

Maryland Broadband Mapping Initiative Broadband Availability Map Data Submission Summary for Fall 2011

September 30, 2011

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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, contacted 96 facilities-based broadband service providers (BSPs), received data from 47 providers which represent 49 different companies. An overall summary of the data submission can be described as:

- 96 potential facilities-based broadband service providers were contacted
- 30 BSPs did not respond
- 9 BSPs responded but did not provide data
- 47 BSPs responded and provided data
- 2 BSPs responded and agreed to provide data but have not as of September 30, 2011

Of those that provided data,

- 24 provided addresses
- 12 provided census block information
- 9 provided census blocks and road segments
- 13 provided wireless coverage areas

In addition, 10 of the 49 responsive BSPs provided middle mile infrastructure points

Since our last submission, we gained two participants as Cavalier Telephone LLC (via their new owner, PAETEC Communications, Inc.) rejoined the effort and Mediacom Communications submitted data for the first time.

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 2011 data submission depended on the type of data provided by the BSP.

Census Blocks

To process the served census blocks, one first geocodes the provider-submitted address table (if applicable) to the ArcGIS 10 US Streets Geocode Service. Second, the address points are spatially joined to the Year 2010 census blocks. Next, divide the address points into the different technologies of transmission. Fourth, select those address points that are within the census blocks that are greater than 2 mi², exporting them as a separate feature class. Fifth, switch the selected set (thus creating all the address points in blocks that are less than 2 mi²), and select those blocks. Sixth, import the provider-submitted table of served census blocks and

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merge with the address-created blocks (if applicable). Finally, export the results. For those providers that delivered data in Year 2000 census blocks, the crosswalk table provided by the US Bureau of the Census was used to transfer the data from the old blocks to the current blocks. The new, 2010 block-based map was then sent to the provider so that they could confirm the spatial representation. Finally, changes were made to any served blocks following the provider review.

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. 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 both the TIGER line file and the Maryland iMap 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. 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

The creation and verification of the Community Anchor Institution (CAI) Database is the responsibility of the Center for GIS at Towson University (CGIS). For the October 2011 submission, CGIS focused on improving the quality of Maryland's CAI broadband dataset by reaching out to county executives, by supplementing data collected for medical CAIs with data from the Maryland Department of Health and Mental Hygiene, and by removing duplicate data. The following narrative describes the work performed in each area.

In order to improve county-level data, the County Executives of each Maryland county, and Baltimore City, were contacted by letter in June 2011 requesting their cooperation with the

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Maryland Broadband Mapping Initiative's effort to build the CAI database. Of the 24 county executives who received the letter, 22 responded by providing a contact to assist in the data collection effort. The CAI information collected to-date was formatted in an Excel spreadsheet for each county. The spreadsheets are organized by tabs representing each of the 7 CAI categories. Hospitals, medical CAIs, and private schools were excluded because they are not county-run entities. The county CAI contacts were asked to review the database entries, and to add, correct, and delete CAIs and their attributes based on their knowledge and available information.

Updated CAI information was returned by 15 counties. Two of the counties (Harford and Howard) misinterpreted the request and provided information related to the Broadband Technology and Opportunities Program (BTOP). All of the data updates received from the counties were reviewed and then integrated into Maryland's master CAI database. The table below summarizes by county the CAI database improvements resulting from this effort (not including hospitals, medical CAIs, and private schools).

	Submitted to county for review			Returned by county			
	# Records	# Records with Broadband Info	% Records with Broadband Info	# Records	# Records with Broadband Info	# Records Broadband Info Updated by County	% Records Broadband Info Updated by County
Allegany	411	62	15%	419	60	7	2%
Anne Arundel	305	164	54%	306	238	221	72%
Baltimore City	1096	227	21%	<i>No information received</i>			0%
Baltimore	386	372	96%	385	301	112	29%
Calvert	84	69	82%	79	75	23	29%
Caroline	38	21	55%	46	46	46	100%
Carroll	150	56	37%	151	143	143	95%
Cecil	119	36	30%	121	45	12	10%
Charles	115	38	33%	116	113	15	13%
Dorchester	79	22	28%	<i>No information received</i>			0%
Frederick	147	81	55%	<i>No information received</i>			0%
Garrett	151	129	85%	126	114	20	16%
Harford	156	71	46%	<i>No information received</i>			0%
Howard	153	79	52%	<i>No information received</i>			0%
Kent	26	15	58%	28	27	29	104%
Montgomery	464	397	86%	443	392	249	56%
Prince George's	436	398	91%	507	434	282	56%
Queen Anne's	77	26	34%	164	57	33	20%
Somerset	35	20	57%	<i>No information received</i>			0%
St. Mary's	73	57	78%	68	61	24	35%
Talbot	33	10	30%	34	24	17	50%
Washington	Did not receive a contact			<i>Did not receive a contact</i>			0%
Wicomico	54	42	78%	<i>No information received</i>			0%
Worcester	Did not receive a contact			<i>Did not receive a contact</i>			0%

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Prior to the April 2011 submission, data was purchased from DirectMail.com in order to obtain information about medical CAIs. The purchase totaled 21,996 records. As part of a continuing effort, the data were reviewed for erroneous records and for possible consolidation of records relating to hospitals, labs, and private practice groups. Due to time constraints and file size, the review for the more populous counties was restricted to addresses with five or more healthcare providers/facilities. Review of the largest counties (Montgomery, Prince George's, and Baltimore Counties) was restricted to addresses with ten or more facilities. This effort led to an approximate reduction of over 3,100 records and will continue through the next update cycle.

To further supplement medical CAIs, GIS data was obtained from the Maryland Department of Health and Mental Hygiene's (DHMH) Office of Health Care Quality licensee database for medical facility classes such as assisted living programs, ambulatory surgical facilities, hospices, adult medical day care, physical therapy centers, facilities for developmentally disabled persons, mental health facilities, rehabilitation centers, and other similar entities. The data were reviewed for errors and duplicate records; approximately 500 of the records required geocoding and/or address correction. Additionally, the DHMH data were compared against the purchased and county medical facilities to remove possible duplications from these sources. Overall, more than 6,800 records from DHMH were added to the Maryland's medical CAI database.

In summary, the Maryland broadband CAI database now contains 30,579 records, an increase of 3,620 (13.4%) from the spring 2011 submission. Information regarding the broadband service for 2,843 (9.3%) of those CAIs has been obtained. There were significant percentage increases in the number of CAIs with broadband service information in the library, public safety, post-secondary school, and government CAI categories. Collecting broadband service information for the medical/healthcare CAIs continues to be a significant challenge, as does collecting a complete census of all county-based CAIs

April 2011 Submission				October 2011 Submission		
CAI Category	# CAIs with BBSERVICE	Total CAIs	% of CAIs with BBSERVICE	# CAIs with BBSERVICE	Total CAIs	% of CAIs with BBSERVICE
1 School (K-12)	1,482	1,876	79.00%	1,465	1,791	81.80%
2 Library	135	202	66.83%	139	193	72.02%
3 Medical / Healthcare	25	22,118	0.11%	22	25,829	0.09%
4 Public Safety	227	684	33.19%	406	722	56.23%
5 University / College/ Other Post-Secondary	39	82	47.56%	50	91	54.95%
6 Other Community Support - Government	633	1,470	43.06%	692	1,255	55.14%
7 Other Community Support - Non-Government	18	527	3.42%	69	698	9.89%
Total	2,559	26,959	9.49%	2,843	30,579	9.30%

Data Verification

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

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

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

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

In the second phase of data validation, a maximum of fourteen 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 2010 speed test
- 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

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- 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) Census blocks that are outside providers Cable Franchise Boundary
- 12) Census blocks that are within another providers Cable Franchise Boundary
- 13) Census blocks that are outside DSL boundary
- 14) Wireless broadband presence and speed systematic field sampling

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 the Fall 2011 submission, only one of these web conferences has taken place. The length of time between the provider submission and the delivery deadline to the NTIA is not enough to complete all three data validation phases. Our intention is to complete the third phase for most if not all providers during the three months following a data submission, and incorporating what we learn into the following biannual delivery.

Maximum down/upload speeds reported by provider

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

Downstream Speed Tier	Upstream Speed Tier	Corresponding Speed
--	1	Less than or equal to 200 kbps
--	2	Greater than 200 kbps and less than 768 kbps
3	3	Greater than or equal to 768 kbps and less than 1.5 mbps
4	4	Greater than or equal to 1.5 mbps and less than 3 mbps
5	5	Greater than or equal to 3 mbps and less than 6 mbps
6	6	Greater than or equal to 6 mbps and less than 10 mbps
7	7	Greater than or equal to 10 mbps and less than 25 mbps
8	8	Greater than or equal to 25 mbps and less than 50 mbps
9	9	Greater than or equal to 50 mbps and less than 100 mbps
10	10	Greater than or equal to 100 mbps and less than 1 gbps
11	11	Greater than or equal to 1 gbps

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

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For the data submission, 49 providers (100%) reported maximum downstream/upstream speeds for census blocks. The lowest maximum downstream speed Greater than or equal to 768 kbps and less than 1.5 mbps, reported by 12 providers. The highest maximum downstream speed was greater than or equal to 1 gbps, reported by 6 providers. The most frequent maximum downstream speed was greater than or equal to 3 mbps and less than 6 mbps, reported by 2 providers.

Typical down/upload speeds reported by provider

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

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

For the data submission, 20 providers (41%) reported typical downstream/upstream speeds. The lowest typical downstream speed was greater than 768 kbps and less than 1.5 mbps, reported by 3 provider. The highest typical downstream speed was greater than or equal to 1 gbps, reported by 2 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 3 providers.

Typical down/upload speed from 2010 mobile speed test***Typical down/upload speed from 2010 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.

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From mid-April 2010 until June 30, 2011, 12,141 speed tests were collected by MBBMI and 26,537 PC-based speed tests were collected by the FCC (the FCC also collected mobile speed tests, see below). Of these, 5,527 MLab-based FCC speed tests were eliminated (to insure consistent speed test results and 11,354 were removed because they did not include a valid address. The FCC and the MBBMI speed tests were then combined and geocoded using their street address. Just over 12% of the addresses could not be resolved, thus a total of 19,162 of speed tests were used in verification processing.

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 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	483	2.5%	1,461	7.6%
2	1,541	8.0%	4,720	24.6%
3	1,674	8.7%	1,154	6.0%
4	2,077	10.8%	2,580	13.5%
5	1,713	8.9%	5,895	30.8%
6	2,387	12.5%	1,440	7.5%
7	6,803	35.5%	1,754	9.2%
8	1,959	10.2%	144	0.8%
9	469	2.4%	12	0.1%
10	56	0.3%	2	0.0%

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

For the 20 providers that submitted typical speeds for their data, a comparison was conducted between the mode (the most frequent value) of the typical download speed tier from the provider area and the FCC/Ookla speed tests. In instances where the most frequent download speed tier from the speed tests matched, or was within one tier of, the typical download speed tier from the provider, the response to this statement is affirmative (6 providers). When the response to this statement is negative (8 providers), there is question about the typical download speeds that have been submitted by the provider.

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 492 (for Comcast Cable Communications, LLC , 1% of their total reported blocks). The minimum percentage of served census blocks confirmed by speed test was 0% (8 providers). The maximum percentage was 100% (Cogent and Tata Communications (America) Inc.).

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, one-half (6 of 14) 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 67 (for Hughes Communications, Inc., 100% of their computer-based speed tests). Other BSPs that has 100% of their computer-based speed tests fall within their reported coverage were ATTWireless and Wildblue Communications, Inc.. The minimum percentage of computer-based speed tests shown to fall within the reported coverage area of a BSP was 95.2% (Clearwire, 80 tests fell inside). On average, 98.5% of computer-based speed tests fell within the BSP's reported coverage area.

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Regarding the number of mobile speed tests that fall within the reported coverage area of a BSP, 50% (7 of 14) of the wireless BSPs had tests and the maximum number came from Verizon Wireless customers, with 9,327 tests within their reported coverage area. Two wireless BSPs had 100% of their mobile speed tests fall within their reported coverage area: Hughes, and Wildblue Communications, Inc.. Cleaerwire was the BSP with the smallest percentage of tests falling within their reported coverage area – 81.5%. On average, 96.4% 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 2009. 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 67 census blocks. While the Form 477 data is much coarser than the SBDD-reported data, it still should align 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 5,785 from Covad Communications Company. On average, 451 census blocks (from 25 providers) had no corresponding census tract. The maximum number of census tracts that had no corresponded reported census blocks was 192 from DSLnet Communications, LLC. On average, 24 census tracts (from 25 providers) had no corresponding census blocks.

For wireless BSPs, we tested the number of census tracts that either intersect or do not intersect each reported coverage area. Because it is not possible to tell what portion of the Form 477 reported census tract may receive the wireless service, a simple intersect between served tracts and coverage areas is the only test available from these data sources. For those wireless BSPs reporting to the FCC on Form 477 (8 of 14), 100% of the served census tracts intersected the reported coverage areas.

***Census blocks/coverage areas versus unserved area locations reported
Total number of unserved area locations reported per provider***

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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.

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 unserved area location report is 63 (Verizon Communications, Inc.). The minimum number is 0 (17 providers). The maximum number of unserved area location reports in a wireline BSP's available area is 76 (Verizon Communications, Inc.) There were 5 wireline providers to have only 1 unserved area location report in their areas.

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 98.7% (both are satellite providers). The maximum percentage of unserved area locations reported from the FCC within a non-satellite wireless BSP's reported coverage area is AT&T Wireless at 98.5% (230 of 240). The average percentage of unserved area locations (reported from the FCC) that fall within a wireless BSP's reported coverage area is 48% (116 of 202). 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% (147 of 147), true for each of the satellite wireless providers (HughesNet, StarBand, and Wildblue). 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 96.6% (142 of 147). The average percentage of unserved area locations (reported from the MBBMI) that fall within a wireless BSP's reported coverage area is 44.6% (66 of 147).

Web search verification

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

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

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

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

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

For the eleven wireline BSPs in the state of Maryland that have a Internet-based availability tool, the maximum omission error rate was 24.1% reported by Armstrong Cable. The minimum omission error rate was 0% and was reported by Charter Communications and Starpower. The average omission error rate was 11.3%. The maximum commission error rate was 35.7% reported by Verizon Maryland. The minimum commission error rate was 0% and was reported by 4 providers. The average commission error rate was 7%. The maximum total error rate was 36% reported by Verizon Maryland. The minimum total error rate was 0% reported by 4 providers. The average total error rate was 15.1%.

Census blocks that are outside provider's own Cable Franchise Boundary

Census blocks that are within a different provider's Cable Franchise Boundary

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For those BSPs that provide broadband service via cable modem technology, they are (supposedly) constrained to a service area defined by a local (or several local) cable franchise boundar(ies). The MBBMI team obtained the spatial extent of the cable franchise boundaries within the state of Maryland from the Maryland Broadband Cooperative. With these cable franchise boundary areas, a test can be performed to count both the number of served census blocks that fall outside of a provider's designated cable franchise boundary area and the number of served census blocks the fall within a different provider's cable franchise boundary. The first statistic may or may not be an error. If a cable provider is surrounded by an area that has no competing franchises, some expansion beyond the existing franchise boundary is expected. The second test may also not be an error in that franchise boundaries usually refer to cable television service specifically. A provider may be allowed to expand non-television services like broadband into competing areas. It is also possible that the cable franchise boundaries are not up-to-date.

In Maryland, we can test if any of seven providers report blocks outside of their own boundary. The maximum number of blocks that fall outside the cable franchise boundaries is 5,730 reported by Comcast Cable Communications, LLC. This represents 11.9% of their total number of served blocks. The minimum number of "outside" blocks is 8 reported by Easton Utilities, or 1.5% . The average number of blocks that fall outside the cable franchise boundary is 1,471.

Thirteen broadband providers that deliver service via cable modem have the potential of serving blocks contained within someone else's boundary. The maximum number of blocks that fall into someone else's cable franchise boundaries is 2,773 reported by Broadstripe, LLC. This represents 94% of their total number of served blocks. The minimum number of blocks to fall in someone else's boundary is 1 reported by Hotwire Communications, but that represents 100% of their coverage area. The average number of blocks that fall outside the cable franchise boundary is 643

Census blocks that are outside DSL boundary

For those BSPs that provide broadband service via digital subscriber line (DSL) technology, the general area of DSL availability is tracked by several industry groups. The MBBMI team obtained the spatial extent of the DSL availability areas within the state of Maryland from the Maryland Broadband Cooperative. With these DSL availability areas, a test can be performed to count the number of census blocks that fall outside of the DSL availability area. This may indicate an error, although it is possible that the DSL availability boundaries are not up-to-date or correct. There was no metadata concerning currentness or quality included in the DSL availability areas.

In Maryland, 12 providers are eligible for this test. The maximum number of blocks that fall outside the DSL availability areas is 20,257 reported by Verizon Maryland Inc. This represents

26% of their total number of served blocks. The minimum number of “outside” blocks is 0 reported by Tata. The average number of blocks that fall outside the DSL availability area is 3,226.

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 2011, the MBBMI embarked on the second 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 nine phones, two each for Sprint, Verizon Wireless, AT&T, 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.

After the field sampling was completed, 1,486 grid points with valid samples were used to conduct this test; 10 of the original sample locations were not collected due to a communication error with the field team. Of those, 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 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 849 and the error rate was 63.6% (849 of 1,334 samples that had registered service). AT&T

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Wireless had the minimum number of samples that were reported as omitted (13 or 1.0%). The average omission error rate was 26.3%. Sprint-Nextel had the maximum number of samples that were reported as committed (sampled as not served but within the coverage area) at 263. The commission error rate was 26.9% (977 were tested). Verizon Wireless had the minimum number of samples that were reported as committed (64 or 5.2%). The average commission error rate was 15.5%.

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 60 and the error rate was 21.9% (60 of 274 samples that had registered service). AT&T Wireless had the minimum number of samples that were reported as omitted (0). The average omission error rate was 14.0%. AT&T Wireless had the maximum number of samples that were reported as committed (sampled as not served but within the coverage area) at 1,367. The commission error rate was 92% (1,453 were tested). Verizon Wireless had the minimum number of samples that were reported as committed (69 or 24.4%). The average commission error rate was 70.2%. This average rate is so high because most of the tests we took within 4G areas did not return 4G speeds.

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Individual Provider Data Summaries

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Allied Telecom Group, LLC
DBA: Allied Telecom Group, LLC**Data Characteristics**

Date of Original Submission:	3/7/2011
Date of Update Submission:	8/26/2011
Currency of Data:	6/30/2011
FRN:	0002154367
Type of data submitted:	Address Table
Census Block Count:	82
Total Matched Address Points Count:	164
Unmatched Address Points:	1
Number of Technology of Transmission Types:	4
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 164
 - Number unmatched: 1
- Spatially join matched address points to 2010 census blocks
- Separate addresses by technology of transmission

Census Block Process:

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

Speed Domains:

- Maximum Advertized and Typical Speeds changed
 - Technology of Transmission 30 – 44 records changed to speed tier 8 to fit domain

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
10	44	42%
11	28	27%
4	5	5%
7	28	27%

Max Upload Category	Count	% of Blocks
10	44	42%
11	28	27%
4	5	5%
5	28	27%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
10	44	42%
11	28	27%
4	5	5%
7	28	27%

Typical Upload Category	Count	% of Blocks
10	44	42%
11	28	27%
4	5	5%
5	28	27%

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

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

Speed Test Upload Tier	Count	% of Tests
6	1	100%

Speed tests match reported typical speeds or are within 1 speed tier: **No**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): **0/82 (0%)****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**Total number of dead zones reported per provider via broadband.maryland.gov: **1**Number of census blocks with dead zones reported via mdbroadbandmap.org: **0**Total number of dead zones reported per provider via mdbroadbandmap.org: **0**Web Search Verification: **N/A**Census blocks that are outside DSL boundary: **14/82 (17%)**

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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:	2/21/2011
Currency of Data:	12/31/2010
FRN:	0002154367
Type of data submitted:	Addresses
Census Block Count:	2424
Total Matched Address Points Count:	21847
Unmatched Address Points:	37
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 ESRI US Streets address locator
 - Number matched: 21021
 - Number unmatched: 863
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 548
 - Number unmatched: 315
- Unmatched addresses are geocoded to Maryland centerline address locator
 - Number matched: 278
 - Number unmatched: 37
- 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

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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
7	2424	100%

Max Upload Category	Count	% of Blocks
4	2424	100%

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	1	1%
3	3	2%
4	33	20%
5	119	71%
6	4	2%
7	7	4%

Speed Test Upload Tier	Count	% of Tests
1	1	1%
2	34	20%
3	122	73%
4	8	5%
6	2	1%

Speed tests match reported typical download speeds or are within 1 speed tier: N/A**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted):** 2/2424 (<1%)**Form 477Verification:****Number of census blocks reported to project, but no tract reported to FCC:** 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:** 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:** 1**Total number of dead zones reported per provider via mdbroadbandmap.org:** 1

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Web Search Verification: 41/2424 (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	123	8%
Result is yes and census block is in served area	41	33%
Result is yes but not in a census block reported as served	21	17%
Result is no and census block is in served area	5	4%
Result is no and census block not served area	56	46%

Census blocks that are outside providers own Cable Franchise Boundary: 743/2424 (31%)

Census blocks that fall within another provider's Cable Franchise Boundary: 58/2424 (2%)

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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: 8/15/2011
 Currency of Data: 6/30/2011
 FRN: 0003765617
 Type of data submitted: Census Block Table & Road Segments
 Census Block Count: 2592
 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

Data Processing**Census Block Process:**

- Join the provided 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
7	2592	100%

Max Upload Category	Count	% of Blocks
5	2592	100%

Road Segments

Max Download Category	Count	% of Road Segments
7	198	100%

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

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

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

Speed Test Download Tier	Count	% of Tests
0	8	10%
3	1	1%
4	1	1%
5	15	19%
6	42	54%
7	11	14%

Speed Test Upload Tier	Count	% of Tests
1	2	3%
2	8	10%
3	10	13%
4	57	73%
6	1	1%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [0/2592 \(0%\)](#)

Form 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [92](#)

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](#): [6](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [6](#)

Number or census blocks with dead zones reported via [mdbroadbandmap.org](#): [5](#)

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

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

Armstrong WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	166	11%
Result is yes and census block is in served area	46	28%
Result is yes but not in a census block reported as served	40	24%
Result is no and census block is in served area	0	0%
Result is no and census block not served area	80	48%

Census blocks that are outside providers own Cable Franchise Boundary: [2132/2592 \(82%\)](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [742/2592 \(29%\)](#)

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AT&T Mobility LLC**DBA Name: AT&T Mobility LLC****Data Characteristics**

Date of Original Submission: 3/9/2010
 Date of Update Submission: 7/29/2011
 Currency of Data: 6/30/2011
 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: No
 Provided Road Segments for census blocks greater than 2 sq miles: No

Data Processing**Coverage Area Process:**

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

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
4	1	100%

Max Upload Category	Count	% of Area
3	1	100%

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 mobile speed test:**

Speed Test Download Tier	Count	% of Tests
0	425	37%
3	331	29%

Speed Test Upload Tier	Count	% of Tests
1	667	58%
2	307	27%

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4	331	29%
5	59	5%
6	3	0%
7	6	1%

3	135	12%
4	31	3%
5	7	1%
6	1	0%
7	4	0%
8	3	0%

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: [1150/1155 \(99.5%\)](#)

Number of mobile speed tests reported outside coverage area: [5/1155 \(0.5%\)](#)

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

Speed Test Download Tier	Count	% of Tests
0	7	70%
3	2	20%
4	1	10%

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

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

#/% 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: [342/342 \(100.0%\)](#)

#/% of tracts reported as served to FCC but do not intersect coverage area: [0/342 \(0%\)](#)

Dead zones:

Number of dead zones reported within coverage area via [broadband.maryland.gov](#):

[230/240 \(95.8%\)](#)

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

[142/147 \(96.6%\)](#)

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

Wireless Verification:

ATT Wireless Verification Table - 3G	Count	Percentage
Total # of sample points	1486	
Number of sample points within coverage area	1453	
Total number of sample points with results	1293	

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Verified served AND within reported coverage area (yes,yes)	1280	
Verified served AND found outside reported coverage area (yes,no)	13	1.0%
Verified unserved AND found within reported coverage area (no,yes)	173	11.6%
Verified unserved AND found outside reported coverage area (no,no)	20	
Total error	186	12.5%

ATT Wireless Verification Table - 4G	Count	Percentage
Total # of sample points	1486	
Number of sample points with expected 4G results	1453	
Total number of sample points with 4G results	86	
Verified 4G AND within reported coverage area (yes,yes)	86	
Verified 4G AND found outside reported coverage area (yes,no)	0	0.0%
Verified not 4G AND found within reported coverage area (no,yes)	1367	92.0%
Verified not 4G AND found outside reported coverage area (no,no)	33	
Total error	1367	94.1%

*4G service defined as average down speed of > 2000 bps

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Atlantech Online, Inc.**DBA: Atlantech Online, Inc.****Data Characteristics**

Date of Original Submission:	3/7/2011
Date of Update Submission:	3/7/2011
Currency of Data:	12/31/2010
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 ESRI US Streets address locator
 - Number matched: 39
 - Number unmatched: 39
- 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

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

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

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

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
3	6	14%
4	1	2%
5	20	47%
6	7	16%
7	3	7%
8	3	7%
9	3	7%

Speed Test Upload Tier	Count	% of Tests
2	1	2%
3	10	23%
4	12	28%
5	10	23%
6	2	5%
7	4	9%
8	2	5%
9	2	5%

Speed tests match reported typical speeds or are within 1 speed tier: N/A**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted):** 9/22 (41%)**Form477 Verification:****Number of census blocks reported to project, but no tract reported to FCC:** 0**Number of tracts reported to FCC, but no census blocks reported to project:** 84**Dead zones:****Number of census blocks with dead zones reported via broadband.maryland.gov:** 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**Total number of dead zones reported per provider via mdbroadbandmap.org:** 0**Web Search Verification:** N/A

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Atlantic Broadband (Penn), LLC**DBA Name: Atlantic BroadBand****Data Characteristics**

Date of Original Submission:	3/26/2011
Date of Update Submission:	9/16/2011
Currency of Data:	6/30/2011
FRN:	0009596883
Type of data submitted:	Address Table
Census Block Count:	3870
Total Matched Address Points Count:	63765
Unmatched Address Points:	4183
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

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

Census Block Process:

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

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- Result: BB_Service_CensusBlock

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 computer based speed test:

Speed Test Download Tier	Count	% of Tests
0	31	15%
3	8	4%
4	17	8%
5	104	49%
6	39	18%
7	13	6%
9	1	0%

Speed Test Upload Tier	Count	% of Tests
1	1	0%
2	192	90%
3	17	8%
4	3	1%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Form 477Verification:

Number of census blocks reported to project, but no tract reported to FCC: **128**

Number of tracts reported to FCC, but no census blocks reported to project: **5**

Dead zones:

Number of census blocks with dead zones reported via broadband.maryland.gov: **2**

Total number of dead zones reported per provider via broadband.maryland.gov: **2**

Number or census blocks with dead zones reported via mdbroadbandmap.org: **6**

Total number of dead zones reported per provider via mdbroadbandmap.org: **6**

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Web Search Verification: 87/3070 (3%) 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	87	6%
Result is yes but not in a census block reported as served	116	8%
Result is no and census block is in served area	2	0%
Result is no and census block not served area	1289	86%

Census blocks that are outside providers own Cable Franchise Boundary: 1255/3070 (41%)

Census blocks that fall within another provider's Cable Franchise Boundary: 266/3070 (9%)

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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:	9/12/2011
Currency of Data:	6/30/2011
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 2000 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
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Typical Upload Category	Count	% of Blocks
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4	1841	100%	2	1841	100%
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Typical down/upload speed from 2010 computer based speed test:

Speed Test Download Tier	Count	% of Tests
3	1	50%
4	1	50%

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

Speed tests match reported typical download speeds or are within 1 speed tier: [Yes](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [0/1841 \(0%\)](#)

Form 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [N/A](#)

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

Dead zones:

Number of census blocks with dead zones reported via [broadband.maryland.gov](#): [1](#)

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](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [1](#)

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

Census blocks that are outside providers own Cable Franchise Boundary: [N/A](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [1439/1841 \(78%\)](#)

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Believe Wireless, LLC.**DBA: Believe Wireless Broadband****Data Characteristics**

Date of Original Submission:	3/1/2011
Date of Update Submission:	9/8/2011
Currency of Data:	6/30/2011
FRN:	9999
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Coverage Area Process:**

- Spectrum not provided
 - Spectrum selected by comparing similar providers and choosing the most likely option
- 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

Speed Domains:

- Maximum Advertized Speeds changed
 - Reported speeds exceed domain – changed from tier 11 to 6

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Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
6	1	100%

Max Upload Category	Count	% of Area
6	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
6	1	100%

Typical Upload Category	Count	% of Area
6	1	100%

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

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:

15/240 (6.2%)

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

6/147 (4%)

Web Search Verification: N/A

Wireless Verification: N/A

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Bloosurf**DBA: Bloosurf****Data Characteristics**

Date of Original Submission:	2/28/2011
Date of Update Submission:	9/8/2011
Currency of Data:	6/30/2011
FRN:	0019496462
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Coverage Area Process:**

- Digitize coverage area from map
- 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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Speed tests match reported typical 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:

5/240 (2%)

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

1/147 (0.7)

Web Search Verification: N/A

Wireless Verification: N/A

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Broadstripe, LLC**DBA Name: Broadstripe, LLC****Data Characteristics**

Date of Original Submission:	4/14/2010
Date of Update Submission:	9/9/2011
Currency of Data:	6/30/2011
FRN:	0003773843
Type of data submitted:	Address Table
Census Block Count:	2949
Total Matched Address Points Count:	107378
Unmatched Address Points:	100
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 103647
 - Number unmatched: 840
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 636
 - Number unmatched: 204
- Unmatched address are geocoded to Maryland street centerline address locator
 - Number matched: 636
 - Number unmatched: 204
- 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

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Census Block Process:

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

Data Modification:

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

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
7	2949	100%

Max Upload Category	Count	% of Blocks
4	2949	100%

Typical down/upload speeds reported by provider: [N/A](#)**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
3	3	5%
4	1	2%
5	10	18%
6	17	31%
7	20	36%
8	1	2%
9	2	4%
10	1	2%

Speed Test Upload Tier	Count	% of Tests
1	3	5%
2	4	7%
3	5	9%
4	43	78%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [0/2949 \(0%\)](#)**Form477 Verification:**Number of census blocks reported to project, but no tract reported to FCC: [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](#): [1](#)Total number of dead zones reported per provider via [broadband.maryland.gov](#): [1](#)

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

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

Census blocks that are outside providers own Cable Franchise Boundary: 1255/2949 (43%)**Census blocks that fall within another provider's Cable Franchise Boundary:** 266/2949 (9%)

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Broadview Networks Holdings, Inc.**DBA Name: Broadview Networks Holdings, Inc.****Data Characteristics**

Date of Original Submission:	2/24/2010
Date of Update Submission:	9/9/2011
Currency of Data:	6/30/2011
FRN:	0010296853
Type of data submitted:	Address Table
Census Block Count:	600
Total Matched Address Points Count:	797
Unmatched Address Points:	10
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

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

Census Block Process:

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

Data Modification:

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- Dropped 32 blocks reported by provider that do not meet broadband speeds

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

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

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

Typical down/upload speeds reported by provider: [N/A](#)**Typical down/upload speed from 2010 computer based speed test:**

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

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

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted):** [2/600 \(<1%\)](#)**Form 477 Verification:****Number of census blocks reported to project, but no tract reported to FCC:** [45](#)**Number of tracts reported to FCC, but no census blocks reported to project:** [54](#)**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](#):** [1](#)**Total number of dead zones reported per provider via [mdbroadbandmap.org](#):** [1](#)**Web Search Verification:** [N/A](#)**Census blocks that are outside DSL boundary:** [111/600 \(19%\)](#)

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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:	9/9/2011
Currency of Data:	6/30/2011
FRN:	0010296853
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
- Perform Topology on coverage area
 - Rule: Coverage area should not overlap
 - 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**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: [2/2](#)

#/% of tracts reported as served to FCC but do not intersect coverage area: [0/2](#)

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:

[1/240 \(0.4%\)](#)

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

[0/147 \(0%\)](#)

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

Wireless Verification: [N/A](#)

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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:	9/2/2011
Currency of Data:	6/30/2011
FRN:	0015799133
Type of data submitted:	Census Block Table, Middle Mile
Census Block Count:	6858 Unique
Total Matched Address Points Count:	10263
Unmatched Address Points:	34
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

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

Census Block Process:

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

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Data Modification:

- 6342 blocks with technology of transmission 10 exceed domain speed
 - changed to MAXADUP speed tier 7

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
8	7015	100%

Max Upload Category	Count	% of Area
8	7015	100%

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	36	23%
3	23	14%
4	31	19%
5	37	23%
6	22	14%
7	7	4%
8	2	1%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	14	9%
2	98	62%
3	38	24%
4	1	1%
5	3	2%
6	2	1%
7	3	2%

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

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [16/6856 \(< 1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [60](#)

Number of tracts reported to FCC, but no census blocks reported to project: [79](#)

Dead zones:

Number of census blocks with dead zones reported via [broadband.maryland.gov](#): 9

Total number of dead zones reported per provider via [broadband.maryland.gov](#): 13

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): 4

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): 4

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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%

Census blocks that are outside DSL boundary: 263/6856 (4%)

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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:	7/29/2011
Currency of Data:	6/30/2011
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:	Incomplete
Provided Max Typical Upload Speed:	Incomplete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Coverage Area Process:**

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

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
5	3	100%
6	1	100%

Max Upload Category	Count	% of Area
4	3	100%
5	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
NULL	1	100%
3	3	100%

Typical Upload Category	Count	% of Area
NULL	1	100%
2	3	100%

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Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	597	6%	1	353	4%
3	553	6%	2	1395	15%
4	1108	12%	3	460	5%
5	1180	13%	4	1321	14%
6	1599	17%	5	2768	30%
7	4127	44%	6	1218	13%
8	162	2%	7	1803	19%
10	1	0%	8	9	0%

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: **9198/9327 (98.6%)**

Number of mobile speed tests reported outside coverage area: **129/9327 (1.4%)**

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	225	57%	1	120	31%
3	122	31%	2	270	69%
4	45	11%	3	2	1%
5	1	0%	4	1	0%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Number of computer based speed tests reported inside coverage area: **385/393 (98%)**

Number of computer based speed tests reported outside coverage area: **8/393 (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:
203/240 (84.6%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
134/147 (91%)

Web Search Verification: **N/A**

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Wireless Verification:

Verizon Wireless Verification Table - 3G	Count	Percentage
Total # of sample points	1486	
Number of sample points within coverage area	1225	
Total number of sample points with results	1334	
Verified served AND within reported coverage area (yes,yes)	1161	
Verified served AND found outside reported coverage area (yes,no)	173	13.0%
Verified unserved AND found within reported coverage area (no,yes)	64	5.2%
Verified unserved AND found outside reported coverage area (no,no)	88	
Total error	237	15.9%

*for three different spectrums the results were identical

Verizon Wireless Verification Table - 4G	Count	Percentage
Total # of sample points	1486	
Number of sample points with expected 4G results	283	
Total number of sample points with 4G results	274	
Verified 4G AND within reported coverage area (yes,yes)	214	
Verified 4G AND found outside reported coverage area (yes,no)	60	21.9%
Verified not 4G AND found within reported coverage area (no,yes)	69	24.4%
Verified not 4G AND found outside reported coverage area (no,no)	1143	
Total error	129	8.7%

*4G service defined as average down speed of > 2000 bps

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Charter Communications Inc**DBA Name: Charter Communications Inc****Data Characteristics**

Date of Original Submission:	3/31/2010
Date of Update Submission:	7/21/2011
Currency of Data:	7/31/2011
FRN:	0017179383
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	421
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 2000 block name 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

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
6	421	100%

Max Upload Category	Count	% of Blocks
3	421	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	421	100%

Typical Upload Category	Count	% of Blocks
3	421	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 computer based speed test:

Speed Test Download Tier	Count	% of Tests
4	3	50%
5	2	33%
7	1	17%

Speed Test Upload Tier	Count	% of Tests
2	3	50%
3	3	50%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): **0/421 (0%)****Form477 Verification:**Number of census blocks reported to project, but no tract reported to FCC: **0**Number of tracts reported to FCC, but no census blocks reported to project: **0****Dead zones:**Number of census blocks with dead zones reported via broadband.maryland.gov: **0**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**

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Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: 2/421 (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%

Census blocks that are outside providers own Cable Franchise Boundary: 208/421 (49%)

Census blocks that fall within another provider's Cable Franchise Boundary: 0/421 (0%)

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Clearwire Corporation**DBA Name: Clearwire Corporation****Data Characteristics**

Date of Original Submission: 3/5/2010
 Date of Update Submission: 9/9/2011
 Currency of Data: 9/2/2011
 FRN: 0017775628
 Type of data submitted: Coverage Area
 Census Block Count: N/A
 Total Matched Address Points Count: N/A
 Unmatched Address Points: N/A
 Number of Technology of Transmission Types: 1
 Provided Max Advertised Download Speed: Complete
 Provided Max Advertised Upload Speed: Complete
 Provided Max Typical Download Speed: Complete
 Provided Max Typical Upload Speed: Complete
 Provided Middle Mile: No
 Provided Road Segments for census blocks greater than 2 sq miles: No

Data Processing**Coverage Area Process:**

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

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
4	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
5	1	100%

Typical Upload Category	Count	% of Area
4	1	100%

Typical down/upload speed from 2010 mobile speed test:

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Speed Test Download Tier	Count	% of Tests
0	36	14%
3	83	31%
4	91	34%
5	48	18%
6	5	2%
7	2	1%

Speed Test Upload Tier	Count	% of Tests
1	15	6%
2	106	40%
3	142	54%
7	2	1%

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: **216/265 (81.5%)**

Number of mobile speed tests reported outside coverage area: **49/265 (18.5%)**

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

Speed Test Download Tier	Count	% of Tests
0	7	8%
3	11	13%
4	19	23%
5	35	42%
6	10	12%
7	2	2%

Speed Test Upload Tier	Count	% of Tests
1	2	2%
2	22	26%
3	60	71%

Speed tests match reported typical download speeds or are within 1 speed tier: **Yes**

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

Number of computer based speed tests reported inside coverage area: **80/84 (95.2%)**

Number of computer based speed tests reported outside coverage area: **4/84 (4.8%)**

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:
39/240 (16.2%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
6/147 (4%)

Web Search Verification: **N/A**

Wireless Verification: **N/A**

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Cogent Communications Group**DBA Name: Cogent Communications Group****Data Characteristics**

Date of Original Submission: 2/1/2010
Date of Update Submission: 7/7/2011
Currency of Data: Janu6/30/2011
FRN: 0019066034
Type of data submitted: Address Table, Middle Mile
Census Block Count: 3
Total Matched Address Points Count: 3
Unmatched Address Points: 3
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 ESRI US streets 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:**

Max Download Category	Count	% of Blocks	Max Upload Category	Count	% of Blocks
11	3	100%	11	3	100%

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

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

Speed Test Download Tier	Count	% of Tests
0	1	8%
3	2	15%
4	1	8%
6	8	62%
8	1	8%

Speed Test Upload Tier	Count	% of Tests
2	1	8%
3	2	15%
6	7	54%
7	3	23%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [8/3 \(> 100%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [3](#)

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](#): [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](#)

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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: 9/7/2011
 Currency of Data: 6/30/2011
 FRN: 0004441663
 Type of data submitted: Census Block Table, Road Segments
 Census Block Count: 48720
 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 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
9	48720	100%

Max Upload Category	Count	% of Blocks
7	48720	100%

Road Segments

Max Download Category	Count	% of Blocks
9	736	100%

Max Upload Category	Count	% of Blocks
7	736	100%

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Typical down/upload speeds reported by provider: [N/A](#)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	63	1%	1	36	1%
3	144	3%	2	183	3%
4	117	2%	3	292	5%
5	450	8%	4	1101	19%
6	734	13%	5	3841	68%
7	3737	66%	6	192	3%
8	372	7%	7	26	0%
9	41	1%			
10	13	0%			

Speed tests match reported typical download speeds or are within 1 speed tier: [Yes](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [492/48720 \(1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [146](#)

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](#): [71](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [102](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [32](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [41](#)

Web Search Verification: [440/48720 \(1%\)](#) 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	835	56%
Result is yes and census block is in served area	440	53%
Result is yes but not in a census block reported as served	63	8%
Result is no and census block is in served area	137	16%
Result is no and census block not served area	194	23%

Census blocks that are outside providers own Cable Franchise Boundary: [5730/48720 \(12%\)](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [263/48720 \(1%\)](#)

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DIECA Communications, Inc.**DBA: Covad Communication Company****Data Characteristics**

Date of Original Submission: 2/1/2010
 Date of Update Submission: 8/6/2011
 Currency of Data: 12/31/2011
 FRN: 0003753753
 Type of data submitted: Census Block Table, Road Segments
 Census Block Count: 71956
 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

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 Modification:

- 9141 features Typical Downstream Speed changed to speed tier 3

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	10192	6%
4	28162	17%
5	73822	46%
6	30213	19%
7	19030	12%

Max Upload Category	Count	% of Blocks
2	15085	9%
3	41992	26%
4	19796	12%
5	69943	43%
7	14603	9%

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Road Segments

Max Download Category	Count	% of Road Segments
3	51	3%
4	241	12%
5	1543	78%
6	112	6%
7	22	1%

Max Upload Category	Count	% of Road Segments
2	88	4%
3	147	7%
4	169	9%
5	1543	78%
7	22	1%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
2	9141	6%
3	10520	7%
4	38120	24%
5	83373	52%
6	4116	3%
7	16149	10%

Typical Upload Category	Count	% of Blocks
2	51662	9%
3	6518	26%
4	34241	12%
5	54395	43%
7	14603	9%

Road Segments

Typical Download Category	Count	% of Road Segments
2	7	0%
3	116	6%
4	193	10%
5	1631	83%
7	22	1%

Typical Upload Category	Count	% of Road Segments
2	191	4%
3	44	7%
4	193	9%
5	1519	78%
7	22	1%

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

Speed Test Download Tier	Count	% of Tests
0	9	11%
3	42	51%
4	23	28%
5	4	5%
6	2	2%
7	3	4%

Speed Test Upload Tier	Count	% of Tests
1	22	27%
2	33	40%
3	17	20%
4	8	10%
5	3	4%

Speed tests match reported typical speeds or are within 1 speed tier: **No**

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): **0/71956 (0%)**

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Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [5785](#)

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](#): [57](#)

Total number of dead zones reported per provider via [broadband.maryland.gov](#): [72](#)

Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): [20](#)

Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [28](#)

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

Census blocks that are outside DSL boundary: [17913/71956](#) (25%)

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DSLnet Communications, LLC**DBA Name:** [DSLnet Communications, LLC](#)**Data Characteristics**

Date of Original Submission:	3/11/2010
Date of Update Submission:	8/30/2011
Currency of Data:	6/30/2011
FRN:	0004324857
Type of data submitted:	Address Table
Census Block Count:	171
Total Matched Address Points Count:	595
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:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: [592](#)
 - Number unmatched: [9](#)
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: [1](#)
 - Number unmatched: [8](#)
- Unmatched address are geocoded to Maryland centerline address locator
 - Number matched: [2](#)
 - Number unmatched: [6](#)
- 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

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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 Modification:

- Removed 301 addresses from provider submission that do not meet broadband speeds
- Removed 1 address from provider submission reported with no technology of transmission

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	104	61%
4	67	39%

Max Upload Category	Count	% of Blocks
3	104	61%
4	67	39%

Typical down/upload speeds reported by provider: [N/A](#)Typical down/upload speed from 2010 computer based speed test: [N/A](#)Speed tests match reported typical speeds or are within 1 speed tier: [N/A](#)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: 0Total number of dead zones reported per provider via broadband.maryland.gov: 0Number of census blocks with dead zones reported via mdbroadbandmap.org: 0Total number of dead zones reported per provider via mdbroadbandmap.org: 0Web Search Verification: [N/A](#)Census blocks that are outside DSL boundary: [6/171 \(4%\)](#)

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DSLnet, Inc
DBA: DSLnet, Inc**Data Characteristics**

Date of Original Submission:	3/11/2010
Date of Update Submission:	8/30/2011
Currency of Data:	6/30/2011
FRN:	0015321136
Type of data submitted:	Addresses
Census Block Count:	30
Total Matched Address Points Count:	63
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**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 63
 - 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 Modification:

- Removed 31 addresses from provider submission that do not meet broadband speeds

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks	Max Upload Category	Count	% of Blocks
3	13	42%	3	13	42%
4	17	55%	4	17	55%
8	1	3%	8	1	3%

Typical down/upload speeds reported by provider: [N/A](#)Typical down/upload speed from 2010 computer based speed test: [N/A](#)Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)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: [0](#)Number of tracts reported to FCC, but no census blocks reported to project: [192](#)**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](#)Census blocks that are outside DSL boundary: [11/30 \(37%\)](#)

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Easton Utilities Commission

DBA Name: Easton Utilities Commission

Data Characteristics

Date of Original Submission:	2/5/2010
Date of Update Submission:	2/23/2011
Currency of Data:	12/31/2011
FRN:	0003793726
Type of data submitted:	Address Table
Census Block Count:	530
Total Matched Address Points Count:	4687
Unmatched Address Points:	3
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 ESRI address locator
 - Number matched: 4316
 - Number unmatched: 374
- Unmatched address are geocoded to MDPV address locator
 - Number matched: 367
 - Number unmatched: 7
- Unmatched address are geocoded to Maryland street centerline address locator
 - Number matched: 4
 - Number unmatched: 3
- Merge matched addresses
- Spatially join address points to 2000 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

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Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 field
 - Load exported results into the NTIA data model
 - Result: BB_Service_CensusBlock

Data Modification:

- 258 blocks with Technology of Transmission 41 Maximum Advertised Up speed does not fit domain - changed to speed tier 2

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	275	52%
5	255	48%

Max Upload Category	Count	% of Blocks
1	258	49%
2	243	46%
3	24	5%
4	5	1%

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

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

Speed Test Download Tier	Count	% of Tests
0	4	4%
3	11	11%
4	9	9%
5	57	56%
6	19	19%
7	1	1%

Speed Test Upload Tier	Count	% of Tests
1	12	12%
2	57	56%
3	29	29%
4	2	2%
6	1	1%

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

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 0/530 (0%)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: 7

Number of tracts reported to FCC, but no census blocks reported to project: 0

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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](#)

Census blocks that are outside providers own Cable Franchise Boundary: [8/530 \(2%\)](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [3/530 \(1%\)](#)

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FiberLight LLC**DBA Name: FiberLight LLC****Data Characteristics**

Date of Original Submission: 3/31/2010
Date of Update Submission: 3/31/2010
Currency of Data: 3/31/2010
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 computer based speed test:** N/A**Speed tests match reported typical download speeds or are within 1 speed tier:** N/A**%/# of census blocks verified by 2010 computer based speed tests:** N/A

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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](#)

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Freedom Wireless Broadband, LLC**DBA Name: Freedom Wireless Broadband, LLC****Data Characteristics**

Date of Original Submission:	1/28/2010
Date of Update Submission:	8/25/2011
Currency of Data:	Dec6/30/2011
FRN:	0018643155
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Coverage Area Process:**

- Repair Geometry on delivered 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	Max Upload Category	Count	% of Area
4	1	100%	4	1	100%

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 mobile speed test:** N/A**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

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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: [13/13](#)

#/% of tracts reported as served to FCC but do not intersect coverage area: [0/13](#)

Dead zones:

Number of dead zones reported within coverage area via [broadband.maryland.gov](#):

[15/240 \(6.2%\)](#)

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

[4/147 \(2.7%\)](#)

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:	9/9/2011
Currency of Data:	6/30/2011
FRN:	0016642761
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	2467
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 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

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
7	2467	100%

Max Upload Category	Count	% of Blocks
4	2467	100%

Road Segments

Max Download Category	Count	% of Segments
7	800	100%

Max Upload Category	Count	% of Segments
4	800	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
6	2467	100%

Typical Upload Category	Count	% of Blocks
2	2467	100%

Road Segments

Typical Download Category	Count	% of Segments
7	800	100%

Typical Upload Category	Count	% of Segments
2	800	100%

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

Speed Test Download Tier	Count	% of Tests
3	3	7%
4	9	20%
5	10	22%
6	21	47%
7	2	4%

Speed Test Upload Tier	Count	% of Tests
1	18	40%
2	24	53%
3	2	4%
4	1	2%

Speed tests match reported typical download speeds or are within 1 speed tier: [Yes](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/2467 \(< 1%\)](#)**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](#)

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Dead zones:**Number of census blocks with dead zones reported via broadband.maryland.gov: 6****Total number of dead zones reported per provider via broadband.maryland.gov: 7****Number of census blocks with dead zones reported via mdbroadbandmap.org: 6****Total number of dead zones reported per provider via mdbroadbandmap.org: 7****Web Search Verification:** [36/2467 \(2%\) of census blocks were confirmed using online search feature of given provider](#)

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

Census blocks that are outside providers own Cable Franchise Boundary: [N/A](#)**Census blocks that fall within another provider's Cable Franchise Boundary:** [1094/2467 \(44%\)](#)

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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: 2/2/2010
 Currency of Data: 7/31/2010
 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
- Perform Topology on coverage area
 - Rule: Coverage area should not overlap
 - 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
2	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 mobile speed test:

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	23	70%	1	10	30%
3	8	24%	2	10	30%
4	1	3%	4	5	15%
5	1	3%	5	6	18%
			7	2	6%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Number of computer based speed tests reported inside coverage area: **33/33 (100%)**

Number of computer based speed tests reported outside coverage area: **0/33 (0%)**

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	9	13%	1	18	27%
3	34	51%	2	27	40%
6	8	12%	3	2	3%
7	10	15%	4	3	4%
8	5	7%	5	4	6%
9	1	1%	6	8	12%
			7	4	6%
			8	1	1%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Number of mobile speed tests reported inside coverage area: **67/67 (100%)**

Number of mobile speed tests reported outside coverage area: **0/67 (0%)**

Form477 Verification:

#/% of tracts reported as served to FCC that overlaps with coverage area: **295/295**

#/% of tracts reported as served to FCC but do not intersect coverage area: **0/295**

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:
237/240 (98.7%)

Number of dead zones reported within coverage area via mdbroadbandmap.org:
147/147 (100%)

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: 8/30/2011
Currency of Data: 6/30/2011
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 ESRI US Streets 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 2000 census blocks based on the GEOID10 field
 - Load exported results into the NTIA data model
 - Result: BB_Service_CensusBlock

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
5	1	100%

Max Upload Category	Count	% of Blocks
3	1	100%

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

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Typical down/upload speed from 2010 computer based speed test: [N/A](#)

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

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: [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: [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](#)

Census blocks that are outside providers own Cable Franchise Boundary: [N/A](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [1](#)

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Leap Wireless International, Inc**DBA: Cricket Communications****Data Characteristics**

Date of Original Submission:	3/17/2010
Date of Update Submission:	8/12/2010
Currency of Data:	8/3/2010
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**Typical down/upload speed from 2010 mobile speed test:** N/A**Speed tests match reported typical 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:[83/240 \(34.5%\)](#)Number of dead zones reported within coverage area via mdbroadbandmap.org:[34/147 \(23%\)](#)Web Search Verification: [N/A](#)**Wireless Verification:**

Cricket Wireless Verification Table - 3G	Count	Percentage
Total # of sample points	1486	
Number of sample points within coverage area	446	
Total number of sample points with results	489	
Verified served AND within reported coverage area (yes,yes)	356	
Verified served AND found outside reported coverage area (yes,no)	133	27.2%
Verified unserved AND found within reported coverage area (no,yes)	90	20.2%
Verified unserved AND found outside reported coverage area (no,no)	907	
Total error	223	15.0%

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Level 3 Communications, LLC**DBA Name: Level 3 Communications, LLC****Data Characteristics**

Date of Original Submission:	1/18/2010
Date of Update Submission:	8/22/2011
Currency of Data:	6/30/2011
FRN:	0003723822
Type of data submitted:	Address Table
Census Block Count:	170
Total Matched Address Points Count:	210
Unmatched Address Points:	5
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 ESRI US Steets address locator
 - Number matched: 196
 - Number unmatched: 19
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 9
 - Number unmatched: 10
- Unmatched address are geocoded to Maryland centerline address locator
 - Number matched: 5
 - Number unmatched: 5
- 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

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Census Block Process:

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

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
11	170	100%

Max Upload Category	Count	% of Blocks
11	170	100%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
11	129	100%

Typical Upload Category	Count	% of Blocks
11	129	100%

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

Speed Test Download Tier	Count	% of Tests
0	39	37%
3	21	20%
4	7	7%
5	7	7%
6	5	5%
7	10	10%
8	12	11%
9	3	3%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	20	19%
2	28	27%
3	20	19%
4	11	10%
5	3	3%
6	13	12%
7	7	7%
8	3	3%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): **56/170 (33%)**

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: **79**

Number of tracts reported to FCC, but no census blocks reported to project: **48**

Dead zones:

Number of census blocks with dead zones reported via broadband.maryland.gov: **1**

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: 0

Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

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Mediacom Communications**DBA: Mediacom Maryland LLC****Data Characteristics**

Date of Original Submission:	8/4/2011
Date of Update Submission:	N/A
Currency of Data:	7/30/2011
FRN:	0003572633
Type of data submitted:	Census Block Table
Census Block Count:	537
Total Matched Address Points Count:	11420
Unmatched Address Points:	253
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:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 10941
 - Number unmatched: 732
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 442
 - Number unmatched: 290
- Unmatched addresses are geocoded to Maryland center line address locator
 - Number matched: 37
 - Number unmatched: 253
- Merge matched addresses
- 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 Modification:

- Removed 1 address from provider submission – out of service area bounds

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks	Max Upload Category	Count	% of Blocks
8	1074	100%	4	1074	100%

Typical down/upload speeds reported by provider: N/A**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
4	8	20%	2	4	10%
5	4	10%	3	28	70%
6	10	25%	4	6	15%
7	18	45%	5	2	5%

Speed tests match reported typical download speeds or are within 1 speed tier: N/A**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted):** 0/537 (0%)**Form477 Verification:****Number of census blocks reported to project, but no tract reported to FCC:** 2**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**Total number of dead zones reported per provider via broadband.maryland.gov:** 5**Number of census blocks with dead zones reported via mdbroadbandmap.org:** 1**Total number of dead zones reported per provider via mdbroadbandmap.org:** 1**Web Search Verification:** 20/537 (4%) 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	13	15%
Result is yes but not in a coverage area reported as served	15	18%
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%

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Census blocks that are outside providers own Cable Franchise Boundary: [231](#)

Census blocks that fall within another provider's Cable Franchise Boundary: [69](#)

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MegaPath, Inc.DBA Name: **MegaPath****Data Characteristics**

Date of Original Submission:	3/11/2010
Date of Update Submission:	8/30/2011
Currency of Data:	6/30/2011
FRN:	0018105601
Type of data submitted:	Address Table
Census Block Count:	68
Total Matched Address Points Count:	85
Unmatched Address Points:	1
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:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 82
 - Number unmatched: 2
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 2
 - Number unmatched: 2
- Unmatched addresses are geocoded to Maryland center line address locator
 - Number matched: 1
 - Number unmatched: 1
- Merge matched addresses
- Spatially join address points to 2000 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

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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 Modification:

- Removed 12 addresses from provider submission for not having a Maximum Advertised Upload Speed
- 30 census blocks with Technology of Transmission 20 speed changed to tier 3 to fit domain

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	65	94%
4	3	4%
5	1	1%

Max Upload Category	Count	% of Blocks
2	28	41%
3	41	59%

Typical down/upload speeds reported by provider: [N/A](#)**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	5	63%
3	2	25%
10	1	13%

Speed Test Upload Tier	Count	% of Tests
1	2	25%
2	4	50%
3	1	13%

Speed tests match reported typical speeds or are within 1 speed tier: [N/A](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [6/68 \(9%\)](#)**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](#): [0](#)Total number of dead zones reported per provider via [broadband.maryland.gov](#): [0](#)

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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

Census blocks that are outside DSL boundary: 1/68 (1%)

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Mountain Communications, LLC**DBA: ProCom****Data Characteristics**

Date of Original Submission:	5/31/2010
Date of Update Submission:	5/31/2010
Currency of Data:	5/31/2010
FRN:	0008039323
Type of data submitted:	Census Block Table, 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

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

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
10	161	100%

Max Upload Category	Count	% of Blocks
10	161	100%

Road Segments

Max Download Category	Count	% of Blocks
10	95	100%

Max Upload Category	Count	% of Blocks
10	161	100%

Typical down/upload speeds reported by provider: [N/A](#)Typical down/upload speed from 2010 computer based speed test: [N/A](#)Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)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](#): 0Total number of dead zones reported per provider via [broadband.maryland.gov](#): 0Number of census blocks with dead zones reported via [mdbroadbandmap.org](#): 0Total number of dead zones reported per provider via [mdbroadbandmap.org](#): 0Web Search Verification: [N/A](#)

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Neon Connect, Inc**DBA: Sidera Networks****Data Characteristics**

Date of Original Submission:	3/5/2010
Date of Update Submission:	3/1/2011
Currency of Data:	December 2010
FRN:	0005052741
Type of data submitted:	Address Table
Census Block Count:	1
Total Matched Address Points Count:	2
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 ESRI US Streets address locator
 - Number matched: 2
 - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the address points to the 2000 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:**

Max Download Category	Count	% of Blocks
7	1	100%

Max Upload Category	Count	% of Blocks
7	1	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks
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Typical Upload Category	Count	% of Blocks
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7	1	100%	7	1	100%
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Typical down/upload speed from 2010 computer based speed test: [N/A](#)

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

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](#)

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New Edge Holding Company**DBA Name: New Edge Network, Inc****Data Characteristics**

Date of Original Submission:	1/22/2010
Date of Update Submission:	8/31/2011
Currency of Data:	7/1/2011
FRN:	0003720471
Type of data submitted:	Address Table
Census Block Count:	275
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 ESRI address locator
 - Number matched: 335
 - Number unmatched: 2
- Unmatched address are geocoded to MDPV address locator
 - Number matched: 1
 - Number unmatched: 1
- Unmatched address are geocoded to Maryland street centerline address locator
 - Number matched: 1
 - Number unmatched: 1
- Merge matched addresses
- Spatially join address points to 2000 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

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Census Block Process:

- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 field
 - Export results (for each technology of transmission)
 - Load exported results into the NTIA data model
 - Result: BB_Service_CensusBlock

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	58	19%
4	216	72%
5	20	7%
6	3	1%
7	1	0%

Max Upload Category	Count	% of Blocks
2	167	56%
3	83	28%
4	47	16%
7	1	0%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	58	19%
4	216	72%
5	20	7%
6	3	1%
7	1	0%

Typical Upload Category	Count	% of Blocks
2	167	56%
3	83	28%
4	47	16%
7	1	0%

Typical down/upload speed from 2010 computer based speed test: [N/A](#)**Speed tests match reported typical download speeds or are within 1 speed tier:** [N/A](#)**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:** [74](#)**Number of tracts reported to FCC, but no census blocks reported to project:** [39](#)**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](#)

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Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 45/275 (16%)

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One Communications

DBA: One Communications

Data Characteristics

Date of Original Submission:	3/8/2011
Date of Update Submission:	9/1/2011
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 ESRI US Streets address locator
 - Number matched: 156
 - Number unmatched: 13
- Unmatched addresses are geocoded to Maryland Property View address locator
 - Number matched: 4
 - Number unmatched: 9
- Unmatched addresses are geocoded to Maryland centerline address locator
 - Number matched: 1
 - Number unmatched: 8
- Spatially join address points to 2010 census blocks

Census Block Process:

- Join the switched address points to the 2000 census blocks based on the GEOID10 field
 - Export results
 - Load exported results into the NTIA data model
 - Result: BB_Service_CensusBlock

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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 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	1	17%
3	2	33%
4	1	17%
7	1	17%
8	1	17%

Speed Test Upload Tier	Count	% of Tests
3	3	50%
4	1	17%
5	1	17%
6	1	17%

Speed tests match reported typical download speeds or are within 1 speed tier: N/A**Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): 6/148 (4%)****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****Census blocks that are outside DSL boundary: 33/148 (22%)**

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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:	2/28/2011
Currency of Data:	12/31/2011
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

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 359
 - Number unmatched: 18
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 9
 - Number unmatched: 9
- Unmatched address are geocoded to Maryland centerline address locator
 - Number matched: 5
 - Number unmatched: 4
- Merge matched addresses
- Spatially join address points to 2010 census blocks
- Separate and export the address points according to technology of transmission

Census Block Process:

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

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Data Modification:

- 52 blocks with Technology of Transmission 30 exceed Maximum Advertised Down and Maximum Advertised Up speed domain (delivered as tier 11)
 - Changed to speed tier 8 to fit domain

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
11	315	100%

Max Upload Category	Count	% of Blocks
11	315	100%

Typical down/upload speeds reported by provider:

Census Blocks

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

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

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

Speed Test Download Tier	Count	% of Tests
0	3	7%
3	21	49%
4	11	26%
5	5	12%
8	3	7%

Speed Test Upload Tier	Count	% of Tests
2	6	14%
3	20	47%
4	9	21%
5	6	14%
6	1	2%
7	1	2%

Speed tests match reported typical download speeds or are within 1 speed tier: [Yes](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [20/301 \(7%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [17](#)

Number of tracts reported to FCC, but no census blocks reported to project: [74](#)

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](#)

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

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QCOL, Inc.**DBA Name: QCOL****Data Characteristics**

Date of Original Submission: 5/31/2010
Date of Update Submission: 2/28/2011
Currency of Data: 12/31/2010
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

Data Processing**Census Block Process:**

- Join the census block table to the 2010 census blocks based on the BLK2000 field
 - Export results for each technology of transmission
 - 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	205	55%

Max Upload Category	Count	% of Blocks
10	205	55%

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6	167	45%	6	167	45%
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Road Segments

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

Typical down/upload speeds reported by provider: [N/A](#)

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
4	1	25%	2	1	25%
5	2	50%	3	2	50%
6	1	25%	5	1	25%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/308 \(< 1%\)](#)

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](#): [2](#)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](#)Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [0](#)Web Search Verification: [N/A](#)Census blocks that are outside providers own Cable Franchise Boundary: [N/A](#)Census blocks that fall within another provider's Cable Franchise Boundary: [272/308 \(88%\)](#)

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Shenandoah Telecommunications**DBA: Shentel Converged Services, Inc****Data Characteristics**

Date of Original Submission: 5/31/2010
Date of Update Submission: 8/19/2011
Currency of Data: 7/31/2011
FRN: 0013962170
Type of data submitted: Census Blocks,
Road Segments
Census Block Count: 582
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 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

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks	Max Upload Category	Count	% of Blocks
6	582	100%	2	582	100%

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

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

Speed Test Download Tier	Count	% of Tests
0	1	2%
3	1	2%
4	7	14%
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%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [6/582 \(1%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [582](#)

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](#)

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](#)

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Sprint Nextel Corporation**DBA Name: Sprint Nextel Corporation****Data Characteristics**

Date of Original Submission: 2/18/2010
 Date of Update Submission: 8/30/2011
 Currency of Data: 6/30/2011
 FRN: 0003774593
 Type of data submitted: Coverage Area
 Census Block Count: N/A
 Total Matched Address Points Count: N/A
 Unmatched Address Points: N/A
 Number of Technology of Transmission Types: 1
 Provided Max Advertised Download Speed: Complete
 Provided Max Advertised Upload Speed: Complete
 Provided Max Typical Download Speed: Complete
 Provided Max Typical Upload Speed: Complete
 Provided Middle Mile: Yes
 Provided Road Segments for census blocks greater than 2 sq miles: No

Data Processing**Coverage Area Process:**

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

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
3	1	100%
5	1	100%

Max Upload Category	Count	% of Area
2	1	100%
3	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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5	1	100%	3	1	100%
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Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	3252	44%	1	1863	25%
3	1339	18%	2	3323	45%
4	1332	18%	3	2025	27%
5	1311	18%	4	95	1%
6	145	2%	5	48	1%
7	28	0%	6	8	0%
			7	21	0%
			8	24	0%

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: **7217/7407 (97.4%)**

Number of mobile speed tests reported outside coverage area: **190/7407 (2.6%)**

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

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	342	57%	1	206	35%
3	229	38%	2	376	63%
4	18	3%	3	9	2%
5	4	1%	4	1	0%
6	2	0%	5	2	0%
			6	1	0%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Number of computer based speed tests reported inside coverage area: **581/595 (97.6%)**

Number of computer based speed tests reported outside coverage area: **14/595 (2.4%)**

Form 477 Verification:

#/% of tracts reported as served to FCC that overlaps with coverage area: **71/71**

#/% of tracts reported as served to FCC but do not intersect coverage area: **0/71**

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:

187/240 (78%)

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

108/147 (73.5%)

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Web Search Verification: N/A**Wireless Verification:**

Sprint Wireless Verification Table - 3G	Count	Percentage
Total # of sample points	1486	
Number of sample points within coverage area	977	
Total number of sample points with results	975	
Verified served AND within reported coverage area (yes,yes)	714	
Verified served AND found outside reported coverage area (yes,no)	261	26.8%
Verified unserved AND found within reported coverage area (no,yes)	263	26.9%
Verified unserved AND found outside reported coverage area (no,no)	248	
Total error	524	35.3%

Sprint Wireless Verification Table - 4G	Count	Percentage
Total # of sample points	1486	
Number of sample points with expected 4G results	136	
Total number of sample points with 4G results	16	
Verified 4G AND within reported coverage area (yes,yes)	10	
Verified 4G AND found outside reported coverage area (yes,no)	6	37.5%
Verified not 4G AND found within reported coverage area (no,yes)	126	92.6%
Verified not 4G AND found outside reported coverage area (no,no)	1344	
Total error	132	8.9%

*4G service defined as average down speed of > 2000 bps

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StarBand Communications Inc.**DBA Name: StarBand Communications Inc.****Data Characteristics**

Date of Original Submission: 1/26/2010
 Date of Update Submission: 7/12/2011
 Currency of Data: 6/30/2011
 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: Yes
 Provided Road Segments for census blocks greater than 2 sq miles: No

Data Processing**Coverage Area Process:**

- Repair Geometry on delivered coverage area
- Perform Topology on coverage area
 - Rule: Coverage area should not overlap
 - Load coverage area into the NTIA data model
 - Result: BB_Service_Wireless

Speed Domains:

- Typical Upstream speed < 2
 - Calculated Typical Upstream speed to 2

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:

Coverage Area

Typical Download Category	Count	% of Area	Typical Upload Category	Count	% of Area
3	1	100%	2	1	100%

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

Speed tests match reported typical 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: 34/34 (100.0%)

#/% of tracts reported as served to FCC but do not intersect coverage area: 0/34 (0%)

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:
237/240 (98.75%)

Number of dead zones reported within coverage area via broadband.maryland.gov:
147/147 (100.0%)

Web Search Verification: N/A

Wireless Verification: N/A

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Starpower Communications, LLC**DBA Name: RCN & RCN Business Solutions****Data Characteristics**

Date of Original Submission:	3/5/2010
Date of Update Submission:	9/8/2011
Currency of Data:	6/30/2011
FRN:	0003735016
Type of data submitted:	Address Table
Census Block Count:	1381
Total Matched Address Points Count:	6986
Unmatched Address Points:	76
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 6958
 - Number unmatched: 77
- Unmatched address are geocoded to Maryland street centerline address locator
 - Number matched: 1
 - Number unmatched: 76
- Merge matched addresses
- 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

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
4	3	0%
5	158	11%
6	1	0%
7	804	58%
8	414	30%
9	3	0%

Max Upload Category	Count	% of Blocks
2	161	12%
3	15	1%
4	1196	86%
5	8	1%
6	2	0%
7	1	0%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
4	3	0%
5	158	11%
6	1	0%
7	804	58%
8	414	30%
9	3	0%

Typical Upload Category	Count	% of Blocks
2	161	12%
3	15	1%
4	1196	86%
5	8	1%
6	2	0%
7	1	0%

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

Speed Test Download Tier	Count	% of Tests
0	13	8%
4	12	7%
5	36	22%
6	43	26%
7	59	36%
8	1	1%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
1	3	2%
2	104	63%
3	7	4%
4	44	27%
5	7	4%

Speed tests match reported typical download speeds or are within 1 speed tier: [Yes](#)Error reported as proportion of total blocks submitted: [6/1381 \(< 1%\)](#)**Form477 Verification:**Number of census blocks reported to project, but no tract reported to FCC: [2](#)Number of tracts reported to FCC, but no census blocks reported to project: [4](#)**Dead zones:**Number of census blocks with dead zones reported via broadband.maryland.gov: [1](#)

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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: 0

Total number of dead zones reported per provider via mdbroadbandmap.org: 0

Web Search Verification: 4/1381 (0.3%) 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	55	4%
Result is yes and census block is in served area	4	7%
Result is yes but not in a census block reported as served	0	0%
Result is no and census block is in served area	0	0%
Result is no and census block not served area	51	93%

Census blocks that are outside providers own Cable Franchise Boundary: N/A

Census blocks that fall within another provider's Cable Franchise Boundary: 1379/1381 (99%)

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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: 9/9/2011
Currency of Data: 6/30/2011
FRN: 0009480302
Type of data submitted: Address Table
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 ESRI US Streets 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 2000 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
4	1	100%	4	1	100%

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

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

Speed Test Download Tier	Count	% of Tests
0	1	100%

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

Speed tests match reported typical downloaded speeds or are within 1 speed tier: [N/A](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [1/1 \(100%\)](#)

Form477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [0](#)

Number of tracts reported to FCC, but no census blocks reported to project: [0](#)

Dead zones:

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

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](#)

Census blocks that are outside DSL boundary: [0/1 \(0%\)](#)

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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:	8/24/2011
Currency of Data:	6/30/2011
FRN:	0006945950
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

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	100%
6	1	100%
7	1	100%

Max Upload Category	Count	% of Area
2	1	100%
4	2	100%

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

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Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests	Speed Test Upload Tier	Count	% of Tests
0	3019	36%	1	1229	15%
3	1599	19%	2	3597	43%
4	2034	24%	3	2538	31%
5	1466	18%	4	848	10%
6	156	2%	5	51	1%
7	31	0%	6	15	0%
			7	20	0%
			8	7	0%

Speed tests match reported typical speeds or are within 1 speed tier: **No**

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

Number of mobile speed tests reported inside coverage area: **8138/8305 (98%)**

Number of mobile speed tests reported outside coverage area: **167/8305 (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:

121/240 (50.4%)

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

42/147 (28.6%)

Web Search Verification: **N/A**

Wireless Verification:

TMobile Wireless Verification Table - 3G	Count	Percentage
Total # of sample points	1486	
Number of sample points within coverage area	560	
Total number of sample points with results	1334	
Verified served AND within reported coverage area (yes,yes)	485	
Verified served AND found outside reported coverage area (yes,no)	849	63.6%
Verified unserved AND found within reported coverage area (no,yes)	75	13.4%
Verified unserved AND found outside reported coverage area (no,no)	77	
Total error	924	62.2%

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TMobile Wireless Verification Table - 4G (Speed 6-10)	Count	Percentage
Total # of sample points	1486	
Number of sample points with expected 4G results	402	
Total number of sample points with 4G results	120	
Verified 4G AND within reported coverage area (yes,yes)	116	
Verified 4G AND found outside reported coverage area (yes,no)	4	3.3%
Verified not 4G AND found within reported coverage area (no,yes)	286	71.1%
Verified not 4G AND found outside reported coverage area (no,no)	1080	
Total error	290	19.5%

*4G service defined as average down speed of > 2000 bps

TMobile Wireless Verification Table - 4G (Speed 10-25)	Count	Percentage
Total # of sample points	1486	
Number of sample points with expected 4G results	382	
Total number of sample points with 4G results	120	
Verified 4G AND within reported coverage area (yes,yes)	111	
Verified 4G AND found outside reported coverage area (yes,no)	9	7.5%
Verified not 4G AND found within reported coverage area (no,yes)	271	70.9%
Verified not 4G AND found outside reported coverage area (no,no)	1095	
Total error	280	18.8%

*4G service defined as average down speed of > 2000 bps

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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:	9/2/2011
Currency of Data:	6/30/2011
FRN:	0017348202
Type of data submitted:	Address table
Census Block Count:	55
Total Matched Address Points Count:	69
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:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 67
 - Number unmatched: 2
- Unmatched address are geocoded to Maryland Property View address locator
 - Number matched: 2
 - 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

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 Modification:

- Removed 26 records from provider data – do not meet broadband speeds

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	13	22%
4	16	28%
5	5	9%
6	3	5%
7	9	16%
8	4	7%
9	2	3%
10	3	5%
11	3	5%

Max Upload Category	Count	% of Blocks
3	13	22%
4	16	28%
5	5	9%
6	3	5%
7	9	16%
8	4	7%
9	2	3%
10	3	5%
11	3	5%

Typical down/upload speeds reported by provider: [N/A](#)**Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	6	40%
3	1	7%
4	3	20%
5	3	20%
7	2	13%

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

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [6/55 \(11%\)](#)**Form477 Verification:**Number of census blocks reported to project, but no tract reported to FCC: [13](#)Number of tracts reported to FCC, but no census blocks reported to project: [11](#)**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](#)

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Vector Data Systems LLC**DBA Name: Vector Data Systems LLC****Data Characteristics**

Date of Original Submission:	February 2010
Date of Update Submission:	8/30/2011
Currency of Data:	6/30/2011
FRN:	0017306663
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing**Coverage Area Process:**

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

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
5	1	100%

Typical down/upload speeds reported by provider:

Coverage Area

Typical Download Category	Count	% of Area
5	1	100%

Typical Upload Category	Count	% of Area
4	1	100%

Typical down/upload speed from 2010 mobile speed test: N/A**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: 5/5 (100.0%)

#/% of tracts reported as served to FCC but do not intersect coverage area: 0/5 (0%)

Dead zones:

Number of dead zones reported within coverage area via broadband.maryland.gov:

4/240 (1.7%)

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

0/147 (0%)

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:	9/2/2011
Currency of Data:	6/30/2011
FRN:	0002166825
Type of data submitted:	Census Block Table, Road Segments
Census Block Count:	76768
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

Data Processing**Census Block Process:**

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

Road Segment Process:

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

Data Modification:

- 5 blocks with Technology of Transmission 10 exceed Maximum Advertised Download speed
 - Changed to speed tier 8

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Data Verification**Maximum down/upload speeds reported by provider:****Census Blocks**

Max Download Category	Count	% of Blocks
4	12188	13%
5	37049	39%
6	12508	13%
9	32281	34%

Max Upload Category	Count	% of Blocks
2	12188	13%
3	49557	53%
7	32281	34%

Road Segments

Max Download Category	Count	% of Segments
4	1275	32%
5	1544	39%
6	111	3%
9	1069	27%

Max Upload Category	Count	% of Segments
2	1275	32%
3	1655	41%
7	1069	27%

Typical down/upload speeds reported by provider: [N/A](#)

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

Speed Test Download Tier	Count	% of Tests
0	571	8%
3	526	8%
4	1364	20%
5	391	6%
6	692	10%
7	2199	32%
8	1130	16%
9	37	1%
10	21	0%

Speed Test Upload Tier	Count	% of Tests
1	589	8%
2	2060	30%
3	56	1%
4	882	13%
5	1437	21%
6	624	9%
7	1186	17%
8	96	1%
9	1	0%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)

Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [30/76768 \(< 1%\)](#)

Form 477 Verification:

Number of census blocks reported to project, but no tract reported to FCC: [4229](#)

Number of tracts reported to FCC, but no census blocks reported to project: [0](#)

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Dead zones:**Number of census blocks with dead zones reported via broadband.maryland.gov: 104****Total number of dead zones reported per provider via broadband.maryland.gov: 129****Number of census blocks with dead zones reported via mdbroadbandmap.org: 63****Total number of dead zones reported per provider via mdbroadbandmap.org: 76****Web Search Verification: [479/76768 \(1%\) 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	1435	96%
Result is yes and census block is in served area	479	33%
Result is yes but not in a census block reported as served	39	3%
Result is no and census block is in served area	513	36%
Result is no and census block not served area	402	28%

Census blocks that are outside DSL boundary: [20257/76768 \(26 %\)](#)

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Wildblue Communications, Inc**DBA Name: Wildblue Communications, Inc****Data Characteristics**

Date of Original Submission: 4/21/2010
 Date of Update Submission: 7/20/2011
 Currency of Data: 6/30/2011
 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: 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
- Perform Topology on coverage area
 - Rule: Coverage area should not overlap
 - Load coverage area into the NTIA data model
 - Result: BB_Service_Wireless

Data Modification:

- Typical Downstream Speed < 3
 - Calculated Typical Downstream Speed to 3
- Typical Upstream Speed < 2
 - Calculated Typical Upstream Speed to 2

Data Verification**Maximum down/upload speeds reported by provider:**

Coverage Area					
Max Download Category	Count	% of Area	Max Upload Category	Count	% of Area
4	1	100%	2	1	100%

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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%

Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests
0	4	50%
3	4	50%

Speed Test Upload Tier	Count	% of Tests
1	8	100%

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: **8/8 (100%)**Number of mobile speed tests reported outside coverage area: **0/0 (0%)****Typical down/upload speed from 2010 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	31	60%
3	14	27%
4	7	13%

Speed Test Upload Tier	Count	% of Tests
1	52	100%

Speed tests match reported typical download speeds or are within 1 speed tier: **No**

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

Number of mobile speed tests reported inside coverage area: **52/52 (100%)**Number of mobile speed tests reported outside coverage area: **0/52 (0%)****Form 477 Verification:**#/% of tracts reported as served to FCC that overlaps with coverage area: **214/214 (100%)**#/% of tracts reported as served to FCC but do not intersect coverage area: **0/214 (0%)****Dead zones:**

Number of dead zones reported within coverage area via broadband.maryland.gov:

237/240 (98.5%)

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

147/147 (100%)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:	9/9/2011
Currency of Data:	6/30/2011
FRN:	0006275945
Type of data submitted:	Address Table
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

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets 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 Modification:

- 27 addresses do not meet broadband speeds – dropped from submission
- 3 blocks with Technology of Transmission 10 exceed domain speeds for Maximum Advertised Download and Maximum Advertised Upload
 - Changed to speed tier 8

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Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
3	30	9%
4	193	60%
5	48	15%
6	13	4%
7	29	9%
8	7	2%
10	3	1%

Max Upload Category	Count	% of Blocks
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 computer based speed test:**

Speed Test Download Tier	Count	% of Tests
0	22	31%
3	17	24%
4	16	23%
5	5	7%
6	5	7%
7	1	1%
8	4	6%

Speed Test Upload Tier	Count	% of Tests
1	2	3%
2	26	37%
3	20	29%
4	6	9%
5	7	10%
6	3	4%
7	6	9%

Speed tests match reported typical download speeds or are within 1 speed tier: [N/A](#)Speed tests present within blocks not reported as served by provider (error reported as proportion of total blocks submitted): [36/322 \(11%\)](#)**Form477 Verification:**Number of census blocks reported to project, but no tract reported to FCC: [18](#)Number of tracts reported to FCC, but no census blocks reported to project: [8](#)**Dead zones:**Number of census blocks with dead zones reported via [broadband.maryland.gov](#): [3](#)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](#)Total number of dead zones reported per provider via [mdbroadbandmap.org](#): [1](#)

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

Census blocks that are outside DSL boundary: [59/322 \(18%\)](#)

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Zayo Bandwidth LLC**DBA Name: Zayo Bandwidth LLC****Data Characteristics**

Date of Original Submission: 1/13/2011
Date of Update Submission: 9/7/2011
Currency of Data: 6/30/2011
FRN: 0019133826
Type of data submitted: Address Table
Census Block Count: 2
Total Matched Address Points Count: 2
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: No
Provided Road Segments for census blocks greater than 2 sq miles: No

Data Processing**Address Table Process:**

- Geocode address table to ESRI US Streets address locator
 - Number matched: 2
 - Number unmatched: 0
- Spatially join address points to 2010 census blocks

Census Block Process:

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

Data Verification**Maximum down/upload speeds reported by provider:**

Census Blocks

Max Download Category	Count	% of Blocks
7	1	50%
8	1	50%

Max Upload Category	Count	% of Blocks
7	1	50%
8	1	50%

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Typical down/upload speeds reported by provider:**Census Blocks**

Typical Download Category	Count	% of Blocks
7	1	50%
8	1	50%

Typical Upload Category	Count	% of Blocks
7	1	50%
8	1	50%

Typical down/upload speed from 2010 computer based speed test: [N/A](#)**Speed tests match reported typical download speeds or are within 1 speed tier:** [N/A](#)**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](#)**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](#)**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](#)