

Arizona July 1, 2024 Population Estimates – Methodology

A. Group Quarters Population (GQ Pop)

1. Establish the total GQ population in each place (incorporated place or unincorporated balance of county) as of Census 2020 adjusted for the results from the Count Question Resolution (CQR) program and the Post Census Group Quarter Review (PCGQR) program. For Goodyear, Tempe, Florence, and Yuma, implied PCGQR adjustments are calculated from the Census Bureau's Vintage 2022 GQ base and Vintage 2023 GQ base. For Phoenix, the submitted adjustment is used because the Census Bureau's Vintage 2023 estimates did not reveal the size adjustment.
2. Track the GQ population of major facilities annually starting April 2020 and for each subsequent year (using May 1 or July 1 as the reference day).
3. Find the change in GQ population in these facilities between April 2020 and the estimate year. If data is missing for either April 2020 or for the estimate year, then that record is not used in calculating the change. Aggregate these changes at the place level.
4. Estimate GQ population of each place by adding the base GQ population from Step 1 and the population change from Step 3.
5. The sum of GQ populations of all places within a county is the GQ population estimate for that county.

B. Housing Units (HU) and Household Population (HH Pop)

1. Start with the Census 2020 housing units, household population, and persons per housing unit, for each sub-county jurisdiction, taking into account the results of the CQR program.
2. Determine the July 1, 2024 housing unit stock by adding cumulative completions or building permits between Q2 2020 and Q2 2024 to the Census 2020 housing stock. For permits, a six-month lag is assumed for single-family units and 2-to-4-unit buildings; a 12-month lag is assumed for 5-plus-unit buildings. It is assumed that 98% of permits are built. Mobile homes are assumed to be in place the same quarter they are permitted with a 100% placement rate. Find the number of demolitions for the entire period and subtract them from the housing stock.
3. Annexed housing units are added to the housing stock for the acquiring jurisdiction and are subtracted from the housing stock of the losing jurisdiction. The result is the housing unit estimate for July 1, 2024.
4. Identify the pre-annexation housing unit stock for each jurisdiction at the end of FY2024 (completions – demolitions). Multiply this by persons per housing unit from Step 1. This gives the pre-annexation household population estimate.
5. Obtain the cumulative annexed/deannexed household population. The annual annexed populations were reported by the jurisdictions based on ground knowledge of the area or block level population from the 2020 Census.

6. Add the results from Steps 4 and 5. This is the uncontrolled household population estimate for July 1, 2024.

7. Aggregate uncontrolled household population at the county level.

C. Modified Composite Method of Population Estimates

1. Start with the July 1, 2023 population by age group as produced last year, updated with revised Medicare data and newly available Social Security data.

2. Find the percent change of indicator data from 2023 to 2024.

2.1. 0-4: Births that survived within 5yrs prior to the estimate date

2.2.1. 5-17: Public school enrollment data (October 1, 2022 to October 1, 2023)

2.2.2. 5-17: Public school ADM data (FY2023 to FY2024)

2.2.3. The impact of Empowerment Scholarship Accounts (ESA) is incorporated. Based on information we obtained from the Arizona Department of Education (ADE), the change of ESA student counts between June 2023 and June 2024 was calculated. According to the Q4 FY2024 ADE report to the Governor and legislative leadership, 47.6 percent of universal eligibility ESA students attended a public school immediately before enrolling in the ESA program. We applied 47.6% to the year-over-year change and arrived at an estimate of the number of new ESA students who would be counted in public school enrollment if they were not enrolled in the ESA program. We then add this number to the reported October 1, 2023 enrollment (the latest available), making it comparable with the October 1, 2022 enrollment. We calculate the percent change between the October 1, 2022 enrollment and the adjusted October 1, 2023 enrollment. ADM is generally smaller than enrollment. We used the FY2024 state total ADM and October 1, 2023 state total student enrollment to calculate an ADM to Enrollment ratio (=0.9744). That ratio is applied to the estimated new ESA count that was enrolled in a public school immediately prior to enrolling in ESA. The result is estimated ADM that needs to be added to the reported FY2024 ADM to make it comparable with the FY2023 ADM.

2.2.4. Take the average of the year-over-year percent change of public school enrollment and the year-over-year percent change of public school ADM (after factoring in the year-over-year change of ESA enrollment).

2.3. 18-64: Driver license/ID data from the Arizona Department of Transportation (ADOT), October 1, 2023 and October 1, 2024.

2.4.1. 65+: Medicare enrollment, June 2023 and June 2024.

2.4.2. 65+: Social Security Old enrollment for 65+, December 31, 2022 to December 31, 2023.

3. Apply the percent change to 2023 population by age group to get 2024 population estimates by age group. Sum age groups and get total population.

4. Subtract GQ population to get household population.

D. Controlled Household Population

1. Take the weighted average of the HH Pop from Step B.7 (40%) and Step D.1 (60%). This is the controlled HH Pop at the county level.
2. Divide the county-level controlled HH Pop (Step D.2) by the uncontrolled HH pop (B.7) to get the control factor for the county.
3. Multiply place-level uncontrolled HH Pop (B.6) to get the controlled household population for the place.

E. Aggregation

Place-level estimates are finalized by adding the GQ population and household population at the jurisdiction level.

County population estimates are sums of population estimates for all jurisdictions (including cities and towns and the unincorporated balance of county) within the county. The State population estimate is the sum of population estimates for all counties.

Maricopa County and Pinal County

OEO adopted the sub-county population estimates produced by the following councils of governments:

Maricopa Association of Governments (MAG) made sub-county population estimates for jurisdictions within Maricopa County. In cooperation with Central Arizona Governments (CAG), MAG made sub-county population estimates for jurisdictions within Pinal County. They use OEO's estimates of total household population and GQ population for the two counties. However, their method of estimating household population for sub-county jurisdictions is slight different from that used by OEO. The MAG methodology can be referenced at:

https://o eo .az.gov/sites/default/files/data/popest/2024_Estimates/pop-estimates2024-MAG-method.pdf