



Wyoming – ISP Data Submission Guide

PREPARED FOR STATE OF
WYOMING – BROADBAND
MAPPING PROJECT (MARCH 2024)

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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/>

Table of Contents

1	Document Overview	3
1.1	Purpose	3
1.2	Audience	3
2	Introduction	3
2.1	Who is LightBox (LBX)?	3
3	ISP Data Submission	3
3.1	Legal Requirements	3
3.2	Broadband Service Availability Data Collection	4
	State Broadband Definitions:	4
	Broadband Service Availability Data Submissions	5
	Requesting LBX SmartFabric™ Data (Optional)	6
3.3	Input Data Schema/Fields (Fixed Broadband – List of Locations for Service Availability)	9
	Fixed Broadband – List of Locations for Service Availability	10
3.4	Input Data Schema/Fields (Fixed Broadband – Coverage Area/Service Availability Area)	13
	Fixed Broadband – Coverage Area/Service Availability Area	14
3.5	Input Data Schema/Fields (Mobile Coverage Area/Service Availability Area)	16
	Mobile Broadband – Coverage Area/Service Availability Area	17
3.6	Input Data Schema/Fields (SmartFabric™ Fixed Broadband – Locations for Service Availability)	19
	SmartFabric™ Fixed Broadband – Locations for Service Availability	20
3.7	Input Data Schema/Fields (SmartFabric™ Fixed Broadband – Coverage Area/Service Availability Area)	26
	SmartFabric™ Fixed Broadband – Coverage Area/Service Availability Area	27
3.8	Input Data Schema/Fields (SmartFabric™ Mobile Broadband – Coverage Age/Service Availability Area)	29
	SmartFabric™ Mobile Broadband – Coverage Area/Service Availability Area	30
3.9	ISP Data Submission to LightBox	32
3.9.1	Submitting Broadband Availability Data	32
3.9.2	Quality Assurance	32
3.9.3	Geocoding	32
3.10	Output Data Schema/Fields (List of Locations for Service Availability)	33
	List of Locations for Service Availability Output Schema	33
3.10.2	Recommendations	39
3.10.3	Data Submission to ISP	39
3.11	ISP Data Submission (Upload)	40
3.11.1	Overview	41
3.11.2	Software Requirements	41
3.11.3	Credentials	41
3.11.4	Connection	41
3.11.5	Uploading Files – Data Submission Portal	42
3.12	Support	47
3.13	Frequently Asked Questions	47

I Document Overview

I.1 Purpose

The following guide has been created for ISPs that provide broadband service in Wyoming. The purpose is to communicate instructions on how to submit served location data to LBX for processing on behalf of the Wyoming Business Council – Connect WY office.

- Provides an overview of what data should be submitted in the LBX system via file upload.
- Identifies the acceptable format(s) for data files that are uploaded.
- Specifies how data files should be formatted, i.e., which fields they should contain and the data type of each field.

I.2 Audience

The intended audience for this document is the ISPs that provide fixed and mobile broadband services within the State of Wyoming.

2 Introduction

2.1 Who is LightBox (LBX)?

LightBox has been selected by the State of Wyoming to receive and process served location data from the ISPs of the 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 more about LBX and the role it plays in broadband initiatives, please visit <https://www.lightboxre.com/products/broadband>.

3 ISP Data Submission

3.1 Legal Requirements

ISPs shall only submit data for 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 in violation of any contract to which the ISP (or any of its affiliates) is a party to or is otherwise bound to or would infringe upon any intellectual property right of any third party.

3.2 Broadband Service Availability Data Collection

State Broadband Definitions:

Serviceability	Definition
Served	<ul style="list-style-type: none">A served location is defined as such when it has max speeds greater than or equal to 100/20 Mbps ($\geq 100/20$) and latency is less than or equal to 100 milliseconds (≤ 100) based on the 95th percentile of network speed measurements reported to the Federal Communications Commission (FCC) for the latest Broadband Data Collection.
Underserved	<ul style="list-style-type: none">An underserved location is defined as such when it has max speed less than 100/20 Mbps ($< 100/20$) and greater than or equal to 25/3 Mbps ($\geq 25/3$) [$\geq 25/3 - < 100/20$] and latency is less than or equal to 100 milliseconds (≤ 100) based on the 95th percentile of network speed measurements reported to the Federal Communications Commission (FCC) for the latest Broadband Data Collection.
Unserved	<ul style="list-style-type: none">An unserved location is defined when it has max speed less than 25/3 Mbps ($< 25/3$) and latency is less than or equal to 100 milliseconds (≤ 100) based on the 95th percentile of network speed measurements reported to the Federal Communications Commission (FCC) for the latest Broadband Data Collection.

Broadband Service Availability Data Submissions

There are **six (6)** options to submit data to LBX:

- 1. Fixed Broadband – List of Locations** (e.g., 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 3.3](#) for an example.
 - **Archive file format:** N/A

- 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 (e.g., shapefile and file geodatabase) – refer to [Section 3.4](#) for an example.
 - **NOTE:** All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) for data to be used.
 - **Archive file format:** ZIP (.zip)

- 3. Mobile 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 (e.g., shapefile and file geodatabase) – refer to [Section 3.5](#) for an example.
 - **NOTE:** All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) for data to be used.
 - **Archive file format:** ZIP (.zip)

- 4. Fixed Broadband – SmartFabric™ Locations for Serviceability Area** (e.g., 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 formats:**
 - *Option #1* – Tabular data file (e.g., CSV) – refer to [Section 3.6](#) for an example of the data schema.
 - *Option #2* – GIS data file (e.g., shapefile or file geodatabase) – refer to [Section 3.6](#) for an example.
 - **NOTE:** All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) for data to be used.
 - **Archive file format:**
 - *Option #1* – N/A
 - *Option #2* – ZIP (.zip)

- 5. Fixed Broadband – SmartFabric™ Coverage Area/Service Area** (e.g., 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 formats:** GIS data file (e.g., shapefile and file geodatabase) – refer to [Section 3.7](#) for an example.
 - **NOTE:** All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) for data to be used.
 - **Archive file format:** ZIP (.zip)

6. Mobile Broadband – SmartFabric™ Coverage Area/Service Area (e.g., 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 formats:** GIS data file (shapefile and file geodatabase) – refer to [Section 3.8](#) for an example.
 - *NOTE: All file extensions, not just *.shp, need to be included for shapefile delivery (.dbf, .shx, .prj, .xml, .sbn, .sbx) for data to be used.*

Archive file format: ZIP (.zip)

NOTE: Fixed broadband providers must submit only one (1) of the four (4) options listed above. Mobile broadband providers must submit only one (1) of the two (2) options listed above.

Requesting LBX SmartFabric™ Data (Optional)

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

LBX SmartFabric™ data are being made available to all ISPs to facilitate data preparation and submission as part of the Wyoming Broadband Mapping program. For SmartFabric™ **submission options see 4, 5 and 6 above.**

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

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

Interested in SmartFabric for use with state broadband program with limited permissible use (*)

Interested in SmartFabric for use with state broadband program with expanded permissible use (**)

First Name * Last Name *

Job Title * Organization *

Business Email * Phone *

Country * State *

Industry * Are you a LightBox customer? *

What U.S. state and counties are you interested in? *

By submitting, you confirm that you have read and agree to the [Website Terms of Use](#) and that you agree to the processing of your personal data by LightBox as described in the [Privacy Statement](#).

(*) Permissible use for SmartFabric with limited permissible use may be used expressly for your state broadband program and in accordance with the end user license. [Click here to review an example EULA.](#)

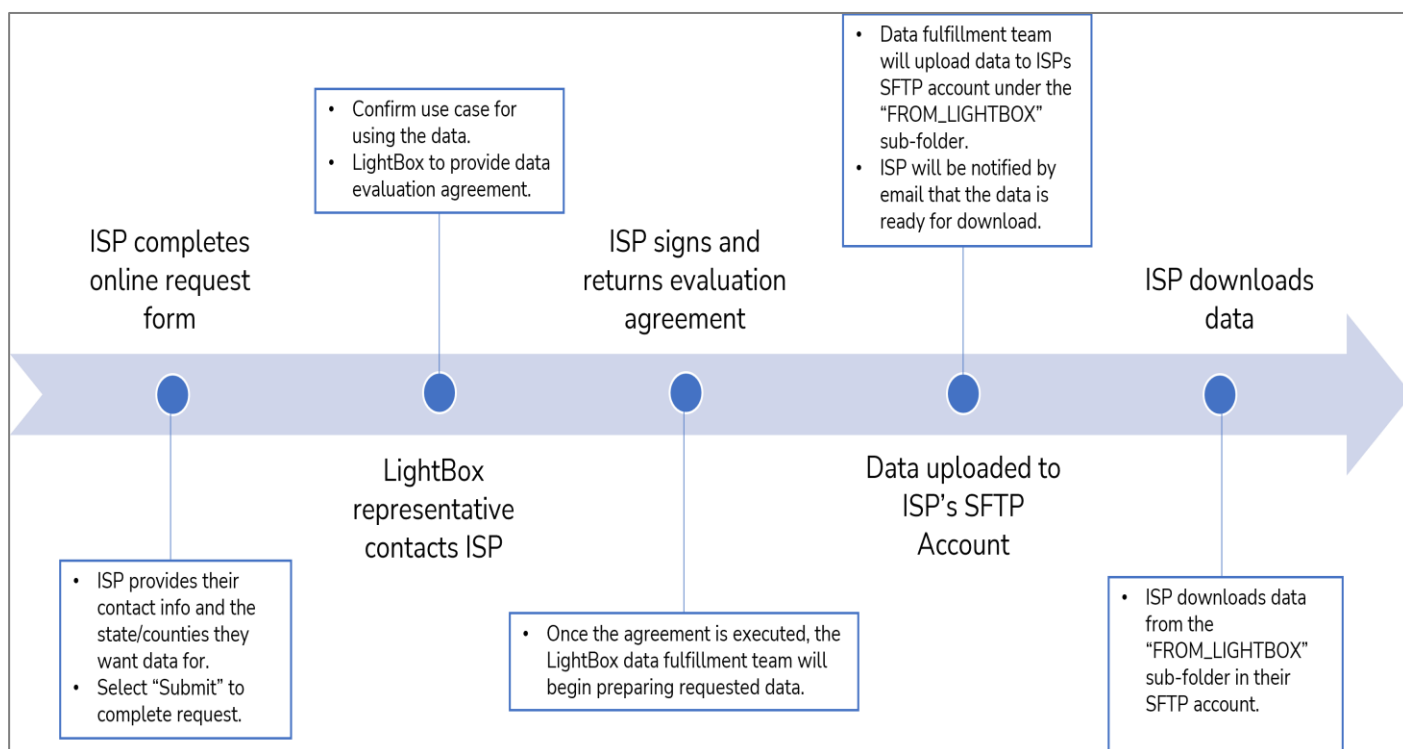
(**) Permissible use for SmartFabric with expanded permissible use may be used in accordance with the LightBox master services agreement.

Image A: SmartFabric™ online data request form.

NOTES:

- Select the “**limited permissible use (*)**” option if you would like to request data for the sole purpose of obtaining the LBX SmartFabric™ data for the state broadband data submission.
- Select the “**expanded permissible use (**)**” option if you would like to use the LBX SmartFabric™ data for the state broadband submission AND for additional use cases within your business.
- For the “**What U.S. state and counties are you interested in?***” field – please enter the state and/or counties for which you wish to receive data (e.g., <State>: CountyName1, CountyName2, CountyName3, etc.)

The workflow diagram below outlines the steps for requesting data:



To use SmartFabric™ to create one of the required three (3) submission formats, please review the following suggestions for which data layers should be used:

Data Submission Option	SmartFabric™		
	Address/Location Points	Parcel Boundaries	Building Footprints
4. SmartFabric™ Fixed Broadband – List of Locations	✓		
5. SmartFabric™ Fixed Broadband – Coverage Area/Service Availability Area		✓	
6. SmartFabric™ Mobile Broadband – Coverage Area/Service Availability Area		✓	

Documentation:

- [SmartFabric™](#)

Support:

- Contact the WyomingISPCoordinator@lightboxre.com mailbox if you have any questions or concerns about the data.
- Refer to Sections [3.6](#), [3.7](#) and [3.8](#) for the input data schemas for **SmartFabric™ data submission options**.
- Refer to SmartFabric™ Broadband and Professional Entity Relationship Diagrams included with your data delivery.

3.3 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	<ul style="list-style-type: none"> ▪ The file must be in a Comma Separated Values (CSV) format.
File Structure	<ul style="list-style-type: none"> ▪ The file must contain the required fields, flagged as mandatory (M), in the format specified (refer to table below).
	<ul style="list-style-type: none"> ▪ If the file does not conform to the required structure – LBX will reject the file and request a new file from the ISP. <ul style="list-style-type: none"> ○ NOTE: If the file is rejected, the ISP must resubmit the file before the close of the data submission window, or the file will not be included in the map.
	<ul style="list-style-type: none"> ▪ All mandatory fields (marked with "M" in schema below) must be included and populated – LBX may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> ▪ 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). <ul style="list-style-type: none"> ○ NOTE: If duplicate records (for the same address) are found – LBX will use the record from the group of duplicates that contains the highest maximum advertised speeds.
	<ul style="list-style-type: none"> ▪ 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”. <ul style="list-style-type: none"> ○ e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30.
	<ul style="list-style-type: none"> ▪ If there are potentially two different maximum advertised speeds (Mbps) for the same address, submit the fastest speeds. <ul style="list-style-type: none"> ○ i.e., 25 and 10 [down/up] and 100 and 20 [down/up] – please submit the largest speeds (100 and 20).
Coordinate System (Projection)	<ul style="list-style-type: none"> ▪ The coordinate system of the latitude and longitude values must be in WGS84 projection (EPSG: 4326).

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:

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
unique_id	A unique identifier for each address/location/record as per ISP (i.e., this can be an auto-number).	String	123456A	M
address	The house number, street prefix direction, prefix type, street name, suffix type and street suffix direction all formatted as a single line. Do not include unit information in this field – unit info should go in "unit" field below.	String	123A 1/2 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	Two-letter state abbreviation.	String	WY	M
zipcode	The country specific code for postal sorting, ZIP 5 or ZIP 9.	String	82072 or 82072-0001	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: <ul style="list-style-type: none"> ▪ 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 BSL or not. Refer to FAQ below for non-BSL examples. BSL values must be one of the following numeric codes: <ul style="list-style-type: none"> ▪ False = 0 ▪ True = 1 	Boolean Integer	0	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
technology	<p>Indicates the technology used to offer service to this address. The value must be one of the following codes:</p> <ul style="list-style-type: none"> ▪ 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 ▪ 72 = Licensed-by-Rule Terrestrial Fixed Wireless ▪ 0 = Other 	Integer	50	M
max_advertised_download_speed	<p>Provide the maximum advertised download speed value (Mbps) for the address as a value (#).</p> <p>Examples:</p> <ul style="list-style-type: none"> ▪ 6 (represents 6 Mbps download speed) ▪ 100 (represents 100 Mbps download speed) 	Float	100.0	M
max_advertised_upload_speed	<p>Provide the maximum advertised upload speed value (Mbps) for the address as a value (#).</p> <p>Examples:</p> <ul style="list-style-type: none"> ▪ 1.5 (represents 1.5 Mbps upload speed) ▪ 20 (represents 20 Mbps upload speed) 	Float	20.0	M
low_latency	<p>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.</p> <p>Values must be one of the following codes:</p> <ul style="list-style-type: none"> ▪ 0 = False ▪ 1 = True 	Boolean Integer	1	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
unit_count	Number of units in a location (building).	Integer	1	O
street_number	The address numbers, letters and separators (e.g., The “123A 1/2” in “123A 1/2 Main St”).	String	123A 1/2	O
prefix_direction	A directional preceding a street name (e.g., The “N” in “123A 1/2 N Main St W”).	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 “123A 1/2 Main St W”).	String	Main	O
suffix_type	The type after the street name (e.g., The “St” in “123A 1/2 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 (projected in WGS84 decimal degrees = (EPSG:4326 [WGS 84])). If this attribute is not available, LightBox will attempt to geocode the record to assign this.	Float	30.286878933 935377	O
longitude	Longitude of address location (projected in WGS84 decimal degrees = (EPSG:4326 [WGS 84])). If this attribute is not available, LightBox will attempt to geocode the record to assign this.	Float	- 97.742787934 18307	O

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

Data Submission Guidelines for Fixed Broadband – Coverage/Service Availability Area	
Theme	Instructions
File Format	<ul style="list-style-type: none"> Data must be in Shapefile or File Geodatabase format.
File Structure	<ul style="list-style-type: none"> The attribute table in the shapefile layer must contain the required fields, flagged as mandatory (M), in the structure of the table outlined below.
	<ul style="list-style-type: none"> If the file does not conform to the required structure, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> All mandatory fields (marked with "M" in schema below) must be included and populated – LBX may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> It is assumed that the values provided for each unique coverage area will contain values that are representative for all of the locations contained within (i.e., there are not multiple technology/maximum speed values for a single polygon but rather one value for each unique polygon, if applicable).
	<ul style="list-style-type: none"> For the maximum advertised speed fields (download and upload), please provide the raw values/actual values for these fields and do not change data to match the example values outlined in the above section "State Broadband Definitions". <ul style="list-style-type: none"> e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for the same technology cannot overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for different technologies (e.g., Fiber and Coaxial Cable) can overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) where there are <i>distinct residential and business services</i>, each with their own distinct maximum advertised and upload speed, can overlap.
Coordinate System ("Projection")	<ul style="list-style-type: none"> The coordinate system of the latitude and longitude values must be in WGS84 projection (EPSG: 4326).

Fixed Broadband – Coverage Area/Service Availability Area

The following data schema/fields are requested as part of the ISP data submission for a “Fixed Coverage Area/Service Availability Area” (i.e., GIS boundary file) where service is available within 10 business days of an order:

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
provider	Name of 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: <ul style="list-style-type: none"> ▪ 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: <ul style="list-style-type: none"> ▪ 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 ▪ 72 = Licensed-by-Rule Terrestrial Fixed Wireless ▪ 0 = Other 	Integer	50	M
maxdown	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples: <ul style="list-style-type: none"> ▪ 6 (represents 6 Mbps download speed) ▪ 100 (represents 100 Mbps download speed) 	Float	100.0	M
maxup	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples: <ul style="list-style-type: none"> ▪ 1.5 (represents 1.5 Mbps upload speed) ▪ 20 (represents 20 Mbps upload speed) 	Float	20.0	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
lowlatency	<p>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.</p> <p>Values must be one of the following codes:</p> <ul style="list-style-type: none"> ▪ 0 = False ▪ 1 = True 	Boolean Integer	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

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

Data Submission Guidelines for Mobile Broadband – Coverage/Service Availability Area	
Theme	Instructions
File Format	<ul style="list-style-type: none"> Data must be in Shapefile or File Geodatabase format.
File Structure	<ul style="list-style-type: none"> The attribute table in the shapefile layer must contain the required fields, flagged as mandatory (M), in the structure of the table outlined below.
	<ul style="list-style-type: none"> If the file does not conform to the required structure, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> All mandatory fields (marked with "M" in schema below) must be included and populated – LBX may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> It is assumed that the values provided for each unique coverage area will contain values that are representative for all of the locations contained within (i.e., there are not multiple technology/maximum speed values for a single polygon but rather one value for each unique polygon, if applicable).
	<ul style="list-style-type: none"> For the minimum advertised speed fields (download and upload), please provide the raw values/actual values for these fields and do not change data to match the example values outlined in the above section "State Broadband Definitions". <ul style="list-style-type: none"> e.g., 6.0 [4G] should not be changed to 5.0 [4G] – instead submit 6.0 [4G].
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for the same technology cannot overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for different technologies (e.g., Fiber and Coaxial Cable) can overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) where there are <i>distinct residential and business services</i>, each with their own distinct maximum advertised and upload speed, can overlap.
Coordinate System ("Projection")	<ul style="list-style-type: none"> 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 requested as part of the ISP data submission for a “Mobile Coverage Area/Service Availability Area” (i.e., GIS boundary file) where service is available within 10 business days of an order:

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
provider	Name of ISP.	String	<ISP Name>	M
technology	Code for the technology used for the deployed service. Value must be one of the following codes: <ul style="list-style-type: none"> ▪ 300 = 3G ▪ 400 = 4G LTE ▪ 500 = 5G NR 	Integer	400	M
mindown	Provide the minimum advertised download speed (Mbps) for modeled coverage. Values must be one of the following: <ul style="list-style-type: none"> ▪ 0.2 = 3G ▪ 5.0 = 4G LTE ▪ 7.0-35.0 = 5G NR 	Float	5.0	M
minup	Provide the minimum advertised upload speed (Mbps) for modeled coverage. Values must be one of the following: <ul style="list-style-type: none"> ▪ 0.05 = 3G ▪ 1.0 = 4G LTE ▪ 1.0-3.0 = 5G NR 	Float	1.0	M
minsignal	Minimum signal strength for modeled 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). <ul style="list-style-type: none"> ▪ 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. 	Integer	-110	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
environmnt	<p>Integer code indicating whether the area is modeled to have coverage when the user equipment is in an outdoor stationary environment only or in both in-vehicle mobile and outdoor stationary environments.</p> <p>Value must be one of the following codes:</p> <ul style="list-style-type: none"> ▪ 0 = Outdoor stationary only ▪ 1 = In-vehicle mobile and outdoor stationary 	Enumerated Integer	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

3.6 Input Data Schema/Fields (SmartFabric™ Fixed Broadband – Locations for Service Availability)

Data Submission Guidelines for SmartFabric™ Fixed Broadband – Locations for Service Availability	
Theme	Instructions
File Format	<ul style="list-style-type: none"> The file must be in a Comma Separated Values (CSV) format or a GIS mapping file (Shapefile or File Geodatabase)
File Structure	<ul style="list-style-type: none"> The file must contain the required fields, flagged as mandatory (M), in the format specified (refer to table below).
	<ul style="list-style-type: none"> If the file does not conform to the required structure, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> All mandatory fields (marked with "M" in schema below) must be included and populated – LBX will reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> It is assumed that the values provided for each unique location point will contain values that are representative for that location (CSV) or representative for the locations contained within (GIS Mapping file). <ul style="list-style-type: none"> i.e., there are not multiple technology/maximum speed values for a single point but rather one value for each unique point, if applicable.
	<ul style="list-style-type: none"> 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." <ul style="list-style-type: none"> e.g., 25 and 30 (down/up) should not be changed to 25 and 10 (down/up) – instead submit 25 and 30.
	<ul style="list-style-type: none"> 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). <ul style="list-style-type: none"> NOTE: If duplicate records (for the same address) are found, LBX will use the record from the group of duplicates that contains the highest maximum advertised speeds.
	<ul style="list-style-type: none"> If there are potentially two different maximum advertised speeds (Mbps) for the same address, submit faster speeds. <ul style="list-style-type: none"> i.e., 25 and 10 [down/up] and 100 and 20 [down/up – please submit the highest speeds (100 and 20).]
	<ul style="list-style-type: none"> Records representing secondary buildings (i.e., location_type = 2) must be removed from the file before submission – LBX will reject the file and request a new file from the ISP if secondary buildings are included.
Coordinate System (Projection)	<ul style="list-style-type: none"> The coordinate system of the latitude and longitude values must be in WGS84 projection (EPSG: 4326).

SmartFabric™ Fixed Broadband – Locations for Service Availability

The following data schema/fields are requested as part of the ISP data submission for a “SmartFabric™ Fixed Locations for Service Availability” (i.e., CSV or GIS point file) where service is available within 10 business days of an order. *NOTE – “ISP Add-On” means that the ISP needs to populate this information supplementally to SmartFabric before submitting to LightBox:*

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	070000499RBJ 5QXN8BU7W P	M
address_lid	A proprietary LightBox identifier for address that is unique and persistent.	String	06031LGDWD C8IUIWL8JA 9X	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: <ul style="list-style-type: none"> ▪ B = Business-only service ▪ R = Residential-only service ▪ X = Business and Residential services 	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: <ul style="list-style-type: none"> ▪ 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 ▪ 72 = Licensed-by-Rule Terrestrial Fixed Wireless ▪ 0 = Other 	Integer	50	M / ISP Add-On

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) / ISP ADDITION (ISP ADD-ON)
maxdown	<p>Provide the maximum advertised download speed value (Mbps) for the address as a value (#).</p> <p>Examples:</p> <ul style="list-style-type: none"> 6 (represents 6 Mbps download speed) 100 (represents 100 Mbps download speed) 	Float	100.0	M / ISP Add-On
maxup	<p>Provide the maximum advertised upload speed value (Mbps) for the address as a value (#).</p> <p>Examples:</p> <ul style="list-style-type: none"> 1.5 (represents 1.5 Mbps upload speed) 20 (represents 20 Mbps upload speed) 	Float	20.0	M / ISP Add-On
lowlatency	<p>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.</p> <p>Values must be one of the following codes:</p> <ul style="list-style-type: none"> 0 = False 1 = True 	Boolean Integer	1	M / ISP Add-On
location_type	<p>A code assigned to a location that described the location type.</p> <p>Values must be one of the following:</p> <ul style="list-style-type: none"> 1 = Primary Building (building with an address) 3 = Address Point 4 = Parcel 	Integer	1	M
fips_code	<p>5-digit Federal Information Processing Standards (FIPS) code for uniquely identifying geographic areas.</p> <ul style="list-style-type: none"> The first two digits identify the state, and the last three digits identify the county. 	String	56001	O

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) / ISP ADDITION (ISP ADD-ON)
census_code	<p>A 15-digit code that uniquely identifies a census block.</p> <p>Values include the following:</p> <ul style="list-style-type: none"> ▪ 2-digit state fips code ▪ + 3-digit county fips code ▪ + 6-digit Census tract code ▪ + 4-digit Census block code 	String	560019639001 278	O
classification	<p>A standardized description of the type of occupancy at the location.</p> <p>Values include the following:</p> <ul style="list-style-type: none"> ▪ Business ▪ Residential ▪ Mixed Use ▪ Unknown/Other 	String	Residential	O
assessment_l and_use	<p>The county assessor code describing how the location's parcel of land is used.</p>	String	Single Family Residential	O
resbus_usps	<p>A USPS field classifying an address.</p> <p>Values include the following:</p> <ul style="list-style-type: none"> ▪ Business ▪ Residential ▪ Unknown ▪ NULL 	String	Residential	O
is_structure	<p>Indicates whether a location is a structure or not.</p> <p>Values must be one of the following numeric codes:</p> <ul style="list-style-type: none"> ▪ False = 0 ▪ True = 1 	Boolean Integer	1	O

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) / ISP ADDITION (ISP ADD-ON)
is_bsl	<p>A yes/no value to determine if the location is broadband-serviceable or not.</p> <p>Values must be one of the following numeric codes:</p> <ul style="list-style-type: none"> ▪ False = 0 ▪ True = 1 	Boolean Integer	0	O
bsl_type	<p>A description from a list of standardized values indicating which type of broadband-serviceable category the location falls into.</p> <p>Values include the following:</p> <ul style="list-style-type: none"> ▪ Agriculture ▪ Business ▪ Non-BSL ▪ Residential ▪ Unclassified ▪ Vacant Land 	String	Agriculture	O
nonbsl_reason	<p>A description indicating why a location is not considered broadband-serviceable.</p> <p>Values include the following:</p> <ul style="list-style-type: none"> ▪ Government ▪ Industrial ▪ Military ▪ Parking Structure ▪ Public Use ▪ Unknown ▪ NULL 	String	Government	O
residential_unit_count	The number of residential units at the location.	Integer	3	O
business_unit_count	The number of business units at the location.	Integer	40	O

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) / ISP ADDITION (ISP ADD-ON)
polygon_geometry	Parcel or building geometry of the location as indicated in the "location_type" field (see above).	String	MULTIPOLYGON (((-105.589755 41.325333, -105.590019 41.32533199999999 96,-105.590019 41.32546, -105.589755 41.32546, -105.589755 41.325333)))	O
county	The name of the county.	String	Laramie County	O
state	The two-character abbreviation for a U.S. state.	String	WY	O
city	The name of the city.	String		O
address	The house number, street prefix direction, street name, street suffix and street suffix direction all formatted as a single line.	String	123A 1/2 N Main St W	O
house_number	The address numbers, letters and separators (e.g., The "123A 1/2" in "123A Main St").	String	123A 1/2	O
prefix_direction	The street prefix direction (e.g., The "N" in "123A 1/2 N Main St W").	String	N	O
prefix_type	The street prefix name (e.g., The "Ave" in "123 Ave A").	String	Ave	O
street_name	The street name without types or directions (e.g., the "Main" in "123 Main St").	String	Main	O
suffix_type	The street suffix type (e.g., The "St" in "123A 1/2 Main St W").	String	St	O
suffix_direction	The street suffix direction (e.g., The "W" in "Main St W").	String	W	O
unit	The unit type and unit value. (e.g., "Apt 3A").	String	Apt 3A	O
zip	The ZIP code including the first five digits and the ZIP 4 extension, where available.	String	82070-5418	O

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) / ISP ADDITION (ISP ADD-ON)
country_code	The two-character country code.	String	US	O
precision_code	Address/Location precision code: <ul style="list-style-type: none"> 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	O
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	0600LYEKD0EIG2 OD0ABZ25	O
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	0601H8N6OR6Z NQLOCD8IPM	O
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	O
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	O
is_primary_address	Indicates whether the address is a primary address or not. Values must be one of the following numeric codes: <ul style="list-style-type: none"> False = 0 True = 1 	Boolean Integer	1	O

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

Data Submission Guidelines for SmartFabric™ Fixed Broadband – Coverage/Service Availability Area	
Theme	Instructions
File Format	<ul style="list-style-type: none"> Data must be in Shapefile or File Geodatabase format.
File Structure	<ul style="list-style-type: none"> Parcel boundaries from SmartFabric™ data must be merged – if individual parcels are provided instead, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> The attribute table in the shapefile layer must contain the required fields, flagged as mandatory (M), in the structure of the table outlined below.
	<ul style="list-style-type: none"> If the file does not conform to the required structure, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> All mandatory fields (marked with "M" in schema below) must be included and populated – LBX may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> It is assumed that the values provided for each unique coverage area will contain values that are representative for all of the locations contained within (i.e., there are not multiple technology/maximum speed values for a single polygon but rather one value for each unique polygon, if applicable).
	<ul style="list-style-type: none"> For the maximum advertised speed fields (download and upload), please provide the raw values/actual values for these fields and do not change data to match the example values outlined in the above section "State Broadband Definitions". <ul style="list-style-type: none"> e.g., 25 and 30 [down/up] should not be changed to 25 and 10 [down/up] – instead submit 25 and 30.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for the same technology cannot overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for different technologies (e.g., Fiber and Coaxial Cable) can overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) where there are <i>distinct residential and business services</i>, each with their own distinct maximum advertised and upload speed, can overlap.
Coordinate System ("Projection")	<ul style="list-style-type: none"> The coordinate system of the latitude and longitude values must be in WGS84 projection (EPSG: 4326).

SmartFabric™ Fixed Broadband – Coverage Area/Service Availability Area

The following data schema/fields are requested as part of the ISP data submission for a “SmartFabric™ Fixed Coverage Area/Service Availability Area” (i.e., GIS boundary file) where service is available within 10 business days of an order:

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: <ul style="list-style-type: none"> ▪ 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: <ul style="list-style-type: none"> ▪ 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 ▪ 72 = Licensed-by-Rule Terrestrial Fixed Wireless ▪ 0 = Other 	Integer	50	M
maxdown	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples: <ul style="list-style-type: none"> ▪ 6 (represents 6 Mbps download speed) ▪ 100 (represents 100 Mbps download speed) 	Float	100.0	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M) / OPTIONAL (O) /
maxup	<p>Provide the maximum advertised upload speed value (Mbps) for the address as a value (#).</p> <p>Examples:</p> <ul style="list-style-type: none"> 6 (represents 6 Mbps download speed) 100 (represents 100 Mbps download speed) 	Float	20.0	M
lowlatency	<p>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.</p> <p>Values must be one of the following codes:</p> <ul style="list-style-type: none"> 0 = False 1 = True 	Boolean Integer	1	M
uniqueid	<p>A unique identifier for each polygon in data. This ID will be used to facilitate future data submissions for your company.</p>	String	123456A	O

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

Data Submission Guidelines for SmartFabric™ Mobile Broadband – Coverage Area/Service Availability Area	
Theme	Instructions
File Format	<ul style="list-style-type: none"> Data must be in Shapefile or File Geodatabase format.
File Structure	<ul style="list-style-type: none"> Parcel boundaries from SmartFabric™ data must be merged – if individual parcels are provided instead, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> The attribute table in the shapefile layer must contain the required fields, flagged as mandatory (M), in the structure of the table outlined below.
	<ul style="list-style-type: none"> If the file does not conform to the required structure, LBX will reject the file and request a new file from the ISP.
	<ul style="list-style-type: none"> All mandatory fields (marked with "M" in schema below) must be included and populated – LBX may reject the file and request a new file from the ISP if fields are not sufficiently populated.
Data Rules	<ul style="list-style-type: none"> It is assumed that the values provided for each unique coverage area will contain values that are representative for all of the locations contained within (i.e., there are not multiple technology/maximum speed values for a single polygon but rather one value for each unique polygon, if applicable).
	<ul style="list-style-type: none"> For the minimum advertised speed fields (download and upload), please provide the raw values/actual values for these fields and do not change data to match the example values outlined in the above section "State Broadband Definitions". <ul style="list-style-type: none"> e.g., 6.0 [4G] should not be changed to 5.0 [4G] – instead submit 6.0 [4G].
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for the same technology cannot overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) for different technologies (e.g., 4G and 5G) can overlap.
	<ul style="list-style-type: none"> Coverage areas (i.e., polygons) where there are <i>distinct residential and business services</i>, each with their own distinct maximum advertised and upload speed, can overlap.
Coordinate System ("Projection")	<ul style="list-style-type: none"> 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 requested as part of the ISP data submission for a “SmartFabric™ Fixed Coverage Area/Service Availability Area” (i.e., GIS boundary file) where service is available within 10 business days of an order:

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: <ul style="list-style-type: none"> ▪ 300 = 3G ▪ 400 = 4G LTE ▪ 500 = 5G NR 	Integer	400	M
mindown	Provide the minimum advertised download speed (Mbps) for modeled coverage. Values must be one of the following: <ul style="list-style-type: none"> ▪ 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 modeled coverage. Values must be one of the following: <ul style="list-style-type: none"> ▪ 0.05 = 3G ▪ 1.0 = 4G LTE ▪ 1.0-3.0 = 5G NR 	Float	1.0	M

FIELD	DESCRIPTION	DATA TYPE	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
minsignal	<p>Minimum signal strength for modeled 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).</p> <ul style="list-style-type: none"> 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. 	Integer	-110	M
environmnt	<p>Integer code indicating whether the area is modeled to have coverage when the user equipment is in an outdoor stationary environment only or in both in-vehicle mobile and outdoor stationary environments.</p> <p>Value must be one of the following codes:</p> <ul style="list-style-type: none"> 0 = Outdoor stationary only 1 = In-vehicle mobile and outdoor stationary 	Enumerated Integer	1	M
uniqueid	<p>A unique identifier for each polygon in data. This ID will be used to facilitate future data submissions for your company.</p>	String	123456A	O

3.9 ISP Data Submission to LightBox

3.9.1 Submitting Broadband Availability Data

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

1. LBX will provide the ISP's contacts with an authentication token, via email, for accessing the Data Submission Portal.
2. Log in to LBX's Data Submission Portal site by using the provided information:
 - a. **URL:** <https://transfer.lightboxre.com/>
 - b. **Authentication Token:** Provided separately (via LBX email)
3. Select the data submission type (i.e., Fixed Broadband – List of Locations...) from the "Select File Type" drop-down menu.
4. Drag and drop your file in the "Drag and drop file here..." section or select anywhere in the grey box to select a file from your machine or server. Once completed, your file name will appear in the grey box.
5. Select the "Analyze" button in the bottom right corner of the screen to submit your company's broadband availability data to LBX for Quality Assurance (QA) processing.
 - **NOTE:** *The portal will reject your data if QA problems are immediately identified ("Step 1"). In this case, the portal will provide error messages to the ISP so they can revise and resubmit their data.*
6. If the portal doesn't identify any QA items in "Step 1", it will automatically accept your data submission and be added to the QA queue for processing ("Step 2").
7. ISPs will receive a "Pass/Fail" email from WyomingISPCoordinator@lightboxre.com within 24 hours once their data has finished processing.

[Refer to Section 3.1.1](#) for more information about the data submission process.

3.9.2 Quality Assurance

Participating ISPs will QA their own data to LBX for the following items:

1. Table structure (schema) contains required mandatory fields (NOTE: it may also but does not have to contain the optional fields).
2. Each existing field contains information (attribution).

3.9.3 Geocoding

If required, LBX will do the following:

1. Geocode (i.e., assign coordinates (x,y) to each ISP address record).
2. Add the following attribution to each record (for more information on this – refer to Section 3.10):
 - » Address columns (whether LightBox made data quality improvements were made or not – e.g., correcting a misspelled street name).
 - **NOTE:** *LightBox will maintain the original information for each record and will add new columns beside the originals.*
 - » Scoring (how well was the record matched).

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

For those files that need to be geocoded (i.e., CSV files – [Section 3.4](#)), the following data schema/fields will be provided back to the ISP once processing is complete.

NOTE

1. Input fields = from the ISP (original submission)
2. Output fields = result of LBX processing of ISP data

List of Locations for Service Availability Output Schema

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
Output	id	A unique ID for the record assigned by LightBox	1234567	-
Input	unique_id	A unique identifier for each address/location/record as per ISP. As 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.	123456	M
Output	location_id	A proprietary LightBox unique identifier for every location.	0700053RLR O0O5V2GGT ARL	-
Output	address_id	A proprietary LightBox identifier for address that is unique and persistent.	06031LGDW DC81UIWL8 JA9X	-
Input	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	M
Input	unit	The unit type and unit number (if applicable).	Apt 3A	M
Input	unit_count	Number of units in a location (building).	1	O
Input	street_number	The address numbers, letters, and separators (e.g., The “123” in “123 Main St”).	123	O
Input	prefix_direction	A directional preceding a street name (e.g., The “N” in “N Main St”).	N	O
Input	prefix_type	The type preceding the street name (e.g., The “Ave” in “123 Ave A”).	Ave	O
Input	street_name	The name of the street (e.g., The “Main” in “123 Main St W”).	Main	O

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
Input	suffix_type	The type after the street name (e.g., The “St” in “123A 1/2 Main St W”).	St	O
Input	suffix_direction	A directional after a street name (e.g., The 'W' in 'Main St W').	W	O
Input	unit_type	The type of the unit (e.g., The “Apt” in “Apt 3A”).	Apt	O
Input	unit_value	The identifier part of the unit (e.g., The “3A” in “Apt 3A”).	3A	O
Input	city	The preferred locality of the address as assigned by the postal system and associated with the postal code.	Laramie	M
Input	state	2 letter state abbreviation.	WY	M
Input	zipcode	The country specific code for postal sorting, ZIP5 or ZIP 9.	82072 or 82072-0001	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: <ul style="list-style-type: none"> ▪ B = Business-only service ▪ R = Residential-only service ▪ X = Business and Residential services 	B	M
Input	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: <ul style="list-style-type: none"> ▪ False = 0 ▪ True = 1 	0	M

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
Input	technology	Indicate the technology used to offer service to this address. The value must be one of the following codes: <ul style="list-style-type: none"> ▪ 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 ▪ 72 = Licensed-by-Rule Terrestrial Fixed Wireless ▪ 0 = Other 	50	M
Input	max_advertised_download_speed	Provide the maximum advertised download speed value (Mbps) for the address as a value (#). Examples: <ul style="list-style-type: none"> ▪ 6 (represents 6 Mbps download speed or faster) ▪ 100 (represents 100 Mbps download speed or faster) 	100	M
Input	max_advertised_upload_speed	Provide the maximum advertised upload speed value (Mbps) for the address as a value (#). Examples: <ul style="list-style-type: none"> ▪ 1.5 (represents 1.5 Mbps upload speed or faster) ▪ 20 (represents 20 Mbps upload speed or faster) 	20	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: <ul style="list-style-type: none"> ▪ 0 = False ▪ 1 = True 	1	M

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
Input	latitude	Latitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LBX will attempt to geocode the record to assign this.	30.300980156 211878	O
Input	longitude	Longitude of address location (projected in WGS84 decimal degrees). If this attribute is not available, LBX will attempt to geocode the record to assign this.	- 97.746054188 95062	O
Output	lb_map_inclusion	Identifies whether a record will be considered for the state broadband map. A record will not be included in the map if it fails the geocoding QA and/or the input mandatory broadband fields are null or contain unexpected field values. Values must be one of the following codes: ▪ 0 = False I = True	I	-
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 – record 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	-

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
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”).	Ave	-
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 USPS and associated with the postal code.	Laramie	-
Output	lb_regionCode	The two-character abbreviation for a U.S. state.	WY	-
Output	lb_postalCode	The country-specific code for postal sorting. In the U.S., this is the ZIP code.	82072-0001	-
Output	lb_postalCodePrimary	The primary part of the postal code. In the U.S., this is the ZIP 5 (e.g., the “12309” in “12309-1234”).	82072	-
Output	lb_postalCodeExtension	The optional, more specific part of the postal code. In the U.S., this is the ZIP 4 (e.g., the “1234” in “12309- 1234”).	0001	-

INPUT/ OUTPUT FIELD	FIELD	DESCRIPTION	EXAMPLE VALUE	MANDATORY (M)/ OPTIONAL (O)
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.	30.3009801562 11878	-
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.	- 97.7460541889 5062	-
Output	lb_precision	Precision of coordinates.	Inside of Parcel	-
Output	lb_serviceability	Broadband service availability value as defined by the state.	Served	-

3.10.2 Recommendations

LightBox provides the following recommendations to help ISPs interpret our processing (geocoding) results:

Recommendation	What to do next
<p>Review all records where lb_pass_fail = "Fail"</p>	<p>Compare/contrast differences between originally submitted input fields and LightBox (lb_*) output fields.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Data completeness may have caused the "Fail", check for the following: <ul style="list-style-type: none"> • Missing address numbers • Missing address type (e.g., Main should have been Main St W) • Missing directions (e.g., Main St should have been Main St W or Main St E – two answers are possible) • Missing information 2. The lb_serviceability output field contains a serviceability value for each location based on the ISP's submitted broadband data in relation to the state's serviceability assignment business rules. <ul style="list-style-type: none"> • This field does not reflect the location's serviceability value on the state broadband map, but rather it's based on the ISP input record.
<p><u>Customer Support:</u></p> <ul style="list-style-type: none"> • Please contact WyomingISPCoordinator@lightboxre.com if you have any questions about the geocoded Lists of locations for service availability (CSV) data. 	

3.10.3 Data Submission to ISP

Where applicable, ISPs' processed files (CSV only) will be available for download from the Data Submission Portal (*see Image A below*).

ISPs can download the file by selecting the "Request" button in the "File Submissions" section. Once selected, an email will be sent to the ISP that contains a one-time download link (*see Image B*).

After the ISP selects the link, a new tab will open in your browser and the

geocoded file will download to your machine.


File Name	File Type	Date Uploaded	Status	File Available	Map Consideration Status
 File_3_BroadbandData.csv	csv	6/21/2023 19:54:54 UTC	Complete Geocode Pass Rate: 0 / 9 (0.00%) Total Records that Will be Considered for Map: 0 / 9 (0.00%)	Analysis	Request


Image A: “Request” button for downloading processed CSV files from the Data Submission Portal.

One-Time Download Link Request
LightBox ISP Data Submission Portal

LightBox Output File for File_1_BroadbandServiceAvailabilityData_2.csv

One-Time Download Link: [Download](#)

Please submit a [Support Request Form](#) if you need assistance.
Please check your spam for any future emails.



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LightBox
5201 California Avenue, Suite 200
Irvine, CA 92617

[Privacy policy](#)

Image B: Email that contains the ISP’s one-time link for downloading geocoded CSV files from the Data Submission Portal.

3.11 ISP Data Submission (Upload)

ISPs will upload data to LBX using the Data Submission Portal.

3.11.1 Overview

The ISP Data Submission Portal is a secure front-end software for uploading ISPs' broadband availability data to LBX. It has enhanced security features to ensure reliable file transfer and confidentiality of data.

3.11.2 Software Requirements

Access to an internet browser such as Chrome, Firefox or Edge to connect to the ISP Data Submission Portal for file downloads/uploads.

3.11.3 Credentials

An authentication token will be provided to every ISP contact for accessing the Data Submission Portal.

Example

Authentication Token: xxxxxxxx-yyyy-xxxx-yyyy-xxxxxxx

NOTE: Every unique contact for an ISP will be provided credentials – only those individuals who are responsible for data submission should use these credentials.

3.11.4 Connection

To connect to the Data Submission Portal site, enter the URL in your browser's search bar to navigate to authentication page. Enter your authentication token in the "token" bar and select the "Authenticate" button (see **Image C** below).

URL: <https://transfer.lightboxre.com/>

Authentication Token: Provided separately (via LBX email)

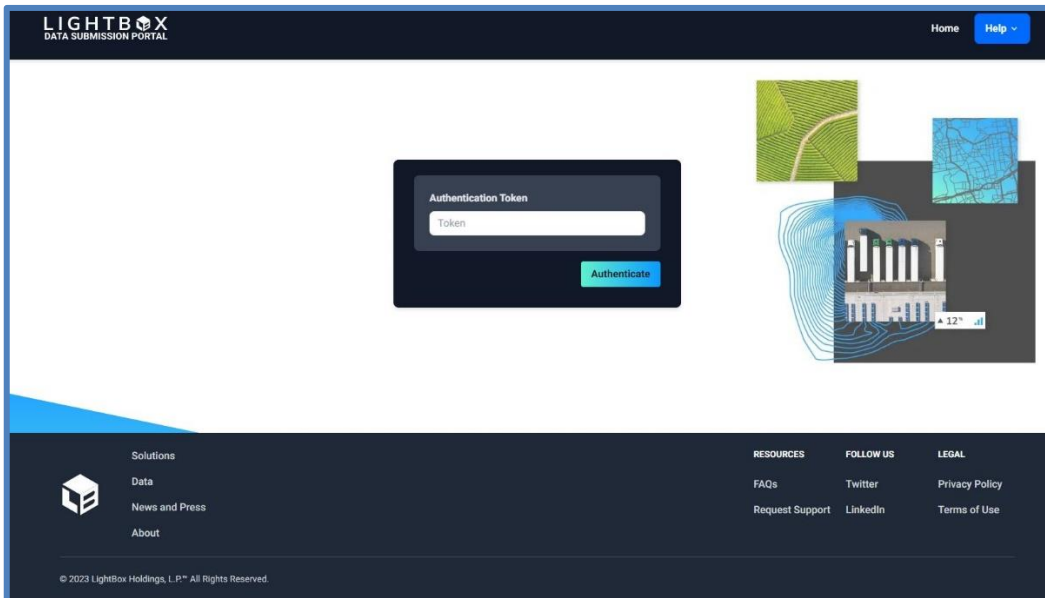


Image C: Example of LBX Data Submission Portal.

3.11.5 Uploading Files – Data Submission Portal

After connecting to your Data Submission Portal account, you will see a history of previous file submissions and a "Select File Type" drop-down menu (see *Image D below*).

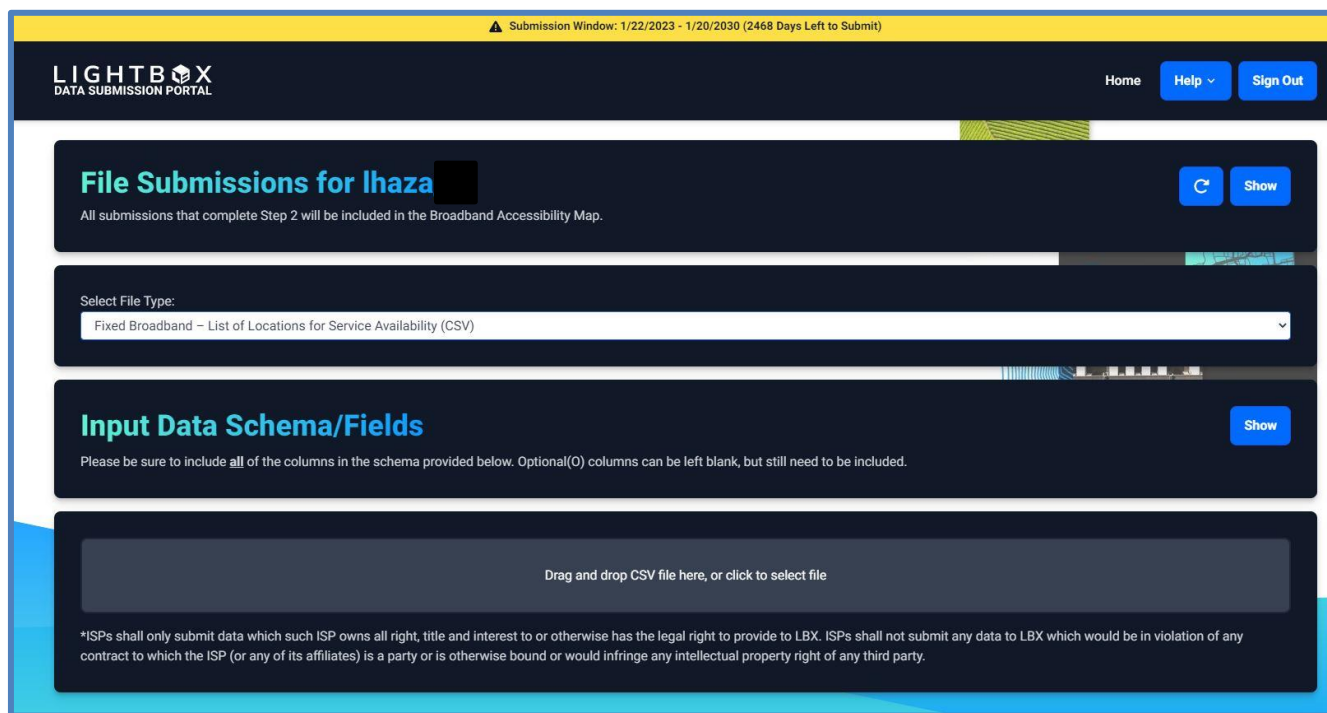


Image D: Example of LBX Data Submission Portal site for uploading data.

Select the data submission type (i.e., Fixed Broadband – List of Locations...) from the "Select File Type" drop-down menu.

- **NOTE:** Ensure that you select the data submission type that corresponds to your broadband availability data – the portal will reject files that do not conform to the data schemas outlined in this guide.
- **NOTE:** You can view the required schema for your data submission type by selecting the "Show" blue button beside the "Input Data Schema/Fields" section (see *Image E below*).

Drag and drop your file in the "Drag and drop file here..." section or select anywhere in the grey box to select a file from your machine or server. Once completed, your file name will appear in the grey box (see *Image E below*).

Select the "Analyze" button in the bottom right corner of the screen to submit your company's broadband availability data to LBX for processing. Select the "Remove file" button to remove your file (see *Image E below*).

- **NOTE:** The portal will reject your data if it identifies quality assurance (QA) problems ("Step 1"). It will display error messages to the ISP so they can revise and resubmit their data (see *Image F below*).

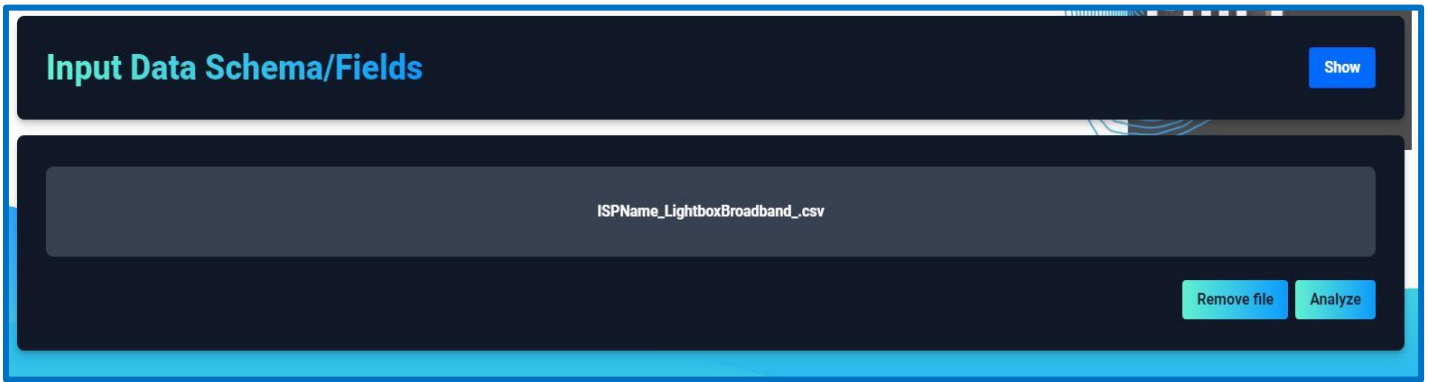


Image E: Example of uploading data to LBX Data Submission Portal.

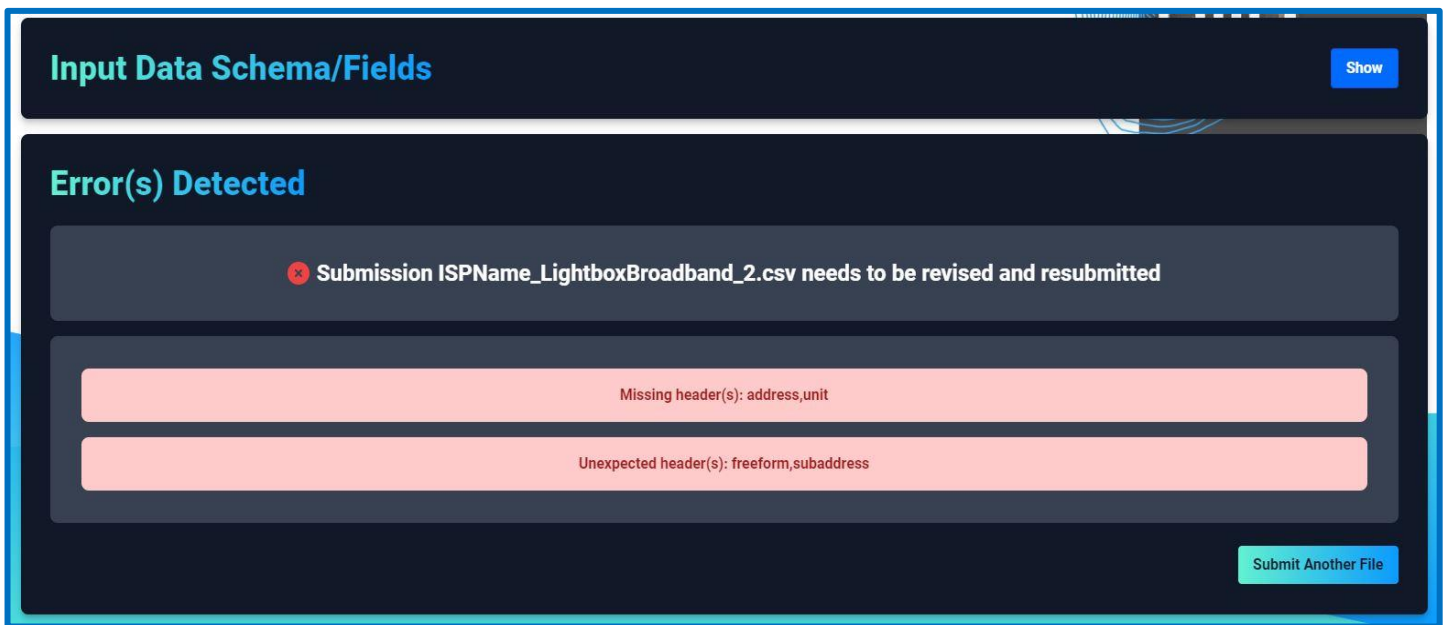


Image F: Example of "Step 1" QA error messages displayed in Data Submission Portal.

If the portal identifies no QA problems in "Step 1," will automatically accept your data submission and it will be added to the "Step 2" QA queue for processing (**See Image G below**).

- **NOTE:** An email will be sent to ISPs containing the QA findings from "Step 2."

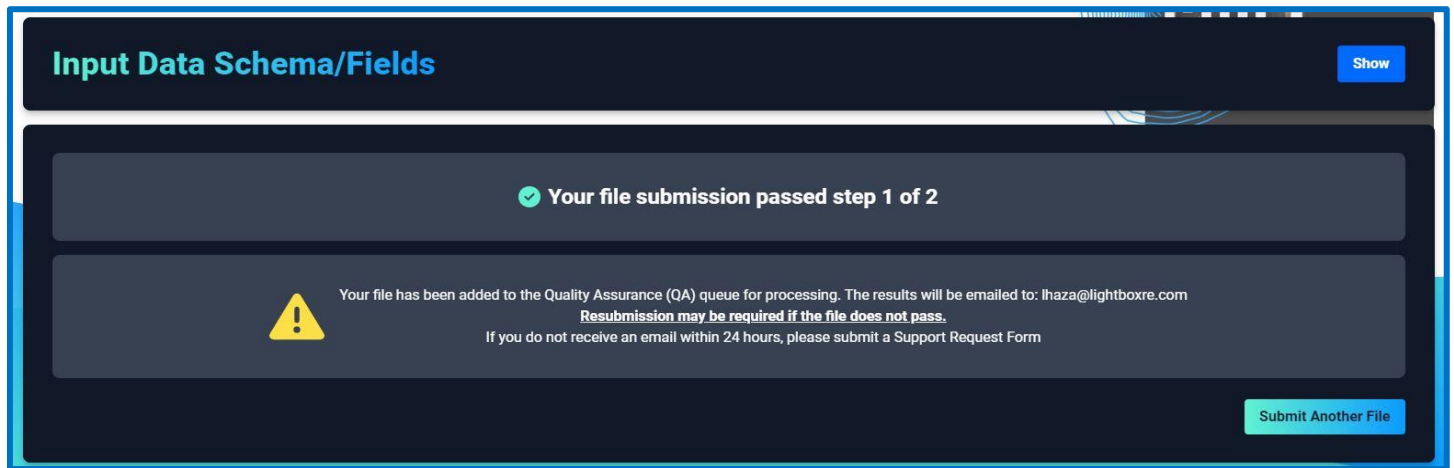


Image G: Example of successful data submission ("Step 1") in Data Submission Portal.

ISPs will receive a "Pass/Fail" email from WyomingISPCoordinator@lightboxre.com once their data is finished processing in "Step 2" QA.

- If the data passes QA, ISPs will receive a "Your submission has been processed and accepted" email (*see Image H below*).
- If the data fails QA, ISPs will receive a "Your submission has failed our quality assurance (QA) test" email (*see Image I below*).

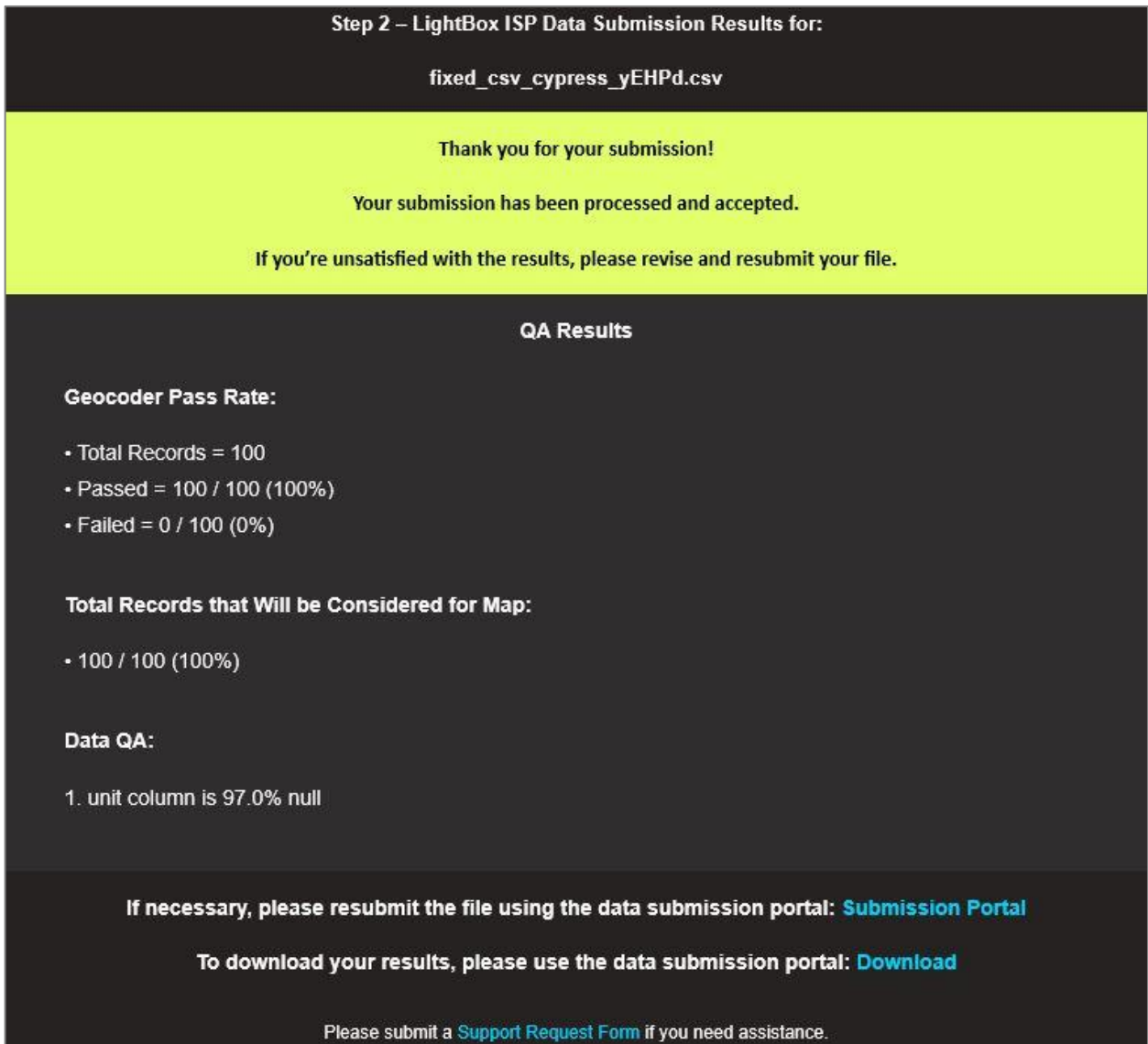


Image H: Example of "Step 2" "pass" email from Data Submission Portal.

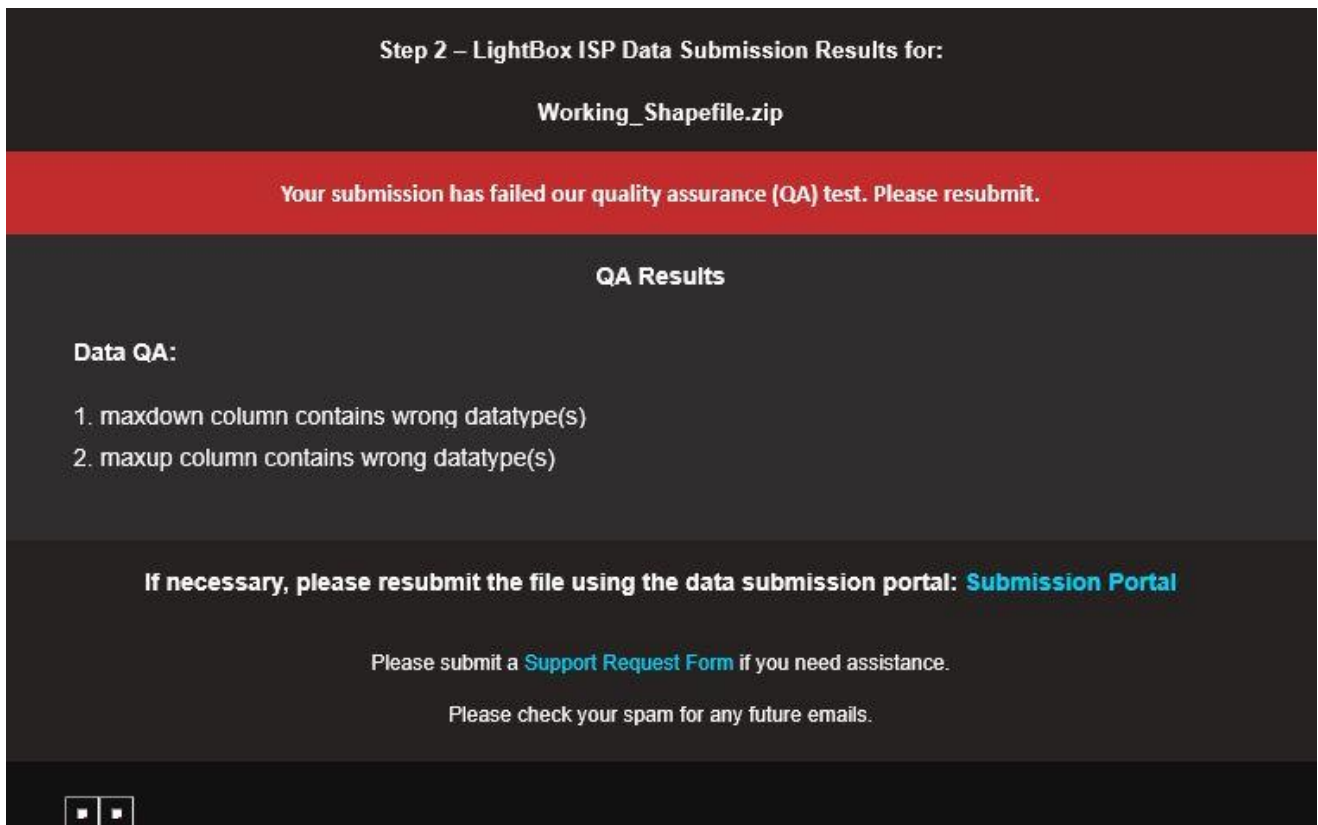


Image 1: Example of “Step 2” “fail” email from Data Submission Portal.

If LightBox identifies no QA problems in "Step 2," then your data submission is complete.

If LightBox identifies QA problems in "Step 2," then ISPs must revise and resubmit their data using the Data Submission Portal.

- **NOTE:** It is recommended that ISPs review the QA findings included in the “Step 2” email to ensure there are no data quality problems with the file submission.

For more information about the Data Submission Portal, please refer to the online [FAQ page](#) and Walkthrough Video.

3.12 Support

Technical Assistance: If you encounter any difficulties in uploading/downloading data or have any questions about this document and the directions it contains, please contact WyomingISPCoordinator@lightboxre.com for assistance.

General Questions: General questions about the program, funding opportunities and grant applications can be directed to Connect Wyoming at connectwyoming@wyo.gov.

3.13 Frequently Asked Questions

Q: I do not 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., OBJECTID), or an auto-number.

Q: What types of locations are not considered Broadband Serviceable Locations (BSLs)?

A: A non-broadband serviceable location (non-BSL) would be any location that 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.

You should assign these types of locations a value of "0" (false) for the "bsl_flag" field in your data submission.

Q: Is the "location_lid" field the same as the FCC BDC's "location_id" field?

A: No, this is a different ID derived from the LBX SmartFabric™ data. The "location_lid" field is mandatory for the "SmartFabric™ Fixed Broadband – Locations for Service Availability" submission option (CSV and GDB).

Refer to the "[Requesting LBX SmartFabric™ Data \(Optional\)](#)" section for more information.

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

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

Q: Will you make the LBX SmartFabric™ data available for download to assist with data preparation?

A: Yes, LBX will make the SmartFabric™ available to ISPs that request it.

Refer to the "[Requesting LBX SmartFabric™ \(Optional\)](#)" section for more information on requesting the data.

Q: For fixed broadband providers, does my company need to submit both the 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 credentials for the Data Submission Portal. How do I obtain them?

A: Please send an email to WyomingISPCoordinator@lightboxre.com to obtain your credentials for accessing the Data Submission Portal. Refer to the online [FAQ page](#) and Walkthrough Video for more information about the Data Submission Portal.

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 LBX to participate in the state of Wyoming Broadband Mapping program?

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

Q: Can I submit parcel boundaries from the SmartFabric™ data for the Fixed/Mobile Coverage Area/Service Availability Area data submission options?

A: No, you must merge the parcel boundaries in your mapping file (i.e., shapefile or GDB) for Fixed/Mobile Coverage Area/Service Availability Area data submission options instead

of shipping individual parcel boundaries.

Q: Why do I have to remove secondary building records (i.e., location_type = 2) from my SmartFabric™ Fixed Broadband – Locations for Service Availability data submission?

A: Secondary building records (i.e., location_type = 2) in the SmartFabric™ data are structures on property lots that do not contain address information (i.e., address_lid = null). Therefore, we cannot use these records to inform the state broadband map.

Please remove these records from your data submission before uploading to the LBX Data Submission Portal.