



MEMO

TO: NWARPC Technical Advisory Committee
FROM: NWARPC Staff
DATE: March 14, 2024
RE: Arkansas Economic Development Institute (AEDI) 2050 Population Projections

BACKGROUND

In preparation for the Northwest Arkansas Regional Planning Commission's (NWARPC) work on the 2050 Metropolitan Transportation Plan, NWARPC partnered with AEDI and demographer, Dr. Jessica Omoregie, Ph.D., to prepare updated population projections for Washington and Benton County through 2050. This memo will outline the methodology used for the population projections and report the results of the model.

METHODOLOGY

The population projections were reached using the cohort component model, the most widely used population projection method by demographers. The cohort component method breaks down the total population into age cohorts to analyze differences in mortality, fertility, and migration patterns.

The methodology includes a four-step process:

Step 1: Calculate the number of people surviving the end of the five-year projection interval. This is done by applying age specific survival rates to both the female and male age cohorts. These survival rates show the probability of surviving throughout the projection interval.

Step 2: Project the migration.

Step 3: Project the number of births. This is done by applying age specific birth rates to the female population in each age cohort.

Step 4: Add the number of male and female births. This will serve as the base population and will be repeated until the target year projection year is reached.

Assumptions

Fertility: As mentioned above, age and race-specific fertility rates are developed for each county. An age specific fertility rate is the number of live births to women from age cohorts 14-19 to 40-44 and then divided by the total number of women in that age cohort. Fertility rates are prepared at five-year intervals.

Survival: The survival rate is the probability that an age cohort will survive from one period to the next. Survival rates are projected by age race, and sex for each county. They are prepared at five-year intervals.

Migration: Net migration rates are used to project the number of male and female age cohorts who move in and away from the area. They are prepared at five-year intervals.

The primary data sources are:

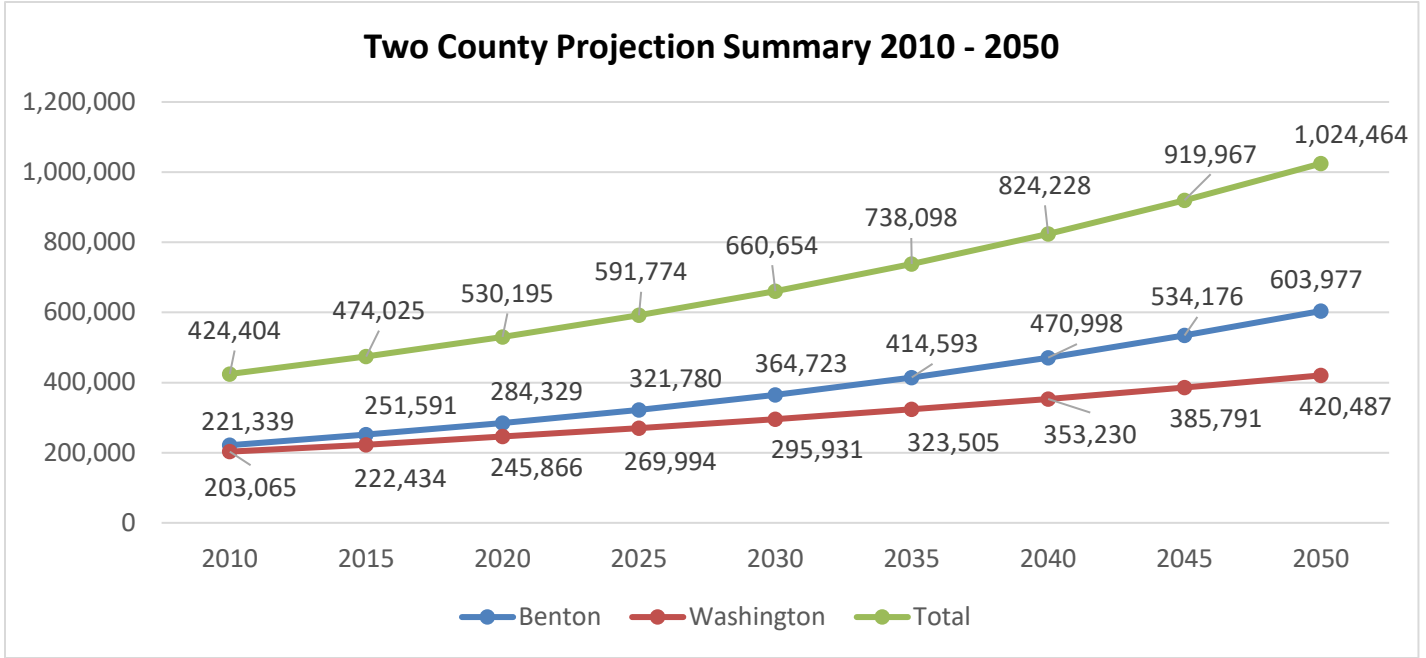
- *The Decennial Census*, the official count of the resident population and housing units. The last Census was completed in 2020. The 2010 Census served as the baseline for these projections.
- *CDC WONDER* was used to acquire the fertility rates for both counties. The 2010 numbers are derived from the 2010 Census that reflect the population as of April 1.
- *Arkansas Department of Health* was the source for the birth and deaths counts for each county.

The model inputs, developed within Microsoft Excel, are as follows for each county:

- total population by age, race, and sex
- survival rates by age, race, and sex
- fertility rates by age and race
- net migration rates

RESULTS - OVERALL

AEDI Population Projections for NWA - Cohort Component Model									
Year	2010	2015	2020	2025	2030	2035	2040	2045	2050
Benton	221,339	251,591	284,329	321,780	364,723	414,593	470,998	534,176	603,977
Washington	203,065	222,434	245,866	269,994	295,931	323,505	353,230	385,791	420,487
Total	424,404	474,025	530,195	591,774	660,654	738,098	824,228	919,967	1,024,464



AEDI Projected Population - Cohort-Component Model													
	2030	2020 to 2030			2040	2030 to 2040			2050	2040 to 2050			2020 to 2050
		Numeric	%	AAGR		Numeric	%	AAGR		Numeric	%	AAGR	
Benton	373,845	89,512	31.48%	2.77%	487,001	113,156	30.27%	2.68%	646,568	159,567	32.77%	2.87%	362,235
Washington	297,280	51,409	20.91%	1.92%	353,172	55,892	18.80%	1.74%	419,528	66,356	18.79%	1.74%	173,657
Total	671,125	140,921	26.58%	2.38%	840,173	169,048	25.19%	2.27%	1,066,096	225,923	26.89%	2.41%	535,892

RESULTS – ETHNICITY / RACE

		2010	2015	2020	2025	2030	2035	2040	2045	2050
		Benton	Non-Hispanic Black	2,660	4,141	5,343	7,487	10,485	14,736	20,414
	Hispanic	34,283	40,787	49,097	58,481	69,696	82,911	97,669	113,738	131,338
	Non-Hispanic Other	14,512	19,473	25,326	32,263	40,819	51,887	65,828	82,902	102,071
	Non-Hispanic White	169,884	187,190	204,563	223,549	243,723	265,059	287,087	309,447	332,359
	Total	221,339	251,591	284,329	321,780	364,723	414,593	470,998	534,176	603,977

		2010	2015	2020	2025	2030	2035	2040	2045	2050
		Washington	Non-Hispanic Black	5,859	7,108	8,594	10,382	12,400	14,566	17,100
	Hispanic	31,458	36,746	42,436	49,068	56,818	65,588	75,299	85,501	96,435
	Non-Hispanic Other	14,991	18,860	22,704	27,600	33,323	39,989	48,537	58,016	68,895
	Non-Hispanic White	150,757	161,720	172,132	182,944	193,390	203,362	212,294	222,212	231,732
	Total	203,065	224,434	245,866	269,994	295,931	323,505	353,230	385,791	420,487