INTERNET FOR ALL

BEAD Challenge Process Data Submission

Data quality, file formats, and common issues

March 6, 2024

NTIA · DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

Disclaimer

This document is intended solely to assist recipients in better understanding the BEAD program and the requirements set forth in the Notice of Funding Opportunity (NOFO) for this program. This document does not and is not intended to supersede, modify, or otherwise alter applicable statutory or regulatory requirements, or the specific application requirements set forth in the NOFO. In all cases, statutory and regulatory mandates, and the requirements set forth in the NOFO, shall prevail over any inconsistencies contained in this document.

Agenda

Challenge Results Review Process

Challenge Process Overview | Challenge Results Review

Per the BEAD NOFO, NTIA must review and validate the results of each Eligible Entity's challenge process.

Challenge Process Overview

1. Eligible Entity Develops Initial Proposal Volume 1

2. Eligible Entity Submits Initial Proposal Volume 1 (Optional)

3. Eligible Entity Submits Full Initial Proposal (Volume 1 & Volume 2)

4. NTIA Reviews and Approves Initial Proposal Volume 1

5. Eligible Entity Runs Approved Deduplication of Funding Process

6. Eligible Entity Runs Approved Challenge Process

7. Eligible Entity Runs Another Deduplication of Funding Process

8. Eligible Entity Submits Challenge Results to NTIA

9. NTIA Reviews and Validates Challenge Results

10. NTIA Communicates Determination to Eligible Entity

11. Eligible Entity Publishes Final Determinations

NOFO Language

NOFO Section I.B.2:
Eligible Entities must submit **any successful challenges to NTIA for review and approval**.

NOFO Section IV.B.6:
After resolving each challenge and at least 60 days before allocating grant funds for network deployment, an Eligible Entity must provide public notice of the final classification of each unserved location, underserved location, or Eligible Community Anchor Institution within the jurisdiction of the Eligible Entity.

[…] Pursuant to the discretionary authority granted to the Assistant Secretary in the Infrastructure Act, **NTIA may reverse the determination of an Eligible Entity** with respect to the eligibility of a particular location or community anchor institution.

NOFO Section IV.B.9
The Final Proposal must include, at a minimum: […]
6. **Description of the results of the challenge process** conducted by the Eligible Entity under Section IV.B.6.

NTIA reviewers will validate an Eligible Entity's submitted challenge results against two standards of review.

An Eligible Entity's challenge results will receive approval by meeting requirements outlined in the Infrastructure Act and the standards of review outlined below. NTIA will defer to the discretion of the Eligible Entity to adjudicate challenges if the standards of review outlined below are met:

NTIA Reviewers Will Validate the Following Criteria:

The Eligible Entity followed its NTIA-approved challenge process.

- The Eligible Entity followed its challenge process as described in its Initial Proposal Volume I.
- The Eligible Entity followed its NTIA-approved plan for pre-challenge modifications and deduplication of enforceable commitments.
- The Eligible Entity reflected all successful challenge results determinations in the final lists of served, unserved & underserved locations, and eligible CAIs.

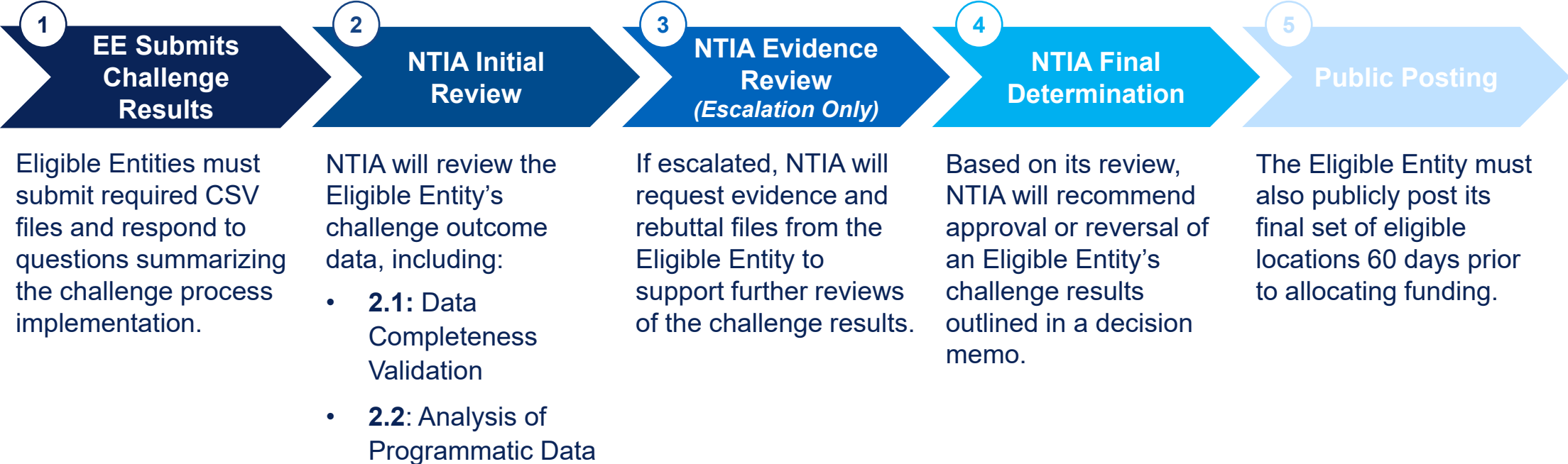**There is no material evidence to indicate the challenge determinations were unreasonable.**

- For example, concerns about reasonableness could be raised by complaints from a provider, unit of local government, or non-profit that could include a significant deviation from the challenge success or rejection rate of other Eligible Entity, insufficient documentation of the basis for a location determination, a lack of clarity on the type of evidence used to adjudicate a specific type of challenge, etc.
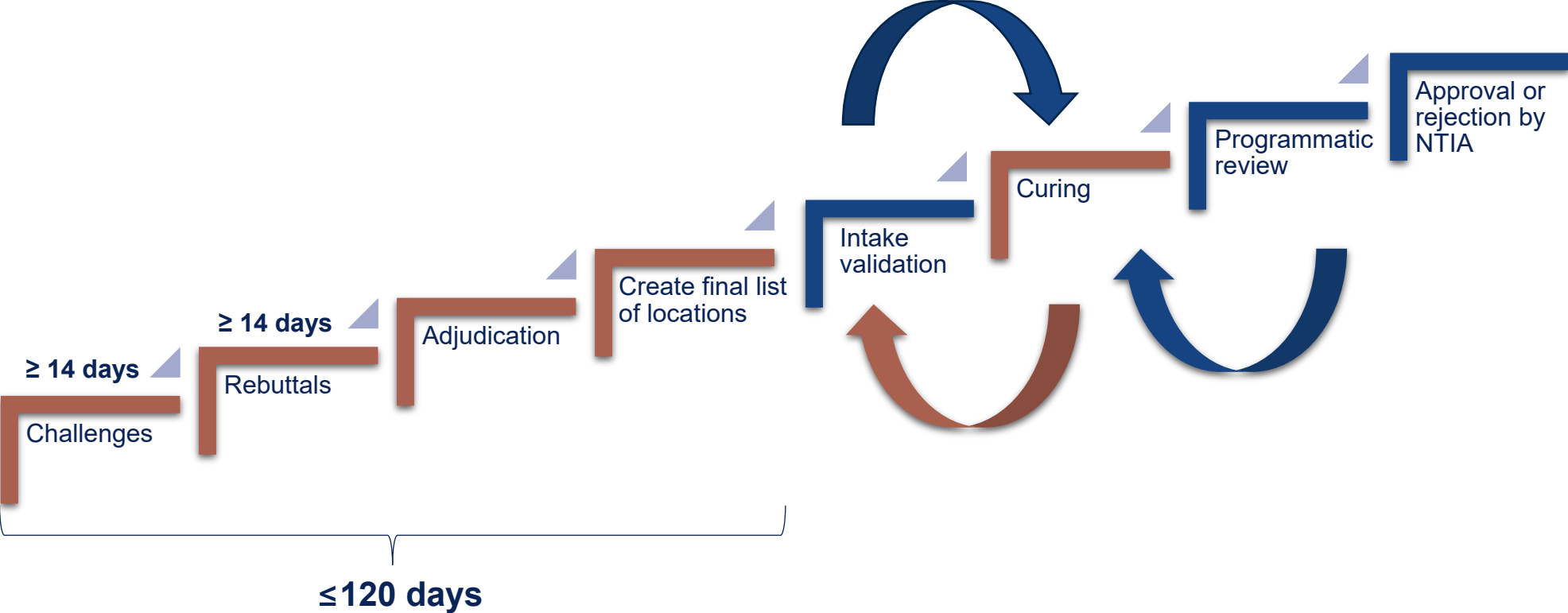
Challenge Results Review | Process Overview

Once an Eligible Entity completes its challenge process and post-challenge deduplication of funding process, it must submit the challenge results for NTIA review.

1 EE Submits Challenge Results	**2** NTIA Initial Review	**3** NTIA Evidence Review *(Escalation Only)*	**4** NTIA Final Determination	**5** Public Posting

1 — Eligible Entities must submit required CSV files and respond to questions summarizing the challenge process implementation.

2 — NTIA will review the Eligible Entity's challenge outcome data, including:

- **2.1:** Data Completeness Validation
- **2.2**: Analysis of Programmatic Data

3 — If escalated, NTIA will request evidence and rebuttal files from the Eligible Entity to support further reviews of the challenge results.

4 — Based on its review, NTIA will recommend approval or reversal of an Eligible Entity's challenge results outlined in a decision memo.

5 — The Eligible Entity must also publicly post its final set of eligible locations 60 days prior to allocating funding.

How long will Challenge Results Review take?

The challenge results review will take an estimated 30-60 days, depending on the issues encountered and required curing.

≥ 14 days Challenges

≥ 14 days Rebuttals

Adjudication

Create final list of locations

Intake validation

Curing

Programmatic review

Approval or rejection by NTIA

≤120 days

Challenge Results Intake

The Eligible Entity will submit the required summary questions and data to NTIA for review.

Required Summary Questions

1. For the National Broadband Map used in the challenge process, what was the "availability data as of" date?
2. What was the updated publication date of the National Broadband Map Broadband Availability data used in the challenge process?
3. What was the publication date of the Federal Broadband Funding Map used for deduplication?
4. How many total challenges were received?
5. How many challengers were submitted by units of local government?
6. How many challenges were submitted by nonprofits?
7. How many challenges were submitted by broadband service providers?
8. How many challenges were resolved by each type of challenge disposition, listed in the Policy Notice? (Sustained (S); Rejected (R); Incomplete (I); The provider agreed with the challenge (A); The provider did not respond within the rebuttal deadline (N); The challenge was not resolved because it was moot due to another successful challenge for the same location (M))
9. On what date did the challenge submission window open?
10. On what date did the challenge submission window close?
11. On what date was the final challenge determination made?
12. Are there any other comments the Eligible Entity would like to share on the implementation of the challenge process?

Updated in BEAD Challenge Process Policy Notice Version 1.3

Required CSV Files

1. CHALLENGER.CSV TEMPLATE
A template that must be adopted by Eligible Entities to fulfill NTIA's requirement to submit a challenger CSV file, as outlined in the BEAD Policy Notice.

2. CHALLENGES.CSV TEMPLATE
A template that must be adopted by Eligible Entities to fulfill NTIA's requirement to submit a challenge outcome CSV file, as outlined in the BEAD Policy Notice.

3. CAI_CHALLENGES.CSV TEMPLATE
A template that must be adopted by Eligible Entities to fulfill NTIA's requirement to submit a CAI challenge outcome CSV file, as outlined in the BEAD Policy Notice.

4. POST_CHALLENGE_LOCATIONS.CSV TEMPLATE
A template that must be adopted by Eligible Entities to fulfill NTIA's requirement to submit a post-challenge process list of served, unserved, and underserved locations CSV file, as outlined in an upcoming update to the BEAD Policy Notice.

5. POST_CHALLENGE_CAI.CSV TEMPLATE
A template that must be adopted by Eligible Entities to fulfill NTIA's requirement to submit a post-challenge process list of eligible CAIs, as outlined in an upcoming update to the BEAD Policy Notice.

Intake Error Reporting

CAI.CSV

need	*need* contains Null datatype.
availability	*availability* is str but should be int.
location_id	*location_id* has duplicate entries.

CHALLENGER.CSV

category	*category* contains unallowed values.
contact_phone	*contact_phone* contains Null datatype.
provider_id	*provider_id* not present in approved provider ID list

CHALLENGES.CSV

provider_id	*provider_id* contains Null datatype.
location_id	*location_id* contains Null datatype.
reason_code	*reason_code* with availibilty challenges contains Null datatype.
resolution	*resolution* contains Null datatype.
advertised_download_sp	*advertised_download_speed* contains Null datatype.
download_speed	*download_speed* contains Null datatype.
advertised_upload_speed	*advertised_upload_speed* contains Null datatype.
upload_speed	*upload_speed* contains Null datatype.
latency	*latency* contains Null datatype.
challenge	*challenge* has duplicate entries.
location_id	*location_id* where technology and provider ID, does not match availability fabric.

Files	Columns	Message
All		Missing columns, wrong data types, unallowed enumerated value
CAI	location_id	Null values detected. These are only permissible with a valid combination of 'address_primary', 'city', and 'zip_code', or pair of 'latitude' and 'longitude'.
All		Null values detected. These values are required.
Challenges	technology	Null values detected. These are only permissible when challenge type is equal to 'N'.
Challenges	response_file_id	Null values detected. These are only permissible if there is no rebuttal date.
Challenges	provider_id	Null values detected. Required for all challenge entries.
Challenges	rebuttal_date	Null values detected. These are only permissible if disposition values are neither 'S' or 'N' and resolution date is not null.
Challenges	advertised speed	Null values detected. These are only permissible if challenge type is equal to 'N'.
Challenges	latency	Null values found. These are only permissible if challenge type is not 'L'.
CAI	zip_code	Unallowed value length detected. Length of values must be = 5.
Challenges	challenge	Unallowed value length detected. Length of values must be ≤ 50.
Challenges	challenge	Duplicate values detected. Column must be unique.
CAI	location_id, primary address, longitude/ latitude	Duplicate values detected. Column must be unique.

Data Check Messages | 2/2

File	Columns	Message
Challenges	rebuttal_date	Incorrect date order detected. Rebuttal date must be after challenge date and before resolution date.
Challengers	provider_id	Unapproved provider IDs detected. Provider IDs must be in approved provider ID list.
Challenges	location_id	Invalid technology and/or provider ID detected. These values must match the availability fabric if challenge type is not 'P', 'E', or 'N'.
Challengers	contact_email	Invalid email format detected.
CAI challenges	need	Invalid need detected. Speed must be between 0 and 10000.
All	location_id	Invalid Location IDs detected. Location IDs must be in Fabric and BDC.

Public Posting Validation

In the final step of the challenge results review and validation process, the state FPO will validate that the Eligible Entity has publicly posted its final location classifications.

PUBLIC POSTING VALIDATION STEPS

1. Once the Eligible Entity has publicly posted the final classification of each unserved and underserved location and eligible CAI, it must update NGP to reflect that public posting has occurred, including entering the website link where the locations were posted and the date they were posted.

2. Once the State FPO is notified via NGP that public notice has occurred, they must validate that the Eligible Entity has posted their final location classifications on a working and public-facing website.

Handling Various Challenge Types

Life Advice May Not be Applicable

"Challenges cannot possibly be good or bad. Challenges are simply challenges."

– Carlos Castaneda

"To be successful you must accept all challenges that come your way. You can't just accept the ones you like."

– Mike Kafka

Creating the Final Location List

- Eligible Entities *may* use a newer Broadband Data Collection (BDC) version than the one used for challenges

- Conceptually, divide into "present service" and "future service" challenges

- Present service challenges affect service advertised in the post-challenge process BDC

- Future service challenges affect future service, *not yet in the BDC*:

    - Enforceable commitments & planned service are factored in "deduplication"

- Only *successful* challenges are considered, i.e., **challenge resolutions A, N, or S**

    - Challenge entries with resolution I (incomplete), M (moot), or R (rejected) are **ignored**

"Present Service" Challenge Types

"Present service" challenge types are comprised of challenge types A, B, D, F, L, M, S, T, V, X, Y, and Z, and describe updates (corrections) to service that exists right now (in the BDC).

Availability challenges must contain advertised speed to allow mapping to BDC and should contain speed offered, if any (i.e., unless the provider is offering no service at all).

- Example: BDC shows gigabit service, but provider only offers 200/20 → still served.

Area challenges are captured for each location and service. Each location & service has its own challenge identifier, and the challenger is left blank because these are not (necessarily) attributable to one challenger.

- For clarity, consider adding "area challenge [unique identifier]" to the resolution column, e.g., "area challenger 51."

For challenge types that identify a unit **within an MDU,** determine whether they contest availability or speed for the *whole BSL (e.g., building) or just the unit*.

- If whole BSL, leave unit designation empty.
- If unit, matters only if Eligible Entity is using MDU challenges (for indoor wiring or Wi-Fi).

MDU Challenges

MDU challenges differ:

- Building served (e.g., fiber to the basement or common areas), but units (apartments) are not
  - i.e., location (BSL) "served" status does not change even if MDU challenge succeeds
- MDU challenge = A or S challenge *with unit identifiers*
- Not all buildings will be eligible for funding
  - Thresholds may not be known after challenge

Keep MDU (A, S) challenges with unit number and skip those challenges when computing location status list.

Installing internet and Wi-Fi infrastructure or providing reduced-cost broadband within a multi-family residential building, with priority given to a residential building that has ***substantial share*** of unserved households or is in ***a location*** in which the percentage of individuals with a household income that is at or below 150 percent of the poverty line applicable to a family of the size involved is higher than the national percentage of such individuals – *BEAD NOFO, pg. 33*

Pre-Challenge Modifications

All pre-challenge modifications are rebuttable (except the NTIA-approved DSL module).

In the challenges.csv file, pre-challenge modifications appear like regular challenges – except that the *challenger field is blank*.

- Pre-challenge modifications should all be entered for each location (e.g., each DSL location).

- Helpful to mark locations that were explicitly rebutted, and then mark the related outcomes.

The Eligible Entity's Initial Proposal Volume I must have been approved for these pre-challenge modifications.

New challenge types:

- **V**: DSL challenge ("VDSL")

- **F**: Fixed wireless pre-challenge modification (e.g., cellular)

- **M**: Measurement pre-challenge modification (anonymous / crowdsourced speed test data)

- **X, Y, Z**: EE-specific pre-challenge modifications (identify in narrative or IP Vol I during curing)

Future Service Challenges

Planned service challenges (P) are entered with the challenger identifier.

All future services from state funding records and Broadband Funding Map are treated like challenges, i.e., each gets a row (E).

- Because these are provided by the Eligible Entity, the challenger field is empty.

- **However, they must contain an FCC provider ID.**

- Consider immediate adjudication to avoid spurious rebuttals.

If somebody submits an E or P challenge for a location & service that is already in the post-challenge (newer) BDC version, this E/P challenge can be marked as moot.

Moot Challenges: Saving Time During adjudication

Eligible Entities may use a new challenge outcome, "moot" (M), for a given challenge if another accepted challenge makes deciding a challenge irrelevant or the challenge cannot affect the location status.

Using the moot challenge outcome is optional – an Eligible Entity can accept or reject it on evidence, too!

If a challenge (e.g., P) just replicates the existing service entry, it is not a "real" challenge and thus moot.

But do **not** mark as rejected merely because it doesn't change the outcome – confuses challenger and may yield questions.

- *"Why did you reject 90% of our challenges even though there was no rebuttal?"*

May be less work than accepting or rejecting on evidence and merit. Many of these adjudications can be done mechanically.

A brief explanation ("resolution") is helpful in case somebody asks later.

FALKLAND'S LAW

When there is no need to make a decision, don't make a decision.

Moot Challenge Examples

1. Two speed or availability challenges for same location & service.

2. Speed challenge (e.g., 80/10) for a DSL service in an EE using DSL pre-challenge modification.

3. Challenge to service that is not reliable broadband service (e.g., unlicensed fixed wireless).

4. Challenge to current service for location with accepted E (enforceable commitment) or P (planned service) challenge and there is no N challenge to the location (after the challenge window has closed).

Making Transparency Work

Most transparency plans require publishing the challenge list with outcomes:

challenges.csv & cai_challenges.csv

- Check challenges.csv file for any personal information (e.g., names of individuals).

- Which parts of challenger.csv file should be published?

  - Document reasoning in EE standard operating procedure or standards of review.

  - Example: telephone numbers and email addresses are likely unnecessary for transparency.

- Consider adding an explanation to the challenge outcome files to reduce questions and concerns.

  - Explain columns and basic standards of review.

- Add context to rationale column (e.g., area challenges and why a challenge was adjudicated as moot).

Challenge Data Pipeline

File Data Flow for BSLs (Locations)

BDC

Use desired version.

May be later than version used for challenges!

challenges.csv

References

challenger.csv

BFM

Use most recent version.

post_challenge_locations.csv
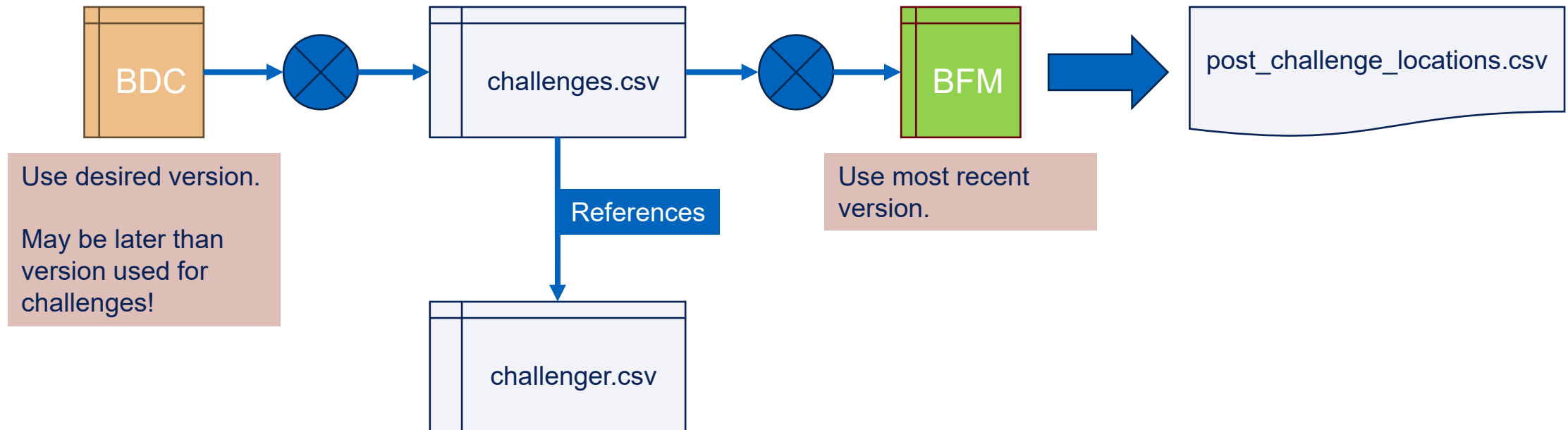
File Data Flow for CAI Files
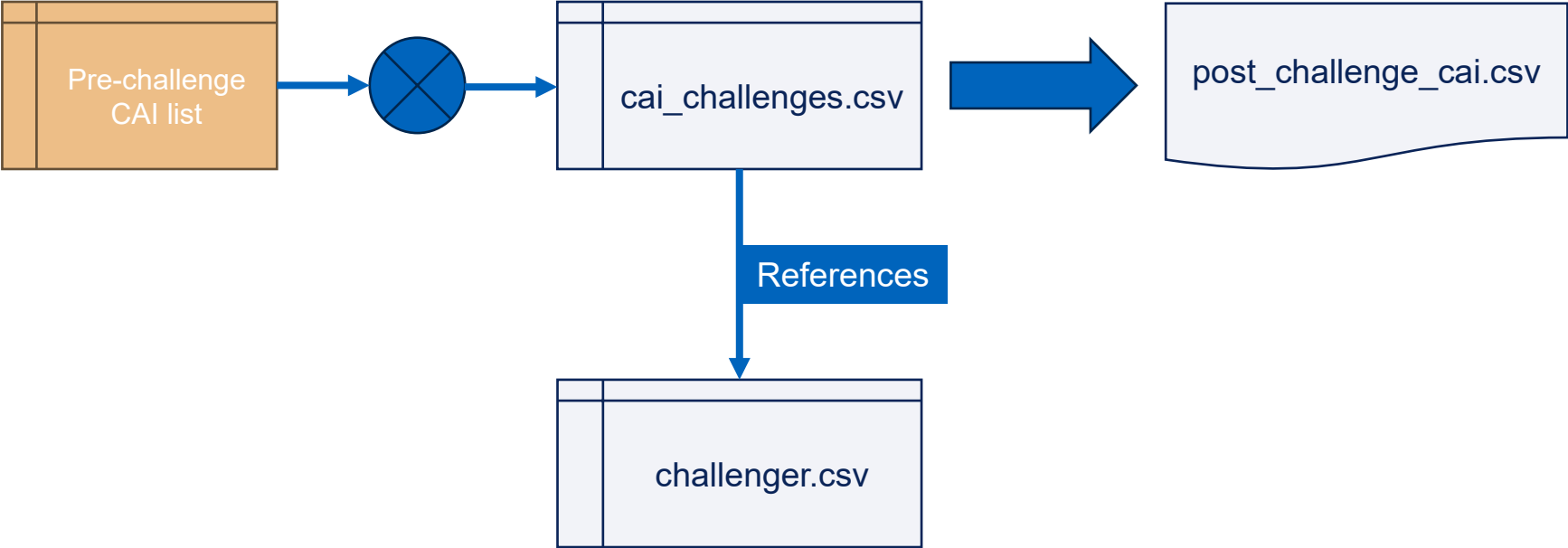
A Database Model

Eligible Entities can use any method to implement the location logic; a database abstraction is explored here.

- Each BDC entry for your state or territory gets a row in table `bdc`.

- Each (successful) challenge *or enforceable commitment* creates a row in `challenges`.

- Add a `service` column to `bdc` table that reflects service *contribution*:

  - 0 = unserved

  - 1 = underserved

  - 2 = served

Initial Service Column Values

Create per-service (location + provider + technology) `service` column values using desired post-challenge BDC version (declared in NGP submission).

VALUE 0 (UNSERVED)

Initial service column for each BDC entry:

If `low_latency` = 0

OR `technology` IN (0, 60, 61, 70)

OR `max_advertised_download_speed` < 25

OR `max_advertised_upload_speed` < 3.

VALUE 1 (UNDERSERVED OR SERVED)

1 if `low_latency` = 1

AND `max_advertised_download_speed` in BETWEEN (25,99)

AND `max_advertised_upload speed` BETWEEN (3,19)

AND `technology` IN (10, 40, 50, 71, 72)

2 if `low_latency` = 1

AND `max_advertised_download_speed` ≥ 100

AND `max_advertised_upload_speed` ≥ 20

AND `technology` IN (10, 40, 50, 71, 72)

Present Service Challenges

Challenge Type	Effect on BDC service data	Notes
A	Set service to 0 or 1, depending on speed reported.	
B	Set service to 0.	
D	Set service to 0.	
F	Set service to min(1, service) if BDC technology = 71 or 72.	Error if not fixed wireless technology.
L	Set service to 0.	
M	Set service to 1 or 0, depending on speed measured. If speed is ≥100/20, no change.	
S	Same as M.	See M.
T	Set service to 0 if technology changes to 60, 70 or 10 (if state has DSL pre-challenge modification). No change otherwise (e.g., 40 to 50).	Update based on resolution. Only relevant if new technology is not reliable broadband.
V	Set service to min(1, service).	Error if no DSL at location. Do not change if service = 1.
X, Y, Z	Set service to 0 or 1, depending on modification.	

Note: DSL and fixed wireless or cellular modification only change to "underserved" (1). Underserved (and unserved) service entries remain unchanged. MDU challenges do not change the BSL service level.

Turning Challenges Into Service Changes & Additions

All challenges, including future service ("deduplication"), become rows in the bdc table.

STEPS

1 Apply all "present service" challenges *other than MDU challenges*. Multiple challenges for the same location and service offering can be applied in any order. Effective service: smallest of current service level and all challenges.

2 Mark entries subject to N challenges as 0 in column AC in the BFM.

3 Add remaining BFM entries as rows to the BDC data, using anticipated speed and technology, with service level 1 or 2 depending on speed.

4 Add E and P challenges as new rows to BDC data, using anticipated speed and technology.

Computing the Final Location List

The business_residential_code flag is ignored.

GROUP BY `location_id`. Service level = max(service) for each location_id.

```
INSERT INTO post_challenge_locations (location_id, service)

SELECT location_id, MAX(service) as service

FROM bdc

WHERE state = 'XY'

GROUP BY location_id
```

Changes in the February 2024 Edition of the Policy Notice

Changes in the February 2024 Policy Notice

- **Does not** change Eligible Entity Initial Proposal (including permissible challenges).

- **Does not** change how challenge process is conducted (deadlines, evidence, rebuttal, adjudication, …).

- **Does** change what data needs to be reported – new files.

- **Clarifies** how challenges other than individual-location service challenges should be reported.

OTHER (MINOR) CHANGES

- Challenge identifier can be a string (< 50 characters), e.g., hash.

- Type E challenges should identify name of program in "resolution" column.

- Use date of last rebuttal if there are several.

- Either concatenate PDF files or create zip file for multiple evidence file (if requested).

Updates to CAI-related Files

1. Requested new `post_challenge_cai.csv` file.

2. Clarified that `cai_challenges.csv` rows are followed by the `cai.csv` entry to identify the CAI.

    - Not a change but was easy to miss.

3. FRNs are strings with leading zeroes.

Hints on Data Quality

Data Quality Checks – Reducing Curing Cycles

Does the format **correspond exactly** to the policy notice requirements?

- Examples: single letter vs. string; number vs. text

Challenger contact information must be complete (e.g., email and phone).

Challenge identifiers must be *unique* for each row (location + service)

- Even for area challenges and pre-challenge modifications.

Service must exist at that location in chosen BDC version.

- Besides errors, can happen if new BDC filing has removed service.

- If not, mark as incomplete (I) with rationale.

Latency field should not be empty in L challenges.

Provider field in E, N, P cannot be empty.

Provider field must be a valid entry (exist in FCC list).

Data Quality Checks for CAI files

1. Was there an attempt to find all location IDs that are available – will make your Final Proposal submission much easier!

2. Are there duplicate location IDs for different addresses?

3. Are there duplicate geo locations for different CAIs?

   • May happen (several CAIs in same building), but likely rare.

4. Are the speed entries valid (i.e., single integer, no units)?

Q&A

Good luck with your challenge process!

Please address questions to your FPO, who will find the answer