

Enhanced A-CAM Support Calculations Methodology and Data Sources Offer Calculations

This document describes the methodology and data sources that Commission staff employed to calculate Enhanced Alternative Connect America Model (Enhanced A-CAM) offers for eligible carriers.¹ The results were announced in a Public Notice on August 30, 2023 in WC Docket No. 10-90.²

Consistent with the Commission's *Enhanced A-CAM Order* and the Bureau's *Enhanced A-CAM Implementation Order*,³ the Wireline Competition Bureau calculated these Enhanced A-CAM offers under the following support parameters:

- A non-Tribal funding threshold of \$63.69 and a funding cap set to \$350 per unserved location or 80% of the uncapped support amount in a company's territory within a state. A Tribal funding threshold of \$47.76 and a funding cap set to \$365.93 per unserved location or the aforementioned 80% of uncapped support.
- 60% of support it currently receives for locations to which it has already deployed 100/20 Mbps or faster broadband but which unsubsidized competitors neither already serve nor are subject to enforceable commitment to serve. The non-Tribal funding threshold for prior support is \$52.50 and the funding cap is \$200. The Tribal funding threshold for prior support is \$39.38 and the funding cap is \$215.93.
- 33% of a carrier's current support level for (a) incumbent local exchange carrier (ILEC)-only served locations for which a competitor is receiving funding to deploy 100/20 Mbps or faster broadband service, and (b) locations currently served by both the ILEC and a competitor with voice service and 100/20 Mbps or faster broadband.

The information below provides additional detail on how the offers were calculated.

Data Sources

The following describes the data sources used in the calculations and where they may be obtained.

- A-CAM Version 2.6.0 Cost Model: Version 2.6.0 of the A-CAM model now relies on fabric location data to calculate the network topology rather than Census housing unit and GeoResults business data. The new model also employs the latest study area boundary data filed by Enhanced A-CAM eligible carriers and corrects these boundaries so that each fabric location is in

¹ *Connect America Fund, et al.*, WC Docket No. 10-90 et al., Report and Order, Notice of Proposed Rulemaking, and Notice of Inquiry, FCC 23-60 (rel. July 24, 2023) (*Enhanced A-CAM Order*).

² *Wireline Competition Bureau Announces Enhanced Alternative Connect America Cost Model Support Amounts Offered To Rate-Of-Return Carriers To Expand Rural Broadband*, WC Docket No. 10-90, Public Notice, DA 23-779 (WCB Aug. 30, 2023).

³ See *Connect America Fund; ETC Annual Reports and Certifications; Telecommunications Carriers Eligible to Receive Universal Service Support; Connect America Fund – Alaska Plan; Expanding Broadband Service Through the A-CAM Program*, WC Docket Nos. 10-90, 14-58, 09-197, and 16-271; RM-1168, Order, DA 23-778, at 4-5, paras. 9-13 (WCB Aug. 30, 2023) (*Enhanced A-CAM Implementation Order*).

only one study area. No changes to the underlying assumptions in the A-CAM model have been made. Interested parties may download the new A-CAM data at cacm.usac.org.⁴

- **Potentially Eligible Locations File:** The locations based on Version 2 of the Broadband Serviceable Locations Fabric that are potentially eligible for Enhanced A-CAM support are available to authorized users at cacm.usac.org.⁵ This file is restricted to broadband serviceable locations (BSLs) within each eligible carrier’s study area and includes the following variables: (1) the fabric location identifier; (2) the 2020 Census block of the location; (3) the study area code for the location; (4) the number of units associated with the BSL; (5) an indicator for whether the location is in a Tribal area; (6) a variable indicating the final broadband service status of the location after accounting for enforceable commitments;⁶ (7) a variable indicating whether the location has an enforceable commitment to deploy broadband at speeds of 100/20 or greater in the Broadband Funding Map, and if so, how the location was classified for funding purposes;⁷ and (8) an indicator for whether an accepting carrier will be required to deploy broadband at speeds of 100/20 or greater should it accept the offer (i.e. whether the locations is a required location).⁸
- **Broadband Data Collection (BDC) Version 2:** Staff used Version 2 of the BDC to determine Enhanced A-CAM eligibility for each potentially eligible location. This data is publicly available and can be downloaded from the following link:⁹ <https://broadbandmap.fcc.gov/data-download/>.
- **Voice Service by Provider and State:** Only locations that receive broadband service with download speeds of at least 100 Mbps and upload speeds of at least 20 Mbps from a provider that is also offering facilities-based voice service are considered “served” under the Enhanced A-CAM program. As in past offers, whether a provider offers facilities-based voice service is determined using FCC Form 477 voice subscription data. If the provider reports at least one voice subscriber in the state that is not subscribing to an “over-the-top” voice service then that

⁴ Access to the A-CAM data is subject to the Third Supplemental Protective Order, a licensing agreement and a non-disclosure agreement (respectively Appendices B and C) available at <https://docs.fcc.gov/public/attachments/DA-12-1995A1.pdf>. Parties who have already signed the licensing and non-disclosure agreements, but have forgotten or not used their password recently can email CACMsupport@costquest.com. Block level costs have been rounded to the nearest \$5 increment in this dataset and therefore support amounts calculated using this data will not exactly match our results because our results are calculated using unrounded cost data.

⁵ Access to these data will require the same licensing and non-disclosure agreement as the new A-CAM data. *See* n.2.

⁶ The four codes for this variable are as follows: (1) ILEC-only served; (2) ILEC and competitively served; (3) unserved; and (4) served only by a competitor.

⁷ This variable is coded as follows: (0) not subject to an enforceable commitment in the BFM; (1) unserved, loan to ILEC; (2) unserved, grant to ILEC; (3) unserved, loan or grant to competitor; (4) ILEC-only served, loan to ILEC; (5) ILEC-only served, grant to ILEC; (6) ILEC-only served, loan or grant to competitor; (7) ILEC and competitive served, with a BFM commitment; (8) only competitive served, with a BFM commitment.

⁸ We use “unit” or “location” throughout to refer to the number of units associated with a BSL in the broadband fabric.

⁹ The version used in these calculations was pulled from the BDC system on August 18th, 2023.

provider is coded as offering voice service within the state.¹⁰ This data is publicly available at: <https://docs.fcc.gov/public/attachments/DOC-396526A1.xlsx>.

- **Broadband Funding Map:** The Broadband Funding Map data are used to determine whether the location is under another enforceable commitment to deploy broadband at speeds at or above 100/20 Mbps and whether it is the ILEC or a competitor that has the commitment. As explained below, such an enforceable commitment potentially changes the funding levels for such locations. These data are publicly available at:¹¹ <https://fundingmap.fcc.gov/>.
- **High Cost Universal Broadband (HUBB) data:** The Universal Service Administration Company (USAC) HUBB data are used in conjunction with BDC fabric and deployment data to determine the funding for ILEC served locations. These data are publicly available at the following link:¹² <https://opendata.usac.org/>.
- **Study Area Boundaries:** The study area boundary shapefiles for each ILEC are used to determine which study area code is associated with each fabric location. These study area boundaries are adjusted to eliminate overlaps between providers, but the original shapefiles are publicly available for download at: <https://www.fcc.gov/reports-research/maps/study-area-boundaries/>.
- **Eligible Carriers:** Current recipients of A-CAM I or A-CAM II support or Connect America Fund Broadband Loop Support (CAF BLS) are eligible for Enhanced A-CAM support. The list of study areas and the type of support currently provided is available in the following file: <https://docs.fcc.gov/public/attachments/DOC-392121A1.xlsx>.
- **ILEC Holding Company/Affiliated Companies Information:** Staff used the ILEC holding company/affiliated company name and ILEC holding company/affiliated company number associated with each study area code (SAC) to determine which locations in the BDC were served by the ILEC. Generally, all commonly owned SACs in a state are aggregated into a single state-level offer for each company, called a “State Administrative SAC.” In some cases, such as for companies that currently receive CAF BLS or for companies that have merged with other companies since their A-CAM I or A-CAM II elections, the State Administrative Study Area Code in a state may not reflect all affiliations that will be included in the Enhanced A-CAM offer. These data are the same as those used for FCC Form 477 and FCC Form 499. The Universal Service Monitoring Report, Supplemental Table 3.4, available at: <https://www.fcc.gov/file/24828/download>, shows all SACs and their affiliated companies and State Administrative SACs.

Funding Calculations

This section explains how staff calculated the support levels in the results for each carrier at the state level.

¹⁰ Over-the-top interconnected VoIP is defined as service delivered to the end-user customer over a high-capacity connection that the customer obtains from an entity not affiliated with the interconnected VoIP service provider. See FCC Form 477 Filing Instructions, Fixed Voice Subscription – Interconnect VoIP *available at* https://transition.fcc.gov/form477/FVS/allocating_voip_subscriptions.pdf.

¹¹ The version used in these calculations was pulled from the BFM system on August 11th, 2023.

¹² The data used for these calculations was downloaded on August 18th, 2023.

Determining Served Status

In the *Enhanced A-CAM Order*, the Commission determined that the appropriate funding amount for a given location will be based on the estimated cost of the location, whether the location is located on Tribal lands, and whether the location is currently served by the ILEC, another broadband provider, or both.¹³

The first step is to determine whether each potentially eligible location is served, and whether the ILEC and/or a competing provider serves each location. Staff used the BDC deployment and FCC voice data cited above for this purpose. A BDC record is coded as being served by the ILEC if: (1) the download speed was at least 100 Mbps; (2) the upload speed was at least 20 Mbps; (3) the provider offers facilities-based voice service in the state; (4) the technology code does not equal sixty (geostationary satellite), sixty-one (non-geostationary satellite), or zero (other fixed service); and (5) a holding/affiliated company number provided in a BDC data filing for that location matched the holding/affiliated company number that is associated with the ILEC in that study area.¹⁴ If there is a BDC filing for that location that does not match the ILEC holding/affiliated company number for the study area, and conditions (1) through (4) were met, then this BDC record is coded as competitively served. For each location identifier, the maximum value for the ILEC-served and competitive-served variable was then taken.

With this information, each location is classified into one of the following four mutually exclusive and exhaustive categories: (1) served only by the ILEC; (2) served by the ILEC and another provider; (3) unserved; or (4) served only by a competitor. Only the first three categories are eligible for funding and, as described below, the support calculation is different for each of these three categories.

The next step is to then determine whether each potentially eligible location is subject to an enforceable commitment to deploy broadband based on the Broadband Funding Map (BFM). For area-based commitments in the BFM, the shapefiles were used to determine the set of potentially eligible locations that were covered by each BFM project with terrestrial deployment commitments with download speeds of 100 Mbps or greater and upload speeds of 20 Mbps or greater. For location-based commitments, the location identifier in the BFM was used to determine whether a fabric location is under such a commitment.

As shown in the table below, the amount of funding for a location subject to an enforceable commitment depends on whether the funding was a loan or grant, and whether the awardee is an ILEC or a competitive provider.¹⁵ All projects in the BFM other than the Telephone Loan Program, which is program code 12, were considered grants.¹⁶ To determine whether the entity subject to an enforceable commitment is an ILEC at that location or is a competitive provider at that location, the provider identifier contained in the

¹³ *Enhanced A-CAM Order* at 27-38, paras. 60-87.

¹⁴ A very small number of records in the BDC had a technology code of 0, indicating deployment using “fixed service using any other technology not otherwise detailed for another code.” These locations were not considered served even if reported at speeds of at least 100/20 Mbps.

¹⁵ See *Enhanced A-CAM Order* at 31-33, paras. 73-75. Loans to an ILEC for deployment within the ILEC’s study area are considered complementary to Enhanced A-CAM funding and do not affect support calculations. Grants to an ILEC for already-existing ILEC-only served locations are not considered duplicative of Enhanced A-CAM funding.

¹⁶ Awards that are combinations of loans and grants are considered grants. Cases where a provider received a loan and a grant in separate awards are considered grants. A loan to a competitive carrier to deploy broadband in an ILEC study area is treated as a grant.

BFM was used.¹⁷ Specifically, if the awardee is the ILEC in the study area that contains that location, the location was coded as under an ILEC enforceable commitment and otherwise coded as a competitive enforceable commitment.¹⁸ This analysis produces a list of locations subject to enforceable commitments and which type of commitment applies. The location identifiers for the locations that have been adjusted in this process can be found in the potentially eligible locations file posted at cacm.usac.org.

	Loan to ILEC	Grant to ILEC	Loan or Grant to Competitor
Unserved Locations	100% of Enhanced A-CAM Support	No support	No support and do not have to serve
ILEC-only Served Locations	60% of Prior Support	60% of Prior Support	33% of Prior Support
ILEC and Competitor Served Locations	33% of Prior Support	33% of Prior Support	33% of Prior Support

Based on the assignment of locations in the preceding analysis, the location unit counts in the four mutually exclusive and exhaustive potential classifications of a location were recalculated. For example, if a BSL is unserved in the BDC but subject to an ILEC or competitive grant enforceable commitment, the units associated with that BSL were assigned to the “served only by a competitor” category for the calculations given that these locations receive no support. This process resulted in the eight block-level location count variables that are produced in the A-CAM Version 2.6.0 block-level cost model file posted on the A-CAM website.

Support Calculations

Support amounts vary depending on whether a location is in a Tribal area and whether the location is served by the ILEC, a competitor, or both. We now detail the funding calculations for each category of eligible location. Locations served only by a competitive provider are not eligible for funding under the Enhanced A-CAM program.

Locations served only by the ILEC

For all locations within a Census block-study area combination that are served only by the ILEC, the Enhanced A-CAM Order states that these locations will receive at least 50% of their previous support

¹⁷ The provider identifier in the BFM is called providerid. This variable provides the FCC holding/affiliated company number for the project awardee. In a small set of cases where this provider identifier was missing (providerid=1), staff determined the holding/affiliated company number of the awardee, if available. Providers without FCC holding/affiliated company numbers were coded as competitive non-ILEC providers.

¹⁸ When the awardee is an ILEC, but the location is not in their ILEC service territory, the location was coded as competitively served. In a small number of cases, a location was subject to multiple awards. If the ILEC received a loan and a grant for a location it is coded as being under an ILEC grant, if the ILEC received a loan and a competitor received a grant for a location, it is coded as being under a competitive grant, and if the location received an ILEC grant and a competitive grant, it is coded as under a competitive grant.

level (based on the prior A-CAM model) but not more than 75% of previous support.¹⁹ For non-Tribal areas, staff use the A-CAM funding threshold of \$52.50 per month and a monthly support cap of \$200 to determine previous support levels. This implies that locations with model costs at or below \$52.50 per month receive no funding while locations with costs at or above \$252.50 per month receive \$200 per month in support. Previous support levels for locations with costs that lie between \$52.50 and \$252.50 were determined to be the difference between their costs and \$52.50. For locations in Tribal areas, staff used the A-CAM funding threshold of \$39.38 per month and a monthly support cap of \$213.12, and a parallel calculation was made.²⁰

To ensure that carriers receive support for all served locations, the Commission directed the Bureau to calculate support for ILEC-served locations using the ILEC-served location counts in the BDC and then the HUBB data and to then make offers using the greater of the two calculated support amounts. To estimate the HUBB amount for ILEC-served locations, staff obtained the most recent version of the HUBB reported deployment data from USAC. For all A-CAM I, A-CAM II, and CAF BLS carriers, staff determined whether each reported deployed location in the HUBB was a Tribal or non-Tribal location.²¹ This information was used to arrive at Census block-level counts of Tribal and non-Tribal HUBB locations. For A-CAM I carriers, these reported location counts in eligible blocks were multiplied by the same funding amounts for both Tribal and non-Tribal locations to calculate the current support amounts at the block-level. For A-CAM II and CAF BLS carriers, current support amounts were calculated using the applicable A-CAM II funding thresholds based on whether the locations were Tribal or non-Tribal.

Using HUBB data, it is not possible to identify whether each reported location is competitively served. Given that Enhanced A-CAM funding for an ILEC-served location depends on whether it is also served by a competitor, correctly calculating current support using the HUBB data required staff to estimate the reduction in support associated with HUBB locations also being served by a competitor. To estimate what percentage of current support should be applied to each HUBB location, staff calculated the average percentage of current support that ILEC-served locations should receive under Enhanced A-CAM using the BDC location and deployment data. This percentage was calculated as the Enhanced A-CAM ILEC-served current funding amount divided by the ILEC-served funding amount that would result if every ILEC-served location in the BDC would instead receive full current support under Enhanced A-CAM.²² This average funding percentage was then applied to the applicable A-CAM support amounts for each HUBB location from the previous versions of the cost models to calculate the HUBB funding for each HUBB reported location.

These HUBB ILEC-served support amounts were then summed within a state for each holding/affiliated company and compared to the ILEC-served support amount calculated as above using the BDC data. If

¹⁹ See *Enhanced A-CAM Order* at 31-32, para. 74.

²⁰ *Id.*

²¹ Version 2.3.2 of A-CAM was used for A-CAM I calculations. Staff used a funding threshold of \$52.50 and a support cap of \$200 for these calculations in both Tribal and non-Tribal areas.

²² Given that the ILEC-served funding amount is between 60% and 33% of current support levels, depending on whether the location is ILEC-only served or also served by a competitor, the average funding percentage we calculate for a carrier in a state is always between 33%, if all ILEC-served locations are also served by a competitor, and 60%, in the case that no ILEC-served locations are also served by a competitor. For carriers with A-CAM and CAF BLS study areas in the same state, the average funding percentage was calculated separately for these two types of areas.

the HUBB amount exceeded the BDC amount, the HUBB amount was provided, otherwise the BDC amount was used.²³

Locations served by the ILEC and a Competitor

For locations that are now served by the ILEC and another provider, or that are served by the ILEC and will be served by another provider that is subject to an enforceable commitment, the Commission determined that it is appropriate to complete the A-CAM funding term but not provide additional funding to these locations.²⁴ Given that most providers have five years left on their existing A-CAM I or A-CAM II terms and that the Enhanced A-CAM term is 15 years, the Commission determined that these locations will be provided 33% of their previous annual support amount.²⁵ The previous support amounts for these locations are calculated using the same funding thresholds and support caps that we use above for locations served only by the ILEC. One-third of this calculated support amount is then provided for each of the locations in this category at the block level.

Unserviced locations

For locations that do not have 100/20 Mbps or better service from any provider, and that are not subject to an enforceable commitment to deploy broadband at or above these thresholds by any provider, the Commission determined that it was appropriate to provide full Enhanced A-CAM support using higher funding thresholds and support caps than applied under the A-CAM I and A-CAM II programs. For unserved locations in non-Tribal areas, to calculate support for these locations within a block, the funding threshold is \$63.69, and the monthly support cap is \$350 per month. This implies that unserved locations within blocks with average model monthly costs at or below \$63.69 receive no support while unserved locations in blocks with costs that exceed \$413.69 have their support capped at \$350 per month. For unserved locations in Tribal areas, the funding threshold is \$47.76, and the monthly support cap is \$365.93, given the support cap of \$350 in non-Tribal areas.²⁶

As a result of funding varying by three categories of served status and two categories of Tribal status, the funding formula is different for six categories of eligible locations. A description of the funding formula for each of the categories is provided below.

1. Non-tribal ILEC-only served: 60% of support capped at \$200 with a funding threshold of \$52.50
2. Tribal ILEC-only served: 60% of support capped at \$213.12 with a funding threshold of \$39.38
3. Non-tribal ILEC and competitive served: 33% of support capped at \$200 with a funding threshold of \$52.50
4. Tribal ILEC and competitive served: 33% of support capped at \$213.12 with a funding threshold of \$39.38
5. Non-Tribal Unserved: Support capped at \$350 with a funding threshold of \$63.69
6. Tribal Unserved: Support capped at \$365.93 with a funding threshold of \$47.76

²³ This amount was apportioned between Tribal and non-Tribal locations based on estimated funding shares for each type of area at the holding/affiliated company level in each state, but separately for CAF BLS areas if a carrier had both CAF BLS and A-CAM areas in a state.

²⁴ See *Enhanced A-CAM Order* at 32-33, para. 75.

²⁵ See *id.*

²⁶ The *Enhanced A-CAM Order* set the Tribal support cap at \$15.93 above the non-Tribal cap and set the funding threshold at 25% less than the non-Tribal threshold. See *Enhanced A-CAM Order* at 33, para. 76.

After calculating the funding for each of the six categories of eligible locations in the block, this funding is summed to produce a block-level support amount. These data are then collapsed to a holding/affiliated company level in each state by summing the individual block level support amounts for that carrier in the state. The total uncapped support amount for unserved locations is also calculated for each carrier within a state using the applicable Tribal and non-Tribal funding threshold for each location but assuming no cap on monthly support. This state-level uncapped support amount for each carrier's unserved locations is then multiplied by 80% and compared to the state-level capped support amount for these locations. If 80% of uncapped support exceeds the capped support amount, then the carrier is assigned the 80% of uncapped support amount in that state for the unserved locations, otherwise it receives the previously calculated capped amount for such locations.²⁷

²⁷ For the few carriers with A-CAM and CAF BLS study areas within the same state, for administrative ease in calculating transition payments, the 80% portion of their funding cap was calculated separately for their A-CAM and CAF BLS study areas.