

# Rhode Island Broadband Mapping Project October 2014 Data Submission - Summary and Processes

## Prepared By:

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## **Section A: The Broadband Rhode Island Mapping Team Overview**

In support of the national broadband initiatives undertaken by President Obama and the Federal Government through the American Recovery & Reinvestment Act of 2009 (Recovery Act), Public Law No. 111-5, and the Broadband Data Improvement Act (BDIA), title I of Public Law No. 110-385, 122 Stat. 4096, the Rhode Island Commerce Corporation (Commerce RI) (formerly the Rhode Island Economic Development Corporation [RIEDC]), as the entity assigned by former Governor Donald Carcieri, has been awarded grant funds from the United States Department of Commerce – National Telecommunications and Information Administration (NTIA) State Broadband Data and Development Grant Program. As of January 1 2014, the RIEDC became the RI Commerce Corporation. The BBRI project is now managed by the office of Digital Excellence in the Rhode Island Department of Administration.

### **Project Description**

EA Engineering, Science, and Technology, Inc. (EA), was selected by Commerce RI, through their Broadband Initiative for Rhode Island (BBRI) to provide a data management and retrieval system for Commerce RI. Commerce RI and EA entered into a contractual agreement on January 15, 2010 for a base period of 2 (two) years with 3 (three) optional years. The work assignment consists of negotiating non disclosure agreements (NDA) with the State's broadband providers, collecting provider broadband data, verifying data submitted, combining and updating data collected, developing and implementing a broadband website with mapping application (<http://broadband.ri.gov>), and reporting findings to Commerce RI and the NTIA.

This program has created a statewide broadband map which will be maintained for five (5) years, that assesses broadband infrastructure in Rhode Island and distinguishes between served, underserved, and un-served communities as per the definition specified by NTIA. The data has been made available to the public, with certain restrictions to account for confidentiality of supplier information, through a state website and is linked to a Federal Department of Commerce webpage. The goal of this project is to meet the RI Commerce Corporation's broadband mapping needs and in doing so provide maps and information that will be used to lend guidance and assistance in the planning of future broadband infrastructure development, as well as provide numerous broadband options to the end users.

The BBRI is a comprehensive effort aimed at producing a high level of detailed inventory of broadband services provided to residential, government and business consumers within the State of Rhode Island. The project is not only a Geographical Information Systems (GIS) mission but a project that needs expertise in GIS, contracting and legal issues, Quality Assurance/Quality Control (QA/QC), and project management. In order to acquire, collect, process, analyze and display the data that represents these services it was necessary to combine the resources of several professional firms. Each team

member provides unique set of strengths and capabilities needed to create the system that is in place. The team is made up of RI Commerce Corporation, EA Engineering (EA), Adler Pollock & Sheehan P.C. (AP&S), Eastern Shore Regional GIS Cooperative (ESRGC), and Mapping & Planning Services (M&PS). As of the start of Quarter 1, Calendar year 2013, AP&S is no longer counsel of record for the BBRI initiative. This responsibility has been transferred to John H. McCann at the firm Shechtman, Halperin, Savage LLP. Additionally, as of January 1 2014, URI is no longer participating in the BBRI project. URI completed their primary goals for the projects and their secondary tasks/goals are now being taken over by EA. The following paragraphs provide information on each team member and their role the project.

The RI Commerce Corporation is leading the project efforts for the State of Rhode Island (RI). Led by Mr. Stuart Freiman, they oversee all facets of the project and teams involved. The RI Commerce Corporation coordinates schedules, communicates directly with the National Telecommunications Information Agency (NTIA), reviews and approves all project deliverables, and ensure all project deadlines are met. With their high visibility in the RI business community they are instrumental in arranging meetings between broadband providers and BBRI Team members. The relationship and communication the RI Commerce Corporation has with the State's providers was and continues to be instrumental in making the process of collecting and verifying information from the providers as effortless as possible.

EA is the prime contractor selected to lead the State's data collection, verification, reporting, and mapping efforts. EA has been providing scientific and engineering technical solutions to a wide range of government and industrial clients since 1973. Serving IT and GIS solutions via the web has become a standard business solution for EA's clients. As the prime contractor EA works closely with the RI Commerce Corporation on all phase of the BBRI project. Included in the work EA has done to date, is the creation of the State's broadband website and mapping application (Digital Atlas). The website provides information on the project, links to related sites, custom mapping capabilities, and user speed test and feedback forms. The site can be viewed at the following address; <http://broadband.ri.gov/>.

M&PS has been providing GIS consulting services in RI for over 20 years. For the RI Broadband Mapping project, M&PS assisted in the development of a verification and analysis process which is used to perform the QA/QC of the data prior to submitting to the NTIA. Prior to each bi-annual NTIA submittal M&PS uses this process to review and check the data. During this process MP&S checks for positional and attribute accuracy of the data by using a random sampling methodology. The service MP&S provides insures data going to the NTIA is of the highest accuracy and precision. Additional M&PS provides data analysis and static maps displaying the data status at each delivery date.

The GIS laboratory in the URI's Department of Natural Resources is the center of technical expertise in the GIS field for the State of RI. On this project URI manages all GIS data report by EA to the RI Commerce Corporation. They also serve as an additional tier of QA/QC on the data that is collected and submitted to the NTIA. URI provides technical input to the data processes and the types of maps and data to be displayed on the website. Additionally, several data layers including Community Anchor Institute locations and base map layers being used on the Digital Atlas are provided by URI.

The Eastern Shore Regional GIS Cooperative (ESRGC) is an organization that provides technical support, training, and GIS services to local governments on the Eastern Shore of Maryland. In addition to supporting the BBRI project, ESRGC is leading the broadband mapping efforts for the state of Maryland. For the BBRI project, the ESRGC's provides the project team technical advisor support. They provide guidance on the project's technical approach and peer review support based on knowledge gained from their work in Maryland. ESRGC provided assistance in defining requirements for the QA/QC process, database design, and data verification tasks. The ESRGC provides the Team with a "lessons learned" from the Maryland Broadband project which guided the BBRI Team around common mistakes made on broadband mapping projects.

AP&S is a local RI law firm providing legal advice and representation and has been servicing RI residents and firms for 50 years. The role AP&S plays on this project is providing the necessary legal advice and contracting that is necessary between the RI Commerce Corporation and the broadband providers. To date, AP&S has brokered the Non-Disclosure Agreements (NDA's) between the Commerce RI and 16 broadband providers. These agreements were imperative and had to be in place before any data was submitted by the broadband providers. All provider broadband information that is made public is based on what the NDAs state. AP&S became the State's expert as to what information was legal for the team to make available to the public and modeled the NDAs off of the guidance provided in the NOFA.

As of the start of Quarter 1, Calendar year 2013, AP&S is no longer counsel of record for the BBRI initiative. This responsibility has been transferred to John H. McCann at the firm Shechtman, Halperin, Savage LLP.

As of January 1, 2014, URI is no longer part of the BBRI team. URI completed their primary goals for the projects and their secondary tasks/goals are now being assumed by EA.

**Project Contacts**

Contact	Project Role	Phone	Email
<b>Commerce RI</b>			
Stuart Freiman	<b>Broadband Program Director</b>	401-278-9168	<a href="mailto:sfreiman@commerceri.com">sfreiman@commerceri.com</a>
Shane White	State GIS Coordinator	401-222-6483	<a href="mailto:swhite@doa.ri.gov">swhite@doa.ri.gov</a>
<b>EA Engineering, Science and Technology (EA)</b>			
Lou Garcia, PMP	<b>Project Manager</b>	410-329-5132	<a href="mailto:lgarcia@eaest.com">lgarcia@eaest.com</a>
Jason Samus	Senior Technical Review	410-329-5182	<a href="mailto:jsamus@eaest.com">jsamus@eaest.com</a>
Joe DeLuca, GISP	Technical Lead	410-329-5118	<a href="mailto:ideluca@eaest.com">ideluca@eaest.com</a>
James Wilkerson, MS	GIS Analyst	410-584-7000 x5277	<a href="mailto:jwilkerson@eaest.com">jwilkerson@eaest.com</a>
<b>Eastern Shore Regional GIS Cooperative (ESRGC)</b>			
Michael Scott, Ph.D., GISP	Senior Technical Advisor	410-543-6083	<a href="mailto:msscott@salisbury.edu">msscott@salisbury.edu</a>

**BROADBAND PROVIDER DATA VERIFICATION REPORT  
RHODE ISLAND DATA SUBMITTAL #9  
OCTOBER 1, 2014**

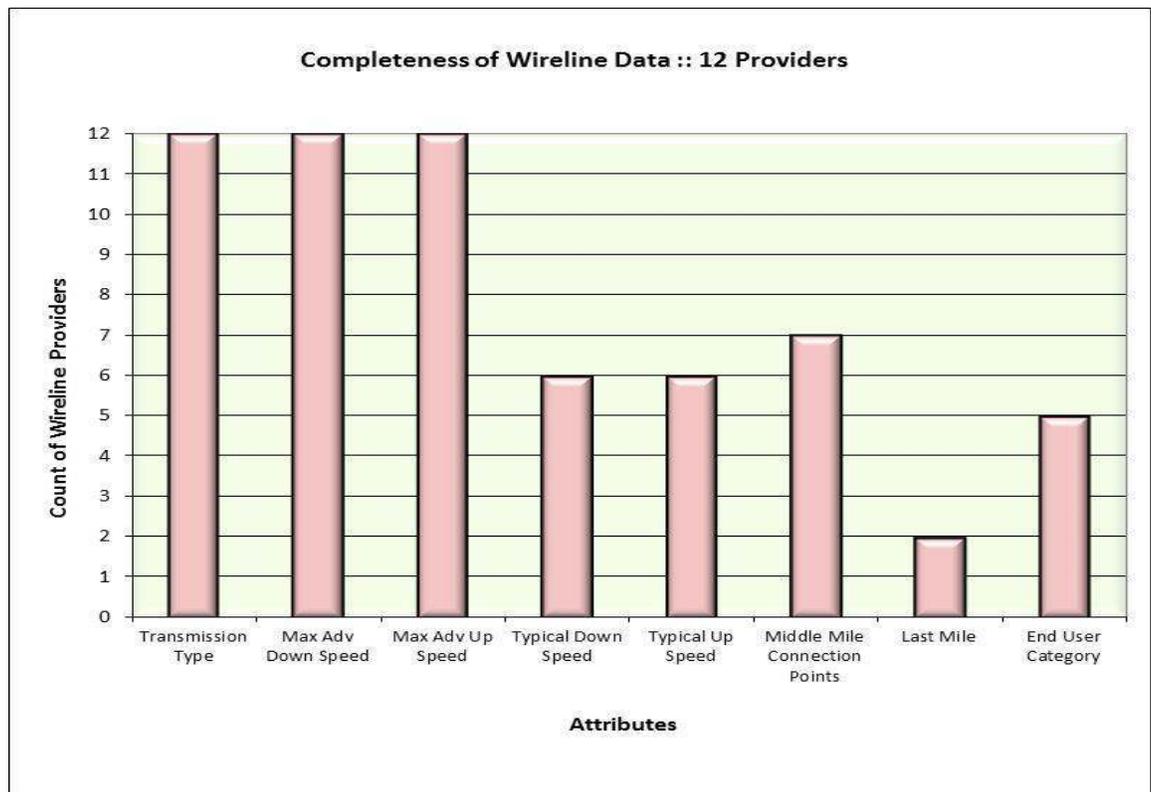
General Findings:

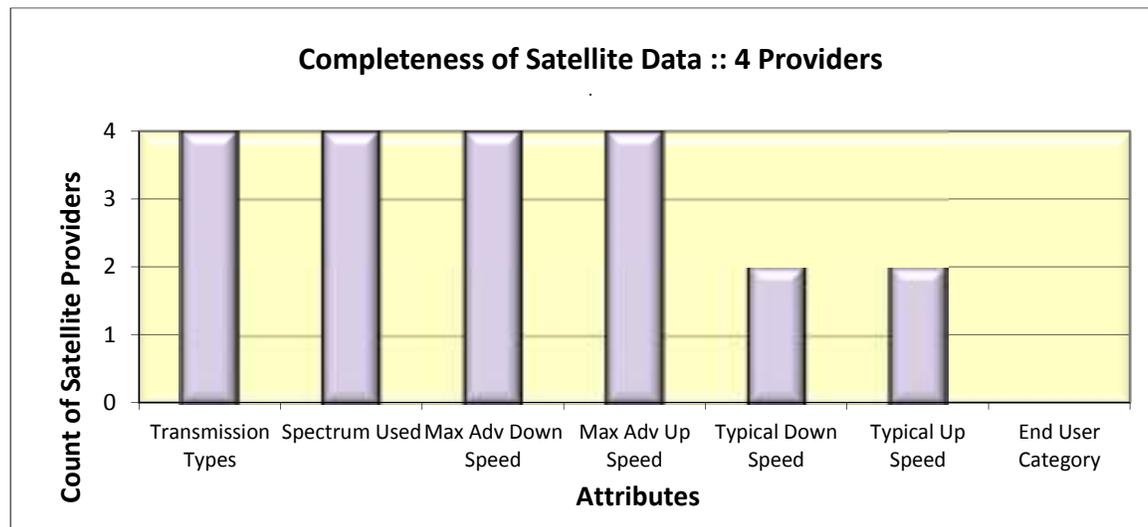
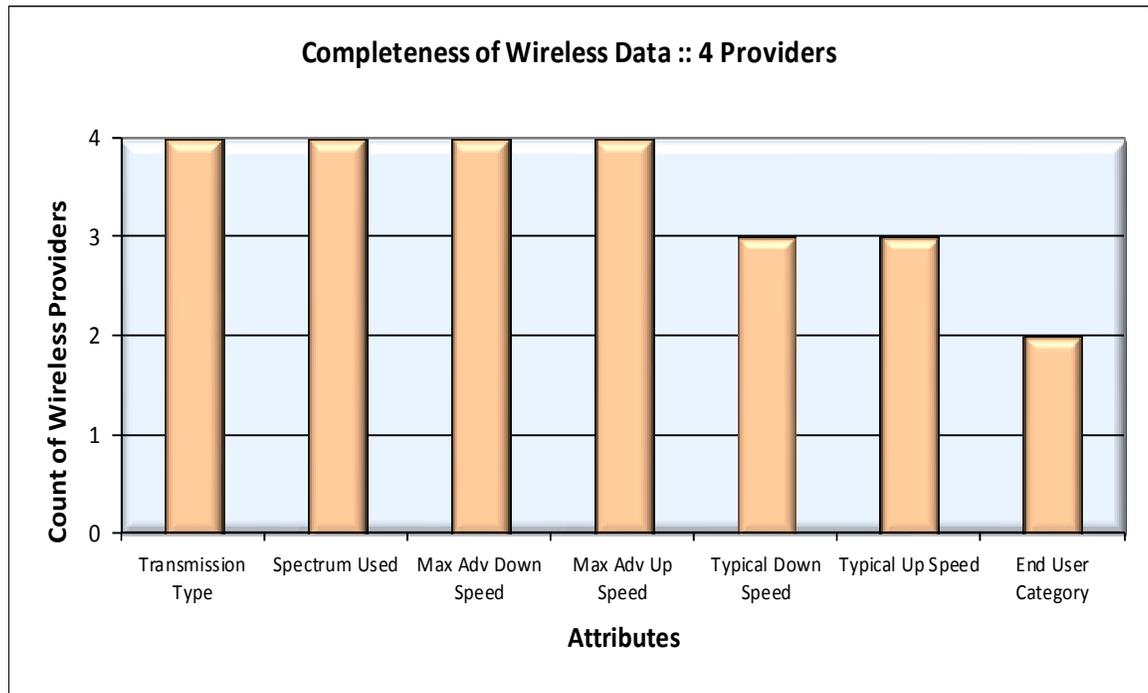
- Rhode Island has extensive broadband coverage from 20 providers. These 20 providers combine to offer broadband coverage for the entire state of Rhode Island.
- Broadband availability on a census block basis is summarized in the Figure below:

<b>Broadband Availability</b>	<b>Census Blocks</b>	<b>% of Total</b>
<b>Unserviced:</b> Census block no access to broadband	0	0
<b>Underserved:</b> One to Four broadband providers	96	<1
<b>Competitive:</b> Five to Eight broadband providers	717	3
Nine to Twelve broadband providers	11,139	44
Thirteen to Fifteen providers	13,193	52
Sixteen to Eighteen providers	36	<1
<b>Total</b>	<b>25,181</b>	<b>100</b>

Note: Broadband is defined as being wireline, wireless and satellite service for this table.

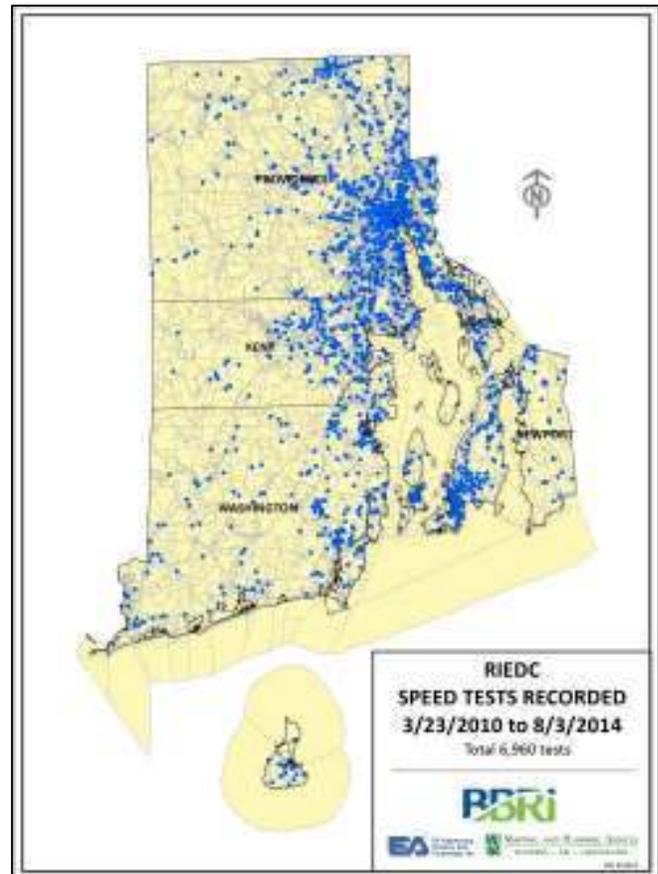
- A total of 20 providers submitted data; 12 wireline, 4 wireless, and 4 satellite. The completeness of the attributes in these datasets is summarized in the Figures below.





- Middle Mile data was provided by 7 broadband providers. There were a total of 23 facilities (13 owned and 10 leased).
- Middle Mile Backbone data was provided by two providers.
- Last Mile data was provided by 2 broadband providers. Both are owned.

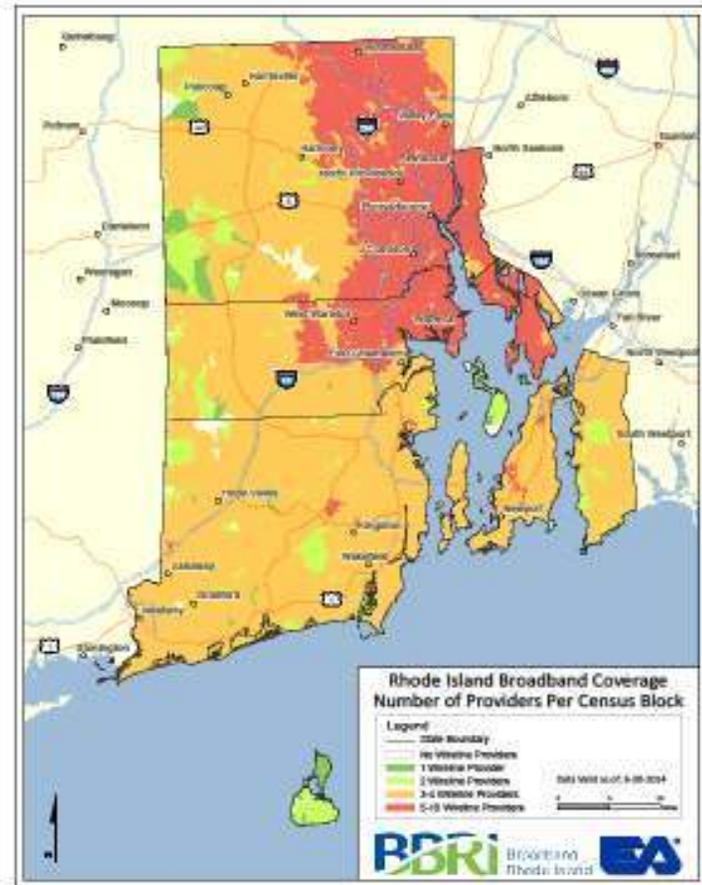
- A total of 1,010 Community Anchor Institutions (CAIs) are identified. These were verified with available Rhode Island geographic information system (RIGIS) datasets and Commerce RI speed tests.
- Commerce RI collected 6,960 speed tests in 1,696 (6.7%) of the census blocks within the State. These tests are for the period 3/23/2010 to 8/3/2014. The distribution of these speed tests is shown in the figure here.
- A total of 56 census blocks are greater than 2 sq. miles, with 28 over land and 28 over open water areas. Road Segment data were provided by 2 providers and Service Address data was provided by 1 provider for these locations. All land-based census blocks greater than 2 sq. miles had road segment or service address data provided.



The Figures below display the wireline and wireless coverage areas reported in Rhode Island and the number of providers available per census block.



Rhode Island Broadband Coverage Map



Number of Providers Available Per Census Block

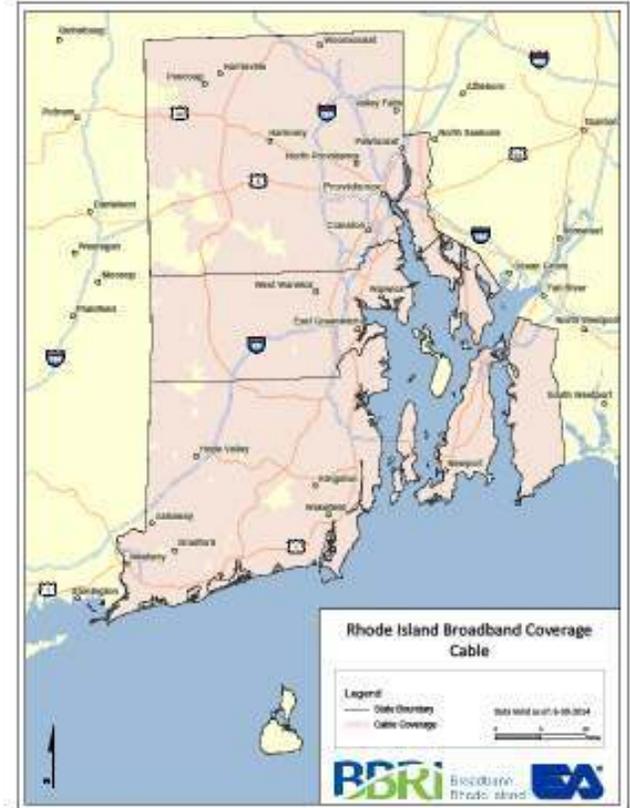
The Figures below display the availability of each technology types offered in Rhode Island.



Satellite Coverage



Copper Wireline Coverage



Cable Coverage

The Figures below display the availability of each technology types offered in Rhode Island.



Fiber Optic Coverage



Wireless Coverage



DSL Coverage

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

**Data Characteristics**

FRN: 0004979233  
 Type of Data Submitted: Wireless  
 Census Block Count (unique): N/A  
 Provided Technology of Transmission: YES  
 Provided Spectrum Used: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: YES  
 Provided Typical Upload Speed: YES  
 Provided Middle Mile: NO  
 Provided Last Mile: NO  
 Provided End User Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
7	5

Typical down/upload speeds reported by provider: 7, 5

Number of technology of transmission types and spectrums reported by provider: 1, with 4 spectrums

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 25,026 census blocks are served.

County	Census Blocks per County
Bristol	1,089
Kent	4,182
Newport	2,356
Providence	13,154
Washington	4,245

Greatest down/upload speed from Commerce RI speed tests: 9, 8

Greatest down/upload speed from FCC speed tests: No speed tests were available

Greatest down/upload speed from FCC Mobile Application speed tests: No speed tests were available

Count of Commerce RI speed tests: 11

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Speed tests outside of reported service area: 0

**Middle mile facilities outside of reported service area:** [No middle mile facilities.](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census blocks served	20
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	25,026
% of served census blocks confirmed by speed test	<1%

**Provider Name:** Broadview Networks, Inc.  
**DBA:** Broadview Networks, Inc.

**Data Characteristics**

**FRN:** 0003775285  
**Type of Data Submitted:** Census Blocks  
**Census Block Count (unique):** 4,718  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** NO  
**Provided Typical Upload Speed:** NO  
**Provided Middle Mile:** YES  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** NO  
**Provided Address Points for census block greater than 2 sq miles:** NO  
**Provided End User Category:** NO

**Maximum advertised down/upload speeds reported by provider:**

Technology	Max Download Category	Max Upload Category
10	11	11
20	11	11
50	11	11

**Typical down/upload speeds reported by provider:** No speeds were provided

**Number of technology transmission types reported by provider:** 3

**Count of Middle Mile Facilities:** 8

**End user Category:** Not provided

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 4,718 census blocks are served.**

County	Census Block per County
Bristol	4
Kent	15
Newport	15
Providence	4,677
Washington	7

Greatest down/upload speed from Commerce RI speed tests: 4, 4

Greatest down/upload speed from FCC speed tests: No speed tests were available

Greatest down/upload speed from FCC Mobile Application speed tests: No speed tests were available

Count of Commerce RI speed tests: 16

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

Middle mile facilities outside of reported service area: Three of the eight are located within the reported service areas.

**%/# of census blocks verified by Commerce RI & FCC speed tests:**

Confirmation of census block served	4
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	4,718
% of served census blocks confirmed by speed test	<1%

Provider Name: **CellCo Partnership**  
 DBA: **Verizon Wireless**

**Data Characteristics**

FRN: 0003290673  
 Type of Data Submitted: Wireless  
 Census Block Count: N/A  
 Provided Technology of Transmission: YES  
 Provided Spectrum Used: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: YES  
 Provided Typical Upload Speed: YES  
 Provided Middle Mile: NO  
 Provided Last Mile: NO  
 Provided End Use Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
7	5

Typical down/upload speeds reported by provider: 6, 3

Number of technology of transmission types and spectrums reported by provider: 1, with 3 spectrums

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 25,005 census blocks are served.

County	Census Blocks per County
Bristol	1,088
Kent	4,180
Newport	2,346
Providence	13,151
Washington	4,240

Greatest down/upload speed from Commerce RI speed tests: 3, 2

Greatest down/upload speed from FCC speed tests: No speed tests were available

Greatest down/upload speed from FCC Mobile Application speed tests: No speed tests were available

Count of Commerce RI speed tests: 10

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census blocks served	7
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	25,005
% of served census blocks confirmed by speed test	<1%

**Provider Name:** [Cogent Communication Inc.](#)  
**DBA:** [Cogent Communication](#)

**Data Characteristics**

**FRN:** [0004654042](#)  
**Type of Data Submitted:** [Census Blocks](#)  
**Census Block Count (unique):** [2](#)  
**Provided Technology of Transmission:** [YES](#)  
**Provided Max Advertised Download Speed:** [YES](#)  
**Provided Max Advertised Upload Speed:** [YES](#)  
**Provided Typical Download Speed:** [NO](#)  
**Provided Typical Upload Speed:** [NO](#)  
**Provided Middle Mile:** [YES](#)  
**Provided Last Mile:** [YES](#)  
**Provided Road Segments for census blocks greater than 2 sq miles:** [NO](#)  
**Provided Address Points for census block greater than 2 sq miles:** [NO](#)  
**Provided End User Category:** [YES](#)

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

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** [Not Provided](#)

**Number of technology of transmission types reported by provider:** [1](#)

**Count and Capacity of Middle Mile Facilities:** [1, 4](#)

**Count and Capacity of Last Mile Facilities:** [1, 6](#)

**End User Category:** [2](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 2 census blocks are served.**

County	Census Blocks per County
Bristol	0
Kent	0
Newport	0
Providence	2
Washington	0

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Applications speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: [0](#)

Count of FCC speed tests: [0](#)

Count of FCC Mobile Applications speed tests: [0](#)

Commerce RI and FCC speed tests outside of reported service area: [No speed tests were taken or available.](#)

Middle mile facilities outside of reported service area: [Facility is within the reported census blocks.](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

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

**Provider Name:** [CoxCom Inc.](#)  
**DBA:** [Cox Communications](#)

**Data Characteristics**

**FRN:** 0001524461  
**Type of Data Submitted:** Census Blocks, Address Points  
**Census Block Count (unique):** 24,403  
**Service Address Point Count (unique):** 1,762  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** NO  
**Provided Typical Upload Speed:** NO  
**Provided Middle Mile:** YES  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** NO  
**Provided Address Points for census block greater than 2 sq miles:** YES  
**Provided End user Category:** YES

**Maximum advertised down/upload speeds reported by provider:**

Data Type	Max Download Category	Max Upload Category
Census Blocks	10	7
Service Address Points	10	7

**Typical down/upload speeds reported by provider:** [Not provided](#)

**Number of technology of transmission types reported by provider:** [1](#)

**Count and Capacity of Middle Mile Facilities:** [1, 7](#)

**End User Category:** [Provided, "Other"](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 24,426 census blocks are served (24,403 by census block data and 23 by service address data).**

County	Census Blocks per County
Bristol	1,082
Kent	4,116
Newport	2,285
Providence	12,889
Washington	4,054

Greatest down/upload speed from Commerce RI speed tests: 8, 7

Greatest down/upload speed from FCC speed tests: No speed tests were available

Greatest down/upload speed from FCC Mobile Applications speed tests: No speed tests were available

Count of Commerce RI speed tests: 3,716

Count of FCC speed tests: No speed tests were available

Count of FCC Mobile Applications speed tests: No speed tests were available

Commerce RI speed tests outside of reported service area: All speed tests were within the reported service area.

Middle mile facilities outside of reported service area: Yes, located within the reported service area.

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	1,070
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	24,426
% of served census blocks confirmed by speed test	4.4%

Provider Name: [Earthlink](#)

DBA: [Earthlink](#)

**Data Characteristics**

FRN: 0005451166  
 Type of Data Submitted: Census Blocks  
 Census Block Count (unique): 22,938  
 Provided Technology of Transmission: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: NO  
 Provided Typical Upload Speed: NO  
 Provided Middle Mile: NO  
 Provided Last Mile: NO  
 Provided Road Segments for census blocks greater than 2 sq miles: NO  
 Provided Address Points for census block greater than 2 sq miles: NO  
 Provided End User Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Technology	Max Download Category	Max Upload Category
10	11	7
40	11	7
50	11	7

Typical down/upload speeds reported by provider: [Not provided](#)

Number of technology of transmission types reported by provider: [3](#)

Count of Middle Mile Facilities: [Not provided](#)

End User Category: [Not provided](#)

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 22,938 census blocks are served.

County	Census Blocks per County
Bristol	1,015
Kent	3,825
Newport	2,102
Providence	12,359
Washington	3,637

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Applications speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: 0

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	22,938
% of served census blocks confirmed by speed test	0%

**Provider Name:** [Fiber Technologies Networks, L.L.C.](#)  
**DBA:** [Fibertech](#)

**Data Characteristics**

**FRN:** 0006797849  
**Type of Data Submitted:** Census Blocks  
**Census Block Count (unique):** 16  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** YES, INCOMPLETE (7 of 16)  
**Provided Typical Upload Speed:** YES, INCOMPLETE (7 of 16)  
**Provided Middle Mile:** NO  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** NO  
**Provided Address Points for census block greater than 2 sq miles:** NO  
**Provided End User Category:** YES

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** [10](#), [10](#)

**Number of technology of transmission types reported by provider:** [1](#)

**Count of Middle Mile Facilities:** [0](#)

**End User Category:** [2](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 16 census blocks are served.**

County	Census Blocks per County
Bristol	0
Kent	2
Newport	0
Providence	14
Washington	0

**Greatest down/upload speed from Commerce RI speed tests:** [7](#), [4](#)

**Greatest down/upload speed from FCC speed tests:** [No speed tests were available](#)

**Greatest down/upload speed from FCC Mobile Applications speed tests:** [No speed tests were available](#)

Count of Commerce RI speed tests: 1

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC 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	16
% of served census blocks confirmed by speed test	6%

Provider Name: [Full Channel TV, Inc.](#)  
 DBA: [Full Channel](#)

**Data Characteristics**

FRN: 0004973731  
 Type of Data Submitted: Census Blocks  
 Census Block Count (unique): 1,088  
 Provided Technology of Transmission: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: YES  
 Provided Typical Upload Speed: YES  
 Provided Middle Mile: YES  
 Provided Last Mile: NO  
 Provided Road Segments for census blocks greater than 2 sq miles: NO  
 Provided Address Points for census block greater than 2 sq miles: NO  
 Provided End User Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
7	5

Typical down/upload speeds reported by provider: [7, 5](#)

Number of technology of transmission types reported by provider: [1](#)

Count and Capacity of Middle Mile Facilities: [1, 3](#)

End User Category: [Not provided](#)

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 1,021 census blocks are served.

County	Census Blocks per County
Bristol	1,021
Kent	0
Newport	0
Providence	0
Washington	0

Greatest down/upload speed from Commerce RI speed tests: [7, 5](#)

Greatest down/upload speed from FCC speed tests: [Speed tests were not available](#)

Greatest down/upload speed from FCC Mobile Applications speed tests: [Speed tests were not available](#)

Count of Commerce RI speed tests: 20

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: All were within the reported service area.

Middle mile facilities outside of reported service area: Located within reported service area.

**%/# of census blocks verified by Commerce RI and FCC 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	1,021
% of served census blocks confirmed by speed test	1.3%

Provider Name: [Hughes Network Systems, LLC](#)  
 DBA: [Hughes](#)

**Data Characteristics**

FRN: [0009559881](#)  
 Type of Data Submitted: [Satellite](#)  
 Census Block Count (unique): [N/A](#)  
 Provided Technology of Transmission: [YES](#)  
 Provided Spectrum Used: [YES](#)  
 Provided Max Advertised Download Speed: [YES](#)  
 Provided Max Advertised Upload Speed: [YES](#)  
 Provided Typical Download Speed: [YES](#)  
 Provided Typical Upload Speed: [YES](#)  
 Provided End User Category: [NO](#)

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
5	2

Typical down/upload speeds reported by provider: [5, 2](#)

Number of technology of transmission types reported by provider: [1, with 1 spectrum](#)

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 25,181 census blocks are served.

County	Census Blocks per County
Bristol	1,092
Kent	4,183
Newport	2,452
Providence	13,157
Washington	4,297

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Application speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: [0](#)

Count of FCC speed tests: [0](#)

Count of FCC Mobile Applications speed tests: [0](#)

Commerce RI and FCC speed tests outside of reported service area: [0](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	25,181
% of served census blocks confirmed by speed test	0%

**Provider Name:** [Level 3 Communications, LLC](#)  
**DBA:** [Level 3 Communications, LLC](#)

**Data Characteristics**

**FRN:** [0003723822](#)  
**Type of Data Submitted:** [Census Blocks](#)  
**Census Block Count (unique):** [66](#)  
**Provided Technology of Transmission:** [YES](#)  
**Provided Max Advertised Download Speed:** [YES](#)  
**Provided Max Advertised Upload Speed:** [YES](#)  
**Provided Typical Download Speed:** [YES](#)  
**Provided Typical Upload Speed:** [YES](#)  
**Provided Middle Mile:** [YES](#)  
**Provided Last Mile:** [NO](#)  
**Provided Road Segments for census blocks greater than 2 sq miles:** [NO](#)  
**Provided Address Points for census block greater than 2 sq miles:** [NO](#)  
**Provided End User Category:** [NO](#)

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** [11, 11](#)

**Number of technology of transmission types reported by provider:** [1](#)

**Count and Capacity of Middle Mile Facilities:** [7, 6](#)

**End User Category:** [Not provided](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 66 census blocks are served.**

County	Census Blocks per County
Bristol	0
Kent	7
Newport	3
Providence	52
Washington	4

**Greatest down/upload speed from Commerce RI speed tests:** [4, 4](#)

**Greatest down/upload speed from FCC speed tests:** [No speed tests were available](#)

**Greatest down/upload speed from FCC Mobile Applications speed tests:** [No speed tests were available](#)

**Count of Commerce RI speed tests:** 5

**Count of FCC speed tests:** 0

**Count of FCC Mobile Applications speed tests:** 0

**Commerce RI and FCC speed tests outside of reported service area:** Four of the five speed tests were recorded outside the coverage area reported by provider. They are within: 440090415001021, 440070160001021, 440090503022009 and 440070008001009.

**Middle mile facilities outside of reported service area:** None of the 8 facilities are located within the reported service area.

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census blocks served	0
Census blocks served, not reported by provider	4
Total number of served census blocks reported by provider	66
% of served census blocks confirmed by speed test	0%

**Provider Name:** Lighttower Fiber Networks  
**DBA:** Lighttower Fiber Networks

**Data Characteristics**

**FRN:** 00017625567  
**Type of Data Submitted:** Census Blocks  
**Census Block Count (unique):** 11,461  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** YES, INCOMPLETE (9,870 of 11,461)  
**Provided Typical Upload Speed:** YES, INCOMPLETE (9,870 of 11,461)  
**Provided Middle Mile Backbone:** YES  
**Provided Middle Mile Connection Points:** NO  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** NO  
**Provided Address Points for census block greater than 2 sq miles:** NO  
**Provided End User Category:** YES

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** 11, 11

**Number of technology of transmission types reported by provider:** 1

**Count and Capacity of Middle Mile Facilities:** 0, 0

**End User Category:** 2

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 11,461 census blocks are served.**

County	Census Blocks per County
Bristol	0
Kent	1,778
Newport	0
Providence	9,683
Washington	0

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Applications speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: 0

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: [No speed tests were taken or available](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	11,461
% of served census blocks confirmed by speed test	0%

Provider Name: [MegaPath Corporation](#)  
 DBA: [MegaPath](#)

**Data Characteristics**

FRN: 0003753787  
 Type of Data Submitted: Census Blocks  
 Census Block Count (unique): 12,260  
 Provided Technology of Transmission: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: YES  
 Provided Typical Upload Speed: YES  
 Provided Middle Mile: NO  
 Provided Last Mile: NO  
 Provided Road Segments for census blocks greater than 2 sq miles: NO  
 Provided Address Points for census block greater than 2 sq miles: NO  
 Provided End User Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Technology	Max Download Category	Max Upload Category
10	8	8
20	8	8
30	8	8

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

Technology	Typical Download Category	Typical Upload Category
10	5	2
20	8	8
30	5	5

Number of technology of transmission types reported by provider: 3

Count and Capacity of Middle Mile Facilities: [Not provided](#)

End User Category: [Not provided](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 12,260 census blocks are served.**

County	Census Blocks per County
Bristol	4
Kent	2,926
Newport	1
Providence	9,329
Washington	0

**Greatest down/upload speed from Commerce RI speed tests:** [No speed tests were taken](#)

**Greatest down/upload speed from FCC speed tests:** [No speed tests were available](#)

**Greatest down/upload speed from FCC Mobile Applications<sup>3</sup> speed tests:** [No speed tests were available](#)

**Count of Commerce RI speed tests:** 0

**Count of FCC speed tests:** 0

**Count of FCC Mobile Application speed tests:** 0

**Commerce RI and FCC speed tests outside of reported service area:** [No speed tests were taken or available.](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	12,260
% of served census blocks confirmed by speed test	0%

**Provider Name:** OSHEAN  
**DBA:** OSHEAN

**Data Characteristics**

**FRN:** -9999  
**Type of Data Submitted:** Census Blocks, Road Segments  
**Census Block Count (unique):** 20,323  
**Road Segments (unique):** 435  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** YES  
**Provided Typical Upload Speed:** YES  
**Provided Middle Mile Backbone:** YES  
**Provided Middle Mile Connection Points:** NO  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** YES  
**Provided Address Points for census block greater than 2 sq miles:** NO  
**Provided End User Category:** YES

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** 11, 11

**Number of technology of transmission types reported by provider:** 1

**End User Category:** 2

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 20,341 census blocks are served.**

County	Census Blocks per County
Bristol	889
Kent	3,564
Newport	1,759
Providence	11,568
Washington	2,561

Greatest down/upload speed from Commerce RI speed tests: 10, 8

Greatest down/upload speed from FCC speed tests: No speed tests were available

Greatest down/upload speed from FCC Mobile Applications speed tests: No speed tests were available

Count of Commerce RI speed tests: 50

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

Middle Mile Backbone facilities outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	20
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	20,341
% of served census blocks confirmed by speed test	<1%

Provider Name: [Skycasters](#)

DBA: [Skycasters](#)

**Data Characteristics**

FRN: 0018756155  
 Type of Data Submitted: Satellite  
 Census Block Count (unique): N/A  
 Provided Technology of Transmission: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: YES  
 Provided Typical Upload Speed: YES  
 End Use Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
6	4

Typical down/upload speeds reported by provider: [5](#), [2](#)

Number of technology of transmission types reported by provider: [1](#), and [1](#) spectrum

End User Category: [Not provided](#)

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 25,181 census blocks are served.

County	Census Blocks per County
Bristol	1,092
Kent	4,183
Newport	2,452
Providence	13,157
Washington	4,297

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Applications speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: [0](#)

Count of FCC speed tests: [0](#)

Count of FCC Mobile Application speed tests: [0](#)

Commerce RI and FCC speed tests outside of reported service area: [No speed tests were taken or available](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	25,181
% of served census blocks confirmed by speed test	0%

**Provider Name:** [Sprint Corporation](#)  
**DBA:** [Sprint](#)

**Data Characteristics**

**FRN:** [0022117618](#)  
**Type of Data Submitted:** [Wireless](#)  
**Census Block Count (unique):** [N/A](#)  
**Provided Technology of Transmission:** [YES](#)  
**Provided Spectrum Used:** [YES](#)  
**Provided Max Advertised Download Speed:** [YES](#)  
**Provided Max Advertised Upload Speed:** [YES](#)  
**Provided Typical Download Speed:** [YES](#)  
**Provided Typical Upload Speed:** [YES](#)  
**Provided Middle Mile:** [NO](#)  
**Provided Last Mile:** [NO](#)  
**End User Category:** [YES](#)

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
6	4

**Typical down/upload speeds reported by provider:** [6, 4](#)

**Number of technology of transmission types reported by provider:** [1, with 2 spectrums](#)

**End User Category:** [5](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 24,318 census blocks are served.**

County	Census Blocks per County
Bristol	1,087
Kent	4,013
Newport	2,267
Providence	12,873
Washington	4,078

**Greatest down/upload speed from Commerce RI speed tests:** [8, 7](#)

**Greatest down/upload speed from FCC speed tests:** [No speed tests were available](#)

**Greatest down/upload speed from FCC Mobile Applications speed tests:** [No speed tests were available](#)

**Count of Commerce RI speed tests:** [89](#)

**Count of FCC speed tests:** [0](#)

**Count of FCC Mobile Applications speed tests:** [0](#)

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census blocks served	17
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	24,318
% of served census blocks confirmed by speed test	<1%

**Provider Name:** [StarBand Communications Inc.](#)  
**DBA:** [StarBand Communications Inc.](#)

**Data Characteristics**

**FRN:** 0005087457  
**Type of Data Submitted:** Satellite  
**Census Block Count:** N/A  
**Provided Technology of Transmission:** YES  
**Provided Spectrum Used:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** NO  
**Provided Typical Upload Speed:** NO  
**Provided End User Category:** NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
3	2

**Typical down/upload speeds reported by provider:** [Not reported](#)

**Number of technology of transmission types reported by provider:** [1, with 1 spectrum](#)

**End User Category:** [Not provided](#)

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 25,181 census blocks are served:**

County	Census Block per County
Bristol	1,092
Kent	4,183
Newport	2,452
Providence	13,157
Washington	4,297

**Greatest down/upload speed from Commerce RI speed test:** [No speed tests were taken](#)

**Greatest down/upload speed from FCC speed test:** [No speed tests were available](#)

**Greatest down/upload speed from FCC Mobile Applications speed test:** [No speed tests were available](#)

**Count of Commerce RI speed tests:** 0

**Count of FCC speed tests:** 0

**Count of FCC Mobile Applications speed test:** 0

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	25,181
% of served census blocks confirmed by speed test	0%

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

**Data Characteristics**

**FRN:** 0006945950  
**Type of Data Submitted:** Wireless  
**Census Block Count (unique):** N/A  
**Provided Technology of Transmission:** YES  
**Provided Spectrum Used:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** YES, INCOMPLETE (8 of 10)  
**Provided Typical Upload Speed:** YES, INCOMPLETE (8 of 10)  
**Provided Middle Mile:** YES  
**Provided Last Mile:** NO  
**Provided End User Category:** NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
7	6

**Typical down/upload speeds reported by provider:** 7, 5

**Number of technology of transmission types reported by provider:** 1, with 2 spectrums

**Count and Capacity of Middle Mile facilities:** 3, 7

**End User Category:** Not provided

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 24,217 census blocks are served.**

County	Census Blocks per County
Bristol	1,088
Kent	3,917
Newport	2,306
Providence	12,783
Washington	4,123

**Greatest down/upload speed from Commerce RI speed tests:** 5, 3

**Greatest down/upload speed from FCC speed tests:** No speed tests were available

**Greatest down/upload speed from FCC Mobile Applications speed tests:** No speed tests were available

Count of Commerce RI speed tests: 30

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

Middle mile facilities outside of reported service area: [The three facilities are within the reported service area.](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census blocks served	2
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	24,217
% of served census blocks confirmed by speed test	<1%

**Provider Name:** Verizon New England Inc.  
**DBA:** Verizon New England Inc.

**Data Characteristics**

**FRN:** 0003628971  
**Type of Data Submitted:** Census Blocks, Road Segments  
**Census Block Count (unique):** 18,900  
**Road Segment Count (unique):** 841  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** NO  
**Provided Typical Upload Speed:** NO  
**Provided Middle Mile:** NO  
**Provided Last Mile:** NO  
**Provided Road Segments for census blocks greater than 2 sq miles:** YES  
**Provided Address Points for census blocks greater than 2 sq miles:** NO  
**Provided End User Category:** NO

**Maximum advertised down/upload speeds reported by provider:**

Technology	Max Download Category	Max Upload Category
10	9	7
50	9	7

**Typical down/upload speeds reported by provider:** Not provided

**Number of technology of transmission types reported by provider:** 2

**Total count of Middle Mile facilities:** Not provided

**End user Category:** Not provided

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 18,928 census blocks are served (18,963 by census block data and 28 by road segment service data).**

County	Census Blocks per County
Bristol	898
Kent	3,251
Newport	1,662
Providence	10,425
Washington	2,692

Greatest down/upload speed from Commerce RI speed tests: 10, 7

Greatest down/upload speed from FCC speed tests: [Speed tests were not available](#)

Greatest down/upload speed from FCC Mobile Application speed tests: [Speed tests were not available](#)

Count of Commerce RI speed tests: [2,129](#)

Count of FCC speed tests: [0](#)

Count of FCC Mobile Application speed tests: [0](#)

Commerce RI and FCC speed tests outside of reported service area: [0](#)

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	476
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	18,928
% of served census blocks confirmed by speed test	2.5%

Provider Name: [ViaSat](#)  
 DBA: [ViaSat](#)

**Data Characteristics**

FRN: 0017588898  
 Type of Data Submitted: Satellite  
 Census Block Count (unique): N/A  
 Provided Technology of Transmission: YES  
 Provided Spectrum Used: YES  
 Provided Max Advertised Download Speed: YES  
 Provided Max Advertised Upload Speed: YES  
 Provided Typical Download Speed: NO  
 Provided Typical Upload Speed: NO  
 Provided End User Category: NO

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
7	5

Typical down/upload speeds reported by provider: [Not provided](#)

Number of technology of transmission types reported by provider: [1](#), and [1](#) spectrum

**Data Verification:**

Counties served by provider and number of census blocks with service. A total of 24,626 census blocks are served.

County	Census Blocks per County
Bristol	1,016
Kent	3,919
Newport	2,405
Providence	12,997
Washington	4,289

Greatest down/upload speed from Commerce RI speed tests: [No speed tests were taken](#)

Greatest down/upload speed from FCC speed tests: [No speed tests were available](#)

Greatest down/upload speed from FCC Mobile Application speed tests: [No speed tests were available](#)

Count of Commerce RI speed tests: 0

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

**%/# of census blocks verified by Commerce RI and FCC speed tests:**

Confirmation of census block served	0
Census blocks served, not reported by provider	0
Total number of served census blocks reported by provider	24,626
% of served census blocks confirmed by speed test	0%

**Provider Name:** Zayo Group, LLC  
**DBA:** Zayo Group, LLC

**Data Characteristics**

**FRN:** 0000820598  
**Type of Data Submitted:** Census Blocks  
**Census Block Count (unique):** 2  
**Provided Technology of Transmission:** YES  
**Provided Max Advertised Download Speed:** YES  
**Provided Max Advertised Upload Speed:** YES  
**Provided Typical Download Speed:** NO  
**Provided Typical Upload Speed:** NO  
**Provided Middle Mile:** YES  
**Provided Last Mile:** YES  
**Provided End User Category:** YES

**Maximum advertised down/upload speeds reported by provider:**

Max Download Category	Max Upload Category
11	11

**Typical down/upload speeds reported by provider:** Not provided

**Number of technology transmission types reported by provider:** 1

**Count and Capacity of Middle Mile Facilities:** 1, 6

**Count and Capacity of Last Mile Facilities:** 1, 11

**End user Category:** 2

**Data Verification:**

**Counties served by provider and number of census blocks with service. A total of 2 census blocks are served.**

County	Census Block per County
Bristol	0
Kent	0
Newport	0
Providence	2
Washington	0

**Greatest down/upload speed from Commerce RI speed tests:** No speed tests were taken

**Greatest down/upload speed from FCC speed tests:** No speed tests were available

**Greatest down/upload speed from FCC Mobile Application speed tests:** No speed tests were available

Count of Commerce RI speed tests: 0

Count of FCC speed tests: 0

Count of FCC Mobile Application speed tests: 0

Commerce RI and FCC speed tests outside of reported service area: 0

Middle Mile facilities outside of reported service area: [Facility is located within the reported service area.](#)

Last Mile facilities outside of reported service area: [Facility is located within the reported service area.](#)

**%/# of census blocks verified by Commerce RI & FCC speed tests:**

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

**Community Anchor Institutions: All categories**

**Data Characteristics**

Type of Data Submitted:	Point
Feature Count:	1,010
Provided Technology of Transmission:	YES)
Provided Subscribe Downstream Speed:	YES, INCOMPLETE (395 of 1,010)
Provided Subscribe Upstream Speed:	YES, INCOMPLETE (836 of 1,010)
Provided Street Address:	YES, COMPLETE
Provide Public Wifi:	YES, COMPLETE
Provided URL:	YES, INCOMPLETE (650 of 1,010)
Provided CAID:	YES, INCOMPLETE (509 of 1,010)

**Count of Community Anchor Institutions by category:**

CAI Category	Count of Features
1 – School K through Grade 12	514
2 - Library	91
3 – Medical/healthcare	57
4 – Public safety	242
5 – Univ., college, other post-secondary	27
6 – Other govt support - govt	73
7 – Other govt support - non-govt	6

**Maximum Subscribe down/upstream speeds reported by institutions:**

CAI Category	Max Downstream Category	Max Upstream Category	Count
1	10	10	1
2	10	10	1
3	11	11	3
4	10	10	3
5	11	11	2
6	11	11	1
7	7	6	1

Number of technology of transmission types reported by provider: 9

**Data Verification:**

Greatest down/upload speed from Commerce RI speed test: 10, 8

Greatest down/upload speed from FCC speed test: No speed tests were available

Greatest down/upload speed from FCC Mobile Applications speed tests: No speed tests were available

Count of Commerce RI speed tests: 624

Count of FCC speed tests: 0

Count of FCC Mobile Applications speed tests: 0

## Section C: Data Processes and Submission Overview

### Submission Summary

The Broadband Rhode Island Mapping (BBRI) Team, led by EA Engineering, Science & Technology, Inc. (EA), in its role as primary technical lead for the BBRI project, contacted 20 potential facilities-based broadband service providers (BSPs) and received data from all 20 providers for this round of data collection. An overall summary of the data submission is described below:

Of those that provided data:

- 8 provided only census block information
- 1 provided census blocks and addresses
- 2 provided census blocks and road segments
- 9 provided wireless coverage areas

In addition, 7 of the 20 responsive BSPs provided middle mile infrastructure points, 2 responsive BSPs provided middle mile backbone information, and 2 responsive BSPs provided last mile infrastructure points.

Besides the 20 providers contacted during the current round of broadband data collection, the BBRI team has previously reached out to an additional 124 potential broadband providers. These 124 broadband providers did not provide data because they were either broadband resellers, their data was being collected under a different provider's dataset, they were non-responsive, they chose not to participate, or they did not offer service in Rhode Island. The 124 providers previously researched and contacted are listed below:

1. 360 networks (USA) Inc.
2. A.R.C. Networks, Inc. / ATX Licensing, Inc. /
3. Access Point, Inc.
4. ACN Communication Services, Inc.
5. Ad-Base Systems Inc. (DBA GlobalPOPS)
6. Airespring, Inc.
7. AmeriVision Communications d/b/a Affinity 4
8. Apogee Telecom
9. ATC Outdoor DAS, LLC
10. Bandwidth.com CLEC, LLC
11. BBN Communications
12. BCN Telecom, Inc.
13. Bell South Long Distance, Inc.
14. Bellsouth.Net
15. BLC Management, LLC d/b/a Angles Communications Solutions
16. Broadview Networks, Inc.
17. Broadvox-CLEC, LLC

18. Budget PrePay, Inc. d/b/a Budget Phone
19. BullsEye Telecom, Inc.
20. CCG Communications, LLC d/b/a Verosity Technical Partners, Inc.
21. CERFnet
22. Charter Communications
23. Cleartel Telecommunications, Inc. (acquired by Birch)
24. CloseCall America, Inc.
25. Comcast Business Communications
26. Comcast Cable
27. CommPartners, LLC
28. Commrail (Access Northeast)
29. Computer Sciences Corporation
30. ComTech21, LLC
31. Comtel Telcom Assets LP d/b/a Clear Choice Communication
32. Conversent Communications (d/b/a Earthlink Business III)
33. Covista, Inc.
34. Cricket Communications
35. CTC Communications (d/b/a One Communications)
36. DSCI Corporation
37. DSL.net
38. EasyNet
39. Entelegent Solutions, Inc.
40. Ernest Communications, Inc.
41. Evercom Systems, Inc.
42. ExteNet Systems, Inc.
43. FAIRPOINT COMMUNICATIONS
44. Global Capacity Group, Inc.
45. Global Crossing Telecommunications, Inc.
46. Global NAPS, Inc.
47. Granite Telecommunications, LLC
48. Hickory Tech. Corp. / Enventis Telecom, Inc.
49. Hosttech Communications, LLC
50. IDT America, Corp.
51. inContact, Inc. (f/k/a UCN, Inc.)
52. Intap, LLC (dba Big Dog Technologies, Inc.)
53. Internap Network Services
54. International Telecom, Ltd.
55. Internet & Telephone, LLC
56. Intrado Communications, Inc.
57. ISP Alliance (ZCorum)
58. Key3Media Events (Media Live International)
59. LexMark International
60. Lightyear Network Solutions, LLC
61. Link Technologies

62. Macross Information Systems
63. Magellan Hill Technologies, LLC
64. Masergy Communications
65. Matrix Telecom, Inc.
66. Meganet Communications
67. Melita PLC (fka Melita Cable Cable plc)
68. MetroCast Cablevision
69. Metropolitan Telecommunications of Rhode Island
70. Mitel NetSolutions, Inc.
71. Mobile Beacon
72. Mobilitie Investments, LLC
73. MTS Allstream
74. Mzima Networks
75. NationalNet
76. Navigator Telecommunications, LLC
77. "NEON Connect, Inc. / RCN New York Communications, LLC
78. Neutral Tandem – Rhode Island, LLC
79. New Edge Networks
80. New Horizons Communications Corp.
81. Nextel Communications
82. NextG Networks of NY
83. Nextira One, LLC d/b/a Black Box Network Services
84. Nextlink Wireless, Inc.
85. nFrame
86. Nortel Networks
87. North Atlantic Networks, LLC
88. Norwood Light Broadband
89. Pac-West Telecomm, Inc.
90. PAETEC
91. Pipeline Wireless LLC
92. Primus Telecommunications, Inc.
93. ProvDotNet LLC
94. Qwest Communications Company, LLC / Qwest Communications of Delaware
95. RCN Corporation
96. REON Broadband Corporation
97. RNK, Inc.
98. SAVVIS Communications Corporation
99. SBA Communications Corp. (acquired National Grid Communications)
100. SBC Internet Services
101. Secured Network Services
102. Serbia Broadband-Srpske Kablovske mreze dcc
103. Sidera Networks
104. South County Sound and Video
105. SpeakEasy

106. Spectrotel, Inc.
107. STSN GENERAL HOLDINGS
108. TDS TELECOM
109. Telrite Corporation
110. Thames Valley Communications
111. The Internet Connection
112. Total Communications Inc.
113. Towerstream Inc.
114. Trans National Communications International
115. United Systems Access Telecom, Inc. d/b/a/ USA Telephone
116. Virgin Media
117. Wayport
118. Wholesale Carrier Services, Inc.
119. WiTel Communications Group, LLC
120. Wireless Data Service Provider
121. XO Communications Services, Inc.
122. Ymax Communications Corp.
123. Zone Four
124. Zone Telecom, Inc.

### Rhode Island Broadband Mapping Data Processes

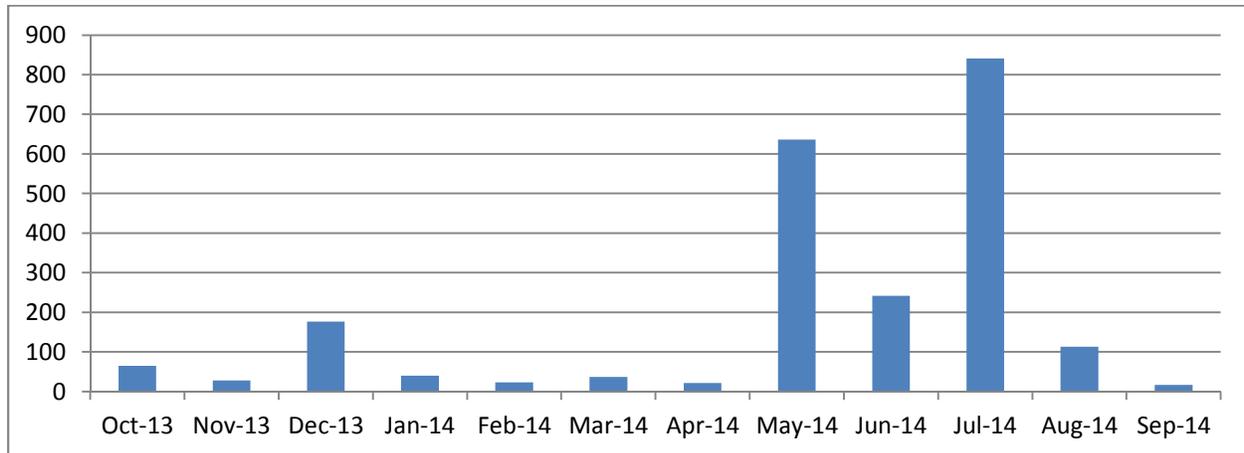
**Data Received From Providers** – The process begins by receiving data from each provider that offers service in the State of Rhode Island (RI). Broadband data is currently received from 20 broadband facility based service providers within the State who have signed Non-Disclosure Agreements with RI Commerce Corporation. Once all of the available data is received from a provider it is reviewed and archived in its native format. While the same data is requested from each provider the information often comes in different formats and with missing attribute and or spatial data. If attributes are missing from the dataset the provider is contacted to see if the missing information is available.

**Data Evaluated & Processed** – The EA project team gives the data spatial attributes through geocoding to the RI E911 data or by joining the data to the 2010 census block data. The attribute data is then formatted so that the database can easily be entered in the Broadband Rhode Island geodatabase. Speeds reported below broadband levels are removed from the dataset and archived. Data that is located in census blocks great than 2 square miles are loaded into either the address or street segment feature classes. All remaining data is loaded into the census block feature class. The data is loaded using Esri tools and software. The Broadband Rhode Island, or our data analysis geodatabase, stores the most recent broadband information. Data is extracted from this geodatabase and formatted as needed to be used for the State's web map and our biannual NTIA submittals. Data is pulled from this analysis database, formatted to meet the web and NTIA formatting requirements, and loaded into either the NTIA transfer database or the web mapping database using custom built data extraction and loading tools.

- Community Anchor Institute (CAI) Data: The initial list of CAIs were received from the University of Rhode Island and populated into the BBRI database. This data was then compared to and updated using 3<sup>rd</sup> party datasets in order to create the most comprehensive CAI list available for RI. In order to collect the broadband data for the CAIs, the BBRI Team utilized a top down approach. The agencies that oversaw a large number of CAIs such as RINET and OSHEAN were contacted regarding the data collection. CAIs that still had missing attribute data after contacting these agencies were contact directly via phone and email. Once contacted, the CAIs were directed to an online survey. The online survey walked the user through a short questionnaire that collected the required CAI broadband data. At the end of the survey the user was directed to take a speed test in order to help with the data collection and verification process.

**Data Verification** – Once the data is loaded into the geodatabase the verification process can begin. This process is comprised of several steps to ensure that the actual facilities and services provided to the public match the provider’s data being reported. The steps are listed below, followed by a detailed description of each step.

1. Compared to Available Datasets
    - a. Speed test
    - b. User feedback
    - c. 3rd party dataset analysis
  2. Spatial Analysis of Coverage Area
  3. Physical Infrastructure Survey
  4. Provider Meetings
  5. 3<sup>rd</sup> Party Verification
- Compared to Available Datasets -
    - Speed test – Using Ookla’s speed test application, EA has been collecting speed test data for RI since March 2010. A breakdown of speed tests collected over the past year by EA, displayed by month, can be found in the table below. EA uses both the FCC speed tests collected for RI and the speed tests collected on the RI broadband website to get a better view of the actual speeds and coverage area providers are offering the public. The speed tests are geocoded and mapped by provider. (FCC speed test providers are identified by the speed test’s IP address) Each provider’s speed test data is compared to their stated coverage area. Discrepancies are noted and reported back to the provider. The provider either gives a reason for the discrepancy or instructs us to modify their coverage area to match the speed test data.



- User feedback - user feedback information is captured by both the FCC and RI's broadband mapping website. This information is reviewed on a case by case basis. Changes are made as needed to the data and reported to the provider, similar to the speed test data update process.
- Best practices for final data quality checks include the review and comparison to 3rd party datasets (such as the FCC's 477 data) with the information received from the providers. The FCC's data is used to check for previously unknown providers, perform spatial analysis and comparisons on the data, and to give a better understanding of our confidence in the data. Since FCC data is broken out by census tract the provider's data must be converted to the tract level in order to perform a full data comparison.
- Spatial Analysis of Coverage Area— Spatial Analysis is performed on each provider's data set. The analysis checks for small areas in populated sections of the state that are surrounded by coverage areas but do not show coverage. These "donut holes" in the data are reviewed and reported to the provider if we feel they have a high probability of actually being covered by the providers' broadband services.
- Physical Infrastructure Survey - As part of the expanding need to verify broadband coverage within RI, a physical infrastructure survey pilot project was performed for the Town of Foster. The physical infrastructure survey verified the physical broadband facilities present within the Town. EA performed the survey utilizing GPS equipment and industry knowledge to capture the actual location of strategic infrastructure facilities throughout Foster. The data was then mapped and analyzed to determine where wireline broadband service is theoretically available within the town. Structures outside of the identified theoretical service area were mailed surveys to determine if broadband was actually available at their location as well as collect additional broadband usage information from the residents.

- Provider Meetings - The BBRI Team held conference calls with broadband providers that had significant changes in their current data submittals or had identified issues that required a review. These conference calls were used as working sessions to review reasoning behind changes being made, discuss findings, address questions, and review edits being made to the provider's submitted dataset. Following the meetings, edits to the data were made final based on the information agreed upon. The reason for making each edit to the data was documented in case issues or questions arose in the future.
- 3<sup>rd</sup> Party Verification – A 3<sup>rd</sup> party, Mapping & Planning Services (M&PS), is used to do provide an independent review and a report on the status of each provider's data. These reports summarize the data collected and provide a second review of the verification steps listed above.

**Data Analysis** – In addition to the data verification steps, a complete summary of each provider's data and static broadband coverage maps are created for RI Commerce Corporation. These maps are used to analyze existing data availability and plan for future broadband development and outreach projects.

**Geodatabase Checks**– Once the data is processed and verified the database is checked prior to submittal to the NTIA. This process is comprised of several steps to ensure that the information in the geodatabase is as accurate and complete and possible.

- Visual Checks - These visual checks inspect the data to ensure completeness, accuracy, and engineering logic. The visual inspection process employs random sampling techniques to validate feature placement and attribution. The random sampling is performed in accordance with ANSI standards for attribute inspection.
- Automated Checks – These checks are performed on 100% of the data. ESRI's Production Line Tool Set (PLTS) and the NTIA's QC toolbox are utilized for the automated check of the data. PLTS check for both schema and logical errors in the data. The following checks are performed on the data.
  - Geodatabase Format - Verify that the geodatabase's name and feature classes are correct per the corresponding BBRI data model and NOFA requirements.
  - Coordinate System Errors - Check for proper projection definition.
  - Validity Checks - Verify the attribution fields in the tables and field values fall within the domain specified in the geodatabase.
  - Duplicate Item Values - Verify the uniqueness of attribute values within a user-specified item (such as Feature IDs).
  - Invalid Item Values - Checks for invalid codes using discrete values and ranges defined in the appropriate domain tables.
  - Spatial Logic Checks - Checks the geodatabase to validate minimum size polygons, minimum length lines, and dangles in line feature classes.

- If the geodatabase has passed all tests listed above, and has met the acceptance criteria, the dataset is considered passed and can be processed for delivery to RI Commerce Corporation and the NTIA. If the geodatabase fails any test and does not meet acceptance criteria, the data is considered failed and will be returned with error reports to the data processing team for correction. Additional follow-up with the providers may be necessary to correct the issue(s). Once edits are completed or exceptions are documented, the geodatabase will be returned to the QC team for an additional sequence of all QC procedures. This process will be repeated until all tests have received a passing status or exceptions have been documented.