



BROADMAP
Beyond The Boundaries

Product Release White Paper

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Product Specification: NTIA Data Model 09/08/10

Product/Process: PUC Product Release/NTIA – October 1st, 2010 Data Deliverable

Overview

The following describes the Data Gathering, Data Integration, Data Validation and Verification and Quality Control processes utilized to create the Broadband Mapping Project's October 1, 2010 deliverable.

Data Gathering

Broadband Service Area, Middle Mile Aggregation Points and Broadband Service Overview

The collection of Broadband Service areas, Middle Mile Aggregation points and Broadband Service Overview information is handled through the following Provider Outreach Process:

- Build and Maintain an Inventory of Broadband Providers through research and State inputs.
- Update Provider Material that describes the data requirements and logistics for data transfer.
- Update NDA for use in project.
- Maintain multiple protocols for the provider to submit data, including SFTP technology when desired.
- Conduct one-on-one informational discussions with each provider to communicate the following:
 - Requirements of this project
 - Broadband data required to support the product data model
 - Submission protocols available
 - Capability to validate how the supplied data is aggregated
- Download/receive Provider Data.
- Establish a repeatable process with Provider. Maintain Provider communication, transaction and data handling records throughout the project (dates contacted, data received, etc.)



The Collection of Community Anchor Institution (CAI) Data

The collection of CAI information is handled through the following CAI collection Process:

- Collect and maintain inventory of CAIs through Data Mining, Research, and State inputs
- Maintain web- based CAI portal for institutions to add or confirm attribution, location and enter broadband-specific information.
- Upload web-based data to Core Database for standardization and internal cleansing, such as removing duplicate CAIs and identifying gaps in broadband attribution and to geocode CAI locations
- Translate Core Database data to deliverable ready format.
- Continue engagement with institutions to collect missing data.

Data Integration Process

The data integration and processing mechanisms currently utilized allows for multiple types of inputs and results in a standardized output that meets the NTIA deliverable requirements. This process is flexible to support data model changes and project requested enhancements.

- Receive inputs from Providers via submission protocols, upload into Sourcing Database and catalog with provider information.
- Review Provider supplied data for completeness and for potential discrepancies that require resolution prior to processing; flag and resolve as necessary.
- Categorize input into data type category (addresses, block lists, paper maps, etc.).
- Standardize input based on data type within Staging Database.
- Create Compact Polygons (CP)—(internal methodology for generating area based feature for coverage in Staging Database).
- Apply broadband attribution to CP, Apply metadata to CP
- Perform quality analysis of the CP against the source supplied to identify any completeness or accuracy issues.
- Request additional provider information if elements of coverage are missing or contain discrepancies.
- Following completion of CP creation perform Data Validation & Verification
- Process coverage area to build Census Block and Street Level geography for deliverable
- Following the creation of the product perform required Validation & Verification
- Process CAI data input into internal standardized format, as mentioned above under CAI
- Create Product Deliverable based on NTIA and State-level requirements.



Data Validation & Verification

To ensure the data collected and processed is accurate and comprehensive, a holistic approach has been developed to further validate and verify the data. Following the initial mapping of providers' coverage area and serviceability claims, the following methods are employed:

- **Third-Party Data Verification:** Visually and programmatically compare the coverage against third-party data.
Pitney Bowes and American Roamer data was used in cases where a coverage area was questionable. All anomalies identified during this analysis were reviewed with the providers.

Broadband Provider Validation "Feedback Loop": To validate the coverage areas created, a notification was sent to all providers. This included visual representation of their coverage area in PDF format, along with broadband attribution displayed, with a request for a formal review. Any feedback received from providers went through the Data Integration Process and then was reviewed with the provider again to complete validation.

Quality Control

Following creation of the product, the product was checked manually and algorithmically against the NTIA data model, GISDataModel.html. Some of the items included within these checks are:

- Format Correctness
- Table & Field Structure
- Valid Values
 - Including default values, where applicable
- Geographic Extent and Topology Errors

The quality report was submitted along with the October data submission on the FCC - Broadband State Data Management Tool.