

**OFFICIAL OCTOBER 2011 UPDATE SUBMISSION TO
THE NATIONAL TELECOMMUNICATIONS AND INFORMATION
ADMINISTRATION UNDER THE
STATE BROADBAND INITIATIVE GRANT PROGRAM FOR THE
COMMONWEALTH OF PUERTO RICO**



October 1, 2011

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PUERTO RICO COVER LETTER

October 1, 2011

Ms. Anne W. Neville
SBI Grant Program Director
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW Room 4716
Washington, DC 20230

Dear Ms. Neville:

Connected Nation is pleased to present this submission on behalf of the Designated Entity, the Puerto Rico Office of the Chief Information Officer, and the Commonwealth of Puerto Rico's State Broadband Initiative (SBI) Grant Program, known as Connect Puerto Rico.

These artifacts should be found to be compliant with the October 1, 2011, deadline for the semi-annual data update and in accordance with the terms of the July 1, 2009, Notice of Funds Availability (NOFA) and all subsequent clarifications pertaining to delivery of Territory-Level Mapping of Broadband Service Availability. This packet includes:

Inventory of Deliverables, Connect Puerto Rico: October 1, 2011

<u>NOFA Requirement</u>	<u>Data Transfer Model</u>	<u>Data Description</u>
Appendix A: 1(a)(i)	BB_Service_CensusBlock	Broadband Service Availability of Facilities-Based Providers in Census Blocks of No Greater Than Two Square Miles in Area
Appendix A: 1(a)(ii)	BB_Service_RoadSegment	Broadband Service Availability of Facilities-Based Providers by Road Segment in Census Blocks Larger in Area Than Two Square Miles
Appendix A: 1(b)	BB_Service_Wireless	Broadband Service Availability of Wireless Services Not Provided to a Specific Address
Appendix A: 3(b)	BB_ConnectionPoint_MiddleMile	Broadband Service Infrastructure Middle-Mile and Backbone Interconnection Points
Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing
Appendix A: 4	n/a	Community Anchor Institutions-Narratives

VII.A.1(a)	n/a	Accuracy and Verification Report
n/a	DataPackage.xlsx	Worksheets of Contact Information, Record Count, and Provider Summary Table
n/a	n/a	List of Changes and Corrections to the Dataset
n/a	n/a	Non-Participating Provider Narratives
n/a	n/a	Broadband Provider Roster and Participation Status

In addition, this data update submission should be found to be compliant with the additional program requirements instituted by the National Telecommunications and Information Administration since the time of the April 2011 SBI data submission for the Connect Puerto Rico program. Specifically, these new requirements are:

SBI Data Transfer Model

The submission of the broadband dataset for October 1, 2011, is contained within the SBI Data Transfer Model as released on the Grantee Workspace on June 30, 2011. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information on each provider as possible.

Additional Submission Guidance

This submission also includes a list of changes and corrections made to the dataset between the April 2011 submission and the October 2011 submission. This represents a summary of why data displays and/or supplied speeds, etc. are different from the previous submission. Changes can include upgrades to infrastructure to allow for higher throughput speeds for customers, an expansion of the service area (e.g. additional fixed wireless towers, recently activated DSLAMs, etc.), or a new provider in the marketplace. Corrections can include revisions to speed tier information that was previously reported incorrectly or the addition of a previously existing provider that has not yet been submitted in a semi-annual dataset.

This October 2011 semi-annual data update under the State Broadband Initiative Grant Program continues to demonstrate our dedication to implementing the joint purposes of the Recovery Act and the Broadband Data Improvement Act (BDIA) by gathering comprehensive and accurate state-level broadband mapping data, developing state-level broadband maps, aiding in the development and maintenance of the National Broadband Map, and undertaking statewide initiatives for broadband planning.

Broadband Service Availability — Provider Outreach and Verification

This data update submission under the SBI program includes datasets for approximately 88.89 percent of the Puerto Rico provider community, or 16 of 18 total providers. There are 15 participating providers and 1 additional non-participating provider whose estimated coverage areas

have been submitted. Of the 15 participating providers, 9 supplied an update to their network or coverage area(s), while 6 have reported no change. A complete roster by provider depicting participation status and contact record is contained herein. The 2 providers that are not represented in the attached datasets were non-responsive to multiple contact attempts.

As the aforementioned roster and attached methodology documentation will attest, it is the collective opinion of the Connect Puerto Rico principals that all commercially reasonable efforts were made to account for 100 percent of the known Puerto Rico broadband provider community, pursuant to this semi-annual data update submission.

Connect Puerto Rico has also continued to perform broadband verification activities through several means. In addition to confirmation of service area(s) by each provider, Connect Puerto Rico conducts field validation efforts. To date, 12 (66.67 percent) providers have been validated through field verification activities. Additional details on verification activities are contained within the Field Validation Methodology.

The Connect Puerto Rico website, www.connectpr.org, continues to serve a prominent role in the outreach and data collection effort. This program asset provides a way for the general public to participate in the process by offering interactive tools for users to test their connection speed, submit broadband inquiries, or contact a program representative.

As an indicator of stakeholder penetration, the Connect Puerto Rico website encountered 5,419 unique visits during this reporting period, which includes 1,289 visits to the English website and 4,130 visits to the Spanish website (9,078 total to date for the life of the grant awarded on December 20, 2009, which includes 3,984 to the English website and 5,094 to the Spanish website). Additionally, this pronounced Web activity netted 38 broadband inquiries over this same reporting period (62 grant inception to date). The website also provides the BroadbandStat application, which allows the consumer to confirm or dispute the coverage represented on the broadband inventory map. These consumer-initiated actions are facilitated through the Connect Puerto Rico website and the Connect Puerto Rico interactive mapping tool (BroadbandStat) that offer the citizens the vehicles to provide information regarding availability in their respective service area, either in affirmation or contest of the reported data represented in the Connect Puerto Rico mapping artifacts. Since the initial data collection and release of corresponding maps, feedback in the form of broadband inquiries has allowed Connected Nation to identify additional areas that are in need of field validation, which is scheduled as soon as possible.

Community Anchor Institutions

Connect Puerto Rico has established an ongoing mechanism for gathering data on the location and broadband connectivity of Community Anchor Institutions (CAI), in accordance with the data requirements of the SBI NOFA Technical Appendix.

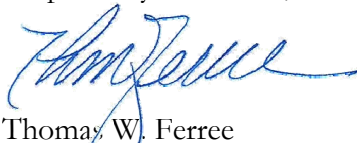
In conjunction with the Puerto Rico Office of the Chief Information Officer, outreach was conducted during this data update reporting period by Connect Puerto Rico to continue

identification of existing, centralized sources for CAI connectivity data. Additionally, a CAI survey continues to be made available for all institutions on the Connect Puerto Rico website. During this reporting period Connect Puerto Rico has continued developing relationships with territory-wide associations to promote the importance of broadband connectivity at anchor institutions and participation in this data collection process. Connect Puerto Rico will continue to build upon these relationships over the coming months and utilize its contacts throughout the territory to collect data and raise awareness of this project.

Connect Puerto Rico is beginning to coordinate our outreach through the newly formed Puerto Rico Broadband Task Force and through the distribution of press releases to local island newspapers. From our work in Puerto Rico, as well as other states, we recognize the great value of this data to future collaboration efforts within the commonwealth as well as its value to the National Broadband Map. We plan to continue to bring best practices to the Connect Puerto Rico efforts, along with an investment of both human and technical resources required to reach our goal of increasing the data that is secured and reported as part of this process.#

The Connect Puerto Rico program exists to improve data on the deployment and adoption of broadband services and to assist in the extension of broadband technology across all regions of the Commonwealth of Puerto Rico, as well as the United States through contribution to the National Broadband Map. We look forward to the continuing work ahead.

Respectfully submitted,



Thomas W. Ferree
Chief Operating Officer
Connected Nation, Inc.

cc: Juan Eugenio Rodriguez de Hostos, CIO
Government of Puerto Rico

DATA ACQUISITION: PUERTO RICO COMMUNITY ANCHOR INSTITUTIONS METHODOLOGY

In this fourth reporting period of the SBI, Connect Puerto Rico, working in close coordination with the Puerto Rico Office of the Chief Information Officer (OCIO), has established an ongoing mechanism for gathering data on the location and broadband connectivity of Community Anchor Institutions (CAI), in accordance with the data requirements of the SBI NOFA Technical Appendix. During this reporting period Connect Puerto Rico has continued to focus efforts on conducting outreach and raising awareness of this important project.

Connect Puerto Rico has continued to identify and process CAI data obtained through an ongoing territory-wide outreach campaign. Physical address information continues to be augmented through manual sourcing and geocoded by Connect Puerto Rico.

Connect Puerto Rico continues to utilize a customized online survey hosted through SurveyMonkey in both Spanish and English, with a landing page on the Connect Puerto Rico website that was developed during the first reporting period. This survey, in combination with a customized data-gathering spreadsheet, was distributed to a targeted list of CAI throughout the island. Connect Puerto Rico will continue to use these data-gathering tools for future targeted outreach efforts throughout the coming months leading up to the next reporting period. These materials are customized to fit the CAI categories as defined in the SBDD NOFA.

The survey can be accessed at this link in both English and Spanish:

http://connectpr.org/mapa/recopilacion_de_datos_de_instituciones_comunitarias_ancla.php

During this reporting period Connect Puerto Rico conducted research, specifically within the education sector, to identify existing, centralized sources for CAI connectivity data. Connect Puerto Rico made contact with numerous contacts across the island across all CAI sectors but was unable to locate any additional centralized sources for CAI data.

In tandem with these efforts to identify existing data, Connect Puerto Rico continues to identify key CAI contacts in an effort to distribute and promote the online survey and raise awareness of the importance of CAI broadband connectivity. Connect Puerto Rico is establishing relationships with key CAI associations that are participating in the Puerto Rico Broadband Task Force and will continue to utilize the contacts of these associations leading up to the April 2012 submission period. As part of this outreach Connect Puerto Rico is specifically working with key healthcare contacts on the island to distribute a customized joint survey that will target healthcare facilities. This survey will be released within the coming months, and data will be reported for the April 2012 submission.

Connect Puerto Rico has an ongoing mission to educate CAI throughout the territory on the importance of participating in the project. Participation by these institutions will raise awareness about the importance of broadband connectivity and the need to report the requested data for inclusion on the National Broadband Map. Connect Puerto Rico will continue to build off the relationships that are already being developed through the work of the Puerto Rico Broadband Task

Force and work with the OCIO to release a targeted CAI newsletter to assist with outreach during the Q42011. Additionally Connect Puerto Rico and the OCIO have made plans to target outreach to small island newspapers with a CAI press release that would promote the value of providing CAI data for this project.

The greatest challenge with collecting this data continues to be the difficulty in securing CAI broadband connectivity data. Connect Puerto Rico is overcoming this challenge through new relationships that are being formed and our work with the OCIO and the Puerto Rico Broadband Task Force. Connect Puerto Rico expects noted progress to occur over the coming months leading up to the April 2012 submission.

A CAI summary of all processed and submitted data is provided below:

CAI Type	Total	Physical Address	Lat/Long	Technology of Transmission	Download Speed	Upload Speed
K-12	1,992	1,992	1,687	1,501	1	1
Libraries	154	154	153	3	2	2
Healthcare	621	620	139	0	0	0
Public Safety	279	278	277	21	11	11
Higher Ed Institutions	549	549	88	21	16	16
Other Government	6	6	1	0	0	0
Other Non-Government	1,508	1,448	979	8	5	5
Total	5,109	5,047	3,324	1,554	35	35

SBI DATA SUBMISSION METHODOLOGY

The submission of the broadband dataset for October 1, 2011, is contained within the SBI Data Transfer Model and additional components as released on the Grantee Workspace on June 30, 2011. Connected Nation has reviewed all literature that relates to the release and use of this data transfer model and recognizes that it does not replace or dictate how data is stored, processed, or displayed for the territory, as it is meant primarily as a means to transfer the broadband data from all states and territories and populate the National Broadband Map in a seamless fashion. Guidance from the Technical Mapping Guide, as released on the Grantee Workspace on March 24, 2011, was also followed to ensure the completeness and validity of the submission through completion steps and checklists, completing the DataPackage spreadsheet, uploading broadband datasets into the Data Transfer Model, and checking the dataset using the SBDD_CheckSubmission receipt process.

As part of the ongoing review and analysis process, NTIA has requested further information in the submission of the DataPackage spreadsheet. In addition to the information on providers whose coverage and accompanying attributes are submitted in the SBI Data Transfer Model, information on other providers that are considered to be non-viable is also included in the DataPackage. Providers deemed non-viable that have been excluded from continued outreach may have been eliminated for reasons such as (i) the company offers Internet service but at speeds below the

current definition of broadband; (ii) the company was listed in advertisements as a broadband provider, but is actually a network solution or consulting firm, etc.; (iii) the company may build or install network infrastructure, but does not actually provide the broadband service to consumers; and (iv) the company has gone out of business. The submitted DataPackage includes any relevant information that has been obtained through the course of due diligence and/or direct provider outreach, such as a Federal Registration Number (if applicable), the company's URL, the existence of an executed Nondisclosure Agreement, and brief notations regarding the status of the company.

In addition to the methodologies contained herein, as well as the DataPackage.xls containing contact information, the data dictionary, and a provider summary table, the following feature classes are submitted within the SBI Data Transfer Model for the Commonwealth of Puerto Rico.

Inventory of Deliverables, Connect Puerto Rico: October 1, 2011

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Appendix A: 1(a)(i)	BB_Service_CensusBlock	Broadband Service Availability of Facilities-Based Providers in Census Blocks of No Greater Than Two Square Miles in Area.
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Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing.

The provider data collected by Connected Nation on behalf of the Commonwealth of Puerto Rico have been formatted per the given specifications and uploaded into the appropriate feature classes of the SBI Data Transfer Model. Wireline availability is contained within census blocks and road segments, wireless availability is contained as polygons of coverage areas, and middle-mile connections and community anchor institutions are contained as point data. All speed data is contained at the census block, road segment, or wireless polygon level of availability. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information as possible.

Connected Nation has continued outreach to satellite providers on their availability, technology, and speed information, but granular coverage is not yet available. Submitted within the wireless feature class are the satellite companies providing service to Puerto Rico as a polygon of the territory

boundary. Efforts will continue to collect, process, or otherwise create more granular satellite data based on availability analyses and guidance received from NTIA.

PROVIDER CHANGES AND CORRECTIONS FOR OCTOBER 2011

As requested by the SBI Program Office, a listing of the changes and/or corrections to the datasets between the April 2011 and October 2011 submissions is included in this narrative. This information is presented in this section as well as in the Broadband Provider Log. Changes to the data include expansion of service area(s), activation of new wireless towers, and upgrades to the network to provide higher download speeds to consumers. Corrections to the dataset include the addition of previously existing providers whose coverage has never been submitted, revision of coverage or speed information that was incorrect, and any other items that were misrepresented in the April 2011 dataset.

Corrections

- Ayustar Corporation (fixed wireless): No prior participation. Provider supplied data for October 2011 submission.
- Critical Hub Networks (fixed wireless): No prior participation. Provider supplied data for October 2011 submission.
- Hughes Network Systems, LLC (satellite): Satellite data is being submitted and was not included in the April 2011 submission. While coverage is currently the entire territory boundary, work continues on having more granular data available.
- Liberty Global, Inc. (cable): Provider supplied corrections to previous dataset.
- Puerto Rico Cable Acquisition Company, Inc. (cable): Did not provide approval for April 2011 submission or October 2011 submission but will be included in the October 2011 submission.
- Puerto Rico Telephone Company Inc. (mobile wireless): Provider has not participated in past submissions but made data available for the October 2011 submission.

Changes and/or Corrections – Entirely New Dataset Submitted

- AT&T Mobility LLC (mobile wireless)
- Puerto Rico Telephone Company Inc. (DSL)
- Sprint Nextel Corporation (mobile wireless)
- T-Mobile USA, Inc. (mobile wireless)

PUERTO RICO FIELD VALIDATION METHODOLOGY

Connected Nation focused a portion of its time on specific validation processes such as:

- conducting random spectrum analysis studies throughout the territory using an Avcom PSA-37-XP spectrum analyzer;
- conducting mobile speed tests throughout the territory using an iPhone, Android (or other smart phone) as well as provider-specific aircards (Sprint 3G/4G, Clearwire et al);
- identifying pre-selected, provider-submitted wireless transmit tower sites and cross-referencing data about that tower against the Federal Communications Commission (FCC) databases such as Antenna Structure Registration and/or the Universal Licensing System;
- cross-referencing Federal Registration Number data against available FCC Form 477 data as well as the FCC **CO**mmission **RE**gistration **S**ystem (CORES);
- validating provider submitted data (for example: latitude/longitude) using a handheld Garmin eTrex Summit GPS unit or GPS enabled software such as Microsoft Streets and Trips;
- locating physical wire-line attributes (such as Remote terminals, CATV plant, etc.) and comparing them against provider submitted data; and
- conducting on-net and off-net speed tests using the FCC portal at <http://www.broadband.gov/qualitytest/about/> or using the Ookla Net Metrics enabled speed test utility located on each of Connected Nation's state-specific websites.

Additionally, Connected Nation cross-referenced numerous public documents in order to ensure that all known broadband providers were located and contacted. This included searching membership logs from the trade associations (WISPA, WCAI, PCIA, etc.), the Cable Television Fact Book, Public Utility Commission records, Public Service Commission records, Chamber of Commerce, etc.

To date, Connected Nation's staff conducted on-site validation tests in Puerto Rico on the following providers: Areonet Wireless; AT&T, Inc.; Choice Communications; Critical Hub Networks; Data@ccess; Liberty Cablevision of Puerto Rico Ltd.; Neptuno Media; OneLink; Puerto Rico Telephone Company; Sprint Nextel Corporation; T-Mobile; and Worldnet.

From program initiation through this reporting period, Connected Nation has completed in-the-field validation testing against 12 companies (out of a universe of 18 viable providers) totaling 66.67 percent within the Commonwealth of Puerto Rico.

Connected Nation has also continued to review provider datasets for accurate speed information, platform listings, and other intricacies that may fall outside of the standard SBI Data Transfer Model parameters. Any providers whose submitted coverage and attributes are anticipated to come into question have been further reviewed and confirmed; details on a case-by-case basis are presented below.

Choice Cable

Issue: Technology of transmission 40 with a maximum advertised download speed in tier 7, lower than expected value range for the technology.

Resolution: Provider representative confirmed that DOCSIS 3.0 is in use throughout their service area, including at the 12 Mbps download speed offering.

DATA SUBMISSION AND COVERAGE ESTIMATION OF NON-PARTICIPATING PROVIDER*San Juan Cable, LLC (d.b.a. OneLink)*

As part of its ongoing broadband mapping efforts, Connected Nation has developed a series of processes with the goal of submitting mapping data to NTIA for every known and qualifying broadband provider, regardless of whether the provider has chosen to support and participate in the SBDD mapping initiative.

The following narrative will discuss the recent data collection activities related to San Juan Cable, LLC (d.b.a. OneLink), a cable television and cable modem provider in the San Juan, Puerto Rico area, explaining how and where CN obtained publicly available data and the “on-the-ground” validation techniques that support the underlying data.

Background

CN staff members attended meetings in Puerto Rico from September 21-25, 2009, for a series of one-on-one provider meetings, which had been scheduled by Maria Pou, Special Assistant to the OCIO, to discuss the SBDD grant program. OneLink was scheduled to attend a meeting on September 24 at 10:00 a.m.; however, no one from the company arrived (nor did they notify Maria of their intent to cancel). Outreach efforts conducted from September 2009 through July 2011 has failed to motivate OneLink into either responding or participating in the mapping initiative.

The Issue

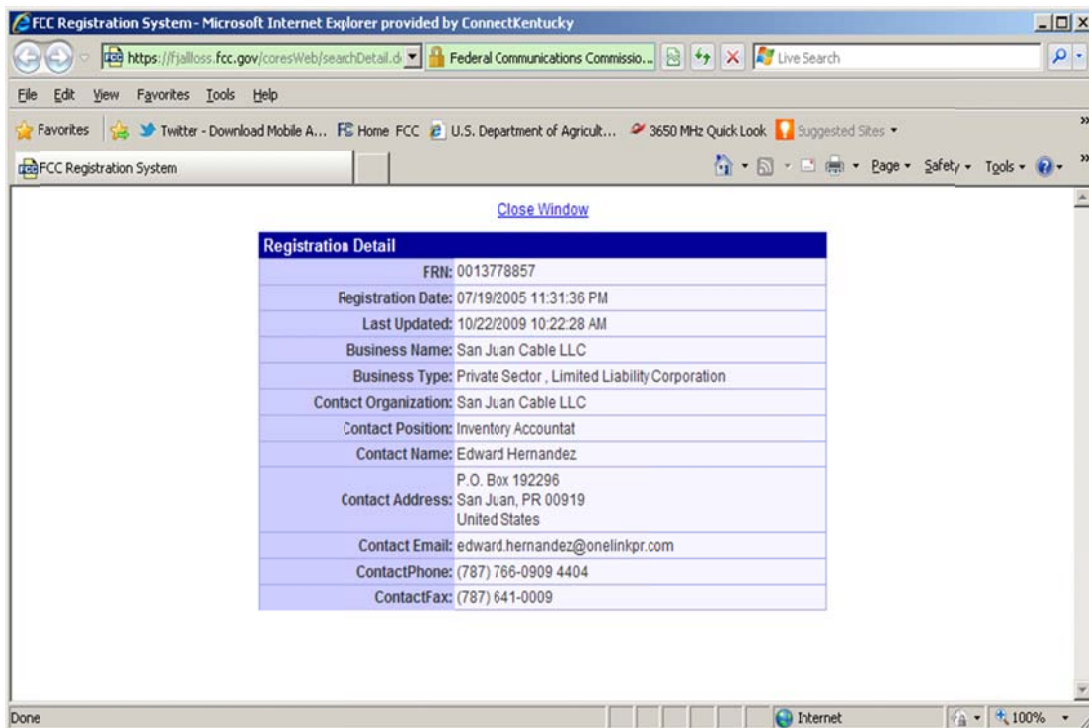
OneLink, by its lack of actions, indicated its unwillingness to participate in the island-wide mapping initiative. This surfaced as a problem during the first two stages of mapping; the lack of data for this provider will continue to threaten to skew future research and planning activities under the direction of the OCIO.

Identification of Provider’s Legal Name, d.b.a., and FRN

CN began building a file based on anecdotal information and, as time progressed, enriched the file with information obtained through the public domain. For example, CN received information from the Junta Reglamentadora de Telecomunicaciones de Puerto Rico (“JRT”) indicating that territory once operated by Adelphia was the same territory now operated by OneLink. A search for a Federal Registration Number (“FRN”) on the FCC **CO**mmission **RE**gistration **S**ystem (“CORES”) system did not yield results. It was later discovered that the entity of record with the JRT was, in fact, San

Juan Cable, LLC. A new search on the FCC CORES site yielded an FRN of 0013778857 (**Exhibit A**) and additional contact data. This was later confirmed when NTIA provided CN with a submission summary comparison against FCC Form 477 filers (**Exhibit B**).

Exhibit A: FRN



Close Window

Registration Detail	
FRN:	0013778857
Registration Date:	07/19/2005 11:31:36 PM
Last Updated:	10/22/2009 10:22:28 AM
Business Name:	San Juan Cable LLC
Business Type:	Private Sector, Limited Liability Corporation
Contact Organization:	San Juan Cable LLC
Contact Position:	Inventory Accountant
Contact Name:	Edward Hernandez
	P.O. Box 192296
Contact Address:	San Juan, PR 00919
	United States
Contact Email:	edward.hernandez@onellinkpr.com
Contact Phone:	(787) 766-0909 4404
Contact Fax:	(787) 641-0009

Exhibit B: SBBD Form 477 Reference

State Broadband Data and Development (SBDD) Program
Submission Summary
Date: 6/25/2010

Puerto Rico

Service Providers Submitted *

* Based on data from Census Block < 500 Miles, Address-Level, Street Segment, Residential Overview Files, Wireless Shape Files

State Broadband Data Submission				FCC Form 477 (June 2009)			
FRN	Company Name	Doing Business As	#	FRN	Company Name	Doing Business As	
4979233	AT&T Mobility LLC	AT&T Mobility LLC	1	000376632	AT&T Inc.	New Cingular Wireless Services, Inc.	
001731470	America Movil	Puerto Rico Telephone Company, Inc.	2	0004496774	AT&T Inc.	AT&T Corp.	
0017434911	Hughes Network Systems, LLC	Hughes Network Systems, LLC	3	0001131470	America Movil	Puerto Rico Telephone Company, Inc.	
0010593408	Liberty Global, Inc.	Liberty Cablevision of Puerto Rico Ltd.	4	001216633	America Movil	Telecomunicaciones de Puerto Rico, Inc.	
0003774593	Sprint Nextel Corporation	Sprint	5	0009431136	Centennial Communications Corp.	Centennial Communications Corp.	
			6	0016483073	Hughes Communications, Inc.	HNS License Sub, LLC	
			7	0010593408	Liberty Global, Inc.	Liberty Cablevision of Puerto Rico Ltd.	
			8	0012541458	Neptuno Media, Inc.	Neptuno Media	
			9	0003405953	Qwest Communications International Inc.	Qwest Communications Company, LLC	
			10	0013778857	San Juan Cable Holding, LLC	San Juan Cable LLC	
			11	0003774593	Sprint Nextel Corporation	Sprint Nextel Corporation	
			12	0005067457	StarBand Communications Inc.	StarBand Communications Inc.	
			13	0018547828	Telefonica Data Corp SA	Telefonica USA, Inc.	
			14	0018547855	Telefonica International Holding, BV	Telefonica Larga Distancia de Puerto Rico, Inc.	
			15	0018591826	Worldnet Telecommunications, Inc.	WORLDNET TELECOMMUNICATIONS	

Identification of Provider's Coverage Area

Connected Nation extracted the municipio boundaries from OneLink's publicly available website (**Exhibit C**) and used the company's published boundaries to create a GIS shapefile (**Exhibit D**) of the greatest advertised extent of OneLink's service area.

Exhibit C: Municipal Boundaries

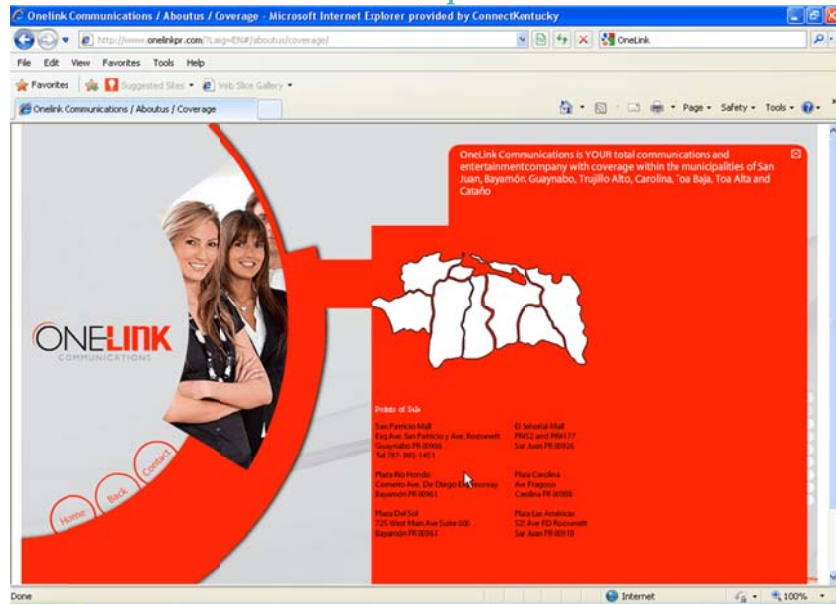
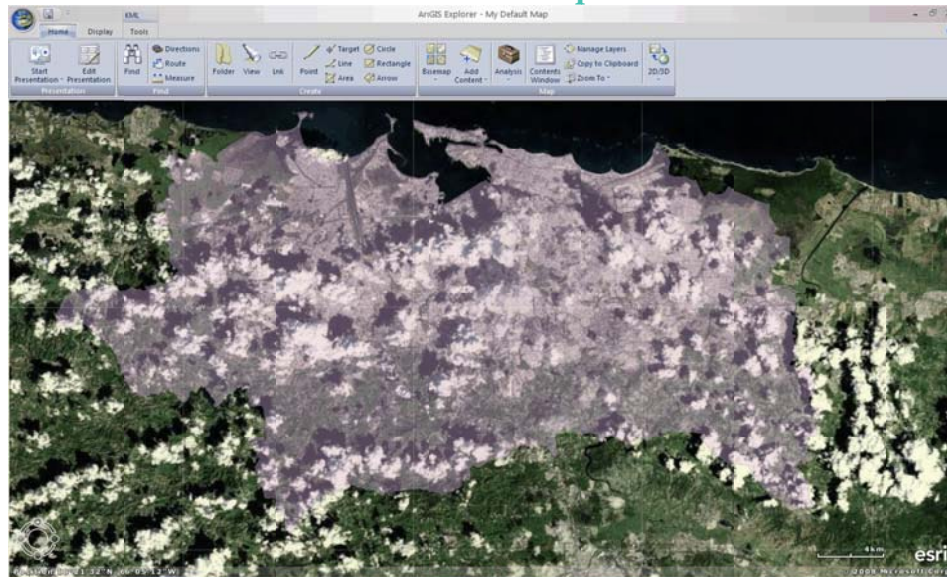
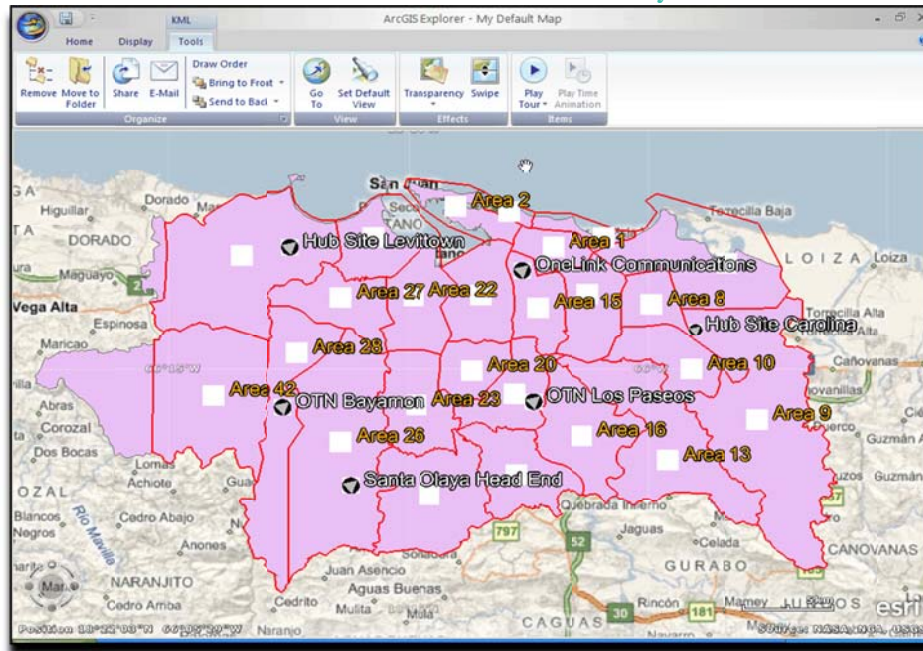


Exhibit D: GIS Shapefile



These polygons were then compared against *the only* data supplied by OneLink during the course of attempted communication (**Exhibit E**). The purple-shaded area was the CN coverage polygon extracted from OneLink’s website, and the red outlines illustrate the franchisee boundaries submitted by OneLink.

Exhibit E: OneLink Franchise Boundary Submission

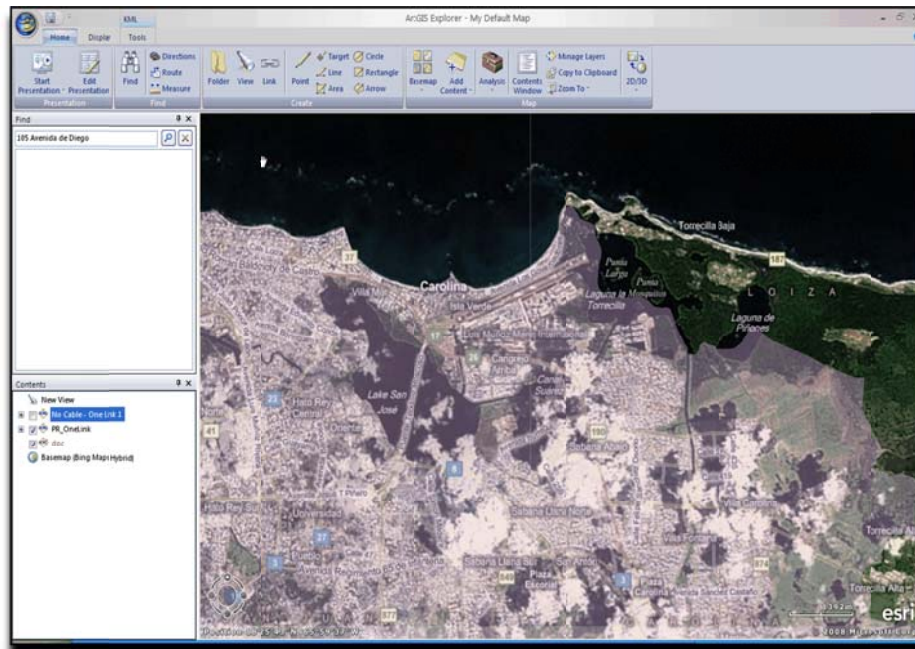


Using this combined coverage polygon as the basis for further investigation, Connected Nation set out on an exploratory “drive test” to determine where cable plant existed and estimate where cable modems likely existed in the greater San Juan area. During the period of February 7-11, 2011, Connected Nation deployed five staff members (all highly trained, former telecommunications operators) to conduct a thorough analysis of OneLink’s alleged coverage area.

Testing Techniques

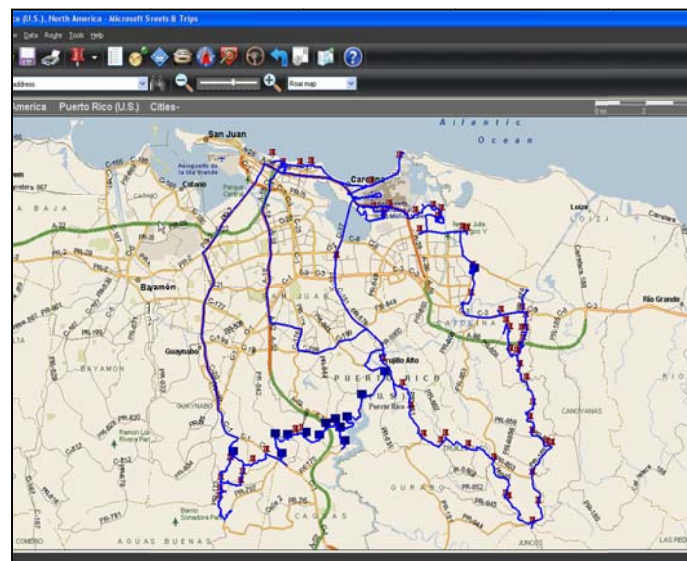
Specific quadrants (**Exhibit F**) were assigned to each of the validation teams on a daily basis. The goal was to drive through each of the areas and determine the existence (or lack thereof) of CATV plant – whether fiber or coaxial.

Exhibit F: Sample Quadrant



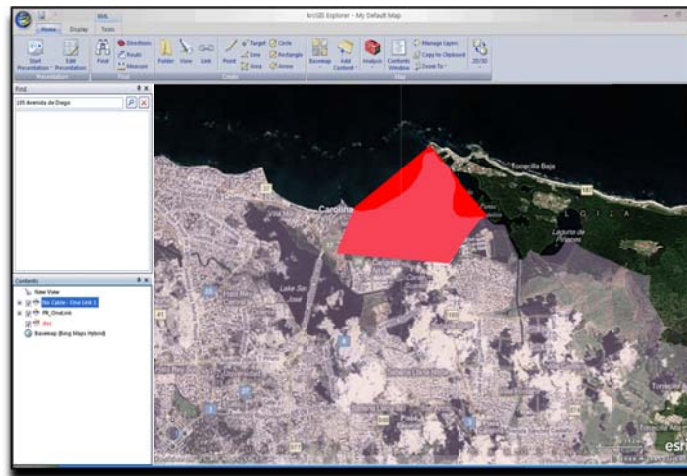
Test points were pre-selected and entered into Microsoft's *Streets & Trips* software (**Exhibit G**), which also created a GPS-enabled "trace route" of each day's drive testing activities. As cable plant was identified, markers were placed within *Streets & Trips*, pinpointing the areas where service was likely to exist. Connected Nation staff members then proceeded to stop at points along the way and conducted random interviews with residents within the area querying the actual availability of cable modem service.

Exhibit G: Test Point Locations



Based on the lack of visible or traceable cable plant, polygons were created in ArcGIS Explorer to specify the population areas where the Connected Nation staff believed coverage gaps existed. The illustration below (**Exhibit H**) represents one such gap area identified during the drive test.

Exhibit H: Coverage Gap Polygon



Visual identification of physical CATV plant (**Exhibit I**) was relatively easy and straightforward. The Connected Nation team members, many of whom were former CATV operators, found very little difficulty in identifying aerial (above ground) CATV plant or in locating plant that traveled below the earth's surface (underground plant) based simply on looking for specific cable routes.

Exhibit I: OneLink Service Truck



The images below demonstrates that the Connected Nation team could, in fact, locate aerial plant **(Exhibit J)** and identify CATV plant moving from a pole to an area where underground vaults or above-ground pedestals **(Exhibit K)** were easily traced and identified.

Exhibit J: Aerial Plant

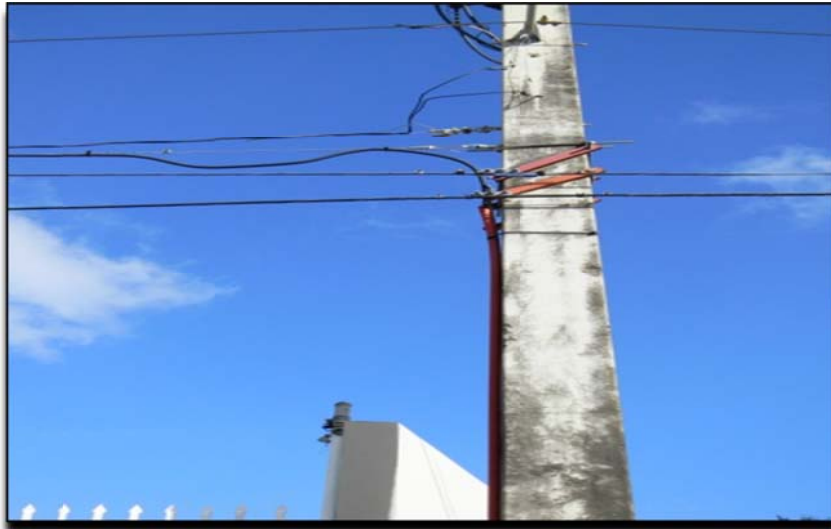


Exhibit K: Above Ground Pedestal

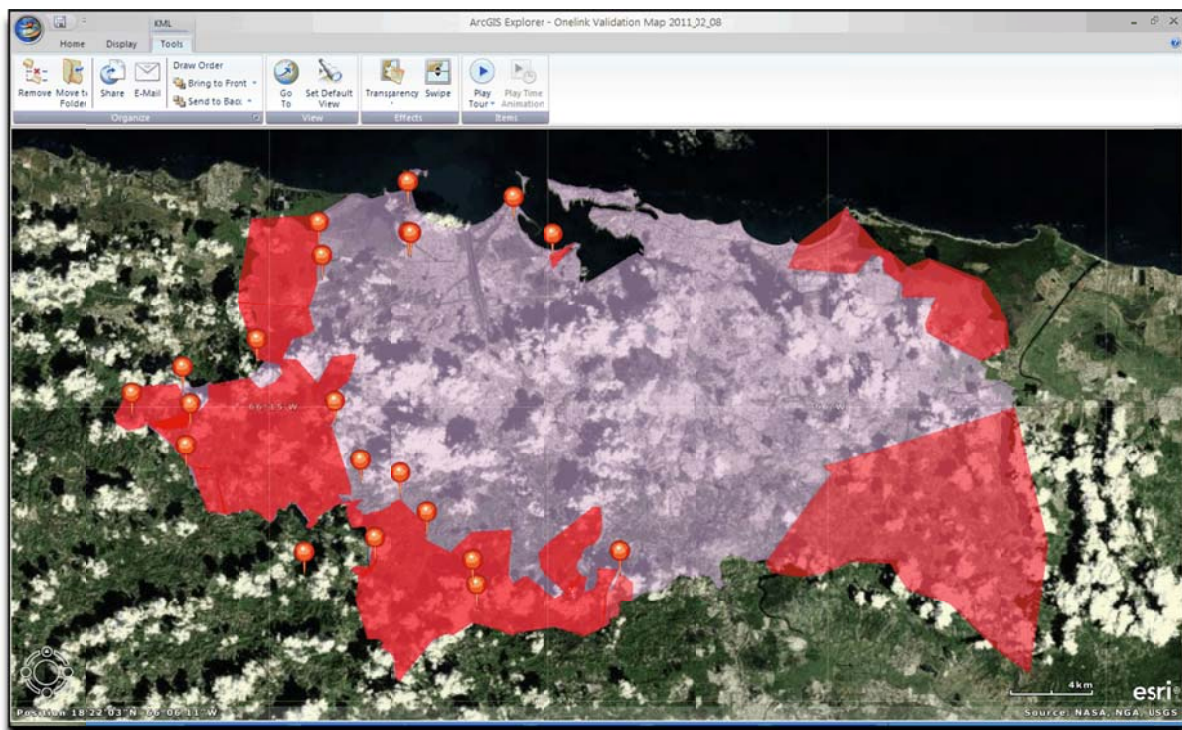


At the conclusion of this week-long exercise, Connected Nation had driven through several hundred miles of the OneLink franchise area, located above-ground and underground plant, visited with and surveyed numerous local residents, obtained collateral material from OneLink's local offices (to determine maximum advertised connection speeds), and created a polygon that illustrates the identified and likely coverage area of OneLink.

Results and Submission for October 2011

As a result of the collection of publicly available information and the on-the-ground validation efforts, Connected Nation is submitting on behalf of the Commonwealth of Puerto Rico, the cable modem broadband service area of OneLink. Without provider participation and support of the SBDD mapping initiative, CN has proceeded with developing a relevant and feasible methodology for collecting and validating the service area of a currently non-participating broadband provider. The image below (**Exhibit L**) shows the exact results of the validation efforts in terms of the revisions made to the advertised cable broadband availability in the San Juan area. Polygons in red demonstrate areas where the CN staff reasonably believes “gaps” exist in the franchise area. The remaining purple-shaded areas are included, along with full attributes, in the Puerto Rico broadband data submission for the October 1, 2011, deliverable to NTIA for the SBI grant program.

Exhibit L: Validation Results



Sample OneLink Cable Modem Collateral Material



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Tu Conexión al Mundo

Precio de \$50.00 mensual incluye: Internet 4 mega y Telefonía Digital ilimitada en Puerto Rico por 12 meses. A partir de esa fecha aplicará la tarifa vigente en ese momento. Velocidad máxima de "download" de Internet 4 mega es de hasta 4Mbps y velocidad máxima de "upload" de hasta 384 kbps. Servicio de Internet tiene un límite mensual de "download" de 40GB y cargos adicionales aplican al excederse de dicho límite. Precio no incluye alquiler de módem. Precio de alquiler de módem es \$5.49 mensual o puede comprarlo por \$99.99. Todas las ofertas requieren contrato de un año, con penalidad por cancelación. Clientes existentes que no estén suscritos al servicio de Internet podrán añadir Internet 4 mega por la tarifa mensual de \$35.00 con contrato nuevo de un año para todos sus servicios y clientes existentes que no estén suscritos al servicio de telefonía podrán añadir el servicio de Telefonía Digital ilimitada en Puerto Rico por la tarifa mensual de \$15.00 con contrato nuevo de un año para todos sus servicios. Clientes que ya estén suscritos a los servicios de Internet y/o telefonía bajo otras ofertas o tarifas no podrán acogerse a esta oferta para los servicios que ya reciben. Ofertas sólo aplican a cuentas residenciales. Otras restricciones aplican. No incluye llamadas de larga distancia, cargos reglamentarios ni impuestos aplicables. Otras ofertas y combinaciones disponibles. Instalación el mismo día requiere que infraestructura de One Link Communications esté disponible. Oferta termina el 21 de febrero de 2011.

ACCURACY AND VERIFICATION: PROVIDER VALIDATION METHODOLOGY

Broadband providers maintain their service area data in many different formats, all in varying levels of complexity and granularity. In order to ensure that the data required by the NTIA is standardized across all providers and that it is as accurate as possible, Connected Nation translates and formats the data that providers are able to supply into a GIS shapefile and produces maps for the provider to review. The resulting map(s) and review process allow for providers to see their service area in a geographic format – for some providers, this is the first time they have seen maps of their broadband service area. Having the mapped service area allows providers to quickly identify any issues that appear in the data representation, whether the issue is in the data translation into a GIS format or from the original data collection and submission. Often data is provided from various sources and through the review and revision process, local engineers who operate the networks and work in the field are able to ensure that the tabular data that has been submitted is accurate and represents the real-world network extent. Any issues in how the service area is represented on the map(s) are remedied by Connected Nation, whether they are additions, removal of service, or any other revisions. Revised maps of service area representations are sent to the provider for review and approval; Connected Nation will revise data and return maps as many times as necessary until the provider is in agreement that the map represents their service area as accurately as possible. Once the review process has been completed and final approval of the data is provided, the data is deemed ready for NTIA submission.

Once the data collection has been aggregated at a territory-wide level, static maps of territory-wide and municipality-level availability are produced and made publicly available. In addition, consumers can visit the interactive online tool, BroadbandStat, to create customized views of broadband service areas and analyze corresponding demographic information. Leveraging broadband service data on various platforms allows for public users, providers, and other stakeholders to review, scrutinize, and provide feedback on the represented data. This feedback becomes a validation method in itself as consumers submit inquiries to Connected Nation either affirming where service is not available or identifying areas where broadband service is shown on the map, but in actuality is not available. This allows for a follow-up to providers regarding revisions to the data as it is represented; it also allows for Connected Nation to identify locations where on-site visits may be necessary to complete field validation of available services. Public feedback on all forms of mapping products serves as a localized validation method for provider-supplied information and allows Connected Nation to resolve inaccuracies as they are identified to ensure that only the highest quality information is provided to stakeholders.

Estimates derived from provider-validated data indicate that approximately 14.01 percent of Puerto Rico¹ households do not have terrestrial fixed broadband service available, and approximately 0.35 percent of Puerto Rico households have neither mobile nor fixed broadband service available.²

¹ In accordance with NTIA's definition of available broadband service as specified in the SBI NOFA, this estimate includes both terrestrial fixed *and* mobile broadband service, if the service offers download speeds of at least 768 Kbps and upload speeds greater than 200 Kbps.

² Due to the nature of the SBI data collection methodology as defined by the NTIA and based on both census block geographic units and street segment data, the estimates of broadband availability derived from provider-validated data

Within rural areas of the territory, results derived from provider-validated data indicate that approximately 21.82 percent of rural Puerto Rico households do not have terrestrial fixed broadband service available, and approximately 0.48 percent³ of rural Puerto Rico households have neither mobile nor fixed broadband service available.⁴ Please note that the availability estimates presented are based on Census 2000 household information; these figures will be updated in the near future with Census 2010 household information.

WIRELESS METHODOLOGY

Broadband Service Availability in Provider's Service Area Wireless Services Not Provided to a Specific Address

Data solicited from a fixed wireless provider to create propagation models include, but are not limited to:

1. The name of the structure
2. Whether the transmitting device is operational or proposed
3. The maximum advertised downstream speed, the maximum advertised upstream speed
4. The typical downstream speed, the typical upstream speed (peak periods for both)
5. The frequency range of spectrum being used (as prescribed by NTIA)
6. The primary population center(s) being served (for geopolitical boundary reference)
7. The physical address of the transmit site (in the event latitude/longitude is unavailable from the provider this allows a quick reference point for geocoding)
8. Latitude in either Degrees, Minutes and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83)
9. Longitude in either Degrees, Minutes and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83)
10. Antenna pattern (e.g. omni-directional, 180°, 120°, 90°, etc.)
11. Azimuth of antenna (e.g. 360° with magnetic declination if known)
12. Approximate transmit radius (in feet, miles, or kilometers)
13. Polarity of transmit antenna (Vertical or Horizontal)
14. Transmit antenna gain (in dBi)
15. Line loss (applicable only to providers using coax, heliax, waveguide or other forms of cabling – excludes power-over-Ethernet devices)

may include an overstatement of the actual number of households with broadband availability. Under the census block-based data collection method, a provider will typically report broadband availability for an entire census block whether its network is present across the whole or only a subset of that census block. This potential overestimation at the census block level can be amplified as the data is aggregated across the entire state or territory.

³ See footnote 1.

⁴ See footnote 2.

16. Mechanical and/or Electrical beam tilt (if applicable)
17. Equipment Manufacturer (allows easy cross-reference against manufacturer's specification sheet)
18. Power output of the transmitting device (if unknown, FCC standards or manufacturer specifications are applied)
19. AMSL at base of tower site
20. Antenna centerline AGL (height of antenna above ground level measured at the centerline of the actual antenna)
21. Foliage factors (Evergreens/Deciduous and percent of ground cover)
22. Ground Clutter (primarily used in rural areas to account for foliage and in metropolitan areas to account for types and heights of buildings if known)
23. Average gain of receive antenna
24. Receive antenna is estimated at height above average terrain (HAAT) of 6.2 meters/20 feet
25. Federal Registration Numbers (if applicable) which may allow opportunities to cross-reference and/or obtain additional data from the Federal Communications Commission Universal Licensing System and the **CO**mmission **RE**gistration **S**ystem

Propagation modeling is an empirical mathematical formulation for the characterization of radio wave propagation as a function of frequency, distance, and other conditions. Propagation software(s) typically use the Irregular Terrain Model (also known as Longley-Rice) of radio propagation for frequencies between 20 MHz and 20 GHz. This model is based on electromagnetic theory and statistical analyses of the combination of terrain features and radio measurements, then predicting the median attenuation of a radio signal as a function of distance and the variability of the signal in time and in space. For metropolitan areas, the software can typically be adjusted to use the Okumura-Hata model which accounts for predicting the behavior of cellular transmissions in areas where buildings are the primary obstructions. The resulting product from either model depicts a graphical illustration of the theoretical propagation characteristics of a selected frequency range based on defined variables (receiver sensitivity of the home/mobile device, foliage factor, and digital elevation terrain input).

After converting propagation models into a geospatial format, additional processing is completed to remove the small pixels representing service present in the resulting dataset. These areas are initially created based on the parameters entered in the software from the provider equipment information, the underlying data parameters of elevation, hillshade, etc., and the limitations of the software itself to display a broadband service area as accurately as possible. Generally, these random pixel striations appear as a result of signal levels reaching the highest elevated points within the prescribed radius. Typically, while this pixilation anomaly shows legitimate areas where signals can be received, these highly elevated points may have exceedingly sparse populations or are entirely void of population. As a result, and congruent to the *Wireless Technology Methodologies and Business Logic* white paper submitted to NTIA on January 20, 2011, all independent pixels representing service that are less than 0.125 square miles in area have been removed from the geospatial representation of each wireless provider.

BROADBAND INQUIRIES METHODOLOGY

Connected Nation collects consumer feedback in the form of broadband inquiries (BBIs). These inquiries represent any type of communication received from the public regarding broadband service. Once BBIs are received across the commonwealth, this information is overlaid with the broadband availability information which was collected through the SBI program. This allows for a real-world comparison of the broadband landscape to the information received from broadband inquiries. Consumers submitting these inbound comments and/or inquiries are able to provide information regarding three categories: 1) residents who do not have broadband but want it; 2) residents who have broadband but want a different provider; and 3) residents who do not have broadband, but the broadband inventory maps indicate that they do.

BBIs are submitted frequently by consumers via the Connect Puerto Rico website. Inquiries often seek help to identify local broadband provider options, or to learn when a specific provider may be able to provide service to that consumer. Consumer comments also provide information which may help modify maps with actual service area information. The primary objectives of Connected Nation regarding these inquiries are 1) to improve the accuracy of the territory maps with submitted consumer information and follow-up field research; 2) to provide broadband options to consumers through cooperation with mapped providers and by facilitating new broadband service options; and 3) to map and analyze information from consumers about areas of unmet broadband demand and alternatives to currently mapped services.

New BBIs are assigned to either the GIS department or the Engineering & Technical Services (ETS) team depending on the category entered by the consumer on the website submission form. The GIS or ETS team members respond to each inquiry according to the information requested by the consumer. Many BBIs can be resolved through desktop research; however, if a BBI requires research in the field, the assigned ETS team member conducts such research when performing field validations in the area of the inquiry, or at other such time as is practical and appropriate. GIS and ETS team members respond to and conclude BBIs via telephone contact and/or e-mail communication.

The broadband inquiry process has been implemented in each of the Connected Nation state programs with successful results. Altogether Connected Nation has received over 17,000 broadband inquiries since 2007, allowing the state programs to evaluate each inquiry for broadband demand and data verification. These inquiries are continuously examined against current broadband availability, updated every six months, to determine if previously unserved households have been expanded to and can now receive broadband at their residence. This database of broadband inquiries has also allowed the Connected Nation state programs to aggregate demand in concentrated areas to show providers the exact locations where the population has made it clear that they would purchase broadband if it was made available to them. Providers in the states and the territory of Puerto Rico have responded to this process and have expanded to areas knowing that their investment will be worthwhile. Data verification methods have also proven successful, as the state programs have been able to show those inquiries that indicate the broadband service areas are misrepresented on the map to providers, who then verify where service cannot reach in regard to that residence(s). The

broadband coverage in these states has been altered to create a more accurate map based on the inquiries submitted by the public.

During this reporting period, the Connect Puerto Rico project has received a total of 38 inquiries (62 grant inception to date). As more inquiries are submitted to Connect Puerto Rico, a more thorough validation of the broadband landscape can be performed, while also allowing providers to see which areas have a high demand for broadband adoption.

BROADBANDSTAT METHODOLOGY

BroadbandStat is an online, interactive mapping tool for viewing, analyzing, and validating broadband data. Developed through a partnership with ESRI, the market leader in geographic information system (GIS) software, BroadbandStat is a multi-functional, user-friendly way for local leaders, policymakers, consumers, and technology providers to devise a plan for the expansion and adoption of broadband.

First and foremost, BroadbandStat allows consumers to locate their residence and identify providers that offer broadband Internet service to that location. The interactive platform allows for users to build and evaluate broadband expansion scenarios using a wealth of data, including education and population demographics, broadband availability, and research about the barriers to adoption.

New functionality in BroadbandStat allows the consumer to provide feedback on the broadband data displayed on the interactive map. Through the collection of this feedback, a visual demand for broadband is presented. This visualization allows the Connected Nation state programs the ability to validate the broadband availability for accuracy. If residents within a region state they are without broadband, but the interactive map shows otherwise, this allows Connected Nation to approach the providers within that area in an effort to trim down their coverage to more accurately represent real-world availability on the ground.

The Connect Puerto Rico project launched BroadbandStat on September 17, 2010, and has received a total of 1,336 visits to date (846 to the English website and 490 to the Spanish website), of which 849 occurred this reporting period (477 to the English website and 372 to the Spanish website).

SPEED TEST METHODOLOGY

The 478 speed tests that are represented in the Connect Puerto Rico Speed Test Report during this reporting period (876 grant inception to date) are the result of a partnership between Connected Nation and Ookla Net Metrics. Utilizing this relationship increases the level of confidence in the data being collected and provides for a far greater sample size than could be collected by a single testing site.

Ookla owns and operates Speedtest.net, as well as develops and deploys speed tests, such as the Connect Puerto Rico speed test website, for partners around the world. This network of sites that is developed and run on its testing technology provides Ookla with a vast dataset that, due to the variability of geographic information collected across the varying speed test sites, is geocoded utilizing Geo-IP technology. This technology allows for tests to be geocoded to points of aggregation, typically larger nodes across provider networks. While there are hundreds of thousands of tests that have been conducted, the level of aggregation is only sufficient for municipality-level detail due to the test results being located at these larger nodes and not at an absolute location for each speed test.

In an effort to validate broadband data from the Connect Puerto Rico project, speed test information is collected throughout the territory. Speed tests provide speed information on the path taken through all networks (a provider's network as well as additional networks) a local machine must connect to in order to reach the host test. The benefit of this collection of speed information is two-tiered. First, it allows for a comprehensive dataset of speeds, while also providing Connect Puerto Rico with the information on where broadband services are available. Second, unlike theoretical speed information which was received through the data collection process, the use of speed tests provide real-world information on the speeds that currently exist within the Commonwealth of Puerto Rico.



Broadband Provider Log

Complete	16
Non-Responsive/Refused	3
In Progress	0
Count of Datasets by Status	19
Total Unique Providers Represented	18

Provider Name	Platform	Status	NDA Execution Date	Notes
AT&T Mobility LLC	Mobile Wireless	Data Added to Statewide Inventory	12/16/2009	[SEP-15-11 Jess Cary] Changes and/or Corrections: possible service expansion or corrections to previous dataset: entirely new dataset provided for October 2011 submission.
Liberty Global, Inc.	Cable	Data Added to Statewide Inventory	10/19/2009	[SEP-15-11 Jess Cary] Corrections: Provider supplied corrections to previous dataset.
Puerto Rico Telephone Company Inc.	Mobile Wireless	Data Added to Statewide Inventory	4/23/2010	[SEP-15-11 Jess Cary] Correction: Provider has not participated in past submissions but made data available for Oct 2011 submission.
Puerto Rico Telephone Company Inc.	DSL	Data Added to Statewide Inventory	4/23/2010	[SEP-15-11 Jess Cary] Changes and/or Corrections: possible service expansion or corrections to previous dataset: entirely new dataset provided for October 2011 submission.
Sprint Nextel Corporation	Mobile Wireless	Data Added to Statewide Inventory	1/14/2010	[SEP-15-11 Jess Cary] Changes and/or Corrections: possible service expansion or corrections to previous dataset: entirely new dataset provided for October 2011 submission.
T-Mobile USA, Inc.	Mobile Wireless	Data Added to Statewide Inventory	1/8/2010	[SEP-15-11 Jess Cary] Changes and/or Corrections: possible service expansion or corrections to previous dataset: entirely new dataset provided for October 2011 submission.
Aeronet Wireless Broadband Corp.	Backhaul	Backhaul Provider Only Processing Complete		
Sprint Nextel Corporation	Backhaul	Backhaul Provider Only Processing Complete	1/14/2010	
San Juan Cable Holding, LLC, OneLink Communications	Cable	Estimated Coverage Submitted for Non-Participating Provider		[SEP-16-11 Jess Cary] Provider is still non-responsive to participation outreach and the same coverage as April 2011 is being submitted again.
Ayustar Corporation	Fixed Wireless	Approval for Update Not Received – Data Still Submitted	7/12/2010	[SEP-15-11 Jess Cary] Corrections: No prior participation. Provider supplied data for Oct 2011 submission.
Critical Hub Networks	Fixed Wireless	Approval for Update Not Received – Data Still Submitted	9/30/2010	[SEP-15-11 Jess Cary] Corrections: No prior participation. Provider supplied data for Oct 2011 submission.
Puerto Rico Cable Acquisition Company, Inc.	Cable	Approval for Update Not Received – Data Still Submitted	9/27/2010	[SEP-15-11 Jess Cary] Correction: Did not provide approval for April 2011 submission or Oct 2011 submission but will be included in the Oct 2011 submission.
Critical Hub Networks	Backhaul	No Update to Provide	9/30/2010	
Data@ccss Communications	Backhaul	No Update to Provide	9/29/2009	
Hughes Network Systems, LLC	Satellite	No Update to Provide	2/5/2010	[SEP-16-11 Jess Cary] Correction: Satellite data is being submitted and was not included in the April 2011 submission. While coverage is currently the entire territory boundary, work continues on having more granular data available.
MCI Communications Services, Inc.	Backhaul	No Update to Provide	12/14/2009	
Neptuno Media, Inc.	Backhaul	No Update to Provide	4/29/2010	
PREPA Networks Corp	Backhaul	No Update to Provide	4/21/2010	
Worldnet Telecommunications Inc.	Backhaul	No Update to Provide	4/19/2010	
Aeronet Wireless Broadband Corp.	Fixed Wireless	Non-Responsive to Multiple Attempts		In addition to contact attempts made between July 1, 2010 and February 21, 2011, 5 additional attempts were made this period.
Orizon Wireless Corp	Backhaul	Non-Responsive to Multiple Attempts	1/28/2011	In addition to contact attempts made between July 1, 2010 and February 17, 2011, 3 additional attempts were made this period.
Telefonica International Holding, BV	Backhaul	Non-Responsive to Multiple Attempts		In addition to contact attempts made between July 1, 2010 and February 17, 2011, 4 additional attempts were made this period.