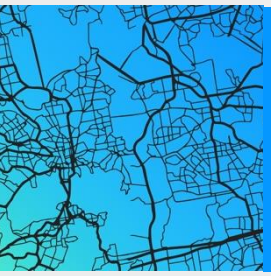
LIGHTBOX

LOCATE. ANALYZE. ACT.



State of Wyoming – ISP Data Submission Guide

PREPARED FOR THE STATE OF WYOMING – BROADBAND MAPPING PROGRAM

November 29th, 2022

LightBox Contact and Information

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All Principles

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Type of Business Entity

LightBox Parent L.P. (Partnership)

State of Incorporation

Incorporated in New York, January 11, 2021

Additional Pertinent Information

All LightBox capabilities are built in the USA by the 500+ employees based at our offices in Shelton, CT; New York City and Albany, NY; Irvine and Carlsbad, CA; and working from home around the country.

Website

https://www.lightboxre.com/product/broadband/

lightboxre.com

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2 DOCUMENT OVERVIEW

2.1 Purpose

The following guide has been created for Fixed and Mobile Internet Service Providers (ISPs) to communicate instructions on how to submit served location data to LightBox for processing data on behalf of the State of Wyoming.

2.2 Audience

The intended audience for this document is the ISPs that provide Fixed and Mobile internet service within the State of Wyoming.

3 INTRODUCTION

3.1 Who is LightBox?

LightBox has been selected by the State of Wyoming to receive and process served location data from the ISPs of State of Wyoming.

LightBox recognizes that accurate and granular broadband maps, based upon precise location data, service availability, and analytics are required for government investment to be targeted and rapidly deployed to locations and communities in need.

In 2022, LightBox leveraged their data expertise in broadband mapping Montana. There, we demonstrated the expediency and utility of accurately identifying broadband coverage for every location throughout the state. With the leadership of the Montana Telecommunication Authority and various partners, Montana was able to use LightBox SmartFabric™ data to gain an accurate, comprehensive picture of every address state-wide. Working with broadband providers the State of Montana received 80 requests from 24 applicants in 30 counties to serve 158,019 locations.

To learn about LightBox and the role we play in broadband initiatives – please refer to the following link: https://www.lightboxre.com/products/broadband

4 ISP DATA SUBMISSION

4.1 Broadband Service Availability Data Collection

Legal Requirements

ISPs shall only submit data which such ISP owns all right, title and interest to or otherwise has the legal right to provide to LBX. ISPs shall not submit any data to LBX which would be in violation of any contract to which the ISP (or any of its affiliates) is a party or is otherwise bound or would infringe any intellectual property right of any third party.

Please **do not submit your FCC 477 or FCC BDC data submissions** ("as is") to LightBox.

State Broadband Definitions

- **Served**: Locations where 100Mbps download and 20Mbps upload, or faster, speeds are available within 10 business days of an order.
    - i.e., maximum advertised speeds >= 100/20
- **Underseved**: Locations where 25Mbps download and 3Mbps upload speeds, or faster, are available within 10 business days of an order.
    - i.e., maximum advertised speeds >= 25/3 - < 100/20
- **Unserved**: Locations where 25Mbps download and 3Mbps upload speeds are not available within 10 business days of an order.
    - i.e., maximum advertised speeds < 25/3

Broadband Service Availability Data Submissions

There are **6 (6) options** to submit data to LightBox:

1. Fixed Broadband – List of Location records (i.e., homes, small businesses, etc...) that have a broadband connection or could be connected (i.e., prospective customers) within 10 business days of a service order.

    - **File format:** Tabular data file (e.g., CSV) – **refer to Section 4.2** for an example of the data schema.
        - *Refer to Fixed Broadband – List of Location **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

    - **File name:** Include your company's name in the file name – i.e., *<ISPName>_ListofLocations_<Date>.csv.*

    - **Archive file format:** ZIP (.zip).

2. Fixed Broadband – Coverage Area / Service Area Polygon (i,e., network coverage/service boundaries) that have a broadband connection or could be connected within 10 business days of a service order.

    - **File format:** GIS data file (shapefile and file geodatabase) – **refer to Section 4.3** for an example of this.
        - *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, ,xml, .sbn, .sbx) in order for data to be used.*
        - *Refer to Fixed Broadband – Coverage Area / Service Area Polygon **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

    - **File name:** Include your company's name in the file name – i.e., *<ISPName>_FixedCoverageArea_<Date>.shp*

    - **Archive file format:** ZIP (.zip).

NOTE: Fixed broadband providers must submit one (1) out of the two (2) options listed above.

3. Mobile Broadband – Coverage Area / Service Area Polygon (i,e., network coverage/service boundaries) that have a broadband connection or could beconnected within 10 business days of a service order.

    - **File format:** GIS data file (shapefile and file geodatabase) – **refer to Section 4.4** for an example of this
        - *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, ,xml, .sbn, .sbx) in order for data to be used*
        - *Refer to Mobile Broadband – Coverage Area / Service Area Polygon **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

    - **File name**: Include your company's name in the file name – i.e., *<ISPName>_MobileCoverageArea_<date>.shp*

    - **Archive file format:** ZIP (.zip)

4. Fixed Broadband – **SmartFabric™** Location Points for Serviceability Area (i.e., homes, small businesses, etc...) that have a broadband connection or could be connected (i.e., prospective customers) within 10 business days of a service order.

    - **File format:** GIS data file (shapefile and file geodatabase) – **refer to Section 4.5** for an example of this
        - *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, ,xml, .sbn, .sbx) in order for data to be used*
        - *Refer to Fixed Broadband – **SmartFabric™** Coverage Area / Service Area Polygon **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

    - **File name:** Include your company's name in the file name – i.e., *<ISPName>_**SmartFabric**_LocationsPoints_<Date>.csv*

    - **Archive file format:** ZIP (.zip).

5. Fixed Broadband – **SmartFabric™** Coverage Area / Service Area (i.e., homes, small businesses, etc...) that have a broadband connection or could be connected (i.e., prospective customers) within 10 business days of a service order.

    - **File format:** GIS data file (shapefile and file geodatabase) – **refer to Section 4.6** for an example of this

- *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) in order for data to be used*
- *Refer to Fixed Broadband – **SmartFabric** Coverage Area / Service Area Polygon **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

- **File name**: Include your company's name in the file name – i.e., *<ISPName>_SmartFabric_FixedCoverageArea_<Date>.shp*

- **Archive file format:** ZIP (.zip)

6. Mobile Broadband **– SmartFabric™** Coverage Area / Service Area (i.e., homes, small businesses, etc...) that have a broadband connection or could be connected (i.e., prospective customers) within 10 business days of a service order.

   - **File format:** GIS data file (shapefile and file geodatabase) - **refer to Section 4.7** for an example of this
     - *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) in order for data to be used*
     - *Refer to Mobile Broadband – **SmartFabric™** Coverage Area / Service Area Polygon **data template** included in your SFTP account under the "**FROM_LIGHTBOX**" sub-folder.*

   - **File name**: Include your company's name in the file name – i.e., *<ISPName>_**SmartFabric**_MobileCoverageArea_<Date>.shp*

   - **Archive file format:** ZIP (.zip)

NOTE: Fixed broadband providers must submit one (1) out of the two (2) options listed above (*#4, #5 & #6*) if **SmartFabric™** data (optional) is being used,

Requesting LightBox SmartFabric™ Data (Optional)

*****Available Now*****

LightBox SmartFabric™ data is being made available to all ISPs to facilitate data preparation and submission as part of the State of Wyoming Broadband Mapping program.

SmartFabric™ data layers (parcels, addresses and footprints) can help ISPs enrich broadband serviceable locations (BSL) or create defined coverage / service areas.

ISPs can request SmartFabric™ data from LightBox by completing the **online form** (see ***Image A*** below).

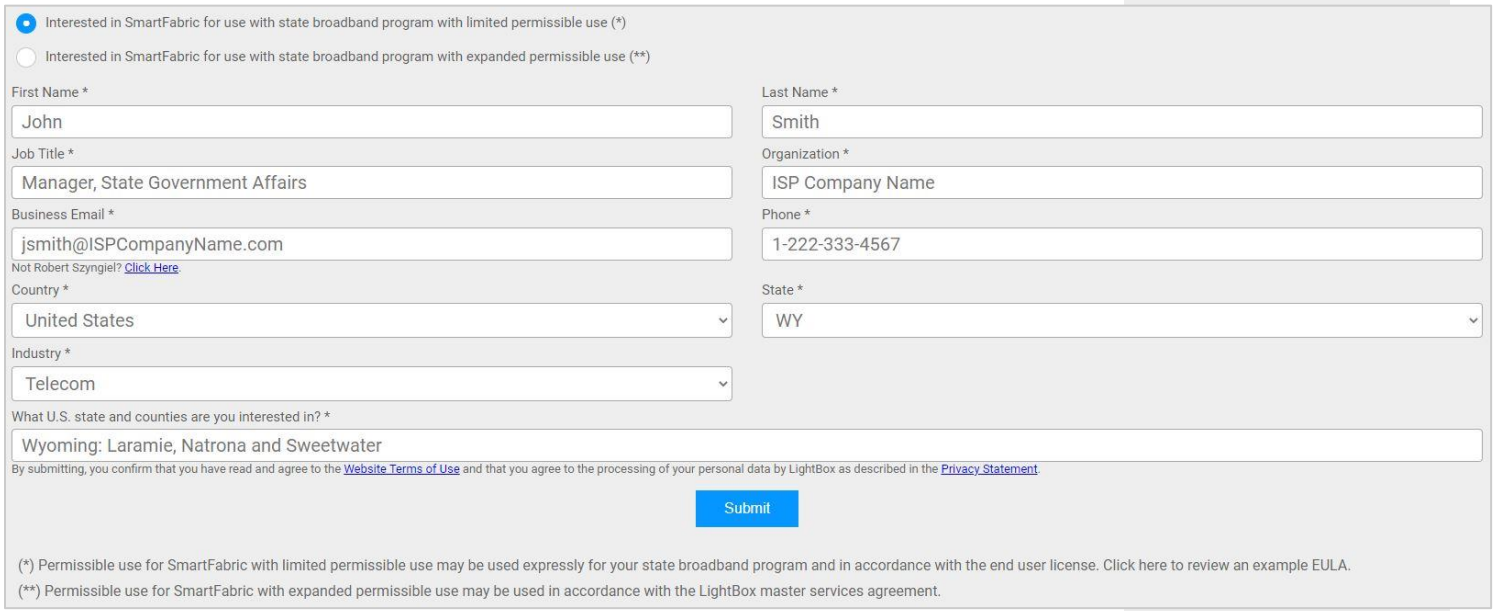


***Image A**: SmartFabric™ online data request form.*

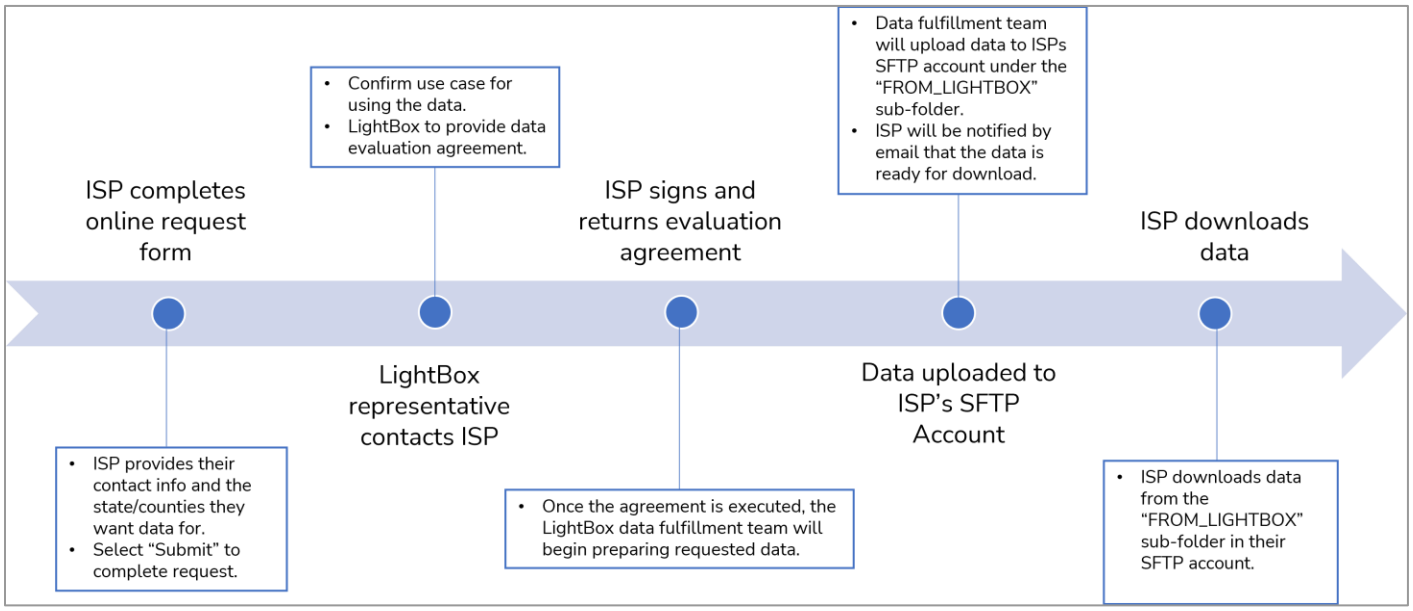
NOTES:

- **"limited permissible use (*)"** option should be selected if you would like to request data for the sole purpose of obtaining the LightBox SmartFabric™ for the state broadband data submission.

- **"expanded permissible use (**)"** option should be selected if you would like to use for the state broadband submission AND use for additional use cases within your business.

- **"What U.S. state and counties are you interested in?*"** field – please enter the state and/or counties that you wish to receive data for (e.g., <State>: CountyName1, CountyName2, CountyName3)

The workflow diagram (refer below) outlines the steps for requesting data:



To create one of the required **three (3) options** – please review the following suggestions for which LightBox SmartFabric™ data layers should be used for the following data submissions to LightBox:

	SmartFabric™		
Data Submission Option	*Address/Location Points*	*Parcels Boundaries*	*Building Footprints*
1. Fixed Broadband – List of Locations	✓		
2. Fixed Broadband – Coverage Area / Serviceability Area		✓	
3. Mobile Broadband – Coverage Area / Serviceability Area		✓	

Documentation:

- SmartFabric™ User-Guide
- SmartFabric™ Broadband & Professional Data Dictionaries

Support:

- Contact the **WyomingISPCoordinator@lightboxre.com** mailbox if you have any questions or concerns about the data
- Refer to Sections **#4.5**, **#4.6** & **#4.7** for the input data schemas for **SmartFabric™ data submission options.**
- Refer to SmartFabric™ Broadband & Professional Entity Relationship Diagrams included with your data delivery.
- Data templates for Fixed Broadband – **SmartFabric™** Location Points and Fixed/Mobile – **SmartFabric™** Coverage Area / Serviceability Area data submissions are included in your "**FROM_LIGHTBOX**" sub-folder in your SFTP account for your reference.Refer to the "Readme.txt" file for information on performing the table joins between the various datasets.

4.2 Input Data Schema/Fields (Fixed Broadband – List of Locations for Service Availability)

Data Submission Guidelines for Fixed Broadband – List of Locations	
Theme	*Instructions*
File Format	▪ The file must be in a **Comma Separated Values** (CSV) format.
	▪ Submit **one** file (CSV) for all records not multiple files (CSVs).
File Structure	▪ The file must contain the required fields, flagged as **mandatory (M),** in the format specified (refer to table below).
	▪ If the file does not conform to the required structure – **LightBox may reject the file** and request a new file from the ISP. o NOTE: If file is rejected, the ISP must resubmit the file within 3 business days after they're notified. If not, the file will not be included in the map.
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject the file** and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	▪ Submit **one record per unique location** (i.e., do not submit multiple records for the same address) with the best available information (i.e., highest maximum advertised speeds). o NOTE: If duplicate records (for the same address) are found – LightBox will use the record from the group of duplicates that contains the highest maximum advertised speeds.
	▪ For the maximum advertised speed fields (download and upload) – please provide the **raw values** for these fields and do not change data to match the example values outlined in the above section "State Broadband Definitions" o i.e., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30
	▪ If there are potentially two different maximum advertised speeds (Mbps) for the same address o *i.e., 25 and 10 [down/up] and 100 and 20 [down/up – please **submit the largest speeds (100 and 20)***
Coordinate System ("projection")	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

Documentation:

- Refer to Fixed Broadband – List of Locations (CSV) **data template** that is included in your "**FROM_LIGHTBOX**" sub-folder in your SFTP account.

Fixed Broadband – List of Locations for Service Availability

The following data schema/fields are requested as part of the ISP data submission for a List of Locations where service is available within 10 business days of an order based on the broadband speeds requested

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O)
address	The house number, street prefix direction, prefix type, street name, suffix type, street suffix direction all formatted as a single line. Do not include unit information in this field – unit info should go in "unit" field (refer below).	String	123 N Main St W	M
unit	The unit type and unit number (if applicable).	String	Apt 3A	M
city	The preferred locality of the address as assigned by the postal system and associated with the postal code.	String	Laramie	M
state	2 letter state abbreviation.	String	WY	M
zipcode	The country specific code for postal sorting, ZIP5 or ZIP 9.	String	12309 or 12309-1234	M
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M
bizrescode	Assign an enumerated character indicating whether the service at the location is business-only, residential-only, or offered to both business and residential customers. Values include the following: • B = Business-only service • R = Residential-only service • X = Business and Residential service	Enumerated String	B	M
bsl_flag	Indicates whether a location is a Broadband Serviceable Location (BSL) or not. Refer to FAQ below for non-BSL examples. BSL values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	0	M
technology	Indicate the technology used to offer service to this address. The value must be one of the	Integer	50	M

	following codes: • 10 = Copper Wire • 40 = Coaxial Cable / HFC • 50 = Optical Carrier / Fiber to the Premises • 60 = Geostationary Satellite • 61 = Non-Geostationary Satellite • 70 = Unlicensed Terrestrial Fixed Wireless • 71 = Licensed Terrestrial Fixed Wireless • 0 = Other			
max_advertised_download_speed	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 6 (represent 6Mbps download speed) • 100 (represents 100Mbps download speed)	Float	100.0	M
max_advertised_upload_speed	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed) • 20 (represents 20Mbps upload speed	Float	20.0	M
low_latency	The offered service is low latency, defined as having round-trip latency of less than or equal to 100 milliseconds based on the 95th percentile of measurement. Values must be one of the following codes: • 0 = False • 1 = True	Boolean Integer	1	M
lightbox_ID	A unique identifier for each address/location/record as per LightBox SmartFabric™ GIS data file. Refer to Section 4.1.	String	0700T8QA WZHUFFYI8 BJOU5	O
unique_ID	A unique identifier for each address/location/record as per ISP (i.e., this can be an auto-number)	String	123456A	O
unit_count	Number of units in a location (building).	Integer	1	O

street_number	The address numbers, letters, and separators (e.g., The '123 1/2' in '123 1/2 Main St').	String	123 1/2	O
prefix_direction	A directional preceding a street name (e.g., The 'N' in 'N Main St').	String	N	O
prefix_type	The type preceding the street name (e.g., The 'Ave' in '123 Ave A').	String	Ave	O
street_name	The name of the street (e.g., The 'Main' in '123 Main St W').	String	Main	O
suffix_type	The type after the street name (e.g., The 'St' in '123 Main St W').	String	St	O
suffix_direction	A directional after a street name (e.g., The 'W' in 'Main St W').	String	W	O
unit_type	The type of the unit (e.g., The 'Apt' in 'Apt 3A').	String	Apt	O
unit_value	The identifier part of the unit (e.g., The '3A' in 'Apt 3A').	String	3A	O
latitude	Latitude of address location (EPSG:4326 (WGS84) decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in order to assign this.	Float	45.79772649	O
longitude	Longitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in order to assign this.	Float	-108.5421135	O

4.3 Input Data Schema/Fields (Fixed Broadband – Coverage Area / Service Availability Area)

Data Submission Guidelines	
Theme	*Instructions*
File Structure	▪ The attribute table in the shapefile layer must contain the required fields, flagged as **mandatory (M),** in the structure of the table outlined below.
	▪ If the file does not conform to the required structure – **LightBox will reject the file** and request a new file from the ISP.
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject** the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	▪ It is assumed that the values provided for each unique coverage area will contain values that are **representative for the locations** contained within o (e.g., there are not multiple technology / maximum speed values for a single polygon but rather one value for each unique polygon [if applicable]).
	▪ For the maximum advertised speed fields (download and upload) – please **provide the raw / actual values** for these fields and do not change the data to match the example values outlined in the above section "State Broadband Definitions" o (e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30)
	▪ Coverage areas (e.g., polygons) for the same technology **cannot overlap**.
	▪ Coverage areas (e.g., polygons) for different technologies (e.g., Fiber and Coaxial Cable) **can overlap.**
	▪ Coverage areas (e.g., polygons) where there are distinct residential and business services, each with their own distinct maximum advertised and upload speed, **can overlap.**
Coordinate System ("projection")	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

Documentation:

- Refer to Fixed Broadband – Coverage Area / Service Availability Area (Shapefile and File Geodatabase) **data templates** that are included in your "**FROM_LIGHTBOX**" sub-folder in your SFTP account.

Fixed Broadband – Coverage Area / Service Availability Area

The following data schema/fields are required as part of the ISP data submission for Fixed Coverage Area / Service Availability Area (i.e., GIS boundary file):

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O)
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M
bizrescode	Assign an enumerated character indicating whether the service at the location is business-only, residential-only, or offered to both business and residential customers. Values include the following: • B = Business-only service • R = Residential-only service • X = Business and Residential service	Enumerated String	R	M
technology	Indicate the technology used to offer service to this address. The value must be one of the following codes: • 10 = Copper Wire • 40 = Coaxial Cable / HFC • 50 = Optical Carrier / Fiber to the Premises • 60 = Geostationary Satellite • 61 = Non-Geostationary Satellite70 = Unlicensed Terrestrial Fixed Wireless • 71 = Licensed Terrestrial Fixed Wireless • 0 = Other	Integer	50	M
maxDown	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 6 (represent 6Mbps download speed) • 100 (represents 100Mbps download speed)	Float	100.0	M
maxUp	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed) • 20 (represents 20Mbps upload speed)	Float	20.0	M
lowLatency	The offered service is low latency, defined as having round-trip latency of less than or equal to	Boolean Integer	1	M

	100 milliseconds based on the 95th percentile of measurement. Values must be one of the following codes: • 0 = False • 1 = True			
uniqueID	A unique identifier for each polygon in data. This ID will be used to facilitate future data submissions for your company.	String	123456A	O

4.4 Input Data Schema/Fields (Mobile Coverage Area / Service Availability Area)

Data Submission Guidelines	
Theme	*Instructions*
File Structure	▪ The attribute table in the shapefile layer must contain the required fields, flagged as **mandatory (M),** in the format specified (refer to table below).
	▪ If the file does not conform to the required structure – **LightBox will reject the file** and request a new file from the ISP.
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject** the file and request a new file if fields are not sufficiently populated.
Data Assumptions	▪ It is assumed that the values provided for each unique coverage area will contain values that are **representative for the locations** contained within ○ (e.g., there are not multiple technology / maximum speed values for a single polygon but rather one value for each unique polygon [if applicable]).
	▪ For *the minimum advertised speed fields (download and upload) – please provide the **raw values** for these fields and do not change data to match the example values* ○ *(e.g., minDown) outlined in the below table (e.g., 6.0 [4G] should not be changed to 5.0 [4G] – instead submit 6.0 [4G])*
Coordinate System (Projection)	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

Mobile Broadband – Coverage Area / Service Availability Area

The following data schema/fields are required as part of the ISP data submission for Mobile Coverage Area / Service Availability Area (i.e., GIS boundary file):

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O)
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M
technology	Code for the technology used for the deployed service. Value must be one of the following codes: • 300 = 3G • 400 = 4G LTE • 500 = 5G NR	Integer	400	M
minDown	Provide the minimum advertised download speed (Mbps) for modelled coverage. Values must be one of the following: • 0.2 = 3G • 5.0 = 4G LTE • 7.0 – 35.0 = 5G NR	Float	5.0	M
minUp	Provide the minimum advertised download speed (Mbps) for modelled coverage. Values must be one of the following: • 0.05 = 3G • 1.0 = 4G LTE • 1.0 – 3.0 = 5G NR	Float	1.0	M
minSignal	Minimum signal strength for modelled coverage, in dBm, assuming an outdoor stationary environment. The value represents predicted RSSI signal strength when the technology code is 300 (i.e., 3G), and it represents predicted RSRP signal strength when the technology code is 400 or 500 (i.e., 4G LTAE or 5G-NR). • Value may be null when technology code is 300 (i.e., 3G) and the area overlaps with another map for the provider with the same stationary value where the technology code is 400 or 500 (i.e., 4G LTA or 5G-NR).	Integer	-110	M

	• Value must be greater than or equal to -120 and less than or equal to -50.			
environmnt	Integer code indicating whether the area is modelled to have coverage when the user equipment is in an outdoor stationary environment only or in both in-vehicle mobile and outdoor stationary environments. Value must be one of the following codes: • 0 = Outdoor stationary only • 1 = In-vehicle mobile and outdoor stationary	Enumerated String	1	M
uniqueID	A unique identifier for each polygon in data. This ID will be used to facilitate future data submissions for your company.	String	123456A	O

4.5 Input Data Schema/Fields (SmartFabric™ Fixed Broadband – Location Points for Service Availability)

Data Submission Guidelines for SmartFabric™ Fixed Broadband – Location Points	
Theme	*Instructions*
File Format	▪ The attribute table in the shapefile layer must contain the required fields, flagged as mandatory (M), in the structure of the table outlined below.
	▪ If the file does not conform to the required structure – LightBox will reject the file and request a new file from the ISP.
	▪ All mandatory fields (marked with "M" in schema below) must be included and populated – LightBox may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Assumptions	▪ It is assumed that the values provided for each unique location point will contain values that are representative for that location. o (e.g., there are not multiple technology / maximum speed values for a single point but rather one value for each unique point [if applicable]).
	▪ For the maximum advertised speed fields (download and upload) – please provide the raw / actual values for these fields and do not change the data to match the example values outlined in the above section "State Broadband Definitions" o (e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30)
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject the file** and request a new file from the ISP if fields are not sufficiently populated.
	▪ Submit one record per unique location (i.e., do not submit multiple records for the same address) with the best available information (i.e., highest maximum advertised speeds). o NOTE: If duplicate records (for the same address) are found – LightBox will use the record from the group of duplicates that contains the highest maximum advertised speeds.
	▪ If there are potentially two different maximum advertised speeds (Mbps) for the same address o i.e., 25 and 10 [down/up] and 100 and 20 [down/up – please submit the largest speeds (100 and 20)
	▪ If there are potentially two different maximum advertised speeds (Mbps) for the same address o *i.e., 25 and 10 [down/up] and 100 and 20 [down/up – please **submit the largest speeds (100 and 20)***
Coordinate System ("projection")	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

Documentation:

- Refer to **SmartFabric™** Fixed Broadband –Location Points (.shp) **data template** that is included in your "**FROM_LIGHTBOX**" sub-folder in your SFTP account.

SmartFabric™ Fixed Broadband – Location Points for Service Availability

The following data schema/fields are required as part of the ISP data submission for **SmartFabric™** Fixed Location Points for Service Availability Area (i.e., GIS point file)

** When **ISP Add-On** is flagged in schema/field table then this field must be added by ISP with their data submission. **

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O) / ISP Addition (ISP Add-On)
location_lid	A proprietary LBX unique identifier for every location point.	String	070000499 RBJ5QXN8B U7WP	M
fips_code	The 5-digit FIPS code is a Federal Information Processing Code for the State and Federal Information Processing Code for the County. The first two digits identify the state, and the last three digits identify the county.	String	56001	M
is_structure	Indicates whether a location is a structure or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
is_primary_address	Indicates whether the address is a primary address or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
census_code	A 15-digit code that uniquely identifies a census block. Values include the following: • 2-digit state fips code • + 3-digit county fips code • + 6-digit Census tract code • + 4-digit Census block code	String	560019639001278	M
classification	A standardized description of the type of occupancy at the location. Values include the following:	String	Residential	M

	• Business • Residential • Mixed Use • Unknown/Other			
assessment_land_use	The assessor code describing how the parcel of land is used that the location is located on.	String	Single Family Residential	M
resbus_usps	A USPS field classifying an address. Values include the following: • Business, • Residential • Unknown • NULL	String	Residential	M
is_bsl	A yes/no value to determine if the location is broadband-serviceable or not is_bsl values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	0	M
bsl_type	A description from a list of standardized values indicating which type of broadband-serviceable category the location falls into. Values include the following: • Agricultural • Business • Non-BSL • Residential • Unclassified • Vacant Land	String	Agricultural	M
nonbsl_reason	A description indicating why a location is not considered broadband-serviceable. Values include the following: • Government • Industrial • Military • Parking Structure	String	Government	M

	• Public Use • Unknown • NULL			
residential_unit_count	The number of residential units at the location.	Integer	3	M
business_unit_count	The number of business units at the location.	Integer	40	M
location_type	A code assigned to a location that describes the location type. Values must be one of the following: • 1 = Primary Building (building with an address) • 2 = Secondary Building (building without an address) • 3 = Address Point • 4 = Parcel	Integer	1	M
polygon_geometry	Parcel or building geometry of the location as indicated in the "location_type" field (refer above)	String	MULTIPOLYGON(((-105.58975541.325333,-105.59001941.325331999999996,-105.59001941.32546,-105.58975541.32546,-105.58975541.325333)))	M
address_lid	A proprietary LightBox identifier for address that is unique and persistent.	String	0602M8K8XSK0L1XX12AKKT	M
county	The name of the county.	String	ALBANY	M
state	The two-character abbreviation for a US state.	String	WY	M
city	The name of the city.	String	LARAMIE	M
address	The house number, street prefix direction, street name, street suffix, street suffix direction all formatted as a single line.	String	1501 ARNOLD ST	N
house_number	The address numbers, letters, and separators. (ex: the '123A' in '123A Main St'.)	String	1501	M
prefix_direction	The street prefix direction (ex: N,S,E,W)	String	N	M
prefix_type	The street prefix name (ex: Rue, Ave)	String	AVE	M
street_name	The street name without types or directions. (ex: the 'Main' in '123 Main St')	String	ARNOLD	M
suffix_type	The street suffix type. (ex: Avenue, Street)	String	STREET	M

suffix_direction	The street suffix direction (ex: N,S,E,W)	String	S	M
unit	The unit type and unit value. (ex: 'Apt A')	String	Apt A	M
zip	The zip code including the first five digits along with the zip4 extension, where available.	String	82070-5418	M
country_code	The two-character country code (US, CA).	String	US	M
precision_code	Address/Location precision code: • BC = building centroid • PC = parcel centroid • BEP = building entry point • BIP = building interior point associated with a specific unit or other designation within the building • STR = street interpolated • BGC = the centroid of a group of buildings	String	BC	M
primary_address_lid	The address_LID for the related primary address for the location if the address is not a primary address. The primary_address_lid may be equal to the parent_address_lid if the record is a secondary address.	String	0600LYEKD0EIG2OD0ABZ25	M
parent_address_lid	The address_LID for the related parent address when the address is a child address. Child addresses will also have a related primary_address_LID which may or may not be equal to the parent_address_LID.	String	0601H8N6OR6ZNQLOCD81PM	M
building_name_usps	The name of the structure containing the address, provided by USPS. This field is sparsely populated; most values pertain to large commercial buildings.	String	Medical Clinic	M
address_confidence_score	A number ranging from 1 (low confidence) to 5 (high confidence) indicating the likelihood that an address exists and if it's used or can be used.	Integer	1	M
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M / ISP Add-On
bizrescode	Assign an enumerated character indicating whether the service at the location is business-only, residential-only, or offered to both business and residential customers. Values include the following: • B = Business-only service • R = Residential-only service	Enumerated String	R	M / ISP Add-On

	• X = Business and Residential service			
technology	Indicate the technology used to offer service to this address. The value must be one of the following codes: • 10 = Copper Wire • 40 = Coaxial Cable / HFC • 50 = Optical Carrier / Fiber to the Premises • 60 = Geostationary Satellite • 61 = Non-Geostationary Satellite70 = Unlicensed Terrestrial Fixed Wireless • 71 = Licensed Terrestrial Fixed Wireless • 0 = Other	Integer	50	M / ISP Add-On
max_down	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 6 (represent 6Mbps download speed) • 100 (represents 100Mbps download speed)	Float	100.0	M / ISP Add-On
max_up	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed) • 20 (represents 20Mbps upload speed)	Float	20.0	M / ISP Add-On
low_latency	The offered service is low latency, defined as having round-trip latency of less than or equal to 100 milliseconds based on the 95th percentile of measurement. Values must be one of the following codes: • 0 = False • 1 = True	Boolean Integer	1	M / ISP Add-On

4.6 Input Data Schema/Fields (SmartFabric™ Fixed Broadband – Coverage Area / Service Availability Area)

Data Submission Guidelines	
Theme	*Instructions*
File Structure	▪ The attribute table in the shapefile layer must contain the required fields, flagged as **mandatory (M),** in the structure of the table outlined below.
	▪ If the file does not conform to the required structure – **LightBox will reject the file** and request a new file from the ISP.
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject** the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	▪ It is assumed that the values provided for each unique coverage area will contain values that are **representative for the locations** contained within o (e.g., there are not multiple technology / maximum speed values for a single polygon but rather one value for each unique polygon [if applicable]).
	▪ For the maximum advertised speed fields (download and upload) – please **provide the raw / actual values** for these fields and do not change the data to match the example values outlined in the above section "State Broadband Definitions" o (e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30)
	▪ Coverage areas (e.g., polygons) for the same technology **cannot overlap**.
	▪ Coverage areas (e.g., polygons) for different technologies (e.g., Fiber and Coaxial Cable) **can overlap.**
	▪ Coverage areas (e.g., polygons) where there are distinct residential and business services, each with their own distinct maximum advertised and upload speed, **can overlap.**
Coordinate System ("projection")	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

Documentation:

- Refer to **SmartFabric™**Fixed Broadband – Coverage Area / Service Availability Area (Shapefile and File Geodatabase) **data templates** that are included in your "**FROM_LIGHTBOX**" sub-folder in your SFTP account.

SmartFabric™ Fixed Broadband – Coverage Area / Service Availability Area

The following data schema/fields are required as part of the ISP data submission for **SmartFabric™** Fixed Coverage Area / Service Availability Area (i.e., GIS boundary file)

** When **ISP Add-On** is flagged in schema/field table then this field must be added by ISP with their data submission. **

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O) / ISP Addition (ISP Add)
parcel_lid	A proprietary LBX unique identifier for every location point.	String	070000499RBJ5QXN8BU7WP	M
fips_code	The 5-digit FIPS code is a Federal Information Processing Code for the State and Federal Information Processing Code for the County. The first two digits identify the state, and the last three digits identify the county.	String	56001	M
parcel_apn	Master parcel APN. This is the master/main APN number associated with the primary parcel in a location where multiple parcels with identical geometry exist. This can occur where there are multiple taxable properties in a location (condos, timeshares, mobile home parks).	String	28770110000100	M
aggr_acre_age	Sum of lot acreage owned by the same ownership entity, within a single county extent. See AGGR_GROUP below for more detail on how ownership is identified.	Float	854.58	M
aggr_group	ID indicating the grouping (ownership) of parcels for a single owner. Ownership identified by proprietary model that leverages both owner name and owner address. Parcels are identified within 300ft of adjacency, within a single county extent.	String	531539751_210	M
aggr_lot_width_median	Median lot width of all parcels within the aggregated owner group (AGGR_GROUP).	Integer	1318	M
aggr_lot_count	Number of parcels owned by the same ownership entity, within a single county extent. See AGGR_GROUP for more detail on how ownership is identified.	Integer	2	M
associated_assessment_count	Number of properties associated with a parcel.	Integer	1	M

primary_assessment_lid	Primary assessment record that the parcel is associated with.	String	030094A7S3SOJ2MYMLWPSN	M
primary_building_lid	Primary building that the parcel is associated with.	String	05044L57MJRYL8QW3O5X8Q	M
is_structure	Indicates whether a location is a structure or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
is_primary_address	Indicates whether the address is a primary address or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
census_code	A 15-digit code that uniquely identifies a census block. Values include the following: • 2-digit state fips code • + 3-digit county fips code • + 6-digit Census tract code • + 4-digit Census block code	String	560019639001278	M
classification	A standardized description of the type of occupancy at the location. Values include the following: • Business • Residential • Mixed Use • Unknown/Other	String	Residential	M
assessment_land_use	The assessor code describing how the parcel of land is used that the location is located on.	String	Single Family Residential	M
resbus_usps	A USPS field classifying an address. Values include the following: • Business, • Residential	String	Residential	M

	• Unknown • NULL			
is_bsl	A yes/no value to determine if the location is broadband-serviceable or not is_bsl values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	0	M
bsl_type	A description from a list of standardized values indicating which type of broadband-serviceable category the location falls into. Values include the following: • Agricultural • Business • Non-BSL • Residential • Unclassified • Vacant Land	String	Agricultural	M
nonbsl_reason	A description indicating why a location is not considered broadband-serviceable. Values include the following: • Government • Industrial • Military • Parking Structure • Public Use • Unknown • NULL	String	Government	M
residential_unit_count	The number of residential units at the location.	Integer	3	M
business_unit_count	The number of business units at the location.	Integer	40	M
location_type	A code assigned to a location that describes the location type. Values must be one of the following: • 1 = Primary Building (building with an address) • 2 = Secondary Building (building without an address)	Integer	1	M

	• 3 = Address Point • 4 = Parcel			
polygon_geometry	Parcel or building geometry of the location as indicated in the “location_type” field (refer above)	String	MULTIPOLYGON(((-105.589755 41.325333,-105.590019 41.325331999999996,-105.590019 41.32546,-105.589755 41.32546,-105.589755 41.325333)))	M
address_lid	A proprietary LightBox identifier for address that is unique and persistent.	String	0602M8K8XSK0L1XX12AKKT	M
county	The name of the county.	String	Albany	M
state	The two-character abbreviation for a US state.	String	WY	M
city	The name of the city.	String	Laramie	M
address	The house number, street prefix direction, street name, street suffix, street suffix direction all formatted as a single line.	String	1501 ARNOLD ST	N
house_number	The address numbers, letters, and separators. (ex: the '123A' in '123A Main St'.)	String	1501	M
prefix_direction	The street prefix direction (ex: N,S,E,W)	String	N	M
prefix_type	The street prefix name (ex: Rue, Ave)	String	Ave	M
street_name	The street name without types or directions. (ex: the 'Main' in '123 Main St')	String	ARNOLD	M
suffix_type	The street suffix type. (ex: Avenue, Street)	String	Street	M
suffix_direction	The street suffix direction (ex: N,S,E,W)	String	S	M
unit	The unit type and unit value. (ex: 'Apt A')	String	Apt A	M
zip	The zip code including the first five digits along with the zip4 extension, where available.	String	82070-5418	M
country_code	The two-character country code (US, CA).	String	US	M
precision_code	Address/Location precision code: • BC = building centroid • PC = parcel centroid • BEP = building entry point • BIP = building interior point associated with a specific unit or other designation within the building • STR = street interpolated • BGC = the centroid of a group of buildings	String	BC	M

primary_address_lid	The address_LID for the related primary address for the location if the address is not a primary address. The primary_address_lid may be equal to the parent_address_lid if the record is a secondary address.	String	0600LYEKD0EIG2OD0ABZ25	M
parent_address_lid	The address_LID for the related parent address when the address is a child address. Child addresses will also have a related primary_address_LID which may or may not be equal to the parent_address_LID.	String	0601H8N6OR6ZNQLOCD81PM	M
building_name_usps	The name of the structure containing the address, provided by USPS. This field is sparsely populated; most values pertain to large commercial buildings.	String	Medical Clinic	M
address_confidence_score	A number ranging from 1 (low confidence) to 5 (high confidence) indicating the likelihood that an address exists and if it's used or can be used.	Integer	1	M
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M / ISP Add-On
bizrescode	Assign an enumerated character indicating whether the service at the location is business-only, residential-only, or offered to both business and residential customers. Values include the following: • B = Business-only service • R = Residential-only service • X = Business and Residential service	Enumerated String	R	M / ISP Add-On
technology	Indicate the technology used to offer service to this address. The value must be one of the following codes: • 10 = Copper Wire • 40 = Coaxial Cable / HFC • 50 = Optical Carrier / Fiber to the Premises • 60 = Geostationary Satellite • 61 = Non-Geostationary Satellite70 = Unlicensed Terrestrial Fixed Wireless • 71 = Licensed Terrestrial Fixed Wireless • 0 = Other	Integer	50	M / ISP Add-On
maxDown	Provide the maximum advertised download speed value (Mbps) for the address as a value (#).	Float	100.0	M / ISP Add-On

	Examples (but not limited to): • 6 (represent 6Mbps download speed) • 100 (represents 100Mbps download speed)			
maxUp	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed) • 20 (represents 20Mbps upload speed)	Float	20.0	M / ISP Add-On
lowLatency	The offered service is low latency, defined as having round-trip latency of less than or equal to 100 milliseconds based on the 95th percentile of measurement. Values must be one of the following codes: • 0 = False • 1 = True	Boolean Integer	1	M / ISP Add-On

4.7 Input Data Schema/Fields (SmartFabric™ Mobile Broadband – Coverage Area / Service Availability Area)

Data Submission Guidelines	
Theme	*Instructions*
File Structure	▪ The attribute table in the shapefile layer must contain the required fields, flagged as **mandatory (M),** in the format specified (refer to table below).
	▪ If the file does not conform to the required structure – **LightBox will reject the file** and request a new file from the ISP.
	▪ All mandatory fields (**marked with "M"** in schema below) must be included and populated – **LightBox may reject** the file and request a new file if fields are not sufficiently populated.
Data Assumptions	▪ It is assumed that the values provided for each unique coverage area will contain values that are **representative for the locations** contained within ○ (e.g., there are not multiple technology / maximum speed values for a single polygon but rather one value for each unique polygon [if applicable]).
	▪ For *the minimum advertised speed fields (download and upload) – please provide the **raw values** for these fields and do not change data to match the example values* ○ *(e.g., minDown) outlined in the below table (e.g., 6.0 [4G] should not be changed to 5.0 [4G] – instead submit 6.0 [4G])*
Coordinate System (Projection)	▪ The coordinate system of the latitude and longitude values must be in **WGS84 projection (EPSG: 4326)**

SmartFabric™ Mobile Broadband – Coverage Area / Service Availability Area

The following data schema/fields are required as part of the ISP data submission for **SmartFabric™** Fixed Coverage Area / Service Availability Area (i.e., GIS boundary file)

Field	Description	Data Type	Example Value	Mandatory (M) / Optional (O) / ISP Addition (ISP Add-on)
parcel_lid	A proprietary LBX unique identifier for every location point.	String	070000499RBJ5QXN8BU7WP	M
fips_code	The 5-digit FIPS code is a Federal Information Processing Code for the State and Federal Information Processing Code for the County. The first two digits identify the state, and the last three digits identify the county.	String	56001	M
parcel_apn	Master parcel APN. This is the master/main APN number associated with the primary parcel in a location where multiple parcels with identical geometry exist. This can occur where there are multiple taxable properties in a location (condos, timeshares, mobile home parks).	String	2877011000 0100	M
aggr_acre_age	Sum of lot acreage owned by the same ownership entity, within a single county extent. See AGGR_GROUP below for more detail on how ownership is identified.	Float	854.58	M
aggr_group	ID indicating the grouping (ownership) of parcels for a single owner. Ownership identified by proprietary model that leverages both owner name and owner address. Parcels are identified within 300ft of adjacency, within a single county extent.	String	531539751_210	M
aggr_lot_width_median	Median lot width of all parcels within the aggregated owner group (AGGR_GROUP).	Integer	1318	M
aggr_lot_count	Number of parcels owned by the same ownership entity, within a single county extent. See AGGR_GROUP for more detail on how ownership is identified.	Integer	2	M
associated_assessment_count	Number of properties associated with a parcel.	Integer	1	M

primary_assessment_lid	Primary assessment record that the parcel is associated with.	String	030094A7S3SOJ2MYMLWPSN	M
primary_building_lid	Primary building that the parcel is associated with.	String	05044L57MJRYL8QW3O5X8Q	M
is_structure	Indicates whether a location is a structure or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
is_primary_address	Indicates whether the address is a primary address or not. is_structure values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	1	M
census_code	A 15-digit code that uniquely identifies a census block. Values include the following: • 2-digit state fips code • + 3-digit county fips code • + 6-digit Census tract code • + 4-digit Census block code	String	560019639001278	M
classification	A standardized description of the type of occupancy at the location. Values include the following: • Business • Residential • Mixed Use • Unknown/Other	String	Residential	M
assessment_land_use	The assessor code describing how the parcel of land is used that the location is located on.	String	Single Family Residential	M
resbus_usps	A USPS field classifying an address. Values include the following: • Business, • Residential	String	Residential	M

	• Unknown • NULL			
is_bsl	A yes/no value to determine if the location is broadband-serviceable or not is_bsl values must be one of the following numeric codes: • False = 0 • True = 1	Boolean Integer	0	M
bsl_type	A description from a list of standardized values indicating which type of broadband-serviceable category the location falls into. Values include the following: • Agricultural • Business • Non-BSL • Residential • Unclassified • Vacant Land	String	Agricultural	M
nonbsl_reason	A description indicating why a location is not considered broadband-serviceable. Values include the following: • Government • Industrial • Military • Parking Structure • Public Use • Unknown • NULL	String	Government	M
residential_unit_count	The number of residential units at the location.	Integer	3	M
business_unit_count	The number of business units at the location.	Integer	40	M
location_type	A code assigned to a location that describes the location type. Values must be one of the following: • 1 = Primary Building (building with an address) • 2 = Secondary Building (building without an address)	Integer	1	M

	• 3 = Address Point • 4 = Parcel			
polygon_geometry	Parcel or building geometry of the location as indicated in the “location_type” field (refer above)	String	MULTIPOLYGON(((-105.589755 41.325333,-105.590019 41.325331999999996,-105.590019 41.32546,-105.589755 41.32546,-105.589755 41.325333)))	M
address_lid	A proprietary LightBox identifier for address that is unique and persistent.	String	0602M8K8XSK0L1XX12AKKT	M
county	The name of the county.	String	ALBANY	M
state	The two-character abbreviation for a US state.	String	WY	M
city	The name of the city.	String	LARAMIE	M
address	The house number, street prefix direction, street name, street suffix, street suffix direction all formatted as a single line.	String	1501 ARNOLD ST	N
house_number	The address numbers, letters, and separators. (ex: the '123A' in '123A Main St'.)	String	1501	M
prefix_direction	The street prefix direction (ex: N,S,E,W)	String	N	M
prefix_type	The street prefix name (ex: Rue, Ave)	String	Ave	M
street_name	The street name without types or directions. (ex: the 'Main' in '123 Main St')	String	ARNOLD	M
suffix_type	The street suffix type. (ex: Avenue, Street)	String	STREET	M
suffix_direction	The street suffix direction (ex: N,S,E,W)	String	S	M
unit	The unit type and unit value. (ex: 'Apt A')	String	Apt A	M
zip	The zip code including the first five digits along with the zip4 extension, where available.	String	82070-5418	M
country_code	The two-character country code (US, CA).	String	US	M
precision_code	Address/Location precision code: • BC = building centroid • PC = parcel centroid • BEP = building entry point • BIP = building interior point associated with a specific unit or other designation within the building • STR = street interpolated • BGC = the centroid of a group of buildings	String	BC	M

primary_address_lid	The address_LID for the related primary address for the location if the address is not a primary address. The primary_address_lid may be equal to the parent_address_lid if the record is a secondary address.	String	0600LYEKD0EIG2OD0ABZ25	M
parent_address_lid	The address_LID for the related parent address when the address is a child address. Child addresses will also have a related primary_address_LID which may or may not be equal to the parent_address_LID.	String	0601H8N6OR6ZNQLOCD81PM	M
building_name_usps	The name of the structure containing the address, provided by USPS. This field is sparsely populated; most values pertain to large commercial buildings.	String	Medical Clinic	M
address_confidence_score	A number ranging from 1 (low confidence) to 5 (high confidence) indicating the likelihood that an address exists and if it's used or can be used.	Integer	1	M
provider	Name of Internet Service Provider (ISP).	String	<ISP Name>	M / ISP Add-On
technology	Code for the technology used for the deployed service. Value must be one of the following codes: • 300 = 3G • 400 = 4G LTE • 500 = 5G NR	Integer	400	M / ISP Add-On
min_down	Provide the minimum advertised download speed (Mbps) for modelled coverage. Values must be one of the following: • 0.05 = 3G • 1.0 = 4G LTE • 1.0 – 3.0 = 5G NR	Float	5.0	M / ISP Add-On
min_up	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed)	Float	1.0	M / ISP Add-On

	• 20 (represents 20Mbps upload speed)			
min_signal	Minimum signal strength for modelled coverage, in dBm, assuming an outdoor stationary environment. The value represents predicted RSSI signal strength when the technology code is 300 (i.e., 3G), and it represents predicted RSRP signal strength when the technology code is 400 or 500 (i.e., 4G LTAE or 5G-NR). • Value may be null when technology code is 300 (i.e., 3G) and the area overlaps with another map for the provider with the same stationary value where the technology code is 400 or 500 (i.e., 4G LTA or 5G-NR). • Value must be greater than or equal to -120 and less than or equal to -50.	Boolean Integer	-110	M / ISP Add-On
environmnt	Integer code indicating whether the area is modelled to have coverage when the user equipment is in an outdoor stationary environment only or in both in-vehicle mobile and outdoor stationary environments. Value must be one of the following codes: • 0 = Outdoor stationary only • 1 = In-vehicle mobile and outdoor stationary	Enumerated String	1	M / ISP Add-On

4.7.1 ISP Data Submission to LightBox

Participating ISPs will submit data to LightBox by doing the following:

- LightBox will provide the ISP's point of contact with secure credentials to upload broadband availability data.
- Log into the LightBox SFTP site by using the provided information:
    - **URL**: https://sftp.lightboxre.com
    - **Username**: Provided Separately (via LightBox email)
    - **Password**: Provided Separately (via LightBox email)
- Open the folder dedicated to data uploads (folder name = TO_LIGHTBOX), which is specific to each unique ISP.
- Copy and paste the required files into folder.
- Email LightBox (WyomingISPCoordinator@lightboxre.com) when this has been completed.

Refer to **Section 4.10** for more details on how to access the SFTP site.

4.7.2 Quality Assurance (QA)

Participating ISPs will submit data to LightBox by doing the following:

- Table structure (schema) contains required mandatory / optional fields.
- Each field contains information (attribution)

4.7.3 Geocoding

If required, LightBox will do the following:

- Geocode (i.e., assign coordinates (x,y)) each ISP address record
- Add the following attribution to each record
    - Address columns (whether data quality improvements were made or not – e.g., correcting a misspelled street name)
        - *NOTE: Each records original information will be maintained – new columns will be added beside these*
    - Scoring (how well was the record matched)
- Provide a document that will explain what has been done to the submitted file and how to make use of the new fields that have been attached (i.e., output schema). Refer to **Section 4.9** for more details.

4.8 Output Data Schema/Fields (List of Locations for Service Availability)

For those files that need to be geocoded (i.e., CSV files), the following data schema/fields will be provided back to the ISP once processing is complete:

List of Locations for Service Availability (Output)

Input / Output Field	Field	Description	Example Value	Mandatory (M) / Optional (O)
Input	**uniqueID**	A unique identifier for each address/location/record as per ISP. This ID will be used to facilitate future data submissions for your company.	123456A	O
Input	**lightboxID**	A unique identifier for each address/location/record as per LightBox SmartFabric™ GIS data file. If assigned by an ISP, this ID will be used to speed subsequent iterations of address matching, please populate with a value which your organization can reproduce in future submissions.	0700T8QAWZ HUFFYI8BJOU5	O
Input	**address**	The house number, street prefix direction, prefix type, street name, suffix type, street suffix direction all formatted as a single line. Do not include unit information in this field – unit info should go in "unit" field (refer below).	123 N Main St W	M
Input	**unit**	The unit type and unit number (if applicable).	Apt 3A	M
Input	**unitCount**	Number of units in a location (building).	1	O
Input	**streetNo**	The address numbers, letters, and separators (e.g., The '123' in '123 Main St').	123	O
Input	**prefixDir**	A directional preceding a street name (e.g., The 'N' in 'N Main St').	N	O
Input	**prefixType**	The type preceding the street name (e.g., The 'Ave' in '123 Ave A').	Ave	O
Input	**streetName**	The name of the street (e.g., The 'Main' in '123 Main St W').	Main	O

Input	**suffixType**	The type after the street name (e.g., The 'St' in '123 Main St W').	St	O
Input	**suffixDir**	A directional after a street name (e.g., The 'W' in 'Main St W').	W	O
Input	**unitType**	The type of the unit (e.g., The 'Apt' in 'Apt 3A').	Apt	O
Input	**unitValue**	The identifier part of the unit (e.g., The '3A' in 'Apt 3A').	3A	O
Input	**locality**	The preferred locality of the address as assigned by the postal system and associated with the postal code.	Laramie	M
Input	**regionCode**	US State.	WY	M
Input	**zip_code**	The country specific code for postal sorting, ZIP5 or ZIP 9.	12309 or 12309-1234	M
Input	**provider**	Name of Internet Service Provider (ISP).	<ISP Name>	M
Input	**bizrescode**	Assign an enumerated character indicating whether the service at the location is business-only, residential-only, or offered to both business and residential customers. Values include the following: • B = Business-only service • R = Residential-only service • X = Business and Residential service	R	M
Input	**bslFlag**	Indicates whether a location is a Broadband Serviceable Location (BSL) or not. BSL values must be one of the following numeric codes: • False = 0 • True = 1	0	M
Input	**technology**	Indicate the technology used to offer service to this address. The value must be one of the following codes: • 10 = Copper Wire • 40 = Coaxial Cable / HFC • 50 = Optical Carrier / Fiber to the Premises	50	M

		• 60 = Geostationary Satellite • 70 = Unlicensed Terrestrial Fixed Wireless • 71 = Licensed Terrestrial Fixed Wireless • 0 = Other		
Input	**max_advertised_download_speed**	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 6 (represent 6Mbps download speed) • 100 (represents 100Mbps download speed)	100.0	M
Input	**max_advertised_upload_speed**	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples (but not limited to): • 1.5 (represent 1.5Mbps upload speed) • 20 (represents 20Mbps upload speed)	20.0	M
Input	**low_latency**	The offered service is low latency, defined as having round-trip latency of less than or equal to 100 milliseconds based on the 95th percentile of measurement. Values must be one of the following codes: • 0 = False • 1 = True	1	M
Input	**latitude**	Latitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in order to assign this.	45.79772649	O
Input	**longitude**	Longitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in	-108.5421135	O

		order to assign this.		
Output	**lb_pass_fail**	Identifies whether a record has passed/failed QA: • Pass flag– record was able to be processed, passed QA, and had a high match score (>80) • Fail flag - records was not able to be processed (due to missing information, etc), did not pass QA or had a low match score (<80) *NOTE: Match score was selected to be >80 to ensure the highest quality and avoid scenarios where there might be multiple answers for the same record (e.g., Main St where direction is missing could have a match to Main St W or Main St E).*	Pass	-
Output	**lb_address**	The house number, street prefix direction, street name, street suffix, street suffix direction all formatted as a single line.	123 N Main St W	-
Output	**lb_unit**	The unit type and unit number	Apt 3A	-
Output	**lb_streetNumber**	The address numbers, letters, and separators (e.g., The '123' in '123 N Main St')	123	-
Output	**lb_prefixDirection**	A directional preceding a street name (e.g., The 'N' in '123 N Main St' W)	N	-
Output	**lb_prefixType**	The type preceding the street name (e.g., The 'Ave' in '123 Ave A')		-
Output	**lb_streetName**	The name of the street (e.g., The 'Main' in '123 N Main St W')	Main	-
Output	**lb_suffixType**	The type after the street name (e.g., The 'St' in '123 N Main St W')	St	-
Output	**lb_suffixDirection**	A directional after a street name (e.g., The 'W' in 'Main St W')	W	-
Output	**lb_unitType**	The type of the unit (e.g., The 'Apt' in 'Apt 3A')	Apt	-

Output	**lb_unitValue**	The identifier part of the unit (e.g., The 'A' in 'Apt 3A')	3A	-
Output	**lb_locality**	The preferred locality of the address as assigned by the postal system and associated with the postalCode	Laramie	-
Output	**lb_regionCode**	US State	WY	-
Output	**lb_postalCode**	The country specific code for postal sorting. In the US, this is the ZIP code.	12309-1234	-
Output	**lb_postalCodePrimary**	The primary part of the postal code In the US, this is the ZIP5 (e.g., The '12309' in '12309-1234')	12309	-
Output	**lb_postalCodeExtension**	The optional, more specific part of the postal code. In the US, this is the ZIP4 (e.g., The '1234' in '12309-1234')	1234	-
Output	**lb_latitude**	Latitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in order to assign this.	45.79772649	-
Output	**lb_longitude**	Longitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LightBox will attempt to geocode the record in order to assign this.	-108.5421135	-
Output	**lb_precision**	Precision of coordinates	Inside of Parcel	-
Output	**lb_serviceability**	Broadband service availability value as defined by the state.	Served	-

4.8.1 Data Submission to ISP

Where applicable, ISP's processed files (CSV) will be placed within a designated sub-folder (i.e., "FROM_LIGHTBOX") to allow ISPs to download it.

An email will be sent to each ISP stakeholder to notify them when this is ready based on the contact information that LightBox has received from the state and/or ISP.

4.9 ISP Data Submission (Upload/Download)

ISPs will upload/download data to LightBox using an SFTP server.

4.9.1 Overview

The LightBox SFTP site is a secure software for file transfer to clients. It has enhanced security features to ensure reliable transfer and confidentiality of data.

4.9.2 Software Requirements

Access to an internet browser such as (but not limited to): Chrome, Firefox, or Edge to connect to the SFTP site for file downloads/uploads.

4.9.3 Credentials

Logon credentials for access to the SFTP server will be provided by LightBox to each unique ISP.

This will include a username and password that gives access to a dedicated ISP folder on the SFTP site.

Example

Username: lightbox

Password: iO9jh76#pd%7a

4.9.4 Connection

To connect to the SFTP site, enter in the URL in your browser's search bar to navigate to the SFTP site's logon page. Enter your SFTP username and password and then click the "*Logon*" button (refer to ***Image B*** below).

URL: https://sftp.lightboxre.com/

Username: Provided Separately (via LightBox email)

Password: Provided Separately (via LightBox email)

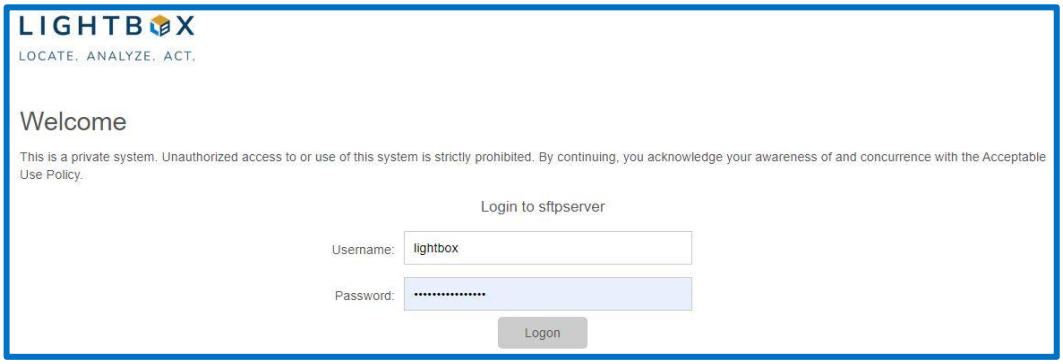


Image B: *Example of LightBox SFTP logon page.*

4.9.5 Upload Files

After logging on to your SFTP account you will see a sub-folder (i.e., “TO_LIGHTBOX”) where data files can be uploaded (refer to ***Image C*** below) files.

Data files can be uploaded to your SFTP account by dragging and dropping the file into the “TO_LIGHTBOX” sub-folder, OR you can select the upload button 

and then select the file that is stored on your local machine or server.

Image C: *Example of LightBox SFTP account and the "TO_LIGHTBOX" sub-folder for data uploads.*

4.9.6 Download Files

After logging on to your SFTP account you will see a sub-folder (i.e., “FROM_LIGHTBOX”) where data files can be downloaded (refer to ***Image D*** below)

NOTE: This will only be used if files are being provided back to the ISP (e.g., providing a geocoded CSV file for reference).

Data files can be downloaded to your local machine from the SFTP server by simply clicking the download icon. 

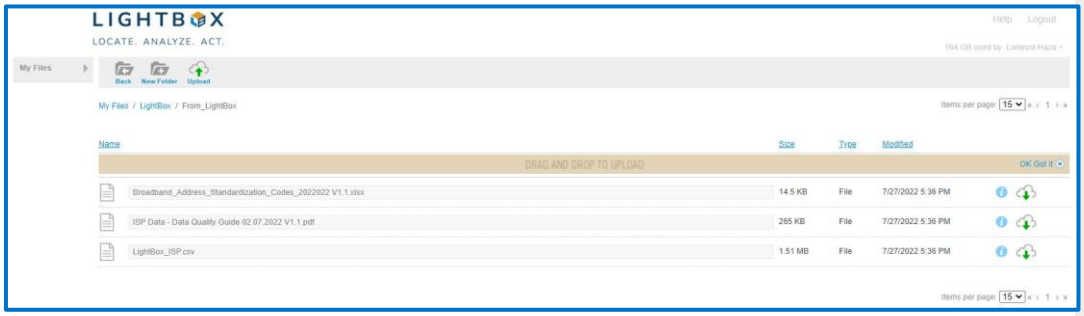


Image D: *Example of LightBox SFTP account and the "FROM_LIGHTBOX" sub-folder for data downloads.*

4.10 Support

If you encounter any difficulties in uploading/downloading data, or have any questions about this document, please contact WyomingISPCoordinator@lightboxre.com for assistance.

4.11 Frequently Asked Questions (FAQ)

- **Q: I don't have unique IDs for locations that our company serves so how do I obtain them?**

- **A:** The unique ID values should be generated from your company's system or database software and then assigned to each location. It can simply be an auto-number.

- **Q: For Coverage Area / Service Availability Area data submissions (GIS file), what do the unique IDs correspond to?**

- **A:** The unique IDs will be assigned to each polygon in your Shapefile or File Geodatabase data. You can use the default ID generated by GIS software, such as ArcGIS (i.e., OID), or an auto-number.

- **Q: What types of locations are not considered a Broadband Serviceable Location (BSL)?**

- **A:** A non-broadband serviceable location (non-BSL) would be any location that likely doesn't subscribe to mass market internet service from traditional retail ISPs that offer residential and business internet plans.

    - Examples of non-BSL locations would be colleges/universities, government buildings, health care buildings, K-12 facilities, large enterprises, and locations that lack any source for electric power.

    - These types of locations would be assigned a value of "0" (false) for the "bsl_flag" field in your data submission.

- **Q: Is the "lightbox_ID" field the same as the FCC BDC's "location_ID" field?**

- **A:** No, this is a different ID that is derived from the LightBox SmartFabric™ data. The "lightbox_ID" field is optional, and it's not needed to prepare your broadband serviceable data for submission.

    - Refer to the "Requesting LightBox SmartFabric™ Data (Optional)" section for more information.

- **Q: Can we submit the same data that we used for the FCC 477 and/or BDC initiatives for the State of Wyoming Broadband Mapping program?**

- **A:** No, we cannot accept that as is due to data licensing constraints on the FCC's Location Fabric data. The broadband serviceable location list (i.e., CSV) or coverage area (Shapefile or File Geodatabase) data that you submit to LightBox should come directly from your system and/or database. Your data submission should not contain any FCC data within it.

- **Q: Will the LightBox SmartFabric™ data be made available for download to assist with data prepartion?**

- **A:** Yes, the LightBox SmartFabric™ will be made available to ISPs that request it

    - Refer to the "Requesting LightBox SmartFabric™ (Optional)" section for more information on requesting the data.

- **Q: For Fixed broadband providers, does my company need to submit both List of Locations for Service Availability (CSV) and Coverage Area / Service Availability Area (shapefile or FGDB) files to be eligible to apply for state broadband funding?**

- **A:** No, you only need to submit one (1) of these two (2) options. Please choose the option that is easiest for you to prepare.

- **Q: I did not receive SFTP credentials for uploading data. How do I obtain them?**

- **A:** Please contact the WyomingISPCoordinator@lightboxre.com email to obtain your SFTP Access Credentials document for your company. Please note that data will not be accepted outside of the data collection window.

- **Q: Do we need to sign and return the Confidentiality Agreement to LightBox to participate in the State of Wyoming Broadband Mapping program?**

- **A:** No, the Confidentiality Agreement is optional, and it's not required for participation in the program.

5 VERSION MANAGEMENT

The following table explains the different versions of the document and changes made to each:

Version	Edited By	Date	Notes
1.0	Lorenzo Haza	11/17/2022	Initial document creation.

2.0	Lorenzo Haza	11/29/2022	Added new SmartFabric™ data submission options and schemas based on LightBox Feedback:
			• **Section 4.5**
			  ○ Added new section that outlines new data submission option (SmartFabric™ – Fixed Broadband Location Points)
			  ○ Added new guidelines and input data schemas for using SmartFabric™ data for Fixed Broadband Location Points data submission
			• **Section 4.6**
			  ○ Added new section that outlines new data submission option (SmartFabric™ – Fixed Broadband Coverage Area / Service Availability Area)
			  ○ Added new guidelines and input data schemas for using SmartFabric™ data for Fixed Broadband Coverage Area / Service Availability Area data submission
			• **Section 4.7**
			  ○ Added new section that outlines new data submission option (SmartFabric™ – Mobile Broadband Coverage Area / Service Availability Area)
			  ○ Added new guidelines and input data schemas for using SmartFabric™ data for Mobile Broadband Coverage Area / Service Availability Area data submission