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Methodology Guidance

The white paper should:

1. Effectively describe the deliverable data;
2. Effectively describe the data collection process;
3. Effectively describe the verification process.

1. Data Description Provide a general description / summary of data submission including file names and a brief description of each dataset.

Contents of the data submission folder:

1. Data Transfer Model (HI_SBDD_2013_10_01.gdb)

Description: This data submission follows FCC/NTIA guidelines including Metadata for the project.

The SBDD File Geodatabase contains the following layers:

BB_Service_Address	465 Records
BB_Service_Road_Segment	6,091 Records
BB_Service_CensusBlock	16,183 Records
BB_Service_CAInstitutions	1,306 Records
BB_Service_Wireless	22 Records
BB_Service_Overview	0 Records
BB_ConnectionPoint_LastMile	119 Records
BB_ConnectionPoint_MiddleMile	2 Records

2. Data Package Report (HI_DataPackage_2013_10_01.xlsx)

Description: This is the NTIA "datapackage.xls" spreadsheet that is used to document the data submission.

3. Data Submission Receipt (HI_2013_10_01.txt)

Description: This is the submission receipt from the NTIA receipt tool.

4. Methodology Paper (HI_Methodology_2013_10_01.pdf)

Description: This is the methodology guidance document requested by NTIA to document the data submission. Page 1 of 6 (this document)

5. ReadMe.txt (HI_ReadMe_2013_10_01.pdf)

Description: This is the ReadMe that contains the explanation of any failures or warnings that we received in running the submission script.

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6. Changes and Corrections (HI_Changes_and_Corrections_2013_10_01.pdf)

Description: This is the NTIA “Changes and Corrections” document that is used to describe the changes and corrections to the data submission.

2. Provider Participation Provide a summary of provider cooperation (datapackage.xls).

The project team has been collecting and processing broadband data from thirteen (13) providers (AT&T Mobility LLC , Hawaiian Telcom Communications, Inc., TW Telecom Holdings , Oceanic Time Warner Cable, Clearwire Corp., Sprint Nextel , Verizon Communications, Inc., MOBI PCS, Sandwich Isles Communications, Inc ,T-Mobile USA, Inc., BlueStreak Broadband, Inc., Skycaster and Level 3 Communications). These thirteen (13) providers account for the overwhelming majority of actual broadband subscribers in Hawaii. The project team has identified 3 additional providers which would bring the total providers to 16. The following providers have been identified as:

-Pacific Light Net, Inc. dba/Wavecom Solutions, which has now merged with Hawaiian Telcom, VIASAT dba/ Big Island Satellite, and Starband but the team has not yet received from these providers.

Hawaii Department of Commerce and Consumer Affairs (“DCCA”) has encountered challenges in fully executing NDAs with providers and subcontracts under the grant. This has affected the signing of certain NDAs with data providers as well as subcontracts dealing with data processing and delivery. Subsequently, throughout this term, DCCA has experienced some delays in obtaining necessary information. However, to-date DCCA has been able to process data representing the overwhelming majority of broadband providers in the State of Hawaii. – DCCA continues to overcome these challenges through cooperation between the parties and improving process expediency. Eleven (11) of the twelve (12) Providers identified have executed confidentiality agreements for data sharing.

Hawaiian Telcom Communications, Inc. and Oceanic Time Warner Cable: Last-mile and middle-mile facility capacity and more specifically backhaul from the facilities are deemed proprietary. Further, providers maintain that they do not have information documented in a form that they would be able to easily provide. No information regarding this has been shared to-date by these providers. DCCA is working to compel these Providers to furnish more detailed information.

In December of 2012, Hawaiian Telcom, Inc. completed the acquisition of all of the capital stock of Wavecom Solutions Corporation (Wavecom Solutions), an information and communications technology company and facilities-based competitive local exchange carrier headquartered in Honolulu. Wavecom Solutions provides voice, data and converged services to small and medium-sized business and carrier customers through a six-island subsea and terrestrial fiber network. Hawaiian Telcom has started to merger services and will not provide no new data until all services are merged.

In 2013, BlueStreak Broadband changed their name to Nocsta Corporation.

Big Island Saellite, Starband, Skycaster, Sandwich Isle communications, MOBI PCS TW Telecom and Hawaiian Telcom had no new data updates for the Fall 2013 data delivery. MOBI PCS’s broadband information has not changed and likely will not until their deployment of 4G services later in 2013. Three satellites broadband providers were identify but only one provider, Skycaster, provided data. Additional data obtained via provider websites are as follows:

- Hughes (aka Hughes Net) - is not offered in Hawaii.

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- VIASAT –does offer broadband through a local company called “Big Island Satellite”. They offer service for Maui County (Maui, Lanai, and Molokai) and Oahu. Their maximum advertised speeds are up to 12Mbps Downstream/3Mbps Upstream. Most of their business is in Hawaii County.
- StarBand –advertises 0.5Mbps to 1Mbps Downstream and 0.07Mbps to 0.256Mbps Upstream. They have declared that they cover all Hawaii Islands.
- Skycaster has declared that they cover all of Hawaii. Their data has been included in this submission.

There was an additional provider for this data collection period called Level 3 Communications.

The project team continues to verify these coverage areas and broadband speed claims as well as to collect data from other providers as they are identified.

The most recent iteration of updated and verified mapping data was submitted to NTIA on October 1, 2012 in accordance with the latest FCC/NTIA broadband data model.

3. Data Collection and Integration

a. Primary Data Collection describes the data collection process and list any surveys distributed to retrieve data.

Data was obtained by working with Providers (phone conference calls and email) to get the latest information at the most detailed level possible. The team furnished Providers with a data request including the latest table specifications via email that included the specific information needed for the project. All other terrestrial broadband Providers maintained census block level detail. Wireless providers submitted RF propagation polygons illustrating coverage.

Broadband coverage data for Hawaiian Telcom Communications has been extrapolated as a one-mile buffer from each Central Office location. For every other provider, the DCCA has obtained census block level information and coverage footprints from the wireless providers. Since the data is being provided at the census block level or via a coverage footprint from wireless providers, exact levels of service provided within these boundaries in some cases has been limited to a single tier of service per census block or wireless footprint. TW Telecom has furnished customer addresses which have been geocoded and inserted into the FCC file geodatabase model as appropriate. We have received information from the public via the hibroadbandmap.org website, stating that fiber to the premise existed for Hawaiian Telcom Communications, Inc. at a few addresses which were verified with the provider and added to the database.

A very small amount of address level detail from Providers has been submitted for this data submission. For wireless providers, the project team is requesting more detailed RF propagation maps, tower locations, and greater detail on wireless service coverage and technology. Further, the project team will be analyzing and adjusting existing census block data to fit within Tax Map Key (TMK) boundaries in an effort to increase the accuracy of the stated data coverage areas for use on the State’s broadband website and for planning purposes.

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b. Community Anchor Institutions Summarize Community Anchor Institutions by type, describe your data collection process, and list any surveys distributed to retrieve data.

The baseline Community Anchor Institutions database has been amended, updated and verified. The Community Anchor Institutions database is composed of 1,306 points that include:

Schools – K through 12 (public and private)	367
Libraries	56
Medical/Healthcare	212
Public Safety	95
Universities, Colleges, other Post-Secondary (public and private)	44
Other Community Support – Nongovernmental (Hotels, Resorts, Other)	532

The data was collected from various State databases (i.e. Schools, Libraries, Public Safety), and from InfoUSA data downloads. Data was verified by personal telephone calls and information collected from websites. No surveys were distributed. The project team plans to include restaurant lounges, malls and coffee shops with advertised free Wi-Fi in the next deliverable, as well as, continue with telephone verification to obtain more information from CAI's.

For this data submission we included private businesses providing free Wi-Fi services for their customers (Nongovernmental).

4. Validation

a. Overview Provide a general summary of the validation process and methodology used.

See below.

b. Business Logic Rules Define the business logic related to data validation including a clear structure or methodology used.

Data Excluded by Business Rules (Organized by layer)

Broadband_Service_CensusBlock - Total Excluded: 10,652 Census Blocks

- Excluded by Business Rule
 - The block must contain population
 - 3,433 Census Blocks – Hawaiian Telecom
 - 5,818 Census Blocks (0 populations) – Oceanic Time Warner Cable
 - 414 Census Blocks – TW Telecom
 - 984 Census Blocks – Sandwich Isles Communications
 - Combination business rule for transmission technology speed combinations
 - 3 Census Blocks – TW Telecom

Broadband_Service_RoadSegment - Total Excluded: 781 Segments

- Excluded by Business Rule
 - The block must contain population
 - 734 Segments – Hawaiian Telecom
 - 47 Segments – Sandwich Isles Communications

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c. Feedback Loop Describe any outreach to Broadband Providers after you processed their data.

We are working with providers on an ongoing basis to rectify data including the provision of coverage maps.

d. Statistical Models List and describe any statistical models used to compile and analyze the data.

None used to date.

e. 3rd Party Publicly Available Data identify all 3rd party datasets used and describe how they were used to validate the data. (3rd party datasets include American Roamer, Form 477, Form 325, etc.

- Info USA used for address validation of CAI's.
- Used updated Hawaiian Homelands boundaries.

f. Crowd Sourced Data Identify whether or not crowd sourced data was used and how the data was used for validation.

Hawaii broadband website Ookla tools are being collected on a monthly basis. The State's Broadband Speed Test (<http://hawaiispeedtest.net>) has been advertised and has experienced over 25,000 tests taken. The data is being analyzed to determine actual speeds versus provider stated speeds. Also, we have received email reports of unserved areas from residents using the <http://www.hibroadbandmap.org> website.

The project team is implementing the following verification activities:

- Coverage Verification via Website: DCCA launched a dedicated website (hibroadbandmap.org) that contains the latest information on the project as well as a speed and line test application and database for consumers to use. Additionally, consumers are able to report unserved areas on the website. – Completed December 1, 2010
- CAI Verification by Telephone: DCCA will independently verify access to broadband services by Community Anchor Institutions ("CAI") where no data currently exists via personal contact by telephone. – Ongoing
- CAI Verification by External Data Source Comparison: The project team will be collecting data from InfoUSA to verify the completeness of the CAI inventory. – Ongoing
- Provider Verification via Map Products: DCCA will present the data to the individual providers in the form of a map product, ask them to verify the results visually, and, if necessary, ask them to provide more accurate information if available. – Ongoing

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- Speed Test Verification via Website: DCCA will announce the speed and line test application and website for consumers via press releases and newspaper articles to encourage subscriber participation. The database will be maintained throughout the course of the project. – Completed January 25, 2012 and Ongoing
- Speed Test Verification via FCC Ookla/MLabs: FCC databases are being collected on a monthly basis and integrated into a coverage verification layer that will also appear on the website. – Ongoing
- Provider Verification via Website: Providers will also be able to access the maps of their data through a secure portal on the website. – Ongoing

The project team's status on implementing the following verification activities:

- Coverage Verification via Website: The dedicated website (hibroadbandmap.org) was launched on December 1, 2010 and includes a customized Ookla speed test application and database for consumers to use, as well as, ESRI's BBStat application. – In Progress.
- CAI Verification by Telephone: DCCA has and will continue to verify Community Anchor Institution data via telephone. – In Progress.
- CAI Verification by External Data Source Comparison: InfoUSA data is being downloaded to augment and verify the completeness of the CAI inventory. – In Progress.
- Provider Verification via Map Products: Maps that illustrate coverage gaps are being prepared for provider review. – In Progress.
- Speed Test Verification via Website: The dedicated website (hibroadbandmap.org) launched on December 1, 2010 includes a customized Ookla speed test application and database for consumers to use, as well as, ESRI's BBStat application. – In Progress.
- Speed Test Verification via FCC Ookla/MLabs: FCC speed test data is also being integrated into an independent map layer. – In Progress.
- Provider Verification via Website: Providers will also be able to access the maps of their data through a secure portal on the website. – In Progress.

Note: These verification activities and direct updates from providers are anticipated to continue through the next data delivery date.

In addition, the project team is participating in a program sponsored by Akaku: Maui Community Television on Broadband. Our website Hibroadbandmap.org will be listed on their site and they will be requiring all students to perform daily speed tests using our Site to test as well as theirs. The team will be talking about broadband, the national and state programs and the importance



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of speed test accuracy. Phase 1 was complete in Dec 2011, which consisted of broadband mapping team members being interview by Akaku at their studios in Kahului, Hi. Phase 2: TBD