

Maryland Broadband Mapping Initiative Broadband Availability Map Data Submission Summary for Fall 2014

October 10, 2014

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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 tenth submission, 46 different companies responded to our data request. An overall summary of the Fall 2014 data submission can be described as:

- 48 potential facilities-based broadband service providers were contacted
- 2 BSPs from previous submissions were not contacted because they have merged with other BSPs (Paetec and Cavalier)
- 4 BSPs did not respond but had in previous submissions
- 20 BSPs responded but did not provide updated data
- 43 BSPs responded and either provided data or affirmed no change to data

Of those that provided broadband availability data,

- 20 provided addresses
- 2 provided census block information only
- 6 provided census blocks and road segments
- 18 provided wireless coverage areas

In addition, 10 of the 41 responsive BSPs provided middle mile infrastructure points

Since our last submission, we have collected data for two new providers. West Virginia PCS Alliance, L.C., dba NTELOS, submitted a wireless coverage area and Eastern Shore Communications, LLC, dba Eastern Shore Communications, also submitted a wireless coverage area.

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 2014 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 mi², exporting

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them as a separate feature class. Fifth, switch the selected set (thus creating all the address points in blocks that are less than 2 mi²), 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 mi², 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 mi². 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 mi² 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 2014 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 reviewing and updating the medical category with Maryland Department of Health and Mental Hygiene (DHMH) survey results which included questions related to broadband.

Medical/Healthcare

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

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[DHMH]), provided our team with a dataset of Maryland physicians who indicated that they do have a primary office location. In addition, only those physicians who's practice setting was either solo (1-2), single-specialty group (2-3), multi-specialty group (5-6) or HMO group/staff (7) were asked to answer the broadband questions. The raw data collected as part of Dr. Sharp's mandatory annual census was aggregated by practice name and the number of physicians at each practice.

The most significant change from prior submissions is within the medical database, which was reduced for the October 2014 submission by 1,983 records. It is important to note that physicians in Maryland are required to renew their license every other year. Since the survey added the broadband questions at the end of 2013, only half of Maryland's physicians have responded per this mandatory survey. The second half of physician survey results will be provided in November 2014.

Through further discussions with Dr. Sharp it was evident that additional data cleansing was required to further refine down to the practice level. The most significant issue with the data is duplicate names. When a license is renewed, the data is entered by individual physicians and as Dr. Sharp stated, "harmonizing the data is an ongoing process."

The database does contain duplicate addresses. These addresses are valid because the office is located in an office or medical building with multiple suites. After research was performed it was determined that all offices within these buildings are responsible for their own broadband services. To remove true duplicates, a suite number was added to our internal database. If suite numbers were the same, the offices were consolidated.

The provided dataset from DHMH originally had 7,837 records. Hospitals, national or federal organizations, incomplete data, and duplicates were removed, resulting in 2,947 records. Several intuitive broadband decisions were made based on the response to the questions in the survey. Additional broadband data standardizing was performed before replacing the physician data in the CAI dataset, which includes:

- If the physicians indicated yes to providing Wi-Fi access in their waiting areas, but indicated they did not have or did not know if they had high speed internet, the project team changed the column, BBService, to Yes.
- If the physicians left the BBService or Public Wi-Fi column blank, we calculated it to equal unknown.

The tables below illustrate the breakdown of physician's offices by subscription to high speed internet and offering of Wi-Fi to their patients, as well as the current Fall 2014 CAI dataset submission for all categories.

# of Physician's	Broadband	Public
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Offices	Service	WiFi
1,773	Yes	Yes
549	Yes	No
96	Yes	Unknown
84	No	No
5	No	Unknown
54	Unknown	No
386	Unknown	Unknown
TOTAL - 2947		

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	CAI Category	# CAIs with BBSERVICE	Total CAIs	% of CAIs with BBSERVICE
1	School (K-12)	1,423	1,920	74.1%
2	Library	277	369	75.1%
3	Medical / Healthcare	2,580	5,859	44.0%
4	Public Safety	1,059	1,708	62.0%
5	University / College/Other Post-Secondary	98	111	88.2%
6	Other Community Support - Government	702	1,489	47.1%
7	Other Community Support - Non-Government	66	2,173	3.0%
	Total	6,205	13,629	45.5%

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:

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- 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

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 Fall 2014, we returned 19 service area maps to the providers and 12 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

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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, 53 providers (100%) have been submitted with maximum downstream/upstream speeds. The lowest maximum downstream speed reported is greater than or equal to 768 kbps and less than 1.5 mbps, reported by 14 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).

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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 this data submission, 26 providers (49%) 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 11 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 10 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 again 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 is included in each data validation/verification report. For mobile broadband providers, a distinction was

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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 24 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

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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 (6 providers). When the response to this statement is negative (12 providers), there is question about the typical download speeds that have been submitted by the provider. The remaining 6 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 435 (for Verizon Communications, Inc. , 0.57% of their total reported blocks). The minimum percentage of served census blocks confirmed by speed test was 0 (3 providers). The maximum percentage was 181% - Cogent had 29 blocks with speed tests but only reported 16 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, 52% (11 of 21) 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 408 (for Verizon Wireless, 98% of their computer-

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based speed tests). Some BSPs that has 100% of their computer-based speed tests fall within their reported coverage area namely AT&T Wireless, Brookwood, 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 23% (Sprint, 151 tests fell inside out of 670). On average, 89.9% 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, 52% (11 of 21) of the wireless BSPs had tests and the maximum number came from Sprint customers, with 13,880 tests within their reported coverage area. Six wireless BSPs had 100% of their mobile speed tests fall within their reported coverage area: AT&T, Brookwood, Cricket Communications, Hughes Communications, Shentel, and ViaSat Communications, Inc. Believe had the smallest percentage of tests falling within their reported coverage area – 90%. On average, 98.3% 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 12,753 from Megapath Corp. On average, 1038 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

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wireless BSPs reporting to the FCC on Form 477 (8 of 19), 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 256 (Verizon Communications, Inc.). This represents 0.33% of Verizon's reported census blocks. The maximum rate of deadzone reports as a percentage of blocks reported is 1.4% (MetroCast). The minimum number is 0 (10 providers). The maximum number of unserved area location reports in a wireline BSP's available area is 389 (Verizon Communications, Inc.). For those unserved area locations reported by the MBBMI, the maximum number of census blocks that contain a report is 318 (Verizon Communications). This represents 0.41% of Verizon's reported census blocks. The maximum rate of deadzone reports as a percentage of blocks reported is 1.56% (MetroCast). The minimum number is 0 (9 providers). The maximum number of unserved area location reports in a wireline BSP's available area is 482 (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

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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 100% (754 of 754). The average percentage of unserved area locations (reported from the FCC) that fall within a wireless BSP's reported coverage area is 38.27% (289 of 754). 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% (941 of 941), 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 100%. The average percentage of unserved area locations (reported from the MBBMI) that fall within a wireless BSP's reported coverage area is 38.56% (363 of 941).

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).

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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 11.9%. 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 and Comcast. The average commission error rate was 9.8%. 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 21.7%.

Wireless broadband presence and speed systematic field sampling

For the wireless coverage areas, many of the other data checks and tests are not appropriate to use. In the summer of 2013, the MBBMI embarked on the third and final phase of a wireless coverage area verification project. For each of the 1,496 systematic sampling grid points (increased slightly from 2010 to sample more intensively in Baltimore City), a research team visited the sample address with eleven phones, two each for Sprint, Verizon Wireless, AT&T, US Cellular, and T-Mobile, measuring both 3G and 4G network presence and speed, as well as one phone to test the Cricket network. Using the FCC/Ookla speed test app, the broadband availability, downstream and upstream speeds, and the GPS location of the test were collected.

Of the 1496 total sample locations, the following combinations of reported service vs. sampled service were tallied:

- 1) A sample point was in an area reported by the provider as served and the sample was collected as served
- 2) A sample point was in an area reported by the provider as served but the sample was collected as unserved
- 3) A sample point was in an area reported by the provider as not served and the sample was collected as not served
- 4) A sample point was in an area reported by the provider as not served but the sample was collected as served

The total number of sample points in categories 2 and 4 are reported as error (of commission and of omission, respectively). Verifying the 4G network presence proved more challenging. Because the 4G phones will conduct a mobile broadband test on a 3G network if it all that is available, simply noting the presence of a speed test from a 4G phone is not enough to verify that the phone was actually accessing the 4G network. Therefore, in order to isolate those speed tests that were truly taken on the 4G network, we selected those tests that had an average download speed of 2000 kbps or greater. This number was chosen by examining the

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typical speed results in the known 4G areas of the state, plus consulting published speed comparison studies on numerous popular technology websites.

For the 3G coverage areas in the state of Maryland, T-Mobile had the maximum number of samples that were reported as omitted (sampled as served but not within the coverage area) was 210 and the error rate was 37.2%. Cricket Wireless had the minimum number of samples that were reported as omitted (71 or 14.8%). The average omission error rate was 26.5%. T-Mobile had the maximum number of samples that were reported as committed (sampled as not served but within the coverage area) at 426. The commission error rate was 75.4%. AT&T Wireless had the minimum number of samples that were reported as committed (4 or 0.27%). The average commission error rate was 27.8%.

For the 4G coverage areas in the state of Maryland, Verizon Wireless had the maximum number of samples that were reported as omitted (sampled as served but not within the coverage area) was 330 and the error rate was 28.6%. US Cellular had the minimum number of samples that were reported as omitted (38). The average omission error rate was 36.0%. Sprint-Nextel had the maximum number of samples that were reported as committed (sampled as not served but within the coverage area) at 53. The commission error rate was 31.5%. US Cellular had the minimum number of samples that were reported as committed (1 or 5.8%). The average commission error rate was 10.8%.

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 2014 submission to Fall 2014 was a loss of 4,935 blocks (Comcast) to no change (22 providers) to a gain of 76 blocks (Level 3). For those registering change (13 providers), the average was a loss of 394 blocks.

Allied Telecom Group, LLC
DBA: Allied Telecom Group, LLC

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	8/19/2014
Currency of Data:	6/30/2014
FRN:	0014531073
Type of data submitted:	Address Table
Census Block Count:	153
Total Matched Address Points Count:	212
Unmatched Address Points:	5
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: 212
 - Number unmatched: 5
- 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	1	1%

Max Upload Category	Count	% of Blocks
4	1	1%

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7	19	11%	5	19	11%
10	88	53%	10	88	53%
11	59	35%	11	59	35%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
4	1	1%
7	19	11%
10	88	53%
11	59	35%

Typical Upload Category	Count	% of Blocks
4	1	1%
5	19	11%
10	88	53%
11	59	35%

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): [1/153 \(< 1%\)](#)

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): [6/153 \(3.9%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [74/153 \(53.6%\)](#)

Number of tracts reported to FCC, but no census blocks reported to project: [18](#)

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Dead zones:

Number of census blocks with dead zones reported via broadband.maryland.gov: 1/153 (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: 1/153 (<1%)

Total number of dead zones reported per provider via mdbroadbandmap.org: 2

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [15 census block increase](#)

ALTIUS Communications, LLC

DBA: ALTIUS Broadband

Data Characteristics

Date of Original Submission: 1/23/2013
 Date of Update Submission: 7/7/2014
 Currency of Data: 6/30/2014
 FRN: 0016873374
 Type of data submitted: .gif
 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

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#/% 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:

[7/754 \(<1%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

[8/941 \(<1%\)](#)

Web Search Verification: [N/A](#)

Wireless Verification: [N/A](#)

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Anne Arundel Broadband

DBA Name: Anne Arundel Broadband

Data Characteristics

Date of Original Submission:	4/14/2010
Date of Update Submission:	8/12/2014
Currency of Data:	6/30/2014
FRN:	0003773843
Type of data submitted:	Address Table
Census Block Count:	2986
Total Matched Address Points Count:	569
Unmatched Address Points:	47
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

Address Table Process:

- Provider delivered address table for updated area. Existing service area remains.
- Geocode address table to Maryland iMap Cascading address locator
 - Number matched: 569
 - Number unmatched: 47
- 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

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- Cecil County, MD

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
7	2949	99%
8	37	1%

Max Upload Category	Count	% of Blocks
5	2986	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): 0/2986 (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): 19/2986 (< 1%)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [215/2986 \(7%\)](#)

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](#):

[12/2986 \(< 1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [18](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#):

[13/2986 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [24](#)

Web Search Verification: [17/2986 \(< 1%\)](#) of census blocks were confirmed using online search feature of given provider

Anne Arundel Broadband WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	104	7%
Result is yes and census block is in served area	19	18%
Result is yes but not in a census block reported as served	26	25%
Result is no and census block is in served area	1	1%
Result is no and census block not served area	57	55%

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [0 census blocks](#)

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Antietam Cable Television, Inc.

DBA Name: **Antietam Cable Television, Inc**

Data Characteristics

Date of Original Submission:	7/29/2010
Date of Update Submission:	9/8/2014
Currency of Data:	6/30/2014
FRN:	0002154367
Type of data submitted:	Addresses
Census Block Count:	2800
Total Matched Address Points Count:	62852
Unmatched Address Points:	497
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Incomplete
Provided Max Typical Upload Speed:	Incomplete
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: [62852](#)
 - Number unmatched: [497](#)
- 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	2590	92%
10	237	8%

Max Upload Category	Count	% of Blocks
5	2590	92%
7	237	8%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	2827	100%

Typical Upload Category	Count	% of Blocks
3	2827	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): **5/2800 (< 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): [19/2800 \(< 1%\)](#)

Form 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [1/2800 \(< 1%\)](#)

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:

[5/2800 \(< 1%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [8](#)

Number of census blocks with dead zones reported via mdbroadbandmap.org:

[5/2800 \(< 1%\)](#)

Total number of dead zones reported per provider via mdbroadbandmap.org: [7](#)

Web Search Verification: [45/2744 \(2%\)](#) 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 2014 Submission to Fall 2014 Submission: [56 census block decrease.](#)

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Armstrong Holdings, Inc.

DBA Name: Armstrong Utilities, Inc.

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	7/16/2014
Currency of Data:	6/30/2014
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

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▪ 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%

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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 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [4/2078 \(1 <%\)](#)

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](#):
[9/2078 \(< 1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [11](#)

Number or census blocks with dead zones reported via [mdbroadbandmap.org](#):
[18/2078 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [24](#)

Web Search Verification: [46/2078 \(2%\)](#) 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 2014 Submission to Fall 2014 Submission: [No change](#)

AT&T Mobility LLC

DBA Name: AT&T Mobility LLC

Data Characteristics

Date of Original Submission: 3/9/2010
 Date of Update Submission: 8/6/2014
 Currency of Data: 6/30/2014
 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	3	33%
5	3	33%
7	3	33%

Max Upload Category	Count	% of Area
3	3	33%
4	3	33%
5	3	33%

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

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	195	15%	1	701	56%
2	270	21%	2	334	26%
3	383	30%	3	174	14%
4	337	27%	4	39	3%
5	67	5%	5	7	1%
6	5	0%	6	1	0%
7	6	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: 1262/1263 (99.9%)

Number of mobile speed tests reported outside coverage area: 1/1263 (<1%)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	4	40%	1	5	50%
2	3	30%	2	2	20%
3	2	20%	3	3	30%
4	1	10%			

#/% 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 477 Verification:

#/% 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:
754/754 (100%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
941/941 (100%)

Web Search Verification: N/A

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Wireless Verification: [N/A](#)

Atlantech Online, Inc.

DBA: Atlantech Online, Inc.

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	9/6/2014
Currency of Data:	6/30/2014
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	Max Upload Category	Count	% of Blocks
11	2	9%	11	2	9%
7	20	91%	7	20	91%

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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](#)

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Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 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:	4020
Total Matched Address Points Count:	64397
Unmatched Address Points:	3544
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: 64397
 - Number unmatched: 3544
- Spatially join matched 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.

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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): [13/4020 \(< 1%\)](#)

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%
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): [21/4020 \(< 1%\)](#)

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](#):

[16/4020 \(< 1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [19](#)

Number or census blocks with dead zones reported via [mdbroadbandmap.org](#):

[19/4020 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [27](#)

Web Search Verification: [78/4020 \(2%\)](#) 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 2014 Submission to Fall 2014 Submission: [no change](#)

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Bay Country Communications, Inc.

DBA Name: Bay Country Communications, Inc.

Data Characteristics

Date of Original Submission: 8/9/2010
 Date of Update Submission: 7/7/2014
 Currency of Data: 6/30/2014
 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	Speed Test Upload Tier	Count	% of Tests
3	2	100%	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:

[4/1841 \(<1%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [7](#)

Number of census blocks with dead zones reported via mdbroadbandmap.org:

[3/1841 \(<1%\)](#)

Total number of dead zones reported per provider via mdbroadbandmap.org: [6](#)

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [no change](#)

Believe Wireless, LLC.

DBA: Believe Wireless Broadband

Data Characteristics

Date of Original Submission:	3/1/2011
Date of Update Submission:	9/16/2014
Currency of Data:	6/30/2014
FRN:	9999
Type of data submitted:	Map
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%

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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 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:

12/754 (1.6 %)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

20/941 (2.1%)

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: N/A
 Currency of Data: 6/30/2013
 FRN: 0019496462
 Type of data submitted: KML
 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	Max Upload Category	Count	% of Area
5	1	100%	3	1	100%

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

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

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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:
12/754 (1.6%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
17/941 (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:	9/8/2014
Currency of Data:	6/30/2014
FRN:	0010296853
Type of data submitted:	Address Table
Census Block Count:	600
Total Matched Address Points Count:	786
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 iMap Cascading address locator
 - Number matched: 786
 - Number unmatched: 10
- 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	Max Upload Category	Count	% of Blocks
3	20	3%	2	37	6%

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4	496	81%	3	33	5%
5	84	14%	4	459	75%
6	11	2%	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	Speed Test Upload Tier	Count	% of Tests
2	1	17%	2	2	33%
3	2	33%	3	2	33%
5	1	17%	5	2	33%
6	1	17%			
9	1	17%			

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	Speed Test Upload Tier	Count	% of Tests
3	2	29%	3	1	14%
4	4	57%	4	5	71%
5	1	14%	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 477 Verification:

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](#)

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Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [no change](#)

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Brookwood Ventures LLC

DBA Name: Brookwood Ventures LLC

Data Characteristics

Date of Original Submission: 3/12/2010
 Date of Update Submission: 9/8/2014
 Currency of Data: 6/30/2014
 FRN: 0018426684
 Type of data submitted: Form 477
 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:

- Select census tract served by provider, export, and add provider fields
- 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%

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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: 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:
2/754 (<1%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
6/941 (<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:	7/29/2014
Currency of Data:	6/30/2014
FRN:	0015799133
Type of data submitted:	Addresses, Middle Mile
Census Block Count:	6856
Total Matched Address Points Count:	10212
Unmatched Address Points:	85
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
- 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	Max Upload Category	Count	% of Area
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8	6856	100%	8	6856	100%
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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	Speed Test Upload Tier	Count	% of Tests
1	2	1%	1	17	9%
2	35	19%	2	115	62%
3	35	19%	3	42	23%
4	32	17%	4	1	1%
5	44	24%	5	3	2%
6	22	12%	6	4	2%
7	11	6%	7	3	2%
8	3	2%			
10	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): [20/6856 \(< 1%\)](#)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	17	14%	1	17	14%
2	22	19%	2	55	47%
3	17	14%	3	21	18%
4	24	20%	4	19	16%
5	34	29%	5	3	3%
6	3	3%	6	2	2%
7	1	1%	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](#)

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:

[4/6856 \(< 1%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: 6

Number of census blocks with dead zones reported via mdbroadbandmap.org:
11/6856 (< 1%)

Total number of dead zones reported per provider via mdbroadbandmap.org: 12

Web Search Verification: 20/6856 (1%) of census blocks were confirmed using online search feature of given provider

Cavalier WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	432	29%
Result is yes and census block is in served area	20	5%
Result is yes but not in a census block reported as served	47	11%
Result is no and census block is in served area	26	6%
Result is no and census block not served area	339	78%

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: no change

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Cellco Partnership and its Affiliated Entities

DBA Name: Verizon Wireless

Data Characteristics

Date of Original Submission:	3/8/2010
Date of Update Submission:	7/15/2014
Currency of Data:	6/30/2014
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:	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 Verification

Maximum down/upload speeds reported by provider:

Coverage Area

Max Download Category	Count	% of Area	Max Upload Category	Count	% of Area
3	2	33%	2	2	33%
7	4	67%	5	4	67%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area	Typical Upload Category	Count	% of Area
3	2	33%	2	2	33%

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6	4	67%	5	4	67%
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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	857	16%	1	1150	22%
2	1830	35%	2	3295	62%
3	1614	30%	3	699	13%
4	910	17%	4	68	1%
5	36	1%	5	40	1%
6	24	0%	6	8	0%
7	29	1%	7	22	0%
8	3	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: 5158/5303 (98%)

Number of mobile speed tests reported outside coverage area: 145/5303 (2%)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	43	10%	1	129	31%
2	197	48%	2	282	68%
3	130	31%	3	2	0%
4	43	10%	4	1	0%
5	1	0%			

#/% of computer based speed tests verifying coverage area:

Number of computer based speed tests reported inside coverage area: 408/414 (99%)

Number of computer based speed tests reported outside coverage area: 6/414 (1%)

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:

695/754 (92.1%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

868/941 (92.2%)

Web Search Verification: N/A

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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:	8/7/2014
Currency of Data:	6/30/2014
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

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

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Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
6	476	100%

Max Upload Category	Count	% of Blocks
3	476	100%

Road Segments

Max Download Category	Count	% of Road Segments
6	49	100%

Max Upload Category	Count	% of Road Segments
3	49	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
6	476	100%

Typical Upload Category	Count	% of Blocks
3	476	100%

Road Segments

Typical Download Category	Count	% of Road Segments
6	49	100%

Typical Upload Category	Count	% of Road Segments
3	49	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): **0/476 (0%)**

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%
6	2	10%

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

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7	1	5%
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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: [2/476 \(<1%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [2](#)

Number of census blocks with dead zones reported via mdbroadbandmap.org: [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 2014 Submission to Fall 2014 Submission: [no change](#)

Cogent Communications Group

DBA Name: Cogent Communications Group

Data Characteristics

Date of Original Submission: 2/1/2010
 Date of Update Submission: 8/7/2014
 Currency of Data: 6/30/2014
 FRN: 0019066034
 Type of data submitted: Address Table & Middle Miles
 Census Block Count: 16
 Total Matched Address Points Count: 18
 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: 18
 - 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	Max Upload Category	Count	% of Blocks
11	14	100%	11	14	100%

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

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
2	9	24%	1	2	5%
3	8	21%	2	6	16%
4	4	11%	3	12	32%
5	6	16%	4	4	11%
6	8	21%	5	2	5%
7	2	5%	6	9	24%
8	1	3%	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): [16/16 \(> 100%\)](#)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	13	12%	1	8	7%
2	14	13%	2	11	10%
3	25	23%	3	13	12%
4	36	33%	4	45	41%
5	5	5%	5	20	18%
6	2	2%	6	3	3%
7	14	13%	7	9	8%

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [29/16 \(> 100%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [5/16 \(31%\)](#)

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: [0/16 \(0%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [0](#)

Number of census blocks with dead zones reported via mdbroadbandmap.org: [0/16 \(0%\)](#)

Total number of dead zones reported per provider via mdbroadbandmap.org: [0](#)

Web Search Verification: [N/A](#)

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Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: 2 census block increase

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Comcast Corporation

DBA Name: Comcast Cable Communications, LLC

Data Characteristics

Date of Original Submission:	1/19/2010
Date of Update Submission:	2/5/2014
Currency of Data:	12/31/2014
FRN:	0004441663
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	61648
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

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- 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	61648	100%

Max Upload Category	Count	% of Blocks
7	61648	100%

Road Segments

Max Download Category	Count	% of Blocks
10	2171	100%

Max Upload Category	Count	% of Blocks
7	2171	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): 151/61648 (<1%)

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

Speed Test Download Tier	Count	% of Tests
1	342	2%

Speed Test Upload Tier	Count	% of Tests
1	491	2%

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2	580	3%
3	668	3%
4	1284	6%
5	2577	12%
6	3747	18%
7	10669	52%
8	838	4%
9	5	0%

2	828	4%
3	1233	6%
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): [432/61648 \(<1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [243/61648 \(<1%\)](#)

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](#): [207/61648 \(< 1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [309](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#):

[266/61648 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [415](#)

Web Search Verification:

[478/66583 \(<1%\) 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 2014 Submission to Fall 2014 Submission: [4935 census block decrease](#)

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Eastern Shore Communications, LLC

DBA Name: Eastern Shore Communications, LLC

Data Characteristics

Date of Original Submission: 9/9/2014
 Date of Update Submission: 9/9/2014
 Currency of Data: 6/30/2014
 FRN: 0000829291
 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	Max Upload Category	Count	% of Area
	7	100%		6	100%

Typical down/upload speeds reported by provider:

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

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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:

4/754 (1%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

5/941 (<1%)

Web Search Verification: N/A

Wireless Verification: N/A

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:	9/9/2014
Currency of Data:	6/30/2014
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: 4687
 - 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

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- 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	1504	100%

Max Upload Category	Count	% of Blocks
6	1504	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks
9	1504	100%

Typical Upload Category	Count	% of Blocks
3	1504	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%
4	3	6%
5	8	16%
6	29	59%

Speed Test Upload Tier	Count	% of Tests
1	8	16%
2	10	20%
3	16	33%
4	10	20%
5	2	4%
7	3	6%

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7	2	4%
8	3	6%

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/1504 \(<1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [416/1504 \(27.8%\)](#)

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](#): [7/1504 \(0%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): **9**

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [7/1504 \(<1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): **11**

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [no change](#)

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
1	1	2%
2	2	4%

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

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

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: [0/105 \(0%\)](#)

Number of mobile speed tests reported outside coverage area: [105/105 \(100%\)](#)

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:
[2/754 \(< 1%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
[2/941 \(< 1%\)](#)

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	Max Upload Category	Count	% of Blocks
10	1128	100%	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

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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 2014 Submission to Fall 2014 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: 7/24/2014
 Currency of Data: 6/30/2014
 FRN: 0018643155
 Type of data submitted: Address
 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:

- 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:
[37/754 \(5.6%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
[48/941 \(5.6%\)](#)

Web Search Verification: [N/A](#)

Wireless Verification: [N/A](#)

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Gans Communications, LP
DBA: MetroCast Communications

Data Characteristics

Date of Original Submission: 3/5/2010
 Date of Update Submission: 9/6/2014
 Currency of Data: 6/30/2014
 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	799	38%

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5	1318	62%
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Road Segments

Max Download Category	Count	% of Segments
9	800	100%

Max Upload Category	Count	% of Segments
4	349	44%
5	451	56%

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:

29/2117 (< 1%)

Total number of dead zones reported per provider via broadband.maryland.gov: 43

Number of census blocks with dead zones reported via mdbroadbandmap.org:

33/2117 (1.6%)

Total number of dead zones reported per provider via mdbroadbandmap.org: 49

Web Search Verification: 36/2117 (1.7%) 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 2014 Submission to Fall 2014 Submission: no change

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HNS License Sub, LLC

DBA: Hughes Communications, Inc.

Data Characteristics

Date of Original Submission: 2/2/2010
 Date of Update Submission: 8/7/2014
 Currency of Data: 6/30/2014
 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%

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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%	1	23	23%
2	42	42%	2	47	47%
3	11	11%	3	8	8%
4	9	9%	4	9	9%
5	7	7%	5	11	11%
6	1	1%	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: 110/110 (100%)

Number of mobile speed tests reported outside coverage area: 0/110 (0%)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
2	11	10%	1	23	21%
3	39	35%	2	39	35%
4	1	1%	3	21	19%
5	3	3%	4	10	9%
6	23	21%	5	4	4%
7	27	25%	6	9	8%
8	5	5%	7	3	3%
9	1	1%	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:
 754/754 (100%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
 941/941 (100%)

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Web Search Verification: [N/A](#)

Wireless Verification: [N/A](#)

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Hotwire Communications, Ltd

DBA Name: Hotwire Communications, Ltd

Data Characteristics

Date of Original Submission: 2/19/2010
 Date of Update Submission: 8/7/2014
 Currency of Data: 6/30/2014
 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	Max Upload Category	Count	% of Blocks
5	1	100%	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

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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 2014 Submission to Fall 2014 Submission: [no change](#)

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Leap Wireless International, Inc

DBA: Cricket Communications

Data Characteristics

Date of Original Submission: 3/17/2010
 Date of Update Submission: 7/22/2014
 Currency of Data: 6/30/2014
 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	Max Upload Category	Count	% of Area
3	1	100%	2	1	100%

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

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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	64	70%	1	23	25%
2	20	22%	2	54	59%
3	3	3%	3	12	13%
4	5	5%	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%)

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

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

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%)

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:
 187/754 (24.8%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
 259/941 (27.5%)

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:	6/30/2014
Currency of Data:	6/30/2014
FRN:	0003723822
Type of data submitted:	Address Table
Census Block Count:	1210
Total Matched Address Points Count:	1654
Unmatched Address Points:	58
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

Address Table Process:

- Geocode address table to Maryland iMap Composite address locator
 - Number matched: 1654
 - Number unmatched: 58
- 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

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Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
11	1210	100%

Max Upload Category	Count	% of Blocks
11	1210	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
11	1210	100%

Typical Upload Category	Count	% of Blocks
11	1210	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): **57/1210 (4.7%)**

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

Speed Test Download Tier	Count	% of Tests
1	2	0.047619048
3	8	0.19047619
4	7	0.166666667
5	11	0.261904762
6	8	0.19047619
7	6	0.142857143

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): **20/1210 (1.7%)**

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Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [685/1210 \(56.6%\)](#)

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:

[1/1210 \(< 1%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [2](#)

Number of census blocks with dead zones reported via mdbroadbandmap.org: [4/1210 \(< 1%\)](#)

Total number of dead zones reported per provider via mdbroadbandmap.org: [5](#)

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [76 census block increase](#)

Mediacom Communications

DBA: Mediacom Delaware LLC

Data Characteristics

Date of Original Submission:	8/4/2011
Date of Update Submission:	7/21/2014
Currency of Data:	6/30/2014
FRN:	0003572633
Type of data submitted:	Addresses
Census Block Count:	612
Total Matched Address Points Count:	11942
Unmatched Address Points:	159
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: [11942](#)
 - Number unmatched: [159](#)
- Spatially join matched 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
10	612	100%

Max Upload Category	Count	% of Blocks
7	612	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
10	612	100%

Typical Upload Category	Count	% of Blocks
7	612	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): **1/612 (< 1%)**

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): **9/612 (1.5%)**

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: **0/612 (< 1%)**

Number of tracts reported to FCC, but no census blocks reported to project: **2**

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Dead zones:

Number of census blocks with dead zones reported via broadband.maryland.gov: 2/612 (0%)

Total number of dead zones reported per provider via broadband.maryland.gov: 4

Number of census blocks with dead zones reported via mdbroadbandmap.org: 2/612 (< 1%)

Total number of dead zones reported per provider via mdbroadbandmap.org: 4

Web Search Verification: 11/612 (1.8%) 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 2014 Submission to Fall 2014 Submission: 1 census block decrease

MegaPath Corporation

DBA: MegaPath Corp

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	8/18/2014
Currency of Data:	6/30/2014
FRN:	0003753787
Type of data submitted:	Census Block Table, Road Segments, Middle Mile
Census Block Count:	73120
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

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Max Download Category	Count	% of Blocks
3	403	0%
4	15462	10%
5	79454	51%
6	24392	16%
7	30546	20%
8	5590	4%

Max Upload Category	Count	% of Blocks
2	17094	11%
3	29761	19%
4	8619	6%
5	68222	44%
7	26561	17%
8	5590	4%

Road Segments

Max Download Category	Count	% of Roads
4	209	11%
5	1577	83%
6	113	6%
7	8	0%

Max Upload Category	Count	% of Roads
2	89	5%
3	113	6%
4	184	10%
5	1513	79%
7	8	0%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	7719	5%
4	26360	17%
5	84563	54%
6	7348	5%
7	25177	16%
8	4680	3%

Typical Upload Category	Count	% of Blocks
2	41398	27%
3	5930	4%
4	15128	10%
5	61240	41%
6	4960	3%
7	22511	15%
8	4680	3%

Road Segments

Typical Download Category	Count	% of Roads
3	25	1%
4	272	14%
5	1602	84%
7	8	0%

Typical Upload Category	Count	% of Roads
2	202	11%
4	208	11%
5	1489	78%
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%
3	52	50%
4	23	22%

Speed Test Upload Tier	Count	% of Tests
1	26	25%
2	40	39%
3	23	22%
4	10	10%

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5	5	5%	5	4	4%
6	6	6%			
7	2	2%			
10	1	1%			

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): [1/73120 \(<1%\)](#)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
1	1	1%	1	8	7%
2	21	19%	2	78	70%
3	33	29%	3	21	19%
4	43	38%	4	2	2%
5	10	9%	5	2	2%
6	3	3%	7	1	1%
7	1	1%			

Mobile based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/73120 \(< 1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC:

[12753/73120 \(17.4%\)](#)

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](#):

[65/73120 \(< 1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): **92**

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#):

[87/73120 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): **131**

Web Search Verification: **N/A**

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: **no change**

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Mountain Communications, LLC

DBA: ProCom

Data Characteristics

Date of Original Submission: 5/31/2010
 Date of Update Submission: 9/8/2014
 Currency of Data: 6/30/2014
 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%

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Road Segments

Max Download Category	Count	% of Blocks	Max Upload Category	Count	% of Blocks
10	95	100%	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: [0](#)

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 2014 Submission to Fall 2014 Submission: [no change](#)

Neon Connect, Inc

DBA: Sidera Networks

Data Characteristics

Date of Original Submission: 3/5/2010
 Date of Update Submission: N/A
 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	Typical Upload Category	Count	% of Blocks
10	1	100%	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 2014 Submission to Fall 2014 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

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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): [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: [0/273 \(0%\)](#)

Total number of dead zones reported per provider via broadband.maryland.gov: [2](#)

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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 2014 Submission to Fall 2014 Submission: [no change](#)

NTELOS

DBA Name: NTELOS

Data Characteristics

Date of Original Submission:	2/3/2012
Date of Update Submission:	8/13/2014
Currency of Data:	6/30/2014
FRN:	0005849518
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
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
3	1	100%

Typical Upload Category	Count	% of Area
2	1	100%

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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 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:

8/754 (1%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

5/941 (<1%)

Web Search Verification: N/A

Wireless Verification: N/A

One Communications

DBA: One Communications

Data Characteristics

Date of Original Submission:	3/8/2011
Date of Update Submission:	N/A
Currency of Data:	6/30/2011
FRN:	0015337702
Type of data submitted:	Address Table
Census Block Count:	148
Total Matched Address Points Count:	161
Unmatched Address Points:	8
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: 161
 - Number unmatched: 8
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the switched 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
4	94	64%
5	45	30%
6	7	5%
7	2	1%

Max Upload Category	Count	% of Blocks
4	94	64%
5	45	30%
6	7	5%
7	2	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	Speed Test Upload Tier	Count	% of Tests
2	1	14%	3	3	43%
3	2	29%	4	1	14%
4	1	14%	5	1	14%
5	1	14%	6	2	29%
7	1	14%			
8	1	14%			

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): [7/148 \(4.7%\)](#)

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	14%	1	1	14%
2	1	14%	3	2	29%
3	2	29%	4	3	43%
4	1	14%	5	1	14%
5	2	29%			

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/148 \(<1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [9/148 \(6%\)](#)

Number of tracts reported to FCC, but no census blocks reported to project: [30](#)

Dead zones:

Number of census blocks with dead zones reported via [broadband.maryland.gov](#): [0/148 \(0%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [1](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [1/148 \(< 1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [2](#)

Web Search Verification: [N/A](#)

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Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [no change](#)

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PAETEC Communications, Inc.

DBA Name: PAETEC Communications, Inc.

Data Characteristics

Date of Original Submission: [2/28/2011](#)
 Date of Update Submission: [7/29/2014](#)
 Currency of Data: [6/30/2014](#)
 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%

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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: [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: [0/301 \(0%\)](#)

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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 2014 Submission to Fall 2014 Submission: [no change](#)

QCOL, Inc.

DBA Name: QCOL

Data Characteristics

Date of Original Submission:	5/31/2010
Date of Update Submission:	8/8/2014
Currency of Data:	6/30/2014
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	Max Upload Category	Count	% of Blocks

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10	205	55%
6	167	45%

10	205	55%
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 \(< 1%\)](#)

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Total number of dead zones reported per provider via mdbroadbandmap.org: 3

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [no change](#)

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Shenandoah Personal Communications, LLC

DBA Name: Shentel (Sprint Affiliate)

Data Characteristics

Date of Original Submission:	3/7/2013
Date of Update Submission:	9/5/2014
Currency of Data:	6/30/2014
FRN:	0021503834
Type of data submitted:	Middle Mile, Wireless
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:	Yes

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%

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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%	1	85	13%
2	81	12%	2	215	33%
3	161	25%	3	327	50%
4	204	31%	4	19	3%
5	118	18%	7	3	0%
6	39	6%			
7	7	1%			
8	1	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	Speed Test Upload Tier	Count	% of Tests
2	11	8%	1	7	5%
3	16	12%	2	32	24%
4	29	22%	3	93	70%
5	49	37%			
6	24	18%			
7	3	2%			

#/% of computer based speed tests verifying coverage area:

Number of computer based speed tests reported inside coverage area: 50/51 (98%)

Number of computer based speed tests reported outside coverage area: 1/51 (2%)

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:

36/754 (4.8%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

38/941 (4%)

Web Search Verification: N/A

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Wireless Verification: [N/A](#)

Shenandoah Cable Television, LLC

DBA: Shentel

Data Characteristics

Date of Original Submission:	5/31/2010
Date of Update Submission:	9/5/2014
Currency of Data:	6/30/2014
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
10	617	100%

Max Upload Category	Count	% of Blocks
7	617	100%

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Road Segments

Max Download Category	Count	% of Blocks
10	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
10	617	100%

Typical Upload Category	Count	% of Blocks
7	617	100%

Road Segments

Typical Download Category	Count	% of Blocks
10	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:

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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 2014 Submission to Fall 2014 Submission: [no change](#)

Skycasters

DBA Name: **Skycasters**

Data Characteristics

Date of Original Submission:	9/13/2012
Date of Update Submission:	7/7/2014
Currency of Data:	6/30/2014
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	Max Upload Category	Count	% of Area
6	1	100%	4	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area	Typical Upload Category	Count	% of Area
5	1	100%	2	1	100%

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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 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:

[754/754 \(100%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

[941/941 \(100%\)](#)

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: 7/17/2014
 Currency of Data: 6/30/2014
 FRN: 0003774593
 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

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	25%
5	1	25%
6	1	25%
7	1	25%

Max Upload Category	Count	% of Area
2	1	25%
3	1	25%
4	2	50%

Typical down/upload speeds reported by provider:

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Coverage Area

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

Typical Upload Category	Count	% of Area
2	1	25%
3	1	25%
4	2	50%

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: 13928/14243 (98%)

Number of mobile speed tests reported outside coverage area: 315/14243 (3%)

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: 151/670 (23%)

Number of computer based speed tests reported outside coverage area: 519/670 (77%)

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Form 477 Verification:

#/% 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:

[423/754 \(56.1%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

[565/862 \(60%\)](#)

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:	N/A
Currency of Data:	12/31/2013
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			Coverage Area		
Max Download Category	Count	% of Area	Max Upload Category	Count	% of Area
3	1	100%	2	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

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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: 754/754 (100%)

Number of dead zones reported within coverage area via mdbroadbandmap.org: 941/941 (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:	8/21/2014
Currency of Data:	6/30/2014
FRN:	0003735016
Type of data submitted:	Address Table, Middle Mile
Census Block Count:	1804
Total Matched Address Points Count:	37088
Unmatched Address Points:	16
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:	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: 37088
 - Number unmatched: 16
- 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
4	742	21%

Max Upload Category	Count	% of Blocks
4	742	21%

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10	1804	52%
11	908	26%

7	2712	79%
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Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
no data	948	27%
4	1312	38%
5	7	0%
6	2	0%
7	945	27%
8	617	18%
9	886	26%
10	21	1%
11	27	1%

Typical Upload Category	Count	% of Blocks
no data	948	27%
2	1	0%
3	174	5%
4	1740	50%
5	26	1%
6	486	14%
7	51	1%
9	1	0%
11	27	1%

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: [No](#)

Computer based speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [8/1804 \(<1%\)](#)

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%

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

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6	80	28%	6	29	10%
7	102	36%	7	6	2%
8	15	5%			

Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [34/1804 \(1.9%\)](#)

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](#):

[1/1804 \(<1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [1](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#):

[3/1804 \(<1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [5](#)

Web Search Verification: [4/1803 \(< 1%\)](#) 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 Spring 2014 Submission to Fall 2014 Submission: [1 census block increase](#)

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Tata Communications (America) Inc.

DBA Name: Tata Communications (America) Inc.

Data Characteristics

Date of Original Submission: 2/1/2010
 Date of Update Submission: 8/13/2014
 Currency of Data: 6/30/2014
 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	Max Upload Category	Count	% of Blocks
3	3	100%	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	Speed Test Upload Tier	Count	% of Tests
2	1	100%	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): [N/A](#)

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 2014 Submission to Fall 2014 Submission: [no change](#)

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T-Mobile USA, Inc.

DBA Name: T-Mobile USA, Inc.

Data Characteristics

Date of Original Submission: 2/25/2010
 Date of Update Submission: 8/8/2014
 Currency of Data: 6/30/2014
 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	Max Upload Category	Count	% of Area
4	2	25%	2	2	25%
6	4	50%	4	2	25%
7	4	50%	6	4	50%

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Typical down/upload speeds reported by provider:

Coverage Area

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

Typical Upload Category	Count	% of Area
2	2	25%
3	2	25%
5	4	50%

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: [12024/12301 \(98%\)](#)

Number of mobile speed tests reported outside coverage area: [277/12301 \(2%\)](#)

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](#):

[247/754 \(32.8%\)](#)

Number of dead zones reported within coverage area via [mdbroadbandmap.org](#):

[292/941 \(31%\)](#)

Web Search Verification: [N/A](#)

Wireless Verification: [N/A](#)

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twtelecom of maryland, llc

DBA Name: twtelecom of maryland, llc

Data Characteristics

Date of Original Submission:	1/30/2010
Date of Update Submission:	8/8/2014
Currency of Data:	6/30/2014
FRN:	0017348202
Type of data submitted:	Address table, Middle Mile
Census Block Count:	185
Total Matched Address Points Count:	288
Unmatched Address Points:	6
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

Data Processing

Address Table Process:

- Geocode address table to Maryland iMap Cascading address locator
 - Number matched: 288
 - Number unmatched: 6
- 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	5	3%
4	27	14%
5	28	15%
6	12	6%
7	68	35%
8	16	8%
9	11	6%
10	21	11%
11	5	3%

Max Upload Category	Count	% of Blocks
3	6	3%
4	30	16%
5	30	16%
6	9	5%
7	53	27%
8	16	8%
9	9	5%
10	17	9%
11	3	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
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): 11/185 (5.9%)

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%

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%

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7	3	13%
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Mobile speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [9/185 \(4.8%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [60/185 \(32.4%\)](#)

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](#): [0/185 \(0%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [0](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [0/185 \(0%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [0](#)

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [21 census block increase](#)

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United States Cellular Corporation

DBA Name: **US Cellular**

Data Characteristics

Date of Original Submission:	2/2/2012
Date of Update Submission:	7/28/2014
Currency of Data:	6/30/2014
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
6	2	100%

Max Upload Category	Count	% of Area
5	2	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
6	2	100%

Typical Upload Category	Count	% of Area
5	2	100%

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

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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:

45/754 (6%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

61/941 (6.5%)

Web Search Verification: N/A

Wireless Verification: N/A

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Vector Data Systems LLC

DBA Name: Vector Data Systems LLC

Data Characteristics

Date of Original Submission: 3/31/2010
 Date of Update Submission: 7/7/2014
 Currency of Data: 6/30/2014
 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: 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	Max Upload Category	Count	% of Area
7	1	100%	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:

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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: 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:

0/754 (0%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

1/941 (< 1%)

Web Search Verification: N/A

Wireless Verification: N/A

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Verizon Communications Inc

DBA: Verizon Maryland Inc

Data Characteristics

Date of Original Submission: 2/15/2010
 Date of Update Submission: 9/5/2014
 Currency of Data: 6/30/2014
 FRN: 0002166825
 Type of data submitted: Census Block Table, Road Segments
 Census Block Count: 76986
 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

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	11192	12%
5	30637	38%
6	12264	13%

Max Upload Category	Count	% of Blocks
2	11192	12%
3	48301	51%
7	34573	37%

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9	14	0%
10	34559	37%

Road Segments

Max Download Category	Count	% of Blocks
4	1174	30%
5	1552	39%
6	117	3%
9	1	0%
10	1113	29%

Max Upload Category	Count	% of Blocks
2	1174	30%
3	1669	42%
7	1134	29%

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): 37/76986 (<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%

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%

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8	1192	6%	8	624	3%
9	2	0%	9	6	0%
10	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): [435/76986 \(<1%\)](#)

Form 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [6039/76986 \(7.8%\)](#)

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](#):

[256/76986 \(<1%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [389](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#):

[318/76986 \(<1%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [482](#)

Web Search Verification: [485/76986 \(<1%\)](#) 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 2014 Submission to Fall 2014 Submission: [74 census block increase](#)

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ViaSat, Inc.

DBA Name: ViaSat Communications, Inc.

Data Characteristics

Date of Original Submission: 4/21/2010
 Date of Update Submission: 8/21/2014
 Currency of Data: 6/30/2014
 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
4	1	50%
5	1	50%

Max Upload Category	Count	% of Area
2	1	50%
4	1	50%

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

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	5	50%	1	9	90%
3	4	40%	5	1	10%
7	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	Speed Test Upload Tier	Count	% of Tests
1	1	8%	1	9	75%
2	4	33%	5	3	25%
3	4	33%			
6	1	8%			
7	2	17%			

#/% 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 477 Verification:

#/% 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:

[754/754 \(100%\)](#)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

[941/941 \(100%\)](#)

Web Search Verification: [N/A](#)

Wireless Verification: [N/A](#)

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West Virginia PCS Alliance, L.C.

DBA Name: NTELOS

Data Characteristics

Date of Original Submission: 8/13/2014
 Date of Update Submission: 8/13/2014
 Currency of Data: 6/30/2014
 FRN: 0002049328
 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
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
3	1	100%

Typical Upload Category	Count	% of Area
2	1	100%

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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 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:

8/754 (1%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:

7/941 (<1%)

Web Search Verification: N/A

Wireless Verification: N/A

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XO Holdings, Inc

DBA Name: XO Communications, LLC

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	9/16/2014
Currency of Data:	6/30/2014
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	Max Upload Category	Count	% of Blocks

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3	30	9%
4	193	60%
5	48	15%
6	13	4%
7	29	9%
8	7	2%
10	3	1%

2	7	2%
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 (10.5%)

Form477 Verification:

October 10, 2014

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 2014 Submission to Fall 2014 Submission: [no change](#)

October 10, 2014

Zayo Bandwidth LLC

DBA Name: Zayo Bandwidth LLC

Data Characteristics

Date of Original Submission: 1/13/2011
 Date of Update Submission: 9/13/2014
 Currency of Data: 6/30/2014
 FRN: 0019133826
 Type of data submitted: census blocks
 Census Block Count: 44
 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:

- 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

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
3	6	14%
4	2	5%
5	5	11%
7	7	16%
8	10	23%
9	14	32%

Max Upload Category	Count	% of Blocks
3	6	14%
4	2	5%
5	5	11%
7	7	16%
8	10	23%
9	14	32%

Typical down/upload speeds reported by provider:

October 10, 2014

Census Blocks

Typical Download Category	Count	% of Blocks
3	6	14%
4	2	5%
5	5	11%
7	7	16%
9	10	23%
10	14	32%

Typical Upload Category	Count	% of Blocks
3	6	14%
4	2	5%
5	5	11%
7	7	16%
9	10	23%
10	14	32%

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: [43/44 \(98%\)](#)

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](#): [0/44 \(0%\)](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [0](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [0/44 \(0%\)](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [0](#)

Web Search Verification: [N/A](#)

Change in coverage area from Spring 2014 Submission to Fall 2014 Submission: [35 census block decrease](#)