

AHIP Housing Analytics Reference Guide

Core data sources, KPI definitions, data-quality controls, and local adaptation checks

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Purpose of this release

This concise public-benefit guide summarizes the main housing data sources, KPI definitions, quality controls, and local adaptation checks used by AHIP. It does not claim government adoption, endorsement, partnership, or national deployment.

1. Purpose

This guide provides a concise reference for the main public datasets, indicators, and quality controls used in the AHIP minimum viable product. It is designed to help another U.S. jurisdiction or housing organization understand what information is needed before adapting the framework.

2. Core Data Sources

Dataset	Publisher	Primary use	Coverage	Refresh	Key limitation
ACS 2020-2024 5-Year	U.S. Census Bureau	Income, rent, home value, tenure, vacancy, poverty, and cost burden	U.S., state, county and smaller geographies	Annual	Preserve margins of error; 5-year estimates pool 60 months.
CHAS 2018-2022	HUD	Low-income housing need, housing problems, and burden by income and tenure	U.S., state, county, place, tract and other geographies	Irregular	Counts use disclosure controls and rounding; use published totals.
Building Permits Survey	U.S. Census Bureau	Authorized residential units and structure type	U.S., state, metro, county and place	Monthly and annual	Permits are authorizations, not starts or completions.
Vintage 2025 Housing Unit Estimates	U.S. Census Bureau	Housing-stock level and growth	U.S., state and county	Annual	Use one vintage only; newer vintages supersede earlier estimates.
Vintage 2025 Population Estimates	U.S. Census Bureau	Population level, growth, and denominator measures	U.S., state and county	Annual	Use one vintage only; values are revised across the time series.
The Gap 2026	NLIHC	Extremely low-income rental shortage and homes per 100 renter households	U.S., state and major metro	Annual report	Use as a benchmark; do not allocate metro or state values to counties.
TIGER/Line Boundaries	U.S. Census Bureau	County geometry and geographic codes for mapping	U.S. and territories	Annual	Contains geography, not demographic measures; match boundary vintage.

3. Essential KPI Dictionary

Indicator	Grain	Definition	Interpretation control
Median household income	County-year	ACS published estimate	Income context; retain MOE.
Median gross rent	County-year	ACS published estimate	Cash rent plus utilities under ACS definition.
Renter cost-burden rate	County-year	Renter households paying at least 30% / renter households with burden computed	Exclude "not computed" from denominator.
Severe renter burden rate	County-year	Renter households paying at least 50% / renter households with burden computed	Use correct category boundaries and derived uncertainty.
ELI renter severe burden rate	County-period	Severely burdened ELI renters / ELI renter households	CHAS rounding can affect small areas.
Permitted residential units	County-year	Total units authorized	Authorization, not construction completion.
Permits per 1,000 population	County-year	Permitted units / population x 1,000	Align permit and population periods.
Housing-unit growth	County-vintage	(Latest units - base units) / base units x 100	Do not mix vintages.
Population growth	County-vintage	(Latest population - base population) / base population x 100	Do not mix vintages.
Demand-supply growth gap	County-vintage	Population growth % - housing-unit growth %	Planning signal, not a causal measure.
Priority score	County reference set	Governed weighted score using approved components	Project method, not an official ranking; requires sensitivity testing.
Median days to issuance	Permit record population	Median of application-to-issuance calendar days	Does not equal agency review time unless separately supported.
90th-percentile days	Permit record population	Duration at or below which 90% of records fall	Describes the long tail; threshold is not a performance judgment.
Share over threshold	Permit record population	Records above approved threshold / valid records x 100	Flags records for review, not confirmed bottlenecks.

4. Minimum Data-Quality Checklist

Control	Minimum requirement
Source of record	Use the official publishing agency as the authoritative source; mirrors are not authoritative.
Version and provenance	Record vintage, release date, file name, URL, retrieval date, and checksum or file hash.
Geography	Keep state FIPS as two digits and county GEOID as five digits; verify geographic joins.
Uniqueness	Confirm that each source, geography, and reference period has one valid record.
Valid ranges	Counts must be nonnegative; percentages must remain between 0 and 100.
Rates	Numerators cannot exceed denominators; zero denominators return null, not zero.

Control	Minimum requirement
ACS uncertainty	Retain estimate/MOE pairs and flag statistically weak estimates rather than silently removing them.
CHAS controls	Use published totals and document rounding, suppression, or category changes.
Time alignment	Show the source period on every published output and avoid mixing incompatible years or vintages.
Join integrity	No fact record should join to multiple geography records; log missing or unmatched areas.
Lineage	Trace each published KPI to its formula, source fields, source file, and transformation steps.
Release review	Errors block publication; warnings require documented review and disposition.

5. Local Adaptation Checklist

- Confirm the local business question and intended decision before selecting data.
- Map local permit types, status labels, milestone dates, pause conditions, and agency responsibilities.
- Create a local data dictionary and KPI approval record.
- Separate national context from local operational data.
- Validate missing dates, duplicates, invalid event sequences, and inconsistent categories.
- Obtain local subject-matter review before assigning causes or comparing jurisdictions.
- Document exclusions, assumptions, data limitations, and any changes to formulas or thresholds.
- Assign a release owner, version number, refresh schedule, and change history.

6. Official Source Portals

[U.S. Census Bureau - 2020-2024 American Community Survey 5-Year Data](#)

[HUD USER - Comprehensive Housing Affordability Strategy \(CHAS\) Data](#)

[U.S. Census Bureau - Building Permits Survey](#)

[U.S. Census Bureau - Population and Housing Unit Estimates](#)

[National Low Income Housing Coalition - The Gap 2026](#)

[U.S. Census Bureau - 2025 TIGER/Line Shapefiles](#)

Source-use rule: Before every refresh, confirm the release year, file schema, geographic coverage, official definitions, and known revisions. A newer file should not be substituted without an impact review.

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