Project Technical Plan and Evidence Submission for Hybrid Fiber-Coaxial (HFC) Service: Template Instructions and Schema

This document is intended to guide BEAD applicants in completing the **Hybrid Fiber-Coaxial (HFC) Submission Template**. The evidence is required to demonstrate the applicant has taken the steps necessary to ensure compliance with technical requirements as established in the NTIA's BEAD Restructuring Policy Notice (issued June 6, 2025).

HFC Service Evidence Template Submission Instructions

1. Refer to the schema below for detailed instructions on how to complete each tab and its associated fields. All fields are required unless otherwise stated.
2. Save your completed HFC Service Evidence Template with the following file name format: <<CompanyName>>_HFCEvidence_<<yyyy-mm-dd>>.xlsx.
3. For applications proposing to use multiple technology types in the network (e.g., fiber and licensed fixed wireless), please upload a template for each technology type used.

HFC Service Evidence Template Schema

The HFC Service Evidence Template contains six tabs:

Tab number	Description
1	Logical Network Diagram
2	Access Layer
3	Headend & Internet Backbone
4	Reliability and QoS
5	Performance Calculations
6	Low Cost Service Option

Information must be entered for all fields in Tabs 1 – 6. All supplemental evidence files and documents must be submitted with the completed HFC Service Evidence template.

Tab 1. Logical Network Diagram Tab

Field	Data type	Example	Description	Constraints
Logical Network Diagram	Image	Diagram	Provide a logical diagram showing backhaul; headend systems, including cable modem termination system (CMTS); fiber nodes and links; active distribution network components (amplifiers, taps, etc.); and customer premises equipment (CPE), including the cable modem and/or customer gateway device	Illustrate a worst-case scenario for node combining, active component cascades, and number of subscribers served per node and/or CMTS port

Tab 2. Access Layer Tab

Field	Data type	Example	Description
What is the total upstream and downstream DOCSIS channel capacity allocated per service group?	Narrative		Please specify: (1) Number and type of channels (OFDM, SC-QAM) (2) Total bandwidth (MHz) and throughput (Mbps)
What is the average or nominal number of serviceable passings per fiber node by design?	Number	300	
What is the maximum number of serviceable passings per fiber node by design?	Number	500	
How many anticipated subscribers will be served per node upon activation?	Narrative	100 subscribers per node	
What is the DOCSIS version currently deployed?	Narrative	DOCSIS 4.0	
Describe how your CMTS is configured for node segmentation and combining in both the upstream and downstream directions.	Narrative		

Tab 3. Headend & Internet Backbone Tab

Field	Data type	Example	Description
Describe the capacity of all links between the CMTS and the Internet backbone, including the uplinks to backbone routers and the connections to both transit and non-transit peers.	Narrative		Include expected peak utilization and how the design avoids congestion
Describe the physical and logical redundancy of the proposed network, including CMTS components, backbone network devices, and core routers and backbone transport links.	Narrative		Include a description of any protection schemes in place, such as dual-homing, ring architecture, or failover protocols

Tab 4. Reliability and QoS Tab

Field	Data type	Example	Description
Performance Thresholds			
How does the applicant monitor and ensure that roundtrip latency, real-time packet loss, and jitter remain within the following thresholds during typical and peak operating conditions?	Narrative		Latency: ≤ 100 ms Packet loss: ≤ 2% over any 15-second interval Jitter: ≤ 30 ms over any 15-second interval
What mechanisms are in place to detect and mitigate congestion?	Narrative		Please describe any: (1) Queue management, (2) Traffic prioritization, (3) DOCSIS scheduler configurations, or (4) Any other measure taken to reduce network congestion.
Network Management & Redundancy			
How is network congestion detected in real time?	Narrative		
What mechanisms are used to prioritize or shape traffic during periods of congestion?	Narrative		
What redundancy exists in the last-mile access network to protect against performance degradation or outages?	Narrative		

Tab 5. Performance Calculations Tab

Field	Data type	Example	Description
Demonstration of Capacity			
Using worst-case design assumptions, please provide calculations demonstrating that the network can provide to each location at the time of activation: **(1) A minimum of 100 Mbps download and 20 Mbps upload** **(2) ≤ 100 ms roundtrip latency** **(3) Simultaneous 5 Mbps to all connected locations (BEAD and non-BEAD users)**	Narrative		Calculations should be for the proposed design specific to the BSLs and all network components encompassed the application. Please include the following in your calculations: (1) Existing network components upon which the application is dependent (2) A summary of the assumptions used for demand modeling (3) Oversubscription ratios (4) Existing and future network components upon which the application is dependent (5) Number of anticipated subscribers that will utilize shared capacity along any segment of the network as of the activation date
Demonstration of Scalability			
Please demonstrate, using calculations based on the submitted technical information, how the proposed network will meet the following performance targets five years after initial deployment, assuming a 25% annual increase in capacity demand: **(1) Provide at least 240 Mbps download and 48 Mbps upload capacity to each Broadband Serviceable Location (BSL)** **(2) Maintain roundtrip latency no greater than 100 ms under projected peak load (BEAD and non-BEAD users)** **(3) Simultaneous 12 Mbps to all connected locations (BEAD and non-BEAD users)**	Narrative		Calculations should be for the proposed design specific to the BSLs and all network components encompassed the application Please include the following in your calculations: (1) Existing and future network components upon which the application is dependent (2) Oversubscription ratios (3) All anticipated subscribers that will utilize shared capacity along any segment of the network at as of the activation date
Demonstration of Support for 5G and Advanced Services			
Please demonstrate, using calculations based on the submitted technical	Narrative		The calculations must demonstrate that the following performance targets can be met:

Field	Data type	Example	Description
information, how the proposed network will support deployment of 5G, successor wireless technologies, and other advanced services. **For the purpose of this demonstration, calculations should be based on one of the following two scenarios:** **(1) Rural capacity backhaul to one provider at each of three locations, or** **(2) Three separate providers at one location each**			(1) Deliver at least 300 Mbps download and 30 Mbps upload capacity to each of three distinct locations within the proposed project area (totaling 900/90 Mbps aggregate capacity) (2) Maintain roundtrip latency no greater than 100 ms on each of these links Your response must include: (1) Spectrum allocation plans across the HFC plant (2) CMTS service group configurations (3) Backhaul capacity serving the proposed area (4) Distribution of bandwidth across shared users (BEAD and non-BEAD)

Tab 6. Low-Cost

Low-cost Service Option (LCSO)

Field	Data type	Example	Description
Describe the Low-Cost Service Option the applicant will provide as required by the BEAD Program. What technology type, speeds and latency will be offered under this plan, and at what price?	Narrative		
Is the Low-Cost Service Option described above an existing low-cost plan offered by the applicant or will this be a new plan developed primarily to meet this BEAD obligation?	Narrative		
If the applicant expects to change the price for the LCSO over the 10-year federal interest period or period of performance, explain the methodology for potential changes.	Narrative		