Maryland Broadband Mapping Initiative Spring Broadband Availability Map Data Submission Summary

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Submitted by:

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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 47 different companies. An overall summary of the data submission can be described as:

> 96 potential facilities-based broadband service providers were contacted
> 37 BSPs did not respond
> 9 BSPs responded but did not provide data
> 47 BSPs responded and provided data
> 3 BSPs responded and agreed to provide data but have not as of April 1, 2011

Of those that provided data,

> 22 provided only addresses
> 4 provided only census block information
> 8 provided census blocks and road segments
> 13 provided wireless coverage areas
>
> In addition, 9 of the 47 responsive BSPs provided middle mile infrastructure points

Since our last submission, we lost two participants as Cavalier Telephone LLC was acquired by PAETEC Communications, Inc. and Cequel III Communications (dba SuddenLink) divested itself of broadband infrastructure, which was purchased by Shenandoah Telecommunications (dba Shentel Coverged Services). On the other hand, we have eight newly-participating providers since Fall 2010: Allied Telecom Group, LLC, Atlantech Online, Inc., Atlantic Broadband (Penn), LLC, Believe Wireless, LLC., Bloosurf, LLC, PAETEC Communications, Inc, One Communications, and Zayo Bandwidth, LLC.

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 Spring 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 an address locator based upon the Maryland PropertyView dataset. Second, any unmatched addresses are geocoded to the Maryland iMap street centerline address

locator. The matched addresses are then merged. Fourth, the address points are spatially joined to the Year 2000 census blocks. Then, divide the address points into the different technologies of transmission. Sixth, select those address points that are within the census blocks that are greater than 2 mi^2, exporting them as a separate feature class. Seventh, switch the selected set (thus creating all the address points in blocks that are less than 2 mi^2), and select those blocks. Eighth, import the provider-submitted table of served census blocks and merge with the address-created blocks (if applicable). Finally, export the results.

Road Segments

To process the served road segments that are within census blocks that are greater than 2 mi^2, we import the table of road segment address ranges provided by the BSP. 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 mi^2. The result can be loaded into the SBDD Transfer data model.

Service Addresses

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

Middle Mile Infrastructure

Processing the middle mile infrastructure is relatively trivial, in that the providers submit geographic coordinates with the middle mile attributes.

Community Anchor Institutions

The Community Anchor Institution points submitted for the Spring 2011 data collection effort are the result of a combination of three distinct strategies: municipal-level data collection efforts, state-level data collection efforts and data purchase. First, municipal-level data collection efforts involved e-mails and telephone calls to each of the 24 county GIS and/or IT departments. An email was created and sent detailing out the project and the request for broadband information for specific facilities. Many counties did not have this information readily compiled or available but were willing to assemble a GIS dataset or spreadsheet for the initiative.   Other counties were only able to provide a list of community anchor institutions without the broadband information. Several counties were not able to provide any data. Several counties did not have a list of facilities so we provided them a spreadsheet with the

community anchor facilities and drop-down lists for easy compilation of the broadband data. For counties that were unresponsive to the email or could not provide the information, IT managers or directors were contacted. Data was received from 14 counties with a response rate of 58% (see table below).

Jurisdiction	Data Provided?
Allegany County	Yes
Anne Arundel County	Yes
Baltimore County	Yes
Baltimore City	Yes
Calvert County	No
Caroline County	No
Carroll County	Yes
Cecil County	Yes
Charles County	No
Dorchester County	Yes
Frederick County	No
Garrett County	Yes
Harford County	Yes
Howard County	Yes
Kent County	No
Montgomery County	Yes
Prince George's County	No
Queen Anne's County	Yes
St. Mary's County	Yes
Somerset County	Yes
Talbot County	No
Washington County	Yes
Wicomico County	No
Worcester County	No

Second, a spreadsheet of State agencies from the State of Maryland website was created. Individual spreadsheets were created for each agency facilities. Emails were then sent to IT managers or directors with the spreadsheet attached. Follow-up emails and phone calls were placed. A positive response was received from the Maryland State Department of Education (MSDE), which collected broadband information from each school as one part of the agency's own survey, and the Maryland State Highway Administration. In total, 4,963 CAIs were collected from local and state sources.

In the November 2010 broadband data submission, facilities without broadband information were not included because the data model did not allow a nullable or unknown attribute for

the BBService field. The updated data model now allows an attribute of unknown for the BBService field. Our efforts for the current submission involved combining and/or making facilities spatial that were previously obtained from municipal and state entities but not submitted to the NTIA because they did not have the associated broadband information.

Our third and final strategy for collecting CAI data is via purchase. In order to support the NTIA's and FCC's increased focus of telemedicine and medical uses of broadband service, we felt it was appropriate to significantly enhance our knowledge of medical-related community anchor institutions. Thus, we purchased healthcare data from DirectMail.com. They provided us a list of all companies in Maryland with SIC codes beginning with 80 (medical). The list contained 22,839 records and the cost for this data was $1,544.84. After removing duplicates, we entered a total of 21,996 healthcare facilities into the data model.

Overall, we submitted 923% more data than our previous submission, increasing the total number of records in the Maryland Community Anchor database from 2,636 to 26,959 records.

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, no changes were made to the provider-submitted data during this data delivery round. We had expected to have the confidence to begin modifying provider-submitted data as a result of our testing/research during this round of data submissions. However, upon further deliberation, we are hesitant to make changes to the data submissions of providers without the specific guidance/direction of the NTIA as to the validity and appropriateness of our verification regime.

A maximum of fourteen data checks were 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

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) Census blocks/coverage areas verified by 2010 FCC and MBBMI speed tests
6) Census blocks/coverage area reported to project, but no tract reported directly to FCC

7)   Tracts reported directly to FCC, but no census blocks/coverage area reported to project
8)   Census blocks/coverage areas versus unserved area locations reported
9)   Total number of unserved area locations reported per provider
10)   Of census blocks reported as served, how many have zero population based on 2000 census data?
11)   Web search verification
12)   Census blocks that are outside Cable Franchise Boundary
13)   Census blocks that are outside DSL boundary
14)   Wireless broadband presence and speed systematic field sampling

Maximum down/upload speeds reported by provider

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

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

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

For the data submission, 47 providers (100%) reported maximum downstream/upstream speeds for census blocks, although 3 providers' reporting of maximum downstream/upstream speeds is incomplete. The lowest maximum downstream speed Greater than or equal to 768 kbps and less than 1.5 mbps, reported by 9 providers. The highest maximum downstream speed was greater than or equal to 1 gbps, reported by 4 providers. The most frequent

maximum downstream speed was greater than or equal to 50 mbps and less than 100 mbps, reported by 4 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 (43%) reported typical downstream/upstream speeds. The lowest typical downstream speed was greater than 200 kbps and less than 768 kbps, reported by 1 provider. The highest typical downstream speed was greater than or equal to 1 gbps, reported by 1 provider, Level 3 Communications, LLC. 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 4 providers.

Typical down/upload speed from 2010 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.

From mid-April 2010 until December 31, 2010, 6,820 speed tests were collected by MBBMI and 10,584 PC-based speed tests were collected by the FCC (the FCC also collected mobile speed tests, see below). Of these, 1,057 MLab-based FCC speed tests were eliminated (to insure consistent speed test results and 686 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. A total of 12,540 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 in included in each data validation/verification report.

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

Speed Tier	Number of Downstream Tests	Number of Upstream Tests
1	211	780
2	799	2,658
3	987	778
4	1,396	1,994
5	1,132	4,206
6	1,481	996
7	4,975	1,185
8	1,279	71
9	252	--
10	35	--

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 (7 providers). When the response to this statement is negative (10 providers), there is question about the typical download speeds that have been submitted by the provider.

Census blocks/coverage areas verified by 2010 FCC and MBBMI speed tests

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 following statistics are reported:
1) Confirmation of census block served

The number of census blocks reported by the BSP as served that also contains a
corresponding speed test
2) Census blocks served, not reported by provider
The number of census blocks that contain a BSP-related speed test that were not
reported by the BSP as served
3) Total number of served census blocks reported by provider
The total number of unique census blocks reported as served by the BSP
4) % of served census blocks confirmed by speed test
The number of confirmed served census blocks divided by the total number of
served census blocks

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 62 (for Comcast Cable Communications, LLC , 0.13% of
their total reported blocks). The minimum percentage of served census blocks confirmed by
speed test was 0% (3 providers). The maximum percentage was 100% (Hotwire
Communications, Ltd and Tata Communications (America) Inc.). On average, 1.18% of served
census blocks were verified using speed tests.

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 (7 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 88 (for Verizon Wireless, 100% of their
computer-based speed tests). Other BSPs that has 100% of their computer-based speed tests
fall within their reported coverage area were Believe Wireless, Cricket Communications,
HughesNet, and Freedom Wireless. The minimum percentage of computer-based speed tests
shown to fall within the reported coverage area of a BSP was 70.7% (Sprint Nextel, 41 of 58
tests fell inside).   On average, 95.5% of computer-based speed tests fell within the BSP's
reported coverage area.

Regarding the number of mobile speed tests that fall within the reported coverage area of a
BSP, 50% (7 of 14) of the wireless BSPs had tests and the maximum number came from Sprint

Nextel customers, with 3,316 tests within their reported coverage area. Three wireless BSPs had 100% of their mobile speed tests fall within their reported coverage area: Believe Wireless, Clearwire, and Cricket Communications. Sprint Nextel was also the BSP with the smallest percentage of tests falling within their reported coverage area – 93.9%. On average, 98.3% of mobile speed tests fell within the BSPs reported coverage areas.

Census blocks/coverage area reported to project, but no census tract directly reported to FCC
Census tracts directly 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 47,949 from Atlantech Online, Inc. On average, 2,423 census blocks (from 23 providers) had no corresponding census tract. The maximum number of census tracts that had no corresponded reported census blocks was 187 from DSLnet Communications, LLC. On average, 22 census tracts (from 23 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

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 91 (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 136 (Atlantech Online, Inc.) The following wireline providers have only 1 unserved area location report in their areas: Antietam Cable Television, Inc and Atlantic Broadband (Penn), LLC.

For the state of Maryland, the maximum percentage of unserved area locations reported from the FCC within a wireless BSP's reported coverage area is 100% (202 of 202), true for each of the satellite wireless providers (HughesNet, StarBand, and Wildblue). 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 95.5% (193 of 202). The average percentage of unserved area locations (reported from the FCC) that fall within a wireless BSP's reported coverage area is 46.2% (93 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% (58 of 58), 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 94.8% (55 of 58). The average percentage of unserved area locations (reported from the MBBMI) that fall within a wireless BSP's reported coverage area is 41.9% (24 of 58).

Of census blocks reported as served, how many have zero population based on 2000 census data?

One expectation of the broadband availability data is that there should not be broadband available within census blocks that have no people to purchase broadband. Therefore, for each

BSP, the number of served census blocks that have 0 population as reported in the 2000 census were tallied and compared to the total number of the provider's served census blocks.

This is a particularly weak verification test for several reasons. First, the population data is not current and has likely changed significantly in the last 10 years. Second, areas that are completely commercial with no residents may still need and want broadband availability. Finally, BSPs may be anticipating future development and making service available where there are not yet any residents.

For the state of Maryland, the maximum number of zero population census blocks that were reported as served was 10,740 (Atlantech Online, Inc.). The minimum number was 1 (Tata Communications (America) Inc and Shenandoah Telecommunications). The average number of zero population census blocks that were reported as served was 1246. As a percentage, the maximum percentage of zero population census blocks reported as served was 100% (Tata Communications (America) Inc, Cogent Communications Group, and Shenandoah Telecommunications). The minimum percentage of zero population census blocks was 0 (Hotwire Communications, Ltd., Neon Optica, Inc, and Zayo Bandwidth LLC). The average percentage was 29%.

Web search verification

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

For each BSP that had a web-based service availability query tool (13 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 nine 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 9.3%. The maximum commission error rate was 35.7% reported by Verizon Maryland. The minimum commission error rate was 0% and was reported by 3 providers. The average commission error rate was 5.8%. The maximum total error rate was 38.5% reported by Verizon Maryland The minimum total error rate was 0% reported by Starpower Communications, LLC. The average total error rate was 15.1%.

For wireless BSPs in the state of Maryland, only two offer Internet-based service availability search tools, Clearwire and Cricket Communications. Of those, Clearwire had the highest rate of omission error (5.4%; 19 of the 354 addresses tested were not reported to the MBBMI as within the coverage area, but were reported by the provider's website as served) and commission error (0.6%; 2 of 354 addresses tested were reported as served, but the website reported as not served).

Census blocks that are outside Cable Franchise Boundary

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 the number of census blocks that fall outside of a cable franchise boundary area. This may indicate an error, although it is possible that a) the cable franchise boundaries are not up-to-date or b) the BSP offers broadband service beyond the area in which they offer cable television service.

In Maryland, 11 providers are eligible for this test. The maximum number of blocks that fall outside the cable franchise boundaries is 5,755 reported by Comcast Cable Communications, LLC. This represents 11.9% of their total number of served blocks. The minimum number of "outside" blocks is 0 reported by Hotwire. The average number of blocks that fall outside the cable franchise boundary is 792.

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, 8 providers are eligible for this test. The maximum number of blocks that fall outside the DSL availability areas is 9,939 reported by Verizon Maryland Inc. This represents 17.4% of their total number of served blocks. The minimum number of "outside" blocks is 3 reported by MegaPath. The average number of blocks that fall outside the DSL availability area is 3,030.

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 2010, the MBBMI embarked on a wireless coverage area verification project. For each of the 1,472 systematic sampling grid points (see above), a research team visited the sample address with four phones, one each for Sprint, Verizon Wireless, AT&T, and T-Mobile. A software package developed by QOS was purchased and used to test a) broadband availability, b) downstream and upstream speeds, and c) the GPS location of the test. If the QOS software malfunctioned, the FCC's mobile speed test was used to record the availability and speed with the location being recorded manually.

After the field sampling was completed, 1,466 grid points with valid samples were used to conduct this test; 6 of the original sample locations were located within large, secure facilities (ie. military bases) and were thus inaccessible. Of those, the following combinations of reported service vs. sampled service were tallied:

1) A sample point was in an area reported as served and the sample was returned as served
2) A sample point was in an area reported as served but the sample was returned as unserved
3) A sample point was not in an area reported as served and the sample was returned as not served
4) A sample point was not in an area reported as served 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 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 278 and the error rate was 61.5% (278 of 452 samples that had registered service). AT&T Wireless had the minimum number of samples that were reported as omitted (14 or 1.3%). The average omission error rate was 22.0%. AT&T Wireless had the maximum number of samples that were reported as committed (sampled as not served but within the coverage area) at 364. The commission error rate was 24.8% (1,466 were tested). Verizon Wireless had the minimum number of samples that were reported as committed (153 or 10.4%). The average commission error rate was 14.7%.   The average total error rate was 24.5%.

Individual Provider Data Summaries

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

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0002154367
Type of data submitted:	Census Block Table
Census Block Count:	44834
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:	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 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

Speed Domains:
- Maximum Advertized and Typical Speeds changed
    - Technology of Transmission 20 – all speeds changed to tier 8 to fit domain
    - Technology of Transmission 30 - all speeds changed to tier 8 to fit domain

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks
6	44834	33%
8	89668	

Max Upload Category	Count	% of Blocks
5	44834	33%
8	89668	67%

Typical down/upload speeds reported by provider:
Census Blocks

Typical Download Category	Count	% of Blocks
5	44834	33%
8	89668	67%

Typical Upload Category	Count	% of Blocks
5	44834	33%
8	89668	67%

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

 %/# of census blocks verified by 2010 computer based speed tests: 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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 7
Total number of unserved areas reported per provider via broadband.maryland.gov: 12

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 18
Total number of unserved areas reported per provider via mdbroadbandmap.org: 25

Of census blocks reported as served, how many have zero population based on 2000 census data? 8907/44834 (20%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 11293/44834 (25%)

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

Data Characteristics

Date of Original Submission:	7/29/2010
Date of Update Submission:	2/21/2010
Currency of Data:	December 2010
FRN:	0002154367
Type of data submitted:	Address Table
Census Block Count:	1805
Total Matched Address Points Count:	574
Unmatched Address Points:	99
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 21083
  - Number unmatched: 801
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 702
  - Number unmatched: 99
- 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

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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
8	1805	100%		2	1805	100%

Addresses

Max Download Category	Count	% of Points		Max Upload Category	Count	% of Points
8	574	100%		2	574	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
0	1	1%		1	3	3%
3	3	3%		2	17	18%
4	16	17%		3	60	64%
5	53	56%		4	12	13%
6	1	1%		5	1	1%
7	3	3%		6	1	1%
8	1	1%				
9	6	6%				
10	10	11%				

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:

Confirmation of census block served	52
Census blocks served, not reported by provider	4
Total number of served census blocks reported by provider	1805
% of served census blocks confirmed by speed test	0.0288%

Form 477Verification:
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: 0

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 102/1805 (6%)

Web Search Verification: 41/1805 (2%) of census blocks were confirmed using online search feature of given provider.

Antietam Web Search 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%

Armstrong Holdings, Inc.
DBA Name: Armstrong Utilities, Inc.

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0003765617
Type of data submitted:	Census Block Table
Census Block Count:	1191
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 2000 census blocks based on the BLK2000 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	1191	100%

Max Upload Category	Count	% of Blocks
5	1191	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	5	14%
3	1	3%
5	4	11%
6	18	50%

Speed Test Upload Tier	Count	% of Tests
1	1	3%
2	6	17%
3	2	6%
4	26	72%

	7	8	22%		6	1	3%

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:

Confirmation of census block served	52
Census blocks served, not reported by provider	4
Total number of served census blocks reported by provider	1191
% of served census blocks confirmed by speed test	4.37%

Form 477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 43
Number of tracts reported to FCC, but no census blocks reported to project: 1

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 5
Total number of unserved areas reported per provider via broadband.maryland.gov: 5

Number or census blocks with unserved areas reported via mdbroadbandmap.org: 2
Total number of unserved areas reported per provider via mdbroadbandmap.org: 2

Of census blocks reported as served, how many have zero population based on 2000 census data? 182/1191 (15.3%)

Web Search Verification: 46/1191 (3.9%) 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 Cable Franchise Boundary: 638/1191 (54%)

AT&T Mobility LLC
DBA Name: AT&T Mobility LLC

Data Characteristics

Date of Original Submission:	3/9/2010
Date of Update Submission:	2/1/2011
Currency of Data:	December 2010
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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:
Coverage Area

Max Download Category	Count	% of Area
4	2	100%

Max Upload Category	Count	% of Area
3	2	100%

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

Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests		Speed Test Upload Tier	Count	% of Tests

0	161	29%		1	327	58%
3	181	32%		2	164	29%
4	192	34%		3	50	9%
5	27	5%		4	17	3%
				7	2	0%
				8	1	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: 560/561 (99.8%)
Number of mobile speed tests reported outside coverage area: 1/561 (0.2%)

Form 477Verification:
#/% 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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
193/202 (95.5%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
55/58 (94.8%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification:

ATT Wireless Verification Table	Count	Percentage
Total # of sample points	1466	
Number of sample points with results	1079	73.6%
Verified served AND BSP says served (yes,yes)	1065	98.7%
Verified served AND BSP says unserved (yes,no)	14	1.3%
Verified unserved AND BSP says served (no,yes)	364	24.8%
Verified unserved AND BSP says unserved (no,no)	24	1.6%

Atlantech Online, Inc.
DBA: Atlantech Online, Inc.

Data Characteristics

Date of Original Submission:	3/7/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0018854935
Type of data submitted:	LATA/Zip Codes
Census Block Count:	53222
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Census Block Process:
- Select the 2000 census blocks that intersect LATA boundary and zip codes
- Add fields and load results into the NTIA data model
    - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks
10	2308	4%
4	53222	96%

Max Upload Category	Count	% of Blocks
10	2308	4%
4	53222	96%

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
9	1	100%

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

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

 %/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	1
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	53222
% of served census blocks confirmed by speed test	0.00%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 47949
Number of tracts reported to FCC, but no census blocks reported to project: 5

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 84
Total number of unserved areas reported per provider via broadband.maryland.gov: 136

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 23
Total number of unserved areas reported per provider via mdbroadbandmap.org: 30

Of census blocks reported as served, how many have zero population based on 2000 census data? 10740/53222 (20%)

Web Search Verification: N/A

Atlantic Broadband (Penn), LLC
DBA Name: Atlantic BroadBand

Data Characteristics

Date of Original Submission:	3/26/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0009596883
Type of data submitted:	Address Table
Census Block Count:	3098
Total Matched Address Points Count:	63284
Unmatched Address Points:	4664
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing
Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 60669
  - Number unmatched: 7279
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 2615
  - Number unmatched: 4664
- 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

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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	3098	100%

Max Upload Category	Count	% of Blocks
3	2925	94%
4	173	6%

Addresses

Max Download Category	Count	% of Points
7	3704	100%

Max Upload Category	Count	% of Points
3	3501	95%
4	203	5%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
7	3098	100%

Typical Upload Category	Count	% of Blocks
3	3098	100%

Addresses

Typical Download Category	Count	% of Points
7	3704	100%

Typical Upload Category	Count	% of Points
3	3704	100%

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

Speed Test Download Tier	Count	% of Tests
0	3	4%
3	4	5%
4	9	12%
5	42	55%
6	18	23%
7	1	1%

Speed Test Upload Tier	Count	% of Tests
1	1	1%
2	75	97%
3	1	1%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	48
Census blocks served, not reported by provider	7
Total number of served census blocks reported by provider	3098
% of served census blocks confirmed by speed test	1.55%

Form 477Verification:
Number of census blocks reported to project, but no tract reported to FCC: 138
Number of tracts reported to FCC, but no census blocks reported to project: 0

Unserved areas:

Number of census blocks with unserved areas reported via broadband.maryland.gov: 1
Total number of unserved areas reported per provider via broadband.maryland.gov: 1

Number or census blocks with unserved areas reported via mdbroadbandmap.org: 2
Total number of unserved areas reported per provider via mdbroadbandmap.org: 2

Of census blocks reported as served, how many have zero population based on 2000 census data? 277/3098 (8.9%)

Web Search Verification: 87/3098 (3%) of census blocks were confirmed using online search feature of given provider

Atlantic 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 Cable Franchise Boundary: 842/3098 (27%)

Bay Country Communications, Inc.
DBA Name: Bay Country Communications, Inc.

Data Characteristics

Date of Original Submission:	8/9/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0020136552
Type of data submitted:	Census Block Table
Census Block Count:	846
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 2000 census blocks based on the BLK2000 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	846	100%

Max Upload Category	Count	% of Blocks
7	846	100%

Typical down/upload speeds reported by provider:
Census Blocks

Typical Download Category	Count	% of Blocks
4	846	100%

Typical Upload Category	Count	% of Blocks
2	846	100%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	0
Census blocks served, not reported by provider	2
Total number of served census blocks reported by provider	846
% of served census blocks confirmed by speed test	0.00%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 243/846 (29%)

Web Search Verification: N/A

Census blocks that are outside Cable Franchise Boundary: 144/846 (17%)

Believe Wireless, LLC.
DBA: Believe Wireless Broadband

Data Characteristics

Date of Original Submission:	3/1/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	9999
Type of data submitted:	Map
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Coverage Area Process:
- Technology of transmission and spectrum not provided
  - Technology of transmission selected by comparing similar providers and choosing the most likely option
  - Spectrum selected by comparing similar providers 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

Data Verification

Maximum down/upload speeds reported by provider:
Coverage Area

Max Download Category	Count	% of Area		Max Upload Category	Count	% of Area

11	1	100%		11	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 <u>mobile speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	3	75%
3	1	25%

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

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: 4/4 (100%)
Number of mobile speed tests reported outside coverage area: 0/4 (0%)

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
3	2	13%
4	2	13%
5	11	73%

Speed Test Upload Tier	Count	% of Tests
2	12	80%
3	2	13%
4	1	7%

Speed tests match reported typical 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: 15/15 (100.00%)
Number of computer based speed tests reported outside coverage area: 0/15 (0.00%)

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
14/202 (6.9%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
2/58 (3.5%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Bloosurf
DBA: Bloosurf

Data Characteristics

Date of Original Submission:	2/28/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0019496462
Type of data submitted:	Map
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:
Coverage Area

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
3	1	100%

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

Typical down/upload speed from 2010 mobile speed test:

Speed Test Download Tier	Count	% of Tests
0	28	88%
3	3	9%
4	1	3%

Speed Test Upload Tier	Count	% of Tests
1	4	13%
2	27	84%
4	1	3%

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
3/202 (1.5%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
0/58 (0.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Broadstripe, LLC
DBA Name: Broadstripe, LLC

Data Characteristics

Date of Original Submission:	4/14/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0003773843
Type of data submitted:	Address Table
Census Block Count:	2717
Total Matched Address Points Count:	104258
Unmatched Address Points:	231
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 103428
  - Number unmatched: 1061
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 830
  - Number unmatched: 231
- 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

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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	2717	100%

Max Upload Category	Count	% of Blocks
4	2717	100%

Address Points

Max Download Category	Count	% of Points
7	1183	100%

Max Upload Category	Count	% of Points
4	1183	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
3.00	3	7%
4.00	1	2%
5.00	8	19%
6.00	13	30%
7.00	18	42%

Speed Test Upload Tier	Count	% of Tests
1.00	3	7%
2.00	4	9%
3.00	5	12%
4.00	31	72%

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:

Confirmation of census block served	27
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	2717
% of served census blocks confirmed by speed test	0.9937%

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: 1

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 187/2721 (7%)

Web Search Verification: 17/2721 (1%) of census blocks were confirmed using online search feature of given provider

Broadstripe Web Search 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 Cable Franchise Boundary: 151/2721 (6%)

Broadview Networks Holdings, Inc.
DBA Name: Broadview Networks Holdings, Inc.

Data Characteristics

Date of Original Submission:	2/24/2010
Date of Update Submission:	7/27/2010
Currency of Data:	December 2010
FRN:	0010296853
Type of data submitted:	Address Table
Census Block Count:	590
Total Matched Address Points Count:	797
Unmatched Address Points:	14
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Incomplete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 789
  - Number unmatched: 22
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 8
  - Number unmatched: 14
- 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

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

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

Speed Domains:
- ●   9 Symmetric DSL blocks with Maximum Advertised Upstream < tier 3
    - o   Maximum Advertised Upstream calculated to 3
- ●   3 Other Copper Wireline with Maximum Advertised Downstream < tier 3
    - o   Maximum Advertised Downstream calculated to 3
- ●   2 Other Copper Wireline with Maximum Advertised Upstream < tier 2
    - o   Maximum Advertised Upstream calculated to 2

Data Verification

Maximum down/upload speeds reported by provider:
Census blocks

Max Download Category	Count	% of Blocks
2	3	1%
3	7	1%
4	470	83%
5	75	13%
6	9	2%

Max Upload Category	Count	% of Blocks
1	4	1%
2	84	14%
3	19	3%
4	439	71%
5	63	10%
6	8	1%

Address Points

Max Download Category	Count	% of Points
4	4	67%
5	2	33%

Max Upload Category	Count	% of Points
3	1	14%
4	4	57%
5	2	29%

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
3	1	100%		3	1	100%

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:

Confirmation of census block served	1
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	590
% of served census blocks confirmed by speed test	0.17%

Form 477Verification:
Number of census blocks reported to project, but no tract reported to FCC: 65
Number of tracts reported to FCC, but no census blocks reported to project: 71

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 2
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 2
Total number of unserved areas reported per provider via mdbroadbandmap.org: 2

Of census blocks reported as served, how many have zero population based on 2000 census data? 204/590 (35%)

Web Search Verification: N/A

Brookwood Ventures LLC
DBA Name: Brookwood Ventures LLC

Data Characteristics

Date of Original Submission:	3/12/2010
Date of Update Submission:	N/A
Currency of Data:	March 2010
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:

Max Download Category	Count	% of Area
5	1	100%

Max Upload Category	Count	% of Area
3	1	100%

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

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

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
0/202 (0%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
0/58 (0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Cellco Partnership and its Affiliated Entities
DBA Name: Verizon Wireless

Data Characteristics

Date of Original Submission:	3/8/2010
Date of Update Submission:	1/31/2011
Currency of Data:	December 2010
FRN:	0003290673
Type of data submitted:	Coverage Area
Census Block Count:	N/A
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Data Verification
Maximum down/upload speeds reported by provider:

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:

Typical Download Category	Count	% of Area
2	3	100%
6	1	100%

Typical Upload Category	Count	% of Area
2	3	100%
5	1	100%

Typical down/upload speed from 2010 <u>mobile speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	1078	50%
3	600	28%
4	459	21%
5	3	0%
6	1	0%
7	2	0%

Speed Test Upload Tier	Count	% of Tests
1	442	21%
2	1382	64%
3	273	13%
4	21	1%
5	2	0%
6	2	0%
7	6	0%
8	15	1%

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: 2055/2143 (95.9%)
Number of mobile speed tests reported outside coverage area: 88/2143 (4.1%)

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	47	53%
3	29	33%
4	12	14%

Speed Test Upload Tier	Count	% of Tests
1	19	22%
2	67	76%
3	1	1%
4	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 computer based speed tests reported inside coverage area: 88/88 (100.00%)
Number of computer based speed tests reported outside coverage area: 0/88 (0.00%)

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
173/202 (85.6%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
51/58 (87.9%)

Web Search Verification: N/A

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Wireless Verification:

Verizon Wireless Verification Table	Count	Percentage
Total # of sample points	1466	
Number of sample points with results	1152	78.6%
Verified served AND BSP says served (yes,yes)	1058	91.8%
Verified served AND BSP says unserved (yes,no)	94	8.2%
Verified unserved AND BSP says served (no,yes)	153	10.4%
Verified unserved AND BSP says unserved (no,no)	161	11.0%

Charter Communications Inc

DBA Name: Charter Communications Inc

Data Characteristics

Date of Original Submission:	3/31/2010
Date of Update Submission:	2/17/2011
Currency of Data:	January 2011
FRN:	0017179383
Type of data submitted:	Census Block Table
Census Block Count:	268
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:	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 switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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
6	268	100%

Max Upload Category	Count	% of Blocks
3	268	100%

Road Segments

Max Download Category	Count	% of Road Segments
6	280	100%

Max Upload Category	Count	% of Road Segments
3	280	100%

Typical down/upload speeds reported by provider:

Road Segments

Typical Download Category	Count	% of Road Segments		Typical Upload Category	Count	% of Road Segments
6	280	100%		3	280	100%

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

Speed Test Download Tier	Count	% of Tests		Speed Test Upload Tier	Count	% of Tests
7	4	100%		3	4	100%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	1
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	268
% of served census blocks confirmed by speed test	0.3731%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 100/268(37%)

Web Search Verification: 2/268 (0.8%) of census blocks were confirmed using online search feature of given provider

Charter Web Search 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 Cable Franchise Boundary: 110/268 (41%)

Clearwire Corporation
DBA Name: Clearwire Corporation

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	2/24/2011
Currency of Data:	December 2010
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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

Max Download Category	Count	% of Area
6	1	100%

Max Upload Category	Count	% of Area
4	1	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Area
6	1	100%

Typical Upload Category	Count	% of Area
4	1	100%

Typical down/upload speed from 2010 <u>mobile speed test</u>:

Speed Test Download Tier	Count	% of Tests
3	2	67%
4	1	33%

Speed Test Upload Tier	Count	% of Tests
2	1	33%
3	2	67%

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: 3/3 (100.0%)
Number of mobile speed tests reported outside coverage area: 0/3 (0.0%)

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	3	6%
3	10	20%
4	5	10%
5	24	47%
6	8	16%
7	1	2%

Speed Test Upload Tier	Count	% of Tests
2	17	33%
3	34	67%

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: 50/51 (98.04%)
Number of computer based speed tests reported outside coverage area: 1/51 (1.96%)

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
28/202 (13.9%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
3/58 (5.2%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification:

Clearwire Web Search Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	354	24%
Result is yes and coverage area is in served area	128	36%
Result is yes but not in a coverage area reported as served	19	5%
Result is no and coverage area is in served area	2	1%
Result is no and coverage area is not in served area	205	58%

Wireless Verification: N/A

Cogent Communications Group
DBA Name: Cogent Communications Group

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	N/A
Currency of Data:	January 2011
FRN:	0019066034
Type of data submitted:	Address Table
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 Maryland Property View address locator
    - Number matched: 3
    - Number unmatched: 3
- 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 joined to census blocks

Census Block Process:
- Join the address points to the 2000 census blocks based on the BLK2000 field
    - Export results
    - Load exported results into the NTIA data model
        - Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks		Max Upload Category	Count	% of Blocks

	11	3	100%			11	3	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

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: 3

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 3/3 (100%)

Web Search Verification: N/A

Comcast Corporation
DBA Name: Comcast Cable Communications, LLC

Data Characteristics

Date of Original Submission:	1/19/2010
Date of Update Submission:	3/7/2011
Currency of Data:	December 2010
FRN:	0004441663
Type of data submitted:	Census Block Table
Census Block Count:	48360
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:	Partial
Provided Max Typical Upload Speed:	Partial
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 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
9	48360	100%

Max Upload Category	Count	% of Blocks
7	48360	100%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks
6	48183	100%

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

Speed Test Download Tier	Count	% of Tests
0	36	1%
3	66	2%
4	76	2%
5	236	7%
6	405	13%
7	2210	68%
8	185	6%
9	17	1%
10	4	0%

Speed Test Upload Tier	Count	% of Tests
1	23	1%
2	95	3%
3	172	5%
4	663	20%
5	2169	67%
6	105	3%
7	8	0%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	1612
Census blocks served, not reported by provider	62
Total number of served census blocks reported by provider	48360
% of served census blocks confirmed by speed test	3.33%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 46
Number of tracts reported to FCC, but no census blocks reported to project: 1

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 75
Total number of unserved areas reported per provider via broadband.maryland.gov: 115

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 17
Total number of unserved areas reported per provider via mdbroadbandmap.org: 23

Of census blocks reported as served, how many have zero population based on 2000 census data? 4019/48360 (8%)

Web Search Verification:
440/48360 (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 Cable Franchise Boundary: 5755/48360 (12%)

DIECA Communications, Inc.
DBA: Covad Communication Company

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	3/11/2011
Currency of Data:	December 2010
FRN:	0003753753
Type of data submitted:	Census Block Table
Census Block Count:	42147
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 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	6513	7%
4	17323	18%
5	43778	44%
6	19125	19%
7	11949	12%

Max Upload Category	Count	% of Blocks
7	48360	49%

Road Segments

Max Download Category	Count	% of Road Segments
3	52	2%
4	218	6%
5	2850	83%
6	236	7%
7	91	3%

Max Upload Category	Count	% of Road Segments
2	154	4%
3	385	11%
4	83	2%
5	2786	81%
7	39	1%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	11541	12%
4	14278	14%
5	60920	62%
7	11949	12%

Typical Upload Category	Count	% of Blocks
2	27629	28%
3	8181	8%
4	12295	12%
5	41795	42%
7	8788	9%

Road Segments

Typical Download Category	Count	% of Road Segments
3	187	5%
4	147	4%
5	3022	88%
7	91	3%

Typical Upload Category	Count	% of Road Segments
2	487	14%
3	52	2%
4	83	2%
5	2786	81%
7	39	1%

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

Speed Test Download Tier	Count	% of Tests
0	5	8%
3	11	18%
4	8	13%
5	4	7%
6	2	3%

Speed Test Upload Tier	Count	% of Tests
1	11	18%
2	18	30%
4	1	2%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	16
Census blocks served, not reported by provider	0

Total number of served census blocks reported by provider	42147
% of served census blocks confirmed by speed test	0.04%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 3803
Number of tracts reported to FCC, but no census blocks reported to project: 0

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 44
Total number of unserved areas reported per provider via broadband.maryland.gov: 52

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 5
Total number of unserved areas reported per provider via mdbroadbandmap.org: 6

Of census blocks reported as served, how many have zero population based on 2000 census data? 7908/42147 (19%)

Web Search Verification: N/A

DSLnet Communications, LLC

DBA Name: DSLnet Communications, LLC

Data Characteristics

Date of Original Submission:	3/11/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0004324857
Type of data submitted:	Address Table
Census Block Count:	422
Total Matched Address Points Count:	855
Unmatched Address Points:	28
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 826
  - Number unmatched: 57
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 29
  - Number unmatched: 28
- 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

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

- o 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	102	24%
4	315	75%
5	4	1%
8	1	0%

Max Upload Category	Count	% of Blocks
2	1	0%
3	102	24%
4	315	75%
5	3	1%
8	1	0%

Address points

Max Download Category	Count	% of Points
3	2	12%
5	15	88%

Max Upload Category	Count	% of Points
1	2	12%
2	15	88%

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

%/# of census blocks verified by 2010 computer based speed tests: 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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 137/422 (32.5%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 20/422 (5%)

DSLnet, Inc

DBA: DSLnet, Inc

Data Characteristics

Date of Original Submission:	3/11/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0015321136
Type of data submitted:	Census Blocks Table
Census Block Count:	32
Total Matched Address Points Count:	64
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 Maryland Property View address locator
  - Number matched: 63
  - Number unmatched: 2
- 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

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

      o 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	14	44%
4	17	53%
8	1	3%

Max Upload Category	Count	% of Blocks
2	1	3%
3	13	41%
4	17	53%
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

%/# of census blocks verified by 2010 computer based speed tests: 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: 197

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 13/32 (41%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 5/32 (16%)

Easton Utilities Commission
DBA Name: Easton Utilities Commission

Data Characteristics

Date of Original Submission:	2/5/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0003793726
Type of data submitted:	Address Table
Census Block Count:	373
Total Matched Address Points Count:	4688
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 Maryland Property View address locator
    - Number matched: 4554
    - Number unmatched: 137
- Unmatched address are geocoded to Maryland street centerline address locator
    - Number matched: 134
    - 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

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 Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks
3	199	53%
5	174	47%

Max Upload Category	Count	% of Blocks
2	350	94%
3	20	5%
4	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	4	8%
3	8	15%
4	7	13%
5	30	58%
6	1	2%
8	1	2%
10	1	2%

Speed Test Upload Tier	Count	% of Tests
1	10	19%
2	38	73%
3	3	6%
5	1	2%

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:

Confirmation of census block served	13
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	373
% of served census blocks confirmed by speed test	3.49%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 34/373 (9%)

Web Search Verification: N/A

Census blocks that are outside Cable Franchise Boundary: 3/373 (1%)

FiberLight LLC

DBA Name: FiberLight LLC

Data Characteristics

Date of Original Submission:	March 2010
Date of Update Submission:	N/A
Currency of Data:	March 2010
FRN:	0014117139
Type of data submitted:	Census Block Table
Census Block Count:	574
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 2000 census blocks based on the BLK2000 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
10	574	100%		10	574	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

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 323/574 (56%)

Web Search Verification: N/A

Freedom Wireless Broadband, LLC
DBA Name: Freedom Wireless Broadband, LLC

Data Characteristics

Date of Original Submission:	1/28/2010
Date of Update Submission:	2/25/2011
Currency of Data:	December 2010
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:	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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification
Maximum down/upload speeds reported by provider:

Max Download Category	Count	% of Blocks
4	1	100%

Max Upload Category	Count	% of Blocks
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
Number of mobile speed tests reported outside coverage area: N/A

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
4	2	100%

Speed Test Upload Tier	Count	% of Tests
4	2	100%

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 computer based speed tests reported inside coverage area: 2/2 (100.00%)
Number of computer based speed tests reported outside coverage area: 0

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
3/202 (1.49%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
0/58 (0.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Gans Communications, LP
DBA: MetroCast Communications

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0016642761
Type of data submitted:	Census Block Table
Census Block Count:	1821
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 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 Area
7	1821	100%

Max Upload Category	Count	% of Area
4	1821	100%

Road Segments

Max Download Category	Count	% of Area
7	1567	100%

Max Upload Category	Count	% of Area
4	1567	100%

Typical down/upload speeds reported by provider:

Census blocks

Typical Download Category	Count	% of Area
6	1821	100%

Typical Upload Category	Count	% of Area
2	1821	100%

Road segments

Typical Download Category	Count	% of Area
7	1567	100%

Typical Upload Category	Count	% of Area
2	1567	100%

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

Speed Test Download Tier	Count	% of Tests
3	8	13%
4	2	3%
5	7	12%
6	40	67%
7	2	3%
8	1	2%

Speed Test Upload Tier	Count	% of Tests
1	1	2%
2	54	90%
3	3	5%
4	1	2%
5	1	2%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	27
Census blocks served, not reported by provider	9
Total number of served census blocks reported by provider	1821
% of served census blocks confirmed by speed test	1.4827%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 2
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 3
Total number of unserved areas reported per provider via mdbroadbandmap.org: 3

Of census blocks reported as served, how many have zero population based on 2000 census data? 469/1821 (26%)

Web Search Verification: 36/1821 (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 Cable Franchise Boundary: 1041/1821 (57%)

HNS License Sub, LLC

DBA: Hughes Communications, Inc.

Data Characteristics

Date of Original Submission:	2/2/2010
Date of Update Submission:	N/A
Currency of Data:	July 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:

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%

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	9	15%
3	32	53%
6	6	10%
7	9	15%
8	3	5%
9	1	2%

Speed Test Upload Tier	Count
1	18
2	24
3	2
4	3
5	4
6	6
7	3

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: 60/60 (100.00%)
Number of computer based speed tests reported outside coverage area: 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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
202/202 (100.0%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
295/295 (100.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Hotwire Communications, Ltd
DBA Name: Hotwire Communications, Ltd

Data Characteristics

Date of Original Submission:	2/19/2010
Date of Update Submission:	7/15/2010
Currency of Data:	December 2010
FRN:	0009846494
Type of data submitted:	Addresses
Census Block Count:	1
Total Matched Address Points Count:	1
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 1
  - Number unmatched: 0
- 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

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 Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
5	1	100%

Max Upload Category	Count	% of Blocks
3	1	100%

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

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

Speed Test Download Tier	Count	% of Tests
0	2	100%

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

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:

Confirmation of census block served	0
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	1
% of served census blocks confirmed by speed test	0.0000%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 0/1 (0%)

Web Search Verification: N/A

Census blocks that are outside Cable Franchise Boundary: 0/1 (0%)

Leap Wireless International, Inc
DBA: Cricket Communications

Data Characteristics

Date of Original Submission:	3/17/2010
Date of Update Submission:	3/5/2011
Currency of Data:	December 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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Speed Domains:
- Typical Download Speed was < speed tier 3
  - Calculated speed to speed tier 3

Data Verification

Maximum down/upload speeds reported by provider:

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 <u>mobile speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	121	99%
3	1	1%

Speed Test Upload Tier	Count	% of Tests
1	23	19%
2	77	63%
3	22	18%

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: 122/122 (100.0%)
Number of mobile speed tests reported outside coverage area: 0/122 (0.0%)

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	14	78%
3	3	17%
4	1	6%

Speed Test Upload Tier	Count	% of Tests
1	2	11%
2	15	83%
4	1	6%

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 computer based speed tests reported inside coverage area: 18/18 (100.00%)
Number of computer based speed tests reported outside coverage area: 0/18 (0.00%)

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
71/202 (35.2%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
11/58 (19%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification:

Cricket WebSearch Verification Table	Count	Percentage
Total # of sample points	1496	
Number of sample points with results	635	42%
Result is yes and coverage area is in served area	449	71%
Result is yes but not in a coverage area reported as served	9	1%
Result is no and coverage area is in served area	1	0%
Result is no and coverage area is not in served area	176	28%

Wireless Verification: N/A

Level 3 Communications, LLC
DBA Name: Level 3 Communications, LLC

Data Characteristics

Date of Original Submission:	1/18/2010
Date of Update Submission:	1/25/2011
Currency of Data:	January 2011
FRN:	0003723822
Type of data submitted:	Address Table
Census Block Count:	129
Total Matched Address Points Count:	174
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 Maryland Property View address locator
  - Number matched: 172
  - Number unmatched: 7
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 2
  - Number unmatched: 5
- Merge matched addresses
- Spatially join address points to 2000 census blocks

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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	129	100%

Max Upload Category	Count	% of Blocks
11	129	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	1	25%
3	1	25%
8	2	50%

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

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	1
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	129
% of served census blocks confirmed by speed test	0.7752%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 62
Number of tracts reported to FCC, but no census blocks reported to project: 57

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 1
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 59/129 (46%)

Web Search Verification: N/A

MegaPath, Inc.
DBA Name: MegaPath

Data Characteristics

Date of Original Submission:	3/11/2010
Date of Update Submission:	N/A
Currency of Data:	March 2011
FRN:	0018105601
Type of data submitted:	Address Table
Census Block Count:	88
Total Matched Address Points Count:	93
Unmatched Address Points:	6
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Incomplete
Provided Max Advertised Upload Speed:	Incomplete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 90
  - Number unmatched: 9
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 3
  - Number unmatched: 6
- 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

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

o   Load exported results into the NTIA data model
  ▪   Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Area
3	68	82%
4	14	17%
5	1	1%

Max Upload Category	Count	% of Area
2	59	77%
3	16	21%
4	2	3%

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
1	1	50%
10	1	50%

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

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	0
Census blocks served, not reported by provider	2
Total number of served census blocks reported by provider	88
% of served census blocks confirmed by speed test	0.00%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 1
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 26/88 (30%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 3/88 (3%)

Mountain Communications, LLC
DBA: ProCom

Data Characteristics

Date of Original Submission:	May 2010
Date of Update Submission:	N/A
Currency of Data:	May 2010
FRN:	0008039323
Type of data submitted:	Census Block Table
Census Block Count:	148
Total Matched Address Points Count:	N/A
Unmatched Address Points:	N/A
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Incomplete
Provided Max Advertised Upload Speed:	Incomplete
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 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:

Max Download Category	Count	% of Blocks		Max Upload Category	Count	% of Blocks
10	3	100%		10	3	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

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 46/148 (31%)

Web Search Verification: N/A

Wireless Verification: N/A

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 Maryland Property View address locator
  - Number matched: 2
  - Number unmatched: 0
- 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

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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
7	1	100%

Typical Upload Category	Count	% of Blocks
7	1	100%

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

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 0/1 (0%)

Web Search Verification: N/A

New Edge Holding Company
DBA Name: New Edge Network, Inc

Data Characteristics
Date of Original Submission:	1/22/2010
Date of Update Submission:	3/2/2011
Currency of Data:	January 2011
FRN:	0003720471
Type of data submitted:	Address Table
Census Block Count:	219
Total Matched Address Points Count:	371
Unmatched Address Points:	3
Number of Technology of Transmission Types:	2
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 335
  - Number unmatched: 19
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 16
  - Number unmatched: 3
- 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

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:

Max Download Category	Count	% of Blocks
3	90	28%
4	205	65%
5	17	5%
6	4	1%
7	1	0%

Max Upload Category	Count	% of Blocks
2	198	62%
3	75	24%
4	43	14%
7	1	0%

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks
3	90	28%
4	205	65%
5	17	5%
6	4	1%
7	1	0%

Typical Upload Category	Count	% of Blocks
2	198	62%
3	75	24%
4	43	14%
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

%/# of census blocks verified by 2010 computer based speed tests: N/A

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 106
Number of tracts reported to FCC, but no census blocks reported to project: 48

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 96/219 (44%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 51/219 (23%)

One Communications
DBA: One Communications

Data Characteristics

Date of Original Submission:	3/8/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0015337702
Type of data submitted:	Address Table
Census Block Count:	119
Total Matched Address Points Count:	131
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 Maryland Property View address locator
  - Number matched: 128
  - Number unmatched: 6
- Unmatched addresses are geocoded to Maryland street centerline address locator
  - Number matched: 3
  - Number unmatched: 3
- 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

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

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
4	81	68%
5	31	26%
6	6	5%
7	1	1%

Max Upload Category	Count	% of Blocks
4	81	68%
5	31	26%
6	6	5%
7	1	1%

Addresses

Max Download Category	Count	% of Addresses
5	2	100%

Max Upload Category	Count	% of Addresses
5	2	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	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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	0
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	119
% of served census blocks confirmed by speed test	0.00%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 44/119 (37%)

Web Search Verification: N/A

PAETEC Communications, Inc.
DBA Name: PAETEC Communications, Inc.

Data Characteristics

Date of Original Submission:	2/28/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0011017795
Type of data submitted:	Address Table
Census Block Count:	284
Total Matched Address Points Count:	371
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:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
    - Number matched: 360
    - Number unmatched: 17
- Unmatched address are geocoded to Maryland street centerline address locator
    - Number matched: 11
    - Number unmatched: 6
- 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

Census Block Process:
- Join the switched selection (BB_Service_Address) address points to the 2000 census blocks based on the BLK2000 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	250	83%
9	53	17%

Max Upload Category	Count	% of Blocks
11	250	83%
9	53	17%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
3	89	29%
4	214	71%

Typical Upload Category	Count	% of Blocks
3	89	29%
4	214	71%

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

Speed Test Download Tier	Count	% of Tests
0	15	75%
3	3	15%
5	2	10%

Speed Test Upload Tier	Count	% of Tests
1	15	75%
3	3	15%
4	1	5%
5	1	5%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	2
Census blocks served, not reported by provider	4
Total number of served census blocks reported by provider	284
% of served census blocks confirmed by speed test	0.70%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 22
Number of tracts reported to FCC, but no census blocks reported to project: 99

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 2
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 106/284 (37%)

Web Search Verification: N/A

QCOL, Inc.
DBA Name: QCOL

Data Characteristics

Date of Original Submission:	May 2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0019663095
Type of data submitted:	Census Block Table
Census Block Count:	248
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 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		Max Upload Category	Count	% of Blocks
10	28	13%		10	275	59%
6	193	87%		6	192	41%

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
2	1	100%		3	1	100%

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:

Confirmation of census block served	0
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	248
% of served census blocks confirmed by speed test	0.00%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 4
Total number of unserved areas reported per provider via broadband.maryland.gov: 5

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 70/248 (28%)

Web Search Verification: N/A

Census blocks that are outside Cable Franchise Boundary: 28/248 (11%)

Shenandoah Telecommunications
DBA: Shentel Converged Services, Inc

Data Characteristics

Date of Original Submission:	May 2010
Date of Update Submission:	N/A
Currency of Data:	May 2010
FRN:	0013962170
Type of data submitted:	Addresses
Census Block Count:	1
Total Matched Address Points Count:	1
Unmatched Address Points:	1
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 1
  - Number unmatched: 1
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 0
  - Number unmatched: 1
- 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

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 Verification

Maximum down/upload speeds reported by provider:

Max Download Category	Count	% of Blocks		Max Upload Category	Count	% of Blocks
5	1	100%		3	1	100%

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

Typical down/upload speed from 2010 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

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 1/1 (100%)

Web Search Verification: N/A

Sprint Nextel Corporation
DBA Name: Sprint Nextel Corporation

Data Characteristics

Date of Original Submission:	2/18/2010
Date of Update Submission:	2/16/2011
Currency of Data:	December 2010
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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Data Verification

Maximum down/upload speeds reported by provider:

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:

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

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

Typical down/upload speed from 2010 <u>mobile speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	1437	41%
3	644	18%
4	664	19%
5	756	21%
6	31	1%

Speed Test Upload Tier	Count	% of Tests
1	842	24%
2	1622	46%
3	1029	29%
4	15	0%
5	7	0%
6	3	0%
7	4	0%
8	10	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: 3316/3532 (93.9%)
Number of mobile speed tests reported outside coverage area: 216/3532 (6.1%)

Typical down/upload speed from 2010 <u>computer based speed test</u>:

Speed Test Download Tier	Count	% of Tests
0	37	64%
3	12	21%
4	6	10%
5	1	2%
7	2	3%

Speed Test Upload Tier	Count	% of Tests
1	16	28%
2	34	59%
3	4	7%
4	1	2%
5	2	3%
6	1	2%

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: 41/58 (70.69%)
Number of computer based speed tests reported outside coverage area: 17/58 (29.31%)

Form 477Verification:
#/% 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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
159/202 (78.7%)

Number of unserved areas reported within coverage area via mdbroadbandmap.org:
41/58 (70.7%)
Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification:

Sprint Wireless Verification Table	Count	Percentage
Total # of sample points	1466	
Number of sample points with results	1122	76.5%
Verified served AND BSP says served (yes,yes)	932	83.1%
Verified served AND BSP says unserved (yes,no)	190	16.9%
Verified unserved AND BSP says served (no,yes)	166	11.3%
Verified unserved AND BSP says unserved (no,no)	178	12.1%

StarBand Communications Inc.

DBA Name: StarBand Communications Inc.

Data Characteristics

Date of Original Submission:	1/26/2010
Date of Update Submission:	N/A
Currency of Data:	January 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:	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

Speed Domains:

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

Data Verification

Maximum down/upload speeds reported by provider:

Max Download Category	Count	% of Area
3	1	100%

Max Upload Category	Count	% of Area
2	1	100%

Typical down/upload speeds reported by provider:

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: 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 477Verification:
#/% 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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
202/202 (100.0%)
Number of unserved areas reported within coverage area via broadband.maryland.gov:
58/58 (100.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Starpower Communications, LLC
DBA Name: RCN & RCN Business Solutions

Data Characteristics

Date of Original Submission:	3/5/2010
Date of Update Submission:	3/1/2011
Currency of Data:	December 2010
FRN:	0003735016
Type of data submitted:	Address Table
Census Block Count:	1291
Total Matched Address Points Count:	7774
Unmatched Address Points:	57
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	Complete
Provided Max Typical Upload Speed:	Complete
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	Yes

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 7750
  - Number unmatched: 81
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 24
  - Number unmatched: 57
- 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

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

- Result: BB_Service_CensusBlock

Data Verification

Maximum down/upload speeds reported by provider:

Census Blocks

Max Download Category	Count	% of Blocks
4	135	10%
5	243	19%
6	5	0%
7	908	70%

Max Upload Category	Count	% of Blocks
2	378	29%
3	553	43%
4	360	28%

Typical down/upload speeds reported by provider:

Census Blocks

Typical Download Category	Count	% of Blocks
4	135	10%
5	243	19%
6	5	0%
7	908	70%

Typical Upload Category	Count	% of Blocks
2	378	29%
3	553	43%
4	360	28%

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

Speed Test Download Tier	Count	% of Tests
4	8	7%
5	29	25%
6	42	36%
7	38	32%
10	1	1%

Speed Test Upload Tier	Count	% of Tests
2	81	69%
3	3	3%
4	34	29%

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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	62
Census blocks served, not reported by provider	2
Total number of served census blocks reported by provider	1291
% of served census blocks confirmed by speed test	4.8025%

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: 5

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 1
Total number of unserved areas reported per provider via broadband.maryland.gov: 2

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 38/1291 (3%)

Web Search Verification: 4/1291 (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 Cable Franchise Boundary: 1/1291 (0.01%)

Tata Communications (America) Inc.
DBA Name: Tata Communications (America) Inc.

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	8/26/2010
Currency of Data:	August 2010
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 Maryland Property View address locator
  - Number matched: 1
  - Number unmatched: 0
- 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

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

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks
4	1	100%

Max Upload Category	Count	% of Blocks
4	1	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	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

%/# of census blocks verified by 2010 computer based speed tests:

Confirmation of census block served	0
Census blocks served, not reported by provider	1
Total number of served census blocks reported by provider	1
% of served census blocks confirmed by speed test	0.00%

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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 1/1 (100%)

Web Search Verification: N/A

T-Mobile USA, Inc.
DBA Name: T-Mobile USA, Inc.

Data Characteristics

Date of Original Submission:	2/25/2010
Date of Update Submission:	3/11/2011
Currency of Data:	December 2010
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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
  - Result: BB_Service_Wireless

Data Verification
Maximum down/upload speeds reported by provider:

Max Download Category	Count	% of Area
4	1	100%
6	1	100%

Max Upload Category	Count	% of Area
2	1	100%
4	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	1933	59%

Speed Test Upload Tier	Count	% of Tests
1	302	9%

3	770	23%		2	1559	47%
5	548	17%		3	1341	41%
6	49	1%		4	83	3%
				5	5	0%
				6	1	0%
				7	5	0%
				8	4	0%

Speed tests match reported typical 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: 3258/3300 (98.7%)
Number of mobile speed tests reported outside coverage area: 42/3300 (1.3%)

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

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
52/202 (25.7%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
3/58 (5.2%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification:

TMobile Wireless Verification Table	Count	Percentage
Total # of sample points	1466	
Number of sample points with results	452	30.8%
Verified served AND BSP says served (yes,yes)	174	38.5%
Verified served AND BSP says unserved (yes,no)	278	61.5%
Verified unserved AND BSP says served (no,yes)	180	12.3%
Verified unserved AND BSP says unserved (no,no)	834	56.9%

TWTelecom of Maryland, LLC
DBA Name: TWTelecom of Maryland, LLC

Data Characteristics

Date of Original Submission:	1/30/2010
Date of Update Submission:	3/10/2011
Currency of Data:	March 2011
FRN:	0017348202
Type of data submitted:	Address table
Census Block Count:	52
Total Matched Address Points Count:	78
Unmatched Address Points:	0
Number of Technology of Transmission Types:	1
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	Yes
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 78
  - Number unmatched: 1
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 1
  - Number unmatched: 0
- 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

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

      o   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
3	13	23%
4	16	29%
5	5	9%
6	3	5%
7	9	16%
8	3	5%
9	2	4%
10	2	4%
11	3	5%

Max Upload Category	Count	% of Blocks
3	13	23%
4	16	29%
5	5	9%
6	3	5%
7	9	16%
8	3	5%
9	2	4%
10	2	4%
11	3	5%

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

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 15
Number of tracts reported to FCC, but no census blocks reported to project: 13

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 28/52 (54%)

Web Search Verification: N/A

Vector Data Systems LLC
DBA Name: Vector Data Systems LLC

Data Characteristics
Date of Original Submission:	February 2010
Date of Update Submission:	2/28/2011
Currency of Data:	December 2010
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
- Simplify Polygon of coverage area
- Load coverage area into the NTIA data model
    - Result: BB_Service_Wireless

Data Verification
Maximum down/upload speeds reported by provider:

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:

Typical Download Category	Count	% of Area
6	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

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

Form 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 5/5 (100.0%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
4/202 (2.0%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
0/58 (0.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

Verizon Communications Inc
DBA: Verizon Maryland Inc

Data Characteristics

Date of Original Submission:	2/15/2010
Date of Update Submission:	2/10/2011
Currency of Data:	December 2010
FRN:	0002166825
Type of data submitted:	Census Block Table
Census Block Count:	57200
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 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
5	742	1%
6	11515	16%
9	59229	83%

Max Upload Category	Count	% of Blocks
3	12256	17%
7	59229	83%

Road segments

Max Download Category	Count	% of Segments
5	173	3%
6	1553	30%
9	3464	67%

Max Upload Category	Count	% of Segments
3	1726	33%
7	3464	67%

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	414	8%
3	565	11%
4	958	19%
5	283	6%
6	545	11%
7	1902	37%
8	420	8%
9	24	0.5%
10	12	0.2%

Speed Test Upload Tier	Count	% of Tests
1	449	9%
2	1590	31%
3	53	1%
4	717	14%
5	1126	22%
6	524	10%
7	646	13%
8	18	0.4%

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:

Confirmation of census block served	1924
Census blocks served, not reported by provider	49
Total number of served census blocks reported by provider	57200
% of served census blocks confirmed by speed test	3.7%

Form 477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 3382
Number of tracts reported to FCC, but no census blocks reported to project: 1

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 91
Total number of unserved areas reported per provider via broadband.maryland.gov: 111

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 26
Total number of unserved areas reported per provider via mdbroadbandmap.org: 28

Of census blocks reported as served, how many have zero population based on 2000 census data? 6572/57200 (12%)

Web Search Verification: 479/57200 (1%) of census blocks were confirmed using online search feature of given provider

VerizonMD Web Search 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: 15088/57200 (26.4%)

Wildblue Communications, Inc
DBA Name: Wildblue Communications, Inc

Data Characteristics

Date of Original Submission:	4/21/2010
Date of Update Submission:	7/22/2010
Currency of Data:	December 2010
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

Speed Domains:
- 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:

Max Download Category	Count	% of Area
4	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%

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 477Verification:
#/% of tracts reported as served to FCC that overlaps with coverage area: 214/14 (100.0%)
#/% of tracts reported as served to FCC but do not intersect coverage area: 0

Unserved areas:
Number of unserved areas reported within coverage area via broadband.maryland.gov:
202/202 (100.0%)
Number of unserved areas reported within coverage area via mdbroadbandmap.org:
58/58 (100.0%)

Of census blocks reported as served, how many have zero population based on 2000 census data? N/A

Web Search Verification: N/A

Wireless Verification: N/A

XO Holdings, Inc
DBA Name: XO Communications, LLC

Data Characteristics

Date of Original Submission:	2/1/2010
Date of Update Submission:	N/A
Currency of Data:	December 2010
FRN:	0006275945
Type of data submitted:	Addresses
Census Block Count:	344
Total Matched Address Points Count:	363
Unmatched Address Points:	136
Number of Technology of Transmission Types:	3
Provided Max Advertised Download Speed:	Complete
Provided Max Advertised Upload Speed:	Complete
Provided Max Typical Download Speed:	No
Provided Max Typical Upload Speed:	No
Provided Middle Mile:	No
Provided Road Segments for census blocks greater than 2 sq miles:	No

Data Processing

Address Table Process:
- Geocode address table to Maryland Property View address locator
  - Number matched: 346
  - Number unmatched: 144
- Unmatched address are geocoded to Maryland street centerline address locator
  - Number matched: 17
  - Number unmatched: 136
- 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

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

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

Speed Domains:
- ● Symmetric Maximum Downstream Speed < 2
  - o Calculated Symmetric Maximum Downstream to 2
- ● Symmetric Maximum Upstream Speed < 2
  - o Calculated Symmetric Maximum Upstream to 2

Data Verification

Maximum down/upload speeds reported by provider:
Census Blocks

Max Download Category	Count	% of Blocks
3	60	17%
4	191	56%
5	44	13%
6	13	4%
7	29	8%
8	7	2%

Max Upload Category	Count	% of Blocks
2	7	2%
3	58	17%
4	186	54%
5	44	13%
6	13	4%
7	29	8%
8	7	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	33%
4	1	33%
5	1	33%

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

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:

Confirmation of census block served	0
Census blocks served, not reported by provider	3
Total number of served census blocks reported by provider	344
% of served census blocks confirmed by speed test	0.00%

Form477 Verification:
Number of census blocks reported to project, but no tract reported to FCC: 34
Number of tracts reported to FCC, but no census blocks reported to project: 19

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 4
Total number of unserved areas reported per provider via broadband.maryland.gov: 4

Number of census blocks with unserved areas reported via mdbroadbandmap.org: 1
Total number of unserved areas reported per provider via mdbroadbandmap.org: 1

Of census blocks reported as served, how many have zero population based on 2000 census data? 132/344 (38%)

Web Search Verification: N/A

Census blocks that are outside DSL boundary: 1/344 (0.3%)

Zayo Bandwidth LLC
DBA Name: Zayo Bandwidth LLC

Data Characteristics

Date of Original Submission:	1/13/2011
Date of Update Submission:	N/A
Currency of Data:	December 2010
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 Maryland Property View address locator
  - Number matched: 2
  - Number unmatched: 0
- Spatially join address points to 2000 census blocks

Census Block Process:
- Join the address points to the 2000 census blocks based on the BLK2000 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	50%
8	1	50%

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

Typical down/upload speeds reported by provider:

Typical Download Category	Count	% of Blocks

Typical Upload Category	Count	% of Blocks

7	1	50%		7	1	50%
8	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

%/# of census blocks verified by 2010 computer based speed tests: 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

Unserved areas:
Number of census blocks with unserved areas reported via broadband.maryland.gov: 0
Total number of unserved areas reported per provider via broadband.maryland.gov: 0

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

Of census blocks reported as served, how many have zero population based on 2000 census data? 0/2 (0%)

Web Search Verification: N/A