9	3	7%

Speed Test Upload Tier	Count	% of Tests
2	1	2%
3	10	22%
4	12	27%
5	11	24%
6	3	7%
7	4	9%
8	2	4%
9	2	4%

Computer based speed tests match reported typical speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 10/22 (45%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	2	13%
2	4	25%
3	5	31%
5	2	13%
6	3	19%
7	2	13%

Speed Test Upload Tier	Count	% of Tests
1	5	31%
2	3	19%
3	3	19%
5	2	13%
6	3	19%
7	2	13%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 13/22 (59%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 0/22 (0%)
Number of tracts reported to FCC, but no census blocks reported to project: 51

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 1/22 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/22 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Fall 2012 Submission to Spring 2013 Submission: no change

Atlantic Broadband (Penn), LLC

DBA Name: Atlantic Broadband

Data Characteristics

Date of Original Submission:	3/26/2011
Date of Update Submission:	N/A
Currency of Data:	12/31/2012
FRN:	0009596883
Type of data submitted:	Address Table
Census Block Count:	3870
Total Matched Address Points Count:	63765
Unmatched Address Points:	4183
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq. miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland Cascading address locator
  - Number matched: 59443
  - Number unmatched: 8505
- Unmatched address are geocoded to Maryland Property View address locator
  - Number matched: 3282
  - Number unmatched: 5223
- Unmatched addresses are geocoded to Maryland center line address locator
  - Number matched: 1040
  - Number unmatched: 4183
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Select by location the address points that are completely within a greater than two square mile census block
  - Export as address points to be loaded into the NTIA data model
    - Result: BB_Service_Address
  - Switch the selection and export as points to create census blocks

Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2010 census blocks based on the GEOID10 field

- Export results Load exported results into the NTIA data model
  - Result: BB_Service_CensusBlock

Data Modification:

- Provider submitted 92 addresses with Category of End User of 3 - Small Business. The SBDD data model does not allow this code for addresses; the 92 addresses were changed to 5 – Other.

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
7	3870	100%

Max Upload Category	Count	% of Blocks
3	3611	93%
4	259	7%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
7	3870	100%

Typical Upload Category	Count	% of Blocks
3	3870	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	6	13%
4	1	2%
5	20	44%
6	10	22%
7	3	7%
8	2	4%
9	3	7%

Speed Test Upload Tier	Count	% of Tests
2	1	2%
3	10	22%
4	12	27%
5	11	24%
6	3	7%
7	4	9%
8	2	4%
9	2	4%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 10/3870 (< 1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	2	13%
2	4	25%
3	5	31%
5	2	13%

Speed Test Upload Tier	Count	% of Tests
1	5	31%
2	3	19%
3	3	19%
5	2	13%

6	3	19%
7	2	13%

6	3	19%
7	2	13%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 25/3870 (< 1%)

Form 477Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 4/3870 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 5

Number or census blocks with dead zones reported via mdbroadbandmap.org: 16/3870 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 23

Web Search Verification: 78/3870 (2%) of census blocks were confirmed using online search feature of given provider

Atlantic Broadband WebSearch Verification Table	**Count**	**Percentage**
Total # of sample points	1496	
Number of sample points with results	1496	100%
Result is yes and census block is in served area	78	5%
Result is yes but not in a census block reported as served	122	8%
Result is no and census block is in served area	2	0%
Result is no and census block not served area	1290	86%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Bay Country Communications, Inc.

DBA Name: Bay Country Communications, Inc.

Data Characteristics

Date of Original Submission:	8/9/2010
Date of Update Submission:	7/10/2013
Currency of Data:	6/30/2013
FRN:	0020136552
Type of data submitted:	Census Block Table
Census Block Count:	1841
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Census Block Process:

- Join the provided census block table to the 2010 census blocks based on the 2010 block name field
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
7	1841	100%

Max Upload Category	Count	% of Blocks
7	1841	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
4	1841	100%

Typical Upload Category	Count	% of Blocks
2	1841	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	2	100%

Speed Test Upload Tier	Count	% of Tests
2	2	100%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: Yes

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/1841 (<1%)

Form 477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov:
1/1841 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org:
3/1841 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 5

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Believe Wireless, LLC.

DBA: Believe Wireless Broadband

Data Characteristics

Date of Original Submission:	3/1/2011
Date of Update Submission:	9/13/2013
Currency of Data:	6/30/2013
FRN:	9999
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Use raster analysis to extract coverage area from map
- Repair Geometry on coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
7	1	100%

Max Upload Category	Count	% of Area
7	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
6	1	100%

Typical Upload Category	Count	% of Area
6	1	100%

Typical down/upload speed from 2010 - 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
2	1	10%
3	1	10%
4	4	40%
5	3	30%
6	1	10%

Speed Test Upload Tier	Count	% of Tests
2	1	10%
3	1	10%
4	7	70%
5	1	10%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: No

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 9/10 (90.0%)
Number of mobile speed tests reported outside coverage area: 1/10 (10%)

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 18/303 (5.9%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 14/761 (1.8 %)

Web Search Verification: N/A

Wireless Verification: N/A

Bloosurf

DBA: Bloosurf

Data Characteristics

Date of Original Submission:	2/28/2011
Date of Update Submission:	9/11/2013
Currency of Data:	6/30/2013
FRN:	0019496462
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Digitize coverage area from map, process delivered coverage areas
- Repair Geometry on coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
3	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: N/A
Number of mobile speed tests reported outside coverage area: N/A

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 7/303 (2.3%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 14/761 (1.8%)

Web Search Verification: N/A

Wireless Verification: N/A

Broadview Networks Holdings, Inc.

DBA Name: Broadview Networks Holdings, Inc.

Data Characteristics

Date of Original Submission:	2/24/2010
Date of Update Submission:	9/17/2013
Currency of Data:	6/30/2013
FRN:	0010296853
Type of data submitted:	Address Table
Census Block Count:	600
Total Matched Address Points Count:	797
Unmatched Address Points:	10
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland Cascading address locator
  - Number matched: 786
  - Number unmatched: 23
- Unmatched address are geocoded to Maryland Property View address locator
  - Number matched: 12
  - Number unmatched: 11
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 1
  - Number unmatched: 10
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results for each technology of transmission
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	20	3%
4	496	81%
5	84	14%
6	11	2%

Max Upload Category	Count	% of Blocks
2	37	6%
3	33	5%
4	459	75%
5	72	12%
6	10	2%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	1	17%
3	2	33%
5	1	17%
6	1	17%
9	1	17%

Speed Test Upload Tier	Count	% of Tests
2	2	33%
3	2	33%
5	2	33%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 2/600 (<1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
3	2	29%
4	4	57%
5	1	14%

Speed Test Upload Tier	Count	% of Tests
3	1	14%
4	5	71%
5	1	14%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 4/600 (<1%)

Form 477Verification:
Number of census blocks reported to project, but no tract reported to FCC: 83/600 (13.8%)
Number of tracts reported to FCC, but no census blocks reported to project: 57

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/600 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/600 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 1

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Brookwood Ventures LLC

DBA Name: Brookwood Ventures LLC

Data Characteristics

Date of Original Submission:	3/12/2010
Date of Update Submission:	N/A
Currency of Data:	12/31/2011
FRN:	0018426684
Type of data submitted:	Tracts
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
3	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
4	1	100%

Speed Test Upload Tier	Count	% of Tests
2	1	100%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 1/1 (100%)
Number of mobile speed tests reported outside coverage area: 0/1 (0%)

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 1/1 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/1 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 1/303 (<1%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 3/761 (<1%)

Web Search Verification: N/A

Wireless Verification: N/A

Cavalier Telephone Mid-Atlantic, LLC

DBA Name: Cavalier Telephone Mid-Atlantic, LLC

Data Characteristics

Date of Original Submission:	3/10/2010
Date of Update Submission:	8/27/2013
Currency of Data:	6/30/2013
FRN:	0015799133
Type of data submitted:	Addresses, Middle Mile
Census Block Count:	6856
Total Matched Address Points Count:	10263
Unmatched Address Points:	34
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 10212
  - Number unmatched: 85
- Unmatched address are geocoded to Maryland Property View address locator
  - Number matched: 42
  - Number unmatched: 43
- Unmatched addresses are geocoded to Maryland center line address locator
  - Number matched: 9
  - Number unmatched: 34
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results for each technology of transmission
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Area
8	6856	100%

Max Upload Category	Count	% of Area
8	6856	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	2	1%
2	35	19%
3	35	19%
4	32	17%
5	44	24%
6	22	12%
7	11	6%
8	3	2%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	17	9%
2	115	62%
3	42	23%
4	1	1%
5	3	2%
6	4	2%
7	3	2%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 20/6856 (< 1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	17	14%
2	22	19%
3	17	14%
4	24	20%
5	34	29%
6	3	3%
7	1	1%

Speed Test Upload Tier	Count	% of Tests
1	17	14%
2	55	47%
3	21	18%
4	19	16%
5	3	3%
6	2	2%
7	1	1%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Cellco Partnership and its Affiliated Entities

DBA Name: Verizon Wireless

Data Characteristics

Date of Original Submission:	3/8/2010
Date of Update Submission:	7/25/2013
Currency of Data:	6/30/2013
FRN:	0003290673
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Partial
Provided Max Typical Upload Speed:	Partial
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
3	3	75%
7	1	25%

Max Upload Category	Count	% of Area
2	3	75%
5	1	25%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
no data	3	75%
6	1	25%

Typical Upload Category	Count	% of Area
no data	3	75%
5	1	25%

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	857	16%
2	1830	35%
3	1614	30%
4	910	17%
5	36	1%
6	24	0%
7	29	1%
8	3	0%

Speed Test Upload Tier	Count	% of Tests
1	1150	22%
2	3295	62%
3	699	13%
4	68	1%
5	40	1%
6	8	0%
7	22	0%
8	21	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: No

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 5126/5303 (96.7%)
Number of mobile speed tests reported outside coverage area: 117/5303 (3.3%)

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	43	10%
2	197	48%
3	130	31%
4	43	10%
5	1	0%

Speed Test Upload Tier	Count	% of Tests
1	129	31%
2	282	68%
3	2	0%
4	1	0%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 407/414 (98.3%)
Number of computer based speed tests reported outside coverage area: 7/414 (1.7%)

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 274/303 (90.4%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 694/761 (91.2%)

Web Search Verification: N/A

Wireless Verification: N/A

CHARTER COMMUNICATIONS INC.

DBA Name: CHARTER COMMUNICATIONS INC.

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	7/1/2013
Currency of Data:	6/30/2013
FRN:	0017179383
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	476
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq. miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Join the provided census block table to the 2010 census blocks based on the 2010 block name field
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Road Segment Process:

- Join road segments to TigerLine by TLID, remove driveways
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	476	100%

Max Upload Category	Count	% of Blocks
5	476	100%

Road Segments

Max Download Category	Count	% of Road Segments
10	13	100%

Max Upload Category	Count	% of Road Segments
5	13	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
9	476	100%

Typical Upload Category	Count	% of Blocks
5	476	100%

Road Segments

Typical Download Category	Count	% of Road Segments
9	13	100%

Typical Upload Category	Count	% of Road Segments
5	13	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
4	4	57%
5	2	29%
7	1	14%

Speed Test Upload Tier	Count	% of Tests
2	3	43%
3	4	57%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer bases speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 5/476 (1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	4	19%
2	1	5%
3	3	14%
4	5	24%
5	5	24%

Speed Test Upload Tier	Count	% of Tests
1	1	5%
2	10	48%
3	3	14%
4	4	19%
5	3	14%

6	2	10%
7	1	5%

Mobile bases speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 7/476 (1.5%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 0/476 (0%)
Number of tracts reported to FCC, but no census blocks reported to project: 0

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/476 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 2/476 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 2

Web Search Verification: 2/476 (<1%) of census blocks were confirmed using online search feature of given provider

Charter WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	55	4%
Result is yes and census block is in served area	2	4%
Result is yes but not in a census block reported as served	0	0%
Result is no and census block is in served area	3	5%
Result is no and census block not served area	50	91%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Clearwire Corporation

DBA Name: Clear

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	7/10/2013
Currency of Data:	6/30/2013
FRN:	0017775628
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Provider requested to not have Maryland's standard wireless processing applied
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
4	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
5	1	100%

Typical Upload Category	Count	% of Area
4	1	100%

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	857	16%
2	1830	35%
3	1614	30%
4	910	17%
5	36	1%
6	24	0%
7	29	1%
8	3	0%

Speed Test Upload Tier	Count	% of Tests
1	1150	22%
2	3295	62%
3	699	13%
4	68	1%
5	40	1%
6	8	0%
7	22	0%
8	21	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: Yes

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 534/649 (82.3%)
Number of mobile speed tests reported outside coverage area: 115/649 (17.7%)

Typical down/upload speed from 2010-2012 computer based speed test:

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
4	1	100%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 125/132 (94.7%)
Number of computer based speed tests reported outside coverage area: 7/132 (5.3%)

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 1022/1022 (100)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/1022 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 40/303 (13.2%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 23/761 (3%)

Web Search Verification: N/A

Wireless Verification: N/A

Cogent Communications Group

DBA Name: Cogent Communications Group

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	8/7/2013
Currency of Data:	6/30/2013
FRN:	0019066034
Type of data submitted:	Address Table & Middle Miles
Census Block Count:	12
Total Matched Address Points Count:	13
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq. miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
    - Number matched: 13
    - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
11	12	100%

Max Upload Category	Count	% of Blocks
11	12	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	9	24%
3	8	21%
4	4	11%
5	6	16%
6	8	21%
7	2	5%
8	1	3%

Speed Test Upload Tier	Count	% of Tests
1	2	5%
2	6	16%
3	12	32%
4	4	11%
5	2	5%
6	9	24%
7	3	8%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 16/12 (> 100%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	13	12%
2	14	13%
3	25	23%
4	36	33%
5	5	5%
6	2	2%
7	14	13%

Speed Test Upload Tier	Count	% of Tests
1	8	7%
2	11	10%
3	13	12%
4	45	41%
5	20	18%
6	3	3%
7	9	8%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 29/12 (> 100%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 5/12 (42%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/12 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/12 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 3 census block increase

Comcast Corporation

DBA Name: Comcast Cable Communications, LLC

Data Characteristics

Date of Original Submission:	1/19/2010
Date of Update Submission:	8/9/2013
Currency of Data:	6/30/2013
FRN:	0004441663
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	66572
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See Readme.txt**

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
    - Export results for each technology of transmission
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Road Segment Process:

- Create beginning and ending road segment addresses for all submitted road segments by concatenating the address number, street direction, street name, street type.
- Remove any duplicate addresses and those with no address number.
- Address-match those road segment addresses against the ArcGIS US Streets geocoding service to create beginning/ending road segment points
- Select those TIGER line segments that are within 10 m of a segment point location
- Spatial join the points to the TIGER lines so that the Technology of Transmission and Speed Tiers are attached to the appropriate line segment.
- Select just those line segments that intersect the census blocks that are greater than 2 square miles
    - Export results

- Load exported results into the NTIA data model
  - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	66572	100%

Max Upload Category	Count	% of Blocks
7	66572	100%

Road Segments

Max Download Category	Count	% of Blocks
10	2210	100%

Max Upload Category	Count	% of Blocks
7	2210	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	8	0%
2	65	1%
3	171	3%
4	140	2%
5	541	8%
6	873	13%
7	4283	65%
8	435	7%
9	77	1%
10	17	0%

Speed Test Upload Tier	Count	% of Tests
1	40	1%
2	223	3%
3	372	6%
4	1333	20%
5	4192	63%
6	356	5%
7	89	1%
8	4	0%
9	1	0%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 59/66572 (<1%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	342	2%
2	580	3%
3	668	3%

Speed Test Upload Tier	Count	% of Tests
1	491	2%
2	828	4%
3	1233	6%

4	1284	6%
5	2577	12%
6	3747	18%
7	10669	52%
8	838	4%
9	5	0%

4	2726	13%
5	10284	50%
6	2985	14%
7	2110	10%
8	51	0%
9	1	0%
10	1	0%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 434/66572 (<1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 344/66572 (<1%)
Number of tracts reported to FCC, but no census blocks reported to project: 3

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 119/66572 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 174

Number of census blocks with dead zones reported via mdbroadbandmap.org: 227/66120 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 357

Web Search Verification:
478/66120 (<1%) of census blocks were confirmed using online search feature of given provider

Comcast WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	1016	68%
Result is yes and census block is in served area	478	47%
Result is yes but not in a census block reported as served	249	25%
Result is no and census block is in served area	0	0%
Result is no and census block not served area	285	28%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 452 census block increase

Easton Utilities Commission

DBA Name: Easton Utilities Commission

* Easton Utilities Commission provides wireline and wireless service

Data Characteristics

Date of Original Submission:	2/5/2010
Date of Update Submission:	8/7/2013
Currency of Data:	6/30/2012
FRN:	0003793726
Type of data submitted:	Addresses, Coverage Area
Census Block Count:	1499
Total Matched Address Points Count:	4687
Unmatched Address Points:	3
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Partial
Provided Max Typical Upload Speed:	Partial
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Wireline Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 4316
  - Number unmatched: 374
- Unmatched address are geocoded to MDPV address locator
  - Number matched: 367
  - Number unmatched: 7
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 4
  - Number unmatched: 3
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Select by location the address points that are completely within a greater than two square mile census block
  - Export as address points to be loaded into the NTIA data model
    - Result: BB_Service_Address

- Switch the selection and export as points to create census blocks

Census Block Process:

- Join delivered tract table to 2010 census tracts, calculate provider fields, export results
  - Load results into the NTIA data model
    - Result: BB_Service_CensusBlock

Coverage Area Process:

- Georeference delivered coverage map
- Digitize coverage areas
  - Result: BB_Service_Wireless

Wireline Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	1499	100%

Max Upload Category	Count	% of Blocks
6	1499	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks
9	1499	100%

Typical Upload Category	Count	% of Blocks
3	1499	100%

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	4	4%
3	12	11%
4	10	10%
5	56	53%
6	22	21%
7	1	1%

Speed Test Upload Tier	Count	% of Tests
1	12	11%
2	58	55%
3	31	30%
4	3	3%
5	1	1%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 0/1499 (0%)

Typical down/upload speed from 2010-2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	1	2%
2	2	4%
3	1	2%

Speed Test Upload Tier	Count	% of Tests
1	8	16%
2	10	20%
3	16	33%

4	3	6%
5	8	16%
6	29	59%
7	2	4%
8	3	6%

4	10	20%
5	2	4%
7	3	6%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/1499 (<1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 441/1499 (29%)
Number of tracts reported to FCC, but no census blocks reported to project: 0

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/1499 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 7

Number of census blocks with dead zones reported via mdbroadbandmap.org: 7/1499 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 11

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

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Wireless Data Processing

Coverage Area Process:

- Digitize delivered map
- Repair Geometry on delivered coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Wireless Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
3	1	100%

Max Upload Category	Count	% of Area
2	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests

Speed Test Upload Tier	Count	% of Tests

1	1	2%
2	2	4%
3	1	2%
4	3	6%
5	8	16%
6	29	59%
7	2	4%
8	3	6%

1	8	16%
2	10	20%
3	16	33%
4	10	20%
5	2	4%
7	3	6%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 48/49 (98%)
Number of mobile speed tests reported outside coverage area: 1/49 (2.0%)

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 3 /3 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/3 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 0/303 (0%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 2/761 (< 1%)

Web Search Verification: N/A

Wireless Verification: N/A

FiberLight LLC

DBA Name: FiberLight LLC

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	N/A
Currency of Data:	12/31/2011
FRN:	0014117139
Type of data submitted:	Census Block Table
Census Block Count:	1128
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Census Block Process:

- Join census block table to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	1128	100%

Max Upload Category	Count	% of Blocks
10	1128	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/1128 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 1

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/1128 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 1

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Freedom Wireless Broadband, LLC

DBA Name: Freedom Wireless Broadband, LLC

Data Characteristics

Date of Original Submission:	1/28/2010
Date of Update Submission:	8/20/2013
Currency of Data:	6/30/2013
FRN:	0018643155
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Process delivered coverage area
- Repair Geometry on coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
4	1	33%
5	1	33%
7	1	33%

Max Upload Category	Count	% of Area
4	1	33%
5	1	33%
7	1	33%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Area
4	1	33%
5	1	33%
7	1	33%

Typical Upload Category	Count	% of Area
4	1	33%
5	1	33%
7	1	33%

Typical down/upload speed from 2010-2012 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: N/A
Number of mobile speed tests reported outside coverage area: N/A

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 17 /17 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/17 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 25/303 (8.3%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 43/761 (5.7%)

Web Search Verification: N/A

Wireless Verification: N/A

Gans Communications, LP

DBA: MetroCast Communications

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	9/12/2013
Currency of Data:	6/30/2013
FRN:	0016642761
Type of data submitted:	Tracts, Road Segments
Census Block Count:	2117
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Road Segment Process:

- Join road segments to 2009 TigerLine by TLID
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	2117	100%

Max Upload Category	Count	% of Blocks
4	775	37%
5	1342	63%

Road Segments

Max Download Category	Count	% of Segments
9	800	100%

Max Upload Category	Count	% of Segments
4	228	29%
5	572	72%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	3	4%
4	9	13%
5	12	18%
6	26	39%
7	17	25%

Speed Test Upload Tier	Count	% of Tests
1	18	27%
2	31	46%
3	16	24%
4	2	3%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/2117 (< 1%)

Typical down/upload speed from 2010-2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	6	5%
3	7	6%
4	11	9%
5	19	15%
6	32	26%
7	50	40%

Speed Test Upload Tier	Count	% of Tests
1	7	6%
2	20	16%
3	45	36%
4	51	41%
5	2	2%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 3/2117 (< 1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov:
6/2117 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 7

Number of census blocks with dead zones reported via mdbroadbandmap.org: 29/2467 (1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 42

Web Search Verification: 36/2467 (2%) of census blocks were confirmed using online search feature of given provider

MetroCast Web Search Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	107	7%
Result is yes and census block is in served area	36	34%
Result is yes but not in a census block reported as served	20	19%
Result is no and census block is in served area	1	1%
Result is no and census block not served area	50	47%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 350 census block decrease

HNS License Sub, LLC

DBA: Hughes Communications, Inc.

Data Characteristics

Date of Original Submission:	2/2/2010
Date of Update Submission:	8/7/2013
Currency of Data:	6/30/2013
FRN:	0018483073
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
7	1	100%

Max Upload Category	Count	% of Area
4	1	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Area
3	1	100%

Typical Upload Category	Count	% of Area
2	1	100%

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests

Speed Test Upload Tier	Count	% of Tests

1	30	30%
2	42	42%
3	11	11%
4	9	9%
5	7	7%
6	1	1%

1	23	23%
2	47	47%
3	8	8%
4	9	9%
5	11	11%
7	2	2%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: Yes

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 100/100 (100%)
Number of mobile speed tests reported outside coverage area: 0/100 (0.0%)

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	11	10%
3	39	35%
4	1	1%
5	3	3%
6	23	21%
7	27	25%
8	5	5%
9	1	1%

Speed Test Upload Tier	Count	% of Tests
1	23	21%
2	39	35%
3	21	19%
4	10	9%
5	4	4%
6	9	8%
7	3	3%
8	1	1%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 110/110 (100%)
Number of computer based speed tests reported outside coverage area: 0/110 (0.0%)

Form477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 303/303 (100%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 761/761 (100%)

Web Search Verification: N/A

Wireless Verification: N/A

Hotwire Communications, Ltd

DBA Name: Hotwire Communications, Ltd

Data Characteristics

Date of Original Submission:	2/19/2010
Date of Update Submission:	8/14/2013
Currency of Data:	6/30/2013
FRN:	0009846494
Type of data submitted:	Addresses
Census Block Count:	1
Total Matched Address Points Count:	1
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 1
  - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
5	1	100%

Max Upload Category	Count	% of Blocks
3	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Leap Wireless International, Inc

DBA: Cricket Communications

Data Characteristics

Date of Original Submission:	3/17/2010
Date of Update Submission:	8/26/2013
Currency of Data:	6/30/2013
FRN:	0002963528
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
3	1	100%

Max Upload Category	Count	% of Area
2	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	64	70%
2	20	22%
3	3	3%
4	5	5%

Speed Test Upload Tier	Count	% of Tests
1	23	25%
2	54	59%
3	12	13%
7	1	1%
8	2	2%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 92/92 (100%)
Number of mobile speed tests reported outside coverage area: 0/92 (0.0%)

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	1	100%

Speed Test Upload Tier	Count	% of Tests
2	1	100%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 1/1 (100%)
Number of computer based speed tests reported outside coverage area: 0/1 (0.0%)

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 1146/1146 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/1146 (0.0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 128/303 (42.2%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 190/761 (25%)

Web Search Verification: N/A

Wireless Verification: N/A

Level 3 Communications, LLC

DBA Name: Level 3 Communications, LLC

Data Characteristics

Date of Original Submission:	1/18/2010
Date of Update Submission:	8/9/2013
Currency of Data:	6/30/2013
FRN:	0003723822
Type of data submitted:	Address Table
Census Block Count:	1437
Total Matched Address Points Count:	2315
Unmatched Address Points:	82
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland Property View address locator
  - Number matched: 1673
  - Number unmatched: 2724
- Unmatched address are geocoded to Maryland iMap Cascading address locator
  - Number matched: 642
  - Number unmatched: 82
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Select by location the address points that are completely within a greater than two square mile census block
  - Export as address points to be loaded into the NTIA data model
    - Result: BB_Service_Address
  - Switch the selection and export as points to create census blocks

Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2010 census blocks based on the GEOID10 field
  - Export results Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
11	1437	100%

Max Upload Category	Count	% of Blocks
11	1437	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
11	1437	100%

Typical Upload Category	Count	% of Blocks
11	1437	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	35	32%
2	4	4%
3	22	20%
4	6	6%
5	7	6%
6	5	5%
7	13	12%
8	13	12%
9	3	3%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	20	18%
2	28	26%
3	21	19%
4	11	10%
5	5	5%
6	12	11%
7	10	9%
8	2	2%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 52/1437 (3.6%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	2	4.8%
3	8	19.0%
4	7	16.7%
5	11	26.2%
6	8	19.5%
7	6	14.3%

Speed Test Upload Tier	Count	% of Tests
1	2	5%
2	3	7%
3	8	19%
4	6	14%
5	7	17%
6	12	29%
7	3	7%
8	1	2%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 20/1437 (1.4%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 827/1437 (57.6%)
Number of tracts reported to FCC, but no census blocks reported to project: 2

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 3/1437 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 4

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/1437 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 958 census block increase

Mediacom Communications

DBA: Mediacom Delaware LLC

Data Characteristics

Date of Original Submission:	8/4/2011
Date of Update Submission:	8/26/2013
Currency of Data:	6/30/2013
FRN:	0003572633
Type of data submitted:	Addresses
Census Block Count:	524
Total Matched Address Points Count:	11418
Unmatched Address Points:	253
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 11418
  - Number unmatched: 253
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	524	100%

Max Upload Category	Count	% of Blocks
3	524	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
9	524	100%

Typical Upload Category	Count	% of Blocks
3	524	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	1	2%
4	9	18%
5	5	10%
6	15	30%
7	20	40%

Speed Test Upload Tier	Count	% of Tests
2	6	12%
3	31	62%
4	11	22%
5	2	4%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 27/524 (5.2%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
2	3	3%
3	4	4%
4	18	18%
5	45	45%
6	25	25%
7	5	5%

Speed Test Upload Tier	Count	% of Tests
1	1	1%
2	11	11%
3	74	74%
4	13	13%
5	1	1%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 9/524 (1.7%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 0/524 (0%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 5/524 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 7

Number of census blocks with dead zones reported via mdbroadbandmap.org: 2/524 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 4

Web Search Verification: 11/524 (2%) of census blocks were confirmed using online search feature of given provider

Mediacom WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	85	6%
Result is yes and coverage area is in served area	11	13%
Result is yes but not in a coverage area reported as served	17	20%
Result is no and coverage area is in served area	3	4%
Result is no and coverage area is not in served area	54	64%

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 2 census block decrease

MegaPath Corporation

DBA: MegaPath Corp

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	7/16/2013
Currency of Data:	6/30/2013
FRN:	0003753787
Type of data submitted:	Census Block Table, Road Segments, Middle Mile
Census Block Count:	73622
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
    - Export results for each technology of transmission
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Road Segment Process:

- Join road segments to 2010 TigerLine by TLID
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	403	0%
4	9637	6%
5	75465	50%
6	29024	19%
7	30546	20%
8	5590	4%

Max Upload Category	Count	% of Blocks
2	29024	19%
3	12069	8%
4	8656	6%
5	68765	46%
7	26561	18%
8	5590	4%

Road Segments

Max Download Category	Count	% of Roads
4	193	10%
5	1601	80%
6	191	10%
7	8	0%

Max Upload Category	Count	% of Roads
2	191	10%
4	193	10%
5	1601	80%
7	8	0%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	1857	1%
4	21906	15%
5	90766	60%
6	6279	4%
7	25177	17%
8	4680	3%

Typical Upload Category	Count	% of Blocks
2	36705	24%
3	4861	3%
4	15206	10%
5	61742	41%
6	4960	3%
7	22511	15%
8	4680	3%

Road Segments

Typical Download Category	Count	% of Roads
4	217	11%
5	1768	89%
7	8	0%

Typical Upload Category	Count	% of Roads
2	191	10%
4	217	11%
5	1577	79%
7	8	0%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	1	1%
2	13	13%

Speed Test Upload Tier	Count	% of Tests
1	26	25%
2	40	39%

3	52	50%
4	23	22%
5	5	5%
6	6	6%
7	2	2%
10	1	1%

3	23	22%
4	10	10%
5	4	4%

Computer based speed tests match reported typical speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 54/73622 (<1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
1	1	1%
2	21	19%
3	33	29%
4	43	38%
5	10	9%
6	3	3%
7	1	1%

Speed Test Upload Tier	Count	% of Tests
1	8	7%
2	78	70%
3	21	19%
4	2	2%
5	2	2%
7	1	1%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/73622 (< 1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC:
13123/73622 (17.8%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov:
62/73622 (< 1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 77

Number of census blocks with dead zones reported via mdbroadbandmap.org:
77/73622 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 124

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Mountain Communications, LLC

DBA: ProCom

Data Characteristics

Date of Original Submission:	5/31/2010
Date of Update Submission:	9/19/2013
Currency of Data:	6/30/2013
FRN:	0008039323
Type of data submitted:	Census Blocks, Road Segments
Census Block Count:	161
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Road Segment Process:

- Road segments are 2009 geometry
- Join road segments to TigerLine by TLID
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	161	100%

Max Upload Category	Count	% of Blocks
10	161	100%

Road Segments

Max Download Category	Count	% of Blocks
10	95	100%

Max Upload Category	Count	% of Blocks
10	161	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 73/161 (45%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 1/161 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 1

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/161 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Neon Connect, Inc
DBA: Sidera Networks

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	7/18/2013
Currency of Data:	6/30/2013
FRN:	0006254403
Type of data submitted:	Addresses, Middle Mile
Census Block Count:	1
Total Matched Address Points Count:	1
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
    - Number matched: 1
    - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	1	100%

Max Upload Category	Count	% of Blocks
10	1	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
10	1	100%

Typical Upload Category	Count	% of Blocks
10	1	100%

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/1 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/1 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

New Edge Holding Company

DBA Name: New Edge Network, Inc

Data Characteristics

Date of Original Submission:	1/22/2010
Date of Update Submission:	N/A
Currency of Data:	6/30/2011
FRN:	0003720471
Type of data submitted:	Address Table
Census Block Count:	273
Total Matched Address Points Count:	371
Unmatched Address Points:	0
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap address locator
    - Number matched: 371
    - Number unmatched: 0
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission
- Select by location the address points that are completely within a greater than two square mile census block
    - Export as address points to be loaded into the NTIA data model
        - Result: BB_Service_Address
    - Switch the selection and export as points to create census blocks

Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2010 census blocks based on the GEOID10 field
    - Export results (for each technology of transmission)
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	58	20%
4	216	73%
5	20	7%
7	1	0%

Max Upload Category	Count	% of Blocks
2	167	57%
3	80	27%
4	47	16%
7	1	0%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	58	20%
4	216	73%
5	20	7%
7	1	0%

Typical Upload Category	Count	% of Blocks
2	167	56%
3	80	28%
4	47	16%
7	1	0%

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
3	3	33%
4	7	78%

Speed Test Upload Tier	Count	% of Tests
2	4	44%
3	2	22%
4	4	44%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 4/273 (1.5%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/273 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 2/273 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 3

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

PAETEC Communications, Inc.

DBA Name: PAETEC Communications, Inc.

Data Characteristics

Date of Original Submission:	2/28/2011
Date of Update Submission:	8/27/2013
Currency of Data:	6/30/2013
FRN:	0011017795
Type of data submitted:	Address Table
Census Block Count:	301
Total Matched Address Points Count:	373
Unmatched Address Points:	4
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 373
  - Number unmatched: 4
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
11	315	100%

Max Upload Category	Count	% of Blocks
11	315	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	92	29%
4	223	71%

Typical Upload Category	Count	% of Blocks
3	92	29%
4	223	71%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	62	56%
2	3	3%
3	23	21%
4	14	13%
5	5	5%
8	3	3%

Speed Test Upload Tier	Count	% of Tests
1	57	52%
2	11	10%
3	23	21%
4	11	10%
5	7	6%
7	1	1%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 22/301 (7.3%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	15	15%
2	21	21%
3	31	32%
4	15	15%
5	8	8%
6	1	1%
7	7	7%

Speed Test Upload Tier	Count	% of Tests
1	9	9%
2	17	17%
3	19	19%
4	10	10%
5	10	10%
6	5	5%
7	28	29%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 41/301 (13.6%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 4/301 (1%)
Number of tracts reported to FCC, but no census blocks reported to project: 597

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/301 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 2/301 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 3

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

QCOL, Inc.

DBA Name: QCOL

Data Characteristics

Date of Original Submission:	5/31/2010
Date of Update Submission:	8/7/2013
Currency of Data:	6/30/2013
FRN:	0019663095
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	308
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

***See ReadMe.txt**

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
  - Export results for each technology of transmission
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Road Segment Process:

- Join road segments to 2009 TigerLine by TLID
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
10	205	55%

Max Upload Category	Count	% of Blocks
10	205	55%

6	167	45%

6	167	45%

Road Segments

Max Download Category	Count	% of Segments
10	27	56%
6	21	44%

Max Upload Category	Count	% of Segments
10	27	56%
6	21	44%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
4	2	50%
5	1	25%
6	1	25%

Speed Test Upload Tier	Count	% of Tests
2	1	25%
3	2	50%
5	1	25%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/308 (<1%)

Typical down/upload speed from 2010 – 2012 mobile based speed test:

Speed Test Download Tier	Count	% of Tests
2	2	29%
3	2	29%
4	1	14%
5	1	14%
6	1	14%

Speed Test Upload Tier	Count	% of Tests
2	3	43%
3	2	29%
4	2	29%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 5/308 (2%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 11/308 (3.6%)
Number of tracts reported to FCC, but no census blocks reported to project: 0

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 3/308 (1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 3

Number of census blocks with dead zones reported via mdbroadbandmap.org: 3/308 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 3

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Shenandoah Personal Communications, LLC

DBA Name: Shentel (Sprint Affiliate)

Data Characteristics

Date of Original Submission:	3/7/2013
Date of Update Submission:	8/28/2013
Currency of Data:	6/30/2013
FRN:	0021503834
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Blocks
5	1	100%

Max Upload Category	Count	% of Blocks
4	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Blocks
5	1	100%

Typical Upload Category	Count	% of Blocks
4	1	100%

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests

Speed Test Upload Tier	Count	% of Tests

1	38	6%
2	81	12%
3	161	25%
4	204	31%
5	118	18%
6	39	6%
7	7	1%
8	1	0%

1	85	13%
2	215	33%
3	327	50%
4	19	3%
7	3	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: Yes

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 7/7 (100%)
Number of mobile speed tests reported outside coverage area: 0/7 (0.0%)

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	11	8%
3	16	12%
4	29	22%
5	49	37%
6	24	18%
7	3	2%

Speed Test Upload Tier	Count	% of Tests
1	7	5%
2	32	24%
3	93	70%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 50/51 (98.0%)
Number of computer based speed tests reported outside coverage area: 1/51 (1.9%)

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 17/303 (5.6%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 35/761 (4.6%)

Web Search Verification: N/A

Wireless Verification: N/A

Shenandoah Cable Television, LLC

DBA: Shentel

Data Characteristics

Date of Original Submission:	5/31/2010
Date of Update Submission:	8/28/2013
Currency of Data:	6/30/2013
FRN:	0021657853
Type of data submitted:	CAI, Census Blocks, Middle Mile, Road Segments
Census Block Count:	617
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

Data Processing

Census Block Process:

- Join the census block table to the 2010 census blocks based on the GEOID10 field
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Road Segment Process:

- Join the road segment table to the 2010 Tiger Lines based on TLID field
    - Load exported results into the NTIA data model
        - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
9	617	100%

Max Upload Category	Count	% of Blocks
7	617	100%

Road Segments

Max Download Category	Count	% of Blocks
9	68	100%

Max Upload Category	Count	% of Blocks
7	68	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
9	617	100%

Typical Upload Category	Count	% of Blocks
7	617	100%

Road Segments

Typical Download Category	Count	% of Blocks
9	68	100%

Typical Upload Category	Count	% of Blocks
7	68	100%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
2	1	2%
3	3	6%
4	5	10%
5	13	25%
7	3	6%
8	6	12%
9	9	18%
10	11	22%

Speed Test Upload Tier	Count	% of Tests
1	2	4%
2	9	18%
3	18	35%
4	22	43%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: No

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 6/617 (<1%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
3	2	29%
4	1	14%
5	4	57%

Speed Test Upload Tier	Count	% of Tests
3	7	100%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/617 (<1%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: N/A
Number of tracts reported to FCC, but no census blocks reported to project: N/A

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/617 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/617 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Skycasters

DBA Name: Skycasters

Data Characteristics

Date of Original Submission:	9/13/2012
Date of Update Submission:	7/10/2013
Currency of Data:	6/30/2013
FRN:	0018756155
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
6	1	100%

Max Upload Category	Count	% of Area
4	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
5	1	100%

Typical Upload Category	Count	% of Area
2	1	100%

Typical down/upload speed from 2010-2012 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 303/303 (100%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 761/761 (100%)

Web Search Verification: N/A

Sprint Nextel Corporation

DBA Name: Sprint Nextel Corporation

Data Characteristics

Date of Original Submission:	2/18/2010
Date of Update Submission:	7/29/2013
Currency of Data:	6/30/2013
FRN:	0003774593
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
3	1	33%
5	1	33%
6	1	33%

Max Upload Category	Count	% of Area
2	1	33%
3	1	33%
4	1	33%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
3	1	33%

Typical Upload Category	Count	% of Area
2	1	33%

5	1	33%
6	1	33%

3	1	33%
4	1	33%

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	2476	17%
2	4038	28%
3	2673	19%
4	2855	20%
5	1694	12%
6	374	3%
7	129	1%
8	4	0%

Speed Test Upload Tier	Count	% of Tests
1	3456	24%
2	6480	45%
3	3623	25%
4	358	3%
5	163	1%
6	64	0%
7	57	0%
8	42	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: Yes

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 13848/14243 (97.2%)
Number of mobile speed tests reported outside coverage area: 395/14243 (2.8%)

Typical down/upload speed from 2010-2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	91	14%
2	277	41%
3	240	36%
4	21	3%
5	14	2%
6	7	1%
7	10	1%
8	6	1%
9	4	1%

Speed Test Upload Tier	Count	% of Tests
1	223	33%
2	398	59%
3	22	3%
4	6	1%
5	8	1%
6	9	1%
7	2	0%
8	2	0%

#/% of computer based speed tests verifying coverage area:
Number of computer based speed tests reported inside coverage area: 150/670 (22.4%)
Number of computer based speed tests reported outside coverage area: 520/670 (77.6%)

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 1376/1376 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/1376 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov:
190/303 (62.7%)
Number of dead zones reported within coverage area via mdbroadbandmap.org:
423/761 (55.6%)

Web Search Verification: N/A

Wireless Verification: N/A

StarBand Communications Inc.

DBA Name: StarBand Communications Inc.

Data Characteristics

Date of Original Submission:	1/26/2010
Date of Update Submission:	7/29/2013
Currency of Data:	6/30/2013
FRN:	0005087457
Type of data submitted:	Coverage
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Modifications: Speed Domains:

- Provider delivered Typical Upstream Speed less than speed tier 2
    - Calculated Typical Upstream speed to 2

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
3	1	100%

Max Upload Category	Count	% of Area
2	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area

Typical Upload Category	Count	% of Area

3	1	100%	2	1	100%

Typical down/upload speed from 2010-2012 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

# of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: N/A
Number of mobile speed tests reported outside coverage area: N/A

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 303/303 (100%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 761/761 (100%)

Web Search Verification: N/A

Wireless Verification: N/A

Starpower Communications, LLC

DBA Name: RCN & RCN Business Solutions

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	9/10/2013
Currency of Data:	6/30/2013
FRN:	0003735016
Type of data submitted:	Address Table
Census Block Count:	1813
Total Matched Address Points Count:	37379
Unmatched Address Points:	0
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Partial
Provided Max Typical Upload Speed:	Partial
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 37379
  - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
7	1304	42%
9	1813	58%

Max Upload Category	Count	% of Blocks
4	1304	42%
6	566	18%
7	1247	40%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
no data		
4	5	0%
5	6	0%
6	1	0%
7	1219	39%
9	566	18%
11	73	2%

Typical Upload Category	Count	% of Blocks
no data		
2	5	0%
3	131	4%
4	1156	37%
5	28	1%
6	433	14%
7	44	1%
11	73	2%

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	12	6%
2	1	1%
4	12	6%
5	38	19%
6	52	27%
7	77	39%
8	1	1%
9	1	1%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	3	2%
2	105	54%
3	9	5%
4	68	35%
5	10	5%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: Yes

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 9/1813 (<1%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	2	1%
2	15	5%
3	16	6%
4	20	7%
5	34	12%
6	80	28%
7	102	36%
8	15	5%

Speed Test Upload Tier	Count	% of Tests
1	6	2%
2	71	25%
3	26	9%
4	131	46%
5	15	5%
6	29	10%
7	6	2%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 34/1813 (1.9%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 1/1813 (<1%)
Number of tracts reported to FCC, but no census blocks reported to project: 2

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 1/1813 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/1813 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 2

Web Search Verification: 4/1813 (< 1%) of census blocks were confirmed using online search feature of given provider

Starpower WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	286	19%
Result is yes and census block is in served area	4	1%
Result is yes but not in a census block reported as served	3	1%
Result is no and census block is in served area	4	1%
Result is no and census block not served area	275	96%

Change in coverage area from Fall 2012 Submission to Spring 2013 Submission: 2 census block decrease

Tata Communications (America) Inc.

DBA Name: Tata Communications (America) Inc.

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	9/10/2013
Currency of Data:	6/30/2013
FRN:	0009480302
Type of data submitted:	Address Table
Census Block Count:	3
Total Matched Address Points Count:	3
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 3
  - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	3	100%

Max Upload Category	Count	% of Blocks
3	3	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test

Speed Test Download Tier	Count	% of Tests
2	1	100%

Speed Test Upload Tier	Count	% of Tests
2	1	100%

Computer based speed tests match reported typical downloaded speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 1/3 (33.3%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 2/3 (66.7%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/3 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/1 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

T-Mobile USA, Inc.

DBA Name: T-Mobile USA, Inc.

Data Characteristics

Date of Original Submission:	2/25/2010
Date of Update Submission:	8/22/2013
Currency of Data:	6/30/2013
FRN:	0006945950
Type of data submitted:	Coverage Area, Middle Mile
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
4	2	25%
6	3	38%
7	3	38%

Max Upload Category	Count	% of Area
2	2	25%
4	5	63%
6	1	13%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
3	2	25%
5	3	38%
6	2	25%
7	1	13%

Typical Upload Category	Count	% of Area
2	2	25%
3	5	63%
5	1	13%

Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	1710	14%
2	2131	17%
3	2072	17%
4	2897	24%
5	2697	22%
6	652	5%
7	140	1%
8	2	0%

Speed Test Upload Tier	Count	% of Tests
1	1815	15%
2	4501	37%
3	3734	30%
4	1950	16%
5	228	2%
6	22	0%
7	40	0%
8	11	0%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: Yes

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 12052/12301 (98.0%)
Number of mobile speed tests reported outside coverage area: 249/12301 (2.0%)

Form477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 143/303 (47.2%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 731/761 (96%)

Web Search Verification: N/A

Wireless Verification: N/A

twtelecom of maryland, llc

DBA Name: twtelecom of maryland, llc

Data Characteristics

Date of Original Submission:	1/30/2010
Date of Update Submission:	8/26/2013
Currency of Data:	6/30/2013
FRN:	0017348202
Type of data submitted:	Address table, Middle Mile
Census Block Count:	139
Total Matched Address Points Count:	215
Unmatched Address Points:	0
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
    - Number matched: 215
    - Number unmatched: 0
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
    - Export results for each technology of transmission
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	11	7%
4	32	22%
5	23	16%
6	10	7%
7	44	30%
8	7	5%
9	6	4%
10	10	7%
11	4	3%

Max Upload Category	Count	% of Blocks
3	11	7%
4	32	22%
5	23	16%
6	10	7%
7	44	30%
8	7	5%
9	6	4%
10	10	7%
11	4	3%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	6	35%
3	2	12%
4	3	18%
5	3	18%
7	3	18%

Speed Test Upload Tier	Count	% of Tests
1	5	29%
2	2	12%
3	1	6%
4	3	18%
5	5	29%
7	1	6%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 11/139 (7.9%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	9	39%
2	2	9%
3	1	4%
4	3	13%
5	3	13%
6	2	9%
7	3	13%

Speed Test Upload Tier	Count	% of Tests
1	6	26%
2	5	22%
3	2	9%
4	1	4%
5	5	22%
6	4	17%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 9/139 (6.5%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 34/139 (24.5%)
Number of tracts reported to FCC, but no census blocks reported to project: 9

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 0/139 (0%)
Total number of dead zones reported per provider via broadband.maryland.gov: 0

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/139 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 17 census block increase

United States Cellular Corporation

DBA Name: US Cellular

Data Characteristics

Date of Original Submission:	2/2/2012
Date of Update Submission:	7/31/2013
Currency of Data:	6/30/2013
FRN:	0004372322
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
4	1	50%
6	1	50%

Max Upload Category	Count	% of Area
3	1	50%
5	1	50%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
4	1	50%
6	1	50%

Typical Upload Category	Count	% of Area
3	1	50%
5	1	50%

Typical down/upload speed from 2010-2012 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: N/A
Number of mobile speed tests reported outside coverage area: N/A

Form 477 Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: N/A
#/% of tracts reported as served to FCC but do not intersect coverage area: N/A

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 30/303 (9.9%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 63/761 (8.3%)

Web Search Verification: N/A

Wireless Verification: N/A

Vector Data Systems LLC

DBA Name: Vector Data Systems LLC

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	9/17/2013
Currency of Data:	6/30/2013
FRN:	0017306663
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area
7	1	100%

Max Upload Category	Count	% of Area
7	1	100%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 mobile speed test: N/A

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:

Number of mobile speed tests reported inside coverage area: N/A

Number of mobile speed tests reported outside coverage area: N/A

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 7/7 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/7 (0.0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov:
5/303 (1.6%)
Number of dead zones reported within coverage area via mdbroadbandmap.org:
0/761 (0.0%)

Web Search Verification: N/A

Wireless Verification: N/A

Verizon Communications Inc

DBA: Verizon Maryland Inc

Data Characteristics

Date of Original Submission:	2/15/2010
Date of Update Submission:	9/3/2013
Currency of Data:	6/30/2013
FRN:	0002166825
Type of data submitted:	Census Block Table, Road Segments, Middle Mile
Census Block Count:	76804
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

Data Processing

Census Block Process:

- Join the census block table to 2010 census blocks based on the GEOID10 field
  - Export results for each technology of transmission
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Road Segment Process:

- Join road segments to 2010 TigerLine by TLID
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_RoadSegment

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
4	11406	12%
5	36324	39%
6	12342	13%

Max Upload Category	Count	% of Blocks
2	11406	12%
3	48666	52%
7	33826	36%

9	33826	36%

Road Segments

Max Download Category	Count	% of Blocks
4	1204	30%
5	1568	39%
6	116	3%
9	1114	28%

Max Upload Category	Count	% of Blocks
2	1204	30%
3	1684	42%
7	1114	28%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	49	1%
2	606	7%
3	805	10%
4	1316	16%
5	511	6%
6	808	10%
7	3046	36%
8	1165	14%
9	102	1%
10	34	0%

Speed Test Upload Tier	Count	% of Tests
1	634	8%
2	2312	27%
3	78	1%
4	967	11%
5	1775	21%
6	722	9%
7	1702	20%
8	244	3%
9	8	0%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 36/76804 (<1%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	593	3%
2	1125	5%
3	1372	6%
4	2372	11%
5	2618	12%
6	3218	15%
7	8844	41%
8	1192	6%
9	2	0%
10	1	0%

Speed Test Upload Tier	Count	% of Tests
1	991	5%
2	3038	14%
3	1039	5%
4	2525	12%
5	4890	23%
6	2646	12%
7	5577	26%
8	624	3%
9	6	0%
10	1	0%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 437/76804 (<1%)

Form 477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 6017/76804 (7.8%)
Number of tracts reported to FCC, but no census blocks reported to project: 0

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 128/76804 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 200

Number of census blocks with dead zones reported via mdbroadbandmap.org: 267/76804 (<1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 404

Web Search Verification: 485/76804 (<1%) of census blocks were confirmed using online search feature of given provider

VerizonMD WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	1428	95%
Result is yes and census block is in served area	485	34%
Result is yes but not in a census block reported as served	57	4%
Result is no and census block is in served area	415	29%
Result is no and census block not served area	467	33%

Change in coverage area from Spring 2013Submission to Fall 2013 Submission: 48 census block increase

ViaSat, Inc.

DBA Name: ViaSat Communications, Inc.

Data Characteristics

Date of Original Submission:	4/21/2010
Date of Update Submission:	9/12/2013
Currency of Data:	6/30/2013
FRN:	0007843766
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Coverage Area Process:

- Repair Geometry on delivered coverage area
- Remove coverage areas less than 0.125 square miles
- Remove coverage area "holes" less than 0.125 square miles
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Coverage Area					
Max Download Category	Count	% of Area	Max Upload Category	Count	% of Area
4	1	50%	2	1	50%
5	1	50%	4	1	50%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010-2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
0	5	50%
3	4	40%
7	1	10%

Speed Test Upload Tier	Count	% of Tests
1	9	90%
5	1	10%

Mobile based speed tests match reported typical download speeds or are within 1 speed tier: N/A

#/% of mobile speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 12/12 (100%)
Number of mobile speed tests reported outside coverage area: 0/12 (0.0%)

Typical down/upload speed from 2010-2012 computer speed test:

Speed Test Download Tier	Count	% of Tests
1	1	8%
2	4	33%
3	4	33%
6	1	8%
7	2	17%

Speed Test Upload Tier	Count	% of Tests
1	9	75%
5	3	25%

#/% of computer based speed tests verifying coverage area:
Number of mobile speed tests reported inside coverage area: 117/117 (100%)
Number of mobile speed tests reported outside coverage area: 0/117 (0.0%)

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 221/221 (100%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0/221 (0%)

Dead zones:
Number of dead zones reported within coverage area via broadband.maryland.gov: 303/303 (100%)
Number of dead zones reported within coverage area via mdbroadbandmap.org: 761/761 (100%)

Web Search Verification: N/A

Wireless Verification: N/A

XO Holdings, Inc

DBA Name: XO Communications, LLC

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	8/7/2013
Currency of Data:	6/30/2013
FRN:	0006275945
Type of data submitted:	Addresses
Census Block Count:	322
Total Matched Address Points Count:	354
Unmatched Address Points:	0
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

***See ReadMe.txt**

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
  - Number matched: 354
  - Number unmatched: 0
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

- Join the address points to the 2010 census blocks based on the GEOID10 field
  - Export results for each technology of transmission
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	30	9%

Max Upload Category	Count	% of Blocks
2	7	2%

4	193	60%
5	48	15%
6	13	4%
7	29	9%
8	7	2%
10	3	1%

3	28	9%
4	188	58%
5	48	15%
6	13	4%
7	29	9%
8	7	2%
10	3	1%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test:

Speed Test Download Tier	Count	% of Tests
1	6	7%
2	19	22%
3	27	32%
4	13	15%
5	7	8%
6	6	7%
7	2	2%
8	5	6%

Speed Test Upload Tier	Count	% of Tests
1	2	2%
2	30	35%
3	26	31%
4	7	8%
5	8	9%
6	5	6%
7	6	7%
8	1	1%

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer base speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 45/322 (14%)

Typical down/upload speed from 2010 – 2012 mobile speed test:

Speed Test Download Tier	Count	% of Tests
1	8	13%
2	26	41%
3	16	25%
4	5	8%
5	6	10%
6	2	3%

Speed Test Upload Tier	Count	% of Tests
1	11	17%
2	18	29%
3	22	35%
4	6	10%
5	3	5%
6	3	5%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 34/322 (10.6%)

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 54/322 (16.8%)
Number of tracts reported to FCC, but no census blocks reported to project: 127

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 3/322 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 3

Number of census blocks with dead zones reported via mdbroadbandmap.org: 1/322 (< 1%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 1

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: no change

Zayo Bandwidth LLC

DBA Name: Zayo Bandwidth LLC

Data Characteristics

Date of Original Submission:	1/13/2011
Date of Update Submission:	8/21/2013
Currency of Data:	6/30/2013
FRN:	0019133826
Type of data submitted:	Census Tracts
Census Block Count:	2810
Total Matched Address Points Count:	0
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Census Block Process:

- Select by location all census blocks within tract, removing water blocks
  - Export results
  - Load exported results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
5	57	2%
6	278	10%
8	1461	52%
9	1014	36%

Max Upload Category	Count	% of Blocks
5	57	2%
6	278	10%
8	1461	52%
9	1014	36%

Typical down/upload speeds reported by provider: N/A

Typical down/upload speed from 2010 – 2012 computer based speed test: N/A

Computer based speed tests match reported typical download speeds or are within 1 speed tier: N/A

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 2810/2810 (100%)
Number of tracts reported to FCC, but no census blocks reported to project: 1

Dead zones:
Number of census blocks with dead zones reported via broadband.maryland.gov: 1/2810 (<1%)
Total number of dead zones reported per provider via broadband.maryland.gov: 2

Number of census blocks with dead zones reported via mdbroadbandmap.org: 0/2810 (0%)
Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Change in coverage area from Spring 2013 Submission to Fall 2013 Submission: 2584 census block increase