BUILT ON DATA

Key Considerations for Your BEAD Application

How to Make a Long-Term Impact for Your Organization & Close the Digital Divide

2024

Agenda

You'll leave with fresh understanding about:

- How the Broadband Fabric Data will be used in the BEAD program by NTIA, states, and applicants
- The economics of broadband deployment from both the government and ISP perspectives
- Which economic factors are necessary to ensure applicants choose areas that present viable business cases
- A real-world state BEAD program example review

CostQuest Associates

Cincinnati | Seattle | Washington D.C.

CostQuest Associates (CQA) is a broadband consulting firm, data, and SaaS application provider. Our team specializes in economic cost modeling, broadband planning, mapping, government advisory, network valuation services, and developing GIS (Geographic Information System) data and SaaS applications for the broadband ecosystem.

CostQuest is contracted by the FCC and NTIA to deliver the National Broadband Serviceable Location Fabric dataset, to support federal programs such as the Broadband Data Collection (BDC), the Broadband, Equity, Access, and Deployment (BEAD), and other federal broadband programs available today and in the future.

Fabric Overview:

How Broadband Fabric Data will be used in the program by NTIA, states, and applicants

Poll 1

How are you participating in the BEAD program?

- I'm an ISP and know or thinking about applying for BEAD
- I'm a state that will be accepting BEAD applications
- I'm a third-party assisting ISPs with BEAD applications
- I'm a third-party assisting states with grant processes

Poll 2

Are you familiar with the National Broadband Serviceable Location Fabric data?

Yes

Somewhat

No

About the National Fabric Data

Overview:

The National Fabric aggregates hundreds of millions of data points, applies statistical scoring, and managed crowdsourcing to pinpoint the exact rooftop locations of virtually every structure that is a candidate for broadband. The National Fabric provides a foundation for precise location and business analysis.

Data sources:

- Parcels
- Satellite imagery
- Commercial building footprints
- Tax attributes
- Address datasets
- Road segments
- US census

How the Fabric is Used by NTIA, FCC, and Other Federal Broadband Granting Authorities

The Fabric: the national foundation of locations used by federal agencies to map service availability, distribute, and track funding.

FCC uses for:

- Broadband Data Collection
- National Broadband Map & National Broadband Funding Map
- ACP Obligations
- USF Obligations (RDOF, ENHANCED ACAM, etc.)

Federal Broadband Granting Authorities:

Federal Broadband Granting Programs

NTIA BEAD Programs – Minimum geography for bidding

- USDA Programs
- Treasury Programs
- Etc.

Each Fabric Location's unique Location_ID, address, coordinates, etc. will be the same across all programs.

Tier D License for ISPs Participating in Federal Broadband Granting Programs

License rights broadly cover: Subgrantees (e.g., authorized participants in the program)

- The license covers participating, reporting, and challenging use cases associated with Federal Broadband Granting Programs and the eligible locations
  - Which includes the NTIA BEAD Program
- It does not allow use of the data for state granting programs or commercial uses outside participation in federal granting programs
- Be cognizant of permitted uses under the license - CostQuest conducts ongoing reviews and audits for proper product usage

In general, Licensee is prohibited from using Licensed Material for any other use including commercial use, publication, and other non-commercial, including internal, uses for purposes beyond their efforts for Federal Broadband Programs.

Poll 3

How many of you already have a Tier D Fabric License or were familiar with the Tier D license?

- Yes, I have a Tier D Fabric License
- Yes, I was familiar with the Fabric Tier D license
- No, this is new information

National Fabric & BDC Data Iterations

Different Iterations of the Fabric & BDC Will be Used in BEAD

It's important to follow which version of the fabric and BDC data the state is using in their bead program

Each state is or will be using one or a combination of the following BDC/Fabric Iterations for NTIA efforts:

- BDC V2, Fabric V2 (BDC originally available ~May 2023)
- BDC V3, Fabric V3.2 (BDC originally available ~November 2023)
- BDC V4, Fabric V4 (BDC will be available ~May 2024)
- BDC V5, Fabric V5 (BDC will be available ~Dec 2024)

For example:

- Louisiana used BDC V2 in its challenge but used BDC V3 in its filing of eligible locations at NTIA
- Hawaii and Arizona stated in their Initial Proposal Vol II they will use **BDC V2** from the National Broadband Map (NBM)

Data Up-Versioning

A state may start its challenge effort with one iteration of the Fabric and BDC data from the national broadband map and choose to 'up-version' before the grant effort begins

For example:

- Louisiana used BDC V2 in its challenge efforts and then up-versioned to BDC V3 in its filing of eligible locations at NTIA

Coordinate with your Broadband Office on what version of the Fabric and BDC data to use

Fabric Location Changes

Total location changes over the past 3 Fabric Iterations

These changes come from new construction, FCC BDC Challenges, and CostQuest's self-challenge process.

Fabric Iterations	Total BSLs	New BSLs	Removed BSLs
Iteration 2	115,227,502	2,665,319	1,906,070
Iteration 3	115,722,911	2,686,608	2,191,199
Iteration 4	116,077,066	1,618,824	1,264,669

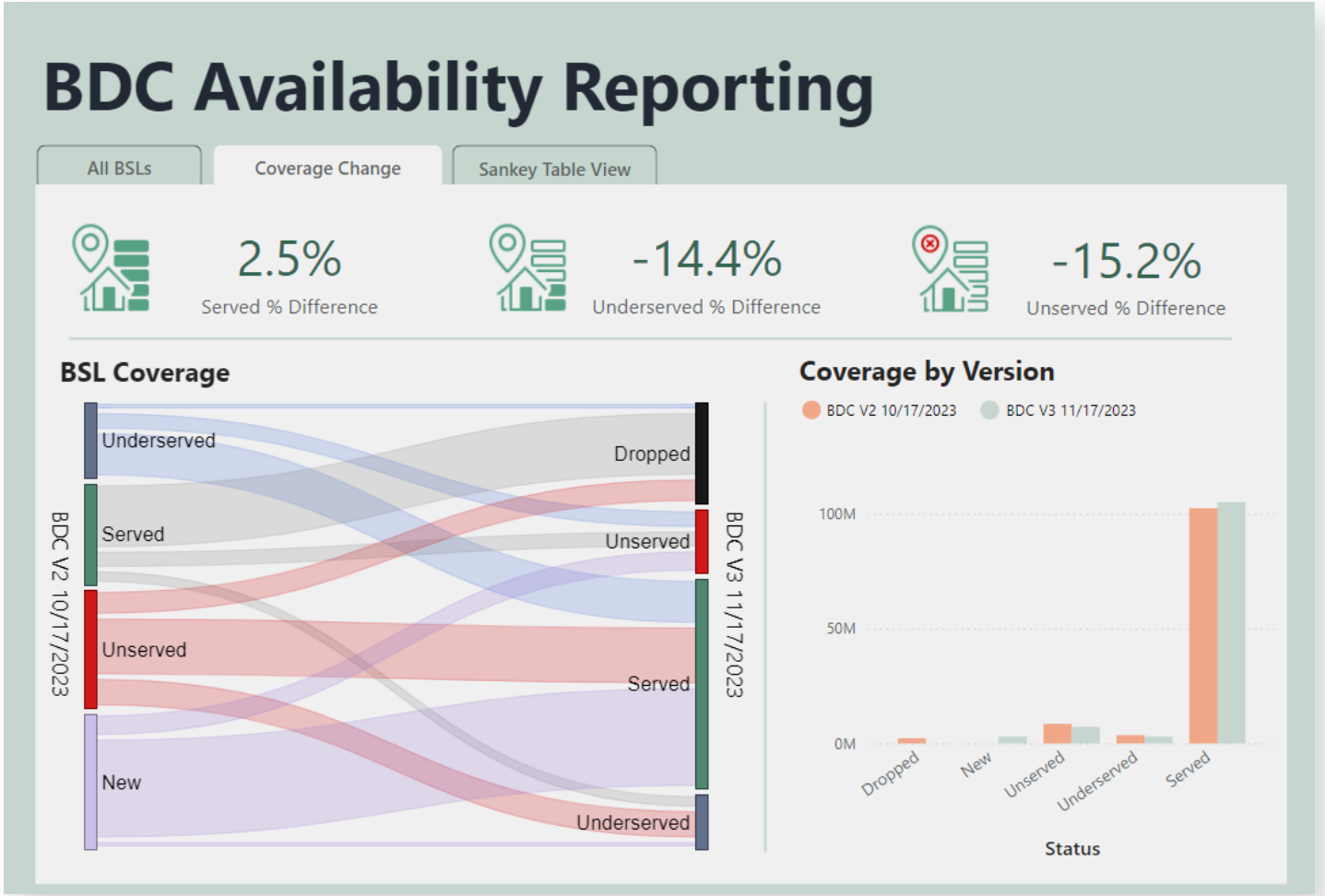
BDC Changes

Coverage fluctuations through different iterations of the BDC Service Availability Data

These changes come from the FCC's BDC Challenge Process

For example, between BDC V2 and BDC V3:

- Served locations went up +2.5%
- Underserved locations went down –14.4%
- Unserved locations went down –15.2%



Update Calendar

FCC Fabric
Iteration 4 Release
12/31/2023

FCC Maps
Update Version 3.2
~1/9/2024

NTIA BEAD
Challenge Process
Begin in Early States
(Jan-Feb-March 2024)

FCC Fabric
Iteration 5 Release
June 2024

NTIA Fabric
Release Iteration 3.2
1/6/2024

NTIA Cost (3.2)
Release to States
likely prior to end of
January 2024

FCC Challenge
Window Closes
Mid-March 2024

State Perspective:

Understand the economics of broadband deployment & running BEAD programs

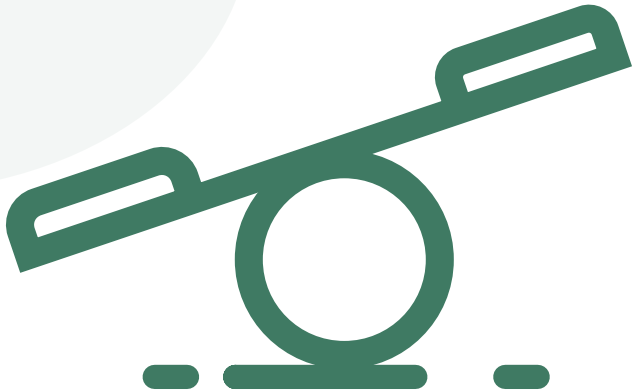
Each State BEAD Program Strategies Aim to Balance the Scale

ISPs

ROI: ensure long term financial viability of serving new locations

States

ROF: maximizing number of BSL's served



High Level Overview of BEAD programs

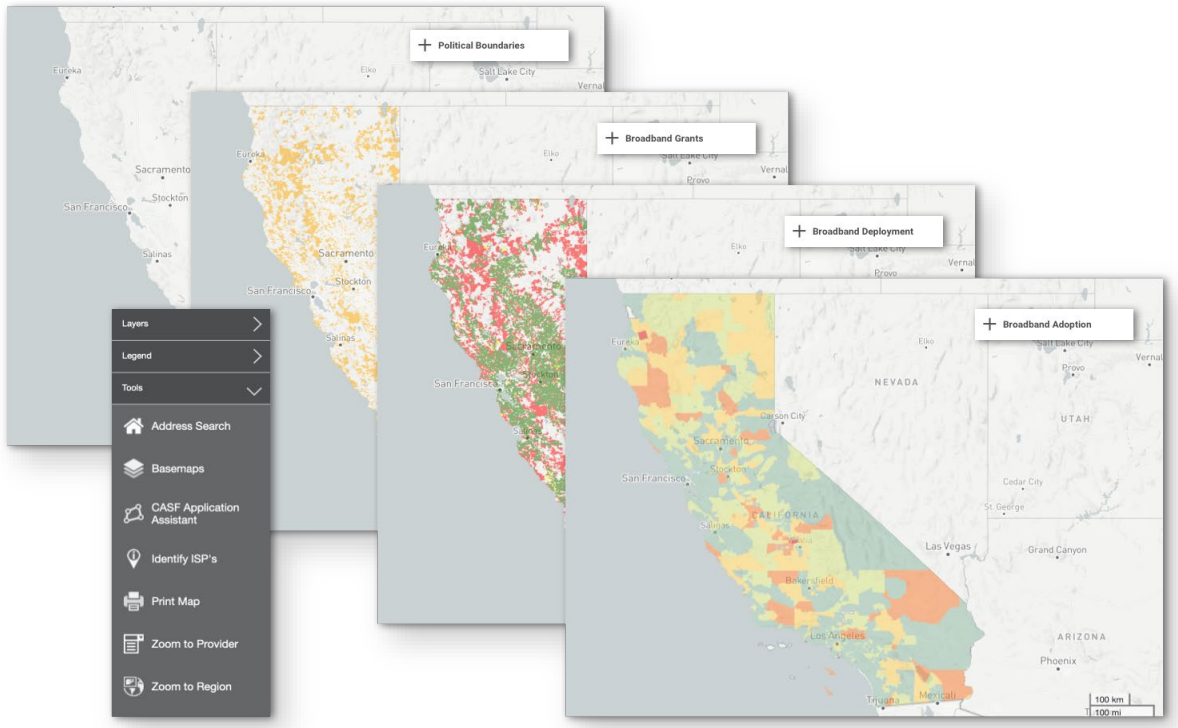
Challenge:

- Obtain the NTIA and FCC coverage data
- Run State Challenge
- Identify locations with an enforceable commitment
- Combine challenge, enforceable commitment deduplication, and any updated FCC coverage data to set the funded locations

Set program guidelines:

- Set key attributes to achieve
- Identify qualifications for Potential Sub-Grantees
- List project/grant requirements
- Define Project Areas or Sub Project Areas
- Develop Funding levels
- Identify EHCT Approach
- Define grant scoring criteria for awards

Run programs, track, audit



State Use or Not Use of the EHCT/High-Cost Threshold

EHCT: The high-cost point for which Broadband Offices may begin to consider alternative technologies instead of fiber deployments that are more feasible to service an area to maximize BEAD funding impact

- While the primary aim of BEAD is to maximize fiber deployment to invest in future-proof technology --> Most states will need to set some kind of high-cost threshold and/or Extremely high-cost threshold (EHCT)
- Many Broadband Offices plan to set thresholds after reviewing the first round of grant applications
- Some states believe they can provide widespread Fiber-to-the-Premises (FTTP) coverage without setting a threshold
- It's important to understand the states approach for calculating or not defining and Extremely High-Cost Threshold and assess if that impacts the bid they wish to develop in regards to technology, project area type, etc.

Running the Program

To start running the subgrantee selection program, states will:

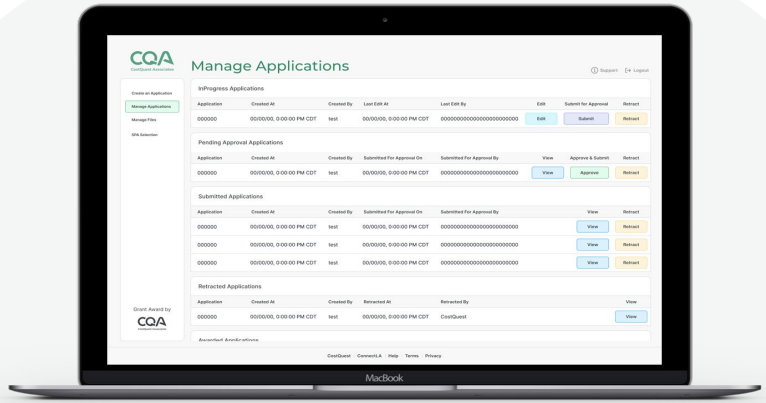
- Publish their state project areas, eligible locations, and attributes for how to participate in the program

Then, the states will develop/acquire a grant management application to ingest bids and run the program:

- Anonymity to minimize bias
- Encoding and testing of program rules and scoring
- Quality control for bid submissions to avoid issues
- Application training and education for subgrantees, including Mock-opening, sample dry runs
- Bid de-confliction approach

Bidders will apply through the state's grant application system -filling out the required application fields such as:

- Type of technology deployed
- Amount of funds they are requesting (which may be based on the available funding for the project area)
- Number of months to completion, etc.



CostQuest Grant Award Management Platform
available for states and territories on Carahsoft

ISP Perspective:

Critical factors to know when assessing, applying, and complying with federal grants

Poll 4

How many states do you plan to submit BEAD applications to?

1

2-5

5+

Understanding State Project Areas

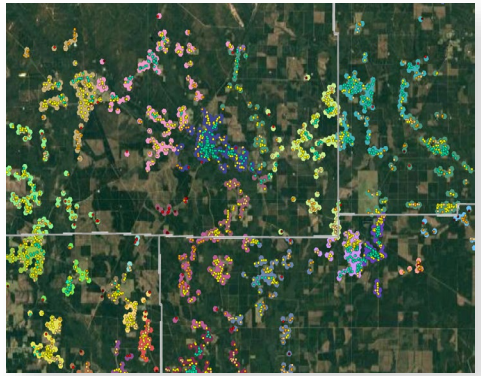
State Project Areas:

Represent geographic aggregations or location-level areas of unserved and underserved locations available for BEAD Funding

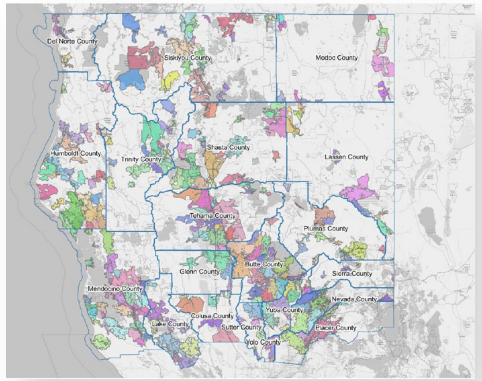
States may adjust the project areas and/or attributes between rounds

Project Area Types

- Hex9
- Census tract, block group, block
- Location based – custom geographies defined by applicants
- Objective driven clustering
- City
- County
- School districts



HEX9



CLUSTERING

APPLICANT DEFINED/ LOCATION-LEVEL

Reviewing State Project Areas

Factors to consider when reviewing project areas:

Decide upfront what type of technology project you're going after – knowing the type of technology will help you narrow down ideal project areas

- Am I just going after fiber?
- And/ OR wireless?
- Will I partner with another company on the project?

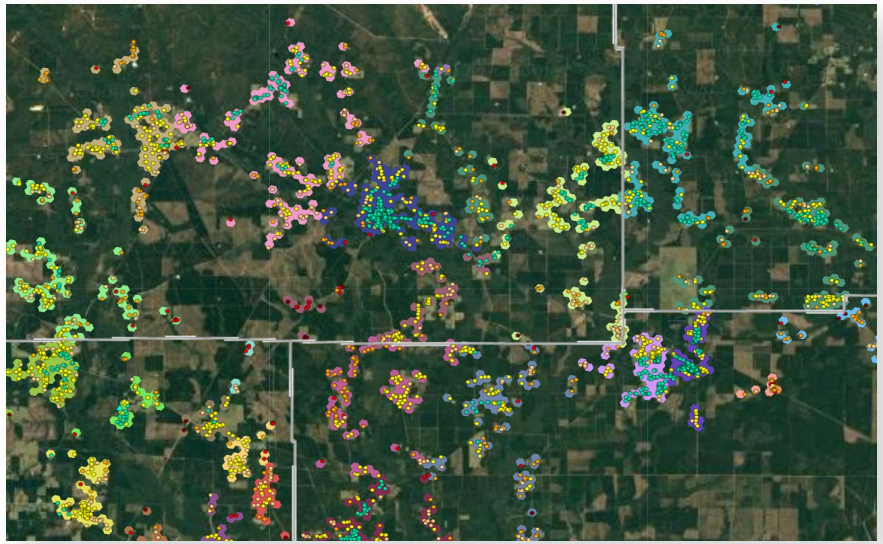
Then…. where are those project areas that meet my project type and capabilities? Do I have facilities in or nearby project areas? What areas to bid or not to bid on?

Reviewing State Project Areas

Factors to consider when reviewing project areas:

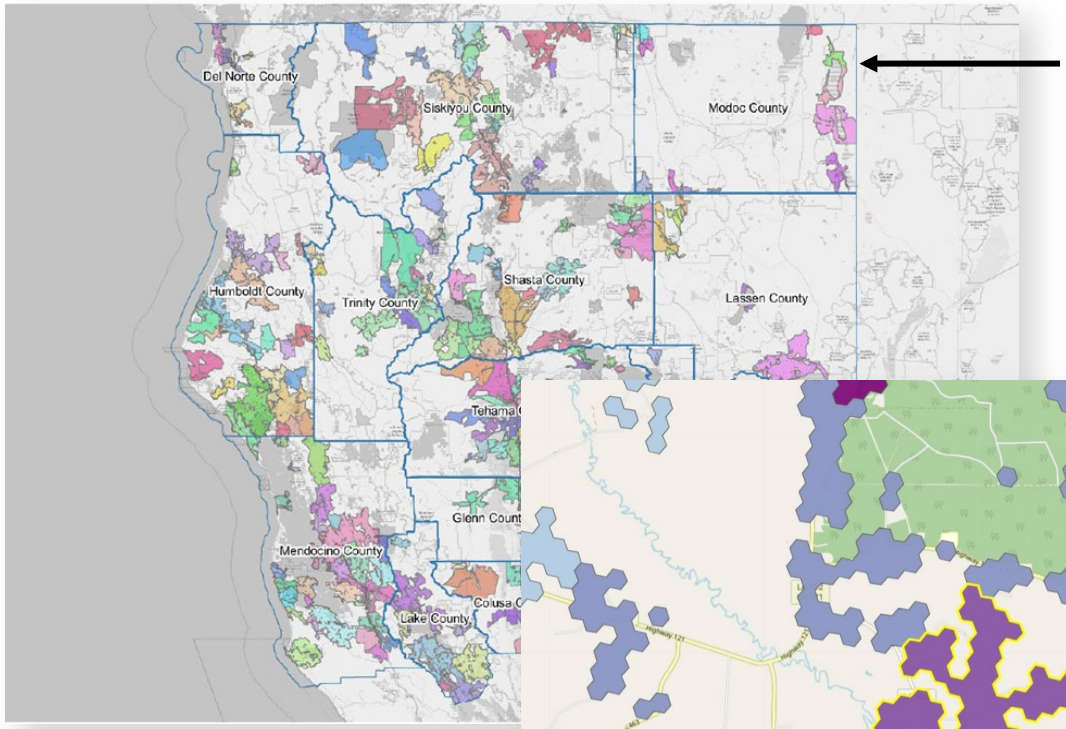
The size of project areas affects how applicants bid – price, technology, etc.

- Smaller project areas can expand the pool of participants
  - However, larger project areas are easier for the state to manage
- Location-level/ applicant defined geographies - gives applicants the ultimate flexibility, however
  - They are more complex for the state evaluation
  - Deconfliction will become more complex
  - May impact a state's ability to achieve goals

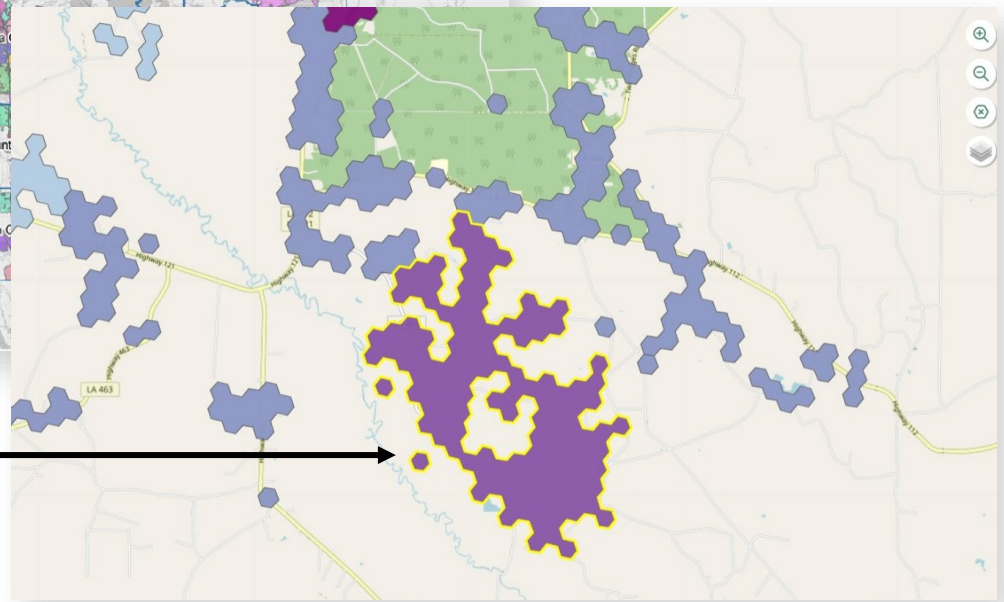


Project Area Size Comparison: CASA vs SPA Example

- CASA is Carrier Agnostic Serving Area – Large cluster of BSLs
- SPA is a Sub Project Area – Small Cluster of BSLs
- CASAs are bigger than SPAs
- The smaller the area
  - Allows parties to create their own aggregated project areas
  - Can reduce the locations an applicant is obligated to serve and can reduce taking on unwanted serving areas/future commitments



CASA: A CASA could be as big as a city



SPA: The highlighted SPA cluster in purple has 377 locations

Reviewing State Project Areas

Factors to consider when reviewing project areas:

Review the requirements of the state programs to determine which you will likely participate

A. Decide what type of state project areas you want apply for - If you are deciding if you want to bid in multiple states:

- Do you want to just go after states with Hex9, County, Location-level, etc. project areas?
- Or are you willing to build applications catered to different state project area definitions?

B. You may not know who else is registered to bid in the state – therefore how much competition you'll have over your target project areas

- Will the list of registered bidders be public?
- Are they competitors near your service area?
- New entrants ?
- Will it be like RDOF, where they registered but did not intend to bid?

Potentially assess project areas from a defensive approach.

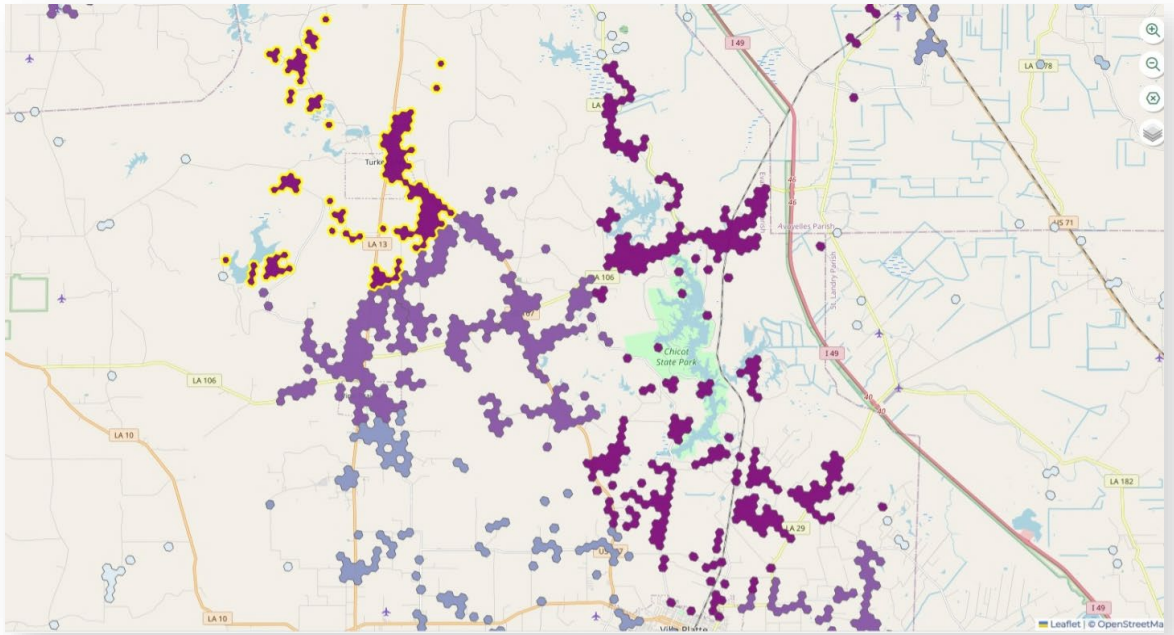
Reviewing State Project Areas

Factors to consider when reviewing project areas:

Understand how much funding may be available for project area and the scoring criteria

- Remember the 25% match requirement
- How much (%) of funding will you request?
- What scoring criteria will be a benefit and which will create issues?

Project Area ID: 675847
494 Unserved BSLs
RFA: $400,000



Factor in the Breakpoint Of High-cost Areas

How will you factor in the breakpoint of high-cost areas and impacts of changing technology types?

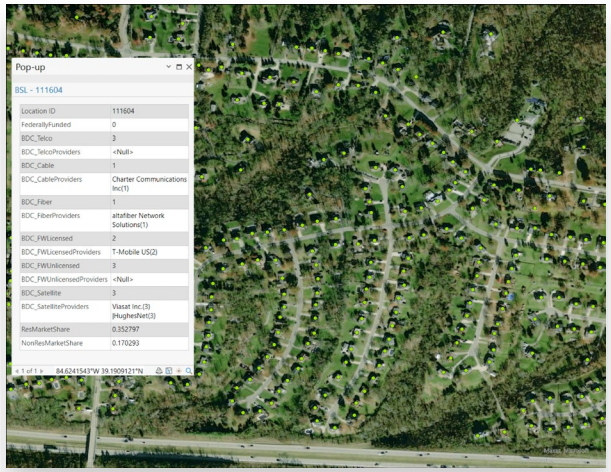
- Look at the Fiber cost – compared to FW cost – Is there a big gap?
- Compare the business case of wireless vs. fiber
- Determine if switching technologies would allow you to serve more locations – determine the technology breakpoint

Implications of the modes of deployment to a certain area

- Business case assumptions
- ROI hurdles
- Competitive applications

Questions to Consider as Applicants Select Project Areas and Develop Bids

- What's the market size of the project area? How many unserved Broadband Serviceable Locations (BSLs) are there (that I will be required to serve)? Are there any other potential customers that can be captured?
- In the project area, which carriers are providing service nearby? How many of those carriers have fiber assets?
- What other infrastructure may currently be there or nearby?
- What facilities do you have in the area?



- Is it near a larger more profitable area? Pass through other desirable areas?
- Potential market share to capture?
- What are the demographics of the project area?
- What are the capital costs? What are the operating costs?
- What is the ROI potential?
- What are the risks of entering?
- Where are the high-cost to serve with fiber areas? (as you see it)
- If one were to apply for BEAD funds in this area, how much should one contribute? How much subsidy to ask for? Time to pay back?
- Cost of compliance?

To Start Building a Business Case – Collect Comprehensive Data on Geographic Areas to Guide Decisions

The success and quality of your bids hinge upon the quality of the underlying data used to guide your decisions.

When crafting applications, here are some suggestions on what data you should obtain to plan from:

Fabric Tier D License

Broadband Serviceable Location data:

The geographic coordinates (exact placement) of all structures, including residences, businesses, CAIs, etc., where a broadband connection is or can be installed. Use the FCC definition of a Broadband Serviceable Location if you're looking for locations that are or will be covered under federal funding programs.

BDC Data

Broadband service availability & estimated units in demand:

Where is broadband service likely or less likely to be available below the census block level, with what type of broadband technology, and how many serviceable locations are considered unserved and underserved with broadband?

BDC Data

Competitive landscape:

How many, and what type of technology providers are within a certain proximity of a Broadband Serviceable Location?

To Start Building a Business Case – Collect Comprehensive Data on Geographic Areas to Guide Decisions

Build Complexity:
Relative difficulty in deploying Fiber to a serviceable location. Understanding factors such as soil, terrain, and labor conditions are key.

Cost to deploy & maintain:
Fiber and/or Fixed Wireless costs to deploy and serve a location. Account for cost to maintain over time.

Service adoption:
Understanding what to expect in terms of broadband adoption for a serviceable location, and the factors that contribute to lower adoption rates.

Revenue/ARPU
What is expected customer revenue across geographies, customer types, plans/bundles, etc..

Business Case (w/o public funding)
Understanding NPV by area allows for an understanding of commercial viability and cost recovery needs

Build a Comprehensive Business Case and Cost Model to Carry Out Selected Project

Build a comprehensive business case and cost model outlining:

- Initial Investment
- Capital Expenditure
- Operating Expenses
- Cost to Maintain Over Time
- Adoption take rates
- Revenue Potential

Considerations of where and how to prioritize your network build can ultimately benefit your network business the most, identifying commercial viability holds the key.

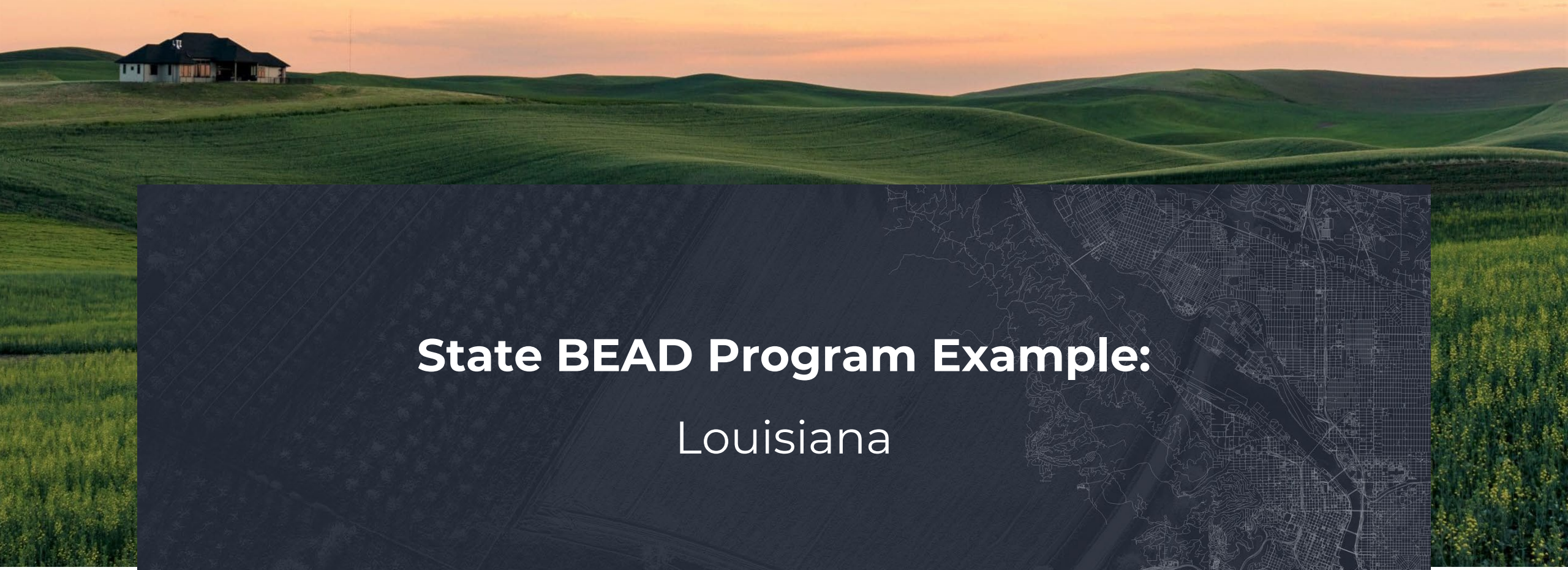
What areas are the most feasible to build to? What areas are high-cost and have barriers to build to, factoring in protected lands, potential permits needed, and terrain? Certainly, density is typically at the top of the list of drivers for viability. The inverse relationship between cost and density needs to be understood, and the consideration of public funding opportunities needs to be measured.

Net Present Value

Getting to the NPV allows an understanding of commercial viability and cost recovery needs

Additional Considerations…Factor in State Preparation Programs

- Does the state have workforce training programs?
- Labor resources? Installation workforce?
- For example: Some states such as Louisiana worked with counties and community colleges on program certifications to build up local assets to have an installation workforce.



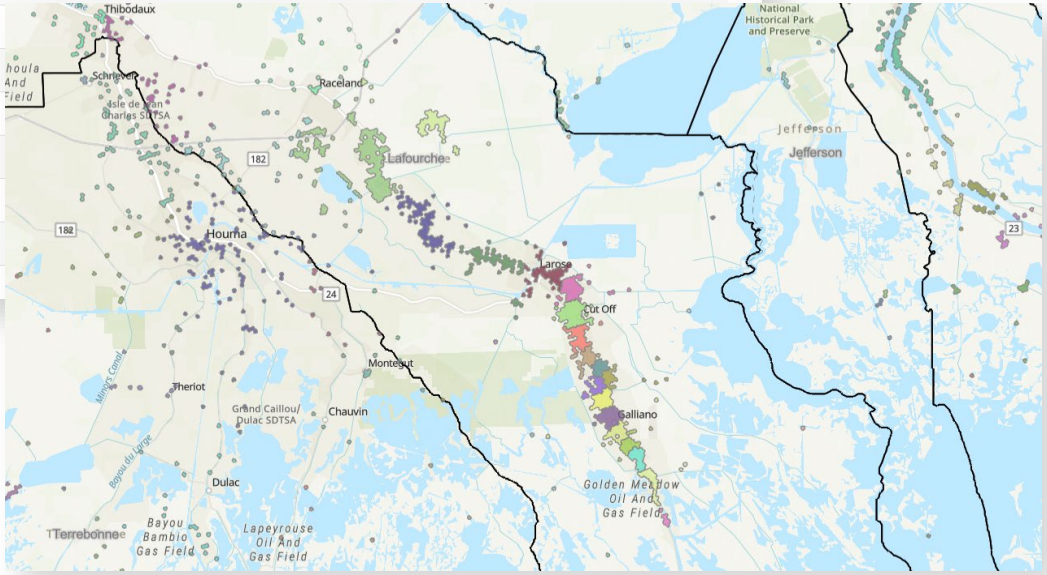
State BEAD Program Example:

Louisiana

State BEAD Program Example – Louisiana

- **Louisiana, ConnectLA,** has conducted their challenge process , posted their results, and drafted custom project areas
- **<u>Posted Type of Project Areas:</u>**
  - SPA – Sub Project Area – A set of BEAD eligible broadband serviceable locations that include unserved, underserved and community anchor locations to function as an application unit for GUMBO 2.0 applications
- **Posted Reference Funding** for each Project Area – Reference funding values are determined based on a standardized deployment cost model applied using consistent input values statewide.
- They are waiting to define EHCT till after bids come in

Parish Name	Total BSLs in Parish	Number of SPAs	Total BEAD Eligible BSLs in SPA	Percent BEAD Eligible within Parish	Total Reference Funding
Acadia	26,833	22	1,999	7.4%	$6,217,362
Allen	10,432	19	1,010	9.7%	$5,961,346
Ascension	50,210	14	362	0.7%	$2,803,529
Assumption	10,101	13	366	3.6%	$4,761,536
Avoyelles	19,032	26	4,748	24.9%	$10,812,598
Beauregard	16,552				
Bienville	7,674				
Bossier	49,410				
Caddo	101,499				
Calcasieu	86,333				
Caldwell	4,862				
Cameron	4,223				



State BEAD Program Example – Louisiana

State Project Criteria:

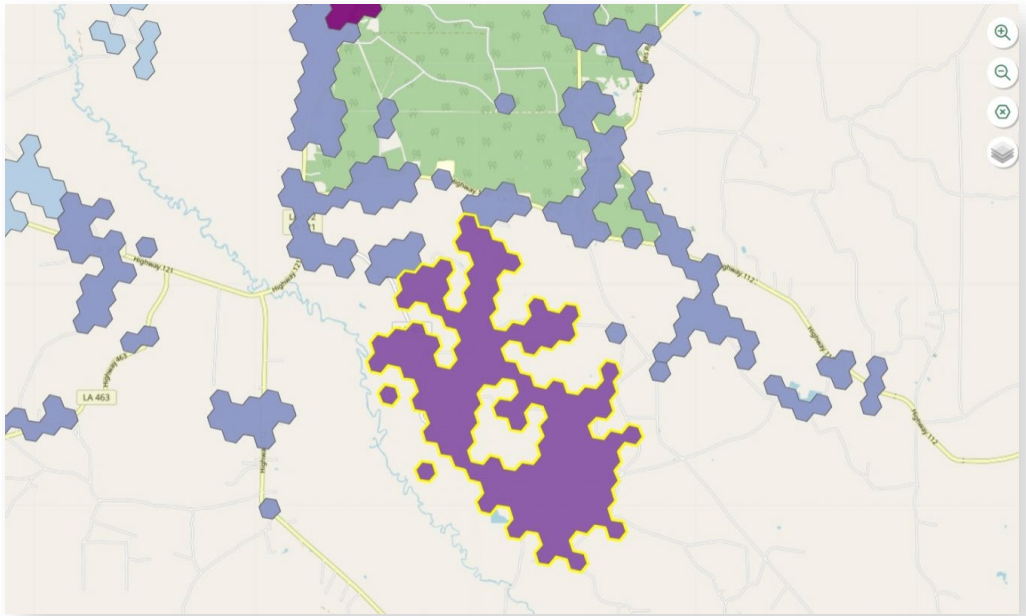
- Financial capability, managerial capability, operational capability, technical capability, ownership info, public funding info, and BABA/EHP/NEPA/NHPA compliance.

How they will score applications:

- Primary Criteria - 500 points
- Minimal BEAD Outlay - 200 points
- Affordability - 200 points
- Fair Labor Practices - 100 points
- Secondary Criteria - 164 points
- Speed to Deployment - 24 points
- Economically disadvantaged areas - 30 points
- Critical resiliency need areas - 50 points
- Local and Tribal Coordination - 10 points
- Speed of network - 50 points

Example of a Draft LA SPA

The highlighted SPA cluster in purple has 377 locations

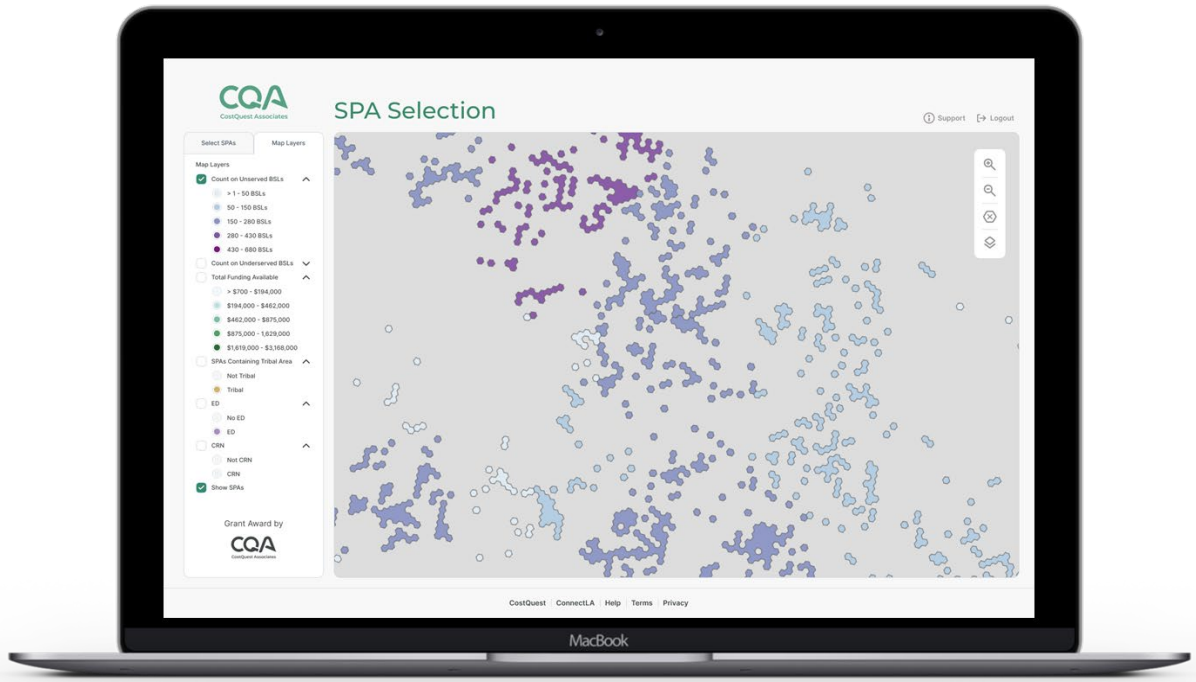


State BEAD Program Example – Louisiana

Using a Grant Award Management System

Ingests bids and run program:

- Select project areas and build applications for those areas
- Anonymity to minimize bias
- Encoding and testing of program rules and scoring
- Quality control for bid submissions to avoid issues
- Application training and education for subgrantees, including Mock-opening, sample dry runs
- Bid de-confliction approach



Key Takeaways

Summary:

- Understand Fabric & BDC Landscape
  - Tier D Licensing
  - Iterations & ‘Upversioning’
- Evaluate State BEAD Program Strategies
  - Project Areas
  - EHCT
  - Project Scoring Criteria
- Acquire reliable data and build a comprehensive business case to ensure economic viability of a project

Questions?

Contact Us

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CostQuest Data Suites and Applications

CostQuest's BroadbandFabric Data Suites

The **BroadbandFabric Data Suites** gives broadband providers critical data to make key decisions regarding broadband deployment and business planning. **This data set provides the accurate Broadband Serviceable Location (BSL coordinates that universally tie to other key data attributes such as:**

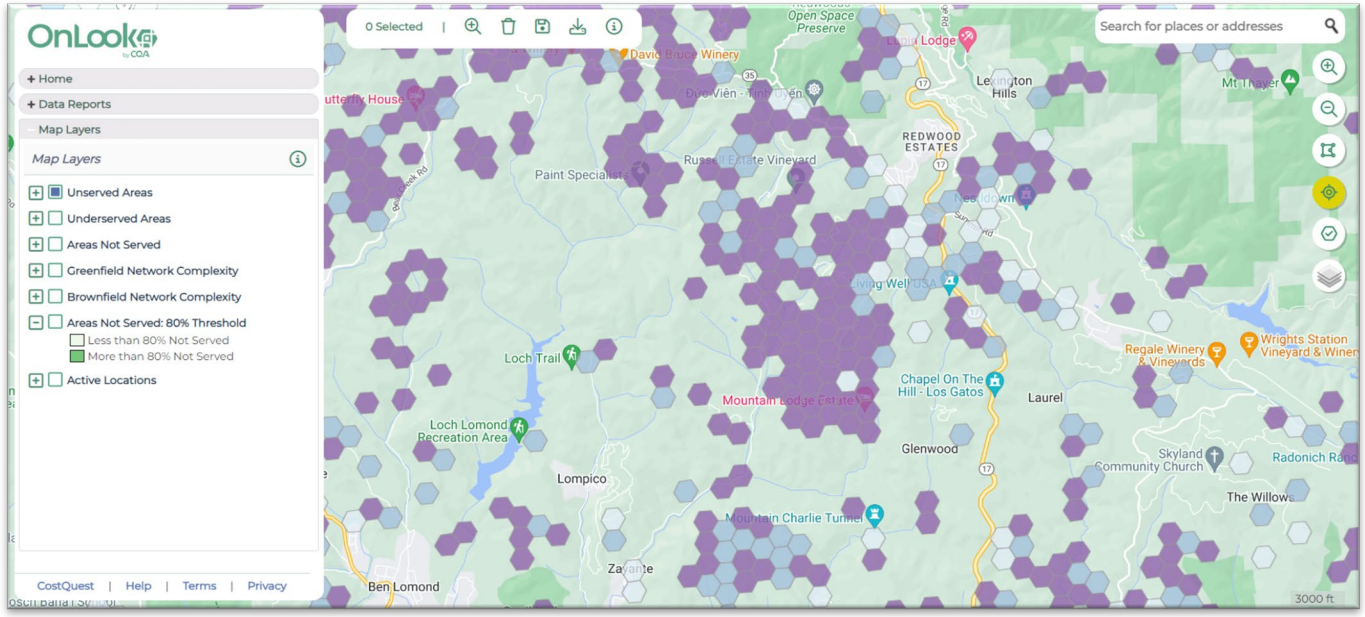
- Service Availability
- Engineering and Construction
- Costs and Economics
- Demand and Demographics data

https://www.youtube.com/watch?v=ByuDgCiBGiA&t=1s

GIS Broadband Data Analytics Application

OnLook by CQA

A GIS broadband analytics application embedded with BroadbandFabric data at the Hex9 level for simplified business planning & analysis.



https://www.youtube.com/watch?v=vGuZwbvrWWM

Fabric Licensing

	Users			Permitted Uses												
	ISPs	States, Local, and Tribal Governmental Entities	Third Parties	FCC: BDA Obligation (BDC) Coverag	FCC: BDA Obligation (BDC) Challeng	FCC: Affordability obligations (ACP) Reporting	FCC: Pre-BDA USF obligations (RDOF, Uniendo, etc..) Reporting	FCC: Post BDA USF obligations (Enhanced ACAM) Reporting	FCC: Academic / Research	NTIA: FGBA Programs (e.g., Treasury, USDA, BEAD, E-ACAM, etc..) Running	NTIA: FGBA Programs (e.g., Treasury, USDA, BEAD, E-ACAM, etc..) Participation	NTIA: FGBA Programs (e.g., Treasury, USDA, BEAD, E-ACAM, etc..) Reporting	NTIA: FGBA Programs (e.g., Treasury, USDA, BEAD, E-ACAM, etc..) Challenge	State Funded Programs	Other Internal Use	Commercial Use
FCC Tier 2 License	Y	Y	N	Y	Y	Y	Y	Y	N	Not permitted				N	N	N
FCC Tier 4 License	N [1]	N	Y	N	Y	N	N	N	N					N	N	N
FCC Tier 4R License	N	N	Y	N	Y	N	N	N	Y					N	N	N
NTIA Tier C License	N	Y	N	Not Permitted						Y	N	Y	N	N	N	N
NTIA Tier D License	Y	Y	N							N	Y	Y	Y	N	N	N
NTIA Tier E License [2]	Y	Y	Y							N	N	N	Y	N	N	N
Commercial License	Y	Y	Y	Not Applicable						Not Applicable				Y	Y	Y

Above is a generalization of Users and Permitted Uses. Please refer to the actual licenses and the advice of your attorneys to understand the specific user and permitted uses.

[1] Outside of their existing service availability footprint a provider can request for challenge purposes.

[2] The Tier E license is subset of permitted uses available in the Tier D. A Tier D and E license would not be needed for the same organization.