



The Answer to Priority Broadband Project Performance Reliability

BEAD Needs a National Standard for Verifying 10-Year Broadband Performance

Why States Need a Flexible, Engineering-Grounded Standard Now

December 8, 2025

By: David J. Malfara, Sr.

*Chief Executive Officer & Principal Consultant, Big Bang Broadband LLC
Senior Member, Institute of Electrical and Electronics Engineers (IEEE)*

Introduction: A Missing Piece in the BEAD Program

As the National Telecommunications and Information Administration (NTIA) continues approving BEAD Final Proposals across the country, states are preparing to enter the Construction Period. Over the next several years, billions of federal dollars will fund new broadband networks across all technologies—fiber, fixed wireless, hybrid systems, and increasingly, low-earth orbit (LEO) satellite constellations.

But even as construction ramps up, one essential question remains unresolved:

How will states verify that BEAD-funded networks continue to meet statutory performance and scalability obligations over the entire 10-year Performance Period?

This gap becomes more urgent with each new award. Recent national reporting shows that **more than 22% of planned BEAD-funded locations are now associated with LEO projects**—a dramatic development that underscores the need for technology-neutral performance verification.

The law requires Priority Broadband Projects (PBPs) to deliver deterministic, reliable, and scalable broadband throughout a decade of operation. Yet no federal or state framework currently defines **how** that should be tested, measured, audited, or enforced.

Industry Signals: A Growing Consensus

Industry leaders across the ecosystem have begun to surface the same concern:

- The [Fiber Broadband Association](#)'s latest white paper highlights the accelerating shift of AI workloads toward the network edge—and the unprecedented strain this places on latency budgets, jitter stability, and deterministic network behavior.
- [Michael R. Romano](#) of NTCA recently stated publicly that networks receiving public funds should be prepared to “**show your homework**” regarding long-term performance.
- Conversations among engineers, policymakers, vendors, and broadband offices reflect a shared recognition: **Edge AI, distributed compute, and concurrency-intensive workloads will redefine what broadband must deliver.**

These signals converge on one point: **the BEAD program needs a structured, engineering-grade method for certifying and verifying performance over 10 years.**

Introducing the Priority Broadband Project Operational Framework

To address this emerging need, Big Bang Broadband LLC has developed the **Priority Broadband Project Operational Framework (PBP-OF)**—a first-of-its-kind standards-based approach designed expressly for BEAD-funded Priority Broadband Projects.

The PBP-OF provides:

1. Deterministic Engineering Requirements

Clear definitions for latency budgets, jitter constraints, packet timing stability, and concurrency resilience—anchored in real engineering behavior, not theoretical design targets.

2. AI Era Performance Modeling

Methods for evaluating how networks must perform under AI-driven and distributed compute workloads that amplify tail latency (p99/p99.9), surge concurrency, and bidirectional traffic patterns.

3. Technology-Neutral Evaluation

The framework applies equally to:

- Fiber
- Fixed wireless
- Hybrid fiber-wireless systems
- Cable (DOCSIS / HFC systems)
- Hybrid fiber-cable systems
- LEO satellite architectures
- Future technologies

No system is pre-judged; compliance is earned through measurable performance.

4. End-to-End Testing

A complete methodology for evaluating performance from customer premises through access, aggregation, transport, and interconnection points. Because BEAD obligations are end-to-end, the testing must be as well.

5. Auditability and Repeatability

The PBP-OF establishes defensible, repeatable, audit-ready procedures that states and subgrantees can rely on throughout the 10-year Performance Period.

Why This Matters: Accountability, Certainty, and Opportunity

A standard like the PBP-OF delivers value across the ecosystem:

For States

It provides a documented, legally defensible mechanism for verifying compliance.

For ISPs

It creates **bragging rights**—a way to demonstrate excellence, attract AI edge deployments, and differentiate through real performance.

For Vendors

It offers guidance on what future-proof equipment must support.

For Communities

It ensures that the networks built today still meet their needs in 2040 and beyond.

For Federal Partners

It supplies the first engineering framework capable of satisfying statutory oversight obligations.

BEAD will ultimately be judged not by how many miles of fiber, HFC, or wireless links get built, nor by how many satellites comprise any particular constellation, but by whether those networks perform reliably over time. A national performance-verification standard is no longer optional—it is required.

Next Steps

BBB will continue refining the PBP-OF in consultation with engineers, policymakers, state broadband offices, and ecosystem partners.

Those interested in participating in review cycles, pilot implementations, or standards alignment discussions are welcome to connect.

Download the full PBP-OF materials here: <https://bigbangbroadband.com/resources-and-publications/>